

UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL MARINE FISHERIES SERVICE Silver Spring, MD 20910

#### ENVIRONMENTAL ASSESSMENT ON

#### ISSUING A SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT TO THE MARINE MAMMAL HEALTH AND STRANDING RESPONSE PROGRAM TO INCLUDE HOT BRANDING, UNMANNED AIRCRAFT SYSTEMS, AND VACCINATIONS

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Location:	U.S., high seas, and foreign EEZ waters

**Abstract**: The National Marine Fisheries Service (NMFS) proposes to issue a permit to the NMFS Marine Mammal Health and Stranding Response Program (MMHSRP) for takes of marine mammals under NMFS jurisdiction for enhancement and research, pursuant to the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*) and the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*, and the Fur Seal Act of 1966 (16 U.S.C. 1151 *et seq.*). The permit would be valid for five years and would authorize the MMHSRP to continue to conduct emergency response of ESA-listed marine mammals, disentanglements of and health-related research on marine mammals, and collection, receipt, transfer, import, export, analysis, and curation of marine mammal parts.

The Final Programmatic Environmental Impact Statement (PEIS) for the MMHSRP (NMFS 2009a) evaluated the MMHSRP's entire program, including various enhancement and research activities permitted by NMFS and conducted by government employees, stranding agreement holders, and researchers. The analyses and conclusions in that PEIS are still valid as applied to the MMHSRP activities covered under the proposed new 5-year permit. Relevant sections of the PEIS are incorporated by reference in this EA pertaining to the majority of permitted activities previously analyzed. The EA focuses its analysis on three activities not analyzed in that PEIS: (1) hot branding, (2) unmanned aircraft system (UAS) use, and (3) vaccinations.





# TABLE OF CONTENTS

CHAP'	TER 1	PURPOSE OF AND NEED FOR ACTION	3
1.1	DESCR	IPTION OF ACTION	3
1.2	OTHE	R EA/EIS DOCUMENTS THAT INFLUENCE SCOPE OF THIS EA	6
1.3	SCOPE	NG SUMMARY	7
1.4	APPLI	CABLE LAWS AND NECESSARY FEDERAL PERMITS	8
СНАР	TER 2	ALTERNATIVES INCLUDING THE PROPOSED ACTION	10
2.1	ALTER	NATIVE 1 – NO ACTION	10
2.2	ALTEF	NATIVE 2 – ISSUANCE OF PERMIT (INCLUDING HOT BRANDING, UAS, AND	
VAC	CCINAT	ONS) WITH STANDARD CONDITIONS	10
СНАР	TER 3	AFFECTED ENVIRONMENT	14
3.1	INTRO	DUCTION	14
3.2	BIOLO	GICAL ENVIRONMENT	15
3.3	WATE	R AND SEDIMENT QUALITY	17
3.4	CULTU	JRAL RESOURCES	17
3.5	HUMA	N HEALTH AND SAFETY	18
3.6 S	OCIOEC	ONOMICS	18
CHAP	TER 4	ENVIRONMENTAL CONSEQUENCES	19
4.1	INTRO	DUCTION	19
4.2	EFFEC	TS OF ALTERNATIVES ON THE BIOLOGICAL ENVIRONMENT	19
4.3	WATE	R AND SEDIMENT QUALITY	26
4.4	CULTU	JRAL RESOURCES	26
4.5	HUMA	N HEALTH AND SAFETY	27
4.6	SOCIO	ECONOMIC	27
4.7	SUMM	ARY OF COMPLIANCE WITH APPLICABLE LAWS AND NECESSARY FEDERAL	
PEF	RMITS		28
CHA	APTER 5	MITIGATION MEASURES	29
CHA	APTER 6	CUMULATIVE EFFECTS	31
CHA	APTER 7	LIST OF PREPARERS AND AGENCIES CONSULTED	32
CHAP	TER 8	LITERATURE CITED	33
APPEN	NDIX 1.	STOCK ASSESSMENT REPORT SUMMARY INFORMATION	36
APPEN	NDIX 2.	FAKE TABLES	44

#### CHAPTER 1 PURPOSE OF AND NEED FOR ACTION 1.1 DESCRIPTION OF ACTION

In response to receipt of a request from NMFS' Marine Mammal Health and Stranding Response Program (MMHSRP; File No. 18786), NMFS proposes to issue a permit that authorizes "takes"<sup>1</sup> of marine mammals pursuant to the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*); the regulations governing the taking and importing of marine mammals (50 CFR Part 216); the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*); the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226); and the Fur Seal Act of 1966 (16 U.S.C. 1151 *et seq.*).

The maximum duration of any permit issued is 5 years. In accordance with Federal Regulations (50 CFR 216.39), the duration of a permit may be extended for up to one year via a minor amendment to allow uninterrupted continuation of research if a new 5-year permit application has been received and is in-process. In such cases, no additional takes would be authorized during the extension year; any takes that were allocated for the 5<sup>th</sup> year of the permit that were not used may be used during the extension (6<sup>th</sup> year).

# 1.1.1 Background

In 1992, Title IV of the Marine Mammal Protection Act (MMPA) enacted the <u>Marine Mammal</u> <u>Health and Stranding Response Program (MMHSRP)</u> to facilitate the collection and dissemination of reference data and assess health trends; correlate marine mammal health with available data on physical, chemical, biological and environmental parameters; and coordinate responses to marine mammal strandings and unusual mortality events (UMEs). This data may be obtained through takes of marine mammals pursuant to Section 109(h) of the MMPA and 50 CFR 216.22, which authorizes Federal, State, or local government officials or persons designated under section 112(c) (i.e., Stranding Agreement<sup>2</sup> holders) to take marine mammals in a humane manner (including euthanasia) if such taking is for the protection or welfare of the mammal, the protection of the public health and welfare, or the nonlethal removal of nuisance animals.

An ESA permit is required for the taking if the response involves threatened or endangered species. An MMPA/ESA permit is also needed for scientific research, import/export, and other activities. The NMFS Permits and Conservation Division proposes to issue a new 5-year permit to the MMHSRP to continue carrying out Title IV mandates.

The Final Programmatic Environmental Impact Statement (PEIS) for the MMHSRP (NMFS 2009a; <u>http://www.nmfs.noaa.gov/pr/health/eis.htm</u>) evaluated the MMHSRP's entire program,

<sup>&</sup>lt;sup>1</sup>Under the MMPA, "take" is defined as to "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect." The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The term "harm" is further defined by ESA regulations (50 CFR §222.102) as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including breeding, spawning, rearing, migrating, feeding, or sheltering."

<sup>&</sup>lt;sup>2</sup> Stranding Agreements pursuant to MMPA section 112 authorize stranding network members to take marine mammals during emergency response activities pursuant to MMPA section 109h. An ESA permit is also required to conduct response activities on threatened or endangered species.

much of which does not require an MMPA/ESA permit to carry out. For example, not all Stranding Agreement holders work with ESA-listed species, and many MMHSRP response activities (e.g., emergency response for a bottlenose dolphin UME) do not require a permit and are not considered in this EA.

The Final PEIS considered several alternatives grouped into the following six topics: Stranding Agreements (SAs) and response; carcass disposal; rehabilitation activities; release activities; disentanglement; and biomonitoring and research activities requiring a permit.

NMFS developed a program which adopted and implemented actions described under the following six alternatives described in Chapter 2 of the Final PEIS:

- Alternative A4 (SAs and Response<sup>3</sup>): NMFS would implement final SA Criteria and new SA template would be used for all new SAs. NMFS would continue current and future stranding response activities under the SAs.
- Alternative B3 (Carcass Disposal<sup>3</sup>): The current methods of carcass disposal would continue. NMFS would recommend the removal of chemically euthanized animal carcasses off-site for disposal by incineration, landfill, or other methods.
- Alternative C3 (Rehabilitation Activities<sup>3</sup>): New SAs would be issued and NMFS would continue rehabilitation activities. NMFS would implement the final Rehabilitation Facility Standards.
- Alternative D3 (Release of Rehabilitated Animals<sup>3</sup>): New SAs would be issued and NMFS would continue current release activities, with the ability to modify release activities (adaptive changes) as necessary. NMFS would implement the final Release Criteria.
- Alternative E3 (Disentanglement Activities<sup>4</sup>): NMFS would continue current disentanglement activities on the U.S. east coast and modify activities on the U.S. west coast. NMFS would implement the final Disentanglement Guidelines and training prerequisites.
- Alternative F3 (Biomonitoring and Research Activities<sup>4</sup>): NMFS Office of Protected Resources issue the MMHSRP, an ESA/MMPA scientific research and enhancement permit. The permit includes current and future biomonitoring and research activities as well as emergency response of ESA-listed marine mammals.

The PEIS considered specific activities that would require authorization by permitting, including the above activities but in most cases only for ESA-listed species. NMFS proposes to issue a permit to the MMHSRP to continue current permitted activities and to allow new activities including: (1) the use of hot branding to identify pinnipeds; (2) the use of unmanned aircraft systems (UASs) or drones as a new technology to improve health assessments and responses to events such as entanglements, and (3) in the event that a viral or other disease outbreak occurs, the use of vaccines to preempt, shorten, or end a potentially serious unusual mortality event in

<sup>&</sup>lt;sup>3</sup> The proposed permit would only include ESA-listed marine mammals for these activities (stranding response, carcass disposal, rehabilitation, and release).

<sup>&</sup>lt;sup>4</sup> The proposed permit would include ESA-listed and non-listed marine mammals for these activities (disentanglement and biomonitoring/research). However, disentanglement of non-listed marine mammals can be performed pursuant to MMPA 109h.

affected marine mammal species. This environmental assessment (EA) addresses permitting these three new activities.

# 1.1.2 Purpose and Need

The primary purpose of issuing the requested permit is to provide an exemption from prohibitions under the MMPA and ESA and allow "takes" of marine mammals, including endangered species, for *bona fide* scientific research and enhancement purposes. The need for issuance of the permit is related to NMFS' mandates under the MMPA and ESA. Specifically, NMFS has a responsibility to implement both the MMPA and the ESA to protect, conserve, and recover marine mammals and threatened and endangered species under its jurisdiction. The MMPA and ESA prohibit takes of marine mammals and threatened and endangered species, respectively, with few exceptions, including for scientific research and enhancement purposes. Permit issuance criteria require that research and enhancement activities be consistent with the purposes and polices of these federal laws and not have a significant adverse impact on the species or stock.

The objectives of the proposed permitted activities are to:

(1) Carry out response, rescue, rehabilitation and release of threatened and endangered marine mammals under NMFS jurisdiction (Cetacea and Pinnipedia [excluding walrus]), and disentanglement of all marine mammals under NMFS jurisdiction, pursuant to sections 109(h), 112(c), and Title IV of the MMPA; and carry out such activities as enhancement pursuant to section 10(a)(1)(A) of the ESA;

(2) Conduct health-related, bona fide scientific research studies on marine mammals and marine mammal parts under NMFS jurisdiction pursuant to sections 104c and Title IV of the MMPA and section 10(a)(1)(A) of the ESA, including research related to emergency response that may involve compromised animals, and research on healthy animals that have not been subject to emergency response (e.g., baseline health studies);

(3) Conduct Level B harassment on all marine mammal species under NMFS jurisdiction incidental to MMHSRP activities in the U.S.; and

(4) Collect, salvage, receive, possess, transfer, import, export, analyze, and curate marine mammal specimens under NMFS jurisdiction for purposes delineated in numbers (1) and (2) above.

The MMHSRP effectively carries out the mandates of Title IV through:

- Operational efficiency To operate the MMHSRP effectively and efficiently, maximizing the benefits from opportunistic events while making the best use of limited resources;
- Quality data To collect data on marine mammal health and health trends in an organized and consistent manner to meet current and future information needs for appropriate conservation and management; and
- Safety To implement policies to ensure that MMHSRP activities are conducted humanely and in a manner that protects the safety of volunteers and the public to the maximum extent possible.

The purposes of permitting new actions (i.e., hot branding, UAS, and vaccinations) are to enhance the ability of the MMHSRP to carry out these objectives including responding to marine mammals in distress (e.g., stranded, entangled, out of habitat), and to answer research and management questions about marine mammal health. Stranded and distressed marine mammal response is conducted for many reasons including NMFS' legislative mandate and the need to obtain data for management and scientific purposes. Marine mammals are also sentinels of ecosystem health and may provide valuable links to human health. Response to marine mammals is also conducted out of a concern for animal welfare and ocean stewardship. NMFS is charged with the national oversight and collaboration of the MMHSRP, and development of policies applicable to all stranding network participants.

Hot branding would be permitted in some limited cases during emergency response involving pinnipeds to assess long-term survival and reproduction (e.g., pinnipeds exposed to oil spills in remote locations) or to mark vaccinated individuals. For example, in a remote location such as Alaska, hot branding may be the preferred method for permanent marking to allow long-term monitoring following an oil spill. For some species, hot brands may be more readable and effective compared to other permanent marks (i.e., freeze branding).

The use of unmanned aircraft systems (UASs) would be permitted to allow the MMHSRP to achieve their stated objectives by providing an additional tool for responses (e.g., to respond to stranding, entanglement, and/or out-of-habitat events) and research. This technology allows visual observation in close proximity to marine mammals in potentially hazardous situations for responders, allow responders to remain a greater distance away so as not to distress a marine mammal more than necessary, and gain data on a target animal's situation remotely. The most frequent use of UASs would be to carry a small camera to relay images to responders in real time or record video and still images that may be reviewed later of animals in distress, or carry another digital sensor such as thermal imaging.

Vaccination of animals including wildlife has been used as a management technique for years to eradicate infectious diseases that impact public, domestic animal, and wildlife health (Cross et al. 2007; Lombard et al. 2007; Meeusen et al. 2007). Vaccinations would be permitted to prevent the spread of infectious disease among animals. NMFS is committed to being prepared to rapidly respond to, if not prevent, outbreaks of the perceived greatest viral, bacterial, fungal or parasitic disease threats through vaccination/research and enhancement activities. Vaccinations can be protective of entire populations of animals by preventing the spread of infectious disease. Specific to vaccination programs, vaccine research would occur as needed in captive or rehabilitating marine mammals. Vaccination of wild populations, captive, or rehabilitating animals may also occur for enhancement and emergency response purposes.

# 1.2 OTHER EA/EIS DOCUMENTS THAT INFLUENCE SCOPE OF THIS EA

The PEIS for the MMHSRP (NMFS 2009a) covered the majority of activities of the MMHSRP, including those conducted under the current permit and those activities proposed under a new 5-year permit, excluding hot branding, UAS, and vaccinations. The proposed new 5-year permit would not change the location and would not substantially change the nature of the enhancement and research activities; thus, the PEIS analysis of effects of permitting these activities on the physical, social, and economic environment are largely incorporated by reference.

The new permit would authorize additional emergency response and research activities on all marine mammals; therefore, the scope of this EA is focused on the potential impacts to marine mammals from the three new activities proposed in the permit.

Although the MMHSRP PEIS did not address hot branding, UAS, or vaccinations, previous PEISs and EAs addressed these activities:

- The Final PEIS on the Steller Sea Lion and Northern Fur Seal Research Programs (NMFS 2007a); <u>http://www.nmfs.noaa.gov/pr/permits/eis/steller.htm</u>) comprehensively addressed hot branding for Steller sea lions. This PEIS concluded that use of hot branding would not likely result in mortality and thus, the effects of hot branding are not considered to be significant.
- The use of UASs has been addressed in the EA for Issuance of Permits to take Steller Sea Lions by harassment during surveys using UAS (NMFS 2014a); and SEAs for permit amendments Nos. 716-1705-01 (NMFS 2008) and 14097-04 (NMFS 2014b), which resulted in Findings of No Significant Impacts.
- The Final PEIS for Hawaiian Monk Seal Recovery Actions (NMFS 2014c); http://www.nmfs.noaa.gov/pr/permits/eis/hawaiianmonkseal.htm) included UAS and vaccinations of Hawaiian monk seals (*Neomonachus schauinslandi*) that are similar in methodology and purpose as the proposed MMHSRP permit. Chapter 4 of the PEIS concluded that based upon observations during manned aerial surveys (including large, low-flying aircraft systems), Hawaiian monk seals very rarely react to aircraft and when they do, typically only raise their heads momentarily. Thus, they are not likely to react to UAS. Vaccination would entail the risk associated with disturbance, injection and potentially capture/restraint. Other specific risks of vaccination may include an immune response, which can rarely result in a local reaction at the site of injection characterized by heat and swelling that resolves in 5-7 days, or febrile response (*i.e.*, fever). These effects are not considered to be significant.

# 1.3 SCOPING SUMMARY

The purpose of scoping is to identify the issues to be addressed and the significant issues related to the Proposed Action, as well as identify and eliminate from detailed study the issues that are not significant or that have been covered by prior environmental review. An additional purpose of the scoping process is to identify the concerns of the affected public and Federal agencies, states, and Indian tribes. CEQ regulations implementing the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) do not require that a draft EA be made available for public comment as part of the scoping process. However, this EA was made available for review concurrent with the public comment period for the permit application.

The MMPA and its implementing regulations governing issuance of special exception permits for scientific research (50 C.F.R. §216.33) require that, upon receipt of a valid and complete application for a new permit, and the preparation of any NEPA documentation that has been determined initially to be required, NMFS publish a notice of receipt in the *Federal Register*. The notice summarizes the purpose of the requested permit, includes a statement about whether an EA, SEA, EIS was prepared, and invites interested parties to submit written comments concerning the application and NEPA documentation.

The permit application File No. 18786 and draft EA were made available for public review and comment for 30 days (80 FR 24903) and were provided to the Marine Mammal Commission. The Commission commented that the proposed activities are consistent with the purposes and policies of the MMPA and therefore recommends that NMFS issue the permit, as requested. The Commission had no other comments. No other substantive public comments were received on the permit application, and no public comments were received on the draft EA.

# 1.4 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS

This section summarizes federal permits and consultation requirements necessary to implement the Proposed Action, as well as who is responsible for obtaining them.

#### 1.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) was enacted in 1969 and is applicable to all "major" federal actions significantly affecting the quality of the human environment, including issuance of MMPA and ESA permits. NEPA requires consideration of environmental issues in federal agency planning and decision making. The procedural provisions outlining federal agency responsibilities under NEPA are provided in the Council on Environmental Quality's (CEQ) implementing regulations (40 CFR Parts 1500-1508).

Procedures for NMFS' compliance with NEPA and CEQ regulations are established in NOAA Administrative Order (NAO) 216-6. NAO 216-6 specifies that issuance of scientific research and enhancement permits under the MMPA and ESA is among a category of actions that are generally exempted (categorically excluded) from further environmental review, except under certain circumstances. NMFS is preparing an EA for this action to supplement the analysis prepared in the Final PEIS for the MMHSRP permit and to provide an analysis of effects of permitting new activities, including effects to ESA listed species. This EA is prepared in accordance with NEPA, its implementing regulations, and NOAA 216-6.

#### 1.4.2 Endangered Species Act and Marine Mammal Protection Act

The ESA prohibits the take of endangered and threatened species unless a lawful exception is made, such as by issuance of a permit. Under Section 10(a)(1)(A) of the ESA, NMFS may grant permits to take ESA-listed species for scientific purposes or for enhancing the survival of the species. Section 7 of the ESA requires consultation with the appropriate federal agency for federal actions that "may affect" a listed species or adversely modify critical habitat. NMFS must ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat for such species. NMFS' issuance of a permit and carrying out research and enhancement activities affecting ESA-listed species are federal actions subject to these consultation requirements.

The MMPA established a moratorium on the take of marine mammals in the U.S. (including territorial seas) with a few exceptions. Section 104 of the MMPA provides and exception for issuance of permits for scientific research or to enhance the survival or recovery of a species or stock. Issuance criteria under the MMPA require such research to be *bona fide*<sup>5</sup> and conducted

 $<sup>^{5}</sup>$  The MMPA defines bona fide research as "scientific research on marine mammals, the results of which – (A) likely would be accepted for publication in a refereed scientific journal; (B) are likely to contribute to the basic

in a humane<sup>6</sup> manner. If lethal taking of a marine mammal is requested, the applicant must demonstrate that a non-lethal method of conducting research is not feasible. In the case of proposed lethal taking of a marine mammal from a stock listed as "depleted" NMFS must also determine that the results of the research would directly benefit the species or stock, or otherwise fulfill a critically important research need.

NMFS has promulgated regulations to implement the permit provisions of the ESA (50 CFR Part 222) and MMPA (50 CFR Part 216) and has produced OMB-approved application instructions that prescribe the procedures necessary to apply for permits. Applicants must comply with these regulations and application instructions in addition to the provisions of the ESA and MMPA.

#### 1.4.3 Other Applicable Laws

Animal Welfare Act (AWA): The AWA (7 U.S.C. 2131 – 2156) sets forth standards and certification requirements for the humane handling, care, treatment, and transportation of mammals. Enforcement of these requirements for non-federal facilities is under jurisdiction of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service. Each research facility is required to establish an Institutional Animal Care and Use Committee (IACUC) which reviews study areas and animal facilities for compliance with the AWA standards. It is the responsibility of the researcher to seek and secure IACUC reviews and approvals for their research.

*Convention on International Trade in Endangered Species of Wild Fauna (CITES):* CITES is an international agreement between governments with the goal of ensuring that international trade in specimens of wild animals and plants does not threaten their survival. All import, export, reexport and introduction from the sea of species covered by CITES has to be authorized through a licensing system. In the U.S., the Fish and Wildlife Service is the Management Authority for CITES. Obtaining CITES permits is the responsibility of individual researchers.

*Fur Seal Act (FSA)*: Under the FSA (16 U.S.C. § 1154), NMFS must permit, subject to necessary terms and conditions, the taking of northern fur seals in the Pribilof Islands for educational, scientific or exhibition purposes.

*National Marine Sanctuaries Act (NMSA)*: The NMSA (32 U.S.C. 1431 *et seq.*) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance. The National Marine Sanctuary Program, operating under the NMSA and administered by NOAA's National Ocean Service (NOS) issues special use permits for research activities that would occur within a National Marine Sanctuary. Obtaining special use permits is the responsibility of individual researchers. As a courtesy, the Office of Protected Resources consults with NOS when proposed research would occur in or near a National Marine Sanctuary.

knowledge of marine mammal biology or ecology; or (C) are likely to identify, evaluate, or resolve conservation problems."

<sup>&</sup>lt;sup>6</sup> The MMPA defines humane in the context of the taking of a marine mammal, as "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

# **CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

This chapter describes the potential actions (alternatives) determined reasonable with respect to achieving the stated objective. This chapter also summarizes the expected outputs and any related mitigation of each alternative. One alternative is the "No Action" alternative where the new 5-year permit would not be issued. The Proposed Action alternative represents the permitting of the MMHSRP's response of ESA-listed species and research proposed in the submitted application, including the new activities, with standard permit terms and conditions specified by NMFS.

# 2.1 ALTERNATIVE 1 – NO ACTION

Under the No Action alternative, a permit would *not* be issued for the activities proposed by the applicant. The current permit (Permit No. 932-1905-01) would remain in effect through June 30, 2015, and thereafter stranding response of ESA-listed species, and research on marine mammals would cease. The following research and enhancement activities for ESA-listed species and research on any marine mammal species, as described in Appendix H of the MMHSRP PEIS, would cease upon permit expiration for ESA listed species response activities and all species research activities:

- Close approach/surveys (excluding UAS);
- Hazing and attractants;
- Capture, restraint, and handling;
- Attachment of scientific instruments;
- Marking (excluding hot branding);
- Disentanglement and de-hooking;
- Rehabilitation, transport, and release of ESA-listed species;
- Temporary holding and research on captive and rehabilitating animals;
- Biological sampling and analyses;
- Administration of medications (excluding vaccinations);
- Unintentional mortality and euthanasia;
- Auditory brainstem response/auditory evoked potential;
- Active acoustic playbacks; and
- Import and export activities.

# 2.2 ALTERNATIVE 2 – ISSUANCE OF PERMIT (INCLUDING HOT BRANDING, UAS, AND VACCINATIONS) WITH STANDARD CONDITIONS

Under the Proposed Action alternative, a new 5-year permit would be issued to continue activities as currently permitted (listed above) with new proposed activities. The permit would contain terms and conditions standard to such permits as issued by NMFS. The new activities are described below.

# 2.2.1 Hot Branding

Under the PEIS, marking methods that would be permitted include, but are not limited to temporary marks (e.g., bleach, crayon, zinc oxide, paint) and permanent marks (e.g., freeze branding). This EA analyzes the impacts of authorizing hot branding as another permanent marking method. The method of marking would be chosen based upon the criteria of the situation including, but not limited to:

- The subject species and geographic location;
- The distance from which the mark must be distinguishable (e.g., how approachable the animal is, whether it would be recaptured and in hand or the mark must be viewed from far away);
- The intent for the marking (e.g., identify previously handled individuals for researchers or rehabilitators, NRDA [National Resource Damage Assessment] purposes, identification for subsistence hunters, mark/recapture population assessment);
- Whether a tag could be used instead of or in addition to the mark;
- The potential user groups that would be reading the mark (e.g., subsistence hunters, biologists, oil spill responders, general public);
- The needed duration of the mark (days, weeks/months during a given field season, multiple years, lifetime of the animal);
- The number of animals to be marked; and
- The supplies on hand for the marking and logistical constraints.

The least invasive marking method possible that meets the requirements of the situation would be chosen. Based upon the size, age class, and species being marked, as well as the other procedures being conducted while the animal is in hand, individuals may be sedated or anesthetized for marking, as described in the sections on administration of medications in the permit application.

Hot branding is used in several existing longitudinal studies of certain populations of pinnipeds to assess long-term survival and reproduction (NMFS 2007a). Hot branding uses heat to kill both hair follicles and pigment-producing cells to leave a bald brand, similar to the longer contact freeze-branding method. Each brand (typically letters and/or numbers approximately 8 cm high) is heated in a propane forge until red-hot. Brands are applied with less than 5 lbs. of pressure for a maximum of 4 seconds per digit. Details of hot branding techniques on pinnipeds are documented in Merrick et al. (1996).

In general, freeze branding would be chosen over hot branding when a long-term mark is needed and it has been determined through previous work using the procedure on that species or a closely related species to be a viable means of long-term identification (e.g., freeze brands could not be read on Southern elephant seals when they were resighted in subsequent years; McMahon et al. 2006). There may be some situations in which hot branding is the best option. In remote locations, or when the response needs to occur very quickly, a propane forge may be much simpler to acquire, maintain, transport, and handle in a field situation than a supply of liquid nitrogen which is necessary for freeze branding. For some species, hot brands may also be more readable. The MMHSRP proposes to hot brand any species of pinniped excluding Hawaiian monk seals as part of emergency response activities. Thus, hot branding of Hawaiian monk seals is not part of the Proposed Action.

Only highly experienced and well-trained personnel would be involved in branding operations. Typically, branding is the last procedure to occur when handling the animal. Therefore, immediately after branding and recovery from anesthesia (if used), the animal can be returned to the water (or near the water, for pinnipeds). Animals are observed for deleterious effects during recovery (aberrant respiration rate, sluggishness, lack of response, signs of injury). Once returned to the ocean, the sea water acts as the best analgesic to alleviate any pain associated with branding and begins the healing process.

#### 2.2.2 Unmanned Aircraft Systems

Under the proposed permit, NMFS would permit the take of marine mammals through close approaches by aircraft (including both manned and unmanned aircraft systems aka UASs or drones) for observations, assessments, monitoring, photo-identification, photogrammetry, behavioral observation, hazing, and incidental harassment. The PEIS previously analyzed the effects of manned aircraft.

UASs or drones may be either remotely-operated or autonomous. Common types of UASs currently in use include fixed wing aircraft and Vertical Take Off and Landing (VTOL) multirotor craft (e.g., quad and hexa-copters), but the field is rapidly advancing and additional types are likely to be available during the project period. The frequency of surveys is dependent on the circumstances of the involved stranded or entangled animals, the disease, or the occurrence of an UME. Aerial surveys using manned aircraft are typically flown along predetermined transect lines at a set altitude and air speed while observers scan the water for signs of marine mammals.

The most frequent use of UASs would be to carry a small camera to relay images to responders in real time or record video and still images that may be reviewed later of animals in distress, or carry another digital sensor such as thermal imaging. The currently available VTOL UASs are typically no heavier than 5 lbs. in weight, and have a battery life of an average 20-30 minutes, while the currently available fixed wing UASs are heavier and have battery lives of several hours. The altitude in these emergency response cases would be determined by the operational conditions, but is expected to be 10-50 feet in order to appropriately visualize wounds, lesions, entanglements, or other body condition parameters.

For research studies, higher altitudes (e.g., 100 feet) would generally be used unless sample collection occurs. For example, an exhalate sample may be collected on an apparatus mounted beneath the UAS; the minimum altitude for this activity would be just above the whale's blowhole (approximately 10 feet). UASs have been shown to be an effective tool to collect breath/exudate samples (Acevedo-Whitehouse et al. 2010).

This technology is rapidly evolving and UASs with different parameters are likely to be developed over the 5-year period of this permit, and the MMHSRP requests flexibility to use them as they are available. For example, tag deployment by UAS is currently in development. Tags would only be applied by experienced marine mammal biologists, trained in the relevant techniques for the chosen tag type. Prior to deployment, new tag types and attachment methods would be tested first on carcasses to ensure appropriate function of the dart prior to being used on live animals, and would then be approved by the Office of Protected Resources. If the UAS is used to apply a tag, or is equipped to sample (e.g., take skin scrapes with dish scrubbers or collect a biopsy sample), then the minimum altitude is 0 feet as the UAS would make contact with the mammal for a brief period of time. Whenever possible, trials of new techniques would be conducted on carcasses prior to use in the field.

All UAS operations would be conducted pursuant to NOAA UAS Policy 220-1-5, including aircraft airworthiness certification from NOAA, pilot and crewmember training and qualification under the NOAA Operations Manual, aircraft authorization through the FAA (under the NOAA-FAA MOA in Class G airspaces under Class E VFR weather conditions), preflight and operational checklists, and appropriate agency notifications. All non-NOAA operators under this permit would be required to comply with FAA regulations and other applicable laws. All operators would be required to have obtained appropriate training on any given airframe and meet all FAA requirements for licensing prior to being authorized under this permit.

The UAS would hover over an individual mammal only long enough to obtain the needed photograph or video sequence. The number of flights flown per day would be restricted by daylight hours, environmental conditions, the battery charge available, and flight team fatigue. As use of UAS aircraft around marine mammals is relatively new, all observed effects would be recorded along with the altitude and rigorously reviewed during or after the action has concluded to inform current and future uses of any UAS.

# 2.2.3 Vaccinations

The proposed permitting of vaccinations would provide authorization to address potential infectious disease threats to pinniped and cetacean species under NMFS' jurisdiction. Although infectious disease does not currently appear to be significantly impacting any pinniped species, there is great potential for infectious diseases such as avian influenza, morbillivirus, and West Nile Virus (WNV) to have devastating effects on several endangered, threatened, or highly susceptible pinniped species including but not limited to: Guadalupe fur seals (Arctocephalus townsendi), Hawaiian monk seals, ice seals-ringed (Phoca hispida), ribbon (Histriophoca fasciata), bearded (Erignathus barbatus) and hooded seals(Cystophora cristata), and Pacific and Atlantic harbor seals (*Phoca vitulina*); and cetacean species: Cook Inlet Beluga whales (Delphinapterus leucas), Hawaiian insular false killer whales (Pseudorca crassidens), North Atlantic right whales (Eubalaena glacialis), Southern Resident killer whales (Orcinus orca), and small Bay, Sound and Estuary (BSE) stocks of bottlenose dolphins, especially populations with low potential biological removals (PBR). The NMFS Hawaiian Monk Seal Research Program is permitted to vaccinate Hawaiian monk seals (e.g., against WNV and morbillivirus). This activity was evaluated in the Final PEIS for Hawaiian Monk Seal Recovery Actions (NMFS 2014c); and thus, monk seals are not included in the MMHSRP's proposed permit and EA for vaccinations. All other species (ESA-listed and non-listed) are included. NMFS is committed to being prepared to rapidly respond to, if not prevent, outbreaks of the perceived greatest viral, bacterial, fungal or parasitic disease threats through vaccination research and enhancement activities.

The permit would authorize vaccinations to be administered during response and rehabilitation as well as during research procedures. Vaccinations may be administered prospectively to wild, captive, or rehabilitating marine mammals as detailed in the permit application (File No. 18786, Appendix H). When testing new techniques, medications, or vaccinations, the preference would be to conduct the study in a controlled setting, such as a captive facility where the animals are well known and can be closely monitored, and are of the same species as the target wild population. If this is not possible, the next preference would be to use a closely-related surrogate species. If a suitable captive population cannot be found, a cohort in a rehabilitation center would be the next choice, particularly animals of the same species or a closely-related surrogate.

Drugs may be administered orally or through injection, intubation, or inhalation. Orally administered medications are typically hidden in fish but may also be given via stomach tube.

Vaccines currently used for prevention of infectious diseases (viral, bacterial, fungal or parasitic) in domestic animals can be divided into three types: those based on dead inactivated pathogens; those using live attenuated pathogens; and vaccines consisting of recombinant pathogen. Recombinant pathogen vaccines can use a vector virus that does not typically infect the target host but expresses antigen from the pathogen of interest, stimulating an immune response against it (Griffin and Oldstone 2009). Vaccines using a dead pathogen are considered the safest as the pathogen cannot replicate in the host or cause disease; however, this lack of replication often means that the immune response generated following vaccination is short lived and may not be protective. Live vaccines typically generate the most effective immune response, but present the risk (when used in species other than the one for which the vaccine was developed) of the pathogen replicating in the host and either causing disease in the vaccinated animal, or being shed in secretions and becoming infective to other contacted animals. Numerous carnivores, especially mustelids (weasel family) and procyonids (e.g., raccoons), have died in zoological collections following vaccination with live canine distemper virus (CDV) vaccine (Deem et al. 2000). To overcome this risk of live vaccine use, recombinant vaccines to CDV are now used extensively in zoological collections (Bronson et al. 2007).

Vaccines already safely used in pinnipeds in captivity include a recombinant canary pox (Purevax, Merial) vaccine against CDV and an inactivated West Nile Virus (WNV) (Innovator, Fort Dodge). The recombinant CDV vaccine has been safely used on a wide range of non-domestic carnivores including pinnipeds. It has not been associated with live virus shedding and is likely to stimulate higher immunity than a dead vaccine. The recombinant CDV vaccine is also commercially available in the U.S. and is recommended by the American Association of Zoo Veterinarians for use in non-domestic carnivores. The Fort Dodge WNV vaccine has been used to date on Hawaiian monk seals in captivity in San Antonio, Texas, with no adverse reactions observed (Braun and Yochem 2006) and in other marine mammal species including cetaceans. A recent international meeting of experts met in a "Vaccines for Conservation" meeting to discuss protecting endangered carnivores against CDV. They laid out a series of recommendations, all of which support the aims of the MMHSRP with regards to increasing capabilities to conduct vaccination campaigns (Wildlife Conservation Society 2015).

The new 5-year permit application (File No. 18786) includes details of the vaccination program for cetaceans and pinnipeds (excluding Hawaiian monk seals). Vaccinations would not be permitted for Hawaiian monk seals, and the use of live vaccines would not be permitted.

# **CHAPTER 3 AFFECTED ENVIRONMENT**

# 3.1 INTRODUCTION

The affected environment is described in Chapter 3 and Appendix E of the original MMHSRP PEIS (NMFS 2009a) including biological resources; water and sediment quality; human health and safety; cultural resources; and socioeconomics. These are briefly summarized here. The effects of the alternatives on the environment are discussed in Chapter 4.

The action area encompasses the coastal waters and Exclusive Economic Zone (EEZ) of the U.S., its territories, and possessions, and adjacent marine waters. The coastal zone includes coastal waters, adjacent shorelands, intertidal areas, salt marshes, wetlands, and beaches. The action area also includes the marine mammal rehabilitation facilities of the stranding network and captive facilities.

# 3.2 BIOLOGICAL ENVIRONMENT

Biological resources include native or naturalized plants and animals, and the habitats in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by NMFS, USFWS, or that are otherwise protected under Federal or state laws. Resources evaluated include protected and sensitive habitats; submerged aquatic vegetation and macroalgae; sea turtles; fish and shellfish; coastal and marine birds; and marine mammals. These are described in Chapter 3 and Appendix E of the PEIS (NMFS 2009a).

# 3.2.1 Targeted Species

All pinniped and cetacean species under NMFS jurisdiction, including ESA-listed and MMPAdepleted species, may be targeted for enhancement and research under the proposed permit. NMFS is responsible for the conservation and recovery of most endangered and threatened marine mammals, and the MMHSRP is responsible for conducting enhancement and research to conserve and recover the species found in the action area. All marine mammals stocks/species listed under the ESA are also considered depleted under the MMPA. For a summary of information on the target species based on the NMFS stock assessment reports, see Appendix 1. The stock assessment reports are available in PDF format at <u>http://www.nmfs.noaa.gov/pr/sars/</u>.

The original PEIS for Permit No. 932-1905 used the 2006 and 2007 Stock Assessment Reports (Carretta et al. 2007; Waring et al. 2007) to describe the distribution, abundance, productivity, and annual human-caused mortality for the targeted marine mammal species. These SARs have been updated since the original PEIS was completed, and several species and/or stocks have changed MMPA status (see Appendix 1). Several species have also changed ESA status, with eastern DPS Steller sea lions (*Eumetopias jubatus*) being delisted and Main Hawaiian Islands Insular false killer whales (*Pseudorca crassidens*) being listed as endangered as well as bearded<sup>7</sup>(*Erignathus barbatus*) and ringed (*Phoca hispida*) seals being listed as threatened.

# 3.2.2 Non-target Species

Section 3.2 of the PEIS includes a description of non-target species, including marine mammals under U.S. Fish and Wildlife Service (USFWS) jurisdiction, invertebrates, sea turtles, fish, and sea birds. Merely being present within the action area does not necessarily mean a marine organism would be affected. Research and enhancement is not directed at these species and any impacts would be considered incidental to the activities in Alternative 2. Although other species may be present within the action area, none would be targeted during the proposed activities. The MMHSRP would obtain a separate permit authorization from the USFWS for incidental

<sup>&</sup>lt;sup>7</sup>The Alaska (Beringia DPS) stock of the bearded seal was listed as a "threatened" species under the Endangered Species Act (ESA) on February 26, 2013 (77 FR 76739). On July 25, 2014, the U.S. District Court for the District of Alaska issued a memorandum decision in a lawsuit challenging the listing of bearded seals under the ESA (Alaska Oil and Gas Association v. Pritzker, Case No. 4:13-cv-00018-RPB). The decision vacated NMFS's listing of the Beringia DPS of bearded seals as a threatened species. NMFS appealed that decision and is awaiting a determination.

takes of marine mammals under USFWS jurisdiction. Only incidental harassment of marine mammals under NMFS jurisdiction would be authorized under the proposed permit.

#### 3.2.3 Protected and Sensitive Habitats

A list of protected and sensitive habitats is included in Chapter 3 and Appendix E of the PEIS. Additional critical habitat under the ESA has been designated since completion of the MMHSRP PEIS and is briefly described here.

#### Leatherback Sea Turtle Designated Critical Habitat

On March 23, 1979, leatherback critical habitat was identified adjacent to Sandy Point, St. Croix, U.S.V.I. from the 183 m isobath to mean high tide level between 17° 42'12" N and 65°50'00" W (44 FR 17710). On January 26, 2012, the NMFS designated critical habitat for leatherback sea turtles in waters along Washington State and Oregon (Cape Flattery to Cape Blanco; 64,760 km<sup>2</sup>) and California (Point Arena to Point Arguello; 43,798 km<sup>2</sup>) (77 FR 4170). The primary constituent element of these areas includes the occurrence of prey species of sufficient condition, distribution, diversity, abundance and density necessary to support individual as well as population growth, reproduction, and development of leatherbacks.

#### Cook Inlet Beluga Whale Designated Critical Habitat

NMFS designated critical habitat for the Cook Inlet beluga whale on April 11, 2011 (76 FR 20180). Two specific areas are included comprising 7,809 square kilometers of marine habitat. Area 1 encompasses 1,918 square kilometers (741 sq. mi.) of Cook Inlet northeast of a line from the mouth of Threemile Creek (61° 08.5'N., 151 ° 04.4' W.) to Point Possession (61° 02.1'N., 150 ° 24.3' W.). Area 2 consists of 5,891 square kilometers (2,275 sq. mi.) of Cook Inlet, located south of Area 1, north of a line at 60° 25.0'N., and includes nearshore areas south of 60° 25.0' N along the west side of the Inlet and Kachemak Bay on the east side of the lower inlet.

#### Loggerhead Sea Turtle-Northwestern Atlantic DPS Critical Habitat

On July 10, 2014, the NMFS designated critical habitat for northwest Atlantic Ocean DPS loggerhead sea turtles in waters from North Carolina to Gulf of Mexico Florida (79 FR 39855) including nearshore reproductive habitat along Florida, Georgia, South Carolina and North Carolina, winter habitat along North Carolina, breeding habitat along Florida, migratory habitat along Florida and North Carolina, and sargassum habitat along Atlantic and Gulf of Mexico Florida and North Carolina.

#### *Bocacio, Canary, and Yelloweye Rockfishes Designated Critical Habitat* On August 6, 2013, the NMFS designated critical habitat for bocaccio, canary rockfish, and yelloweye rockfish in marine waters of Washington State (79 FR 68041).

#### Eulachon Designated Critical Habitat

On October 20, 2011, the NMFS designated critical habitat for the southern DPS of eulachon, including roughly 539 km of riverine and estuarine habitat in Washington State (Grays, Skamokawa, Elochoman, Cowlitz, Kalama, Toutle, Lewis, Quinault, and Elwa rivers/creeks), Oregon (Columbia River), and California (Mad, Klamath, Redwood, Umpqua, and Sandy rivers as well as Tenmile Creek)(76 FR 65324).

# Green Sturgeon Designated Critical Habitat

On October 9, 2009, NMFS designated critical habitat for southern green sturgeon (74 FR 52300). The geographical area identified as critical habitat is based upon the overlapping distribution of the southern and northern DPS, and encompasses all areas where the presence of southern green sturgeon have been confirmed or where their presence is likely. Therefore the geographical area defined as critical habitat is the entire range of the biological species, green sturgeon, from the Bering Sea, AK, to Ensenada, Mexico. Specific fresh water areas include the Sacramento River, Feather River, Yuba River, and the Sacramento-San Joaquin Delta. Specific coastal bays and estuaries include estuaries from Elkhorn Slough, California, to Puget Sound, Washington. Coastal marine areas include waters along the entire biological species range within a depth of 60 fathoms.

# Smalltooth Sawfish Designated Critical Habitat

On September 2, 2009, critical habitat was designated for smalltooth sawfish along the central and southwest coast of Florida (74 FR 45353). Mangrove and adjacent shallow euryhaline habitat are important nursery habitat for smalltooth sawfish. Nursery habitat consisting of areas adjacent to red mangroves and euryhaline habitats less than 0.9 m deep in southwestern Florida were later determined to be particularly significant (Norton et al. 2012).

# Black Abalone Designated Critical Habitat

On October 27, 2011, the NMFS designated critical habitat for black abalone (76 FR 66806). This includes rocky areas from mean high water to six meters water depth in the Farallon, Channel, and Año Nuevo islands, as well as the California coastline from Del Mar Ecological Reserve south to Government Point (excluding some stretches, such as in Monterey Bay and between Cayucos and Montaña de Oros State Park) in northern and central California and between the Palos Verdes and Torrance border south to Los Angeles Harbor.

# 3.3 WATER AND SEDIMENT QUALITY

Section 3.6 of the MMHSRP PEIS describes water and sediment quality. Water quality is defined as the biological, chemical, and physical properties of a waterbody that determine it's suitability for human use or for its role in the ecosystem. In coastal environments water quality is influenced by river drainage, erosion, and atmospheric deposition (e.g., precipitation and dust). Human activities affect water quality through nonpoint source runoff, pollutant discharges, dumping, hazardous material spills, and air emissions. Sediment quality is the ability of sediment to support a healthy benthic population and it helps to determine the ecological health of aquatic systems. Sediments provide essential habitat and food for many organisms. Activities affecting sediment quality are runoff, pollutant discharges, dumping, hazardous materials spills, and air emissions.

# 3.4 CULTURAL RESOURCES

The MMHSRP PEIS Section 3.4 defines (3.4.1) and identifies (3.4.2) cultural and historic resources that may occur in the action area. In some coastal areas of the U.S., Native American tribes and other aboriginal peoples maintain strong cultural and subsistence ties to the environment and living natural resources, including marine mammals. Native American villages located on the Pacific Coast have depended on marine mammals for subsistence and cultural purposes.

Whaling is an important part of the culture of the Makah Tribe in Washington, and the Makah Tribe proposes to resume treaty-based hunting of eastern North Pacific gray whales (*Eschrichtius robustus*) for ceremonial and subsistence purposes, and applied to NMFS for a waiver on the moratorium. The Tribe proposes to harvest up to 24 whales over a 6-year period, with no more than five gray whales harvested in any single year. On March 6, 2015, NMFS released a draft EIS to consider various alternatives to the Tribe's proposed action (80 FR 13373).

Alaska Natives use marine mammal parts for cultural handicrafts and harvest marine mammals for subsistence. The Inuit people of Arctic Alaska hunt ribbon seals (*Phoca fasciata*), ringed seals, bearded seals, spotted seals (*Phoca largha*), bowhead whales (*Balaena mysticetus*), and gray whales. Alaska natives also harvest beluga whales (*Delphinapterus leucas*) in the Bering, Chukchi, and Beaufort Seas. Harbor seals (*Phoca vitulina*) are harvested throughout their range by coastal Alaska Natives. Northern fur seals (*Callorhinus ursinus*) are hunted in the Pribilof Islands. There is also a limited harvest of Steller sea lions.

Archaeological sites in Hawaii include burial sites and Traditional Cultural Properties such as volcanic cones, landforms associated with deities, and submerged coral formations which were once fishing locations. Habitation sites, burials, religious structures, and fishponds are present along the shoreline. Most sites are above the high-water mark and may be buried underneath the sand of many beaches. The largest known concentration of native Hawaiian burials is located on the Mokapu Peninsula, Oahu. This dune complex has been listed on the National Register of Historic Places.

# 3.5 HUMAN HEALTH AND SAFETY

As described in Section 3.5 of the MMHSRP PEIS, human health and safety risks are present during response, rehabilitation, release, disentanglement, and research activities. Possible concerns for workers include physical injury, illness, exposure to contaminants, and ocean conditions. The Occupational Safety and Health Administration (OSHA) sets standards to assure safe and healthy working conditions and prevent work-related injuries and illnesses. OSHA requires employers to have health and safety plans. Employers must also maintain accurate records of employee work-related injuries, illnesses, deaths, and exposure to toxic materials or harmful physical agents. OSHA has laboratory standards for air contaminants and the risk of exposure to hazardous chemicals. As described in the PEIS, human health and safety risks may also affect the general public during normal beach and ocean activities, such as swimming, boating, and surfing. Possible concerns include contact with marine animals (possible zoonotic disease transmission) and exposure to contaminants.

# 3.6 SOCIOECONOMICS

Section 3.6 of the MMHSRP PEIS describes economic activities in coastal regions likely to intersect with one or more activities covered under the PEIS to include industries encompassing stranding network participants (e.g., zoos and veterinary services) and tourism industries. For the subject permit and EA, only a subset of MMHSRP activities analyzed in the PEIS are considered. No environmental justice impacts would be expected from the alternatives and therefore will not be discussed further.

Existing and potential members of the stranding network (and those who provide services to the network) are likely to fall into either two categories: zoos/botanical gardens and veterinary services. The zoos and botanical gardens industry category is comprised of establishments primarily engaged in the preservation and exhibition of live plant and animal life and animal life displays, including aquaria. The veterinary services industry category is comprised of establishments of licensed veterinary practitioners primarily engaged in the practice of veterinary medicine, dentistry, or surgery for animals, as well as establishments primarily engaged in providing testing services for licensed veterinary practitioners.

Tourism industries which may be affected by the various activities in this PEIS include lodging and restaurants located adjacent to stranding activities involving ESA-listed species (e.g., Hawaiian monk seals). Since marine mammal stranding events occur in the water or on the beach, tourism-related businesses that are likely to be affected are those located on or near the ocean. Stranding responses are usually short-term events. Most stranding responses last for a day or less. Responses to mass strandings of live animals may take several days.

# **CHAPTER 4 ENVIRONMENTAL CONSEQUENCES**

# 4.1 INTRODUCTION

This section evaluates the potential direct and indirect environmental and socioeconomic impacts of the alternatives. CEQ regulations define the significance of impacts in terms of context and intensity. Context refers to the geographic area of effect, which varies with the setting of the alternatives and with each resource area being analyzed. Intensity refers to the severity of the impact and considers whether the effect would be negligible, minor, moderate, or major. Mitigation measures are methods to avoid, minimize, rectify, or reduce the adverse environmental impacts of an action.

# 4.2 EFFECTS OF ALTERNATIVES ON THE BIOLOGICAL ENVIRONMENT

# 4.2.1 Effects to Target Species

# Effects Common to All Alternatives

The response and research activities resulting in take of pinniped and cetaceans currently authorized by Permit No. 932-1905 and analyzed in the 2009 PEIS would continue under Alternative 1 through June 30, 2015; and, as analyzed in this EA under Alternative 2, under the proposed Permit No. 18786. As described in the MMHSRP PEIS:

- Close approach, vessel and aerial surveys, hazing, capture, restraint, handling, transport, scientific instrument attachment, non-branding forms of marking, disentanglement, release, diagnostic imaging, sample collection, biopsy, blood and breath sampling, ABR/AEP activities, and active acoustic playback may result in short-term behavioral responses by individuals (such as stress), but would not be expected to result in stock- or species-level effects. Beneficial effects are expected from hazing animals away from harmful situations and disentanglement.
- Longer-term effects, such as hydrodynamic drag created by tags, wound healing from disentanglement, scientific instrument attachment, freeze-branding, tooth extraction, and stress from holding, are not expected to result in stock- or species-level effects. Mortality

could result from handling and administration of medications, but this is not expected except in rare cases. Euthanasia would also include mortality, but would only occur in situations where long-term survival of the specific individual would not be expected.

#### Effects of Alternative 1 on Target Species: No Action

Under the No Action alternative, the take activities would continue as currently authorized under the existing permit through permit expiration in June 2015. Thereafter, permitted activities would not continue. NMFS determined issuance of the current permit would not likely jeopardize the continued existence of any ESA-listed species (NMFS 2009b) and the activities conducted under the current permit were not expected to significantly affect any other portions of the environment (NMFS 2009a).

Thereafter, in the absence of the permit the MMHSRP would not be able to respond to ESAlisted species or conduct health-related research on ESA-listed and non-listed marine mammals. As a result, response activities would be more limited and would consist mostly of carcass disposal of non-listed species for the protection of public health and safety and responses to live stranded non-listed species.

The authorized level of stranding response would no longer include ESA-listed marine mammals. These animals would potentially be removed from the population if an intervention could not be performed to save an animal, which might have an adverse effect on some depleted, threatened, or endangered species. The valuable information on ESA-listed marine mammal populations, such as biology, health, and disease detection, collected during the examination of stranded animals would no longer be collected. Scientists would be limited in their ability to study why strandings of ESA-listed marine mammals occur. The inability to conduct vaccinations could result in mortalities of threatened and endangered species. However, stranding responses for non-listed species would still occur pursuant to MMPA sections 109(h) and 112(c), and stranding responses including disentanglements and vaccinations could still occur for Hawaiian monk seals under a separate permit issued to the NMFS Pacific Islands Fisheries Science Center.

Both moderate beneficial and adverse effects on marine mammals would be expected from the No Action alternative (not conducting scientific research activities). Biomonitoring and research activities would end and therefore takes of marine mammals for these purposes would also end. This would be beneficial to animals, as they would no longer experience any potential negative impacts from these activities. However, the lack of health studies on listed and non-listed species would limit the ability to obtain baseline data on healthy animals to serve as comparisons to stranded animals. Important health and exposure data on marine mammal populations would not be collected. This could impede future conservation and management actions and ultimately result in detrimental impacts on marine mammal populations, especially those that are threatened and endangered. However, other researchers are permitted to collect biological samples from marine mammals for research purposes, and some data and samples could potentially be shared with the MMHSRP.

*Effects of Alternative 2: Issuance of Permit (Including Hot Branding, UAS, and Vaccinations) with Standard Conditions* 

The activities requested in the new 5-year permit would allow continued takes for stranding response for ESA-listed species and research on all cetacean and pinniped species under NMFS jurisdiction as described above. In addition, new activities would be authorized including allowing hot branding in certain response situations, and the use of UAS and vaccinations in research and response.

No significant effects are expected from continuing the currently permitted activities. Under the current MMHSRP permit, over 5 years there were more than 1000 takes or responses to live and dead ESA-listed species. Response activities included various permitted activities (close approach to assess health condition and take photographs, aerial surveys to locate entangled animals, disentanglement, dehooking, biopsy sampling, incidental harassment to other animals near the target animal, euthanasia of moribund animals, and necropsy of dead animals). Of those, there were approximately 95 ESA-listed animals that were entangled, with approximately 250 associated takes (i.e., approaches or rescue attempts). No animals died or were further injured as a result of the emergency responders' actions.

Research conducted from 2009-2014 under the current MMHSRP permit primarily consisted of capture and sampling of bottlenose dolphins in the Gulf of Mexico to assess causes of an unusual mortality event and following the Deepwater Horizon oil spill. During this research where over 130 dolphins were captured, no dolphin mortalities occurred. Research on California sea lions affected by domoic acid toxicity and leptospirosis also took place. During over 100 captures of sea lions in the wild for a research study to determine the prevalence of leptospirosis exposure in healthy sea lions, only one mortality occurred. Limited research was conducted on large whales in the Gulf of Mexico and on one captive non-releasable Hawaiian monk seal, with no adverse impacts reported.

The new permit would also add authority for takes during the following: (1) hot branding pinnipeds, (2) UAS use, and (3) vaccinations. These activities could be undertaken on any marine mammal species, except the use of hot branding and vaccinations would not be permitted on Hawaiian monk seals, as described above.

#### Hot Branding

Hot branding may cause pain during application of the brands for a short duration (~3 min) and as the wounds heal over several weeks (Walker et al. 2010). Studies of captive Steller sea lions found that activities returned to normal after 72 hours (Walker et al. 2010) and there was no elevation in cortisol levels between 2 and 7 weeks post-branding (Mellish et al. 2007). The survival rates of hot-branded Steller sea lions (Hastings et al. 2009) and New Zealand sea lions (Wilkinson et al. 2011) were not significantly different from the survival rates of non-branded animals.

Potential mortality from hot branding was investigated in a 12-week study by Hastings et al. (2009), where weekly survival of branded Steller sea lion pups in the wild was nearly identical to estimates from a control group of undisturbed, unbranded pups, and similar to pup survival estimates from other otariid studies. Data from this study suggested branding of Steller sea lion pups can be used effectively for investigations of population declines without significantly affecting population health or study goals (Hastings et al. 2009).

McMahon et al. (2006) reported on studies at Macquarie Island, where approximately 14,000 Southern elephant seal pups were hot branded over a period of 7 years (1993-1999). Approximately 7,000 branded seals were also tagged with flipper tags, allowing comparisons of those two methods of tagging, and in 2 years a smaller group of pups (n=279) were only flipper tagged and not branded. When comparing first-year survival of the two groups of seals (those hot branded vs. those flipper tagged), the survival estimates were significantly higher for branded animals than tagged, which the authors could not directly explain, although they did compensate for tag loss in the analysis. Also, there was no difference in survival based on occurrence of brand-associated wounds.

Hot brands have been documented to be long-lasting, with Steller sea lions resighted with readable marks at least 18 years after having been branded (Merrick et al. 1996). However for freeze branding elephant seals, McMahon et al. (2006) reported that in subsequent years, no brand marks were visible on freeze branded animals, and the authors concluded that freeze branding does not produce usable long-term identification markings for elephant seals.

Daoust et al. (2006) report on a study comparing the use of hot brands and freeze brands in harbor seals. In this study, 306 harbor seal pups (at an approximate age of 2-3 weeks) were branded with a set of 4 characters, 3 characters applied via hot branding (the iron was heated) and 1 freeze brand (the iron was frozen). At three times over the subsequent 10 weeks, a subset of the animals was recaptured and the brand area was examined macroscopically and microscopically via biopsy. The authors determined that freeze brands in harbor seals were more likely to result in obscured brands through regrowth of hair follicles and depigmentation (which reduces the contrast between the brand and the surrounding fur), and was less reliable than hot branding to provide permanent, legible brands (Daoust et al. 2006).

While Merrick et al. (1996) reported that hot branding may lead to increased mortalities, they were also not able to rule out emigration from the rookery, and more recent studies on captive and wild Steller sea lions have shown no long-term adverse impacts to individuals including decreased survivorship from hot branding (Hastings et al. 2009). Animals would be branded under gas anesthesia whenever possible; as it was shown that this may not totally prevent the animal from experiencing sensation during branding, and possibly even pain (Walker et al. 2011), additional sedation and analgesics would be used as well (or before/after branding) if possible. After hot branding, the skin would be returned to normal temperature as quickly as possible using water. Chapter 4 of the Final PEIS for Steller Sea Lion and Northern Fur Seal Research (NMFS 2007) indicated that the primary injury and mortality risk from hot branding procedures was attributable to the capture procedures for pups whereby pups are herded into large groups where they could accidentally drown or become injured, and not from the branding itself.

Hot branding results in short-term stress to the animal due to the restraint times and the momentary pain involved with the techniques. However, it is believed that the stress and the pain are both minor and of short duration, do not have substantial adverse impacts to long-term survivorship, and are outweighed by the benefits of being able to identify the individual animal from a distance for many years to follow. Hot branding allows researchers to collect long-term

data on survival with decreased disturbance because marks can be read from a greater distance than flipper tags or other marks that are less distinguishable.

#### UAS Use<sup>8</sup>

UASs are anticipated to cause minimal disturbance due to their relatively small size, minimal noise, and strategic use. UAS operations have been integrated into numerous field studies involving a variety of marine mammal species (Acevedo-Whitehouse et al. 2010; Koski et al. 2009; Martin et al. 2012; Schick et al. 2014; Selby et al. 2011) and cause substantially lower levels of disturbance than traditional aircraft when flown at comparable heights (Acevedo-Whitehouse et al. 2010; Mulaca et al. 2011; Sleno and Mansfield 1978).

UAS that hover close to animals (e.g., for breath sampling of cetaceans) would seem to be more likely to cause disturbance and should be monitored for behavioral reactions; however, this did not appear to be the case during breath sampling of several species of large whales (Acevedo-Whitehouse et al. 2010). In general, cetaceans do not appear to be acoustically or visually disturbed by UAS close approach. Minimal, or no, disturbance was documented at 500 feet for beluga whales (Sleno and Mansfield 1978), ~40 feet for blue, gray, humpback, and sperm whales (Acevedo-Whitehouse et al. 2010), and ~ 100 feet for killer whales (Durban 2014).

Northern fur seals, Weddell seals (*Leptonychotes weddellii*), and leopard seals (*Hydrurga leptonyx*) did not appear disturbed by UAS flying at an altitude of approximately 75 feet (Goebel et al. 2015). However, gray seals (*Halichoerus grypus*) showed responses (heads-up) at 65 feet and movement towards the water when the UAS was operated at 30 feet above the haulout (O'Connor and Pomeroy 2013). As discussed in the PEIS for Hawaiian Monk Seal Recovery Actions (NMFS 2014c), based upon observations during manned aerial surveys (including large, low-flying aircraft systems), Hawaiian monk seals very rarely react to aircraft and when they do, typically only raise their heads momentarily. Arctic ice seals photographed by a fixed wing UAS at altitudes of ~300 feet showed no signs of disturbance; no seals were seen to enter the water or move away from the line of flight in response to the UAS (Anonymous 2009). Similarly, work by the National Marine Mammal Laboratory with surveys for Steller sea lions found no reactions to flights of a UAS at ~200 feet (NMFS 2014a).

While response activities may necessitate closer approaches, the disturbance from a UAS (in terms of received sound level, size of the silhouette, etc.) is less than would be from the manned aircraft needed to collect similar aerial information. While response activities may necessitate closer approaches, the disturbance from a UAS (in terms of received sound level, size of the silhouette, etc.) is less than would be from the manned aircraft needed to collect similar aerial information.

The use of UASs has been analyzed in EAs for permits for Steller sea lions (NMFS 2014a) and various cetacean species including low altitude operations (e.g., observing lunge feeding [NMFS 2008] and breath sampling of large whales [NMFS 2014b]), and in the PEIS for Hawaiian monk

<sup>&</sup>lt;sup>8</sup> The information on UAS use is largely derived from a manuscript developed by staff in the Office of Protected Resources and submitted to the Journal of Unmanned Vehicle Systems that addresses known impacts of UAS on marine mammals and data gaps (Smith et. al [*in review*]).

seals (NMFS 2014c); and, it was concluded that the use of UAS would not result in significant impacts to the subject species or human environment.

#### Vaccinations

Vaccination of animals including wildlife has been used as a management technique for years to eradicate infectious diseases that impact public, domestic animal, and wildlife health (Cross et al. 2007; Lombard et al. 2007; Meeusen et al. 2007). In recent years, large national and international wildlife vaccination programs focused on the control of rabies in a variety of wildlife vectors (Mähl et al. 2014; Rosatte et al. 2009). Additionally, for some endangered species several vaccination programs have been instituted to protect small and vulnerable populations including Florida panthers (*Puma concolor coryi*) from disease outbreaks (Cunningham *et al.* 2008), and black-footed ferrets (*Mustela nigripes*), prairie dogs (*Cynomys ludovicianus*), and Hawaiian monk seals from emerging threats (Rocke *et al.* 2008a-b; Duignan et al. 2014).

Epidemic diseases are diseases that occur at a time or place that they do not usually occur, or with a greater frequency than expected in a certain period. Severe epidemics may reduce host population density to such an extent that stochastic events or previously unimportant ecological factors may further reduce the host population size (Harwood and Hall 1990). For example, canine distemper dramatically reduced black-footed ferret populations in Wyoming, bringing them to extinction in the wild (Thorne and Williams 1988); and, avian malaria reduced native Hawaiian honeycreeper (*Hemignathus parvus*) populations to such small numbers that many were finally eliminated by predation or habitat loss (Warner 1968). Additionally, phocine distemper virus (PDV) outbreaks in northern Europe were responsible for a combined loss of 50% of the harbor seal (Phoca vitulina) populations in 1988 and 2002 (Harkonen et al. 2006). Currently several wildlife vaccination programs exist or can be implemented for endangered species to enhance recovery including black-footed ferret and prairie dog vaccination for plague (Yersinia pestis); Florida panthers for feline leukemia virus, and Hawaiian monk seals for morbillivirus and West Nile virus (NMFS 2014b; USFWS 2008; USGS-NWHC 2012). Infectious diseases, especially those that are newly introduced to naïve populations of animals, can cause mass illness and death. For rare species or small isolated discrete population segments with low genetic diversity, a newly introduced pathogen could result in a significant disease outbreak with devastating population impacts. Therefore, in some cases the best means of preventing the spread of infectious disease among animals is through vaccination.

Vaccines would most likely be administered to pinnipeds and cetaceans through injections which could involve either capture and restraint or remote deployment via pole syringe or other remote administration devices (especially for cetaceans). Vaccination would thus entail the risk associated with disturbance, injection and potentially capture/restraint. Other specific risks of vaccination may include an adverse immune response, which can rarely result in a local reaction at the site of injection characterized by heat and swelling that resolves in 5-7 days, or febrile response (i.e., fever) (NMFS 2014c).

No adverse reactions have been reported following use of the recombinant canary pox CDV vaccine in marine mammals to date [(Steller sea lions, sea otters (Jessup et al. 2009), harbor seals (Quinley et al. 2013), and several captive Hawaiian monk seals (Yochem *et al. in prep*)]. The

only published data on vaccination of pinnipeds against WNV are from SeaWorld, San Antonio, where captive Hawaiian monk seals have been vaccinated with an inactivated WNV vaccine from Fort Dodge following an outbreak of WNV in the park and the loss of one monk seal to WNV infection. The vaccinated seals have sero-converted following vaccination with no adverse reactions (Braun and Yochem 2006).

Live vaccines would not be used because when used in species other than the one for which the vaccine was developed, there is risk of the pathogen replicating in the host and either causing disease in the vaccinated animal, or being shed in secretions and becoming infective to other contacted animals. Carnivores have died in zoological collections following vaccination with live canine distemper virus (CDV) vaccine (Deem et al. 2000). Thus, only dead or recombinant vaccines would be permitted.

Without treatment, animals are expected to worsen and can die a slow and painful death. Vaccinations can be protective of entire populations of animals preventing infectious disease. Sedatives and anesthesia allow for necessary medical and scientific procedures to be conducted with a minimum of pain and suffering by the animal. The benefit of the administration of medications is expected to outweigh potential detrimental impacts, particularly when performed by experienced personnel.

Specific to vaccination programs, vaccine research would occur as needed in captive or rehabilitating seals. Vaccination of wild populations, captive, or rehabilitating animals may also occur for enhancement and emergency response purposes (as previously described). As described above, to minimize the potential for adverse reactions, research and enhancement use of vaccines would generally involve either inactivated dead pathogen or recombinant pathogen vaccines, and no live attenuated pathogen vaccines would be used. Further, any future vaccination programs with pinnipeds and cetaceans would proceed cautiously, testing safety and sero-conversion on surrogate species and on captive target species when feasible prior to use in the wild. Marking of vaccinated animals and careful field monitoring post-vaccination would ensure that any resulting mortalities would be detected.

In summary, under the Proposed Action (Alternative 2) effects from continuing permitted activities and adding new activities could result in moderate adverse and moderate beneficial effects. Adverse effects result from momentary stress and pain from procedures directed at target animals, such as harassment, captures, and sampling. Stress and pain is mitigated through the use of anesthetics and analgesics and carrying out procedures by highly trained individuals. In rare cases, mortality is possible (e.g., due to capture stress, drowning in nets, or adverse effects of anesthesia or sedatives). Moderate beneficial effects would be from response activities aimed at saving animals in distress including administering vaccinations, where no action could result in the death of an individual, and data gained from research efforts may be used to inform management and conservation actions. Thus, no significant effects are expected to the target species from Alternative 2.

#### 4.2.2 Non-target Species

Under the No Action alternative, no non-target species would be affected by permitted activities, but certain response activities for non-listed marine mammals would continue. Under the

Proposed Action, non-target species including marine mammals, sea turtles, invertebrates, fish, and sea birds could be affected by permitted activities. The MMHSRP would obtain separate authorization from the USFWS for takes of marine mammals under the USFWS' jurisdiction including incidental harassment during MMHSRP activities. Any incidental harassment of marine mammals under NMFS jurisdiction would be authorized under the proposed permit. The MMHSRP PEIS concluded that no more than minor, short-term adverse effects on non-target sea turtles, fish, shellfish, other invertebrates, birds, and marine mammals would occur (NMFS 2009a).

# 4.2.3 Protected and Sensitive Habitats

Minor, short-term adverse effects on protected and sensitive habitats could occur, including such things as spills of hazardous materials or wastes from vessels, leaks from equipment into sand or surrounding waters, large equipment impacting beaches, and burying ESA-listed carcasses. However, no significant impacts to such habitats are anticipated (NMFS 2009a). Research and response is directed at individual marine mammals and only minor effects to the physical environment are expected. Carcasses of animals that have been euthanized would be disposed of in an appropriate manner to remove drugs from the environment. Special use permits are required to work in protected areas; researchers would obtain such permits, which would contain mitigation measures specific to that area.

# 4.3 WATER AND SEDIMENT QUALITY

Under both alternatives, minor, short-term adverse effects on surrounding sand and nearshore waters could occur from equipment leaks and euthanasia solution or other environmental contaminants in tissue, blood, and other body fluids. While no permitted activities would occur under the No Action alterative, other MMHSRP activities (e.g., stranding response of non-listed species) would still occur. If contaminants enter groundwater, they would likely be flushed out quickly by tidewater and/or precipitation. The impact on water quality would likely be temporary and minor. Sediment quality would not likely be impacted by contaminants, as they would be localized and flushed out or diluted before they could adhere to the substrate.

# 4.4 CULTURAL RESOURCES

Under the No Action alternative, stranding response would still occur on non-listed species, but no research would occur on any species. The majority of stranding responses are to non-listed species. Section 4.4 of the MMHSRP PEIS evaluates the potential impacts on cultural resources as a result of the proposed permitted actions, which could occur on submerged cultural resources or resources buried in sand from equipment and vehicle use on beaches and vessel use in nearshore waters, but adverse effects would not likely occur (NMFS 2009a). Section 5.4 of the PEIS describes the mitigation measures that would be undertaken to protect cultural resources by the MMHSRP. As described in Section 5.4 of the MMHSRP PEIS, stranding response on Native American/Alaska Native lands would be coordinated with Native American tribes, Alaska Natives, or other aboriginal peoples to accommodate cultural uses of marine mammals. This would especially be true with respect to vaccinating marine mammal species used for subsistence purposes. For vaccination of ice seals, the MMSHRP would extensively coordinate and communicate with geographically appropriate Alaskan Natives so that there was awareness in the community that animals had been vaccinated. Seals would be permanently marked in a way that is visible from a distance, so that hunters would know that an animal had once been vaccinated. Because of these mitigating factors, no significant effects are expected to occur on cultural resources under either alternative.

# 4.5 HUMAN HEALTH AND SAFETY

Section 4.5 of the MMHSRP PEIS identifies risks to responders and researchers to include contaminants, zoonotic diseases, and physical injuries. Contaminants may produce short-term effects, such as respiratory problems, lightheadedness, nausea, eye irritation, or skin irritation. Personnel may have allergic reactions to animal blubber and oils. Zoonotic diseases may have short-term effects including swelling, joint pain, skin lesions, and flu-like symptoms. Long-term effects from zoonotic diseases could occur, especially if they are not diagnosed properly. Physical injuries may include strains, bruises, and broken bones from working with large animals or working on boats, or removing/handling marine debris or contaminated debris in the marine environment. Accidental needle sticks and exposure to chemicals may occur. Activities in or close to water could result in drowning if proper safety measures are not taken. Responders and researchers in water may come into contact with sharks, jellyfish, rays, and other venomous fish.

Under the No Action alternative, stranding response and other activities would still occur for non-listed species. Under the Proposed Action (Alternative 2), stranding response on ESA-listed species and other activities including research on any marine mammal species could occur. Implementation of SA criteria and permit issuance criteria (ensuring personnel are trained and qualified to perform the duties) would ensure that responders and researchers are experienced and therefore have the knowledge to avoid or minimize health and safety risks. Only minor, short-term effects are expected.

From 2009-2014 during research permitted under the current permit, out of over 130 bottlenose dolphin captures, six human injuries were reported. These included a finger cut on a stalled boat propeller, a broken arm, and four stingray barb injuries, all of which were immediately and successfully treated. No human injuries occurred during disentanglement efforts of ESA-listed species, including disentangling large whales. No human injuries occurred during responses to dead ESA-listed species.

# 4.6 SOCIOECONOMIC

The social and economic effects of the No Action Alternative and Alternative 2 mainly involve the effects on the people involved in the research, as well as any industries that support the response and research, such as charter vessels and aircraft, and suppliers of equipment needed to accomplish the response and research. Under the No Action alternative, SA holders will still respond to non-listed species. However, no responses to ESA-listed species, scientific research, hot branding pinnipeds, UAS, or vaccinations would occur. Minor economic impacts are anticipated from the No Action alterative because for example, certain charter vessels and aircraft would not be utilized for ESA-listed species responses or research. Under the Alternative 2 (Proposed Action), the use of UAS could result in cost savings over the use of manned aircraft. However, manned surveys will still be needed in certain circumstances (e.g., to cover large geographic areas in search of entangled animals). The addition of responses to ESAlisted species when SA holders are already responding to non-listed species is expected to result in no more than minor economic impacts from additional costs associated with ESA-listed

responses and carrying out scientific research. Thus, there are no significant social or economic impacts of Alternative 2 interrelated with natural or physical environmental effects (NMFS 2009a).

# 4.7 SUMMARY OF COMPLIANCE WITH APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS

4.3.1 Endangered Species Act and Marine Mammal Protection Act This section summarizes conclusions resulting from consultation as required under section 7 of the ESA. No section 7 consultation is required for the No Action alternative, but would be required under Alternative 2. The NMFS Permits and Conservation Division requested consultation with the NMFS Endangered Species Act Interagency Cooperation Division. The resulting biological opinion (NMFS 2015) concluded that issuance of Permit No. 18786 would not jeopardize the existence of any threatened or endangered species or destroy or modify any critical habitat under the NMFS' jurisdiction.

Permits for scientific and enhancement purposes are issued under Section 10(a)(1)(A) of the ESA and Section 104 of the MMPA, and must be consistent with Section 10(d) of the ESA. These permits exempt research and enhancement activities on threatened and endangered species from the ESA's and MMPA's take prohibitions. The applicant submitted a permit application which included responses to all applicable questions in the application instructions. The requested permit is consistent with applicable issuance criteria in the ESA, MMPA, and NMFS implementing regulations. The views and opinions of scientists or other persons or organizations knowledgeable of the marine mammals that are the subject of the application or of other matters germane to the application were considered during the public comment period. The Marine Mammal Commission including its Committee of Scientific Advisors recommended issuance of the permit, stating the proposed activities are consistent with the purposes and policies of the MMPA. No other public comments were received.

The permit would contain standard terms and conditions stipulated in the MMPA and NMFS's regulations. As required by the MMPA, the permit would specify: (1) the effective date of the permit; (2) the number and kinds (species and stock) of marine mammals that may be taken (Appendix 2); (3) the location and manner in which they may be taken; and (4) other terms and conditions deemed appropriate. Other terms and conditions deemed appropriate relate to minimizing potential adverse impacts of specific activities, coordination among permit holders to reduce unnecessary duplication and harassment, monitoring of impacts of research, and reporting to ensure permit compliance.

#### Other Applicable Laws

*AWA*: The MMHSRP has applied for IACUC review for the proposed research protocols, and IACUC review is in process. The proposed permit No. 18786 is conditioned to require IACUC review and approval prior to conducting research. IACUC approval is not required for response/enhancement activities.

*CITES:* The MMHSRP has applied for and secured CITES permits for the import and export of marine mammals and marine mammal parts under NMFS jurisdiction, and would continue to obtain CITES permits as required.

FSA: Permit No. 18786 would be issued pursuant to the MMPA, ESA, and the FSA.

*NMSA*: The Permits and Conservation Division provided a copy of the new 5-year permit application to NOS. Comments were received from NOS requesting the MMHSRP contact the appropriate NMS office prior to conducting work in sanctuary waters as well as securing any required NMSA permits. The cover letter of the permit informs the MMHSRP of these requirements.

# **CHAPTER 5 MITIGATION MEASURES**

Chapter 5 of the PEIS describes mitigation measures for all MMHSRP activities including those requiring a permit, and the permit application also specifies mitigation. To reduce impacts to target marine mammals, the MMHSRP employs mitigation measures such as:

- For all activities:
  - Only allowing qualified personnel with extensive experience to conduct the activities.
  - o Discontinuing activities if they interfere with vital functions.
  - Coordinating activities with other researchers in the study area to the greatest extent possible by communicating with them when response activities would be conducted. Many times local researchers provide assistance to the emergency responders, helping them to identify or access the animal in distress.
  - Working with researchers with ongoing field studies to "piggy-back" sample collection to avoid duplicative capture efforts.
- For activities involving harassment:
  - Using protocols to minimize disturbance and ensure adequate opportunities for disentanglement, photo-identification, tagging, monitoring, and sampling (e.g., approaching gradually from behind or alongside, rather than head on; approaching at slow speeds; minimizing amount of time spent in close proximity to animals; modifying vessel parameters such as altitude/distance or speed to minimize disturbance).
  - Carrying out activities with pinnipeds efficiently to minimize the total time researchers are occupying the rookery/haul-out and the total number of times a site is disturbed.
- For activities involving captures:
  - Having an experienced marine mammal veterinarian, veterinary technician, or animal husbandry specialist present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives.
  - Monitoring respiration and body temperature and having an emergency kit to respond to complications.
- For rehabilitation and release:
  - Requiring facilities adhere to the NMFS Standards for Rehabilitation Facilities and Standards for Release published with the MMHSRP PEIS.
  - For rehabilitation of ESA-listed marine mammals, following Procedural Directive 02-301-01 specifically for ESA-listed species.

- For hot branding:
  - Returning skin to normal temperature as quickly as possible using water.
  - Branding under gas anesthesia whenever possible.
  - Not branding compromised animals.
- For UAS:
  - Conducting operations pursuant to NOAA UAS Policy 220-1-5, including aircraft airworthiness certification from NOAA, pilot and crewmember training and qualification under the NOAA Operations Manual, aircraft authorization through the FAA, preflight and operational checklists, and appropriate agency notifications.
  - Only hovering over an individual only long enough to obtain the needed data.
- For vaccinations:
  - Testing on captive, surrogate, or rehabilitating animals.
  - Not using live vaccines.

Additional mitigation to minimize impacts to target and non-target species is included in the MMHSRP PEIS and File No. 18786 permit application. The proposed permit would contain standard conditions requiring annual reporting, which allows NMFS to further analyze beneficial and adverse impacts of permitted activities and to develop and further refine best management practices.

The permit would also include the same specific mitigation for different taxa (e.g., cetaceans, pinnipeds) and types of activities (e.g., research v. enhancement) as currently permitted to minimize potential adverse impacts, including requiring activities to stop if an animal exhibits a strong adverse reaction to the activity. Mitigation measures would be added to the permit for the new activities including (but not limited to):

- Specifying minimum age/size of ESA-listed pups that may be branded.
- Requiring UAS altitude adjustments and horizontal movements are made away from the animals or conducted very slowly when above the animals, when practicable, to minimize disturbance.
- Not allowing use of vaccinations in the wild if testing results show responses that may negatively affect fitness of animals.

For disposal of ESA-listed carcasses, those with contaminant levels that meet or exceed the definition of hazardous waste under EPA, state, and/or local regulations, would be taken to an EPA-designated hazardous waste landfill for proper disposal. Non-toxic carcasses may be disposed in Federal waters without a permit. During all permitted activities, measures would be taken to avoid protected and sensitive habitats. When these areas cannot be avoided, the proper authorities would be contacted to obtain necessary permits and determine best practices to minimize impacts.

# **CHAPTER 6 CUMULATIVE EFFECTS**

Cumulative effects are defined those that result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

Other factors affecting cumulative impacts on marine mammals include but are not limited to fisheries interactions, vessel strikes, vessel noise, human disturbance, industrial activities, environmental pollution (marine debris and contaminants), disease outbreaks, climate change, and habitat degradation. The goal of the MMHSRP is to collect information to assess how these factors influence the health of marine mammals, as well as to mitigate their effects. For example, the Proposed Action would allow for disentanglement and dehooking of marine mammals affected by fisheries interactions and marine debris, thus providing mitigation to those factors that may kill or seriously injure marine mammals. The MMHSRP collects data on vessel strikes of ESA-listed species, which can be used to inform management actions that could reduce vessel strikes. As well, responding to unusual mortality events of ESA-listed species affected by a an outbreak, could help mitigate cumulative impacts from disease.

There are other permits authorizing takes of marine mammals in the U.S. NMFS has issued numerous permits for the take of marine mammals by harassment from a variety of activities, including but not limited to aerial and vessel surveys (including manned and unmanned), photoidentification, remote biopsy sampling, attachment of scientific instruments, marking, and capture and sampling of marine mammals in the U.S. The MMHSRP Permit No. 932-1905-01 is one of the only permits authorizing the take of stranded or distressed marine mammals, including such things as disentangling whales and other ESA-listed species, and rehabilitating and releasing ESA-listed marine mammals. One other permit authorizes vaccinations, disentanglements, and in-situ veterinary treatments of marine mammals (Hawaiian monk seals), issued to the Pacific Islands Fisheries Science Center (PIFSC) for response to Hawaiian monk seals. Response activities for Hawaiian monk seals are closely coordinated between the MMHSRP and PIFSC (NMFS 2014c). A limited number of permits authorize disentanglement of marine mammals in remote areas if entangled animals are encountered during research.

The number of permits and associated takes by harassment for research purposes indicate a high level of effort for some marine mammal species in the Proposed Action area, including threatened and endangered species. This is due, in part, to interest in developing appropriate management and conservation measures to monitor and recover these species. Given the number of permits, associated takes and research vessels and personnel present in the environment, repeated disturbance of individual marine mammals may occur in some instances, particularly in coastal areas (due to the proximity to shore). However, most of the permitted activities do not overlap in area or timing. In cases where overlap occurs, the MMHSRP often partners with such researchers to take additional samples under existing capture permits to minimize duplication in effort.

All permits issued by NMFS for takes of protected species contain conditions requiring the Permit Holders to coordinate their activities with the NMFS regional offices and other Permit Holders conducting research on the same species in the same areas maintain close communication, and, to the extent possible, share data to avoid unnecessary duplication of research and disturbance of animals. Thus, requirements are in place to limit repeated harassment and avoid unnecessary duplication of research effort through permit conditions requiring coordination among permit holders.

As described in the 2009 MMHSRP PEIS, permit issuance (including amendments) is likely to have some level of both adverse and beneficial impact on marine mammal populations in the Proposed Action area, particularly where ESA-listed (endangered and threatened) and MMPA-depleted species are involved. Although the target species are impacted by a number of human activities, it is important to note that these activities are not occurring simultaneously on the same individuals of a population/stock on a daily basis and most human impacts do not cause serious injury or mortality of marine mammals. Further, the target species are not exposed to all human activities at all times, particularly given the broad action area and migratory nature of some species.

The short-term stresses (separately and cumulatively with other environmental stresses) resulting from the permit would be expected to be minimal to targeted animals. Behavioral reactions suggest that harassment is brief, lasting minutes, before animals resume normal behaviors. NMFS expects any effects of harassment to dissipate before animals could be harassed by other human activities. Although hot branding is expected to cause pain and create a burn wound, these adverse impacts are not expected to lead to long-term consequences such as reduced fitness or delayed mortality (NMFS 2007b). Significant cumulative impacts are not expected since serious injury or mortality is not expected from hot branding, UASs, or vaccinations (resulting in no direct loss of animals from the population) nor is an appreciable reduction in the fecundity of target individuals. Therefore, the proposed additional takes in Alternative 2 would contribute a negligible increment of harassment and injury over and above the effects of the baseline activities currently occurring in the marine environment of the proposed action area.

Although the potential moderate adverse effects of repeated or chronic disturbance should not be dismissed, the potential long-term benefits and value of information gained on these species also must be considered. The proposed enhancement would include interventions to save the lives of marine mammals, and research would provide valuable information on these species' biology and ecology that in turn would be used to improve their management and reduce the effects of human activities on these populations.

#### **CHAPTER 7 LIST OF PREPARERS AND AGENCIES CONSULTED**

This document was prepared by the Marine Mammal and Sea Turtle Division and the Permits and Conservation Division of NMFS' Office of Protected Resources in Silver Spring, Maryland.

No other Agencies were consulted in the preparation of this EA.

# **CHAPTER 8 LITERATURE CITED**

- Acevedo-Whitehouse, K., A. Rocha-Gosselin, and D. Gendron. 2010. A novel non-invasive tool for disease surveillance of free-ranging whales and its relevance to conservation programs. Animal Conservation 13(2):217-225.
- Anonymous. 2009. Unmanned aircraft helping scientists learn about Alaskan ice seals. Marine Pollution Bulletin 58(8):1100-1101.
- Braun, R. C., and P. K. Yochem. 2006. Final report. Workshop to evaluate the potential for use of Morbillivirus vaccination in Hawaiian monk seals. Hubbs-SeaWorld Research Institute, San Diego, California.
- Bronson, E., S. Deem, C. C. Sanchez, and S. Murray. 2007. Serologic response to a canarypoxvectored canine distemper virus vaccine in the giant panda (*Ailuropoda melanoleuca*). Journal of Zoo and Wildlife Medicine 38:363-366.
- Carretta, J., and coauthors. 2007. U.S. Pacific marine mammal stock assessments: 2006. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center.
- Cross, M. L., B. M. Buddle, and F. E. Aldwell. 2007. The potential of oral vaccines for disease control in wildlife species. Veterinary Journal 174:472-480.
- Daoust, P.-Y., G. M. Fowler, and W. T. Stobo. 2006. Comparison of the healing process in hot and cold brands applied to harbour seal pups (*Phoca vitulina*). Wildlife Research 33(5):361–372.
- Deem, S. L., L. H. Spelman, R. A. Yates, and R. J. Montali. 2000. Canine distemper in terrestrial carnivores: A review. Journal of Zoo and Wildlife Medicine 31: 441–451.
- Duignan, P. J., and coauthors. 2014. Phocine distemper virus: Current knowledge and future directions. Viruses 6:5093-5134.
- Durban, J. 2014. Unmanned aerial vehicle offers a new view of killer whales. NOAA Fisheries Podcast.
- Goebel, M. E., and coauthors. 2015. A small unmanned aerial system for estimating abundance and size of Antarctic predators. Polar Biology.
- Griffin, D. E., and M. B. A. Oldstone. 2009. Measles: Pathogenesis and control. Springer.
- Harkonen, T., and coauthors. 2006. A review of the 1988 and 2002 phocine distemper virus epidemics in European harbour seals. Diseases of Aquatic Organisms 68(2):115-130.
- Harwood, J., and A. Hall. 1990. Mass mortality in marine mammals: Its implications for population dynamics and genetics. Trends in Ecology and Evolution 5(8):254-257.
- Hastings, K. K., T. S. Gelatt, and J. C. King. 2009. Postbranding survival of Steller sea lion pups at Lowrie Island in southeast Alaska. Journal of Wildlife Management 73(7):1040-1051.
- Irvine, A. B., R. S. Wells, and M. D. Scott. 1982. An evaluation of techniques for tagging small odontocete cetaceans. Fishery Bulletin 80(1):135-143.
- Jessup, D. A., M. J. Murray, D. R. Casper, D. Brownstein, and C. Kreuder-Johnson. 2009. Canine distemper vaccination is a safe and useful preventive procedure for southern sea otters (*Enhydra lutra nereis*). Journal of Zoo and Wildlife Medicine 40(4):705-710.
- Koski, W. R., and coauthors. 2009. Evaluation of an unmanned airborne system for monitoring marine mammals. Aquatic Mammals 35(3):347-357.
- Lombard, M., P. P. Pastoret, and A. M. Moulin. 2007. A brief history of vaccines and vaccination. Reviews of Science and Technology 26:29–48.
- Mähl, P., and coauthors. 2014. Twenty year experience of the oral rabies vaccine SAG2 in wildlife: A global review. Veterinary Research 45.

- Martin, J., and coauthors. 2012. Estimating distribution of hidden objects with drones: From tennis balls to manatees. PLoS ONE 7(6):e38882.
- McMahon, C. R., H. R. Burton, J. V. D. Hoff, R. Woods, and C. J. A. Bradshaw. 2006. Assessing hot-iron and cryo-branding for permanently marking southern elephant seals. Journal of Wildlife Management 70(5):1484-1489.
- Meeusen, E. N. T., J. Walker, A. Peters, P. P. Pastoret, and G. Jungersen. 2007. Current status of veterinary vaccines. Clinical Microbiology Reviews 20:489-510.
- Mellish, J.-A., and coauthors. 2007. Permanent marking in an endangered species: Physiological response to hot branding in Steller sea lions (*Eumetopias jubatus*). Wildlife Research 34(1):43–47.
- Merrick, R. L., T. R. Loughlin, and D. G. Calkins. 1996. Hot branding: A technique for longterm marking of pinnipeds. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Fisheries Science Center.
- Mulaca, B., R. Storvoldb, and E. Weatherhead. 2011. Remote sensing in the arctic with unmanned aircraft: Helping scientists to achieve their goals. Thirty-Fourth International Symposium on Remote Sensing of Environment, Sydney, Australia.
- NAO-216-6 (1999). Add full citation.
- NMFS. 2007a. Final programmatic environmental impact statement on the Steller sea lion and northern fur seal research programs. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.
- NMFS. 2007b. Steller sea lion and northern fur seal research final programmatic: Environmental impact statement. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protective Resources, Permits Division.
- NMFS. 2008. Supplemental environmental assessment on the effects of the issuance of eleven National Marine Fisheries Service (NMFS) permitted scientific research activities on marine mammals and sea turtles in the U.S. territorial waters and high seas of the North Pacific Ocean (including the Gulf of Alaska and Bering Sea), Arctic Ocean (including the Chukchi Sea and Beaufort Sea), Southern Ocean (including waters off Antarctica), and foreign territorial waters of Mexico (Gulf of California only), Canada, Russia, Japan, and the Philippines. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.
- NMFS. 2014a. Environmental assessment for issuance of permits to take Steller sea lions by harassment during surveys using unmanned aerial systems. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.
- NMFS. 2014b. Supplemental environmental assessment for issuance of amendments to scientific research permit no. 14097-03 to add specific cetacean research activities.
- NMFS. 2014c. Final Programmatic Environmental Impact Statement for Hawaiian monk Seal Recovery Actions.
- NMFS 2015. Biological Opinion on Issuance of Permit No. 18786 to the Marine Mammal Health and Stranding Response Program.

NOAA UAS Policy 220-1-5. Add full citation.

- Norton, S. L., and coauthors. 2012. Designating critical habitat for juvenile endangered smalltooth sawfish in the United States. Marine and Coastal Fisheries 4(1):473-480.
- O'Connor, L., and P. Pomeroy. 2013. A UAV-based system for capture-mark-recapture of grey seals in the UK. University of St. Andrews, Scottish Oceans Institute, SMRU.

- Quinley, N., and coauthors. 2013. Serologic response of harbor seals (*Phoca vitulina*) to vaccination with a recombinant canine distemper vaccine. Journal of Wildlife Diseases 49(3):579-586.
- Rosatte, R. C., and coauthors. 2009. The control of raccoon rabies in Ontario Canada: Proactive and reactive tactics, 1994-2007. Journal of Wildlife Diseases 45:772–784.
- Schick, R., and coauthors. 2014. Estimating body condition in harbour seals in Loch Fleet with aerial photogrammetry: A proof of concept study.
- Scott, M. D., R. S. Wells, A. B. Irvine, and B. R. Mate. 1990. Tagging and marking studies on small cetaceans. Pages 489-514 in S. Leatherwood, and R. R. Reeves, editors. The Bottlenose Dolphin. Academic Press, San Diego.
- Selby, W., P. Corke, and D. Rus. 2011. Autonomous aerial navigation and tracking of marine animals. 2011 Australasian Conference on Robotics and Automation. Australian Robotics & Automation Association.
- Sleno, G. A., and A. W. Mansfield. 1978. Aerial photography of marine mammals using a radiocontrolled model aircraft. Canada Fisheries and Marine Service
- Smith et al. submitted. Add full citation.
- Thorne, E. T., and E. Williams. 1988. Diseases and endangered species: The black-footed ferret as a recent example. Conservation Biology 2:66-73.
- USFWS. 2008. Florida panther recovery plan. U.S. Fish and Wildlife Service.
- Walker, K. A., J.-A. E. Mellish, and D. M. Weary. 2010. Behavioural responses of juvenile Steller sea lions to hot-iron branding. Alied Animal Behaviour Science 122(1):58-62.
- Walker, K. A., A. W. Trites, M. Haulena, and D. M. Weary. 2011. A review of the effects of different marking and tagging techniques on marine mammals. Wildlife Research.
- Waring, G. T., E. Josephson, C. P. Fairfield, and K. Maze-Foley. 2007. US Atlantic and Gulf of Mexico marine mammal stock assessments - 2007. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Center.
- Warner, R. E. 1968. The role of introduced diseases in the extinction of the endemic Hawaiian avifauna. Condor 70:101-120.
- Wilkinson, I. S., B. L. Chilvers, P. J. Duignan, and P. A. Pistorius. 2011. An evaluation of hotiron branding as a permanent marking method for adult New Zealand sea lions, *Phocarctos hookeri*. Wildlife Research 38(1):51–60.

# APPENDIX 1. STOCK ASSESSMENT REPORT SUMMARY INFORMATION

					MMHSRP	2014
Common name	Stock	Next	N:.	PBR	PEIS	2014 strategic
	Stock	- vest	- 'min	IDR	strategic	status
Onden Cotesee Musticeti					status	
Family Balaenidae						
North Pacific right whale	Eastern North Pacific	31	25.7	0	S	S
North Atlantic right whale	Western North Atlantic	465	465	0.9	S	S
Bowhead whale	Western Arctic	16,892	13,796	138	S	S
Family Eschrichtiidae		- ,	- ,			
	Western North Pacific	140	135	0.06		
Gray whale	Eastern North Pacific	20,990	20,125	624	N	Ν
Family Balaenopteridae						
	Eastern North Pacific	1,647	1,551	12.2 (2.3 US)	S	S
Blue whale	Western North Atlantic				S	S
	Central North Pacific	81	38	0.1	S (Hawaii)	S
	Northern Gulf of Mexico	33	16	0.16	N	S
<b>D</b> 1 1 1 1	Hawaii	469	327	3.3	N	N
Bryde's whale	Eastern Tropical Pacific	13,000	11,163	-	N (CA/OR/WA)	
	Western North Atlantic	n/a	n/a	n/a		
	Northeast Pacific	1,652	1,368	unk	S	S
Fin whale	CA/OR/WA	3,051	2,598	16.0	S	S
	Hawaii	58	27	0.1	S	S
	Western North Atlantic	1,618	1,234	2.5	S	S
	Gulf of Maine	823	823	2.7	S	S
	Western North Pacific	1,107	865	3	S	S
Humpback whale	Central North Pacific	10,103	7,890	82.8	S	S
	CA/OR/WA	1,918	1,855	22.5 (11 US)	S	S
	American Samoa	unk	150	0.4		Ν
	Alaska	unk	unk	unk	Ν	Ν
	CA/OR/WA	478	202	2	Ν	Ν
	Hawaii	unk	unk	unk		Ν
Minke whale	Canadian East Coast	20,741	16,199	162	Ν	Ν
	Eastern North Pacific	126	83	0.17		
	Hawaii	77	37	0.1	Ν	Ν
	Nova Scotia	357	236	0.5		
	Nova Scotia	357	236	0.5	S	S
Sei whale	Hawaii	77	37	0.1	S	S
	Eastern North Pacific	126	83	0.17	S	S
Odontoceti - Family Physeteridae						
· · · · · · · · · · · · · · · · · · ·	North Pacific	unk	unk	unk	S	S
	CA/OR/WA	2,106	1,332	2.7	S	S
Sperm whale	Hawaii	3,354	2,539	10.2	S	S
	North Atlantic	2,288	1,815	3.6	S	S

Common name	Stock	N <sub>est</sub>	N <sub>min</sub>	PBR	MMHSRP PEIS strategic status	2014 strategic status
	Gulf of Mexico	763	560	1.1	S	S
	Puerto Rico and U.S. Virgin Islands	unk	unk	unk		S
Family Kogiidae						
Dwarf sperm whale	CA/OR/WA	unk	unk	unk	Ν	Ν
Dwarf sperm whale	Hawaii	17,519	10,043	100	Ν	Ν
Pygmy sperm whale	CA/OR/WA	579	271	2.7	Ν	Ν
Pygmy sperm whale	Hawaii	7,138	3,341	33	Ν	Ν
Dwarf sperm whale		2 705	2 500	26.0	Ν	Ν
Pygmy sperm whale	— Western North Atlantic	3,785	2,598	26.0	S	Ν
Dwarf sperm whale	Gulf of Mexico Oceanic	10.6	00	0.0	Ν	N
Pygmy sperm whale	(Kogia spp.)	186	90	0.9	N	Ν
Family Ziphiidae						
Baird's backed whole	Alaska	unk	unk	unk	Ν	Ν
Banu s beaked whate	CA/OR/WA	847	466	4.7	Ν	Ν
Blainville's beaked whale	Hawaii	2,338	1,088	11	Ν	Ν
	Alaska	unk	unk	unk	Ν	Ν
	CA/OR/WA	6,590	4,481	45	Ν	S
	Hawaii	1,941	1,142	11.4	Ν	Ν
Cuvier's beaked whale	Western North Atlantic	6,532	5,021	50	S	Ν
	Gulf of Mexico Oceanic	74	36	0.4	S	Ν
	Puerto Rico and U.S. Virgin Islands	unk	unk	unk		S
Longman's beaked Whale	Hawaii	4,571	2,773	28	Ν	Ν
Northern bottlenose whale	Western North Atlantic	unk	unk	unk	Ν	Ν
Stejneger's beaked whale	Alaska	unk	unk	unk	Ν	Ν
Hubbs' beaked whale					Ν	S
Blainville's beaked whale					Ν	S
Ginkgo-toothed beaked whale	CA/OR/WA		389		N	S
Perrin's beaked whale	<ul> <li>(Mesoplodont beaked</li> <li>wheles)</li> </ul>	694		3.9	N	S
Lesser (pygmy) beaked whale	wilales)				N	S
Steineger's beaked whale	—				N	S
Blainville's beaked whale					S	N
	Western North Atlantic/Gulf				<u> </u>	N
Gervais' beaked whale	beaked whales)	7,092	4,632	46	S	N
True's beaked whale					S	N
Sowerby's beaked whale	Western North Atlantic				S	N
Blainville's beaked whale	Gulf of Mexico Oceanic	1/10	77	0.8		N
Gervais' beaked whale	whales)	149	77	0.8		Ν
Family Monodontidae		_				
Narwhal	Unidentified	unk	unk	unk		N
	Beautort Sea	39,258	32,453	649	N	N
Beluga whale	Eastern Unukent Sea	3,/10	1/1 751	unk	IN N	N N
Boruga witate	Bristol Bav	2.877	2.467	59	N	N
	Cook Inlet	312	280	unk	S	S

#### MMHSRP 2014 PEIS PBR **Common name** Stock Nest $\mathbf{N}_{\min}$ strategic strategic status status **Family Delphinidae** Western North Atlantic 44,715 31,610 316 Ν Ν Gulf of Mexico (Continental 37,611 29,844 298 Ν Ν Atlantic spotted dolphin Shelf and Oceanic) Puerto Rico and U.S. Virgin S unk unk unk Islands 48,819 Atlantic white-sided dolphin Western North Atlantic 30,401 304 Ν CA/OR/WA Offshore 1,006 684 5.5 Ν Ν California Coastal 323 290 2.4 Ν Ν 5,950 Hawaii Pelagic 3,755 38 Ν Kaua'i and Ni'ihau 184 168 1.7 Ν O'ahu 743 485 4.9 Ν 4 Islands Region 191 156 1.6 Ν Hawaii Island 128 115 1.1 Ν Ν Western North Atlantic 77,532 Ν Ν 56,053 561 Offshore Western North Atlantic 11,548 86 S S 8,620 Coastal, Northern Migratory Western North Atlantic S S 9,173 6,326 63 Coastal, Southern Migratory Western North Atlantic Coastal, South Carolina/ 4,377 3,097 31 S S Georgia Western North Atlantic 7 S S 1,219 730 Coastal, Northern Florida Western North Atlantic 4,895 2,851 29 S S Coastal, Central Florida Northern North Carolina 950 785 7.9 S Estuarine System Common bottlenose dolphin Southern North Carolina S 188 160 16 Estuarine System Northern South Carolina S unk unk unk Estuarine System Charleston Estuarine System 289 281 S 2.8 Northern Georgia/Southern South Carolina Estuarine S unk unk unk System Southern Georgia Estuarine 194 185 1.9 S System Jacksonville Estuarine S unk unk unk System Indian River Lagoon S unk 615 6.2 Estuarine System Biscayne Bay 157 S unk 1.6 Florida Bay 447 514 4.5 Ν Gulf of Mexico Continental 17,777 13,667 136 Ν Ν Shelf Gulf of Mexico, Eastern S 7,702 6,551 66 Ν Coastal S S Gulf of Mexico, Northern 2,473 2,004 20

Common name	Stock	N <sub>est</sub>	$\mathbf{N}_{\min}$	PBR	MMHSRP PEIS strategic status	2014 strategic status
	Coastal					
	Gulf of Mexico, Western Coastal	3,499	2,938	29	S	S
	Gulf of Mexico Oceanic	5,806	4,230	42	Ν	Ν
	Gulf of Mexico Bay, Sound, and Estuary - Laguna Madre	80	31	0.3	S	S
	BSE - Nueces Bay, Corpus Christi Bay	58	36	0.4		S
	BSE - Copano Bay, Aransas Bay, San Antonio Bay, Redfish Bay, Espiritu Santo Bay	55	30	0.3		S
	BSE - Matagorda Bay, Tres Palacios Bay, Lavaca Bay	61	42	0.4		S
	BSE - West Bay	32	28	0.3		S
	BSE - Galveston Bay, East Bay, Trinity Bay	152	107	1.1		S
	BSE - Sabine Lake	0	n/a	n/a		S
	BSE - Calcasieu Lake	0	n/a	n/a		S
	BSE - Vermilion Bay, West Cote Blanche Bay, Atchafalaya Bay	0	n/a	n/a		S
	BSE - Terrebonne Bay, Timbalier Bay	100	66	0.7		S
	BSE - Barataria Bay Estuarine System	138	129	1.3		S
	BSE - Mississippi River Delta	0	n/a	n/a		S
	BSE - Mississippi Sound, Lake Borgne, Bay Boudreau	1,401	1,256	13		S
	BSE - Mobile Bay, Bonsecour Bay	122	92	0.9		S
	BSE - Perdido Bay	0	n/a	n/a		S
	BSE - Pensacola Bay, East Bay	33	18	0.2		S
	BSE - Choctawhatchee Bay	179	173	1.7		S
	BSE - St. Andrew Bay	124	79	0.8		S
	BSE - St. Joseph Bay	146	126	1.3		S
	BSE - St. Vincent Sound, Apalachicola Bay, St. George Sound	439	390	3.9		S
	BSE - Apalachee Bay	491	358	3.6		S
	BSE - Waccasassa Bay, Withlacoochee Bay, Crystal Bay	100	54	0.5		S
	BSE - St. Joseph Sound, Clearwater Harbor	37	18	0.2		S
	BSE - Tampa Bay	559	458	4.6		S
	BSE - Sarasota Bay, Little Sarasota Bay	160	160	1.6		S

	<u>a.</u>		N	DDD	MMHSRP PEIS	2014
Common name	Stock	N <sub>est</sub>	$N_{min}$	PBR	strategic status	strategic status
	BSE - Lemon Bay	0	n/a	n/a		S
	BSE - Pine Island Sound, Charlotte Harbor, Gasparilla Sound	209	153	1.5		S
	BSE - Caloosahatchee River	0	n/a	n/a		S
	BSE - Estero Bay	104	62	0.6		S
	BSE - Chokoloskee Bay, Ten Thousand Islands, Gullivan Bay	208	144	1.4		S
	BSE - Whitewater Bay	242	179	1.8		S
	BSE - Florida Keys (Bahia Honda to Key West)	29	14	0.1		S
	Puerto Rico and U.S. Virgin Islands	unk	unk	unk		S
Clymene dolphin	Western North Atlantic	6,086	3,132	31	Ν	Ν
Crymene dorpinn	Gulf of Mexico Oceanic	129	64	0.64	Ν	Ν
	Western North Atlantic	442	212	2		
	Gulf of Mexico Oceanic	777	501	5	Ν	Ν
	Northwestern Hawaiian Islands	552	262	2.6		Ν
False killer whale	Hawaii Pelagic	1,552	935	9.4		S
	Palmyra Atoll	1,329	806	6.4	Ν	Ν
	Main Hawaiian Islands Insular	162	138	0.3	S	S
	American Samoa	unk	unk	unk		Unk
	Western North Atlantic	unk	unk	unk	Ν	N
Fraser's dolphin	Gulf of Mexico Oceanic	726	427	4.3	N	N
	Hawaii	16,992	10,241	102	N	N
	Western North Atlantic	unk	unk	unk	N	N
	Gulf of Mexico Oceanic	28	14	0.1	N	N
	Hawaii Eastarn North Dasifia Alaska	101	50	1	N	N
	Resident	2,347	2,347	23.4	Ν	Ν
	Eastern North Pacific Northern Resident	261	261	1.96	Ν	Ν
Killer whale	Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient	587	587	5.9	Ν	Ν
	AT1 Transient	7	7	0	S	S
	West Coast Transient	243	243	2.4	N	Ν
	Eastern North Pacific Offshore	240	162	1.6	Ν	Ν
	West Coast Transient	354	354	3.5		Ν
	Eastern North Pacific Southern Resident	82	82	0.13	S	S
Long-beaked common dolphin	California	107,016	76,224	610	S	Ν
Long-finned pilot whale	Western North Atlantic	26,535	19,930	199	Ν	Ν
	Western North Atlantic	unk	unk	unk	Ν	Ν
weion-neaded whale	Gulf of Mexico Oceanic	2,235	1,274	13	Ν	Ν

					MMHSRP PEIS	2014
Common name	Stock	N <sub>est</sub>	$N_{min}$	PBR	strategic	strategic
					status	status
	Kohala Resident	447	404	4		Ν
	Hawaii	5,794	4,904	49	Ν	Ν
Northern right whale dolphin	CA/OR/WA	8,334	6,019	48	Ν	Ν
Desifie white sided delahin	Central North Pacific	unk	26,880	269	Ν	Ν
Pacific white-sided doiphin	CA/OR/WA	26,930	21,406	171	Ν	Ν
	Western North Atlantic	3,333	1,733	17	Ν	Ν
	Gulf of Mexico Oceanic	50,880	40,699	407	Ν	Ν
Pantropical spotted dolphin	O'ahu	unk	unk	unk		Ν
Faintopical spotted dolphin	4 Islands Region	unk	unk	unk		Ν
	Hawaii Island	unk	unk	unk	Ν	Ν
	Hawaii Pelagic	15,917	11,508	115		Ν
	Western North Atlantic	unk	unk	unk	Ν	Ν
Pygmy killer whale	Gulf of Mexico Oceanic	152	75	0.8	Ν	Ν
	Hawaii	3,433	2,274	23	Ν	Ν
	Western North Atlantic	18,250	12,619	126	Ν	Ν
Discola delutio	Gulf of Mexico Oceanic	2,442	1,563	16	Ν	Ν
Risso's dolphin	Hawaii	2,372	1,195	12	Ν	Ν
	CA/OR/WA	6,272	4,913	39	Ν	Ν
	Hawaii	6,288	4,581	46	N	Ν
	American Samoa	unk	unk	unk		Unk
Pough toothad dalphin	Western North Atlantic	271	134	1.3		Ν
Kough-toothed dolphin	Gulf of Mexico (Outer	(24	211	2.1	N	N
	Oceanic)	024	311	3.1	N	N
Short haakad aammon dolphin	Western North Atlantic	173,486	112,531	1,125	Ν	Ν
Short-beaked common dorphin	CA/OR/WA	411,211	343,990	3,440	Ν	Ν
	Hawaii	12,422	8,782	70	Ν	Ν
	Western North Atlantic	21,515	15,913	159	Ν	Ν
Short finned nilet whele	Gulf of Mexico Oceanic	2,415	1,456	15	N	Ν
Short-mined phot whate	Puerto Rico and U.S. Virgin	unk	unk	unk		S
	CA/OR/WA	760	465	4.6	S	N
	Western North Atlantic	unk	unk	unk	N	N
	Puerto Rico and U.S. Virgin	ulik	ulik	ulik	IN .	1
	Islands	unk	unk	unk		S
	Gulf of Mexico Oceanic	11,441	6,221	62	N	N
	Hawaii Pelagic	3,351	1,920	19		Ν
Spinner dolphin	Hawaii Island	820	793	7.9	Ν	Ν
	Oahu/4 Islands	355	329	3.3		Ν
	Kauai/Ni'ihau	601	509	5.1		Ν
	Kure/Midway	unk	unk	unk		N
	Pearl and Hermes Reef	unk	unk	unk		Ν
	American Samoa	unk	unk	unk		Unk
	Western North Atlantic	54,807	42,804	428	Ν	N
Striped dolphin	CA/OR/WA	10,908	8,231	82	Ν	Ν
Sarped dorphin	Gulf of Mexico Oceanic	1,849	1,041	10	N	Ν
	Hawaii	20,650	15,391	154	Ν	Ν

Common name	Stock	N <sub>est</sub>	N <sub>min</sub>	PBR	MMHSRP PEIS strategic status	2014 strategic status	
White-beaked dolphin	Western North Atlantic	2,003	1,023	10	Ν	Ν	
Family Phocoenidae							
	Alaska	83,400	unk	unk	N	Ν	
Dall's porpoise	CA/OR/WA	42,000	32,106	257	Ν	Ν	
	Southeast Alaska	11,146	9,116	unk	S	S	
	Gulf of Alaska	31,046	25,987	unk	S	S	
	Bering Sea	48,215	40,039	unk	S	S	
	Washington Inland Waters	10,682	7,841	63	Ν	Ν	
	Northern Oregon/Washington Coast	21,487	15,123	151	Ν	Ν	
Harbor porpoise	Northern CA/Southern OR	35,769	23,749	475	Ν	Ν	
	San Francisco-Russian River	9,886	6,625	66	N	Ν	
	Monterey Bay	3,715	2,480	25	Ν	Ν	
	Morro Bay	2,917	2,102	21	Ν	Ν	
	Gulf of Maine/Bay of Fundy	79 883	61 415	706	N	S	
Ondon Conningano Binning	dia Eamily Otariidaa	19,005	01,415	700	14	5	
Order Carmvora - Pinnpe	uia - Faininy Otariluae	<b>2</b> 0 <b>5 7 5 0</b>	150.005				
California sea lion	U.S.	296,750	153,337	9,200	N	N	
Guadalupe fur seal		7,408	3,028	91	S	S	
Northern fur seal	Eastern Pacific	648,534	548,919	11,802	S	S	
Northern für sear	San Miguel Island	12,844	6,722	403	Ν	Ν	
Steller sea lion	Western U.S.	52,209 (US) + ~16,000 (RUS)	48,676	292	S	S	
	Eastern U.S.	60,131- 74,448	59,968	2,193	S	Ν	
Family Phocidae							
Bearded seal	Alaska	155,000	unk	unk	Ν	S	
Gray seal	Western North Atlantic	331,000	n/a	17,478	Ν	Ν	
	Aleutian Islands	3,579	3,313	99	N (Gulf of Alaska)	Ν	
	Pribilof Islands	232	232	7	N (Bering Sea)	Ν	
	Bristol Bay	18,577	17,690	1,061		N	
	North Kodiak	4,509	4,272	256		N	
	South Kodiak	11,117	10,645	639		N	
	Prince William Sound	31,503	27,157	815		N	
Harbor seal	Clocier Bay/Jay Strait	22,900	21,896	1,314	N (co alc)	N	
	Lynn Canal/Stenhens	8 870	4,733	254	in (se ak)	IN N	
	Sitka/Chatham	8.586	8,222	2.54		N	
	Dixon/Cape Decision	14.388	13,682	821		N	
	Clarence Strait	23,289	22,471	1,348		N	
	Washington Northern Inland Waters	11,036	unk	unk	Ν	Ν	
	Southern Puget Sound	1,568	unk	unk		Ν	
	Hood Canal	1,088	unk	unk		Ν	

Common name	Stock	N <sub>est</sub>	N <sub>min</sub>	PBR	MMHSRP PEIS strategic status	2014 strategic status
	OR/WA Coast	unk	unk	unk	Ν	Ν
	California	30,968	27,348	1,641	Ν	Ν
	Western North Atlantic	75,834	66,884	2,006	Ν	Ν
Harp seal	Western North Atlantic	8,300,000	n/a	450,000	Ν	Ν
Hawaiian monk seal	Hawaii	1,153	1,118	unk	S	S
Hooded seal	Western North Atlantic	592,100	512,000	15,360	Ν	Ν
Northern elephant seal	California Breeding	179,000	81,368	4,882	Ν	Ν
Ribbon seal	Alaska	61,100	unk	unk	Ν	Ν
Ringed seal	Alaska	300,000	unk	unk	Ν	S
Spotted seal	Alaska	460,268	391,000	11,730	Ν	Ν

# APPENDIX 2. TAKE TABLES

**Permit No. 18786 Table 1**. Authorized emergency response related enhancement and research activities, incidental harassment, and import/export of marine mammals and marine mammal parts under the jurisdiction of the National Marine Fisheries Service (NMFS) conducted pursuant to Section 10(a)(1)(A) of the ESA, in conjunction with Sections 104(c), 109(h), 112(c), and Title IV authorities of the MMPA. Activities may occur at any time of year on land, beaches, and coastal waters of the U.S., waters within the U.S. EEZ, and international waters; at captive facilities and rehabilitation centers. Includes world-wide import/export of marine mammals and marine mammal parts.

Line No.	Species	DPS/ Stock	Life Stage	Sex	No. Animals	No. Takes per Animal	Procedures	Details
1	Cetacean, unidentified	Range- wide	All	Male and Female	As warrante to emerge conduct related	d to respond encies and response- research	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Captive, maintain; Captive, research; Cognitive studies; Collect, remains for predation study; Collect, sloughed skin; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Imaging, thermal; Import/export/receive, parts; Incidental harassment; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Intentional (directed) mortality; Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Restrain, hand; Restrain, net; Salvage (carcass, tissue, parts); Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, blubber biopsy; Sample, exhaled air; Sample, fecal; Sample, milk (lactating females); Sample, other; Sample, skin and blubber biopsy; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, oral swab; Sample, other; Stable isotopes and serial blood samples; Tracking; Transport; Ultrasound; Underwater photo/videography; Unintentional mortality; Weigh; X-ray	Emergency response of ESA-listed cetaceans; and, emergency response research, disentanglement, incidental harassment, and import/export of all cetaceans (ESA-listed and non-listed). All activities as warranted to respond to emergencies including emergency-related research.

**Permit No. 18786 Table 1**. Authorized emergency response related enhancement and research activities, incidental harassment, and import/export of marine mammals and marine mammal parts under the jurisdiction of the National Marine Fisheries Service (NMFS) conducted pursuant to Section 10(a)(1)(A) of the ESA, in conjunction with Sections 104(c), 109(h), 112(c), and Title IV authorities of the MMPA. Activities may occur at any time of year on land, beaches, and coastal waters of the U.S., waters within the U.S. EEZ, and international waters; at captive facilities and rehabilitation centers. Includes world-wide import/export of marine mammals and marine mammal parts.

Line	Species	DPS/	Life	Sex	No.	No. Takes	Procedures	Details
No.		Stock	Stage		Animals	per Animal		
						Ammai		
2	Pinniped, unidentified	Range- wide	All	Male and Female	As warranted to emerge conduct related	ed to respond encies and response- research	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Captive, maintain; Captive, research; Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Imaging, thermal; Import/export/receive, parts; Incidental harassment; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Intentional (directed) mortality; Lavage; Mark, bleach; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, hot brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Measure colonic temperature; Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Salvage (carcass, tissue, parts); Sample, anal swab; Sample, blood; Sample, blubber biopsy; Sample, fceal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, clip hair; Sample, coular swab; Sample, oard swab; Sample, other; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, tooth extraction; Sample, urine catheter; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Tracking; Transport; Ultrasound; Underwater photo/videography; Unintentional mortality; Weigh; X-ray	Emergency response of ESA-listed pinnipeds; and, emergency response research, disentanglement, incidental harassment, and import/export of all pinnipeds (ESA-listed and non-listed excluding walrus). All activities as warranted to respond to emergencies including emergency- related research.

Permit No. 1878 Marine Fisheries waters of the U.S.	<b>Permit No. 18786 Table 2</b> . Authorized research (unrelated to emergency response), incidental harassment, and import/export of marine mammals and marine mammal parts under the jurisdiction of the National Marine Fisheries Service (NMFS) conducted pursuant to Sections 104 (c) and Title IV authorities of the MMPA and Section 10(a)(1(A) of the ESA. Activities may occur year-round on land, beaches, and coastal waters of the U.S., waters within the U.S. EEZ, and international waters; and at captive facilities and rehabilitation centers. Includes world-wide import/export of marine mammals and marine mammal parts.										
Line No.	Species and Listing Unit/ Stock	Life Stage and Sex	No. Animals	No. Takes/ Animal	Take Action	Procedures	Details				
1	Dolphin, unidentified; Range-wide	All; Male and Female	As warranted		As warranted Harass		Harass	Acoustic, passive recording; Collect, feces; Collect, other; Collect, sloughed skin; Count/survey; Incidental harassment; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Tracking; Underwater photo/videography	Small cetacean aerial and vessel surveys (manned and unmanned) and associated non-intrusive sampling in the wild, captivity, and rehabilitation; all small cetaceans (non-listed and ESA-listed); direct and incidental harassment during any research activity		
2	Dolphin, unidentified (Range-wide)	Non- neonate; Male and Female	200	5	Capture/ Handle/ Release; Harass; Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Captive, maintain temporary; Collect, feces; Collect, other; Collect, sloughed skin; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction- cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, vessel; Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, exhaled air; Sample, fecal; Sample, blowhole swab; Sample, exhaled air; Sample, fecal; Sample, blowhole swab; Sample, other; Sample, skin biopsy; Sample, other; Sample, skin and blubber biopsy; Sample, other; Stable isotopes and serial blood samples; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh; X-ray	Small cetacean research activities in the wild, captivity, or rehabilitation; all <u>non- ESA listed</u> small cetaceans; 200 takes/year total for all species; captures, sampling, and direct and incidental harassment				
3	Dolphin, unidentified (Range-wide)	Non- neonate; Male and Female	3	1	Unintentional mortality	Unintentional mortality	<u>Small cetacean unintentional mortality</u> ; 3 annually (total for all species); all <u>non- listed</u> small cetaceans during research activities in Line 2; includes euthanasia when deemed medically necessary resulting from research activities; necropsy				

Line No.	Species and Listing Unit/	Life Stage and Sex	No. Animals	No. Takes/	Take Action	Procedures	Details
4	Dolphin, unidentified (Range-wide)	All; Male and Female	500	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Collect, feces; Collect, other; Collect, sloughed skin; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction- cup (e.g., VHF, TDR); Lavage; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo- id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Salvage (carcass, tissue, parts); Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, exhaled air; Sample, fecal; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine; Ultrasound; Underwater photo/videography; Weigh; X-ray	<u>Small cetacean piggy backing;</u> sample collection during other legal takes/permitted activities (permitted research, subsistence harvests, by-catch, etc.) in the wild, captivity, or rehabilitation; all small cetaceans ( <u>non- listed and ESA-listed</u> ); 500 takes/yr for all species combined; sampling, and direct and incidental harassment
5	Large whale, unidentified (Range-wide)	All; Male and Female	5000	5	Harass/ Sampling	Acoustic, passive recording; Collect, feces; Collect, other; Collect, sloughed skin; Count/survey; Incidental harassment; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Tracking; Underwater photo/videography	Large whale aerial and vessel surveys (manned and unmanned) and associated <u>non-intrusive sampling</u> in the wild; all large whales, <u>non-listed and ESA-listed</u> , including sperm whales; up to 5,000 takes/yr for all species combined; direct and incidental harassment
6	Large whale, unidentified (Range-wide)	Non- neonate; Male and Female	100	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, injectable sedative; Collect, feces; Collect, other; Collect, sloughed skin; Count/survey; Incidental harassment; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amplhibious; Remote vehicle, vessel; Sample, blood; Sample, exhaled air; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Underwater photo/videography	Large whale research activities in the wild; all <u>non-ESA listed</u> large whales; 100 takes/yr total for all species; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment

Line No.	Species and	Life Stage	No.	No.	Take Action	Procedures	Details
	Listing Unit/ Stock	and Sex	Animals	Takes/ Animal			
7	Large whale, unidentified (Range-wide)	All; Male and Female	400	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, injectable sedative; Collect, feces; Collect, other; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction- cup (e.g., VHF, TDR); Measure; Measure colonic temperature; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Salvage (carcass, tissue, parts); Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, exhaled air; Sample, fecal; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine; Ultrasound; Underwater photo/videography	Large whale piggy backing; sample collection during other legal takes/permitted activities (permitted research, subsistence harvests, by-catch, etc.) in the wild; 400 takes/yr for all species combined; all large whales ( <u>non- listed and ESA-listed</u> ); sampling and direct and incidental harassment; excludes sedating ESA-listed species
8	Pinniped, unidentified; Range-wide	All; Male and Female	As wa	rranted	Harass	Acoustic, passive recording; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Incidental harassment; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Underwater photo/videography	Pinniped aerial, ground, and vessel surveys (manned and unmanned) in the wild, captivity, or rehabilitation; all species of pinniped (non-listed and ESA- listed) except Hawaiian monk seals in the wild and walrus; direct and incidental harassment during any research activity

Line No.	Spacios and	Life Stere	No	No	Taka Action	Procedures	Details
Line No.	Listing Unit/	and Say	Animala	Tokos/	Take Action	Flocedules	Details
	Stock	and Sex	Allillais	A nimal			
0	Dinningd	A 11.	200	Aiiiiiai	Contune/Handle/	A constinue al cube al r/hand acast. A constinue accessive accordine	Dispringed responses activities in the wild
7	unidentified:	Male and	500	5	Palasse: Harass	Acoustic, active playback/bloadcast, Acoustic, passive recording;	<u>antivity</u> or rehabilitation: all non ESA
	Banga wide	Female			Horoce/ Sompling	Administer drug, intraperitoneal: Administer drug, IV: Administer	listed species of pippiped: 300 takes/vr
	Kange-wide	Temale			Tiarass/ Sampling	drug subautanaous: Administer drug tonical: Anasthasia gas	total for all apaging combined; contures
						w/cone or mask: Anesthesia, gas w/intubation: Anesthesia, gas	sampling and direct and incidental
						injectable sedative: Auditory brainstem response test: Calipers	harassment: no hot branding
						(skin fold): Cantive, maintain temporary: Cognitive studies:	narassment, no not branding
						Collect molt: Collect scat: Collect snew: Collect urine:	
						Count/survey: Evan's blue dye and serial blood samples:	
						Hormones and serial blood samples: Incidental disturbance:	
						Instrument, external (e.g., VHF, SLTDR): Instrument, internal	
						(e.g., PIT); Mark, bleach; Mark, clip fur; Mark, dye or paint;	
						Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene	
						patch); Measure (standard morphometrics); Metabolic	
						chamber/hood; Observation, mark resight; Observation,	
						monitoring; Observations, behavioral; Other; Photo-id;	
						Photogrammetry; Photograph/Video; Remote vehicle, aerial	
						(fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle,	
						amphibious; Remote vehicle, vessel; Remote video monitoring;	
						Restrain, board; Restrain, cage; Restrain, hand; Restrain, net;	
						Restrain, other; Sample, blood; Sample, blubber biopsy; Sample,	
						clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal	
						loop; Sample, fecal swab; Sample, milk (lactating females);	
						Sample, muscle biopsy; Sample, nasal swab; Sample, ocular	
						swab; Sample, oral swab; Sample, other; Sample, skin biopsy;	
						Sample, stomach lavage, Sample, swab an inucus memoranes,	
						vibrissae (clip): Sample, vibrissae (pull): Stable isotopes and	
						serial blood samples: Tracking: Transport: Ultrasound:	
						Underwater photo/videography: Unintentional mortality: Weigh:	
						X-ray	
10	Pinniped,	All;	5	1	Unintentional	Unintentional mortality	Pinniped unintentional mortality: 5
	unidentified;	Male and	-		mortality		annually (total for all non-listed
	Range-wide	Female			-		pinnipeds) during research activities in
	Ű						Line 9; includes euthanasia when
							deemed medically necessary resulting
							from research activities; necropsy

Line No	Species and	Life Stage	No	No	Take Action	Procedures	Details
Line No.	Listing Unit/ Stock	and Sex	Animals	Takes/ Animal	Take Action		
11	Pinniped, unidentified; Range-wide	All; Male and Female	500	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Imaging, thermal; Import/export/receive, parts; Incidental harassment; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Salvage (carcass, tissue, parts); Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, nuscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videographv: Weieh; X-rav	Pinniped piggy backing; sample collection during other legal takes/permitted activities (permitted research, subsistence harvest, by-catch, etc.) in the wild, captivity, or rehabilitation; 500 takes/yr for all species combined; <u>all species of pinniped (non-listed and ESA-listed)</u> except walrus; sampling and direct and incidental harassment; no hot branding
12	Cetacean, unidentified (Range-wide)	All; Male and Female	As warranted		Import/ export/ receive/ transfer	Import/export/receive/transfer, parts	Receipt, possession, transport, import, export, analysis, and curation of hard and soft parts from all cetacean species (non- listed and ESA-listed); analytical and diagnostic samples may be transported, imported, or exported to laboratories world-wide
13	Pinniped, unidentified (Range-wide)	All; Male and Female	As wa	arranted	Import/ export/ receive/ transfer	Import/export/receive/transfer, parts	Receipt, possession, transport, import, export, analysis, and curation of hard and soft parts from all pinniped species(non- listed and ESA-listed) excluding walrus; analytical and diagnostic samples may be transported, imported, or exported to laboratories world-wide

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Line No.	Species and Listing Unit/ Stock	Life Stage and Sex	No. Animals	No. Takes/ Animal	Take Action	Procedures	Details
14	Whale, beluga; Cook Inlet	All; Male and Female	40	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer	ESA-listed small cetacean research activities in the wild, captivity, or rehabilitation; aerial and vessel surveys
15	Whale, false killer; Main Hawaiian Islands Insular	All; Male and Female	20	5	Harass/ Sampling	drug, subcutaneous; Administer drug, topical; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, exhaled air; Sample, fecal; Sample, milk (lactating females); Sample, muscle biopsy; Sample, other; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine; Tracking; Ultrasound;	<pre>nstem (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no captures in the wild; no spider tagging; no sedation (except in permanent captivity) e; tions, line; in mple,</pre>
16	Whale, killer; Southern Resident	All; Male and Female	20	5	Harass/ Sampling		
17	Whale, blue; Range-wide	All; Male and Female	40	5	Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer	ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and
18	Whale, bowhead; Range-wide		40	5	Harass/ Sampling	drug, topical; Auditory brainstem response test; Collect, feces; Collect, other; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite	associated sampling including biopsy and tagging, direct and incidental harassment; no sedation
19	Whale, fin; Range-wide		40	5	Harass/ Sampling	tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry: Photograph (Video: Remote vehicle, parial	
20	Whale, humpback; Range-wide		40	5	Harass/ Sampling	(fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy: Sample, skin and blubber biopsy:	
21	Whale, right; North Atlantic		40	5	Harass/ Sampling	Sample, skin biopsy; Tracking; Ultrasound; Underwater	
22	Whale, right; North Pacific	1	5	5	Harass/ Sampling	- photo meography	
23	Whale, sei; Range-wide	1	40	5	Harass/ Sampling	1	
24	Whale, sperm; Range-wide		40	5	Harass/ Sampling	1	

Line No.	Species and Listing Unit/	Life Stage and Sex	No. Animals	No. Takes/	Take Action	Procedures	Details
	Stock			Animal			
25	Seal, ringed; Arctic	All; Male and Female	60	5	Capture/ Handle/ Release; Harass; Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem	ESA-listed and MMPA-depleted pinniped research activities in the wild, captivity, or rehabilitation; aerial and vessel surveys (manned and unmanned), captures, and associated sampling and
26	Seal, bearded; Beringia DPS	All; Male and Female	60	5	_	response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, other; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes;	tagging, direct and incidental harassment; no hot branding
27	Seal, Guadalupe fur; Range-wide	All; Male and Female	60	5			
28	Sea lion, Steller; Western DPS	All; Male and Female	60	5			
29	Sea lion, Steller; Eastern DPS	All; Male and Female	60	5			
30	Seal, Northern fur; Eastern Pacific	All; Male and Female	60	5		Sample, tooln extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray	

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Line No.	Species and Listing Unit/ Stock	Life Stage and Sex	No. Animals	No. Takes/ Animal	Take Action	Procedures	Details
31	Seal, Hawanan monk; Hawaiian Islands	All; Male and Female	60	2	Capture/ Handle/ Release; Harass; Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, urine; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/ Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, clip nail; Sample, fecal enema; Sample, fceal loop; Sample, fceal swab; Sample, milk (lactating females); Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, nuscle biopsy; Sample, nuscle biopsy; Sample, nuscle biopsy; Sample, nuscle biopsy; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray	ESA-fisted endangered Hawanian monk seal research in captive settings (rehabilitation or permanent captivity) only; piggy backing research may occur in the wild under line 11 above; no hot branding

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Line No.	Species and Listing Unit/ Stock	Life Stage and Sex	No. Animals	No. Takes/ Animal	Take Action	Procedures	Details
32	Dolphin, bottlenose; Western North Atlantic Coastal	All; Male and Female	100	5	Capture/ Handle/ Release; Harass; Harass/ Sampling	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Collect, feces; Collect, other; Collect, sloughed skin; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Imaging, thermal; Insert ingestible telemeter pill; Instrument belt/harness tag: Instrument dart/barb tag:	MMPA-depleted small cetacean research activities in the wild, captivity, or rehabilitation; aerial and vessel surveys (manned and unmanned), captures, and associated sampling including biopsy and tagging; direct and incidental harassment
33	Whale, killer; AT1 Transients	All; Male and Female	10	3	Capture/ Handle/ Release; Harass; Harass/ Sampling	Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood; Sample, blowhole swab; Sample, exhaled air; Sample,	
34	Dolphin, spinner; Eastern Tropical Pacific	All; Male and Female	40	5	Capture/ Handle/ Release; Harass; Harass/ Sampling	Sample, muscle biopsy; Sample, other; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine; Stable isotopes and serial blood samples; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh; X-ray	
35	Dolphin, pantropical spotted; North-eastern Offshore	All; Male and Female	40	5	Capture/ Handle/ Release; Harass; Harass/ Sampling		

Line No.	Species and Listing Unit/ Stock	Life Stage and Sex	No. Animals	No. Takes/ Animal	Take Action	Procedures	Details
36	Pinniped, unidentified; Range-wide	All; Male and Female	5	1	Unintentional mortality	Unintentional mortality	Unintentional mortality; each species of ESA-listed pinniped, not including Guadalupe fur seals or Hawaiian monk seals; not to exceed 5 individuals per species over the lifetime of the permit; includes euthanasia when deemed medically necessary due to research; necropsy
37	Seal, Guadalupe fur; Range-wide	All; Male and Female	1	1	Unintentional mortality	Unintentional mortality	<u>Unintentional mortality</u> ; 1 total for the life of the permit (not annual); includes euthanasia when deemed medically necessary due to research; necropsy
38	Seal, Hawaiian monk; Hawaiian Islands	All; Male and Female	1	1	Unintentional mortality	Unintentional mortality	<u>Unintentional mortality</u> ; 1 total for the life of the permit (not annual); animals sampled under line 31 above in captivity, rehab, or piggy backing only; includes euthanasia when deemed medically necessary due to research; necropsy