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

Environmental Assessment
on
Effects of Issuing Marine Mammal Scientific Research Permit No. 16479

August 2012

Lead Agency: USDOC National Oceanic and Atmospheric Administration National Marine Fisheries Service, Office of Protected Resources

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Location: Maui County waters, Hawaii

Abstract: The National Marine Fisheries Service (NMFS) proposes to issue Scientific Research Permit No. 16479, for takes of marine mammals in the wild, 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.). The permit would be valid for five years from the date of issuance. The purposes of the research are to quantify the potential for near misses between vessels and humpback whales, and define the probability of 'surprise encounters' with humpback whales in relation to time of day, environmental variables, vessel behavior, whale abundance, and individual sex and age classes. The applicant requests takes of humpback whales and the Hawaiian Insular Stock of false killer whales.

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1.0 PURPOSE OF AND NEED FOR ACTION

Proposed Action: In response to an application from The Pacific Whale Foundation [Responsible Party and Principal Investigator: Gregory Kaufman], Wailuku, NMFS proposes to issue Scientific Research Permit No. 16479 authorizing takes[1] by level B harassment[2] of marine mammals in the wild 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.*).

Purpose of and Need for Action: The MMPA and ESA prohibit "takes" of marine mammals and of threatened and endangered species, respectively, with only a few specific exceptions. The applicable exceptions in this case are an exemption for *bona fide*[3] scientific research under Section 104 of the MMPA and for scientific purposes related to species recovery under Section 10(a)(1)(A) of the ESA.

The purpose of the permit is to provide the applicant with an exemption from the take prohibitions under the MMPA and ESA for harassment of marine mammals, including those listed as endangered, during conduct of research that is consistent with the MMPA and ESA issuance criteria.

The need for issuance of the permit is related to the purposes and policies of the MMPA and ESA. 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. Facilitating research about species' basic biology and ecology or that identifies, evaluates, or resolves specific conservation problems informs NMFS management of protected species. The purposes of the proposed research activities would include: quantifying the potential for near misses between vessels and humpback whales, and defining the probability of 'surprise encounters' [4]with humpback whales in relation to time of day, environmental variables, vessel behavior, whale abundance, and individual sex and age classes.

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[1] 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."

[2] "Harass" is defined under the MMPA as "Any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing a disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B harassment)."

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

[4] Surprise encounters are defined as when a whale is detected for the first time at a distance ≤300m from the vessel.

Other EA/EIS That Influence Scope of this Environmental Assessment

NMFS Permits Division has prepared Environmental Assessments (EAs) with Findings of No Significant Impact (FONSI) for issuance of permits to conduct research on humpbacks and Hawaiian insular false killer whales in Hawaiian waters

- *Environmental Assessment on the Issuance of Two Scientific Research Permits for the Harassment of Cetaceans in Hawaiian Water [File Nos. 1127-1921 and 10018] (2008).*
- *Environmental Assessment for the Issuance of Scientific Research Permits for Research on Humpback Whales and Other Cetaceans [File Nos. 14682, 10018-01, 13846, 14451, 14585, 14599, 14122, 14296, and 14353] (2010).*
- *Environmental Assessment on Effects of Issuing Marine Mammal Scientific Research Permit No. 15274 (2011).*

These EAs described and analyzed the effects of a range of research activities including vessel surveys for line transect sampling, behavioral observations, and photo-identification which are similar to the proposed action. These EAs demonstrate the effects of the research activities are limited to the targeted species and issuance of the permits does not affect any other component of the environment.

These EAs were prepared to take a closer look at potential environmental impacts of permitted research on marine mammals listed as threatened or endangered, and not because the Permits Division determined that significant adverse environmental impacts were expected or that the a categorical exclusion was not applicable. As each EA demonstrates, and each FONSI has documented, research on marine mammals generally does not have a potential for significant adverse impacts on marine mammal populations or any other component of the environment, and are hereby incorporated by reference.

Scope of Environmental Assessment: This EA focuses primarily on effects on humpback whales (*Megaptera novaeangliae*), listed as endangered under the ESA, and the Hawaiian Insular stock of false killer whales (*Pseudorca crassidens*) which NMFS is proposing to list as endangered and for this analysis will be treated as if it is listed under the ESA.

The National Oceanic and Atmospheric Administration (NOAA) has, in NOAA Administrative Order 216-6 (NAO 216-6; 1999), listed issuance of permits for research on marine mammals and threatened and endangered species as categories of actions that "do not individually or cumulatively have a significant effect on the human environment…" and which therefore do not normally require preparation of an EA or environmental impact statement (EIS). A possible exception to the use of these categorical exclusions is when the action may adversely affect species listed as threatened or endangered under the ESA (NAO 216-6 Section 5.05c).

There is no evidence from prior analyses[5] of the effects of permit issuance, or from monitoring reports submitted by permit holders[6], that issuance of research permits for take of marine

[5] Since 2005, NMFS has prepared over 100 EAs for issuance of permits under the MMPA and ESA. In every case, the EA supported a finding of no significant impact regardless of the nature of the permitted take or the status of the species that were the subject of the permit. These EAs were accompanied by Biological Opinions prepared pursuant

mammals listed under the ESA results in adverse effects on stocks or species. Nevertheless, NMFS has prepared this EA, with a more detailed analysis of the potential for adverse impacts on threatened or endangered species resulting from takes of a specified number of individual humpback whales and Hawaiian Insular Stock of false killer whales, to assist in making the decision about permit issuance under the MMPA and ESA.

Federal agencies are also required to consider "the degree to which effects on the quality of the human environment are likely to be highly controversial" when evaluating potential impacts of a proposed action. [40 CFR §1508.27] The application for the proposed permit was made available for public review and comment for 30 days in the Federal Register (76 FR 72389; 77 FR 15692). No substantive public comments were received.

The application was sent to the Marine Mammal Commission for review at the same time during the comment period, pursuant to 50 CFR §216.33 (d)(2). Comments received on the application were considered as part of the scoping for this EA.

The Marine Mammal Commission (MMC) recommended that the National Marine Fisheries Service (NMFS) issue the permit, provided that it condition the permit to require the researchers to minimize disturbance of the subject animals by exercising caution when approaching animals, particularly mother/calf pairs, and stopping an approach if there is evidence that the activity may be interfering with mother/calf behavior, feeding, or other vital functions. Since NMFS includes these as standard conditions in all research permits, this comment is addressed.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternative 1 - No Action: Under the No Action alternative, no permit would be issued and the applicant would not receive an exemption from the MMPA and ESA prohibitions against take.

Alternative 2 - Permit Issuance (Proposed Action): Under the Proposed Permit alternative, a permit would be issued to exempt the applicant from MMPA and ESA take prohibitions during conduct of research that is consistent with the purposes and policies of the MMPA and ESA and applicable permit issuance criteria.

The objectives of the applicant's research are to: 1) to use surprise encounter and near miss sightings to model the probability of boat strikes in Maui County waters; 2) to correct models obtained by collecting data from a whale-watching vessel (which has non-random effort and targets whale sightings) with data collected from a research vessel using a randomized survey design; 3) to test the effects of environmental variables, vessel specific variables and boat speed on the probability of strike; and 4) to test the hypothesis that sub-adults, calves, specific individuals and competition pods are more susceptible to strikes than the average whale population in Maui county.

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to interagency consultation under section 7 of the ESA and further document that such permits are not likely to adversely affect listed species.

[6] All NMFS permits for research on marine mammals require submission of annual reports, which include information on responses of animals to the permitted takes.

The following is a summary of the applicant's request to take marine mammals.

Methods: The research protocols are described in detail in the application on file for this action and are briefly summarized here. The experimental protocol consists of line transect surveys, photo-identification, and observation.

Close vessel approach[7] for photo-identification and behavioral observations
Vessel surveys using line-transect sampling methods would be used to collect data for estimating probabilities of vessel strikes of humpback whales. Surveys would be conducted from the platform of a rigid hull-inflatable (15 ft length) manned by a captain, two observers, and a photographer. Survey starting point and direction of travel along the line would be randomized for each survey day. Survey speed would be increased every 15 min in 5 mph increments from 5 mph to 20 mph maximum. Every 15 minutes, a 360°-one-minute scan for individual humpback whales found within a one kilometer radius off the vessel would be conducted by the observers and the waypoint where the scan was started would be taken. Distances from the observer to the whale would be estimated using a Bushnell 7x50 reticle binocular and the angle to the sighting would be read from the binocular's compass. Each whale observed would be counted only once during the scan. Additional variables collected would be visibility, percent cloud cover, Beaufort sea state, Douglas sea state, percent glare on both sides of the vessel, water depth, and other vessels present in the area.

Surprise encounters would be recorded continuously while the vessel travels along the survey line. In addition, a near miss is defined as a surprise encounter which occurs within 45 degrees left and right of the bow and at a distance of 80m or less. When a surprise encounter occurs, the time, depth, environmental conditions as described above and the distance and angle to the whale would be recorded. The boat speed would also be recorded.

After a surprise encounter, the boat would stop and observe the subsequent surfacings of the whale(s) involved to determine surface and dive intervals, direction of travel, and group composition for a maximum observation time of 30 minutes. Subsequently, the whale would be approached within 20 m for photo-identification (using both dorsal fin and flukes) and size estimation. To minimize effects of photo-identification on whale behavior, whales would be approached at a speed of less than 5 mph, from the rear and only for the purpose of taking a clear picture of the rear of the fluke. The crew would limit unnecessary movement and conversation on board and would remain in the vicinity of the whale only for the time required to take the photos needed. Once photos are obtained, the vessel would slowly move away from the whale and either leave or continue observations at a distance of 100 yards or more.

Hawaiian insular false killer whales would not be targeted for research under this permit, and would only be incidentally harassed when in association with humpback whales that are approached for observation and photo-identification. The Pacific Whale Foundation is currently

[7] An "approach" is defined as a continuous sequence of maneuvers (episode) [involving a vessel or researcher's body in the water], including drifting, directed toward a cetacean or group of cetaceans closer than 100 yards for large whales, or 50 yards for smaller cetaceans.

authorized under the General Authorization, Letter of Confirmation No. 13427-03, to conduct research on Hawaiian false insular killer whales until their listing under the ESA takes effect.

Duration: The researchers intend to conduct the surveys annually from January through May. They would operate approximately 3 days per week (8 hour days), weather dependent, during each field season. The permit would be valid for five years from date of issuance.

Target species or stocks: The applicant's research is directed at humpback whales. However, as the research involves approaching groups of animals that may affect marine species other than humpback whales, the permit would authorize takes of Hawaiian insular false killer whales disturbed by the proposed activities. This is consistent with the MMPA definition of level B harassment in which actions with a potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns including migration, breathing, nursing, breeding, feeding, or sheltering are considered a take. The inclusion of "potential to" in this definition means that the take occurs regardless of whether there is a disruption in the behavioral patterns of marine mammals exposed to the action.

Table 1. Proposed annual takes of cetacean species during vessel surveys around Hawaii . All life stages as well as both male and females could be harassed.

Species	MMPA Stock/ ESA Listing Unit/	Maximum No. Animals per year[8]	Procedures
Whale, humpback	Range-wide (NMFS Endangered)	567	Observations, behavioral; Photo-identification; Photograph/Video
Whale, false killer	Hawaiian Insular Stock (NMFS proposed listing)	240	Incidental harassment

[8] Maximum No. Animals per year is the maximum number of animals, not necessarily individuals, that may be targeted for research annually in each row of the table. If any animal is harassed more than once during research, each additional attempt (i.e., take) reduces the number of total takes remaining.

3.0 AFFECTED ENVIRONMENT

Location

The research involves vessel based observations directed at humpback whales and requires approaches to marine mammals. Activities would be conducted in the winter season (January through May) in the Maui County waters, Hawaii. (Figure 1)

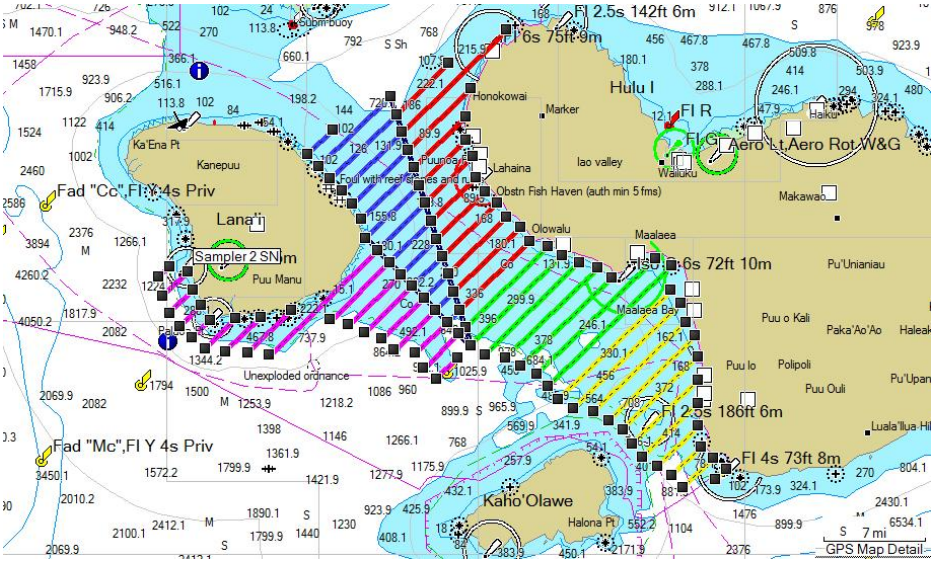

Figure 1: Proposed Transect Lines in Maui County Waters, Hawaii

Status of ESA Species

Further details on the species and the status by stock can be found in the Alaska and Pacific U.S. Stock Assessment Reports (Allen and Angliss, 2011; Caretta et.al. 2011).

<u>Humpback whales:</u> Humpback whales are listed as depleted under the MMPA and endangered under the ESA, throughout their range. Three management stocks of humpback whales are recognized within the North Pacific: the eastern North Pacific stock, the central North Pacific stock, and the western North Pacific stock. Population estimates for the entire North Pacific are estimated to be just under 20,000 animals (Calambokidis et al. 2008). The population is estimated to be growing six to seven percent annually (Carretta et al. 2008). Winter breeding areas are known to occur in Hawaii, Mexico, and south of Japan. Around the Hawaiian Islands, humpback whales are most concentrated around the larger islands of Maui, Molokai, Lanai, and Kahoolawe.

<u>Hawaiian Insular stock of false killer whales:</u> NMFS has proposed (75 FR 70169; 11/17/2010) that the Hawaiian Insular stock of false killer whales is a distinct population segment and should be listed as endangered under the ESA. Within waters of the central Pacific, four Pacific Islands Region management stocks of false killer whales are currently recognized for management under the MMPA: the Hawaii Insular stock, the Hawaii pelagic stock, the Palmyra Atoll stock, and the

American Samoa stock (Carretta et al., 2010). The best estimate of current population size of Hawaiian insular false killer whales is 123 individuals (Baird et al., 2005).

Status of Other Marine Mammals

Several other marine mammal species may be found in waters along the Hawaii EEZ. The Pacific Whale Foundation holds a LOC No. 13427-03 which authorizes directed research at 16 non-ESA listed species that may occur in the survey area. For the purposes of this action, these species would not be approached during this study. The endangered Hawaiian monk seal is present in the action area but the permit would not authorize the close approach to these animals and researchers would have to follow the published NMFS viewing guidelines (http://www.nmfs.noaa.gov/pr/education/hawaii/). No take allowance was requested for these other species and they are not considered further.

Non-Target Marine Animals

In addition to the marine mammal stocks and species that are the subject of the permit, an assortment of sea birds, sea turtles, fish and invertebrates may be found in the action area. The permit would only authorize takes of marine mammals. The takes of marine mammals by harassment are the result of close approaches by a vessel. Non-target animals would not be approached and therefore not subject to harassment. They would not be affected by the action and are not considered further.

Biodiversity and Ecosystem Function

The proposed action is directed at marine mammals and does not interfere with benthic productivity, predator-prey interactions or other biodiversity or ecosystem functions. Marine mammals would not be removed from the ecosystem or displaced from habitat, nor would the permitted research affect their diet or foraging patterns. Further, the proposed action does not involve activities known to or likely to result in the introduction or spread of nonindigenous species, such as ballast water exchange or movement of vessels among water bodies. Thus, effects on biodiversity and ecosystem function will not be considered further.

Ocean and Coastal Habitats

The ESA provides for designation of "critical habitat" for listed species and includes physical or biological features essential to the conservation of the species. Critical habitats may require special management considerations or protection. Critical habitat designations affect only federal agency actions or federally funded or permitted activities. Proposed critical habitat for Hawaiian monk seals (*Monachus schauinslandi*) overlaps with the proposed action area however, the proposed action does not involve activities known to or likely to result in an effect on the ocean or coastal habitat. Thus effects on the ocean and coastal habitat will not be considered further.

Unique Areas

Research may be conducted in the Hawaiian Islands Humpback Whale National Marine Sanctuary. All holders of NMFS's scientific research permits conducting work within a National Marine Sanctuary are required to obtain appropriate authorizations from and coordinate the timing and location of their research with NOAA's National Marine Sanctuaries Program (NMSP) to ensure that the research would not adversely impact marine mammals, birds or other

animals within the sanctuaries. In addition, permit actions including those in the proposed action are sent to the NMSP for review if research is to occur in sanctuary waters. No comments were received from the NMSP. In the previously cited EA's, NMFS determined that issuance of the permits and conduct of the associated research does not involve alteration of substrate, movement of water or air masses, or other interactions with physical features of ocean and coastal habitat. The effects of the proposed action on humpback whales, which are considered a sanctuary resource, are considered in Section 4.0 of this EA.

Historic Places, Scientific, Cultural, and Historical Resources
There are no districts, sites, highways or structures listed in or eligible for listing in the National Register of Historic Places in the action area. The proposed action represents non-consumptive use of marine mammals and does not preclude their availability for other scientific, cultural, or historic uses, including subsistence harvest by Alaskan Natives. NMFS has determined that the proposed action has no potential to cause effects to historic resources. Thus, effects on such resources will not be considered further.

Social and Economic Resources
The proposed action does not affect distribution of environmental burdens, access to natural or depletable resources or other social or economic concerns. It does not affect traffic and transportation patterns, risk of exposure to hazardous materials or wastes, risk of contracting disease, risk of damages from natural disasters, food safety, or other aspects of public health and safety. Research would be conducted by or under the close supervision of experienced personnel, as required by the permit. Therefore, no negative impacts on human health or safety are anticipated during research. Thus, effects on such resources will not be considered further.

4.0 ENVIRONMENTAL CONSEQUENCES

Effects of the No Action Alternative
There are no direct or indirect effects on the environment of not issuing the permit. The takes of marine mammals, including those listed as threatened or endangered, resulting from the applicant's research would not be exempted. It is unlikely the applicant would conduct the research in the absence of a permit, because to do so would risk sanctions and enforcement actions.

Effects of the Proposed Permit Alternative
Effects would occur at the time when the applicant's research results in takes of marine mammals, including those listed as threatened or endangered.

Level B harassment, as defined by the MMPA, would occur during vessel surveys, behavioral observations, and photo-identification activities. These activities were analyzed in past EAs for large whale research conducted by other researchers working in the same waters, and it was determined that they could lead to short-term disturbance of marine mammals, but that there would be no significant impact from issuance of the permits and amendments (NMFS 2008, 2010, and 2011). These research activities are all considered Level B harassment and are not new types of activities. The effects of close approach to marine mammals would be minimal and short-term.

Close vessel approach for photo-identification and behavioral observations
For the proposed Level B harassment activities, the presence of vessels can lead to disturbance of cetaceans, although animals' reactions are generally short-term and of a low impact. Baker et al. (1983) described two responses of whales to vessels, including: (1) "horizontal avoidance" of vessels 2,000 to 4,000 meters away characterized by faster swimming and fewer long dives; and (2) "vertical avoidance" of vessels from 0 to 2,000 meters away during which whales swam more slowly, but spent more time submerged. Watkins et al. (1981) found that both fin and humpback whales appeared to react to vessel approach by increasing swim speed, exhibiting a startled reaction, and moving away from the vessel with strong fluke motions. Studies of humpback whales on their summering grounds, as summarized by Baker et al. (1983) and Baker and Herman (1987), and on their wintering grounds, as summarized by Bauer and Herman (1986), found similar patterns of disturbance in response to vessel activity.

During close vessel approaches for all activities (level B harassment), disturbance to animals would be minimized by:

- Approaching at minimal speeds from behind the group.
- Matching speed with the group.
- Maintain a low speed, less than 5 mph.
- Terminating activities if active avoidance is occurring.
- Consulting with other researchers in Hawaii to: avoid harassing the same animals, explore collaborations, contribute to the cumulative research in the area, and share photo-identification images.

Summary of Effects of Level B Harassment
Behavioral responses would be expected to vary from no response to diving, tail slapping, or changing direction. With experienced vessel drivers, any potential effect of vessel approach should be short-lived and minimal. These short-term behavioral responses would not likely lead to mortality, serious injury, or disruption of essential behaviors such as feeding, mating, or nursing, to a degree that the individual's likelihood of successful reproduction or survival would be substantially reduced.

In accordance with Section 7 of the ESA, a Biological Opinion was prepared which determined that the proposed action is not likely to jeopardize the continued existence of the targeted species and is not likely to destroy or adversely modify designated critical habitat.

Cumulative Effects

Cumulative effects are defined as 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 non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

In general, takes of marine mammals by harassment during permitted research have not been shown to result in long-term or permanent adverse effects on individuals regardless of the number of times the harassment occurs. The frequency and duration of the disturbance under the proposed permit would allow adequate time for animals to recover from any potential adverse effects such that additive or cumulative effects of the action on its own are not expected.

No measurable effects on population demographics are anticipated because any sub-lethal (disturbance) effects are expected to be short-term, and the proposed action is not expected to result in mortality of any animals. There exists the possibility that adverse effects on a species could accrue from the cumulative effects of a large number of permitted takes by harassment relative to the size of a population. However, there is no evidence that current or past levels of permitted takes have resulted in such species-level effects.

5.0 MITIGATION MEASURES

In addition to the mitigation measures identified by the applicant and described in this EA, the permit, if issued, would contain conditions requiring the applicants to retreat from animals if behaviors indicate the approach may be interfering with reproduction, pair bonding, feeding, or other vital functions

In summary, the permit conditions limit the level of take to level B harassment and require notification, coordination, monitoring, and reporting.

6.0 LIST OF PREPARERS AND AGENCIES CONSULTED

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

The National Marine Sanctuary Program was consulted for activities that would be conducted in the Hawaiian Islands Humpback Whale National Marine Sanctuary.

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