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

Environmental Assessment
on
the Effects of Issuing a Permit for Scientific Research
on Endangered Leatherback Sea Turtles in the Pacific Ocean

April 2012

Lead Agency:	USDOC National Oceanic and Atmospheric Administration National Marine Fisheries Service Office of Protected Resources
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Location:	U.S. West Coast Exclusive Economic Zone from California to Washington

Abstract: The National Marine Fisheries Service (NMFS) proposes to issue Scientific Research Permit No. 15634, pursuant to 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 permit would exempt the holder from takes of sea turtles under the ESA, by capture, harassment, wounding and harm. The purpose of the research is to determine the abundance, distribution, size ranges, sex ratio, health status, diving behavior, local movements, habitat use, and migration routes of leatherback sea turtles (*Dermochelys coriacea*).

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1.0 PURPOSE OF AND NEED FOR ACTION

Proposed Action: In response to an application from the National Marine Fisheries Service Southwest Fisheries Science Center, (NMFS SWFSC, Lisa Ballance, Ph.D., Responsible Party), NMFS proposes to issue Scientific Research Permit No. 15634, pursuant to the Endangered Species Act of 1973 as amended (ESA; 16 U.S.C. 1531 et seq.) for "takes"[1] of protected sea turtles.

Purpose and Need for Action: The ESA prohibits "takes" of threatened and endangered species with only a few specific exceptions. The applicable exceptions in this case are an exemption 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 ESA for harassment of threatened or endangered species, during conduct of research that is consistent with the ESA issuance criteria.

The need for issuance of the permit is related to the purposes and policies of the ESA. NMFS has a responsibility to implement the ESA to protect, conserve, and recover 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.

Scope of Environmental Assessment: This EA focuses primarily on effects on endangered leatherback sea turtles (*Dermochelys coriacea*) in the Pacific Ocean. This is the target species of the applicant's research.

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 protected species as categories of actions that "do not individually or cumulatively have a significant effect on the human environment..." and which therefore do not require preparation of an environmental assessment (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). Therefore, NMFS has prepared this EA, with a more detailed analysis of the potential for adverse impacts on endangered species resulting from takes of a specified number of the target sea turtles, to assist in making the decision about permit issuance under the ESA.

[1] 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."

2.0 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 ESA prohibition against take.

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

The purpose of the applicant's research is to continue long-term monitoring of the status of the species off the coasts of California, Oregon, and Washington. The research would study the species to determine their abundance, distribution, size ranges, sex ratio, health status, diving behavior, local movements, habitat use, and migration routes. The primary goal would be to address priorities outlined in the U.S. Pacific leatherback Recovery Plan. According to the Recovery Plan (NMFS and USFWS 1998), a lack of information on movement patterns and habitat severely hampers recovery efforts for this species. The proposed research would address three of the five major actions recommended by the recovery plan, including: determine movement patterns, habitat needs and primary foraging areas for the species throughout its range; determine population size and status in U.S. waters through regular aerial or on-water surveys; identify stock home ranges using DNA analysis. This work would identify critical forage habitats, genetic stock structure, migratory corridors and potential fishery impacts on this species in the Pacific. This information is necessary to make informed management decisions concerning these turtles and their habitat. These activities would be conducted each year over the course of a five-year permit.

Action Area: The proposed research would take place in the U.S. West Coast Exclusive Economic Zone (EEZ) from California to Washington. Work would occur primarily between Monterey and San Francisco Bay, CA (between 33° N and 40° N) and secondarily the Columbia River region, OR and WA (between 45°N and 48°N). The primarily research location has been proposed as designated critical habitat for leatherbacks (see Ch. 3 for more detail).

Methods: The research protocols are described in detail in the application on file for this action and are briefly summarized here and incorporated by reference in this EA. Juvenile, subadult and adult sea turtles of both sexes would be targeted for research. Researchers would conduct aerial surveys to spot sea turtles to target for capture and research procedures. Sighted sea turtles then would be approached by vessel for remote suction-cup tag attachment and pole tissue sampling if not captured. A subset of animals would be captured by hoop net and have the following procedures performed: measure, weigh, blood, fat, and tissue sample, stomach pill insertion, photograph, cloacal swab, flipper and passive integrated transponder (PIT) tag, ultrasound, tracking, opportunistic fecal and gut sampling, oxytetracycline injection, and have additional transmitters attached. Because leatherback sea turtles lack a hard shell, the transmitter cannot be glued to the shell of the turtle and would be attached in one of three ways: directly through the medial ridge, directly through the pygal process, or by suction-cup. No more than three tags would be attached to a turtle at any time in the following manner:

1) Suction cup attachment to a free-swimming turtle prior to capture via close approach to obtain high-resolution diving and movement data (pitch and roll), and foraging rate (video).

2) Direct attachment of a Platform Transmitter Terminal (PTT) satellite tag to the captured turtle.

3) Suction cup attachment or Pop-up Archival Transmitter (PAT) pygal attachment to the captured turtle prior to release to obtain data related to capture/handling response and post release data.

Any recaptures of turtles within the same year would be counted as a second take against the take table. See Table 1 for details on take activities. Note that PTT and PAT attachments and stomach pills would be authorized for the first year of the permit or the first year they are used. Authorization for further use would be contingent upon review of results reported by the SWFSC indicating no serious injury or other concerns about their use. No lethal take would be authorized by the permit.

Duration: The permit would be valid for 5 years from the date of issuance. Researchers expect to begin fieldwork in April 2012. Research would occur year-round.

Target species or stocks: The applicant proposes to take leatherback sea turtles as specified in Table 1.

Table 1: Proposed annual takes of juvenile, sub-adult, and adult leatherback sea turtles for Permit No. 15634.

Number of Turtles	Life Stage	Observe/ Collection Method	Procedures	Details
10	Adult, Subadult, Juvenile	Aerial Survey, Close vessel approach, Capture by breakaway hoop net, and release	Insert stomach telemeter pill*; Instrument, drill carapace (medial ridge) attachment*; Instrument, suction-cup attachment (e.g., camera); Mark, flipper tag; Mark, PIT tag; Measure; Other*; Photograph/Video; Sample, blood; Sample, cloacal swab; Sample, stomach; Sample, fat; Sample, fecal; Sample, tissue; Ultrasound; Weigh; Oxytetracycline injection	Remote suction-cup (VHF/TDR/Sonic tag/GPS/Video camera) tagging during vessel approach prior to capture; Other = PAT pygal instrument attachment*. *Authorized for 1st year or the first year it is used. Additional authorization is subject to reporting results.

25	Adult	Aerial Survey, Close vessel approach, Capture by breakaway hoop net, and release	Instrument, suction-cup attachment (e.g., camera); Mark, flipper tag; Mark, PIT tag; Measure; Photograph/Video; Sample, blood; Sample, cloacal swab; Sample, fat; Sample, fecal; Sample, tissue; Sample, stomach; Ultrasound; Weigh; Oxytetracycline injection	Remote suction-cup (VHF/TDR/Sonic tag/GPS/Video camera) tagging during vessel approach prior to capture; and a second attachment during procedures.
20	Adult	Aerial Survey followed by close vessel approach	Instrument, suction-cup attachment (e.g., camera); Photograph/Video; Sample, tissue	No capture; tissue sampling by pole biopsy; remote suction-cup (VHF/TDR/Sonic tag/GPS/Video camera) tagging during approach

Mitigation Measures

The applicant has identified the following measures to mitigate impacts to the target species and other species found in the area:

- Aerial flights would not be conducted over marine mammal haul out areas or seabird nesting/roosting sites, and researchers would conduct research so as to avoid harassment of any marine mammal or other target or non-target species.
- During captures, the area would be scanned for marine mammals prior to setting the hoop net to eliminate the risk of unintended entanglement.
- Sampling and tagging sites would be cleaned beforehand.
- Equipment would be cleaned and disinfected or sterile disposable gear would be used.
- A trained veterinarian or dedicated veterinary trained observer would be on board during each capture effort.
- The condition and health of captured animals would be monitored during procedures.

In addition to the applicant's stated methods and measures, the proposed permit would include language that would minimize impacts to the target animals and prevent impacts to non-target species.

3.0 AFFECTED ENVIRONMENT

Location
As identified in Ch. 2, research would occur within the U.S. West coast EEZ (California, Oregon and Washington). Research could occur in National Marine Sanctuaries and within proposed leatherback critical habitat as identified in this section.

Status of Target ESA Species
The leatherback sea turtle is the only protected species that would be affected by the Proposed Action. A recent Biological Opinion (NMFS 2010) that describes the biology, status and trends for the species is hereby incorporated by reference. A brief summary is provided here for the species. The leatherback is endangered under the ESA throughout its global range. Spotila et al. (1996) estimated the *global* population of female leatherback turtles to be only 34,500 (confidence limits: 26,200 to 42,900) nesting females; however, the eastern Pacific population has continued to decline since that estimate, leading some researchers to conclude that the leatherback is now on the verge of extinction in the Pacific Ocean (e.g., Spotila et al. 1996, 2000). Increasing impacts to nesting and marine environments threaten leatherback sea turtles. These include, but are not limited to, development, tourism, environmental contamination, harvest of eggs, and driftnet and longline fisheries interactions. Overall, both eastern and western Pacific populations appear to have low female abundance as a result of legal harvest of eggs and nesting females in foreign countries, poaching, and incidental take in fisheries. Critical habitat was designated for the species in January 2012 (see below for more detail).

Non-Target Species Potentially Affected by the Proposed Action
Although marine mammals such as California sea lions (*Zalophus californianus*), harbor seals (*Phoca vitulina*), and harbor porpoise (*Phocoena phocoena*), could occur in the action area, researchers would not interact with them. In addition, the applicant has not observed any signs of effects or harassment to marine mammals during leatherback aerial surveys since they started in 2000. Further, the permit would contain conditions to minimize the chance that non-target species could be harassed during surveys.

Species Susceptible to Incidental Capture
Because researchers would capture sea turtles by hoop net which involves placing a net directly over the target animal and immediately removing it from the water, the method largely prevents capture of other species. Non-target species that may be captured include *Chrysaora fuscenscens* (sea nettle) and *Aurelia* sp. (moon) species of jellyfish and the cartilaginous fish Remora. Up to 10 remora and 5 jellies could be incidentally caught per year while hoop netting. Some jellies would be retained and preserved for leatherback diet analysis and toxicological studies. These species are abundant in the action area and none of these species are protected. Due to the minimal number of non-target animals that could be caught, NMFS expects that the capture of these species would have a negligible impact on their populations and therefore are not considered further in this EA.

Biodiversity and Ecosystem Function
The proposed action is directed at the target sea turtles and would not interfere with benthic productivity, predator-prey interactions or other biodiversity or ecosystem functions. Sea turtles would not be removed from the ecosystem or displaced from habitat, nor would the permitted research affect their diet or foraging patterns. Although a minimal number of jellies could be incidentally caught, their collection is not expected to rise to a level that would affect benthic productivity, predator-prey interactions or other biodiversity or ecosystem functions. Further, the proposed action does not involve activities known or likely to result in the introduction or spread of non-indigenous 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.

Leatherback Critical Habitat
In January 2012, NMFS designated critical habitat for leatherback sea turtles along the U.S. Pacific coast. This designation includes approximately 43,798 square km stretching along the California coast from Point Arena to Point Arguello east of the 3,000 meter depth contour; and 64,760 square km stretching from Cape Flattery, Washington to Cape Blanco, Oregon east of the 2,000 meter depth contour. The designated areas comprise approximately 108,558 square km of marine habitat and include waters from the ocean surface down to a maximum depth of 80 m. One primary constituent element (PCE) was identified: the occurrence of prey species, primarily scyphomedusae of sufficient condition, distribution, diversity, abundance and density necessary to support individual as well as population growth, reproduction, and development of leatherbacks. Scientific research is not identified as an activity that may threaten or adversely impact the PCE. A minimal number of prey species may be caught during the proposed research; however, the number would be negligible to the population and would not rise to a level that would alter prey condition, occurrence, density, abundance or distribution. Further, the proposed action does not involve gear or equipment that result in physical damage of habitat or introduce any chemicals or known toxins into the environment that would alter or damage habitat. Therefore, the proposed action would not adversely impact the PCE or the critical habitat.

Other Ocean and Coastal Habitats and Unique Areas
The proposed action is directed at the target sea turtle species and would not affect habitat. No gear would come in contact with bottom habitat or other hard benthic features. All research activities would occur at the water surface. Based on the proposed research methods and mitigating conditions of the permit, the proposed action does not involve substantial alteration of substrate, movement of water or air masses, or other interactions with physical features of ocean and coastal habitat. Although essential fish habitat (EFH) may be found in the area, the nature of the research is not expected to result in impacts to EFH.

No prime farmlands, wetlands, or wild and scenic rivers are found within the action area. The proposed action is directed at sea turtles and as noted above would not alter or affect habitat, unique areas, including any components of EFH. Thus, effects on habitat and these areas will not be considered further.

National Marine Sanctuaries
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 Sanctuary resources. 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. If permits are required from the Sanctuaries to conduct research, it is the applicants' responsibility to obtain them. The applicant has acquired the necessary Sanctuary permits.

Under the proposed action, research may occur in the following National Marine Sanctuaries:

The **Channel Islands National Marine Sanctuary** (1,658 square miles) was designated in September 1980 and is located 25 miles off the coast of Santa Barbara, California. The sanctuary encompasses the waters surrounding Anacapa, Santa Cruz, Santa Rosa, San Miguel and Santa Barbara Islands, extending from mean high tide to seven miles offshore. Thirty four species of marine mammals including whales, dolphins, seals, sea lions and southern sea otters and 60 species of marine birds have been sighted in the sanctuary.

The **Cordell Bank National Marine Sanctuary** (526 square miles) off the northern California coast was designated in 1989. The Cordell Bank is the dominant feature of the sanctuary and is approximately nine miles long and five miles wide. Deep light penetration combined with upwelling nutrients leads to high productivity and abundant forage species such as krill. With a huge amount of krill this area is an important summer feeding ground for whales, pacific salmon and bottom fishes. There are 25 species of marine mammals and more than 47 species of seabirds found in this sanctuary.

The **Gulf of the Farallones National Marine Sanctuary** was designated in 1981 and encompasses 1,255 square miles off the northern and central California coast. Spring and early summer upwellings of cold, nutrient-rich waters create a highly productive ocean environment rich in plankton and other forage species. The Sanctuary supports an abundance of various species, including 33 species of marine mammals and 15 species of breeding seabirds.

The **Monterey Bay National Marine Sanctuary** was designated in 1992 and is the largest marine sanctuary in the National Marine Sanctuary Program. This sanctuary encompasses the waters of Monterey Bay and the adjacent Pacific Ocean off the central California coast covers over 5,300 square miles and is inhabited by 26 species of marine mammals, 94 species of seabirds, and 4 species of sea turtles (leatherback, green, olive ridley, and loggerhead).

The **Olympic Coast National Marine Sanctuary** was designated in 1994 and covers over 3,300 square miles of ocean waters off Washington State's peninsula coastline. More species of whales, dolphins, and porpoises spend time in these waters and more varieties of kelp are found here than anywhere else in the world. Twenty-nine species of marine mammals inhabit these sanctuary waters.

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 sea turtles and does not preclude their availability for other scientific, cultural, or historic uses. 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. 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 sea turtles resulting from the applicant's research would not be exempted. The No Action alternative would result in the loss of valuable information about the biology and ecology of these species.

Effects of the Proposed Action Alternative
Effects would occur at the time when the applicant's research results in takes of the target sea turtles.

Environmental Consequences to the Biological Environment
The SWFSC has requested authorization to take sea turtles as described in the table in Ch. 2. While individual animals may experience short-lived stress or minimal injury during procedures, NMFS expects that animals would recover overall from most of the proposed activities within the course of a day and that minor wounds (e.g., biopsies) would heal over a short period of time. No mortalities or serious injuries from activities authorized would be expected. The majority of the proposed activities were previously conducted under the SWFSC's current permit, No. 1596-03. All proposed procedures have been previously analyzed in the EAs (NMFS 2007, 2009, 2011) prepared for the current permit except: 1) opportunistic sampling of feces and gut contents, 2) oxytetracycline injection, and 3) insertion of a stomach pill. The assessments for the SWFSC's current permit each concluded that no significant impacts would result from the SWFSC's leatherback research program and are hereby incorporated by reference. Those analyses determined that:

- capture can result in raised levels of stress hormones and can cause some discomfort but NMFS would not anticipate any mortality or long-term adverse effect to the turtles due to the capture and activities to bring captured turtles aboard the research vessel;

- given the precautions that would be taken by the researchers to ensure the safety of the turtles and the permit conditions designed to minimize impacts of the research procedures, NMFS expects that the activities would have minimal and insignificant effects on the animals;
- target animals would experience no more than short-term stresses during the collection of biological samples;
- transmitters would not significantly interfere with the turtles' normal activities after they are released;
- the short-term stresses resulting from transmitter attachment and tracking would be expected to be minimal and not add significantly to any stress that turtles have already experienced from capture or other the research activities; and
- aerial surveys would have no to minimal effects on the target animals or non-target species in the action area.

The activities that have not been previously authorized for the permit are analyzed here. Note, although these activities would be new to the applicant's current leatherback research program, none of these are new or novel techniques that have not been used by the greater sea turtle research community.

Effects of Sampling Fecal and Stomach Contents
Because this would be opportunistic sampling of voided feces and gut contents, NMFS does not expect that collecting these samples would result in any impact to the captured sea turtles. Samples would be collected and stored in a safe manner following protocols to prevent the transmission of any pathogens.

Effects of Stomach Pills
Stomach pills are used in conjunction with a tag attachment to record data on stomach temperature from the pill. The procedure would be expected to take approximately 1 minute and would be limited to animals greater than 150 cm CCL in size. The pill is coated with a dissolvable, biocompatible material (ethylcellulose) to temporarily increase pill diameter to approximately 40mm and thereby increase pill retention time in the leatherback's stomach (Casey et al. 2010). Once the coating dissolves, the pill would be small enough to pass through the pyloric sphincter, into the small intestine and then be passed by the animal. Recordings of gastrointestinal tract temperatures are expected for 12-13 days using this technique (Casey et al. 2010). Stomach pills were used by Casey et al. (2010) to infer foraging behavior by leatherback turtles during the inter-nesting period at Sandy Point National Wildlife Reserve (SPNWR), St. Croix, U.S. Virgin Islands. They reported that 11 of 19 turtles returned to SPNWR to nest 8-31 days following instrument deployments, and that all turtles that returned to nest at SPNWR displayed normal nesting behavior. Furthermore, eight of 19 turtles were re-sighted at SPNWR two years after instrument deployments. They reported that the instrument attachment sites had healed and were in good condition for all remigrants, providing evidence that the direct

attachment technique is safe for use with leatherbacks and does not cause lasting damage to the carapace.

Because the use of stomach pills has not been widely used by researchers in the past, the permit would include a condition requiring annual reauthorization of this method. Reauthorization would require the Permit Holder to report on effects and observations of the use of the pill from the first year it is used. Further use of the pills would only be authorized after review of the report. The Permit Holder would be reauthorized to use the pills for another year provided no serious injury or unanticipated effects are observed. If unanticipated negative impacts are observed, the Permits Division would evaluate whether the permit warrants modification and further NEPA or ESA Section 7 analyses are required.

Effects of Oxytetracycline
Besides serving as an antibiotic, oxytetracycline would be used for skeletochronology, the analysis of growth marks within skeletal elements. Oxytetracycline is incorporated into mineralizing tissue such as bone, thereby offering means of obtaining age and growth data through the recovery of bone samples from dead stranded marked turtles. Thus, researchers can assess the rate of growth mark deposition over a known period of time (i.e. the time between bone-marking and death). Possible adverse effects associated with oxytetracycline therapy are predominantly transient gastrointestinal disturbances, which may include anorexia, vomiting, or diarrhea. Other potential side effects include mild inflammation at the injection site, photosensitivity reactions, and staining of developing bones and teeth (an intended effect). There has been one anecdotal report of a Kemp's ridley turtle that developed ventral erythema and skin exfoliation on the flippers after 2 weeks of oxytetracyline therapy given at 10 mg/kg IM every 5 days, which resolved when the therapy was discontinued (Harms et al. 2002). No adverse effects were seen in 20 juvenile loggerhead turtles that received single intravenous and intramuscular injections of oxytetracycline at a higher dose than this study (25 mg/kg) (Harms et al. 2004). The SWFSC's proposed single low dose (10-15 mg/kg) and intravenous or intramuscular administration of several smaller volume injections (<10 ml/site) would reduce the risk of these adverse effects.

Effects of Pygal Attachments for PAT tags
Although the SWFSC's current permit authorizes the use of PAT tags, researchers were unable to perform PAT tagging. Therefore, as analyzed in the 2007 EA for Permit No. 1596, as an added precaution, Permit No. 15634 would require that the SWFSC provide detailed information to NMFS PR on the use of these tags describing the effects of each individual tag attachment to the turtle, the condition of the pygal region as well as the turtle upon release, and the behavior and survival of each individual turtle as determined from tag data. As with stomach pills, further attachments would only be authorized after review of the results from the first year it is used.

Controversy
Federal agencies are 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; however, no public comments were received.

Cumulative Impacts

Summary of Effects from Total Number of Permits: In general, takes of sea turtles by harassment during permitted research using the proposed methodologies 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 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, with the animals recovering within a day from most procedures, and the proposed action is not expected to result in mortality or serious injury of any animals. There is no evidence that current or past levels of permitted takes have resulted in cumulative population or species level effects.

In addition to the applicant's current permit, No. 1596-03, which the proposed action would replace, three other NMFS permits (Nos. 14381, 14097, and 14510) authorize takes of leatherbacks along the contiguous U.S. West coast all of which would expire in 2015. No. 14381, held by the NMFS Pacific Islands Regional Office, does not authorize any capture of sea turtles. Rather it authorizes researchers to collect data on sea turtles already legally taken as bycatch in commercial fisheries in the Pacific, primarily around the Hawaiian Islands and American Samoa. This permit authorizes a relatively minimal amount of take: researchers may conduct research activities on up to 39 leatherback sea turtles annually taken in the fisheries. The remaining two permits are both held by the applicant, thereby eliminating concerns of coordinating research with other Permit Holders. No. 14097 authorizes the take of 10 leatherbacks throughout the Pacific Ocean and No. 14510 authorizes the take of two leatherbacks along the California coast. NMFS would not expect cumulative impacts since effects of research activities would dissipate within a short period of time, with most effects dissipating within a day, as previously discussed, before animals could be targeted again by researchers. Moreover, researchers working under NMFS permits are required to notify the appropriate NMFS Regional Office in advance of field work. The Regional Office is tasked with coordinating activities under multiple permits for the action area to ensure there is not unnecessary duplication of research.

Summary of Other Actions: The target sea turtle populations may be exposed to other human activities including subsistence harvest, entanglement in fishing gear, and noise from vessel traffic. Effects of past and ongoing human and natural factors (fisheries, ecotourism, existing NMFS research permits and other activities) occurring in or near the action area that have contributed to the current status of the species are described in Ch. 3 and the baseline section of the attached biological opinion prepared for the ESA Section 7 Consultation for this permit. General threats facing sea turtle species range-wide are also discussed in the opinion. These activities and threats are expected to continue into the future.

The conclusion of the biological opinion was that the proposed action would not likely jeopardize the continued existence of any of the species and would not likely destroy or

adversely modify designated critical habitat. NMFS expects the proposed research activities not to appreciably reduce the species likelihood of survival and recovery in the wild by adversely affecting their birth rates, death rates, or recruitment rates. In particular, NMFS expects the proposed research activities not to affect adult female turtles in a way that appreciably reduces the reproductive success of adults, the survival of young, or the number of young that annually recruit into the breeding populations of any of the species.

Summary: Overall, the proposed action would not be expected to have more than short-term effects on endangered and threatened sea turtles. The incremental impact of the action when added to other past, present, and reasonably foreseeable future actions discussed here would be minimal and not significant. The data generated by the research activities associated with the proposed action would help determine the movement and habitat use of sea turtles found in the waters of the action area. The research would provide information that would help manage and recover threatened and endangered species and would outweigh any adverse impacts that may occur. The proposed action would not be expected to have any more than short-term effects to any marine life species or other portions of the environment and would not result in any cumulatively significant effects.

5.0 LIST OF PREPARERS

This EA was prepared by Amy Hapeman with the National Marine Fisheries Service, Office of Protected Resources in Silver Spring, Maryland.

Agency Consulted: NOAA National Ocean Service, National Marine Sanctuary Program

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