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 Protected Sea Turtles in Florida Waters

April 2013

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

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Location: Northern Gulf of Mexico, Florida

Abstract: The National Marine Fisheries Service (NMFS) proposes to issue Scientific Research Permit No. 17183 pursuant to the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq*.). The action would exempt the permit holder from takes of protected sea turtles under the ESA, by capture, harassment, wounding and harm. The purpose of the research for Permit No. 17183 is to characterize movement patterns, foraging behavior, habitat use and feeding habits, and gather key life history information for green, loggerhead, hawksbill, and Kemp's ridley sea turtles in the coastal waters along the Florida Panhandle in the northern Gulf of Mexico. The permit would be valid for five years from the date of issuance.

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1.0 PURPOSE OF AND NEED FOR ACTION

Proposed Action: NMFS proposes to issue Scientific Research Permit No. 17183 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 in response to a request from Raymond Carthy, Ph.D., (Permit Holder), University of Florida, Florida Cooperative Fish and Wildlife Research Unit, 117 Newins-Ziegler Hall, P.O. Box 110450, Gainesville, FL 32611.

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 (EA): This assessment is an analysis serving as an EA for File No. 17183. This document focuses primarily on effects on protected sea turtles, including green (*Chelonia mydas*), loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempii*), and hawksbill (*Eretmochelys imbricata*), listed as endangered and threatened under the ESA. These are 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 EA or environmental impact statement (EIS). 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 the target sea turtles, to assist in making the decision about permit issuance under the ESA.

The proposed permit action is a continuation of the applicant's ongoing sea turtle research conducted in the northern Gulf of Mexico currently authorized by Permit No. 10022. An EA and two Supplemental EAs (SEA) were prepared for No. 10022 and each resulted in a Finding of No Significant Impact (FONSI) (NMFS 2008; NMFS 2010; NMFS 2011a). The proposed action,

[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."

including the location, manner of take (research procedures) and magnitude of take of sea turtles would not substantially change from that currently authorized by Permit No. 10022-02.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternative 1 - No Action: There are no direct or indirect effects on the environment of not issuing the permit. Under this alternative, the take of listed sea turtles resulting from the applicant's research would not be exempted and research would not take place. The No Action alternative would result in the loss of valuable information about the biology and ecology of these species.

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.

Summary
The goals of the research would be to continue to gather information on the demographics, movements and habitat use of sea turtles in the northern Gulf of Mexico. The proposed research project would focus on green, loggerhead, hawksbill, and Kemp's ridley sea turtles. The objectives of the research are to: 1) obtain information on sea turtle ecology and health status; 2) determine the genetic origin of sea turtle populations in the region; 3) monitor turtle foraging habits; and 4) address fine-scale and broad-scale temporal and spatial patterns of sea turtle use and movement patterns. The permit would contain terms and conditions standard to such permits as issued by NMFS.

Action Area: The proposed research would take place in the coastal waters off of Florida in the northern Gulf of Mexico, particularly in St. Joseph Bay, Apalachicola Bay, and St. Andrews Bay. In addition to these action areas previously described in the 2008 EA for Permit No. 10022, which is hereby incorporated by reference (NMFS 2008), research would also take place in Pensacola and Choctawhatchee bays for one week in summer and one week in winter each year. Pensacola and Choctawhatchee bays are located in the northwestern Gulf of Mexico, west of Apalachicola Bay along the Florida panhandle. See Appendix 1 for a map.

Methods: The research protocols are described in detail in the application on file with NMFS PR (File No. 17183) for this action and are briefly summarized here. Adult, subadult, and juvenile sea turtles would be collected by tangle, strike or dip nets, or by hand. Captured sea turtles would be measured, weighed, passive integrated transponder (PIT) tagged, flipper tagged, tissue sampled, blood sampled, gastric lavaged, carapace marked, photographed, and released. A subset of captured sea turtles would be fitted with telemetry tags—either a satellite tag or an acoustic tag with an accelerometer. These activities would occur in the same manner as they were described and analyzed in the 2008 EA and 2010 and 2011 SEAs, which are incorporated by reference (NMFS 2008, NMFS 2010, NMFS 2011a).

The number of takes and procedures to be performed would vary by species; please see Table 1 for details. The proposed total take numbers in File No. 17183 differs from the applicant's current permit (NMFS 2011a). Under Permit No. 10022-02, the following take numbers are

authorized: 20 loggerhead, 270 green and 50 Kemp's ridley sea turtles. Hawksbill sea turtle takes have not been previously requested by the applicant.

Duration: Research would occur year-round, for five years from the date of issuance.

Target species or stocks: The applicant proposes to take listed sea turtles. The proposed annual take for each species is summarized in Table 1. Total captures for each species are as follows: 250 green, 50 loggerhead, 50 Kemp's ridley, and 10 hawksbill sea turtles. The applicant is requesting 5 takes per animal for those individuals that have telemetry tags attached so that researchers may approach and visually observe the sea turtles during manual tracking. No more than two telemetry tags would be attached to a turtle at a time.

Table 1. Proposed annual takes of sea turtles under File No. 17183.

Annual Take Number	Takes per Animal	Species	Collection Method	Take Activity
220	1	Green	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, epibiota removal, tissue sample, blood sample
30	5	Green	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, tissue sample, blood sample, gastric lavage, epoxy attachment: satellite tag/accelerometer (n=10), drill attachment: acoustic tag/accelerometer (n=20), tracking
30	1	Loggerhead	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, epibiota removal, tissue sample, blood sample
20	5	Loggerhead	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, tissue sample, blood sample, gastric lavage, epoxy attachment: satellite tag/accelerometer (n=10), drill attachment: acoustic tag/accelerometer (n=10), tracking
30	1	Kemp's ridley	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, epibiota removal, tissue sample, blood sample
20	5	Kemp's ridley	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, tissue sample, blood sample, gastric lavage, epoxy attachment: satellite tag/accelerometer (n=10), drill attachment: acoustic tag/accelerometer (n=10), tracking
5	1	Hawksbill	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, epibiota removal, tissue sample, blood sample

5	5	Hawksbill	Tangle Net, Strike Net, Hand/Dip Net	Measure, weigh, photograph, carapace mark, PIT tag, flipper tag, tissue sample, blood sample, gastric lavage, epoxy attachment: satellite tag/accelerometer (n=2), drill attachment: acoustic tag/accelerometer (n=3), tracking

Mitigation Measures

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

3.0 AFFECTED ENVIRONMENT

Location

As identified in Chapter 2, research would occur in the waters in the northern Gulf of Mexico, Florida, primarily in the St. Joseph Bay, St. Andrews Bay, and Apalachicola Bay. Sampling would also occur twice a year in Pensacola Bay and Choctawhatchee Bay. The study is a continuation of past research authorized under Permit No. 10022-02. ESA critical habitat is designated for Gulf sturgeon within the action area (see below for details).

Biodiversity and Ecosystem Function

The proposed action is directed at the target sea turtles and does 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. 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. Thus, effects on biodiversity and ecosystem function will not be considered further. Aquatic nuisance species also may be present within the action area. However, the research vessel would not transit between water bodies or take on ballast water. In addition, the permit would contain conditions to prevent the spread of these species. Thus, they are not considered further in this EA.

Ocean and Coastal Habitats

The proposed action is directed at the target sea turtles and would not affect habitat. The proposed strike netting, tangle netting and dip netting and hand capture are not likely to impact substrate or benthic habitat. Based on the proposed research methods and mitigating conditions of the permit, the proposed action does not involve substantive alteration of substrate, movement of water or air masses, or other interactions with physical features of ocean and coastal habitat. Thus, effects on these habitats will not be considered further.

Status of Target ESA Species
ESA Listed Species Under NMFS Jurisdiction

Endangered

Green sea turtle	*Chelonia mydas**
Hawksbill sea turtle	*Eretmochelys imbricata*
Kemp's ridley sea turtle	*Lepidochelys kempii*
Loggerhead sea turtle	*Caretta caretta***

**Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters.*
*** Some loggerhead sea turtle populations are listed as threatened. Due to the inability to distinguish between these species' populations away from the nesting beach, these species are considered endangered wherever they occur in U.S. waters.*

The status, biology and trends of the target species have not changed from how they are described in the EA (NMFS 2011b) and ESA Section 7 Biological Opinion (BO; NMFS 2011c) prepared for sea turtle research within the Gulf of Mexico and North Atlantic Ocean by the NMFS Southeast Fisheries Science Center (File No. 16253). These descriptions of the species are hereby incorporated by reference.

Non-Target Marine Animals
In addition to the sea turtles that are the subject of the permit, an assortment of sea birds, marine mammals, fish and invertebrates may be found in the action area. The permit would only authorize takes of the target sea turtles. Species listed as endangered or threatened present in the action area include: Florida manatees (*Trichechus manatus*) and Gulf sturgeon (*Acipenser oxyrinchus desotoi*). However, NMFS does not expect impacts to these species because:

- research is not directed at these species and researchers would not intentionally approach or target these species;
- no gear would be set or towed through the water column;
- research methods would be directed specifically at the target sea turtles and capture would result in limited bycatch which would be released promptly;
- vessel operation would involve no more than routine vessel movements of a small boat at a slow speed at the water surface; and
- the permit would contain measures to avoid interactions with non-target species, including prohibiting the setting of anchor or gear on coral and live bottom.

Further, the permit would be conditioned to require the Holder to notify the Chief, Permits and Conservation Division if any ESA-listed species not authorized in the permit is killed, injured, or collected during the course of authorized research activities. Directed research activities would be suspended pending review of the circumstances surrounding the incident.

The work proposed in the St. Andrews, St. Joseph and Apalachicola bays would be a continuation of research conducted by the applicant under Permit No. 10022. The impacts to

non-target marine animals were analyzed in the EA completed for that permit (NMFS 2008). The applicant has not reported any adverse effects to non-target species while conducting research under Permit No. 10022. The same type of research would occur in new areas; Pensacola and Choctawhatchee bays. Because of the minimal impacts of the previous research, the analysis in the previous EA (NMFS 2008), and that the new areas are not appreciably different from the current action area for Permit No. 10022, the research proposed for File No. 17183 is not expected to result in negative impacts to non-target species in any portion of the action area.

Given the nature of the proposed research and proposed permit conditions that would mitigate the potential for impacts to non-target species, NMFS does not expect non-target species to be adversely impacted by the proposed action. As was concluded in the 2008 EA for Permit No. 10022, in the accompanying BO (NMFS 2008a) for Permit No. 10022, and in the BO for the proposed research (NMFS 2013), the research proposed for File No. 17183 is not expected to significantly impact any non-target marine animals. Therefore, non-target species are not considered further in this EA.

Protected Areas

The research conducted under the applicant's previous permit (No. 10022) did take place in unique areas (NMFS 2008)--the Apalachicola National Estuarine Research Reserve (Apalachicola Bay) and a state Aquatic Preserve (St. Andrews Bay). In addition, St. Joseph Bay, along with Apalachicola and St. Andrews bays, are part of the state of Florida's Aquatic Preserve program. Research proposed in the current application would once again take place in these areas. The descriptions of those areas and the negligible impacts of the research on these protected areas are incorporated by reference.

In addition, the proposed research would occur in new locations that also contain unique areas. Similar to other bays and coastal areas in the region, the Pensacola and Choctawhatchee bays are ecologically diverse and are threatened by anthropogenic impacts like pollution and development (Ruth and Handley 2007; Schwenning et al. 2007). The state of Florida has designated portions of the Choctawhatchee Bay area part of the Choctawhatchee River Wildlife Management Area; portions of the Pensacola Bay have been designated as part of the Fort Pickens Aquatic Preserve. The Gulf Islands National Seashore encompasses a barrier island along the coast, from Choctawhatchee Bay to Pensacola Bay.

The applicant has secured a permit for the Apalachicola National Estuarine Research Reserve and is in the process of securing other necessary local permits. It is the applicant's responsibility to obtain any additional required permits or authorization to perform research activities in the action areas. The research would not involve any sites listed in or eligible for the National Register of Historic Places or any cultural or historic resources.

Based on the proposed research methods and mitigating conditions of the permits, as well as the previous analysis in the 2008 EA resulting in a FONSI, the research proposed for File No. 17183 is not expected to result in negative impacts to any component of these protected areas.

Critical Habitat
The research could occur in Gulf sturgeon critical habitat. Critical habitat for the Gulf sturgeon was designated under the ESA based on the abundance of prey items, spawning sites, resting areas, and migratory pathways. Critical habitat in Louisiana, Mississippi, Alabama, and Florida waters has been classified into 14 units, most notably for the proposed research, Apalachicola Bay, Choctawhatchee River, and the Florida Nearshore Gulf of Mexico critical habitat units.

No other park lands, prime farmlands, wetlands, or wild and scenic rivers are found within the action area. The proposed action is directed at sea turtles collected by hand capture or strike, tangle or dip net and would not significantly alter or affect bottom habitat, benthic communities, unique areas, including any components of essential fish habitat (EFH) or the primary constituent elements (PCE) of Gulf sturgeon critical habitat. A description of specific designated EFH for species within the action area can be found at:
http://www.nmfs.noaa.gov/habitat/habitatprotection/profile/gulfcouncil.htm,and
http://www.nmfs.noaa.gov/habitat/habitatprotection/profile/southatlanticcouncil.htm.

Therefore, protected areas, critical habitat, PCE and EFH around the action area are not likely to be significantly impacted by the proposed action. Thus, effects on such unique areas will not be considered further.

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 the use of sea turtles for scientific research purposes 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
The No Action alternative would result in the loss of valuable information about the biology and ecology of this species. There are no direct or indirect effects on the environment of not issuing the permit. The take of sea turtles resulting from the applicant's research would not be exempted. Existing permits or pending permit requests would not be impacted by this alternative because the decision to issue or deny a request is based on its own merit and does not set precedent for decisions on other permit actions.

Effects of the Proposed Permit 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-Sea Turtles
The applicant has requested authorization to take sea turtles as described in the table included in Chapter 2. NMFS does not expect the proposed methods for Permit No. 17183 to result in serious injury or mortality of target sea turtles. The 2008 EA, 2010 SEA, and 2011 SEA prepared for the applicant's currently authorized sea turtle research (Permit No. 10022), which authorized similar research activities, determined that although individual animals may experience short-lived stress or minimal injury during procedures, the animals would recover overall from the proposed activities over a short time frame (NMFS 2008; NMFS 2010; NMFS 2011). Specifically, these documents determined that:

- Capture by strike net, tangle net, dip net or hand can lead to an increased level of stressor hormones in the turtles; this stress would be short-lived with animals recovering within the day. No injury or mortality would be expected.
- Measuring, weighing, photographing, and marking with paint can result in raised levels of stressor hormones in sea turtles. These procedures are simple and not invasive and NMFS does not expect that individual turtles would normally experience more than short-term stresses as a result of these activities. No injury is expected from these activities.
- The stresses of flipper and PIT tagging would be minimal and short-term and that the small wound-site resulting from a tag should heal completely in a short period of time. Similarly, turtles that must be re-tagged should also experience minimal short-term stress and heal completely in a short period of time.
- The collection of a blood or tissue sample would cause minimal additional stress or discomfort to the turtle beyond what was experienced during capture, collection of measurements, tagging, etc.
- For gastric lavage, although individual turtles are likely to experience discomfort during this procedure, NMFS does not expect individual turtles to experience more than short-term stress. Injuries and mortalities are not anticipated from lavage.
- Attachment of satellite, sonic, or radio tags with epoxy or drill attachment are unlikely to become entangled due to their streamlined profile, and will likely be shed after about one year, posing no long-term risks to the turtle. Further, the transmitters do not contain toxic components and NMFS does not expect them to pose a threat to the environment.

Note that the 2010 SEA also analyzed other activities involving obtaining sea turtles from relocation trawlers. However, those activities are not being requested by the applicant for File No. 17183 and they are not discussed in this EA.

Although the number of sea turtles requested in the proposed action differs somewhat from that which was analyzed in the 2008 EA and 2010 and 2011 SEAs (NMFS 2008, NMFS 2010, NMFS 2011), NMFS does not expect these differences in take numbers to result in significant

adverse effects for any species at a population level. In the case of Kemp's ridley sea turtles, the number of total captures would remain the same in the proposed action as is currently authorized in Permit No. 10022-02. With green turtles, the proposed number of total captures would decrease from Permit No. 10022-02. The proposed action would authorize an increase in the number of authorized takes for loggerhead sea turtles (up from 20 captures authorized in Permit No. 10022-02). The request for 50 annual loggerhead takes is comparable to the authorized takes for other permit holders in the region (File Nos. 13306, 14726). Based on the mitigation measures in the permit, the applicant's past capture history with sea turtles, and the Biological Opinion prepared for this action, NMFS PR does not expect significant adverse effects to loggerhead sea turtles.

The applicant has not requested hawksbill sea turtles in his past permit application; however NMFS PR routinely issues scientific research permits authorizing takes of hawksbills in Florida waters using similar capture methods and research procedures (File Nos. 13306; 14726). In each case, the EAs prepared for those actions resulted in a FONSI (NMFS 2008b, NMFS 2010a). Based on these prior analyses, and supported by the Biological Opinion prepared for the proposed action, NMFS PR does not expect significant adverse effects to hawksbill sea turtles.

Summary of Effects

The proposed methods of capture are the least stressful forms available and are not likely to result in injury or death of sea turtles. They also result in minimal bycatch and impact to the ecosystem. As demonstrated in the 2008 EA, and the 2010 and 2011 SEAs, capture and research procedures are likely to result in no more than short-term stress and discomfort to the target sea turtles, with small sampling wounds healing over time. Further, none of the proposed activities are known to result in reduced reproductive fitness of the target sea turtles. In addition, the permit would require researchers to follow protocols to minimize harassment, pain and the risk of infection and transmission of pathogens (e.g., cleaning and disinfecting sampling sites beforehand). Based on this information and the proposed permit mitigation, NMFS expects impacts from the proposed activities to be similar to those identified in the 2008 EA, 2010 SEA and 2011 SEA, resulting in no more than short-term harassment of target animals. NMFS does not expect the proposed activities to result in serious injury, mortality or reduced reproductive fitness.

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 for 30 days (77 FR 39220). No substantive public comments were received. Given the proposed research methodologies are well known and are expected to have minimal effects, NMFS believes permit issuance is not likely to be controversial.

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 and the proposed action is not expected to result in serious injury or unintentional 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 the population. Including the applicant's current permit, No. 10022-02, which the proposed permit would replace, 19 permits authorize research on sea turtles within Florida waters (see Appendix 2 for details). Most of these permits (all but two) do not authorize mortality of sea turtles. Only four permits overlap with the proposed study areas; these permits are held by the NMFS Southeast Fisheries Science Center (SEFSC) and all have extensive action areas, covering the Gulf of Mexico and most of the Northwest Atlantic Ocean. None of the SEFSC permits have dedicated ongoing projects within the St. Andrews, St. Joseph, Apalachicola, Pensacola, or Choctawhatchee Bays and thus are not expected to overlap in time and space with the proposed action.

Beyond overlapping study areas, NMFS also considers whether other permitted researchers could be targeting the same animals or populations within a short time period, such as within the same day and whether it could result in cumulative impacts. Even if the proposed permit is able to target the same animals as other Permit Holders in the region, NMFS would not expect cumulative impacts since effects of research activities would dissipate within a short period of time, most within a day. Further, there is no evidence that current or past levels of permitted takes have resulted in ecosystem, population or species level effects. Because most permits do not authorize mortality and the majority of the take activities authorized by the 19 permits are not known to result in serious injury, mortality, or reduced reproductive fitness, NMFS does not expect that animals taken by more than one researcher in a short time period (days) is likely to result in cumulative impacts to the target animals, population or species. Thus NMFS expects that impacts of the proposed research to sea turtles would be negligible at the individual, population and species level. Moreover, researchers working under NMFS permits are required to notify the appropriate NMFS Regional Office in advance of field work. The Southeast Regional Office is tasked with coordinating activities of permit holders in the action area to ensure there is not unnecessary duplication of research.

Other Actions: The target sea turtle populations may be exposed to other human activities including fishery interactions, pollution, and habitat alteration or degradation. Effects of past and ongoing human and natural factors (fisheries, 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 the baseline section of the attached biological opinion done for the ESA Section 7 Consultation for this permit. General threats facing sea turtles range-wide are also discussed in the opinion. These activities and threats are expected to continue into the future.

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, habitat use, and life history characteristics of sea turtles found in the waters of the action area. The research would provide information that would help manage and recover 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 on any marine life species or other portions of the environment and would not result in any cumulatively significant effects.

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, death, or recruitment rates. In particular, NMFS expects the proposed research activities not to affect adult female sea 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.

5.0 LIST OF PREPARERS

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

Agencies Consulted: None.

6.0 REFERENCES

NMFS 2008. Environmental Assessment. Scientific Research Permit to Dr. Raymond Carthy (Permit File No. 10022) to Conduct Research on Protected Sea Turtles. Silver Spring, MD.

NMFS 2008a. Endangered Species Act (ESA) Section 7 Consultation Regarding Issuance of a Scientific Research Permit to Raymond Carthy Under the Provisions of Section 10 of the ESA (File No. 10022). Silver Spring, MD.

NMFS 2008b. Environmental Assessment On the Effects of the Issuance of Scientific Research Permits to Karen Holloway-Adkins (Permit No. 13306) and Kristen Hart (Permit No. 13307). Silver Spring, MD.

NMFS 2010. Supplemental Environmental Assessment for Issuance of a Modification to Scientific Research Permit No. 10022 to Conduct Research on Protected Sea Turtles. Silver Spring, MD.

NMFS 2010a. Environmental Assessment on the Effects of the Issuance of Scientific Research Permits to Llewellyn Ehrhart (Permit No. 14506) and Blair Witherington (Permit No. 14726). Silver Spring, MD.

NMFS 2011a. Supplemental Environmental Assessment for Issuance of a Modification to Scientific Research Permit No. 10022-01 to Conduct Research on Protected Sea Turtles. Silver Spring, MD.

NMFS. 2011b. Environmental Assessment Issuance of a Permit for Sea Turtle Research for Bycatch Reduction in Commercial Fisheries [File No. 16253]. Silver Spring, MD.

NMFS 2011c. Biological and conference opinion on the issuance of a permit by the NMFS Permits Division to Bonnie Ponwith for directed research on sea turtles in the Gulf of Mexico and Atlantic Ocean. Silver Spring, MD.

NMFS 2013. Biological Opinion on the proposal to issue Permit Number 17183 to Dr. Raymond Carthy, to authorize research on green, loggerhead, hawksbill and Kemp's ridley sea turtles in Florida waters pursuant to Section 10(a)(1)(A) of the Endangered Species Act of 1973. Silver Spring, MD.

Ruth, B. and L. Handley. 2007. Ruth, B. and L. Handley. 2007. *In* Handley, L., Altsman, D., and DeMay, R., eds., 2007, Seagrass Status and Trends in the Northern Gulf of Mexico: 1940–2002: U.S. Geological Survey Scientific Investigations Report 2006–5287, 267 p.

Schwenning, L., T. Bruce, and L. R. Handley. 2007. Ruth, B. and L. Handley. 2007. *In* Handley, L., Altsman, D., and DeMay, R., eds., 2007, Seagrass Status and Trends in the Northern Gulf of Mexico: 1940–2002: U.S. Geological Survey Scientific Investigations Report 2006–5287, 267 p.

APPENDIX 1. STUDY AREAS

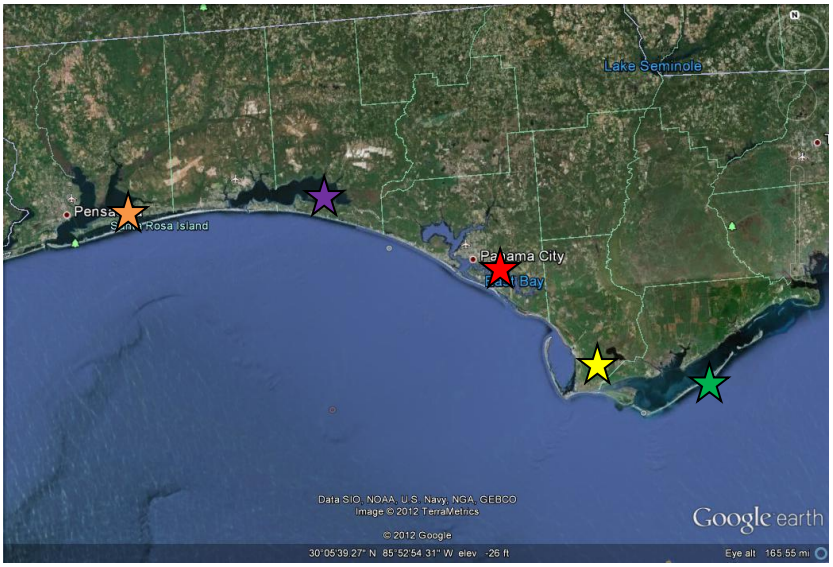

Fig. 1. Proposed study sites in the northern Gulf of Mexico including Pensacola ( ), Choctawhatchee ( ), St. Andrews Bay ( ), St. Joseph Bay ( ), Apalachicola Bay ( ).

APPENDIX 2. ACTIVE PERMITS IN OR NEAR THE ACTION AREA

Table 2. Existing permits authorizing takes for the target sea turtle species in Florida. The Proposed Action would replace the permit in **bold.**

File Number	Permit Holder	Expiration Date
16598	Inwater Research Group	July 15, 2017
10022-02	**Raymond Carthy**	**April 30, 2013**
13306	Karen Holloway-Adkins	June 30, 2013
13307	Kristen Hart	June 30, 2013
1551-03*	NMFS SEFSC	July 1, 2013
13543	South Carolina Department of Natural Resources	April 30, 2014
13544	Jeffrey Schmid	April 30, 2014
14272	Lawrence Wood	June 30, 2014
14655	Jane Provancha	June 1, 2015
14508	Inwater Research Group	June 1, 2015
14506	Llewellyn Ehrhart	September 15, 2015
14726	Blair Witherington	September 15, 2015
14622	Allen Foley	February 28, 2016
15566	South Carolina Department of Natural Resources	April 30, 2016
15552*	NMFS SEFSC	July 25, 2016
16174	Mike Salmon	November 18, 2016
16194*	NMFS SEFSC	December 31, 2016
16253*	NMFS SEFSC	January 31, 2017

*****Permits with action areas that overlap with the Proposed Action's study areas.

Table 3. Research activities authorized by active permits and the proposed action. Sex and age class of animals affected varies by permit, as does the time of year and frequency of activity. **The Proposed Action appears in bold and would replace No. 10022-02**.

File No.	Capture	Blood sampling	Fecal sampling or lavage	Laparoscopy	Tissue sampling	Attach instruments	Tags or marks	Mortality
15552					√		√	
10022-02*	√	√	√		√	√	√	
13306	√	√			√	√	√	
13307	√	√	√		√	√	√	
1551-03	√	√	√	√	√	√	√	
13543							√	
13544	√		√		√	√	√	
14272	√	√			√	√	√	
14655	√	√			√	√	√	
14508	√	√	√		√		√	
14506	√	√	√		√		√	
14726	√		√		√	√	√	
14622	√	√		√	√	√	√	
15566	√	√	√		√	√	√	√
16174	√		√			√	√	
16253	√				√		√	√
16194					√		√	
16598	√	√	√		√	√	√	
17183	√	√	√		√	√	√	

*Permit No. 10022-02 will be replaced by the proposed action (No. 17183, appearing in bold).