



DEC 8 2011

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

TITLE: Supplemental Environmental Assessment for Issuance of a Modification to Scientific Research Permit No. 10022-01 to Conduct Research on Protected Sea Turtles

LOCATION: Waters of the western Florida coast

SUMMARY: The National Marine Fisheries Service (NMFS) proposes to issue a scientific research permit modification for takes under the authority of the Endangered Species Act. Research authorized under Permit No. 10022-02 would further the understanding of sea turtles to better manage and recover the species. The preferred alternative would not be expected to have more than short-term effects on sea turtles and will not significantly impact the quality of the human environment.

RESPONSIBLE
OFFICIAL:

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Director, Office of Protected Resources
National Marine Fisheries Service
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The environmental review process led us to conclude that this action will not have a significant effect on the human environment. Therefore, an environmental impact statement will not be prepared. A copy of the finding of no significant impact (FONSI) including the supporting environmental assessment (EA) is enclosed for your information.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the responsible official named above.

Sincerely,

Patricia A. Montanio
NOAA NEPA Coordinator



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

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

FOR

Issuance of a Modification to Scientific Research Permit No. 10022-01 to Conduct Research on Protected Sea Turtles

December 2011

Lead Agency: U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Office of Protected Resources

Responsible Official: James H. Lecky, Director, Office of Protected Resources

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Document Being Supplemented: Supplemental Environmental Assessment for Issuance of a Modification to Scientific Research Permit 10022 to Conduct Research on Protected Sea Turtles

Abstract: The National Marine Fisheries Service (NMFS), Office of Protected Resources, proposes to issue a modification to scientific research Permit No. 10022-01 for takes of sea turtles in the wild, pursuant to the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226). The purpose of the permitted research is to gather information on sea turtle species assemblage, population abundance, size classes, growth, seasonal movements, natal origin, and overwintering behaviors. The proposed modification would allow for further assessment of habitat use by different sea turtle species and providing blood samples from wild-caught turtles for baseline data in determining physiological pathways of cold-stunning effects. The action area of the permit would not change: research would continue to take place in waters along the Florida Panhandle in the northern Gulf of Mexico. NMFS prepared an environmental assessment (EA) for issuance of the permit in 2008 and a supplemental EA (SEA) for the issuance of a modification in 2010. Based on those analyses, NMFS determined that issuance of Permit No. 10022 and 10022-01, respectively, would not



significantly impact the quality of the human environment. The proposed modification would authorize standard tagging procedures, blood sampling and temporary carapace marking on sea turtles, and would include associated mitigation measures for those activities. This SEA evaluates the potential impacts to the human environment from issuance of the proposed permit modification by supplementing the 2010 SEA's assessment of potential impacts on sea turtles, specifically those that may result from the proposed changes in field procedures.

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CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

1.1 DESCRIPTION OF ACTION

In response to receipt of a request from Raymond Carthy, Ph.D., NMFS proposes to issue a modification to scientific research Permit No. 10022-01 that authorizes “takes”¹ of sea turtles in the wild pursuant to the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR Parts 222-226).

1.1.1 Purpose and Need

The purpose and need is to determine if the original project objectives as identified in the Environmental Assessment EA (NMFS 2008) prepared for the permit remain valid. In addition, the proposed modification would allow for further assessment of habitat use and distribution by different species of sea turtle and provide baseline physiological data from blood samples for comparison against cold-stunned turtles. Dr. Carthy’s research is needed to gather information that would assist NMFS’ efforts to recover endangered and threatened sea turtles as it would provide crucial information to existing data gaps on turtle movements, physiology, and distribution. To achieve this, a portion of captured sea turtles would be tagged with sonic or satellite transmitters, have blood sampled, or be temporarily carapace marked.

1.2 OTHER EA/EIS THAT INFLUENCE SCOPE OF THIS EA

An EA was prepared for issuance of the original Permit (No. 10022) in 2008 and a Supplemental Environmental Assessment (SEA, NMFS 2010) was prepared for issuance of a modification (No. 10022-01) to the permit, both of which determined that issuance of the actions and conduct of the associated research would not have measurable impacts on the physical, social, or economic environment but could result in harassment, as defined in the ESA, of sea turtles. The analyses focused on potential impacts to the biological environment, especially sea turtles. NMFS determined that the proposed harassment to sea turtles would not result in significant impacts to any portion of the human environment. A biological opinion was prepared for each action finding that neither action would jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of any critical habitat. These analyses and determinations are hereby incorporated by reference.

Since the Proposed Action would not change the timing or location of research activities, they are not re-examined in this SEA. Therefore, the scope of this SEA is limited to the potential impacts to sea turtles associated with the proposed research activities. Because the Proposed Action would take place in areas affected by the Mississippi Canyon 252 oil spill, the Biological

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.” The term “harm” is further defined by regulations(50 CFR §222.102) as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including breeding, spawning, rearing, migrating, feeding, or sheltering.”

Opinion prepared for this action examined the potential impacts of the oil spill to the target turtle species (see Section 4.7.2).

1.3 SCOPING SUMMARY

1.3.1 Public Comments

NMFS published a Federal Register notice (75 FR 78974) of receipt of the application on December 17, 2010. No substantive public comments were received for the application. The amended permit would authorize standard, well-known research techniques that are not controversial.

1.4 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

No changes in the applicable laws, permits, etc. would result from the Proposed Action. The 2008 EA identified the National Environmental Policy Act (NEPA), ESA, Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and Coastal Zone Management Act (CZMA). Note that the Proposed Action would not affect any physical environment or Essential Fish Habitat.

CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the range of potential actions (alternatives) determined reasonable with respect to achieving the stated objective, as well as alternatives eliminated from detailed study. This chapter also summarizes the expected outputs and any related mitigation of each alternative. One alternative is the No Action alternative where the proposed permit modification would not be issued. The No Action alternative is the baseline for rest of the analyses. The Proposed Action alternative represents the research proposed in the submitted application for a modification to the permit, with standard permit terms and conditions specified by NMFS.

2.1 ALTERNATIVE 1 – No Action (Status Quo)

Under the No Action alternative, Permit No. 10022-02 would not be issued for the activities proposed by the Permit Holder. Permit No. 10022-01 authorizes Dr. Carthy to conduct research off the northwest coast of Florida until the permit expires on April 30, 2013. Annually, researchers may capture up to eight loggerhead (*Caretta caretta*), 120 green (*Chelonia mydas*), and 22 Kemp's ridley (*Lepidochelys kempii*) sea turtles using strike-net or set-net capture techniques. The Permit Holder is also authorized to obtain loggerhead, green, Kemp's ridley and hawksbill (*Eretmochelys imbricata*) sea turtles (up to 25 of each species annually) from relocation trawlers (captured under separate authority) operating in St. Andrews Bay and surrounding waters in the Gulf of Mexico. Animals may be weighed, measured, photographed, skin biopsied, flipper and passive integrated transponder (PIT) tagged, satellite tagged, and released.

This alternative is the Status Quo because Dr. Carthy's current permit, No. 10022-01, would

remain valid and the research could proceed as authorized until it expires, April 30, 2013. No other permits or permit requests, including future requests from the Permit Holder, would be affected by this alternative.

2.2 ALTERNATIVE 2 – Proposed Action (Issuance of Permit Modification with Standard Conditions)

Under the Proposed Action alternative, a permit modification would be issued for activities as proposed by the Permit Holder, with the permit terms and conditions standard to such permits as issued by NMFS. This Proposed Action modifies the existing permit by

- ▶ requesting an increase in the number of green sea turtles to be satellite tagged;
- ▶ requesting two additional species (Kemp’s ridley and loggerhead) to be satellite tagged;
- ▶ collecting blood samples from sea turtles; and
- ▶ requesting to capture by hand or dip net and carapace mark 20 green sea turtles.

Permit Summary

Permit No. 10022-01 authorizes Dr. Carthy to conduct research on loggerhead, green, Kemp’s ridley and hawksbill sea turtles as described in Section 2.1.

The Permit Holder now requests authorization to capture by hand or dip net, temporarily carapace mark, alter the method of satellite tag attachment, and blood sample sea turtles (see Table 1). The Permit Holder also requests an increase in the take numbers for loggerhead, green and Kemp’s ridley sea turtles. Of these activities, hand capture, blood sampling and carapace marking would be new to the permit; a different method of satellite tagging has been previously authorized. Currently, authorized collection methods are entanglement net and capture under separate authority from relocation trawlers. In this modification request, the Permit Holder seeks the authorization to capture green turtles by hand/dip net in St. Joseph Bay. The Permit Holder would attach transmitters to up to 12 green, 10 Kemp’s ridley, and 10 loggerhead sea turtles already captured by their project by research nets in St. Joseph Bay, Apalachicola Bay, and St. Andrews Bay annually. The modification would be valid for the remainder of the permit through April 30, 2013.

Tables 1 and 2 outline the number of sea turtles, location, manner, and time period in which they would be taken under the proposed modification for Permit No. 10022-02. Note the proposed changes (in bold font) for this modification would only alter Table 1. Table 2 would remain unchanged and is included here as a reference. Existing permit conditions that mitigate the effects of the research would remain in effect.

Table 1: Proposed annual takes of sea turtles under Permit No. 10022-02. Life stages: Juvenile, subadult, and adult. Research would occur year-round.

Species	No. Takes	Take Action	Location	Details
Loggerhead sea turtle (<i>Caretta caretta</i>)	10	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, blood sample , flipper tag, PIT tag, release	St. Joseph, St. Andrews, Apalachicola Bays, Florida	All turtles captured in St. Joseph Bay will be blood sampled
Loggerhead sea turtle (<i>Caretta caretta</i>)	10	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, blood sample, flipper tag, PIT tag, satellite tag, sonic tag, release, track	St. Joseph, St. Andrews, Apalachicola Bays, Florida	Only turtles satellite tagged in St. Andrews and Apalachicola Bays will be blood sampled
Green sea turtle (<i>Chelonia mydas</i>)	238	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, blood sample , flipper tag, PIT tag, release	St. Joseph, St. Andrews, Apalachicola Bays, Florida	All turtles captured in St. Joseph Bay will be blood sampled
Green sea turtle (<i>Chelonia mydas</i>)	12	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, blood sample, flipper tag, PIT tag, satellite tag, sonic tag, release, track	St. Joseph, St. Andrews, Apalachicola Bays, Florida	Only turtles satellite tagged in St. Andrews and Apalachicola Bays will be blood sampled
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	40	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, flipper tag, PIT tag, blood sample , release	St. Joseph, St. Andrews, Apalachicola Bays, Florida	All turtles captured in St. Joseph Bay will be blood sampled
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	10	Capture by strike net or entanglement net, weigh, measure, photograph, skin biopsy, blood sample, flipper tag, PIT tag, satellite tag, sonic tag, release, track	St. Joseph, St. Andrews, Apalachicola Bays, Florida	Only turtles satellite tagged in St. Andrews and Apalachicola Bays will be blood sampled
Green sea turtle (<i>Chelonia mydas</i>)	20	Capture by hand/dip net, measure, weigh, photograph, flipper tag, PIT tag, carapace mark (temporary), release	St. Joseph Bay, Florida	

Table 2. Relocation trawler-related activities authorized under Permit No. 10022-01. Research would occur year-round.

Species	Life Stage	Sex	Number of Takes	Take Action	Location
Loggerhead sea turtle (<i>Caretta caretta</i>)	Juvenile, subadult or adult	M,F	25*	Weigh, measure, photograph, tissue biopsy, flipper tag, PIT tag, satellite tag; release	St. Andrews Bay and surrounding waters of Gulf of Mexico, Florida
Green sea turtle (<i>Chelonia mydas</i>)	Juvenile, subadult or adult	M,F	25*	Weigh, measure, photograph, tissue biopsy, flipper tag, PIT tag, satellite tag; release	St. Andrews Bay and surrounding waters of Gulf of Mexico, Florida
Hawksbill (<i>Eretmochelys imbricata</i>)	Juvenile, subadult or adult	M,F	25*	Weigh, measure, photograph, tissue biopsy, flipper tag, PIT tag, satellite tag; release	St. Andrews Bay and surrounding waters of Gulf of Mexico, Florida
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Juvenile, subadult or adult	M,F	25*	Weigh, measure, photograph, tissue biopsy, flipper tag, PIT tag, satellite tag; release	St. Andrews Bay and surrounding waters of Gulf of Mexico, Florida

*One transmitter would be attached to up to 25 animals, any species mix, over course of permit, not annually. i.e., researchers may attach 25 transmitters all on 25 animals of one species, or they may attach transmitters to each of the species, however the total is not to exceed attachment of 25 transmitters. NO capture would be authorized; animals would be already legally captured by authorized relocation trawlers.

No changes would occur in the manner in which Gulf Sturgeon may be incidentally taken during research as a result of the Proposed Action. The take for this species is authorized through the ESA Section 7 Biological Opinion prepared for the permit.

Research Activities

The Permit Holder's permit currently allows him to capture, handle, measure, weigh, photograph, skin biopsy, flipper, PIT and satellite tag, and release sea turtles. These activities would continue to be conducted as previously described and analyzed in the 2008 EA and the 2010 SEA. The following tagging activities that would be added to the permit under the proposed action alternative would address the Permit Holder's current research objectives. Each activity would be conducted in accordance with conditions in the permit to mitigate potential effects of the activity.

Satellite Tagging

Satellite tagging has been previously authorized in the Permit Holder's current permit File No. 10022-01; however, the Permit Holder now proposes a slightly altered methodology for attaching

satellite transmitters to turtle carapaces. Recent developments in satellite tag attachment (Seney et al. 2010) have allowed for increased tag retention in juvenile sea turtles, and the Permit Holder wishes to apply this method to his research.

Only sea turtles greater than 40 cm standard carapace length would undergo satellite tag attachment. Upon capture, 60-grit sandpaper would be used to sand the attachment site and the underside of the satellite tag coated in anti-fouling paint. Pieces of 1.5 mm and 3.0 mm neoprene with nylon backing would be cut 3-4 cm larger than the base of satellite tag, with the final pieces measuring approximately 14x10 cm with rounded edges. An outline of the neoprene would be traced onto the turtle's carapace at the attachment site, overlapping the first and second vertebral scutes. A room temperature vulcanizing (RTV) silicone (known as "Mega blue" or "sensorsafe") would then be used to outline the scutes at the attachment site (Figure 1a). This silicone would act as a barrier to the epoxy along the areas of shell growth (i.e., the scutes). After the silicone has set, the epoxy (Power-Fast®) would be applied to the carapace at the attachment site, avoiding the silicone and thereby allowing for less-encumbered growth along the scutes suture lines (Figure 1b). Neoprene would be carefully placed on top of the epoxy, nylon side up, and the transmitter affixed to the neoprene with another application of the epoxy (Figures 1c, 1d, and 1e).

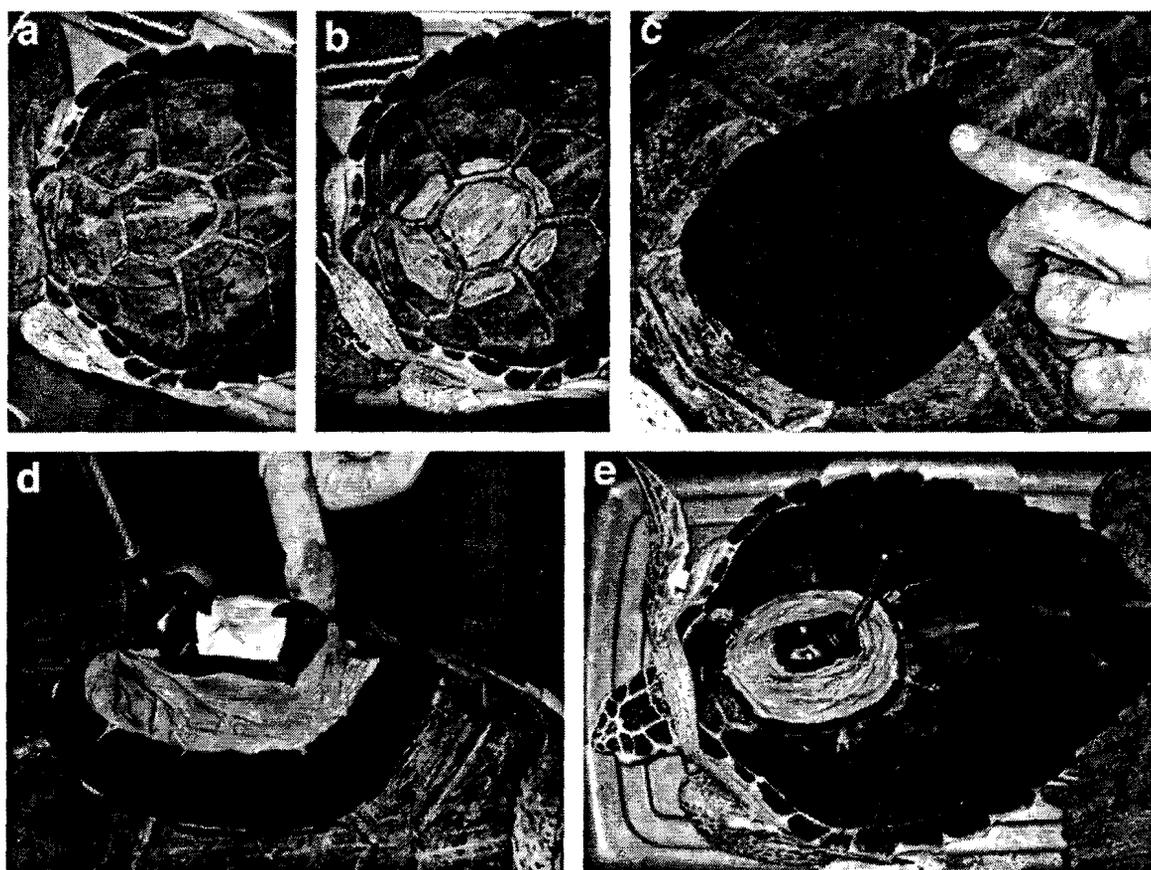


Figure 1: Photos detailing steps in the neoprene satellite tag attachment method. From Seney et al. 2010.

Blood Sampling

All sea turtles captured in St. Joseph's Bay would be blood sampled; in Apalachicola and St. Andrews Bays, only turtles receiving satellite tags would also be blood sampled. Blood samples would be taken from the dorsal cervical sinus as described in Owens and Ruiz (1980) from turtles immediately after they are safely situated on deck. The skin at the sampling site would be scrubbed for a minimum of 30 seconds with 70% ethanol and Betadine prior to sampling. To facilitate bleeding of the cervical sinus, turtles would be positioned so that their head is lower than the body. The blood sample would be taken using a 21 gauge 1-1.5" vacutainer needle and a heparinized vacutainer tube, processed and frozen. Samples from smaller turtles would be obtained using a smaller (23 gauge, ½") needle. The total volume of blood taken would not exceed 1ml per 1kg of turtle weight. In sea turtles weighing less than 1kg, a single blood sample would not exceed 6% of total blood volume. This portion of the proposed research would be used in order to collaborate with Dr. Kristen Hart (USGS; NMFS File No. 1541) to provide blood profiles of healthy, wild-caught sea turtles to compare to cold-stunned turtles in rehab at Gulf World Marine Park in Panama City, Florida (held under separate authority).

Hand/Dip Net Capture and Carapace Marking (Temporary)

To identify individual green turtles in a foraging study in St. Joseph Bay, a unique number would be painted on the carapace of each captured green turtle using a non-toxic white polyester resin paint which wears off within one month. Green turtles would be captured by dip net from a canoe or a 17' Boston Whaler. Once captured, the turtle would be measured, weighed, flipper and PIT tagged before having a number painted onto its dried carapace. The paint would dry within 10 minutes, during which time the turtle would be held to prevent it from getting paint on its flippers. The researchers would wear nitrile gloves, and the turtles would be held in the shade to prevent over-heating. The turtle would then be released at the site of capture.

Mitigation Measures

In addition to the measures the Permit Holder has identified, NMFS would add new language to the permit to reduce the chance of stress, harm or injury to the target sea turtles. This includes:

- taking precautions to minimize stress to captured animals;
- limiting the amount of blood that can be drawn;
- avoiding repeated sampling of an individual;
- using trained and experienced personnel to minimize disturbance;
- using sterile or appropriately sanitized equipment; and
- remaining a safe distance from non-target protected species.

No other changes to Dr. Carthy's research would occur as a result of issuing Permit No. 10022-02.

CHAPTER 3 AFFECTED ENVIRONMENT

The affected environment would remain as previously described in the 2008 EA. Research is authorized to occur in waters of St. Joseph Bay, Apalachicola Bay, and St. Andrews Bay along the Florida Panhandle in the northern Gulf of Mexico. Because the Proposed Action involves sea turtles that would already be authorized for capture, the affected environment is limited to the biological environment, essentially, the target sea turtles.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

This chapter represents the scientific and analytic basis for comparison of the direct, indirect, and cumulative effects of the alternatives. Regulations for implementing the provisions of NEPA require consideration of both the context and intensity of a Proposed Action (40 CFR Parts 1500-1508).

4.1 EFFECTS OF ALTERNATIVE 1: No Action

The No Action alternative would eliminate any potential risk to the environment from the proposed research activities. The target sea turtles would not be impacted by the additional activities. However, activities currently authorized by Permit No. 10022-01 would continue under the Status Quo. The scientific community would lose the opportunity to collect valuable data from turtles caught and information that could aid the understanding of turtle habitat use and ecology in the action area.

4.2 EFFECTS OF ALTERNATIVE 2: Issue permit modification with standard conditions

Because this modification focuses on activities that would occur to sea turtles already authorized for capture, any impacts of the Proposed Action would be limited primarily to the biological environment. The type of activities proposed in the permit modification request would be unlikely to affect the physical environment, socioeconomic environment or pose a risk to public health and safety and are not considered further in this SEA.

Environmental Consequences to the Biological Environment – Sea Turtles

Modification of Permit No. 10022-01 would allow Dr. Carthy to increase the overall number of takes, increase the number of satellite transmitters attached to captured green sea turtles, satellite tag Kemp's ridley and loggerhead sea turtles, collect blood samples from turtles receiving satellite tags, and to hand/dip net capture and carapace mark green sea turtles. The permit modification would contain conditions specific to each activity to mitigate adverse impacts to sea turtles (see Ch. 2). An analysis of the effects of the issuance of the modification request follows. The environmental consequences to the biological environment for currently authorized research activities (entanglement net capture, weigh, handle, measure, photography, skin biopsy, flipper, PIT, and satellite tag attachment, and release of sea turtles) have not changed from how they were described in the 2010 SEA. Hence, the following discussion focuses on the effects of research activities that would be new to the permit and the increase in take of the target populations.

Effects of Hand Capture

This type of capture is simple and not invasive. Although capture can lead to an increased level of stressor hormones in the turtle, hand capture is the simplest, least injurious and likely, stressful, form of capture. Turtles would be handled in a manner to minimize stress. Based on studies and results of previous research, NMFS expects that this would result in short-term stress to individual turtles. No injury or mortality would be expected, and as these are direct capture methods there would be no incidental capture of non-target species.

Effects of Carapace Painting

According to Dr. Foley (pers. comm. 2010), who is currently authorized to temporarily carapace mark hawksbill, loggerhead, and Kemp's ridley sea turtles (File No. 14622), no acute negative effects resulting from use of paint on turtle carapaces have been observed following numerous field applications, including examination of marked turtles during subsequent recapture. Furthermore, the margins of the scutes, where keratin is thinnest, would be avoided. Lastly, contact with gel coat is very infrequent over an animal's lifespan (one application in many cases), thus chronic exposure is not a concern.

Effects of Satellite Tagging

The effects of satellite tagging green sea turtles have been analyzed previously in the 2010 SEA prepared for Permit No. 10022-01 but would be authorized for two other species as part of the Proposed Action. The methodologies for the satellite tag attachment would be altered to follow the techniques of Seney et al. (2010). This method differs slightly from what is currently authorized in that a piece of neoprene is attached to the carapace and the satellite transmitter affixed on top. The neoprene stretches as the turtle grows, allowing for a longer period of tag retention (Seney et al. 2010). The tagging apparatus would be eventually shed. This methodology was analyzed in the Biological Opinion prepared for Dr. Andre Landry's permit (File No. 15606) and concluded that the procedure may result in temporary stress to the animal, but the effects would be short-term in nature (NMFS 2011a). As was stated in the 2010 SEA prepared for Permit No. 10022-01, NMFS is unaware of attachment of transmitters resulting in any serious injury to sea turtle species. Attachment of satellite, sonic, or radio transmitters with epoxy is a commonly used and permitted technique by NMFS. Transmitters attached directly to the scutes are unlikely to become entangled and would eventually be shed, posing no long-term risks to the turtle. The use of anti-fouling paint would reduce the degree of biofouling and resultant hydrodynamic drag. As such, there are no more than minimal short-term impacts to individual animals expected.

The effects of satellite tagging loggerhead and Kemp's ridley sea turtles are not expected to be appreciably different than those already analyzed for green sea turtles. Thus, the effects of satellite tagging are not expected to significantly impact loggerhead, green, and Kemp's ridley sea turtles at the individual, population or species level.

Blood Sampling:

NMFS does not expect that individual turtles would experience more than short-term stresses during blood sampling. Taking a blood sample from the dorsal side of the neck is a routine

procedure when conducted by trained personnel following proper guidelines (Owens 1999). According to Owens (1999), with practice it is possible to obtain a blood sample 95 percent of the time, and the sample collection time should take about 30 seconds. Sample collection sites would always be disinfected with alcohol or other antiseptics, prior to sampling. The permit would be conditioned to limit blood sample volume to a conservative amount based on the size of the turtle captured. Blood hormones and heart rate have been measured in animals that have had blood drawn from them and no stress has been observed. Bjorndal et al. (2010) investigated the effects of repeated skin, blood and scute sampling on juvenile loggerhead growth. Turtles were sampled for each tissue type three times over a 120-day period. The authors found that repeated sampling had no effect on growth rates; growth rates of sampled turtles were not significantly different from control animals. Turtles exhibited rapid healing at the sampling site with no infection or scarring. Further, all turtles increased in body mass during the study proving that sampling did not have a negative impact on growth or weight gain. The authors conclude that the sampling did not adversely impact turtle physiology or health (Bjorndal et al. 2010).

Effects of Take Increase

The issue most relevant to this analysis is the potential for negative impacts on the target species. It is important to recognize that an adverse effect on a single individual or a small group of animals does not translate into an adverse effect on the population or species unless it results in reduced reproduction or survival of the individual(s) that causes an appreciable reduction in the likelihood of survival or recovery for the species. In order for the Proposed Action to have an adverse effect on a species, the exposure of individual animals to the research activities would first have to result in:

- ▶ direct mortality,
- ▶ serious injury that would lead to mortality, or
- ▶ disruption of essential behaviors such as feeding, mating, or nursing, to a degree that the individual's likelihood of successful reproduction or survival was substantially reduced.

That mortality or reduction in the individual's likelihood of successful reproduction or survival would then have to result in a net reduction in the number of individuals of the species. In other words, the loss of the individual or its future offspring would not be offset by the addition, through birth or emigration, of other individuals into the population. That net loss to the species would have to be reasonably expected, directly or indirectly, to appreciably reduce the likelihood of both the survival and recovery of the listed species in the wild.

Hence, although the total number of animals captured and suite of activities performed would increase as a result of the Proposed Action, as described above, none of the activities would result in the serious injury, mortality or reduced reproductive success of the target species. Therefore the Proposed Action is not expected to significantly impact individual sea turtles, their populations or species.

Environmental Consequences to the Biological Environment – Other Species

Because research activities would occur solely on sea turtles already captured or directly captured by hand, NMFS does not expect any non-target species to be impacted by the Proposed Action.

Summary of Effects

The short-term stresses resulting from the research activities discussed above are expected to be minimal. Animals would be released within hours of capture and should recover from the procedures within the same day. The permit modification would contain conditions to mitigate adverse impacts to turtles from these activities. Turtles would be worked up as quickly as possible to minimize stress resulting from the research and Dr. Carthy would also be required to follow procedures designed to minimize the risk of either introducing a new pathogen into a population or amplifying the rate of transmission from animal to animal of an endemic pathogen when handling animals. The Permit Holder would be required to exercise care when handling animals to minimize any possible injury. During release, turtles would be lowered as close to the water's surface as possible, to prevent potential injuries. Overall, the individual and combined impacts of the proposed research activities are not expected to have more than short-term effects on individual sea turtles.

The Proposed Action is not expected to cause serious injury or mortality of any animals. Thus the research would not result in a permanent decrease in a sea turtle species' or populations' reproductive success, lead to a long-term reduction in prey availability, the survival of young turtles, or the number of young turtles that annually recruit into the breeding populations of any of the sea turtle species. Given this analysis of impacts to sea turtles, NMFS does not expect the Proposed Action to result in significant impacts to the target sea turtles, their populations or species. As determined in the associated biological opinion, the modification to Permit No. 10022-01, as proposed, would not likely jeopardize the continued existence of the species and would not likely destroy or adversely modify designated critical habitat. Because the activities would only be conducted on turtles authorized for capture by the permit, NMFS does not expect the Proposed Action to significantly impact any non-target species or other portions of the human environment.

4.3 SUMMARY OF COMPLIANCE WITH APPLICABLE LAWS, NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

As summarized below, NMFS has determined that the proposed research is consistent with the purposes, policies, and applicable requirements of the ESA, and NMFS regulations. NMFS issuance of the permit modification would be consistent with the ESA.

4.3.1 Endangered Species Act

This section summarizes conclusions resulting from consultation as required under section 7 of the ESA. The consultation process was concluded after close of the comment period on the application to ensure that no relevant issues or information were overlooked during the initial scoping process summarized in Chapter 1. For the purpose of the consultation, the draft SEA represented NMFS' assessment of the potential biological impacts. The conclusion of the opinion (NMFS 2011b) 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.

4.4 COMPARISON OF ALTERNATIVES

While the No Action alternative would limit environmental effects to those analyzed in the 2008 EA and 2010 SEA, the opportunity would be lost to collect information that would contribute to better understanding sea turtles and that would provide information to NMFS that is needed to implement NMFS management activities. This is important information that would help conserve and manage sea turtles as required by the ESA and implementing regulations. The Proposed Action alternative would only impact individual sea turtles already captured by researchers or relocation trawlers. However, the effects would be minimal and this alternative would allow the collection of valuable information that could help NMFS' efforts to recover sea turtles. Neither the No Action or Proposed Action are anticipated to have adverse population or stock-level effects on sea turtles. Given the Proposed Action's minimal impact to the environment and the potential positive benefits of the research, it is the most desirable action to pursue.

4.5 MITIGATION MEASURES

The modification to Permit No. 10022-01, if approved, would require the Permit Holder to adhere to permit conditions discussed in Chapter 2 to minimize and mitigate any effects of the proposed procedures. These include conditions that will minimize the potential for injury and stress during procedures. All mitigation and minimization measures currently in the existing permit would remain in effect.

4.6 UNAVOIDABLE ADVERSE EFFECTS

Because the research involves wild animals that are not accustomed to being captured, the research activities will unavoidably result in some harassment. The research activities would cause disturbance and stress to sea turtles already captured. The research is not expected to have more than a minimal effect on individuals and no effect on populations with animals recovering within the day of the procedures. While individual animals may experience short-term stress and discomfort in response to the activities of researchers, the impact to individual animals is not expected to be significant. The minimization measures imposed by permit conditions are intended to reduce, to the maximum extent practical, the potential for adverse effects of the research on these species. Since the Proposed Action would only occur on sea turtles already captured, no other portion of the human environment would be affected in a manner not already considered in the 2010 SEA.

4.7 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 nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

Overall, the nature of cumulative impacts to sea turtles have not changed from those identified in the 2010 SEA. These include: scientific research, incidental take during other Federal actions, historic harvest, natural mortality, disease and strandings, habitat degradation and pollution, military activities, commercial fisheries, and conservation and recovery efforts. This section identifies cumulative impacts to sea turtles that have changed since the 2010 SEA. Changes are largely due to the expiration and issuance of research permits since 2010.

4.7.1 Other Research Permits and Authorizations

Table 3 lists the active scientific research permits that study the target sea turtle populations (in addition to the Permit Holder’s current permit (File No. 10022-01). Some of these occur outside of the action area but have been included here to illustrate the level of research on these populations. Since the 2010 analysis, 11 permits have expired and 6 have been issued.

Table 3. Active NMFS Permits for Sea Turtle Research in the Action Area.

Permit Number	Permit Holder	Expiration Date
14622	Allen Foley	February 28, 2016
14856	Jeanette Wyneken	November 30, 2015
14506	Llewellyn Ehrhart	September 15, 2015
14726	Blair Witherington	September 15, 2015
13573	Michael Salmon	May 1, 2012
14655	Jane Provanca	June 1, 2015
14508	Inwater Research Group, Inc.	June 1, 2015
1551	NMFS SEFSC	July 1, 2013
1570	NMFS SEFSC	December 31, 2011
1571	NMFS SEFSC	December 31, 2011

Authorized Mortality

Permit No. 1576 authorizes the lethal take of up to 23 loggerhead, 1 green, 1 leatherback, and 1 Kemp’s ridley sea turtles annually, and up to 1 loggerhead and 1 Kemp’s ridley over the course of the permit, through 2011. However, deaths are authorized as part of gear testing in the Northeast Atlantic, not in Florida waters.

Permit No. 1570 authorizes the lethal take of up to 3 loggerhead, 2 green, 1 leatherback, 2 Kemp’s ridley, 1 hawksbill, and 1 olive ridley sea turtle over the course of the permit through 2011.

NMFS does not expect the combination of these activities to significantly affect sea turtle populations. Most of these permitted actions will not overlap in space and time with the Proposed Action because they are not located in nor have a focus in the waters of St. Joseph Bay, Apalachicola Bay, or St. Andrews Bay. Further, NMFS has taken steps to limit repeated harassment of individual turtles and avoid unnecessary duplication of research efforts by requiring coordination among permit holders. All scientific research permits are also conditioned with mitigation measures to ensure that the research impacts target and non-target species as minimally as possible.

4.7.2 MC 252 Oil Spill

In addition to the impacts on the target sea turtle species discussed here and in the 2010 SEA, the 2010 Mississippi Canyon 252 (MC 252) oil spill has impacted green, Kemp's ridley, loggerhead, and hawksbill sea turtles in the Gulf of Mexico. The event has resulted in the live or dead stranding of tens to hundreds of animals of each species. The overall degree and extent to which the populations and species have been impacted is not known at this time; however, researchers and managers are currently working to assess and quantify impacts. Since the Proposed Action would take place in waters impacted by the MC 252 oil spill, the Biological Opinion (BO) prepared for this action also evaluated the potential impacts of the spill to the target sea turtle species, including the exposure to oil, use of dispersants, and other response activities that could harm sea turtles. The BO concluded 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.

Overall, the Proposed Action would not be expected to have more than short-term effects on endangered and threatened sea turtle species. The impacts of the non-lethal research activities are not expected to have more than short-term effects on individual sea turtles and any increase in stress levels from the research would dissipate within approximately a day. Even if an animal was exposed to additional research effort (e.g., a week later), no significant cumulative effects would be expected given the nature of the effects. NMFS expects the authorization of the proposed research activities of the proposed action to not 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 to not 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 target species.

The incremental impact of the action when added to other past, present, and reasonably foreseeable future actions discussed here would not be significant. The data generated by the 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, conserve, and recover threatened and endangered species.

CHAPTER 5 LIST OF PREPARERS AND AGENCIES CONSULTED

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

No outside agencies were consulted.

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Finding of No Significant Impact Issuance of Scientific Research Permit No. 10022-02

Background

In October 2010, the National Marine Fisheries Service (NMFS) received an application to modify permit (File No. 10022-01) from Raymond Carthy, Ph.D., to conduct research on sea turtles in Florida. In accordance with the National Environmental Policy Act, NMFS has prepared a Supplemental Environmental Assessment (SEA) analyzing the impacts on the human environment associated with permit issuance (Supplemental Environmental Assessment for Issuance of a Modification to Scientific Research Permit No. 10022-01 to Conduct Research on Protected Sea Turtles; November 2011). In addition, a Biological Opinion was issued under the Endangered Species Act (November 25, 2011) summarizing the results of an intra-agency consultation. The analyses in the SEA, as informed by the Biological Opinion, support the below findings and determination.

Analysis

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of “context” and “intensity.” Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ’s context and intensity criteria. These include:

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

Response: The study area is designated as EFH for several species of invertebrates and fishes (e.g., shrimp, sharks). The proposed action is not reasonably expected to cause substantial damage to the ocean and coastal habitats and/or EFH. Although the researcher’s entanglement nets would come into contact with bottom habitat, no substantial adverse effects to the physical environment are expected. The applicant will select anchoring sites on the sand/mud substrates. The tangle nets will not disturb bottom habitat or significantly impact EFH and the permit is conditioned to protect them. Therefore the Proposed Action is not expected to result in impacts to any physical habitat not previously considered in the previous supplemental environmental assessment (SEA, NMFS 2010) prepared for issuance of Permit No. 10022-01.



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

Response: No, the Proposed Action is not expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area. The Proposed Action is intended to study sea turtles in the Gulf of Mexico using standard methods. No other species or portions of the ecosystem would be impacted. Thus, the Proposed Action is not expected to have any substantial impact on biodiversity or ecosystem function.

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

Response: No, the Proposed Action is not reasonably expected to have a substantial adverse impact on public safety or health. The Proposed Action will allow a small number of personnel to conduct scientific research on sea turtles following safe practices and standard protocols. Therefore, public health and safety is not likely to be affected.

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

Response: Permit No. 10022-02 would authorize takes of endangered and threatened sea turtles resulting in no more than short-lived minimal impacts to individual animals. No serious injury or mortality would be expected, nor impacts at the population or species level. The Proposed Action cannot be reasonably expected to jeopardize the sustainability of any target stocks. The Proposed Action would allow the applicant to conduct scientific studies on sea turtles within areas affected by the Mississippi Canyon (MC) 252 oil spill. Given the mitigation measures contained in the permit, the proposed action is not expected to jeopardize the sustainability of the target species. Further, the biological opinion (BO) prepared pursuant to the ESA concluded that no listed species, including the target sea turtles, would be jeopardized by the Proposed Action. The BO also concluded that no critical habitat would be adversely modified or destroyed by the Proposed Action. Further, the permit for the proposed action will contain mitigation measures to prevent adverse effects to endangered or threatened species and marine mammals.

The Proposed Action is not expected to jeopardize the sustainability of any non-target stocks. The applicant would not attempt to approach or interact with any non-target species as the research would involve visually counting and dip netting sea turtles from a vessel conducting routine movements at the water surface. No interactions with other species are expected, including harm, injury or mortality of

non-target animals. Further, as an added precaution the modified permit would continue to contain conditions to mitigate potential harm and harassment to any non-target stocks in the area. Therefore, the proposed action is not expected to jeopardize the sustainability of any non-target species.

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

Response: No, the Proposed Action would not create any significant social or economic impacts interrelated with natural or physical environmental effects. The oil spill event itself is expected to lead to significant social and economic impacts on the human environment, but the Proposed Action to allow sea turtle research in areas affected by the oil spill are not expected to exacerbate the situation. Sea turtle research within the action area affected by the MC 252 oil spill would not have direct or indirect social and economic impacts. Thus, no social or economic effects are expected to be interrelated with effects to the natural or physical environment.

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

Response: No, the effects on the quality of the human environment are not likely to be highly controversial. The Proposed Action will provide vital information on sea turtle populations that is essential to NOAA's restoration efforts and will ultimately benefit sea turtle populations that use the Gulf of Mexico. The proposed research methods are commonly used and NMFS is not aware of any controversy surrounding the modification request. The application was made available for public comment and no substantive comments were received.

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

Response: No, the Proposed Action is not reasonably expected to result in substantial impacts to unique areas, park land, prime farmlands, wetlands, wild and scenic rivers, EFH, or ecologically critical areas. Many of these resources, such as farmlands, park land, and rivers, are not found within the action area and therefore will not be impacted. The oil spill event itself is expected to lead to significant impacts on the physical, biological, and human environment, but the Proposed Action to permit scientific research in areas affected by the oil spill is not expected to exacerbate the situation. Therefore, no additional impacts on these components of the environment are expected from the Proposed Action.

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

Response: No, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks. The proposed research activities are not new and are well-established protocols within the research community. Researchers have previously conducted the same type of research with no significant impacts to the environment.

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

Response: No, the Proposed Action is not related to other actions with individually insignificant but cumulatively significant impacts. The Proposed Action is to permit the applicant to conduct research on sea turtle assemblages in the Gulf of Mexico, including waters affected by the MC 252 Oil Spill. As described in previous responses, the Proposed Action will not have an impact on the physical environment. The oil spill event itself is expected to lead to cumulatively significant impacts on the physical, biological, and human environment, but the Proposed Action to allow sea turtle research in areas affected by the oil spill is not expected to exacerbate the situation.

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

Response: No, the Proposed Action would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, as none are designated in the action area. The Proposed Action is not expected to cause loss or destruction of significant scientific, cultural, or historical resources.

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

Response: No, the Proposed Action is not reasonably expected to result in the introduction or spread of non-indigenous species. Based on the nature of the Proposed Action and methods that would be followed, it is not expected to lead to the introduction of non-indigenous species.

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

Response: No, the Proposed Action would not establish a precedent for future action with significant effects, and it does not represent a decision in principle about future consideration. Issuing a permit to a specific individual or organization for a given activity does not in any way guarantee or imply that NMFS will authorize other individuals or organizations to conduct the same or similar activity, nor does it involve irreversible or irretrievable commitment of

resources.

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

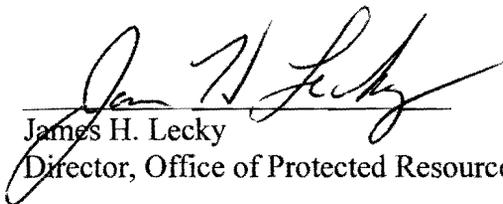
Response: No, the Proposed Action is not reasonably expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The Proposed Action is considered to be in concert with other laws imposed to protect the environment. The modified permit will not relieve the Permit Holder of the responsibility to obtain any other permits, or comply with any other Federal, State, local or international laws or regulations necessary to carry out the action.

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

Response: No, the Proposed Action is not reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species. The action is not expected to result in cumulative adverse effects to any species. The Proposed Action is expected to have no more than minimal effects on the individual target sea turtles. As noted in previous responses, no substantial adverse effects on non-target species are expected. No cumulative adverse effects that could have a substantial effect on any species would be expected.

DETERMINATION

In view of the information presented in this document, and the analyses contained in the EA and Biological Opinion prepared for issuance of Permit No. 10022-02, it is hereby determined that permit issuance will not significantly impact the quality of the human environment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.


James H. Lecky
Director, Office of Protected Resources

DEC 07 2011

Date

