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

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Supplemental Environmental Assessment (SEA)

On the Issuance of a Modification to Scientific Research Permit No. 13330 to the NMFS Southeast Fisheries Science Center to Conduct Research on Protected Smalltooth Sawfish

July 2011

A supplement to the 2008 EA entitled "*Environmental Assessment Scientific Research Permit to the Southeast Fisheries Science Center (Permit File No. 13330) to Conduct Research on Protected Smalltooth Sawfish*"

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Abstract: The National Marine Fisheries Service (NMFS) proposes to issue a modification to a research permit to the NMFS Southeast Regional Science Center for takes of smalltooth sawfish (*Pristis pectinata*) in the wild, pursuant to the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*). The modification would be valid through October 31, 2013.

The primary objective of the proposed modification would remain unchanged: to non-lethally collect data on the biology, distribution and abundance of the endangered smalltooth sawfish to facilitate recovery of the species. Sampling, with the goal of taking 45 smalltooth sawfish annually, is currently authorized by longline, gillnet, seine net, drum (set) lines, or rod and reel throughout Florida's coastal waters, but primarily in the region of the Florida coast from Naples to Key West, encompassing the Ten Thousand Islands. All captured sawfish are to be handled, measured, tagged, sampled, and released alive. Current tagging methods include rototags (fin tags), dart tags, umbrella dart tags, Passive Integrated Transponder (PIT) tags, acoustic transmitters, Pop-Up Archival Transmitting (PAT) tags, and Smart Position Only Transmitting (SPOT) tags. Sampling also includes tissue fin clips and blood. Finally, dead sawfish acquired through strandings or from law enforcement confiscations are also measured and sampled for scientific purposes.

To increase tag retention and provide less invasive means of tagging, the applicant now requests replacing two tagging methods while excluding another. Plastic rototags used to secure acoustic transmitters would be replaced with neoprene clasp tags; nylon umbrella darts used to secure PAT tags would be replaced with dorsal fin harnesses. Lastly, SPOT tags would be excluded as a tagging method in all sampling. Better data collection could provide increased insight into habitat usage pattern and accomplish actions items identified in the recovery plan for the species.

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CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

1.1 DESCRIPTION OF ACTION

The National Marine Fisheries Service (NMFS), Office of Protected Resources (NMFS PR) proposes to issue a modification of Permit No. 13330 to the NMFS Southeast Fisheries Science Center [Bonnie Ponwith, PhD, Responsible Party and John Carlson, PhD, Principal Investigator]under Section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. 1531 *et seq*.), and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR 222-226). This modification would be valid through October 31, 2013, the expiration date for the permit.

1.1.1 BACKGROUND:

In response to the receipt of an application for a modification from the NMFS Southeast Fisheries Science Center [File No. 13330], NMFS PR proposes to issue a modification to scientific research Permit No. 13330 for "takes"[1] of smalltooth sawfish (*Pristis pectinata*) pursuant to the statute and regulations listed above. This document is a supplement to the 2008 EA entitled "*Environmental Assessment Scientific Research Permit to the Southeast Fisheries Science Center (Permit File No. 13330) to Conduct Research on Protected Smalltooth Sawfish*."

The applicant's existing permit (No. 13330) authorizes researchers to: non-lethally capture by longline, gillnet, seine net, drum (set) lines, or rod and reel; weigh; measure; genetic sample; blood draw; rototag; dart tag; PIT tag (passive integrated transponder); attach acoustic transmitter tags including PAT and SPOT tags, release and track/monitor up to 30 juvenile and adult smalltooth sawfish annually. Fifteen neonate sawfish may also be captured, but PAT and SPOT acoustic tags are not authorized. The applicant is now requesting replacing plastic rototags, used to secure VEMCO acoustic transmitters, with a neoprene clasp tag; and also proposes replacing nylon umbrella darts, used to secure PAT tags, with a dorsal fin harnesses. SPOT tags would also be eliminated from further research. All other aspects of the currently permitted activity would remain the same (See attached 2008 EA).

Notable to this SEA is the fact that NMFS designated critical habitat for smalltooth sawfish in September 2009 (74 FR 45353). Therefore, there is discussion in this SEA of potential environmental effects of sawfish research on the critical habitat.

1.1.2 PURPOSE AND NEED:

The primary purpose of the permit is to provide an exemption from the ESA prohibitions to allow "takes" of endangered species for bona fide scientific research. The need for issuance of the permit is related to NMFS's mandates under the ESA, specifically, the responsibility to protect, conserve, and recover threatened and endangered species under its jurisdiction. The ESA prohibits takes of threatened and endangered species with only a few very specific

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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."

exceptions, including for scientific research and enhancement purposes. Permit issuance criteria require research activities are consistent with the purposes and policies of this federal law and will not have a significant adverse impact on the species. NMFS reviewed the proposed action to ensure all the proposed activities fulfill these permit issuance criteria.

1.1.3 OBJECTIVES OF THE RESEARCH:

The objectives of the proposed modification are identical to that of the original permit: collecting data on the biology, distribution and abundance of the endangered smalltooth sawfish to facilitate recovery of the species. However, the applicant is now requesting replacement of two types of telemetry tagging with other more secure, less invasive tagging techniques.

1.2 OTHER EAs/EISs INFLUENCING THE SCOPE OF THIS SEA

The original EA for Permit 13330 was prepared in response to the original permit application submitted March 25, 2008. There were two alternatives considered in the original EA: (1) the Proposed Action alternative (*i.e.*, approving the permit request), and (2) the No Action alternative (*i.e.*, not approving the requested permit). The Proposed Action of issuing the specific scientific research permit allowing capture, handling, sampling, tagging, as described was the preferred alternative. A Finding of No Significant Impact (FONSI) was signed September 17, 2008, based on the best available information, suggesting the previously mentioned research activities would not jeopardize the continued existence of smalltooth sawfish, or any non-target species.

Additionally, the activities conducted were not expected to significantly affect other portions of the environment. The No Action alternative in the 2008 EA was found unsuitable because information contributing to the better understanding of smalltooth sawfish and providing information to NMFS needed to implement NMFS management activities would be lost. NMFS determined that the Proposed Action would further help conserve, manage, and recover smalltooth sawfish as required by the ESA and implementing regulations.

1.3 SCOPING SUMMARY

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

A Notice of Receipt of the application was published in the *Federal Register*, announcing the availability of the permit application and related documents for public comment (File No. 13330-01; March 17, 2011; 76 FR 14650). However, no comments were received from the public regarding this application. Comments from NMFS Southeast Regional Office of Protected Resources were also solicited and appropriately addressed within the SEA and decision memos with respect to how the permit would authorize standard, well known and non-controversial research techniques.

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

1.4.1 NATIONAL MARINE SANCTUARIES ACT

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

1.4.2 NATIONAL ENVIRONMENTAL POLICY ACT:

The National Environmental Policy Act (NEPA) was enacted in 1969 and requires consideration of environmental issues in federal agency planning and decision making. The procedural provisions of NEPA are provided in 40 CFR Parts 1500-1508, outlining federal agency responsibilities under NEPA. NOAA has published procedures for implementing NEPA in NOAA Administrative Order 216-6. This SEA is prepared in accordance with NEPA, its implementing regulations, and NOAA 216-6.

1.4.3 ENDANGERED SPECIES ACT:

Section 9 of the ESA, as amended, and Federal regulations pursuant to Section 4(d) of the ESA, prohibit the take of endangered and threatened species, respectively, without special exemption such as by a permit. Permits to take ESA-listed species for scientific purposes, or for the purpose of enhancing the propagation or survival of the species, may be granted pursuant to Section 10(a)(1)(A) of the ESA.

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

Section 10(d) of the ESA stipulates that, for NMFS to issue permits under section 10(a)(1)(A) of the ESA, the Agency must find that the permit: was applied for in good faith; if granted and exercised, will not operate to the disadvantage of the species; and will be consistent with the purposes and policy set forth in Section 2 of the ESA. Section 2 of the ESA sets forth the purposes and policy of the Act. The purposes of the ESA are to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in Section 2(a) of the ESA. It is the policy of the ESA that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of the ESA. In consideration of the ESA's definition of conserve, which indicates an ultimate goal of bringing a species to the point where listing under the ESA is no longer necessary for its continued existence (*i.e.*, the species

is recovered), exemption permits issued pursuant to Section 10 of the ESA are for activities that are likely to further the conservation of the affected species.

Section 7 of the ESA requires consultation with the appropriate federal agency (either NMFS or the U.S. Fish and Wildlife Service) for federal actions that "may affect" a listed species or adversely modify critical habitat. NMFS issuance of a permit affecting ESA-listed species or designated critical habitat, directly or indirectly, is a federal action subject to these Section 7 consultation requirements. Section 7 requires federal agencies to use their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species. NMFS is further required to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of habitat for such species. Regulations specify the procedural requirements for these consultations (50 Part CFR 402).

All other applicable laws and necessary federal permits, licenses, and entitlements discussed in the 2008 EA would continue to apply.

CHAPTER 2: ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 ALTERNATIVE 1 – NO ACTION

Under this alternative, the No Action alternative, a modification to scientific research Permit No. 13330 to change the attachment methods for two tag types, the plastic rototag used to secure acoustic tags and the nylon umbrella dart used to secure PAT tags, would not be issued at this time. The existing permit would remain in effect through expiration, allowing research to continue as originally authorized.

2.2 ALTERNATIVE 2 – PROPOSED ACTION

Under this alternative, the Proposed Action alternative, a permit modification would be issued for research activities having permit terms and conditions standard to such permits as issued by NMFS. The applicant is currently authorized to capture by longline, gillnet, seine net, drum (set) lines, or rod and reel; weigh; measure; genetic sample; blood draw; rototag; dart tag; PIT tag; attach transmitter (PAT and SPOT tags); release and track/monitor up to 30 juvenile and adult smalltooth sawfish annually. Fifteen neonate sawfish may also be captured but may not be fitted with PAT tags. The applicant is now requesting replacing the rototag anchor tags with a neoprene clasp tag, as well as replacing nylon umbrella dart tags with a new harness device used to secure PAT tags. Also, SPOT tags would no longer be used. All other aspects of the currently permitted activity would remain the same.

2.3 DESCRIPTION OF THE PROPOSED ACTION

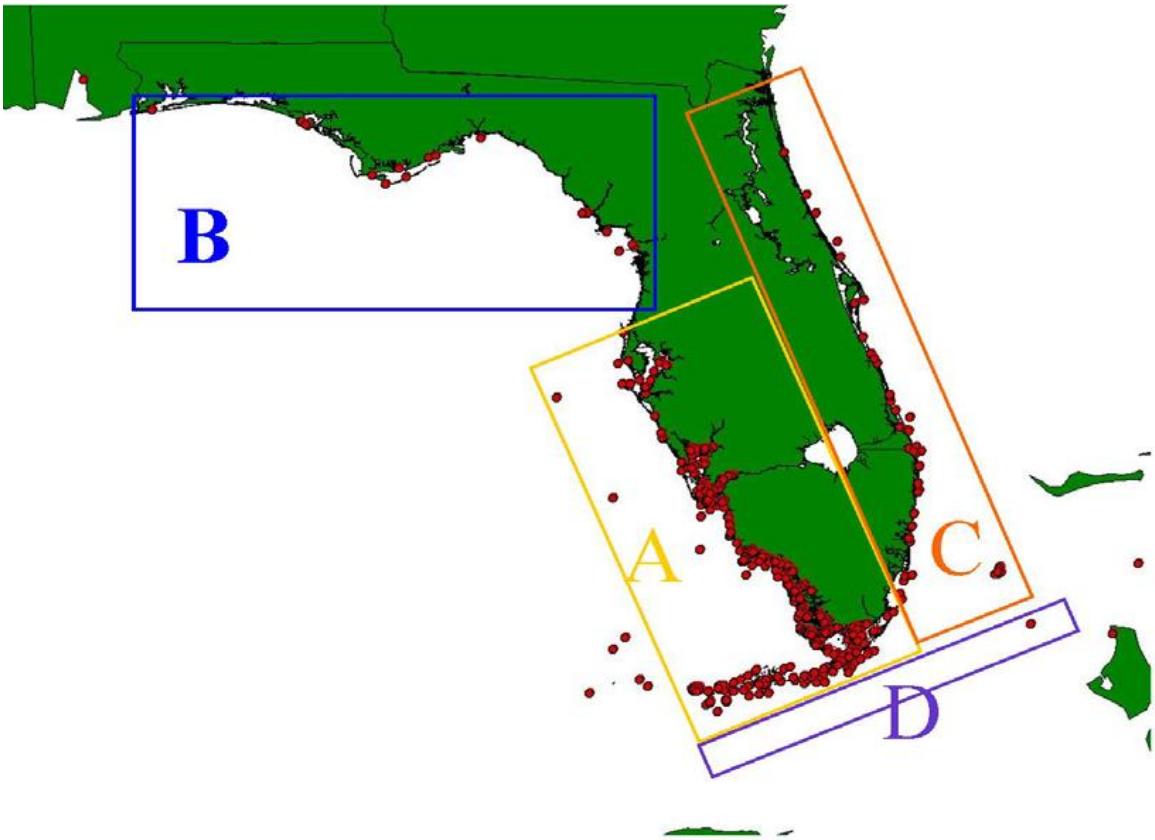
2.3.1 BOUNDARIES OF ACTION AREA:

The action area is defined in 50 CFR 402.02 as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The description of the action area therefore includes the areas affected by sampling activities as well as the area transited by project vessels.

2.3.1.1 MAP OF ACTION AREA:

Sampling would continue to occur throughout Florida's coastal waters (near shore, estuaries and mouths of rivers) if reliable and sufficient reports of smalltooth sawfish encounters were received to warrant sampling in those areas. Research efforts, however, would primarily be focused in the region of the Florida coast from Naples to Key West, encompassing the Ten Thousand Islands and Everglades National Park (See Figure 1 below).

Figure 1: Map of Action Area—Zones of Sampling



"Zone A" consists of state waters from Anclote to the Marquesas Keys, including all areas of Everglades National Park and the Florida Keys National Marine Sanctuary. "Zone B" consists of state waters from the Florida/Alabama border to Anclote. "Zone C" consists of state waters from the Florida/Georgia border to Biscayne National Park. Zone D consists of federal waters offshore of the keys between Florida and the Bahamas and Cuba.

2.3.2 *AUTHORIZED TAKE IN MODIFICATION:*

Table 1. Activities under permit No. 13330-**01**, annually (Changes in **Bold** are new requested methods).						
Species	Life Stage	Sex	No. of Takes	Take Action**	Location	Dates/Time Period
Smalltooth Sawfish	Neonate/ Young-of-the-Year **< 150 cm** stretched total length	M/F	15	Capture by longline, gillnet, seine, drum (set) lines, and rod and reel; weigh, measure; genetic sample; blood draw*****; neoprene clasp (with sonic tag)**; dart tag; PIT tag; release; track and monitor	Florida	Year-round
Smalltooth Sawfish	Juvenile **(150-350 cm stretched total length)**	M/F	15	Capture by longline, gillnet, seine, drum (set) lines, and rod and reel; weigh, measure; genetic sample; blood draw*****;** dart tag; PIT tag , **neoprene clasp (with sonic tag)**; or PAT tag (**with harness attachment**)*, release, track/monitor	Florida	Year-round
Smalltooth Sawfish	Adult **(>350 cm stretched total length)**	M/F	15	Capture by longline, gillnet, seine, drum (set) lines, and rod and reel; weigh, measure; genetic sample; blood draw*****;** dart tag; PIT tag **neoprene clasp (with sonic tag)**; or PAT tag (**with harness attachment**)*, release, track/monitor	Florida	Year-round

* = PAT (Pop-up archival transmitting) tags shall not be attached to animals < 200 cm in length; **neoprene clasp (with sonic tag) and PAT tags shall not be attached together on animals <250 cm long**.
** = Researchers may retrieve all dead stranded, bycatch (legal), or confiscated smalltooth sawfish (whole or in part) in any U.S. territorial or Exclusive Economic Zone waters for scientific purposes.
*** = Researchers shall not draw blood from animals weighing less than 360 grams. Researchers may blood sample up to 15 neonate/young-of-the-year smalltooth sawfish a year, until a total 25 of each sex is sampled. However, researchers may not exceed the limit of blood sampling 75 animals of both sexes combined for the entire period of the permit.

Life stage definitions taken from Castro (1993):

- Neonate/Young-of-the-Year: post-birth, free-swimming young bearing fresh, open, unhealed, or healing umbilical scars. The neonate period terminates with the healing (closure) of the umbilical scar, probably about a month or six weeks after birth. Young-of-the-Year includes individuals up to Age 1.
- Juvenile: all individuals prior to sexual maturation and greater than Age 1
- Adult: sexually mature individuals.

Table 2. Authorized annual **Incidental Take Statement resulting in short-term harassment and or minimal injury** of sea turtles written by the NMFS Biological Opinion for Issuance of Permit Number 13330-01.						
Species	Life Stage	Sex	No of Takes	Take Action**	Location	Time Period
Loggerhead turtle (*Caretta caretta*) Green sea turtle (*Chelonia mydas*) Leatherback turtle (*Dermochelys coriacea* Hawksbill sea turtle (*Eretmochelys imbricata*) Kemp's ridley turtle (*Lepidochelys kempii*)	Juvenile subadult or adult	M/F	**3***	Incidental Take by longline or gillnet or seine net or drum (set) lines or rod and reel	Florida	Year-round

***= Includes responses ranging from very mild short-term stress to short term minimal injury from hook or net gear capture. Up to 3 total takes annually, including: 2 loggerheads, PLUS 1 green, OR 1 leatherback, OR 1 hawksbill, OR 1 Kemp's ridley, over the course of the permit. Takes do not include mortality.**

****= Sea turtles shall be removed from the gear immediately and released. In addition, capture gear shall not be placed in the water, or will be removed, if any of these animals are known to be present in the immediate area.**

Table 3. Authorized **Incidental Take Statement for remainder of permit resulting in either harmful injury or mortality** of listed species written by the NMFS and USFWS Biological Opinion for Issuance of Permit Number 13330-01.						
Species	Life Stage	Sex	No. of Takes	Take Action**	Location	Time Period
Loggerhead sea turtle (*Caretta caretta*) Green sea turtle (*Chelonia mydas*) Leatherback sea turtle (*Dermochelys coriacea* Hawksbill sea turtle (*Eretmochelys imbricata*) Kemp's ridley sea turtle (*Lepidochelys kempii*)	Juvenile subadult or adult	M/F	**2***	Incidental Take by longline or gillnet or seine net or drum (set) lines or rod and reel	Florida	Year-round
American Crocodile (*Crocodylus acutus*)	Juvenile subadult or adult	M/F	1***	Incidental Take in any gear	Florida	Year-round

***= Includes responses from ingestion of hooks/severe hooking or observed mortality. Up to 2 sea turtles TOTAL may be lethally taken over the remainder of the permit. These takes may be for EITHER loggerheads OR greens OR leatherbacks OR hawksbills OR Kemp's ridleys, and in any combination.**

****=** Species shall be removed from the gear immediately, revived if necessary (and appropriate) and released. Release equipment including net picks, de-hookers, boltcutters, pliers, and NOAA LaForce linecutters shall be aboard the fishing vessel at all times. All field personnel must be trained on the proper use of these tools, and proper revival and handling techniques. In addition, capture gear shall not be placed in the water, or will be removed, if any of these animals are known to be present in the immediate area.

***= Includes mortality

2.3.3 DESCRIPTION OF MODIFIED TAGGING METHODS IN PERMIT:

The following section provides a description of the proposed changes to research activities:

2.3.3.1 REPLACEMENT OF ROTOTAGS WITH NEOPRENE CLASP TAGS:

- *Current Tagging Method — Using Rototags*: Currently, sonic tags (or acoustic transmitters) are attached to smalltooth sawfish by epoxying the transmitter to a swivel ear tag also referred to as a rototag (Figure 1). These tags are attached to the first dorsal fin of a smalltooth sawfish by punching a 3-5 mm hole through the fin with a leather hole-punch, and then fastening the two halves of the tag together through the fin. Small transmitters (8mm in diameter, 0.9 g in water) are glued to these tags and used on smalltooth sawfish less than 200 cm, well within the maximum recommended tag-to-animal weight ratio of 2% in water. Smalltooth sawfish over 200 cm are fitted with either 8mm or 16 mm diameter transmitters.

Figure 2: *Photograph of a juvenile sawfish tagged with a rototag on the dorsal fin.*

However, since using this tagging method, the applicant has found the transmitters have eventually migrated through the fin and falling out because the attachment is through a weakly supported dorsal fin. While no severe deleterious effects have been observed using this methodology, this method still requires punching 3-5 mm diameter holes in the dorsal fin of sawfish. Moreover, recent studies by Simpfendorfer et al. (2010), Simpfendorfer (unpublished), and Carlson (unpublished) indicate rototags shed in about 60-80 days, greatly limiting the long-term data collection of habitat use and movements. Since these data elements are essential for refining habitat usage pattern and accomplish actions items identified in the recovery plan, the researcher is proposing a more reliable tagging mechanism to replace the rototag

- *Proposed Replacement Tagging Method — Using Neoprene Clasp:* To address issues described for the rototag, the researcher is proposing a less invasive tagging technique using a neoprene clasp (Figure 2 and 3) proven to increase tag retention on other elasmobranch species (Wetherbee et al. 2007). In the procedure, a small 1-2 mm hole would be created through the anterior base of the first dorsal fin using a 20-gauge 4 cm long surgical needle. The front of the clasp is positioned at the anterior of the dorsal fin where it would be anchored through thick connective tissue, having little vascularization and resulting in no bleeding. A second

attachment point is created 30 to 36 mm posterior of the first attachment point at the base of the dorsal fin.

Before the neoprene clasp is fastened, a small piece of anti-chafing tubing is inserted through the anterior hole, and 80 lb test monofilament line is threaded through the tubing. The monofilament is then threaded through two equally sized strips of neoprene on either side of the fin. This neoprene acts as cushion between the animal and two equally sized plastic plates, allowing water flow and preventing necrosis. Depending on the size of the acoustic tag attached to the neoprene clasp, these neoprene and plastic backings would measure either 9mm x 30 mm or 13 mm x 36 mm.

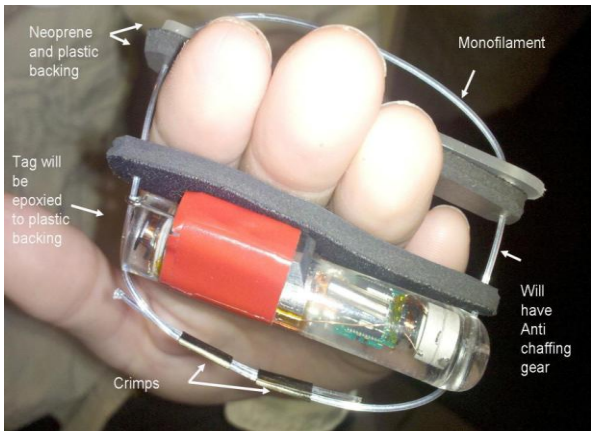


Figure 3: *Photograph of neoprene clasp*.

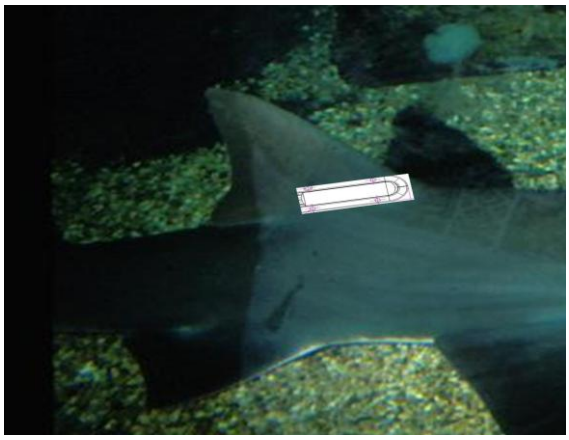


Figure 4: *Schematic of area where tag would be positioned on the dorsal fin.*

The tag would be fastened with epoxy to the plastic backings and the clasp attached to either side of the fin. The monofilament would then be threaded through holes in the two types of backings and through the attachment holding the tagging apparatus taut against the animal and minimizing drag. After the tags are secure, metal (nickel plated brass) crimps would be used to secure the monofilament loops. The metal crimps would corrode over time releasing the tag, leaving two small holes. The proposed procedure would be performed in less than 5 minutes without anesthesia with the animal remaining in water (Figure 2 and 3).

2.3.3.2 CHANGE IN ATTACHMENT METHOD FOR PAT TAGS:

- *Current Attachment Method—PAT Tags Attached Using Nylon Umbrella Darts*:

PAT tags and attachment method, as illustrated in Figure 4, are data-logging tags attached to animals using nylon umbrella darts (http://www.marinecsi.org/umbrella-darts/) connecting the tag with136 kg monofilament leaders (Figure 5 below). They are designed to detach from the host animal in a predictable time period (generally 3-6 months after release), float to the surface and download data summaries via the ARGOS satellite system. Their dimensions are 14 cm long and 2.1 cm in diameter, having a 4 cm diameter float and a 12 cm antenna. The tag is streamlined and is easily towed by an animal that is longer than 150 cm. After capture, sawfish are restrained alongside the research vessel and the umbrella dart is inserted along the midline of the first dorsal fin about 5 cm below the fin base, and seated in the musculature at a depth of about 10 cm.

While this method has been successfully used for some sharks (Wetherbee 2007), tag retention has been significantly less than the limits of the programmed tags data collection period (90-180 days). Also lesions have sometimes been evident in some recaptured sawfish where tags have been ripped from the flesh when caught in debris or mangrove swamps. The average retention of tags has been 63 days (n=9, range 14-98 days). This greatly limits the long-term data collection of habitat use and movements of adults and sub-adults.

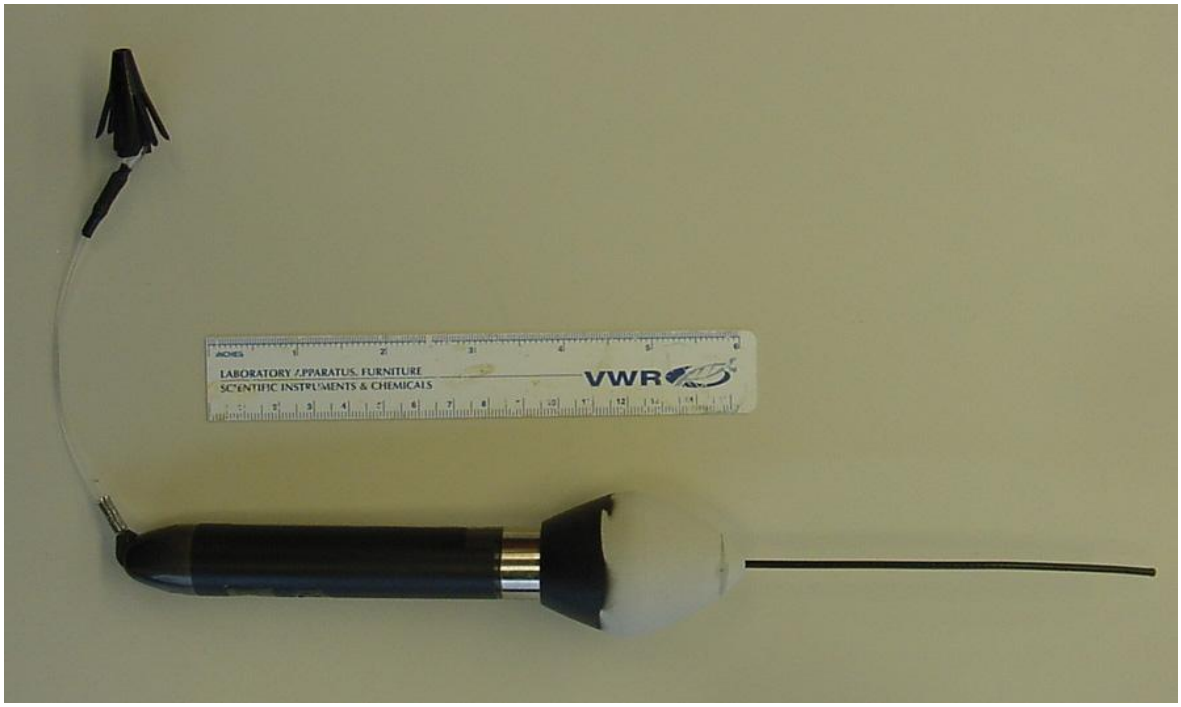


Figure 5. *Current configuration of PAT tag with umbrella dart anchor.*

- *Proposed Replacement Attachment Method — PAT Tags Attached Using Harness*:

As seen in Figure 6 below, the structural base of the proposed satellite tag attachment is a 75 cm section of 1.8 mm, stainless steel (49 strand) cable. One end of this cable is attached to the satellite tag using two 1.8 mm double copperlock crimps. Onto the free end of the of the steel cable, the following items are threaded : two 1.8 mm double copperlock crimps, a 5.0 cm section of 3.2 mm (OD) polyolefin heat-shrinkable tubing, a 30-50 cm (depending on sawfish size) section of 2.0 mm nylon chafe tubing, and finally a second 5.0 cm section of 3.2 mm (OD) polyolefin heat-shrinkable tubing. The lead piece of heat-shrinkable tubing is pushed to within 1.0 cm of the second crimp and the chafe tubing is pushed 2.5 cm inside of the heat-shrinkable tubing and the tubing is heated with a flame to shrink this section in place. The final section of heat-shrinkable tubing is pushed 2.5 cm over the trailing end of the chafe tubing and secured when heated with a flame. Last, the free end of the harness is threaded and centered within a section of Tygon tubing (3.2 mm ID) 5.0 cm shorter than the length of chafe tubing

Figure 6. *Proposed configuration of harness attachment method of PAT tag.*

After a captured sawfish is restrained alongside the research vessel, a hollow, stainless steel dart applicator is pushed through the thickened, anterior portion of the first dorsal fin near the dorsal fin origin. Internally, this region primarily consists of connective tissue with very little vascularization, therefore the insertion results in no bleeding. The free end of the harness assembly is threaded into the applicator through the dorsal fin and the applicator is then extracted from the opposite side of the dorsal fin. The harness is then pulled through the dorsal fin, and the free end of steel cable is inserted into the open sides of the two double copperlock crimps.

Figure 7. *Photograph of smalltooth sawfish tagged with the proposed harness method.*

The cable is pulled through the crimps to decrease the loop in the harness until the crimps rest just under the free rear tip of the dorsal fin. The crimps are then closed (crimped) to secure the harness in place and the excess steel cable is removed with wire cutters. When attached, the satellite tag trails just behind the dorsal fin as the sawfish is released. The metal crimps will corrode over time and the tag will slip off the animal leaving only a small hole. Also, given the large size of these animals, any rare snagging of the harness by mangroves or other underwater debris would result in the crimps breaking off and the tag floating free.

2.3.3.3 EXCLUDING SPOT TAGS FROM RESEARCH:

The applicant has informed NMFS, the SPOT tag will no longer be used in research. SPOT tags transmit signals to the ARGOS satellite system to estimate the location of the animal whenever they break the surface of the water. These tags —weighing approximately 28 grams (including antenna), and measuring 7 cm x 4 cm x 1.5 cm (excluding antenna) — are attached to the dorsal fin using nylon bolts or cable ties. The researcher is no longer using SPOT tags because the sawfish dorsal fin has been found to be too flexible to maintain the SPOT tag antennae vertically to send signals when breaking the surface. Like rototags, SPOT tags have also been found to migrate their way through the dorsal fin, releasing the tag prematurely and causing torn fins.

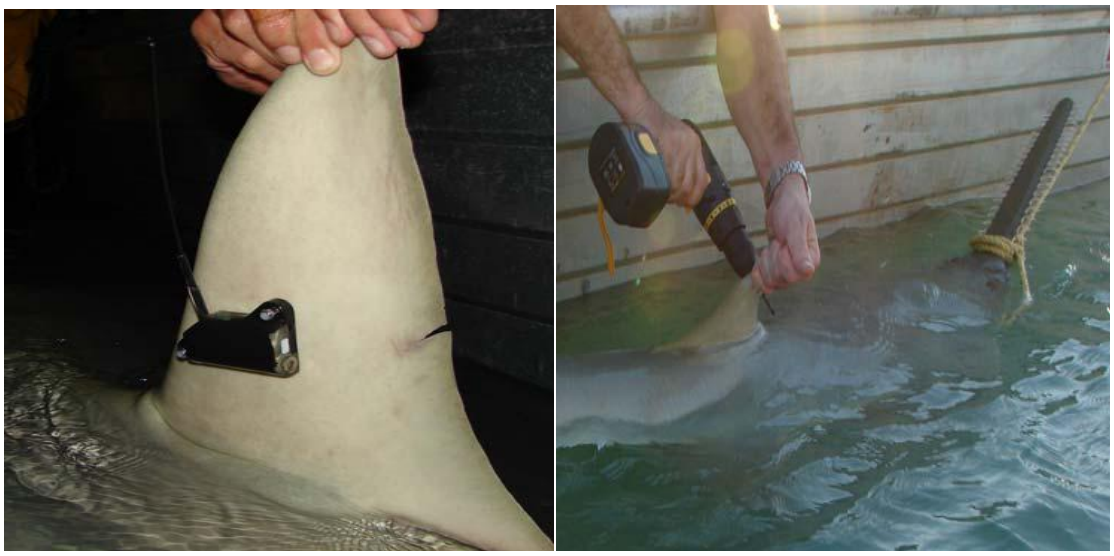


Figure 8. *Photograph of SPOT tag attachment using nylon bolts and use of power drill to create holes for attachment. (Note: these photographs are of dwarf sawfish (*Pristis clavata*)*

CHAPTER 3: AFFECTED ENVIRONMENT

This SEA evaluates the potential impacts to the human environment from issuance of the proposed permit modification by supplementing the original EA's assessment of potential impacts on the social, economic, physical, and biological environment (*i.e.*, targeted smalltooth sawfish), specifically those potentially resulting from the proposed tag changes. Please refer to the 2008 EA for detailed descriptions and discussions of the affected environment. This SEA also evaluates whether any conditions in the affected environment have changed since 2008, and any related updates are presented below.

3.1 SOCIAL AND ECONOMIC ENVIRONMENT

There are no new significant social or economic impacts of the proposed action interrelated with significant natural or physical environmental effects. Thus, the SEA does not include any further analysis of social or economic effects of the proposed action.

3.2 PHYSICAL ENVIRONMENT

The action area for the research under the proposed permit modification is identical to that evaluated in the 2008 EA, with exception of NMFS's more recent 2009 designation of critical habitat for smalltooth sawfish. With this noted exception, NMFS PR determines the original 2008 EA developed for the issuance of the original permit, considers all of the measurable impacts on the physical environment from the newly proposed modifications in this SEA.

3.2.1. NATIONAL MARINE SANCTUARIES:

Research efforts would be primarily focused in the region of the Florida coast from Naples to Key West, encompassing the Ten Thousand Islands and Everglades National Park and the Florida Keys National Marine Sanctuary (FKNMS); however, the researcher's actions are not expected to result in substantial impacts to any of these unique areas. Although the action area remains unchanged from that previously analyzed under the 2008 EA for the original permit (No. 13330), which concluded no substantial impacts to the areas mentioned above were expected, the applicant indicated researchers would continue to make every effort to ensure fishing gear would have little to no impact to sediment or other bottom habitat. The applicant also confirmed re-consultation with the FKNMS Permitting Coordinator and Science Coordinator, or to the National Park Service, would be their responsibility prior to resuming research using the modification to tagging. After review, a letter of authorization was received by NMFS from the sanctuary superintendent on June 17, 2011, documenting approval that they were sufficiently confident the modified permit would not be detrimental to the sanctuary.

3.2.2 DESIGNATED CRITICAL HABITAT FOR SMALLTOOTH SAWFISH:

NMFS designated critical habitat for smalltooth sawfish in September 2009 (74 FR 45353). Critical habitat is defined in section 3(5)(A) of the ESA as: (i.) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features; (ii.) essential to the conservation of the species; (iii.) that may require special management considerations or protection; and (iv.) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

The designated critical habitat for sawfish includes two specific nursery areas for sawfish containing the essential features necessary for species conservation. The two areas delineated are: (1) the Charlotte Harbor Estuary Unit, comprised of approximately 221,459 acres (346 mi^2) of coastal habitat; and (2) the Ten Thousand Islands/ Everglades Unit (TTI/E), comprised of approximately 619,013 acres (967 mi^2) of coastal habitat. The two units are located along the southwestern coast of Florida between Charlotte Harbor and Florida Bay, coinciding with the researcher's study area. A description and area map of the designated critical habitat for smalltooth sawfish can be accessed online at: http://www.nmfs.noaa.gov/pr/species/fish/smalltoothsawfish.htm.

The key conservation objective identified for smalltooth sawfish is the need to facilitate recruitment into the adult sawfish population by protecting juvenile nursery areas. Addressing this objective, NMFS determined the habitat features essential to the conservation of the species (also known as the Primary Constituent Elements or PCE's) are: red mangroves and shallow euryhaline habitats characterized by water depths between the Mean High Water line

and 3 ft (0.9 m) measured at Mean Lower Low Water (MLLW). These essential features are necessary to facilitate recruitment of juveniles into the adult population, because they provide for predator avoidance and habitat for prey in the areas currently being used as juvenile nursery areas. NMFS determined these features may require special management considerations or protection due to human and natural impacts to the features, including development, marine construction, and storms.

Because the applicant's ongoing and proposed research would occur within the delineated boundaries of sawfish critical habitat, NMFS PR determined critical habitat for sawfish could potentially be impacted by the research. Informal consultation conducted by email (sent April 5, 2011) with NMFS Southeast Regional PR fishery biologist, Shelley Norton, whether or not the current or proposed research activities would have an adverse impact on sawfish critical habitat, informed NMFS PR's conclusion that most likely the proposed research would not have an effect based on the critical habitat. She concurred with NMFS PR's assessment of no adverse impacts anticipated on critical habitat, since none of the ongoing sawfish research efforts are changing water depth, affecting red mangroves, or are changing salinities. (See Section 4.2.5 analyzing the effects on critical habitat). Results of consultation with NMFS Endangered Species Division on impacts to critical habitat of smalltooth sawfish are referenced in the accompanying biological opinion, and briefly summarized in Section 4.3.2 of this SEA.

3.3 BIOLOGICAL ENVIRONMENT

The biological environment for the proposed research modification has not changed from that evaluated in the 2008 EA. However, Atlantic sturgeon, reported in the St. Johns River watershed in Northeast Florida, is newly proposed to receive ESA protection in the fall of 2011. Because its range partially overlaps the range of smalltooth sawfish and the applicant's ongoing research, the following section briefly discusses the impact of the potential listing of Atlantic sturgeon on the Biological Environment and the proposed sawfish research.

3.3.1 NON-TARGET SPECIES OCCURRING IN THE ACTION AREA—ATLANTIC STURGEON:

3.3.1.1 ATLANTIC STURGEON RANGE:

The marine range of Adult and sub-adult Atlantic sturgeon extends from the Bay of Fundy, Canada, to the Saint Johns River, Florida. However, reproducing Atlantic sturgeon populations are no longer believed to exist south of the Satilla River in Georgia. Recent sampling of the St. Marys River (Georgia/Florida border) and sampling to date in the St. Johns River (Florida) has failed to locate any such reproducing Atlantic sturgeon, suggesting the spawning population may have been extirpated in the southern range of the species (NMFS 2010). However, in January 2010, 12 sturgeons, believed to be Atlantic sturgeon, were captured at the mouth of the St. Marys during relocation trawling associated with a dredging project (J. Wilcox, Florida Fish and Wildlife Conservation Commission, pers. comm.). These were the first captures of Atlantic sturgeon in the St. Marys River in decades. There have also been reports of Atlantic sturgeon captured in the St. Johns River, indicating this river may serve as a nursery ground; although, there are no data supporting the existence of a current spawning population (i.e., YOY or running ripe adults) in the St. Johns (NMFS 2010).

3.3.1.2 ATLANTIC STURGEON LISTING HISTORY:

In 1998, NMFS and USFWS received a petition to list Atlantic sturgeon as endangered. Although a protective ESA status was denied, the species remained a 'species of concern' under NMFS's jurisdiction. In 2007, NMFS completed a second status review for this species and accepted a petition evaluating whether the species warranted listing under the ESA. Subsequently, Atlantic sturgeon was proposed for listing in five projected distinct population segments (DPSs). A proposed threatened DPS in the Gulf of Maine was determined, while the four remaining DPSs were proposed as endangered (75 FR 61872 & 75 FR 61904), including the South Atlantic DPS encompassing the Northeast Florida portion of the coinciding range for smalltooth sawfish.

Summary: Consequently, there is some potential for Atlantic sturgeon to be captured during the proposed smalltooth sawfish study (i.e., during sampling requested in the St Johns River). Currently, however, a final rule has not yet been published and therefore Atlantic sturgeon does not yet receive protections under the ESA. Thus, NMFS considers should a subsequent listing of Atlantic sturgeon occur coinciding with the proposed research activities, the effects of the researcher's actions on Atlantic sturgeon would be analyzed at that time. Appropriately, during the interim period, the applicant would monitor gill nets closely (in the overlapping range of Northeast Florida), and if an Atlantic sturgeon were captured prior to its final listing, NMFS would request the same netting protocols and standard research conditions protective for shortnose sturgeon be used to ensure Atlantic sturgeon survival (See Section 4.5.2 of this SEA).

This discussion ends the summary of the potential impacts to the environment from issuance of the proposed permit modification. For a more thorough discussion of the biological environment associated with this action, please refer to the original 2008 EA and the current Biological Opinion accompanying this SEA.

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

In this case, the No Action alternative is effectively the Proposed Action alternative evaluated in the 2008 EA. That is, under the no action alternative, the take activities would continue as currently authorized under the existing permit. Based on the analyses in that EA, NMFS determined issuance of the permit and conduct of the associated research would not likely jeopardize the continued existence of smalltooth sawfish or any other non-target species. Additionally, the activities conducted under the permit were not expected to significantly affect any other portions of the environment.

4.2 EFFECTS OF ALTERNATIVE 2 – PROPOSED ACTION

Any impacts of the Proposed Action alternative would be limited primarily to the to the target species whereby tagging methods would be modified. The type of action proposed in the permit request would be therefore unlikely to affect the physical or socioeconomic environment or pose a risk to public health and safety. The following discussion assesses the addition of two tagging methods and the exclusion of one other.

4.2.1 EFFECTS OF PROPOSED ATTACHMENT METHOD —USING NEOPRENE CLASP:

This proposed procedure is less invasive than the current procedure for several reasons. As previously stated, rototags (or ear tags) require a puncture wound much larger than a 20-gauge needle used to attach the clasping tag. Further, the attachment location for ear tags is in a thin area of the dorsal fin, a weak attachment site resulting in rototags often pulling through the dorsal fin causing scarring and poor tag retention. The puncture wound produced with the neoprene clasp would be similar to inserting a PIT tag; however, it would be made through the anterior portion of the dorsal fin, a much more stable area consisting primarily of connective tissue. The applicant reports the new tagging procedure has already been used in other elasmobranches with minimal impacts. Simpendorfer (2010) observed no discomfort or bleeding while using this procedure and they did not use anesthetic. Wetherbee et al. (2007) acoustically tagged and monitored the location of seven lemon sharks in Atol das Rocas, Brazil, over the length of the study. Three thousand nine hundred tagged shark detections were recorded monitoring locations and movement. These indicated tag retention was excellent well after the study was completed, and also that the animals were not adversely affected by the tagging procedure.

4.2.2 EFFECTS OF PROPOSED ATTACHMENT METHOD —USING HARNESS FOR PATS:

The proposed harness method for attaching PAT tags is reportedly less invasive than is the intramuscular implantation of nylon umbrella darts anchoring the PAT tag in sawfish. As noted previously, internally, the anterior section of the dorsal fin, through which the harness would be threaded, consists of connective tissue with very little vascularization; therefore the insertion of the harness cable would result in no bleeding or discomfort while being attached. The applicant reports this tagging approach is currently used by Drs. Michael Musyl and Richard Brill (pers. com.) on pelagic sharks in the Pacific Ocean (http://www.soest.hawaii.edu/PFRP/pub_list.html).

These authors have tagged up to five species and reported tag retentions up to 247 days with no stress or trauma associated with the application of the tag method. Also, according to the applicant, Dr. R. Dean Grubbs (Pers. com., Florida State University) has also used this approach in tagging of a number of other species in different locations. Large sandbar sharks were tracked in Chesapeake Bay with harness-attached PAT tags. Ten sharks were manually tracked for 13 to 72 hours to note behavior changes in the animals tagged; all ten behaved normally for the duration of the study and one shark was also relocated 2 weeks later. Sandbar sharks were also tagged in Hawaii with harness-attached PAT tags. Four adult sharks were tagged and all survived duration of deployment diving to depths 75-150 m. Nineteen Bluntnose sixgill sharks were tagged in Hawaii, Virginia and the Bahamas and reported data up to 187 days and at depths to 1,100 m. In addition, Dr. Grubbs recently had the opportunity to

tag two smalltooth sawfish with this approach in Andros Island, Bahamas in 2010 (Figure 6). These individuals retained PAT tags for 75 and 180 days respectively.

4.2.3 EFFECTS OF EXCLUDING THE USE OF SPOT TAGS:

The applicant is no longer intending to use SPOT tags attached the dorsal fin on sawfish as it has been found to be too flexible and is not able to maintain the SPOT tag vertically for sending signals. Because of this exclusion from research practices, SPOT tags would no longer be attached with nylon bolts through the dorsal fin. Holes would no longer be made using a leather punch (like for rototags) or a power drill (for thick fins of large sawfish); nor would they cause potential harm to sawfish by migrating their way through the fin (similar to rototags).

4.2.4 SUMMARY OF EFFECTS OF TAGGING MODIFICATIONS:

Based on the analysis in the original 2008 EA and Biological Opinion, NMFS concluded that rototags and umbrella darts used for attaching acoustic of various sizes and PAT tags would not be anticipated to be harmful to animals tagged as described, nor would they be expected to significantly interfere with the normal activities of sawfish after they were released. However, the newer described methods were requested based on the research community's effort to improve tag retention and reduce adverse impacts to target species. Although there are few studies in the published literature regarding the effectiveness of these tag attachment methods, the procedures are gaining acceptance by researchers recognizing these procedures as being less invasive and more effective than previous practices.

The researcher presents evidence in his application that the attachment methods using rototags and umbrella darts are too short-lived and are not retained well by sawfish. Additionally, the applicant has documented lesions on the fish where the tag attachments have pulled free through the flesh. In particular, the effectiveness of rototags appears to have been lessened by the lack of connective tissue where the tags are typically implanted, causing tag migration towards the trailing edge of the fin. Also, given the larger size of some tagged sawfish, snagging of the trailing PAT tags attached using umbrella dart anchors has been prevalent causing lesions in the flesh and premature release of PAT tags. Therefore, the applicant requests rototags and umbrella dart anchors are replaced with the alternative methods.

The applicant presented evidence that both alternative attachment methods —neoprene clasp and harness device for the PAT tags—would potentially be less invasive and lead to longer tag retention in sawfish. This is due in part because the tissue where they would be attached—through the anterior edge of the dorsal fin— is characterized by a lack of vascular tissue consisting of primarily connective cartilage. Additionally, test animals were not harmed and showed no alterations in movement when movement and swimming behavior of test animals were evaluated with both types of modified tags in place.

NMFS concludes both new tagging methods would be less invasive and harmful to sawfish and would provide for better tag retention. Both tagging methods would also provide for more predictable releases of the tags after corrosion of the crimps fastening the tags to the attachment devices. Lastly, removing the ineffective SPOT tags as a tagging method would reduce the stress on individual animals. Consequently, NMFS does not expect the modified

tagging methods would result in fish being harmed or result in the loss of animals (Simpfendorfer et. al 2010). The researchers would still be bound to conduct research activities in accordance with the mitigating conditions in the original permit which would further reduce the likelihood of any serious injury or mortality occurring. For these reasons, NMFS does not expect the target smalltooth sawfish to be significantly impacted by the modified tag attachment procedures.

4.2.5 EFFECTS OF RESEARCH ON SMALLTOOTH SAWFISH CRITICAL HABITAT:

As stated previously, critical habitat for smalltooth sawfish is defined as specific areas containing physical and biological features essential to the conservation of the species. Primary Constituent Elements (PCE‘s) for critical habitat identified by NMFS as essential for the conservation of the species include: red mangroves and shallow euryhaline habitats characterized by water depths between the Mean High Water line and 3 ft (0.9 m) measured at Mean Lower Low Water (MLLW).

While research activities will occur in designated critical habitat for smalltooth sawfish, permit conditions require the researchers to avoid impacting bottom habitat including those occurring in nearshore waters. Research activities are not expected to impact red mangroves or shallow euryhaline habitats essential for juvenile smalltooth sawfish. The research team has experience performing similar types of surveys in these areas and would be expected to take all proper precautions to avoid any physical disturbance of bottom habitat and/or minimizing the impact of an accidental fuel spill. Thus NMFS PR does not expect any measurable effect to occur to constituent elements of the critical habitat and any potential threats are discountable. Therefore, the proposed action is not likely to adversely affect designated critical habitat for the smalltooth sawfish.

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

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

4.3.1 Coordination with the National Ocean Service

The National Marine Sanctuary Program (NMSP), operating under the NMSA and administered by NOAA’s National Ocean Service (NOS), has the authority to issue special use permits for research activities that would occur within a National Marine Sanctuary. Because the actions in the application for Permit No. 13330-01 would possibly occur in the Florida Keys National Marine Sanctuary (FKNMS), NMFS PR contacted the National Marine Sanctuary staff on May 10, 2011 informing them of the modification and they responded that they wished to review the application and subsequently had further questions for the applicant on his proposed research methods. On June 17, 2011, the FKNMS Superintendent, Sean Morton responded in a letter of authorization granting approval from the sanctuary that they were sufficiently confident the modified permit would not be detrimental to the sanctuary and thus a separate FKNMS permit would not be required.

4.3.2 Compliance with The Endangered Species Act

The consultation process under section 7 of the ESA was concluded after close of the comment period on the application for modification 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. After reviewing the current status of endangered smalltooth sawfish, the environmental baseline for the action area, the effects of the proposed research program, and the cumulative effects, NMFS's biological opinion was that issuance of this permit modification would not likely jeopardize the continued existence of the smalltooth sawfish, nor would it impact any of its designated critical habitat.

In the accompanying biological opinion for this modification, NMFS' Endangered Species Division re-evaluated the species' expected responses as well as the population and species level risks associated with the expected incidental take of sea turtles by the proposed research activities. Based on prior monitoring reports submitted by smalltooth sawfish researchers, as well as new estimates of incidental take associated with commercial fisheries utilizing net, rod-and-reel, and longline equipment, NMFS Endangered Species Division concluded in the Biological Opinion for this SEA that it now expects only up to two sea turtles of any species would suffer harmful injury or mortality over the course of the remaining term of the permit. In an effort to minimize sea turtle mortality, this exemption represents a reduction in take than previously analyzed in the 2008 Biological Opinion. The Endangered Species Division identified reasonable and prudent measures in the biological opinion limiting sea turtle interactions during research activities to meet this objective. These measures were also incorporated into the permit.

4.4 COMPARISON OF ALTERNATIVES

The No Action alternative would not allow any aspects of the requested modification to be authorized; it would allow for conduct of research as was originally permitted with existing tagging methods. This alternative would not result in any significant adverse impacts to the social, economic, biological, or physical environment; however, the opportunity to gather additional information that would aid in the conservation and management of endangered smalltooth sawfish would be lost.

The Proposed Action alternative would authorize changes in tagging methods and procedures, as described in the application for modification. Although this alternative would result in impacts to the target smalltooth sawfish, no other aspects of the environment are expected to be significantly adversely affected. The mitigation measures proposed in the original permit and proposed in the modified permit below would be used to guard against any new adverse affect to the species and population. The information gained would outweigh any potential for negative impacts to the target species.

4.5 MITIGATION MEASURES

A number of new measures are built into the proposed study intended to minimize the potential for adverse effects on smalltooth sawfish. With the exception of the changes described under the Proposed Action, all of the mitigation measures in the original application and permit would remain in effect. Mitigation measures proposed by the applicant, and listed above under

the Proposed Action alternative, would also be used. The following mitigation measures, in addition to those identified in the application for modification would be added/altered in the proposed permit:

4.5.1 MONITORING TAGGING EFFECTS ON SMALLTOOTH SAWFISH:

- Careful and detailed records must be kept on the recovery and responses from handling, tissue sampling, tagging, tag retention, healing, and condition or health of any smalltooth sawfish.

- To monitor or lessen negative impacts of tagging methods, researchers must examine tag attachment sites of recaptured sawfish for any lesions or complications associated with the tagging methods. Additionally, any results obtained on tag retention and fish health must be reported to NMFS PR in annual reports or as periodically requested by NMFS. If impacts of the tagging are other than insignificant, NMFS would then reevaluate their use in the permit.

- To ensure normal mobility and swimming behavior of smalltooth sawfish receiving tagging devices, researchers must document adaptation to these tags by individually monitoring and recording swimming behavior, number of times each fish is detected, time periods between detections, and the history of unrelocated individuals.

4.5.2 CAPTURE OF SEA TURTLES:

The permit holder must observe nets for sea turtles, disentangling and returning to the water, to the maximum extent practicable and with vigilante consideration of safety, any live sea turtles found in nets during research.

- No more than two sea turtles of any species captured can suffer mortality or be seriously injured from effects of research over the remaining life of the permit.

- A total of three sea turtles —up to two loggerhead sea turtles and one individual of another species (i.e. either a green, hawksbill, Kemp's Ridley, or leatherback)— may be captured unharmed annually.

4.5.3 MONITORING ATLANTIC STURGEON INTERACTION:

- If an Atlantic sturgeon, prior to its proposed ESA listing, is incidentally captured, NMFS requests it be handled as recommended by NOAA sturgeon research protocols (Kahn and Mohead 2010); and it minimally be PIT tagged, genetically sampled, and released.

- NMFS requests interactions with pre-listed Atlantic sturgeon (alive or salvaged) are reported to Lynn Lankshear (NMFS PR) by phone at 978-281-9300 x 6535 (Lynn.Lankshear@noaa.gov). This report should contain descriptions of take, (including lethal take or salvage), location, and final disposition of the sturgeon. Specimens or body parts of dead Atlantic sturgeon should be preserved (preferably on ice or refrigeration) until sampling and disposal procedures are discussed with NMFS.

- Should an ESA listing for Atlantic sturgeon become effective during the permitted time frame authorized for smalltooth sawfish research, the researcher must consult with NMFS to

apply for coverage of any incidental takes of Atlantic sturgeon co-occurring in the action area with smalltooth sawfish before proceeding with sawfish research in that area (defined as the St Marys and St Johns River watersheds).

4.6 UNAVOIDABLE ADVERSE EFFECTS

The mitigation measures imposed by permit conditions, outlined in the original 2008 EA and in the current SEA, are intended to reduce, to the maximum extent practical, the potential for adverse effects of the research on the targeted species as well as any other species incidentally harassed. However, as discussed above and in the 2008 EA, the research techniques used may have an effect on the smalltooth sawfish targeted for research. However, impacts on individual animals or on the population are not expected to have significant long-term impacts.

4.7 CUMULATIVE EFFECTS

The baseline for this document, which was discussed in the original 2008 EA, includes the past and present impacts of state, Federal or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone consultations under Section 7 of the ESA, and the impact of contemporaneous state or private actions.

There is one other smalltooth sawfish permit authorized in Florida waters with similar objectives and an action area overlapping part of the proposed action. However, both of the research actions would be expected to have no more than short-term effects on individual endangered smalltooth sawfish and no effects on other aspects of the environment. Please see the 2008 EA for a complete description of previously analyzed cumulative effects.

NMFS believes that the proposed modification as discussed above, and in the original EA, would not have a significant cumulative effect on either the human or marine environment. The proposed action is directed at specific smalltooth sawfish and as modified would also not have a significant cumulative impact on non-target species encountered or on the physical environment in the proposed action area. Further, as informed by the Biological Opinion for this action, issuance of this modification is not likely to jeopardize the continued existence of endangered smalltooth sawfish, its critical habitat, or of other listed species.

CHAPTER 5 LIST OF PREPARERS AND AGENCIES CONSULTED

Preparers:
Office of Protected Resources
National Marine Fisheries Service
Permits, Conservation and Education Division
Office of Protected Resources
Silver Spring, MD 20910

Agencies and Personnel Consulted:

Office of Protected Resources Section 7 National Marine Fisheries Service Endangered Species Division, Silver Spring, MD 20910	Formal Consultations on the Effects on ESA Target Species (smalltooth sawfish)
Office of Protected Resources NMFS, SE Regional Office St. Petersburg, FL 33701	Informal Consultations on the Effects of Research on Smalltooth Sawfish Critical Habitat

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