UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

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JAN - 9 2007

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BG Joseph Schroedel, USA
Division Engineer
South Atlantic Division
U.S. Army Corps of Engineers
60 Forsyth Street S.W.
Atlanta, GA 30303-8801

Dear General Schroedel:

This responds to the U.S. Army Corps of Engineers' (COE), South Atlantic Division (SAD) e-mail request dated May 31, 2006, by Mr. Dennis Barnett of your Planning and Policy Division (PPD) to Mr. Eric Hawk of my Protected Resources Division (PRD). Mr. Barnett, acting as spokesperson for the three COE divisions containing the four COE Gulf of Mexico districts, submitted COE-requested changes to the current National Marine Fisheries Service (NMFS) Gulf of Mexico hopper dredging regional biological opinion (GRBO), issued November 19, 2003. Our response also addresses the Endangered Species Act (ESA) section 7(a)(2)/7(d) analysis submitted by e-mail on September 12, 2006, by Mr. Daniel Small of COE PPD in response to a take of a federally-listed smalltooth sawfish on August 12, 2006, by a COE-authorized relocation trawler during Tampa Harbor Entrance Channel maintenance dredging. A June 27, 2006, conference call and numerous subsequent e-mails, phone calls, and sharing of ideas between our respective staffs resulted in Revision 2 to the GRBO, enclosed herein.

NMFS previously amended the GRBO on June 24, 2005 (Revision 1). The COE requested additional changes to address remaining issues of concern, specifically: 1) GRBO-required funding for genetic testing of tissue samples collected from sea turtles taken on COE projects or COE-permitted projects; and 2) the methodology of how applicants on COE permits will be involved in consultation discussions regarding authorized levels of protected species take. Other COE requests included, specifically: 1) A request for a 25-percent annual overage of authorized take under the GRBO for any one calendar year, as long as the total anticipated take for the encompassing 5-year period was not exceeded; and 2) a request that the GRBO be revised to authorize relocation trawling takes of smalltooth sawfish. Currently, the GRBO authorizes takes of federally-listed sea turtles and Gulf sturgeon, but not smalltooth sawfish.

The COE and NMFS agreed during their conference call to hold the COE request for a 25-percent overage in abeyance pending significant additional analysis needed by both the COE and NMFS. Because these analyses will require significant additional effort and time, it was agreed

to proceed with resolving those high-priority issues that can be addressed with a simple revision to the Incidental Take Statement (ITS). However, it will be reconsidered during NMFS' reinitiation of formal consultation on the GRBO to analyze the effects of the COE's request for an increase in its currently authorized non-lethal relocation trawling take limits for sea turtles and Gulf sturgeon. At that time, NMFS will also consider the COE's requested increase in its lethal relocation trawling take limit for sea turtles and its request for relocation trawling take authority for smalltooth sawfish. Increased take limits and take authority for species not included in the GRBO's ITS cannot be authorized without a thorough effects assessment and jeopardy analysis.

With respect to the COE's concern about genetic sampling, NMFS agrees that the GRBO requirement for COE funding of genetic sampling be modified because the COE has provided evidence that it cannot, within its current fiscal authority, fund this requirement. The COE, however, agrees to require the collection and shipment to NMFS for genetic analysis of tissue samples from all sea turtles and Gulf sturgeon taken by hopper dredges and relocation trawlers until NMFS, in consultation with COE scientists, determines they are no longer needed. The GRBO has been modified accordingly; this requirement has been included in the reasonable and prudent measures of the ITS.

With respect to applicant participation in the ESA consultation process and input into permitted-project protected species take levels, the COE will coordinate with NMFS prior to permit issuance. The COE will forward draft permit conditions to NMFS that are consonant with the RPMs and terms and conditions of the GRBO, including a proposed amount of authorized take of sea turtles and Gulf sturgeon per project allocated from the overall annual authorized take limit. Currently the COE's sea turtle and Gulf sturgeon take database and NMFS' take records are useful for estimation purposes, but are still too incomplete to support analyses to accurately predict particular dredging project protected species takes levels with any degree of certainty.

As requested by the COE and based on information provided by the COE with input from NMFS, Revision 2 segregates the previously established Gulf-wide protected species take limits into two allotments – one for COE civil works projects and one for COE-permitted projects. The COE retains the authority and flexibility to manage the allotment ratio, initially set at 80:20 (i.e., 80% for civil, 20% for permitted) for the combined Gulf districts, and adjust them yearly as necessary within the established ITS ceiling, according to its operational needs and its own internal hopper dredging protocol, in coordination with NMFS.

At the COE's request, NMFS' partitioning of the GRBO's Gulf-wide authorized take level into fixed allotments for each of the four COE districts has been superseded by the 80:20 ratio allotment take-limit scheme described above. Revision 2 includes NMFS' estimates of *anticipated* take by each district, unchanged from the original GRBO; however, NMFS has eliminated the district-level protected species allocations, where each district formerly held a guaranteed share of the Gulf-wide authorized level of per-fiscal-year take. The COE is developing an internal protocol to handle within-year management and sharing of takes between Gulf of Mexico COE districts. Other minor modifications to the GRBO and noteworthy changes included in Revision 2 are:

1) The COE is no longer required to consult with/notify NMFS whenever it deviates from the recommended hopper dredging windows (T&C 1).
2) Notification to NMFS and transmittal of information on protected species takes by hopper dredge can now occur by electronic mail to **takereport.nmfsser@noaa.gov** (T&C 9).
3) Any strandings or relocation trawler takes of protected species bearing evidence of potential dredge interaction, regardless of type of dredge implicated, shall not be counted against the GRBO's ITS (T&C 10), although the reporting requirement remains unchanged (T&C 11).
4) The minimum dimensions for a seawater holding tank for captured Gulf sturgeon have been eliminated and more flexible, protective standards have been instituted (T&C 15-f).
5) The GRBO is now the permitting authority to conduct PIT tagging; an ESA Section 10 permit is no longer required to conduct PIT tagging (T&C 15-h, T&C 15-i, T&C 16).
6) Submission requirements for PIT tag scan and external tag data, and genetic samples, have been standardized, to within 60 days after project completion (T&C 15-j, T&C 16).
7) The definition of hardgrounds is clarified to exclude navigation channels and jettys (T&C 17).

In addition, there are some minor changes to address inconsistent or unclear language use in the original GRBO: e.g., the terms "NMFS-approved observer," "observer," and "endangered species observer," have been standardized/changed to "NMFS-approved protected species observer." Other minor language changes clarify that weighing/measuring/sampling of protected species is only required when it can be done safely (T&C 15-d, T&C 20), and that NMFS-approved protected species observers are not required to take tissue samples of sea turtle viral fibropapillomas when these are encountered (T&C 15-l). Finally, NMFS encourages the COE to make fuller use of protected species taken during hopper dredging and relocation trawling by allowing and encouraging duly-permitted "piggy-back" research projects on protected species taken during these activities (T&C 15-d, Conservation Recommendation 5).

Revision 2 to the GRBO is enclosed. It replaces and supersedes Revision 1, and replaces and supersedes the corresponding sections of the 2003 GRBO. If you have any questions, please contact Eric Hawk at (727) 551-5773 or by e-mail at Eric.Hawk@noaa.gov.

We sincerely appreciate all the COE's past and ongoing protected species conservation efforts during hopper dredging activities in the Gulf and South Atlantic, and look forward to continued collaborative efforts to preserve our protected species. My compliments to your staff at SAD, in particular Mr. Daniel Small, and in the four Gulf of Mexico COE districts for working assiduously and effectively with NMFS staff, which enabled us to resolve your remaining concerns with the GRBO. We look forward to working closely with the COE to facilitate other activities, including reinitiation of consultation on the South Atlantic Regional Biological Opinion on hopper dredging, while conserving endangered and threatened species.

I would especially like to take this opportunity to applaud and congratulate the U.S. Army Corps of Engineers, and especially Dr. Dena Dickerson and her staff at the Environmental Data Research Center in Vicksburg, Mississippi, for the excellent job they have done developing and maintaining the COE's Sea Turtle Data Warehouse. The wealth of historic and current

information contained in this database regarding hopper dredging project/protected species interactions, and the ease of use of the Sea Turtle Data Warehouse Website, has been exceedingly valuable to NMFS, and will continue to be very useful to both our agencies when making management and conservation decisions regarding protected species.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosure

cc: COE SAD, Atlanta – Daniel Small, Dennis Barnett
COE MVD, Vicksburg
COE SWD, Dallas
COE, Mobile District – Susan Ivester Rees
COE, Galveston District – Carolyn Murphy
COE, Jacksonville District – Marie Burns, Terri Jordan
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Revision 2 to the National Marine Fisheries Service (NMFS) November 19, 2003, Gulf of Mexico Regional Biological Opinion (GRBO) to the U.S. Army Corps of Engineers (COE) on Hopper Dredging of Navigation Channels and Borrow Areas in the U.S. Gulf of Mexico

The followings replaces parts of the original GRBO and supersedes Revision 1 to the GRBO. All replacements/revisions noted below are to be made to the November 19, 2003, biological opinion. Revision 1 should be discarded in its entirety.

REPLACE:
Anticipated Gulf-wide Take of Sea Turtles and Gulf Surgeon by Hopper Dredges (in Section 5, pp. 57-58 of GRBO), with the following:

Anticipated Gulf-wide Take of Sea Turtles and Gulf Sturgeon by Hopper Dredges and Bed-leveling associated with Hopper Dredging Projects:

For the entire Gulf of Mexico from the U.S.-Mexico border to Key West, the annual documented COE incidental take per fiscal year, by injury or mortality, is expected to consist of twenty (20) Kemp's ridley turtles, fourteen (14) green turtles, four (4) hawksbill turtles, forty (40) loggerhead turtles, and four (4) Gulf sturgeon. This take level represents a total take per fiscal year for all channel dredging and sand mining by hopper dredges in the Gulf of Mexico under the purview of the COE's Galveston, New Orleans, Mobile, and Jacksonville Districts collectively. These totals include hopper dredging activities conducted by the COE (for maintenance of civil works and military navigation channels and for construction of federally-authorized hurricane-storm damage reduction projects) and performed by non-federal interests under COE permits (i.e., "regulatory" projects), including any bed-leveling associated with these hopper dredging activities. These totals are based on the following estimates of anticipated take levels in the Gulf of Mexico, by region, which are not allotments or limits per se. Subdivision of the COE's Gulf-wide anticipated incidental take is made later in this opinion, into two distinct and separate levels or allotments: one for COE-conducted ("civil works and national defense") projects, and the other for COE-permitted ("regulatory") projects.

Texas Coastal Area
For this area, the annual documented incidental take, by injury or mortality, is expected to consist of seven (7) Kemp's ridleys, five (5) green turtles, one (1) hawksbill, and fifteen (15) loggerhead turtles.

Louisiana Coastal Area
For this area, the documented annual incidental take, by injury or mortality, is expected to consist of seven (7) Kemp's ridleys, three (3) green turtles, one (1) hawksbill, and fifteen (15) loggerhead turtles, and one (1) Gulf sturgeon.

Florida Panhandle Coastal Area, west of Aucilla River Basin; Alabama Coastal Area; and Mississippi Coastal Area
For these areas, combined, the documented annual incidental take, by injury or mortality, is expected to consist of three (3) Kemp's ridley, three (3) green turtles, one (1) hawksbill, five (5) loggerhead turtles, and two (2) Gulf sturgeon.

West Florida Coastal Area: Aucilla River Basin to, but not including, Key West
For this area, the documented annual incidental take, by injury or mortality, is expected to consist of three (3) Kemp's ridleys, three (3) green turtles, one (1) hawksbill, five (5) loggerhead turtles, and one (1) Gulf sturgeon. Hopper dredging of Key West navigation channels is covered under the September 25, 1997, regional hopper dredging biological opinion (RBO) to the COE's South Atlantic Division (SAD), which includes by reference the reasonable and prudent measures (RPMs) of the August 25, 1995, hopper dredging RBO to the SAD.

REPLACE:
Anticipated Gulf-wide Take by Hopper Dredging Activities (in Section 8, pp. 63-65 of GRBO), with the following:

8.1 Anticipated Gulf-wide Take by Hopper Dredging and Bed-leveling and Relocation Trawling Activities Associated with Hopper Dredging Projects:

For the entire Gulf of Mexico from the U.S.-Mexico border to Key West, the annual documented COE incidental take per fiscal year, by injury or mortality, is expected to consist of forty (40) loggerhead turtles, twenty (20) Kemp's ridley turtles, fourteen (14) green turtles, four (4) hawksbill turtles, and four (4) Gulf sturgeon. This take level represents total take by injury or mortality per fiscal year anticipated for all navigation channel maintenance dredging and sand mining by hopper dredges and any associated bed-leveling activity in the Gulf of Mexico within the COE's Galveston, New Orleans, Mobile, and Jacksonville Districts, by COE-conducted ("civil works and national defense") projects and COE-permitted ("regulatory") projects.

Based upon consultation with the COE, the annual documented lethal or injurious incidental take per fiscal year is allocated as follows:

8.1.1 For COE-*conducted* hopper dredging for federal civil works or national defense activities:

Thirty-two (32) loggerhead turtles, sixteen (16) Kemp's ridley turtles, eleven (11) green turtles, three (3) hawksbill turtles, and three (3) Gulf sturgeon.

8.1.2 For COE-*permitted* hopper dredging performed by others (i.e., non-COE entities):

Eight (8) loggerhead turtles, four (4) Kemp's ridley turtles, three (3) green turtles, one (1) hawksbill turtle, and one (1) Gulf sturgeon.

8.1.3 For relocation trawling:

Zero to two (2) turtles and zero to one (1) Gulf sturgeon. These numbers are in addition to anticipated lethal or injurious takes by hopper dredges noted in 8.1.1 and 8.1.2, above.

8.1.4 For relocation trawling, the following non-lethal take is anticipated/authorized per fiscal year.

Three hundred (300) sea turtles, of any combination of species (Kemp's ridley, green, loggerhead, leatherback, and hawksbill), and eight (8) Gulf sturgeon, across all the COE districts and hopper dredging projects. This take is limited to relocation trawling conducted during the 0-3 days immediately preceding the start of hopper dredging (as a means to determine/reduce the initial abundance of sea turtles in the area and determine if additional trawling efforts are needed), during actual hopper dredging, and during "down" times when the hopper dredging operations may be temporarily suspended due to lethal turtle/sturgeon takes, weather, hopper dredge mechanical problems, etc. Relocation trawling performed to reduce endangered species/hopper dredge interactions is subject to the requirements detailed in the terms and conditions of this opinion.

Regulatory Permits

Each COE district issuing a regulatory permit involving hopper dredging will be responsible for initiating contact with NMFS on behalf of permit applicants, and will forward draft permit conditions to NMFS that are consonant with the RPMs and terms and conditions of this Regional Biological Opinion, including a proposed amount of authorized take of sea turtles and Gulf sturgeon where applicable per project allocated from the overall annual authorized take limit. The COE will coordinate with NMFS prior to permit issuance. This may be done by electronic mail with an electronic response from NMFS. The draft permit conditions and proposed take level allocated may be of standardized content.

COE Gulf of Mexico Hopper Dredging Protocol

The COE will develop internal protocols for managing, documenting, reporting, and coordinating incidental takes for both COE-conducted and COE-permitted activities across Gulf of Mexico Districts to ensure compliance with the provisions of this Regional Biological Opinion. The protocol and any future revisions to it will be shared with the NMFS Southeast Regional Office, Protected Resources Division staff in a timely manner.

Adjustment of Take Allocations

The balance between the basic hopper dredging requirements (quantities, duration, timing, and locations) for COE-conducted dredging for civil works and national defense and for COE-permitted dredging may vary in the future. Based on annual changes in these requirements, the COE may, in coordination with NMFS, adjust the allocation of the authorized Gulf-wide incidental take numbers between COE-conducted hopper dredging and COE-permitted hopper

dredging in advance of any given fiscal year, such that changes could be made to the allotments for the start of the subsequent fiscal year. Such adjustments would not affect the jeopardy analysis of this opinion or the terms and conditions of this ITS and can be made without reinitiation of consultation on this opinion.

New information requiring subsequent reinitation of consultation on this opinion, pursuant to the reinitiation triggers of 50 CFR 402.16, could result in an increase or decrease of the total allocated incidental take numbers for COE-conducted or COE-permitted hopper dredging within the current authorized ITS limit.

REPLACE:
Terms and Conditions (in Section 9, pp. 72-78 in the GRBO), Section 10 (Conservation Recommendations, pp. 78-80 in the GRBO), and Section 11 (Reinitiation of Consultation, pp. 80-81 in the GRBO), with the following:

Terms and Conditions

1. *Hopper Dredging*: Hopper dredging activities in Gulf of Mexico waters from the Mexico-Texas border to Key West, Florida, up to one mile into rivers shall be completed, whenever possible, between December 1 and March 31, when sea turtle abundance is lowest throughout Gulf coastal waters. Hopper dredging of Key West channels is covered by the existing September 25, 1997, RBO to the COE's SAD.

2. *Non-hopper Type Dredging*: Pipeline or hydraulic dredges, because they are not known to take turtles, must be used whenever possible between April 1 and November 30 in Gulf of Mexico waters up to one mile into rivers. This should be considered particularly in channels such as those associated with Galveston Bay and Mississippi River - Gulf Outlet (MR-GO), where lethal takes of endangered Kemp's ridleys have been documented during summer months, and Aransas Pass, where large numbers of loggerheads may be found during summer months. In the MR-GO, incidental takes and sightings of threatened loggerhead sea turtles have historically been highest during April and October.

3. *Annual Reports*: The annual summary report, discussed below (No. 9), must give a complete explanation of why alternative dredges (dredges other than hopper dredges) were not used for maintenance dredging of channels between April and November.

4. *Observers*: The COE shall arrange for NMFS-approved protected species observers to be aboard the hopper dredges to monitor the hopper bin, screening, and dragheads for sea turtles and Gulf sturgeon and their remains.

    a. Brazos Santiago Pass east to Key West, Florida: Observer coverage sufficient for 100% monitoring (i.e., two observers) of hopper dredging operations is required aboard the hopper dredges year-round from Brazos Santiago Pass to (not including) Key West, Florida, between April 1 and November 30, and whenever surface water temperatures are 11°C or greater.

b. Observer coverage of hopper dredging of sand mining areas shall ensure 50% monitoring (i.e., one observer).

c. Observers are not required at any time in Mississippi River - Southwest Pass (MR-SWP).

5. *Operational Procedures*: During periods in which hopper dredges are operating and NMFS-approved protected species observers are *not* required (as delineated in No. 4 above), the appropriate COE District must:

a. Advise inspectors, operators, and vessel captains about the prohibitions on taking, harming, or harassing sea turtles.

b. Instruct the captain of the hopper dredge to avoid any turtles and whales encountered while traveling between the dredge site and offshore disposal area, and to immediately contact the COE if sea turtles or whales are seen in the vicinity.

c. Notify NMFS if sea turtles are observed in the dredging area, to coordinate further precautions to avoid impacts to turtles.

d. Notify NMFS immediately by phone (**727/824-5312**), fax (**727/824-5309**), or electronic mail (**takereport.nmfsser@noaa.gov**) if a sea turtle or Gulf sturgeon or any other threatened or endangered species is taken by the dredge.

6. *Screening*: When sea turtle observers are required on hopper dredges, 100% inflow screening of dredged material is required and 100% overflow screening is recommended. If conditions prevent 100% inflow screening, inflow screening may be reduced gradually, as further detailed in the following paragraph, but 100% overflow screening is then required.

a. Screen Size: The hopper's inflow screens should have 4-inch by 4-inch screening. If the COE, in consultation with observers and the draghead operator, determines that the draghead is clogging and reducing production substantially, the screens may be modified sequentially: mesh size may be increased to 6-inch by 6-inch, then 9-inch by 9-inch, then 12-inch by 12-inch openings. Clogging should be greatly reduced with these flexible options; however, further clogging may compel removal of the screening altogether, in which case effective 100% overflow screening is mandatory. The COE shall notify NMFS beforehand if inflow screening is going to be reduced or eliminated, and provide details of how effective overflow screening will be achieved.

b. Need for Flexible, Graduated Screens: NMFS believes that this flexible, graduated-screen option is necessary, since the need to constantly clear the inflow screens will increase the time it takes to complete the project and therefore increase the exposure of sea turtles to the risk of impingement or entrainment. Additionally, there are increased risks to sea turtles in the water column when the inflow is halted to clear screens, since

this results in clogged intake pipes, which may have to be lifted from the bottom to discharge the clay by applying suction.

c. Exemption - MR-SWP: Screening is not required at any time in MR-SWP.

7. *Dredging Pumps*: Standard operating procedure shall be that dredging pumps shall be disengaged by the operator when the dragheads are not firmly on the bottom, to prevent impingement or entrainment of sea turtles within the water column. This precaution is especially important during the cleanup phase of dredging operations when the draghead frequently comes off the bottom and can suck in turtles resting in the shallow depressions between the high spots the draghead is trimming off.

8. *Sea Turtle Deflecting Draghead*: A state-of-the-art rigid deflector draghead must be used on all hopper dredges in all Gulf of Mexico channels and sand mining sites at all times of the year except that the rigid deflector draghead is not required in MR-SWP at any time of the year.

9. *Dredge Take Reporting*: Observer reports of incidental take by hopper dredges must be faxed or e-mailed to NMFS' Southeast Regional Office **[fax: (727) 824-5309; e-mail: takereport.nmfsser@noaa.gov]** by onboard NMFS-approved protected species observers within 24 hours of any sea turtle, Gulf sturgeon, or other listed species take observed.

A preliminary report summarizing the results of the hopper dredging and any documented sea turtle or Gulf sturgeon takes must be submitted to NMFS within 30 working days of completion of any dredging project. Reports shall contain information on project location (specific channel/area dredged), start-up and completion dates, cubic yards of material dredged, problems encountered, incidental takes and sightings of protected species, mitigative actions taken (if relocation trawling, the number and species of turtles relocated), screening type (inflow, overflow) utilized, daily water temperatures, name of dredge, names of endangered species observers, percent observer coverage, and any other information the COE deems relevant.

An annual report (based on fiscal year) must be submitted to NMFS summarizing hopper dredging projects and documented incidental takes.

10. *Sea Turtle and Gulf Sturgeon Strandings*: The COE or its designated representative shall notify the Sea Turtle Stranding and Salvage Network (STSSN) state representative (contact information available at: http://www.sefsc.noaa.gov/seaturtleSTSSN.jsp) of the start-up and completion of hopper dredging, bed-leveler dredging, and relocation trawling operations and ask to be notified of any sea turtle strandings in the project area that, in the estimation of STSSN personnel, bear signs of potential draghead impingement or entrainment, or interaction with a bed-leveling type dredge. Similarly, the COE shall notify NMFS SERO PRD of any Gulf sturgeon strandings in the project area that, in the estimation of STSSN personnel, bear signs of potential draghead impingement or entrainment, or interaction with a bed-leveling type dredge.

Information on any such strandings shall be reported in writing within 30 days of project completion to NMFS' Southeast Regional Office. Because the deaths of these turtles, if hopper dredge or bed-leveler dredge related, have already been accounted for in NMFS' jeopardy analysis, these strandings will not be counted against the COE's take limit.

11. *Reporting - Strandings*: Each COE District shall provide NMFS' Southeast Regional Office with an annual report detailing incidents, with photographs when available, of stranded sea turtles and Gulf sturgeon that bear indications of draghead impingement or entrainment or any dredge-type interaction. This reporting requirement may be included in the end-of-year report required in Term and Condition No. 9, above.

12. *District Annual Relocation Trawling Report*: Each COE District shall provide NMFS' Southeast Regional Office with end-of-project reports within 30 days of completion of relocation trawling projects, and an annual report summarizing relocation trawling efforts and results within their District. The annual report requirement may be included in the end-of-year report required in Term and Condition No. 9, above.

13. *Conditions Requiring Relocation Trawling*: Handling of sea turtles and Gulf sturgeon captured during relocation trawling in association with hopper dredging projects in Gulf of Mexico navigation channels and sand mining areas shall be conducted by NMFS-approved protected species observers. Relocation trawling shall be undertaken by the COE at all projects where any of the following conditions are met; however, other ongoing projects not meeting these conditions are not required to conduct relocation trawling:

    a. Two or more turtles are taken in a 24-hour period in the project.

    b. Four or more turtles are taken in the project.

    c. 75% of any of the incidental take limits, including per species limits, specified in Section 8.1, has previously been met.

14. *Relocation Trawling Waiver*: For individual projects the affected COE District may request by letter to NMFS a waiver of part or all of the relocation trawling requirements. NMFS will consider these requests and decide favorably if the evidence is compelling.

15. *Relocation Trawling - Annual Take Limits*: This opinion authorizes, without the need for an ESA section 10 permit: the annual (by fiscal year) non-injurious take of 300 sea turtles (of one species or combination of species including Kemp's ridley, loggerhead, green, leatherback, and hawksbill) and 8 Gulf sturgeon, and annual (by fiscal year) lethal or injurious takes of up to 2 sea turtles and 1 Gulf sturgeon, by trawlers conducting relocation trawling, and handling of those captured threatened or endangered species by NMFS-approved protected species observers, in association with all relocation trawling conducted or contracted by the four Gulf of Mexico COE Districts to temporarily reduce or assess the abundance of these listed species during, and in the 0-3 days immediately

preceding, a hopper dredging or bed-leveling project in order to reduce the possibility of lethal hopper dredge or bed-leveler interactions, subject to the following conditions:

a. *Trawl Time*: Trawl tow-time duration shall not exceed 42 minutes (doors in - doors out) and trawl speeds shall not exceed 3.5 knots.

b. *Handling During Trawling*: Sea turtles and Gulf sturgeon captured pursuant to relocation trawling shall be handled in a manner designed to ensure their safety and viability, and shall be released over the side of the vessel, away from the propeller, and only after ensuring that the vessel's propeller is in the neutral, or disengaged, position (i.e., not rotating). Resuscitation guidelines are attached (Appendix IV).

c. *Captured Turtle and Gulf Sturgeon Holding Conditions*: Turtles and Gulf sturgeon may be held briefly for the collection of important scientific measurements, prior to their release. Captured sea turtles shall be kept moist, and shaded whenever possible, until they are released, according to the requirements of T&C 15-e, below. Captured Gulf sturgeon shall be held in a suitable well-aerated seawater enclosure until they are released, according to the conditions of T&C 15-f, below.

d. *Scientific Measurements*: When safely possible, all turtles shall be measured (standard carapace measurements including body depth), tagged, weighed, and a tissue sample taken prior to release. When safely possible, all Gulf sturgeon shall be measured (fork length and total length), tagged, weighed, and a tissue sample taken prior to release. Any external tags shall be noted and data recorded into the observers log. Only NMFS-approved protected species observers or observer candidates in training under the direct supervision of a NMFS-approved protected species observer shall conduct the tagging/measuring/weighing/tissue sampling operations.

   NMFS-approved protected species observers may conduct more invasive scientific procedures (e.g., blood letting, laparoscopies, anal and gastric lavages, mounting satellite or radio transmitters, etc.) and partake in or assist in "piggy back" research projects but only if the observer holds a valid federal sea turtle or Gulf sturgeon research permit (and any required state permits) authorizing the activities, either as the permit holder, or as designated agent of the permit holder, and has first notified NMFS' Southeast Regional Office, Protected Resources Division.

e. *Take and Release Time During Trawling - Turtles*: Turtles shall be kept no longer than 12 hours prior to release and shall be released not less than 3 (three) nautical miles (nmi) from the dredge site. If two or more released turtles are later recaptured, subsequent turtle captures shall be released not less than 5 (five) nmi away. If it can be done safely and without injury to the turtle, turtles may be transferred onto another vessel for transport to the release area to enable the relocation trawler to keep sweeping the dredge site without interruption.

f. *Take and Release Time During Trawling - Gulf Sturgeon*: Gulf sturgeon shall be released immediately after capture, away from the dredge site or into already dredged

areas, unless the trawl vessel is equipped with a suitable well-aerated seawater holding tank, container, trough, or pool where a maximum of one fish may be held for not longer than 30 minutes before it must be released or relocated away from the dredge site.

g. *Injuries and Incidental Take Limits*: Any protected species injured or killed during or as a consequence of relocation trawling shall count toward the Gulf-wide limit for injurious or lethal takes during relocation trawling (0-2 sea turtles and 0-1 Gulf sturgeon per fiscal year). Minor skin abrasions resulting from trawl capture are considered non-injurious. Injured sea turtles shall be immediately transported to the nearest sea turtle rehabilitation facility.

h. *Turtle Flipper External Tagging*: All sea turtles captured by relocation trawling shall be flipper-tagged prior to release with external tags which shall be obtained prior to the project from the University of Florida's Archie Carr Center for Sea Turtle Research. This opinion serves as the permitting authority for any NMFS-approved protected species observer aboard these relocation trawlers to flipper-tag with external-type tags (e.g., Inconel tags) captured sea turtles. Columbus crabs or other organisms living on external sea turtle surfaces may also be sampled and removed under this authority.

i. *PIT Tagging:* This opinion serves as the permitting authority for any NMFS-approved protected species observer aboard a relocation trawler to PIT-tag captured sea turtles and Gulf sturgeon. PIT tagging of sea turtles and Gulf sturgeon is not required to be done, if the NMFS-approved protected species observer does not have prior training or experience in said activity; however, if the observer has received prior training in PIT tagging procedures, then the observer shall PIT tag the animal prior to release (in addition to the standard external tagging):

   Sea turtle PIT tagging must then be performed in accordance with the protocol detailed at NMFS' Southeast Fisheries Science Center's Web page: http://www.sefsc.noaa.gov/seaturtlefisheriesobservers.jsp. (See Appendix C on SEFSC's "Fisheries Observers" Web page);

   Gulf sturgeon PIT tagging must then be performed in accordance with the protocol detailed at the NMFS SERO PRD Web site address: http://sero.nmfs.noaa.gov/pr/protres.htm.

   PIT tags used must be sterile, individually-wrapped tags to prevent disease transmission. PIT tags should be 125-kHz, glass-encapsulated tags–the smallest ones made. Note: If scanning reveals a PIT tag and it was not difficult to find, then do not insert another PIT tag; simply record the tag number and location, and frequency, if known. If for some reason the tag is difficult to detect (e.g., tag is embedded deep in muscle, or is a 400-kHz tag), then insert one in the other shoulder.

j. *Other Sampling Procedures*: All other tagging and external or internal sampling procedures (e.g., blood letting, laparoscopies, anal and gastric lavages, mounting satellite or radio transmitters, etc.) performed on live sea turtles or live Gulf sturgeon are not permitted under this opinion unless the observer holds a valid sea turtle sturgeon research permit authorizing the activity, either as the permit holder, designated agent of the permit holder.

k. *PIT-Tag Scanning and Data Submission Requirements*: All sea turtles and Gulf sturgeon captured by relocation trawling or dredges shall be thoroughly scanned for the presence of PIT tags prior to release using a multi-frequency scanner powerful enough to read multiple frequencies (including 125-, 128-, 134-, and 400-kHz tags) and read tags deeply embedded in muscle tissue (e.g., manufactured by Trovan, Biomark, or Avid). Turtles whose scans show they have been previously PIT tagged shall nevertheless be externally flipper tagged. Sea turtle data collected (PIT tag scan data and external tagging data) shall be submitted to NOAA, National Marine Fisheries Service, Southeast Fisheries Science Center, Attn: Lisa Belskis, 75 Virginia Beach Drive, Miami, Florida 33149. All sea turtle data collected shall be submitted in electronic format within 60 days of project completion to Lisa.Belskis@noaa.gov and Sheryan.Epperly@noaa.gov. Sea turtle external flipper tag and PIT tag data generated and collected by relocation trawlers shall also be submitted to the Cooperative Marine Turtle Tagging Program (CMTTP), on the appropriate CMTTP form, at the University of Florida's Archie Carr Center for Sea Turtle Research.

Gulf sturgeon data (PIT tag scan data and external tagging data) shall be submitted within 60 days of project completion to NOAA, National Marine Fisheries Service, Protected Resources Division, 263 13th Avenue South, St. Petersburg, Florida 33701, or by **fax: (727) 824-5309;** or by **e-mail: takereport.nmfsser@noaa.gov**, Attn: Dr. Stephania Bolden.

l. *Handling Fibropapillomatose Turtles*: NMFS-approved protected species observers are not required to handle or sample viral fibropapilloma tumors if they believe there is a health hazard to themselves and choose not to. When handling sea turtles infected with fibropapilloma tumors, observers must either: 1) Clean all equipment that comes in contact with the turtle (tagging equipment, tape measures, etc.) with mild bleach solution, between the processing of each turtle or 2) maintain a separate set of sampling equipment for handling animals displaying fibropapilloma tumors or lesions.

16. *Requirement and Authority to Conduct Tissue Sampling for Genetic Analyses*: This opinion serves as the permitting authority for any NMFS-approved protected species observer aboard a relocation trawler or hopper dredge to tissue-sample live- or dead-captured sea turtles, and live- or dead-captured Gulf sturgeon, without the need for an ESA section 10 permit.

All live or dead sea turtles and Gulf sturgeon captured by relocation trawling and hopper dredging (for both COE-conducted and COE-permitted activities) shall be tissue-sampled

prior to release. Sampling shall continue uninterrupted until such time as NMFS determines and notifies the COE in writing that it has sufficient samples from specific areas across the Gulf of Mexico in order to obtain reliable genetic information on the nesting or sub-population identity of sea turtles and Gulf sturgeon being captured or lethally taken, to improve the effectiveness of future consultations.

Sea turtle tissue samples shall be taken in accordance with NMFS' Southeast Fisheries Science Center's (SEFSC) procedures for sea turtle genetic analyses (Appendix II of this opinion). The COE shall ensure that tissue samples taken during a dredging project are collected and stored properly and mailed within 60 days of the completion of their dredging project to: NOAA, National Marine Fisheries Service, Southeast Fisheries Science Center, Attn: Lisa Belskis, 75 Virginia Beach Drive, Miami, Florida 33149.

Gulf sturgeon tissue samples (i.e., fin clips or barbel clips) shall be taken in accordance with NMFS SERO's Protected Resources Division's Gulf Sturgeon Tissue Sampling Protocol found at the NMFS SERO PRD Web site address: http://sero.nmfs.noaa.gov/pr/protres.htm. The COE shall ensure that tissue samples taken during a dredging project are collected and stored properly and mailed to SERO PRD (Attn: Dr. Stephania Bolden) within 60 days of the completion of their dredging project.

17. *Hardground Buffer Zones*: All dredging in sand mining areas will be designed to ensure that dredging will not occur within a minimum of 400 feet from any significant hardground areas or bottom structures that serve as attractants to sea turtles for foraging or shelter. NMFS considers (for the purposes of this opinion only) a significant hardground in a project area to be one that, over a horizontal distance of 150 feet, has an average elevation above the sand of 1.5 feet or greater, and has algae growing on it. The COE Districts shall ensure that sand mining sites within their Districts are adequately mapped to enable the dredge to stay at least 400 feet from these areas. If the COE is uncertain as to what constitutes significance, it shall consult with NMFS SERO's Habitat Conservation Division (727-824-5317) and NMFS' Protected Resources Division (727-824-5312) for clarification and guidance. Walls of federally-maintained navigation channels, and jetties and other such man-made structures, are not considered hardgrounds for the purpose of this opinion.

18. *Training - Personnel on Hopper Dredges*: The respective COE Districts must ensure that all contracted personnel involved in operating hopper dredges (whether privately-funded or federally-funded projects) receive thorough training on measures of dredge operation that will minimize takes of sea turtles. It shall be the goal of each hopper dredging operation to establish operating procedures that are consistent with those that have been used successfully during hopper dredging in other regions of the coastal United States, and which have proven effective in reducing turtle/dredge interactions. Therefore, COE Engineering Research and Development Center experts or other persons with expertise in this matter shall be involved both in dredge operation training, and installation, adjustment, and monitoring of the rigid deflector draghead assembly.

19. *Dredge Lighting*: From May 1 through October 31, sea turtle nesting and emergence season, all lighting aboard hopper dredges and hopper dredge pumpout barges operating within 3 nmi of sea turtle nesting beaches shall be limited to the minimal lighting necessary to comply with U.S. Coast Guard and/or OSHA requirements. All non-essential lighting on the dredge and pumpout barge shall be minimized through reduction, shielding, lowering, and appropriate placement of lights to minimize illumination of the water to reduce potential disorientation effects on female sea turtles approaching the nesting beaches and sea turtle hatchlings making their way seaward from their natal beaches.

10.0 Conservation Recommendations

Pursuant to section 7(a)(1) of the ESA, the following conservation recommendations are made to assist the COE in contributing to the conservation of sea turtles and Gulf sturgeon by further reducing or eliminating adverse impacts that result from hopper dredging.

1. *Channel Conditions and Seasonal Abundance Studies*: Channel-specific studies should be undertaken to identify seasonal relative abundance of sea turtles and Gulf sturgeon within Gulf of Mexico channels. The December 1 through March 31 dredging window and associated observer requirements listed above may be adjusted (after consultation and authorization by NMFS) on a channel-specific basis, if (a) the COE can provide sufficient scientific evidence that sea turtles and Gulf sturgeon are not present or that levels of abundance are extremely low during other months of the year, or (b) the COE can identify seawater temperature regimes that ensure extremely low abundance of sea turtles or Gulf sturgeon in coastal waters, and can monitor water temperatures in a real-time manner. Surveys may indicate that some channels do not support significant turtle populations, and hopper dredging in these channels may be unrestricted on a year-round basis, as in the case of MR-SWP. To date, sea turtle deflector draghead efficiency has not reached the point where seasonal restrictions can be lifted.

2. *Draghead Modifications and Bed Leveling Studies*: The New Orleans, Galveston, Mobile, and Jacksonville Districts should supplement the efforts of SAD and ERDC to develop modifications to existing dredges to reduce or eliminate take of sea turtles, and develop methods to minimize sea turtle take during "cleanup" operations when the draghead maintains only intermittent contact with the bottom. Some method to level the "peaks and valleys" created by dredging would reduce the amount of time dragheads are off the bottom. NMFS is ready to assist the COE in conducting studies to evaluate bed-leveling devices and their potential for interaction with sea turtles, and develop modifications if needed.

3. *Draghead Evaluation Studies and Protocol*: Additional research, development, and improved performance is needed before the V-shaped rigid deflector draghead can replace seasonal restrictions as a method of reducing sea turtle captures during hopper dredging activities. Development of a more effective deflector draghead or other entrainment-deterring device (or combination of devices, including use of acoustic

deterrents) could potentially reduce the need for sea turtle relocation or result in expansion of the winter dredging window. NMFS should be consulted regarding the development of a protocol for draghead evaluation tests. NMFS recommends that the COE's Galveston, New Orleans, Mobile, and Jacksonville Districts coordinate with ERDC, SAD, the Association of Dredge Contractors of America, and dredge operators (Manson, Bean-Stuyvesant, Great Lakes, Natco, etc.) regarding additional reasonable measures they may take to further reduce the likelihood of sea turtle and Gulf sturgeon takes.

4. *Continuous Improvements in Monitoring and Detecting Takes*: The COE should seek continuous improvements in detecting takes and should determine, through research and development, a better method for monitoring and estimating sea turtle and Gulf sturgeon takes by hopper dredge. Observation of overflow and inflow screening is only partially effective and provides only partial estimates of total sea turtle and Gulf sturgeon mortality.

   Overflow Screening: The COE should encourage dredging companies to develop or modify existing overflow screening methods on their company's dredge vessels for maximum effectiveness of screening and monitoring. Horizontal overflow screening is preferable to vertical overflow screening because NMFS considers that horizontal overflow screening is significantly more effective at detecting evidence of protected species entrainment than vertical overflow screening.

   Preferential Consideration for Horizontal Overflow Screening: The COE should give preferential consideration to hopper dredges with horizontal overflow screening when awarding hopper dredging contracts for areas where new materials, large amounts of debris, or clay may be encountered, or have historically been encountered. Excessive inflow screen clogging may in some instances necessitate removal of inflow screening, at which point effective overflow screening becomes more important.

5. *Section 10 Research Permits, Relocation Trawling, and Piggy-Back Research*: NMFS recommends that the COE's Galveston, New Orleans, Mobile, and Jacksonville Districts, either singly or combined, apply to NMFS for an ESA section 10 research permit to conduct endangered species research on species incidentally captured during relocation trawling. For example, satellite tagging of captured turtles could enable the COE Districts to gain important knowledge on sea turtle seasonal distribution and presence in navigation channels and sand mining sites and also, as mandated by section 7(a)(1) of the ESA, to utilize their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of listed species. SERO shall assist the COE Districts with the permit application process. Similarly, NMFS encourages the COE to cooperate with NMFS' scientists, other federal agencies' scientists, and university scientists to make fuller use of turtles and Gulf sturgeon taken pursuant to the authority conferred by this opinion during hopper dredging and relocation trawling, by allowing and encouraging "piggy-back" research projects by duly-permitted individuals or their authorized designees. Piggy-back projects could include *non-lethal* research of many types,

including blood letting, laparoscopies, anal and gastric lavages, mounting satellite or radio transmitters, etc.

6. *Draghead Improvements - Water Ports*: NMFS recommends that the COE's Gulf of Mexico Districts require or at least recommend to dredge operators that all dragheads on hopper dredges contracted by the COE for dredging projects be eventually outfitted with water ports located in the *top* of the dragheads to help prevent the dragheads from becoming plugged with sediments. When the dragheads become plugged with sediments, the dragheads are often raised off the bottom (by the dredge operator) with the suction pumps on in order to take in enough water to help clear clogs in the dragarm pipeline, which increases the likelihood that sea turtles in the vicinity of the draghead will be taken by the dredge. Water ports located in the top of the dragheads would relieve the necessity of raising the draghead off the bottom to perform such an action, and reduce the chance of incidental take of sea turtles.

   NMFS supports and recommends the implementation of proposals by ERDC and SAD personnel for various draghead modifications to address scenarios where turtles may be entrained during hopper dredging (Dickerson and Clausner 2003). These include: a) an adjustable visor; b) water jets for flaps to prevent plugging and thus reduce the requirement to lift the draghead off the bottom; and c) a valve arrangement (which mimics the function of a "Hoffer" valve used on cutterhead type dredges to allow additional water to be brought in when the suction line is plugging) that will provide a very large amount of water into the suction pipe thereby significantly reducing flow through the visor when the draghead is lifted off the bottom, reducing the potential to take a turtle.

7. *Economic Incentives for No Turtle Takes*: The COE should consider devising and implementing some method of significant economic incentives to hopper dredge operators such as financial reimbursement based on their satisfactory completion of dredging operations, or *X* number of cubic yards of material moved, or hours of dredging performed, *without taking turtles*. This may encourage dredging companies to research and develop "turtle friendly" dredging methods; more effective, deflector dragheads; pre-deflectors; top-located water ports on dragarms; etc.

8. *Sedimentation Limits to Protect Resources (Hardbottoms/Reefs)*: NMFS recommends water column sediment load deposition rates of no more than 200 mg/cm^2/day, averaged over a 7-day period, to protect coral reefs and hard bottom communities from dredging-associated turbidity impacts to listed species foraging habitat.

9. *Boca Grande Pass - Conditions*: If the COE's Jacksonville District decides to renew dredging permits for the Boca Grande Pass, NMFS recommends that the District conduct or sponsor a Gulf sturgeon study, including gillnetting and tagging utilizing ultrasonic and radio transmitters, and mtDNA sampling, to help determine the genetic origins, relative and seasonal abundance, distribution and utilization of estuarine and marine habitat by Gulf sturgeon within Charlotte Harbor estuary and Charlotte Harbor Entrance

Channel, and shall report to NMFS biannually on the progress and final results of said study.

10. *Relocation Trawling - Guidelines*: Within six months of the issuance of this opinion, the COE's Gulf of Mexico Districts, in coordination with COE's SAD, should develop relocation trawling guidelines to ensure safe handling and standardized data gathering techniques for sea turtles and Gulf sturgeon by COE contractors, and forward copies to NMFS' Protected Resources Division.

11. *Sodium Vapor Lights on Offshore Equipment*: On offshore equipment (i.e., hopper dredges, pumpout barges) shielded low-pressure sodium vapor lights are highly recommended for lights that cannot be eliminated.

11.0 Reinitiation of Consultation

Requirements for Reinitiation of Consultation: Reinitiation of formal consultation is required if (a) the amount or extent of taking specified in the incidental take statement is exceeded (any of the specified limits), (b) new information reveals effects of the action that may affect listed species or critical habitat when designated in a manner or to an extent not previously considered, (c) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the opinion, or (d) a new species is listed or critical habitat designated that may be affected by the identified action.

Advance Discussions of Potential Need for Reinitiation: NMFS requests that COE districts initiate discussions with the Southeast Regional Office Protected Resources Division early to identify the potential need for reinitiation of consultation, well in advance of actually exceeding the amount or extent of taking specified in the incidental take statement. NMFS requests notification when a) more than one turtle is taken by a dredge in any 24-hour period; b) four turtles are taken by a dredge during a single project; c) the dredge take reaches 75% of the total take level established for any one species; d) a Gulf sturgeon is taken by a dredge; e) a hawksbill turtle is taken by a dredge; f) a turtle or Gulf sturgeon is injuriously or lethally taken by a relocation trawler; or g) the relocation trawling incidental take limit for turtles or sturgeon is reached. The NMFS Southeast Regional Office will work with the COE to quickly review such incidents, to discuss the need and advisability of further mitigating measures, and to plan for a reinitiation of consultation if it appears that one of the reinitiation triggers is likely to be met.

Dredging/Trawling Operations During Reinitiation of Consultation: Once the need for reinitiation is triggered, the COE is not necessarily required to suspend dredging or relocation trawling operations pending the conclusion of the reinitiated consultation, so long as the continuation of operations (by all districts and all permittees) would not violate section 7(a)(2) or 7(d) of the ESA. In that case, the COE is advised to document its determination that these provisions would not be violated by continuing activities covered by this opinion during the reinitiation period and to notify NMFS of its findings.