

August 12, 1993

Planning Division  
Environmental Branch

Mr. David J. Wesley  
Field Supervisor  
U.S. Fish and Wildlife Service  
3100 University Boulevard South  
Suite 120  
Jacksonville, Florida 32216

Dear Mr. Wesley:

This is in reference to the upcoming maintenance dredging of Jacksonville Harbor and the placement of the dredged material from Cuts 49 through 53 in the Bartram Island Disposal Area and the beach quality material from Cuts 3 through 6 on Seminole and Atlantic Beach.

Incorporate by reference our previous No Effects Determination dated May 1, 1989, and your concurrence with that determination which was dated June 28, 1989. Based on conversations with Mr. Don Palmer of your office, we are reinitiating consultation in accordance with Section 7 of the Endangered Species Act.

Since the standard manatee protection conditions and the measures to protect nesting sea turtles addressed in your June 28, 1989, concurrence will be implemented, we have determined that there would be No Effects on these species (Enclosure 1). We are asking for your concurrence in this matter.

If you have any questions or comments, contact Mr. Bill Fonferek at 904-232-2803.

Sincerely,

Mann G. Davis, III  
Acting Chief, Planning Division

Enclosure

Fonferek/CESAJ-PD-ES  
Kurzbach/CESAJ-PD-ES  
Davis/CESAJ-PD-A



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

3100 University Blvd. South  
Suite 120  
Jacksonville, Florida 32216

June 28, 1989

A.J. Salem  
Chief, Planning Division  
U.S. Army Corps of Engineers  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Dear Mr. Salem:

This is in response to your May 1, 1989, letter regarding the proposed maintenance dredging from the mouth of the St. Johns River to Dames Point Bridge and nourishment of Atlantic Beach, Florida, with beach quality material. Dredging would begin in September and be completed by the spring of 1990. The Corps has determined the project would not adversely impact federally listed species and will implement the following precautions to protect loggerhead and green turtles and the manatee.

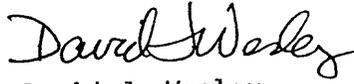
1. Standard manatee protection measures are implemented.
2. Tilling to a depth of 36 inches will proceed immediately following the completion of nourishment if beach compaction exceeds 500 cone penetrometer values.
3. If beach nourishment or tilling continues past March 1 daily nest surveys will be initiated and continue to completion of the project or August 31, whichever is earliest.
4. Surveys will only be conducted by experienced personnel permitted by Florida Department of Natural Resources.
5. Nests will be relocated to a self-release beach hatchery or screened on a safe location on the beach not subject to direct artificial lighting.

As a result of these precautions, we concur with the Corps determination of "no effect".

Although this does not constitute a Biological Opinion described under Section 7 of the Endangered Species Act, it does fulfill the requirements of the Act and no further action is required. If modifications are made in the project or if additional information involving potential impacts on listed species becomes available, please notify our office.

These represent the recommendations of the Department of the Interior.  
Thank you for the opportunity to comment.

Sincerely yours,

A handwritten signature in cursive script that reads "David Wesley".

David J. Wesley  
Field Supervisor



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

Southeast Regional Office  
9450 Koger Boulevard  
St. Petersburg, FL 33702

October 15, 1992 F/SEO13:JEB

Mr. A. J. Salem  
Chief, Planning Division  
Jacksonville District  
U.S. Army Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

Dear Mr. Salem:

This letter is in reference to your request that pre-dredge trawling surveys for sea turtles be waived for upcoming maintenance dredging in the Jacksonville Harbor navigation channel. Attempts to survey this channel during the period of September 23 through September 25, 1992 were unsuccessful. Three nets were destroyed and one net was lost due to snags and hazards on the channel bottom. In light of the physical inability to adequately trawl this channel the National Marine Fisheries Service will waive the pre-dredge trawl survey requirement for this project.

The Jacksonville District is reminded that it must fully implement all other requirements of the regional Biological Opinion for dredging during this project. If you have any questions please contact Jeffrey Brown, Fishery Biologist, at (813) 893-3366.

Sincerely,

*for Jeffrey Brown*  
Charles Oravetz, Chief  
Protected Species Management  
Branch



February 24, 1992

Planning Division  
Environmental Resources Branch

Mr. Charles A. Oravetz  
National Marine Fisheries Service  
Southeast Regional Office  
9450 Koger Boulevard  
St. Petersburg, Florida 33702

Dear Mr. Oravetz:

This is in reference to the proposed maintenance dredging of the Jacksonville Harbor with disposal on Bartram's Island. We previously consulted with your office for the dredging of Cuts 7 through 42 and disposal on Buck Island in FY90 by letter dated April 12, 1989, requesting concurrence in our No Effect Determination. By letter dated July 14, 1989, your office concurred in that determination. Pursuant to Section 7 of the Endangered Species Act, we are forwarding the proposed Biological Assessment (BA) of the proposed action.

The following listed species pursuant to Section 7 of the Endangered Species Act could be in the project area:

|                                    |                               |
|------------------------------------|-------------------------------|
| green sea turtle . . . . .         | <i>Chelonia mydas</i>         |
| hawksbill sea turtle . . . . .     | <i>Eretmochelys imbricata</i> |
| Kemp's Ridley sea turtle . . . . . | <i>Lepidochelys kempii</i>    |
| leatherback sea turtle . . . . .   | <i>Dermochelys doriacea</i>   |
| loggerhead sea turtle . . . . .    | <i>Caretta caretta</i>        |
| West Indian manatee . . . . .      | <i>Trichechus manatus</i>     |

The enclosed BA has determined that the project would not affect these species. We are, therefore, requesting your concurrence in this matter.

If you have any questions concerning this matter, please contact Mr. Bill Fonferek at telephone 904-791-1690.

Sincerely,

A. J. Salem  
Chief, Planning Division

Enclosure

November 25, 1991

Planning Division  
Environmental Resources Branch

Mr. David J. Wesley  
Field Supervisor  
US Fish and Wildlife Service  
3100 University Boulevard South  
Suite 120  
Jacksonville, Florida 32216

Dear Mr. Wesley:

This is in reference to the proposed maintenance dredging of the Jacksonville Harbor with disposal on Bartram's Island. We previously requested concurrence in a No Effect Determination for the dredging of Cuts 7 through 42 and disposal on Buck Island in FY90 by letter dated April 12, 1989. Your office concurred in that determination by letter dated June 28, 1989. Pursuant to Section 7 of the Endangered Species Act, we are forwarding the proposed Biological Assessment of the proposed action.

The following listed species pursuant to Section 7 of the Endangered Species Act could be in the project area:

|                                 |                               |
|---------------------------------|-------------------------------|
| green sea turtle . . . . .      | <i>Chelonia mydas</i>         |
| hawksbill sea turtle . . .      | <i>Eretmochelys imbricata</i> |
| Kemp's Ridley sea turtle . . .  | <i>Lepidochelys kempii</i>    |
| leatherback sea turtle . . .    | <i>Dermochelys doriacea</i>   |
| loggerhead sea turtle . . . . . | <i>Caretta caretta</i>        |
| West Indian manatee . . . . .   | <i>Trichechus manatus</i>     |

According to Mr. Don Palmer of your staff, the endangered West Indian manatee is known from the project area. Based on previous dredging episodes within the navigation channel, we have determined that there would be no effects on this species provided special conditions are included within the plans and specifications. Mr. Palmer informed us of the inadvertent entry into the previous bermed disposal area by a manatee. The stranded manatee subsequently died. A repeat of this unusual event is very unlikely because the levees on the new disposal area be raised from 10 ft to 18.5 feet.

-2-

We are therefore, requesting concurrence in this determination. If you have any questions concerning this matter please contact Mr. Bill Fonferek at telephone 904-791-1690.

Sincerely,

A. J. Salem  
Chief, Planning Division

Enclosure



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
3100 University Blvd. South  
Suite 120  
Jacksonville, Florida 32216

December 20, 1991

Mr. A. J. Salem  
Chief, Planning Division  
U.S. Army Corps of Engineers  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Attn: Regulatory Division; North Permits Branch

FWS Log No: 4-1-92-082D  
Applicant: U.S. Army Corps of Engineers  
County: Duval

Dear Mr. Salem:

The Fish and Wildlife Service has reviewed the project plans for the placement of spoil material on Bartram's Island in the St. Johns River. The Corps evaluated the effect of redesigning the disposal site, and determined that the project would have no effect on the manatee.

The redesign calls for increasing the height of the levee from 10 to 18.5 feet. The discharge pipe is 36 inches in diameter, 200-400 feet long, and will rest on the bottom of the St. Johns River to increase the mixing zone. Our concern with this project had been the possibility of a manatee swimming through the discharge pipe and becoming trapped in the spoil basin. The small size of the pipe and its location on the bottom will, in our opinion, eliminate this threat. The Service, therefore, concurs with the Corps determination of no effect.

Although this does not constitute a Biological Opinion as described under Section 7 of the Endangered Species Act, it does fulfill the requirement of the Act. If modifications are made in the project, please notify our office as reinitiation of consultation may be necessary.

Sincerely yours,

Michael Bentzien  
Assistant Field Supervisor



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
9450 Koger Boulevard  
St. Petersburg, FL 33702

December 3, 1991 F/SEO13:TAH

Mr. A. J. Salem  
Chief, Planning Division  
Department of the Army  
Jacksonville District COE  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Dear Mr. Salem:

This responds to your November 12, 1991, letter regarding proposed maintenance dredging of the Jacksonville Harbor with disposal on Bartram's Island. A Biological Assessment (BA) was submitted pursuant to Section 7 of the Endangered Species Act of 1973.

As you know, the National Marine Fisheries Service recently issued a Biological Opinion (BO) addressing the additive impacts of channel dredging from North Carolina to Cape Canaveral (enclosed). This opinion concluded that unrestricted dredging in the southeast jeopardized the recovery of Kemp's ridley and green sea turtles. Reasonable and prudent alternatives to allow dredging to continue were provided. This BO applies to the project in question and supersedes all previous NMFS opinions issued for dredging in the region. Therefore, if the proposed dredging is conducted in compliance with the provisions of the "generic" BO, all Section 7 consultation requirements have been satisfied.

If you have any questions or require additional information, please call at FTS 826-3366.

Sincerely yours,

Terry Henwood, Ph.D.  
Protected Species Management  
Branch

Enclosure

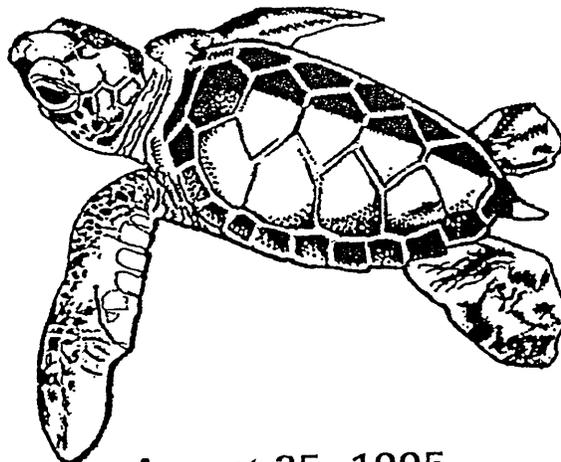
cc: F/PR2



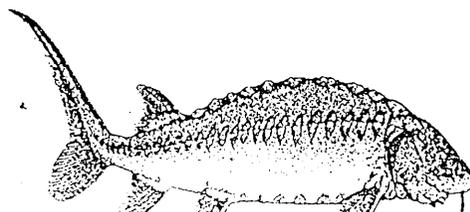
**REGIONAL BIOLOGICAL OPINION  
HOPPER DREDGING  
SOUTH ATLANTIC COAST  
(Excludes Canaveral, Florida)**

**INCLUDES SPECIFIC REQUIREMENTS AND RECOMMENDATIONS  
FOR**

**Sea Turtles  
Whales  
Shortnose Sturgeon  
and  
Johnson's Seagrass**



**August 25, 1995  
National Marine Fisheries Service**





DEPARTMENT OF THE ARMY

CESAD-ET-PR (1105-2-10c)

25 August 1995

MEMORANDUM FOR

COMMANDER, CHARLESTON DISTRICT, ATTN: CESAC-EN-P  
COMMANDER, JACKSONVILLE DISTRICT, ATTN: CESAJ-PD-E  
COMMANDER, SAVANNAH DISTRICT, ATTN: CESAS-PD-E  
COMMANDER, WILMINGTON DISTRICT, ATTN: CESAW-PD-E

SUBJECT: Regional Biological Opinion (RBO) for Hopper Dredging  
Along South Atlantic Coast

1. The signed version of the subject RBO is enclosed for your immediate use. We received this by fax today and have not yet evaluated all changes that have been made from earlier versions. A copy of an E-mail message from this office summarizing some of the changes is enclosed.

2. We will provide any necessary guidance on this RBO at a later date. Point of contact is Rudy Nyc, (404) 331-4619.

FOR THE DIRECTOR OF ENGINEERING AND TECHNICAL SERVICES:

Encl

FRANCIS X. MCGOVERN  
Acting Chief  
Planning and Environmental Division  
Directorate of Engineering and  
Technical Services

BCF: *Added*

PD-ER (Dugger, Dupes, Fonferok, Boothby, Hammond, Traxler, Bozeman)

PD-EE (McAdams)

DP-I/A (Stevens, McMillan, Scarborough, Duke)

PD-PC (Schmidt)

PD-PN (Bailey)

OC (*Brady*)

CO-C (*Adams*)

CO-ON (*Bearley*)

FROM: BUDY NYO at usacesad1  
DATE: 8/25/95 1:10 PM

PRIORITY: Normal  
RECEIPT REQUESTED

TO: John F Adams at sadhub  
TO: Kenneth R Dugger at sadhub  
TO: Mike Dupes at sadhub  
TO: William C Long II at sadhub  
TO: Paul Metz at sadhub  
TO: Jim Preacher at sadhub  
TO: Mark E Wolff at sadhub  
TO: DENNIS BARNETT  
TO: JOHN P DEVEAUX  
TO: JAMES M KELLY  
TO: GEORGE R PRINCE JR  
TO: FRANK X MCGOVERN

SUBJECT: NMFS REGIONAL BIO. OPINION ON HOPPER DREDGING

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Message Contents  
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THE RBO WAS SIGNED TODAY (25 August 1995) BY WILLIAM W. FOX JR.,  
DIRECTOR OF NMFS OFFICE OF PROTECTED RESOURCES IN WASHINGTON D.C.

WE HAVE MAILED A COPY OF THE SIGNED VERSION THAT WAS FAXED TO US TO  
YOUR OFFICE. WE WILL ALSO SEND YOU A COPY BY E-MAIL AS SOON AS WE GET  
IT FROM NMFS VIA INTERNET.

CHANGES THAT WERE MADE IN RBO BY NMFS WASHINGTON OFFICE ARE AS  
FOLLOWS:

\* 100% MONITORING COVERAGE OF SCREENS FOR BEACH NOURISHMENT  
PROJECTS (THIS HAD BEEN 50% IN THE EARLIER VERSION OF THE RBO).  
THIS CHANGE WAS INSISTED ON BY NMFS HQ. LAWYERS.

\* NUMBERS OF NMFS APPROVED OBSERVERS WAS DELETED FROM THE  
TABLE SHOWING DREDGING WINDOWS AND MONITORING REQUIREMENTS. THEIR  
RATIONAL FOR THIS CHANGE IS THAT THIS SHOULD BE A CORPS CALL RATHER  
THAN NMFS.

\* MONITORING OF SCREENS DOES NOT HAVE TO BE PERFORMED FOR THE  
ENTIRE TIME THAT DREDGING IS UNDERWAY. WHAT THEY WANT IS THAT 100% OF  
THE MATERIAL IS SCREENED AND AN OBSERVER CHECKS THE SCREENS AFTER EACH  
DREDGING EVENT. FOR EXAMPLE, IF WE ARE DREDGING SAND THE OBSERVER  
NEEDS TO CHECK THE SCREEN AFTER THE DREDGING HAS STOPPED RATHER THAN  
SIT THERE AND OBSERVE THE SCREEN DURING DREDGING. NMFS WANTED TO GIVE  
US FLEXIBILITY IN MANAGING THIS PROGRAM.

\* THE INCIDENTAL TAKE IN THIS RBO IS GOOD UNTIL 5 AUGUST  
2000. THEIR LAWYERS WANTED AN ENDING DATE WHILE NMFS DID NOT WANT TO  
RENEW THE INCIDENTAL TAKE STATEMENT MORE FREQUENTLY THAN 5 YEARS.

\* CONSULTATION MUST BE REINITIATED WHEN 75% IF THE AUTHORISED  
INCIDENTAL TAKE HAS BEEN REACHED. IN REALITY WE WOULD NEVER WAIT THAT  
LONG BEFORE RECONSULTING WITH THEM.



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

AUG 25 1995

Colonel James H. Simms, USA  
Acting Commander  
South Atlantic Division, Corps of Engineers  
Room 313, 77 Forsyth St., S.W.  
Atlanta, Georgia 30335-6801

Dear Colonel Simms:

Enclosed is the biological opinion that concludes formal Endangered Species Act Section 7 consultation on hopper dredging of channels and beach nourishment activities in the southeastern United States from North Carolina through Florida East Coast. The National Marine Fisheries Service (NMFS) concurs with COE findings that dredging windows and further development of the rigid draghead deflector reduces the effects of hopper dredging on sea turtle species, while allowing dredging to continue. As you know, this consultation supersedes a previous regional opinion issued to the COE South Atlantic Division (SAD) on channel dredging in which NMFS found that continued hopper dredging activity in southeast channels along the Atlantic Coast was likely to jeopardize the continued existence of the Kemp's ridley sea turtle (November 25, 1991). The reasonable and prudent alternative issued with the 1991 opinion included the prohibition of hopper dredging in the Canaveral channel, seasonal restrictions which allowed hopper dredging from December through March in channels from North Carolina through Canaveral, or use of other dredges in all southeastern U.S. channels. Since the implementation of this alternative in the winter of 1991, only 14 takes of sea turtles, including three live turtles, have been documented on board hopper dredges in channels along the southeastern U.S. Atlantic Coast.

The Incidental Take Statement, reasonable and prudent measures, and conservation recommendations listed in the enclosed opinion have been discussed with the COE's SAD staff. Of note, hopper dredging windows are modified from the windows established in 1991 and observer requirements have been expanded to incorporate beach nourishment activities. The continued deployment of observers, and participation in the Right Whale Early Warning System, are also listed requirements within this biological opinion. Please note that the authorization for this incidental take expires August 5, 2000. In addition, consultation must be reinitiated when 75% of the authorized incidental take is reached.



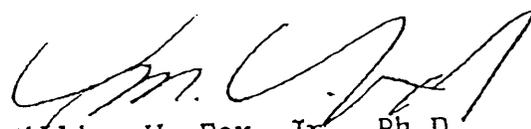
Colonel James H. Simms

Hopper dredging in Cape Canaveral, Florida is not considered under this consultation since turtle concentrations in Canaveral remain high year-round. Projects requiring the use of a hopper dredge in Canaveral will require further, project-specific, consultation.

Much of the new information considered in the enclosed opinion was the result of extensive research efforts recently concluded by COE in six southeast channels: Morehead City Harbor entrance channel, Charleston Harbor entrance channel, Savannah Harbor entrance channel, Brunswick Harbor entrance channel, Fernandina Harbor-St. Marys River entrance channel, and the Canaveral Harbor entrance channel. The results of this research support some modifications to previous seasonal restrictions for hopper dredging in these channels. Additionally, a draghead deflector has been developed that has shown promising results during preliminary tests and field application.

Through an extensive sea turtle research program and participation on the Right Whale Recovery Plan Implementation Team, the COE's SAD has become a leader among Federal action agencies in the southeast region in endangered species research and conservation. We look forward to continued cooperative efforts with your division.

Sincerely,



William W. Fox, Jr., Ph.D.  
Director  
Office of Protected Resources

Enclosure

cc: ACOE Charleston District, Col. George Hazel  
Wilmington District, Col. Robert Sperberg  
Savannah District, William Bailey  
Jacksonville District, A. J. Salem  
F/SE013 - Oravetz



Endangered Species Act - Section 7 Consultation

Biological Opinion

**Agency:**

U.S. Army Corps of Engineers, South  
Atlantic Division

**Activity:**

Hopper dredging of channels and beach  
nourishment activities in the  
Southeastern United States from North  
Carolina through Florida East Coast

**Consultation Conducted By:**

National Marine Fisheries Service,  
Southeast Regional Office

**Date Issued:**

August 25, 1995

**BACKGROUND**

The U.S. Army Corps of Engineers (COE) has primary responsibility for maintaining navigational channels in U.S. waters. To accomplish this task, dredging is periodically required. A variety of dredge types and techniques are employed on a channel-specific basis, dependent upon the characteristics of channels, availability of disposal sites, local environmental regulations, types of material to be removed, proposed timing of the dredging, etc. In the southeastern United States, at least three types of dredges (hopper dredges, clamshell dredges, and pipeline dredges) are commonly used.

In addition, Congress has mandated that the COE provide periodic beach nourishment to certain beaches in the southeastern U.S. that suffer severe erosion rates. Nourishment activities consist of dredging coarse high-quality sand from offshore borrow areas then pumping the material onshore.

A formal consultation conducted on dredging and beach nourishment operations from North Carolina through Cape Canaveral, Florida, in 1991, and incorporated by reference, concluded that clamshell and pipeline dredges were not likely to adversely affect listed species. There is no new information to change the basis for



that finding. Lethal takes of sea turtles by hopper dredges have been documented, however, and consultations on takes have been conducted since 1980.

#### Previous Consultations

Consultation on the effects of hopper dredging in the Canaveral ship channel was initiated in August 1978, after NMFS trawl surveys verified reports of high turtle abundance in the channel. On March 30, 1979, NMFS issued a biological opinion based on a threshold examination of the situation. This opinion concluded that insufficient information existed to determine whether or not dredging was likely to jeopardize the continued existence of sea turtles. Through agreement with the COE and the U.S. Navy, trawl surveys were implemented to further assess turtle abundance and distribution in the channel.

On January 22, 1980, the National Marine Fisheries Service (NMFS) issued a biological opinion concluding that "dredging may result in the loss of large numbers of loggerhead sea turtles but is not likely to result in jeopardizing either the loggerhead or Atlantic ridley sea turtle stocks." This opinion recommended that NMFS-approved observers be placed aboard hopper dredges in the Canaveral channel to monitor turtle take, and that dredging be restricted to the period of August 1 through November 1. No evidence of turtle take by hopper dredges existed at this point, but the potential for take was recognized.

A total of 71 turtle takes by hopper dredges were documented in the Canaveral channel over the period of July 11 through November 13, 1980. These takes were considered minimum estimates of mortality due to restrictions inherent in observing turtles within the dredged material. From 1980 through 1986, NMFS, the COE, and the U.S. Navy continued efforts to reduce or eliminate turtle take by hopper dredges in the Canaveral entrance channel. Efforts included attempts to scare turtles out of the channel, detect and capture turtles, remove and relocate turtles, and deflect turtles from the draghead. No acceptable means of eliminating the take of sea turtles by hopper dredges was identified, and take of sea turtles continued.

Trawl surveys of five east coast channels, conducted during 1981 and 1982 (Butler et al., 1987), indicated that these channels did

not contain sea turtles at abundances approaching those observed in Canaveral. One or two turtles were collected in each of the surveyed channels, while hundreds were caught in the Canaveral channel. Because NMFS had no information to suggest that turtle takes in other channels was significant, additional channel surveys were not required, and the Canaveral hopper dredging project was treated as a unique problem.

In 1986, the U.S. Navy reinitiated Endangered Species Act (ESA) Section 7 consultation on Kings Bay, Georgia, channel dredging. The scope of the project involved widening and deepening existing channels and extension of the channel approximately 14 miles. The Navy proposed to implement sea turtle conservation measures including observer coverage, screening of the dredge, and a stand-by trawler to catch and remove turtles, if necessary. From July 1987 through December 1989, a total of 21 turtles were taken during hopper dredging operations in the Kings Bay project.

Turtle take by hopper dredges in Kings Bay resulted in major changes in NMFS policy on channel dredging. This was the first documented take of turtles by hopper dredges anywhere other than in the Canaveral channel. Additionally, while takes in Canaveral were confined to loggerhead turtles, Kings Bay takes included three endangered Kemp's ridley turtles and three endangered green turtles. NMFS began to consider the additive consequences of hopper dredging along the southeast coast.

The Jacksonville District COE and the COE Waterways Experiment Station jointly sponsored a May 11-12, 1988, "National Workshop on Methods to Minimize Dredging Impacts on Sea Turtles," held in Jacksonville, Florida. This workshop brought together representatives of the COE, NMFS, the U.S. Navy, the dredging industry and the environmental community to discuss the dredging/sea turtle conflict. In a July 8, 1988, letter from the Assistant Administrator for Fisheries to the Acting Commander of the COE, NMFS applauded the COE efforts in sponsoring the workshop and advised the COE of agency plans to assess the cumulative impacts to sea turtles of dredging in channels other than Canaveral. Formal consultation was requested for all areas in which hopper dredging was proposed, and observers were required on 25-100 percent of all hopper dredging activities in Brunswick, Savannah, and Wilmington Harbor dredging projects.

Consultation was reinitiated in 1991 in response to the high levels of turtle takes observed, as well as nearby strandings of crushed turtles, during hopper dredging in Brunswick and Savannah channels. The biological opinion, issued November 25, 1991, found that continued unrestricted hopper dredging in channels along the southeast region's Atlantic coast could jeopardize the continued existence of listed sea turtles. A reasonable and prudent alternative was given which included the prohibition of hopper dredging in the Canaveral channel, seasonal restrictions which allowed hopper dredging from December through March in channels from North Carolina through Canaveral, or use of alternative dredges in all southeastern U.S. channels.

The reasonable and prudent alternative issued in the 1991 biological opinion has proven very effective in reducing sea turtle captures. Since the implementation of the measures of the 1991 biological opinion, only 14 takes of sea turtles, including three live turtles, have been documented on board hopper dredges in channels along the southeastern U.S. Atlantic coast.

The COE has recently concluded extensive research in six southeast channels: Morehead City Harbor entrance channel, Charleston Harbor entrance channel, Savannah Harbor entrance channel, Brunswick Harbor entrance channel, Fernandina Harbor - St. Marys River entrance channel, and the Canaveral Harbor entrance channel. Seasonal restrictions were supported by the research; however, refinements in the restrictions due to new, more precise information were requested in the COE request for a new consultation, dated November 8, 1994. Additionally, a draghead deflector has been developed that has shown promising results in preliminary tests.

#### PROPOSED ACTIVITY

This consultation addresses COE channel dredging activities along the southeastern Atlantic seaboard from North Carolina through Key West, Florida (see Figure 1 from COE's Biological Assessment submitted November 8, 1994). This includes maintenance dredging, new construction dredging, and beach nourishment activities. A summary of major channel dredging projects in which hopper dredges are normally used include: Oregon Inlet, Morehead City, and Wilmington Harbor in North Carolina; Charleston and Port

Royal in South Carolina; Savannah, Brunswick, and Fernandina-St. Marys in Georgia (King's Bay); Jacksonville, St. Augustine, Ponce Inlet, Canaveral, West Palm Beach, and Miami in Florida.

Information on the timing and amount of materials removed during past hopper dredging projects in these channels was provided in the Biological Assessment (COE, November 8, 1994). Generally, the COE has asked that channel hopper dredging windows specified in the 1991 biological opinion be modified from no hopper dredging in Canaveral and dredging in other regional channels from December through March to:

| HOPPER DREDGING IN SOUTH ATLANTIC DIVISION |                                     |   |
|--|-------------------------------------|---|
| LOCATION                                   | HOPPER DREDGING WINDOW <sup>1</sup> | INCIDENTAL TAKE MONITORING <sup>2</sup> |
| North Carolina to Pawles Island, S.C.      | Year Round                          | 1 May - 1 Nov                           |
| Pawles Island, S.C. to Tybee Island, Ga.   | 1 Nov - 31 May                      | 1 Nov - 1 Jan<br>1 Apr - 31 May         |
| Tybee Island, Ga. to Titusville, Fla.      | 15 Dec - 1 May                      | 15 Dec - 1 Jan<br>15 Mar - 1 May        |
| Titusville, Fla. to Key West, Fla.         | Year Round <sup>3</sup>             | Year Round                              |

1 Applies to all hopper dredging along South Atlantic Coast. Use of sea turtle deflecting draghead is required unless waiver is granted by CESAD.

2 For navigation projects this requires inflow screens and NMFS approved observers. For beach nourishment projects this can be accomplished by either monitoring the beach or use of observers and screens on the hopper dredge.

3 Use of hopper dredging at Canaveral Navigation Channel will be restricted to those times when there is an urgent need for this type of equipment.

During a meeting between the COE and NMFS in February 1995, it was determined that the impacts of beach nourishment activities along the southeastern U.S. Atlantic coast should also be considered in this biological opinion. Therefore, projects being considered in this consultation include those listed in the Biological Assessment submitted on November 8, 1994, as well as channels south of Canaveral, and beach nourishment activities along the southeastern U.S. Atlantic coast in which hopper dredges may be used. Specific projects which have been considered in ongoing consultations include: Palm Beach Harbor maintenance dredging; the Fort Pierce Harbor entrance channel and turning basin; and the Dade County Beach Erosion Control Project at the northern end of Sunny Isles.

#### LISTED SPECIES AND CRITICAL HABITAT

Listed species under the jurisdiction of the NMFS that may occur in channels along the southeastern United States and which may be affected by dredging include:

##### THREATENED:

- (1) the threatened loggerhead turtle - Caretta caretta

##### ENDANGERED:

- (1) the endangered right whale - Eubalaena glacialis
- (2) the humpback whale - Megaptera novaeangliae
- (3) the endangered/threatened green turtle - Chelonia mydas
- (4) the endangered Kemp's ridley turtle - Lepidochelys kempii
- (5) the endangered hawksbill turtle - Eretmochelys imbricata
- (6) the endangered shortnose sturgeon - Acipenser brevirostrum

Green turtles in U.S. waters are listed as threatened, except for the Florida breeding population which is listed as endangered.

Information on the biology and distribution of these species was given in the 1991 biological opinion, and is incorporated by reference. Channel-specific information has been collected by COE for channels at Morehead City, Charleston, Savannah, Brunswick, Fernandina and Canaveral, and is presented in detail in the COE summary report entitled "Assessment of Sea Turtle

Abundance in Six South Atlantic US Channels" (Dickerson et al., 1924) and in the COE Biological Assessment. New information is included below.

Additional endangered species which are known to occur along the Atlantic coast include the finback (Balaenoptera physalus), the sei (Balaenoptera borealis), and sperm (Physeter macrocephalus) whales and the leatherback sea turtle (Dermochelys coriacea). NMFS has determined that these species are unlikely to be adversely affected by hopper dredging activities.

PROPOSED, THREATENED:

- (1) Johnson's seagrass - Halophila johnsonii

According to federal regulations (50 CFR Section 402.10), a conference is required if a planned federal action is likely to jeopardize the continued existence of a proposed species. At this time, NMFS is unable to make a determination on the collective effects of hopper dredging in and adjacent to channels in which Johnson's seagrass occurs. The COE should develop estimates of annual take of seagrass anticipated by projects within Florida's intracoastal waterways within Johnson's seagrass habitat. Consideration of impacts to H. johnsonii should continue on a project-by-project basis until collective impacts have been estimated and/or listing has been finalized.

ASSESSMENT OF IMPACTS

Sturgeon

Table 1, taken from the February 6, 1995 draft Shortnose Sturgeon Recovery Plan (NMFS, 1995), gives the current, best available information on the distribution and abundance of shortnose sturgeon. South of the Chesapeake Bay, there is inadequate information to estimate the shortnose sturgeon population size in most rivers. Low abundance estimates have been made for the Ogeechee and Altamaha rivers.

Generally in southern rivers, adult sturgeon remain in estuaries and at the interface of salt and freshwater until late winter, when they move upriver to spawn. Embryos produced tend to remain

in areas of irregular bottom, where they appear to seek cover. Juveniles, like adults, occur primarily at the interface between salt and freshwater. Recent observations suggest that salinity levels greater than seven ppt are harmful (Smith et al., 1992). In the Savannah River, shortnose sturgeon are found over sand/mud substrate in 10-14 m. depths (Hall et al., 1991). Spawning occurs in upstream channels of the Savannah, where the substrate consists of gravel, sand and logs (Hall et al., 1991). Shortnose sturgeon feed on crustaceans, insect larvae, and molluscs (NMFS, 1995).

#### Impacts of hopper dredging on sturgeon

NMFS believes that shortnose sturgeon may be adversely affected by hopper dredging within some channels and seasons. While endangered species observers on hopper dredges have documented the take of Atlantic sturgeon, no take of a shortnose sturgeon has been observed. Sturgeon may be encountered in channels north of Pawles Island, South Carolina, where dredging may be conducted year-round. Winter windows south of Pawles, however, will reduce the period in which shortnose sturgeon may be impinged. Adult sturgeon may occur in estuarine and tidal waters until February, when they migrate upstream to spawn. Salinity ranges favorable to adults and juveniles can exist in inner harbors during fall months. Use of the rigid draghead deflector developed to reduce the likelihood of incidental take of sea turtles by hopper dredges may also reduce the take of shortnose sturgeon. The impacts on small juveniles, larvae, and eggs, by other suction dredge types used upriver, will be considered on a case-by-case basis.

In addition to the possibility of a direct take of sturgeon, maintenance dredging by all dredge types has likely reduced foraging areas within dredged channels, since inter-dredging periods may be too brief to allow forage species to re-establish. Current primary foraging habitat is thought to occur outside of dredged channels.

Shortnose sturgeon are not likely to be affected by beach nourishment activities.

## Sea Turtles

Precise data regarding the total number of sea turtles in waters of the southeastern U.S. Atlantic are not available. Trends in turtle populations are identified through monitoring of their most accessible life stages on the nesting beaches, where hatchling production and the number of nesting females can be directly measured. Figures 2 through 4 illustrate loggerhead, green and Kemp's ridley nesting trends at regularly monitored nesting beaches.

Index nesting beaches on which data collection methods and effort were standardized were established in Florida in 1989. Over 90 percent of all U.S. loggerhead nests occur in Florida, and over 80 percent of these are within indexed beaches (B. Schroeder, pers comm). During the six years monitored in this standardized manner, illustrated in Figure 2, loggerhead nesting appears to be stable. All green turtle nests in the United States occur in Florida, and most occur on index beaches. The pattern of green turtle nesting shows biennial peaks in abundance, with a generally positive trend during the six years of regular monitoring (Figure 3).

The abundance of ridleys nests in Rancho Nuevo, Mexico, have been increasing since 1987 (Figure 4). Over 1500 nests were observed during the 1994 nesting season, representing the highest nesting year since monitoring was initiated in 1978. While these data need to be interpreted cautiously due to expanded monitoring efforts since 1990, up to 110,000 hatchlings were released from Rancho Nuevo during 1994, compared to 50,000 to 80,000 over the previous five to six years (Byles, pers comm).

Stranding data are generally believed to reflect the nearshore distribution of sea turtles (Figure 5). The use of turtle excluder devices (TEDs) in shrimp trawls is likely responsible for the sharp decrease in strandings after 1990 through a reduction in mortality resulting from incidental capture in shrimp trawls. While TEDs were required seasonally in most areas during much of 1990, compliance was poor until 1991. Since 1991, documented strandings of loggerheads were steady, while green turtle strandings increased in 1994 and ridleys in 1993 and 1994. Factors that may be affecting the distribution and abundance of sea turtles and turtle mortalities (ie. the distribution of

strandings) include: vessel activity, fishery operations, and environmental factors such as storms, temperature changes, and eutrophication events.

The data suggest that green and Kemp's ridley turtle populations may be rising. While this supports cautious optimism, the numbers are well below recovery criteria established in the recovery plans.

#### Impacts of hopper dredging on sea turtles

##### Channels

NMFS believes that hopper dredging activities in the southeastern United States may adversely affect the endangered Kemp's ridley and Florida green turtles and the threatened loggerhead turtle. While hawksbill turtles likely occur infrequently in ship channels, they may be present during beach nourishment activities in areas near or between hard-bottom reefs.

Past maintenance dredging in the southeastern United States has been demonstrated to adversely affect sea turtles. The biological opinion issued in 1991 in response to the high levels of turtle takes observed, as well as nearby strandings of crushed turtles during hopper dredging in Brunswick and Savannah channels, concluded that continued unrestricted hopper dredging in channels along the southeast region's Atlantic coast could jeopardize the continued existence of listed sea turtles. Takes of 225 sea turtles had been documented since 1980 in southeast channels, including 22 turtles that were alive when found. The COE's strict adherence to the measures included in the 1991 biological opinion, including a prohibition of hopper dredging in Canaveral and seasonal restrictions on hopper dredging from North Carolina through the Canaveral ship channel, has greatly reduced the rate of sea turtle takes by hopper dredges. Only 14 sea turtle takes have been documented in hopper dredges since 1991, including three turtles that were alive when collected.

The COE conducted a comprehensive research program, beginning in 1991, to investigate the occurrence of sea turtles in six southeast channels to determine seasonal abundance, as well as spatial distribution within the channel and within the water column. Monthly surveys were conducted in Canaveral, Kings Bay, Brunswick, Savannah, Charleston, and Morehead City channels. The

Canaveral surveys supplement surveys conducted by NMFS and the COE since 1973.

Briefly, the surveys found the following: In areas where sea turtles occur, moderate to high abundance can be expected when water temperature is greater than or equal to 21 degrees C. Lower abundances were observed when temperatures were less than 16 degrees C. Other workers have observed sea turtles in waters as low as 8 degrees C, sometimes for extended periods (Morreale, pers comm 1993). Loggerheads, primarily adults, were the most abundant turtle captured (n = 645), although some Kemp's ridleys (n = 20) and green turtles (n = 5) were also taken. Juveniles of all species were observed, although only a few juvenile loggerheads were encountered in Canaveral. As documented in previous surveys, the Canaveral ship channel supports aggregations of sea turtles during all months of the year and, particularly during cooler winter months (Henwood, 1987; Butler et al., 1987; Henwood and Ogren, 1987). North of Canaveral, turtles were seasonally abundant, with lower numbers from December through February. Recaptures of relocated sea turtles suggest some site fidelity, and the effectiveness of relocation efforts appeared to be related to the distance of relocation. Catch per unit effort (CPUE) in the surveyed channels, for all seasons cumulatively, was: Canaveral, 1.43 turtles per hour; Kings Bay, 0.571 turtles per hour; Brunswick Harbor, 0.489 turtles per hour; Charleston Harbor, 0.206 turtles per hour; and Morehead City Harbor, 0.025 turtles per hour.

As a result of observed CPUE, which were generally lower during cool water periods in the northern channels, the COE has asked NMFS to relax dredging windows to allow year-round dredging north of Pawles Island, South Carolina (which includes the ship channels at Oregon Inlet, Morehead City and Wilmington), and between November and May 31 from Tybee Island, Georgia through Pawles Island (including Charleston, Port Royal and Savannah channels). In recent years, the COE SAD has shown a willingness to cease dredging in channels in which take rates exceed those anticipated, despite the fact that the incidental take level was not approached. Given the COE's conservative record in these channels, and the great reduction in takes observed under current dredging windows, NMFS concurs that some expansion of hopper dredging windows, with requirements for observers and use of the rigid draghead deflector, may result in sea turtle takes, but is