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

AUG 24 2001

**MEMORANDUM FOR:** Andy Mager, Assistant Regional Administrator

**FROM:** Russell for Bellmer, for
Chris Doley, Acting Director, NOAA Restoration Center

**SUBJECT:** EFH Programmatic Consultation for Community-Based Restoration Program Activities in the Southeast Region

This letter is in reference to the National Marine Fisheries Service (NMFS) Southeast Regional Office conservation recommendations made pursuant to NOAA's Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat (EFH) Regulations regarding the implementation of the NOAA Restoration Center's (RC) Community-Based Restoration Program (CRP) in the Southeast (Mid-Atlantic, South Atlantic, Gulf of Mexico, U.S. Caribbean). The Restoration Center's (RC) Programmatic Consultation request addresses EFH for managed species that may be encountered during community-based restoration projects in coastal, estuarine and riverine locations. The EFH consultation request was made pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and its implementing regulations at 50 CFR Part 600.920(a)(2) and is the result of a cooperative effort by our staffs.

Pursuant to the 50 CFR 600.920(j)(1), the NOAA Restoration Center is responding to your conservation recommendations. We find the eight recommendations acceptable and intend to incorporate them into the program. This concludes consultation between the NOAA RC and NMFS Southeast Regional Office.

Thank you for your assistance with this consultation. Should you have any future questions please contact Dr. Russ Bellmer, (301)713-0174 ext.186.

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AUG 30 2001

**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702
(727) 570-5317, FAX 570-5300

August 22, 2001

MEMORANDUM FOR: Chris Doley
Acting Director, NOAA Restoration Center

FROM: Andreas Mager, Jr.
Assistant Regional Administrator

SUBJECT: EFH Programmatic Consultation for Community-Based Restoration Program Activities in the Southeast Region

This responds to your August 14, 2001, memorandum which proposes an Essential Fish Habitat (EFH) Programmatic Consultation [reference 50 CFR 600.920(a)(2)(ii)] for the Restoration Center's (RC) Community-Based Restoration Program activities. The consultation includes an EFH assessment specific to activities undertaken within the jurisdictional area of the National Marine Fisheries Service's Southeast Region. Successful completion of an EFH Programmatic Consultation would obviate the need for future individual consultations for the RC's funding of habitat restoration projects which are consistent with the parameters specified in this consultation.

This EFH consultation encompasses funding for local efforts to conduct restoration of marsh, shellfish, submerged aquatic vegetation, coral, shoreline, mangrove, and riparian habitats. Individually and cumulatively such restoration efforts are expected to have minor and short-term adverse impacts on EFH and dependent fishery resources, but are designed to result in long-term, net benefits to those resources. RC personnel and staff of my office have exchanged information and coordinated extensively on categories of activities, potential EFH impacts, and appropriate mitigative measures. Your memorandum and attachment provide an adequate basis for our determination that a Programmatic Consultation would be an appropriate mechanism to evaluate EFH impacts of Community-Based Restoration Program activities.

EFH Conservation Recommendations

Minimization and avoidance of adverse impacts to EFH are addressed in the Programmatic Consultation through the RC's proposed conservation measures specified on pages 18 - 20 of the EFH assessment. Implementation of these measures as EFH Conservation Recommendations is necessary to ensure that adverse impacts of activities funded by the RC are avoided, minimized, and offset. Broadly, these measures include: use of best management practices; use of fishery management plan conservation measures; adequate training of volunteers; monitoring; clean-up and

minimizing site access impacts. We adopt, without modification, all of the conservation measures identified in the EFH Assessment as the EFH Conservation Recommendations of the Southeast Region.

Project-specific Consultations

Individual EFH consultation pursuant to 50 CFR 600.920(h) or (i) will be required for funding of any category of activity not identified in the EFH assessment. Similarly, individual consultations will be necessary for any project proposing to use heavy equipment or which will not adhere to the EFH Conservation Recommendations. Through individual consultations initiated by the RC, NMFS Southeast Region will evaluate those projects and recommend, as appropriate, EFH Conservation Recommendations designed to avoid, minimize, or offset impacts to Federally-managed fisheries and their EFH.

Review and Revision

If any changes are made to the RC's Community-Based Restoration Program such that the effects of implementation of funded projects on EFH are potentially changed, the RC shall notify the NMFS Southeast Region and discuss whether this Programmatic Consultation should be amended. Should the Southeast Region receive new or additional information that may affect EFH Conservation Recommendations, the Southeast Region will determine whether additional consultation with the RC is necessary or will supplement those Conservation Recommendations included by reference in this memorandum. At intervals of not more than 5 years following the RC's agreement with the contents of this memorandum, the RC shall review the EFH assessment and Conservation Recommendations and determine whether they should be revised to include any new categories of projects, technology, or resource information.

Conclusion

Based on our review of the Programmatic Consultation request and prior coordination and discussion with RC staff, we have determined the conservation measures identified in the EFH assessment, in their entirety, are appropriate and necessary EFH Conservation Recommendations. In addition we have provided criteria for individual consultations and for review and revision of this agreement.

As required by section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, the RC must respond in writing within 30 days of receiving these EFH conservation recommendations. The RC must include in their response the acceptability of the measures to avoid, minimize, and mitigate adverse impacts of Community-Based restoration activities on EFH. If the RC does not agree with the measures we have specified, it must explain the reasons for that disagreement. If the RC adopts the Southeast Region's EFH conservation recommendations and related stipulations, no further EFH consultation is required for actions covered by this Programmatic Consultation (except for those cases described in Project-Specific Consultation, where individual consultation has been specified).

If you have any questions on this EFH Programmatic Consultation or wish to discuss any of the comments and recommendations of this memorandum, please contact Rickey N. Ruebsamen, my EFH Coordinator, at telephone (727)570-5317 or by e-mail at ric.ruebsamen@noaa.gov.

cc'd Kurland F/HC3
Tom Moore

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

AUG 14 2001

**MEMORANDUM FOR:** Andy Mager, Assistant Regional Administrator

**FROM:** Chris Doley, Acting Director, NOAA Restoration Center

**SUBJECT:** EFH Programmatic Consultation for Community-Based Restoration Program Activities in the Southeast Region

This memorandum transmits the EFH Programmatic Consultation for the NOAA Restoration Center's Community-Based Restoration Program in the Southeast Region. The programmatic consultation avoids the need for project-by-project Essential Fish Habitat (EFH) consultations between our staffs for activities undertaken through our Community-Based Restoration Program. This EFH consultation request is made pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and its implementing regulations, and is the result of an effective cooperative effort by our staffs.

9-13-01

The Community-Based Restoration Program (CRP) supports local efforts to conduct on-the-ground restoration of marine, estuarine, and riparian habitat. Projects in the Southeast Region may include riparian, marsh, shellfish, submerged aquatic vegetation, coral, shoreline, and mangrove restorations. Activities may occur in designated EFH areas with localized and temporary adverse impacts over the short-term, but will provide beneficial habitat to managed species in the long-term.

These activities and an assessment of their effects on EFH are described in detail in the attached EFH Programmatic Consultation for CRP Activities in the Southeast Region.

# Essential Fish Habitat (EFH) Programmatic Consultation between the National Marine Fisheries Service, Southeast Region and NOAA Restoration Center, Community-Based Restoration Program

**Purpose**

Under Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Federal agencies are required to consult with the Secretary of Commerce on any action that may adversely affect Essential Fish Habitat (EFH). Consultation can be addressed programmatically to broadly consider as many adverse effects as possible. Section 600.920(a)(2) of the EFH regulations describes programmatic consultation as appropriate if sufficient information is available at a programmatic level to develop EFH conservation recommendations that will address all reasonably foreseeable adverse impacts to EFH.

This programmatic consultation addresses restoration activities undertaken in the Southeast region through the NOAA Restoration Center's (RC) Community-Based Restoration Program (CRP) to restore habitat for living marine resources. The Southeast region includes areas managed by Fishery Management Councils in the Gulf of Mexico, South Atlantic, and U.S. Caribbean. Some areas in the South Atlantic have also been identified as EFH by the Mid-Atlantic Fishery Management Council.

**Program Description**

The NOAA Community-Based Restoration Program began in 1996 to inspire local efforts to conduct meaningful, on-the-ground restoration of marine, estuarine and riparian habitat. Since that time, NOAA has secured funding for 179 small-scale habitat restoration projects around the U.S. coastline. Habitat restoration is defined here as activities that directly result in the reestablishment or re-creation of stable, productive marine, estuarine, lagoon, or coastal river ecological systems. The Program is a systematic effort to catalyze partnerships at the national and local level to contribute funding, technical assistance, land, volunteer support or other in-kind services to help citizens carry out technically sound restoration projects that promote stewardship and a conservation ethic for living marine resources.

The program links seed money and technical expertise to citizen-driven restoration projects, and emphasizes collaborative strategies built around improving NOAA trust resources and the quality of the communities they sustain. Human activities and development have caused unprecedented destruction of coastal and wetland habitat. In a world of reliance on natural resources for a sound economy, and stress over natural resource management issues, stakeholders are coming together to assess and evaluate natural resource priorities, promote awareness and education, develop common goals and facilitate local habitat enhancement projects. Community-based habitat restoration helps repair habitats required by fish, endangered species and marine mammals. Restoration may include, but is not limited to: improvement of coastal wetland tidal exchange or reestablishment of historic hydrology; dam or berm removal; fish passageway improvements; natural or artificial reef/substrate/habitat creation; establishment or repair of riparian buffer zones and improvement of freshwater habitats that support fishes; planting of native coastal wetland and submerged aquatic vegetation (SAV); and improvements to feeding, shade or refuge, spawning and rearing areas that are essential to fisheries.

All restoration activities shall comply with Federal statutory and regulatory procedures, as well as state requirements, prior to implementation. Records of Federal and state permits/consultations will be maintained in-house if the RC issues individual awards for projects. In the Southeast region, the RC CRP is evaluated through the National Environmental Policy Act components consisting of a Draft and Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI). The purpose of the EA document is to address NEPA compliance of Federal actions at the program level, as opposed to

the specific project level. The EA and FONSI identify and discuss the potential impacts of proposed actions on coastal and riverine environments.

CRP projects involve the restoration of coastal habitats that benefit living marine resources. These restoration activities are undertaken in riparian, marsh, shellfish, submerged aquatic vegetation, coral, shoreline, and mangrove habitats in the Southeast region. Restoration activities implemented under the CRP have very localized and temporary adverse impacts over the short-term, but will provide beneficial habitat to living marine resources in the long-term.

During project implementation involving revegetation activities, volunteers may cause a minor disturbance of the surrounding habitat by compacting soil due to foot traffic or disturbing existing vegetation. Submerged aquatic vegetation (SAV) restoration activities may also cause short-term impacts to SAV, depending on the method used to transplant SAV plants. Some methods require digging or clearing of the bottom substrate which may result in temporary turbidity plumes as well as disturbance to any organisms in the substrate.

The creation of shellfish reefs may result in adverse impacts to the surrounding habitat, depending on the source from which shell is obtained. Shells are commonly obtained via two methods: 1) from dredge shell programs which may result in localized turbidity problems, and 2) purchasing shell through shucking houses, which result in no adverse impacts. During creation of reefs, additional turbidity problems may arise when shells are deployed onto the reef.

Activities involving invasive plant removal may also result in minor disturbances depending on methods used. Herbicides used in restoration projects may leach into surrounding soils during rainy periods and could also damage local, non-invasive plants during windy conditions. For projects in which volunteers are in direct contact with the aquatic environment such as during coral reef restorations, the greatest source of short-term impacts is the potential for doing additional damage to the project site. These impacts may include accidental contact with damaged corals by divers or equipment, disruption of bottom sediment from diving fins, and impacts resulting from the transplanting of coral to restoration sites.

**The Magnuson-Stevens Fishery Conservation and Management Act**

Section 303(a)(7) of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), requires that Fishery Management Councils include provisions in their fishery management plans that identify and describe EFH, including adverse impacts and conservation and enhancement measures. These provisions are addressed in three separate generic FMPs for the Gulf of Mexico, South Atlantic, and U.S. Caribbean.

**Gulf of Mexico Essential Fish Habitat (EFH) Amendment to Fishery Management Plans (FMP)**

The EFH amendment (GMFMC, 1998) represents the Gulf of Mexico Fishery Management Council's (Gulf Council) response to those requirements stated in Section 303(a)(7) of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) by serving as a generic amendment to the following FMPs:

- Fishery Management Plan for the **Shrimp** Fishery of the Gulf of Mexico
- Fishery Management Plan for the **Red Drum** Fishery of the Gulf of Mexico
- Fishery Management Plan for the **Reef Fish** Fishery of the Gulf of Mexico
- Fishery Management Plan for the **Coastal Migratory Pelagic Resources** in the Gulf of Mexico
- Fishery Management Plan for the **Stone Crab** Fishery of the Gulf of Mexico
- Fishery Management Plan for **Spiny Lobster** in the Gulf of Mexico

- Fishery Management Plan for **Coral and Coral Reefs** of the Gulf of Mexico

This generic EFH document (GMFMC, 1998) amends the seven FMPs of the Gulf Council. EFH is identified and described based on areas where various life stages of 30 representative managed species and the coral complex commonly occur. The 30 representative species are shrimp (brown shrimp, *Farfantepenaeus aztecus;* white shrimp, *Litopenaeus setiferus;* pink shrimp, *Farfantepenaeus duorarum;* and royal red shrimp, *Pleoticus robustus*); red drum, *Sciaenops ocellatus;* reef fish (red grouper, *Epinephelus morio*; gag grouper, *Mycteroperca microlepis;* scamp grouper, *Mycteroperca phenax*; black grouper, *Mycteroperca bonaci*; red snapper, *Lutjanus campechanus;* vermilion snapper, *Rhomboplites aurorubens*; gray snapper, *Lutjanus griseus;* yellowtail snapper, *Ocyurus chrysurus;* lane snapper, *Lutjanus synagris*; greater amberjack, *Seriola dumerili;* lesser amberjack, *Seriola fasciata;* tilefish, *Lopholatilus chamaeleonticeps;* and gray triggerfish, *Balistes capriscus*), coastal migratory pelagic species (king mackerel, *Scomberomorus cavalla;* Spanish mackerel, *Scomberomorus maculatus;* cobia, *Rachycentron canadum;* dolphin, *Coryphaena hippurus;* bluefish, *Pomatomus saltatrix;* and little tunny, *Euthynnus alleteratus*); stone crab, *Menippe mercenaria;* spiny lobster, *Panulirus argus;* and the coral complex.

**Comprehensive Amendment Addressing Essential Fish Habitat (EFH) in Fishery Management Plans of the South Atlantic Region**

The EFH amendment (SAFMC, 1998a) represents the South Atlantic Fishery Management Council's response to those requirements stated in Section 303(a)(7) of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) by serving as a generic amendment to the following FMPs:

- Fishery Management Plan for the **Shrimp** Fishery of the South Atlantic
- Fishery Management Plan for the **Red Drum** Fishery of the South Atlantic
- Fishery Management Plan for the **Snapper Grouper** Fishery of the South Atlantic
- Fishery Management Plan for the **Golden Crab** Fishery of the South Atlantic
- Fishery Management Plan for the **Coastal Migratory Pelagic Resources (Mackerels)** of the South Atlantic
- Fishery Management Plan for **Spiny Lobster** in the South Atlantic
- Fishery Management Plan for **Coral and Coral Reefs and Live/Hard Bottom Habitat** Fishery of the South Atlantic
- Fishery Management Plan for the **Bluefish** Fishery in the South Atlantic/Mid-Atlantic
- Fishery Management Plan for the **Spiny Dogfish** Fishery in the South Atlantic/Mid-Atlantic
- Fishery Management Plan for the **Summer Flounder** Fishery in the South Atlantic/Mid-Atlantic

The comprehensive EFH document (SAFMC, 1998a) amends the seven FMPs of the South Atlantic. EFH is identified and described based on areas where various life phases of 32 selected species and the coral complex commonly occur. The selected species represent some of the key species under management by the South Atlantic Council. The selected species that are used to aid EFH descriptions are shrimp (brown shrimp, *Farfantepenaeus aztecus;* white shrimp, *Litopenaeus setiferus;* pink shrimp, *Farfantepenaeus duorarum;* rock shrimp, *Sicyonia brevirostris*; royal red shrimp, *Pleoticus robustus*); red drum, *Sciaenops ocellatus*; snapper-grouper (snowy grouper, *Epinephelus niveatus*; yellowedge grouper, *Epinephelus flavolimbatus*; Warsaw grouper, *Epinephelus nigritus*; scamp, *Mycteroperca phenax*; speckled hind, *Epinephelus drummondhayi*; jewfish, *Epinephelus itajara*; wreckfish, *Polyprion americanus*; red snapper, *Lutjanus campechanus*; Vermilion snapper, *Rhomboplites aurorubens*; gray snapper, *Lutjanus griseus*; mutton snapper, *Lutjanus analis*; blackfin snapper, *Lutjanus buccanella*; silk

snapper, *Lutjanus vivanus*; white grunt, *Haemulon plumieri*; greater amberjack, *Seriola dumerili*; blueline tilefish, *Caulolatilus microps*; golden tilefish, *Lopholatilus chamaeleonticeps*); coastal migratory pelagics (king mackerel, *Scomberomorus cavalla*; Spanish mackerel, *Scomberomorus maculatus*; Cero, *Scomberomorus regalis;* Cobia, *Rachycentron canadum*; Dolphin, *Coryphaena hippurus*); golden crab, *Chaeceon fenneri*; spiny lobster, *Panulirus argus*; and the coral complex. In addition, three FMPs managed by the Mid-Atlantic Council overlap areas managed by the South Atlantic Council. The selected species within these FMPs are bluefish, *Pomatomus saltatrix;* spiny dogfish, *Squalus acanthias;* and summer flounder, *Paralichtyys dentatus*

**FMPs of the Mid-Atlantic**

Three FMPs developed by the Mid-Atlantic Council identify areas of EFH in the South Atlantic that are managed by the South Atlantic Council. These FMPs include:

- Fishery Management Plan for the **Bluefish** Fishery in the Mid-Atlantic/South Atlantic
- Fishery Management Plan for the **Spiny Dogfish** Fishery in the Mid-Atlantic/South Atlantic
- Fishery Management Plan for the **Summer Flounder** Fishery in the Mid-Atlantic/South Atlantic

The selected species within these FMPs are bluefish, *Pomatomus saltatrix;* spiny dogfish, *Squalus acanthias;* and summer flounder, *Paralichtyys dentatus.*

**Essential Fish Habitat (EFH) Generic Amendment to the Fishery Management Plans (FMPs) of the U.S. Caribbean**

The EFH amendment (CFMC, 1998) represents the U.S. Caribbean Fishery Management Council's response to those requirements stated in Section 303(a)(7) of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.) by serving as a generic amendment to the following FMPs:

- Fishery Management Plan for the **Shallow Water Reef Fish** Fishery in Puerto Rico and the U.S. Virgin Islands
- Fishery Management Plan for the **Coral and Reef Associated Plants and Invertebrates** in Puerto Rico and the U.S. Virgin Islands
- Fishery Management Plan for the **Queen Conch Resources** in Puerto Rico and the U.S. Virgin Islands
- Fishery Management Plan for **Spiny Lobster Fishery** in Puerto Rico and the U.S. Virgin Islands

The generic EFH document (CFMC, 1998) amends the four FMPs of the U.S. Caribbean. EFH is identified and described based on areas where various life phases of 15 selected species (6 under management) and the coral complex commonly occur. The selected species represent some of the key species under management by the Caribbean Council. The selected species that are used to aid EFH descriptions are reef fish (coney, *Epinephelus fulvus*; red hind, *Epinephelus guttatus*; Nassau grouper, *Epinephelus striatus;* mutton snapper *Lutjanus analis*; schoolmaster, *Lutjanus apodus*; gray snapper, *Lutjanus griseus;* silk snapper, *Lutjanus vivanus*; yellowtail snapper, *Ocyurus chrysurus*; white grunt, *Haemulon plumieri*; banded butterflyfish, *Chaetodon striatus*; queen triggerfish, *Balistes vetula*; squirrelfish, *Holocentrus ascensionis*; sand tilefish, *Malacanthus plumieri*; redtail parrotfish, *Sparisoma chrysopterum*; trunkfish, *Lactophrys quadricornis*), spiny lobster, *Panulirus argus*; queen conch, *Strombus gigas*; and the coral complex.

**Secretarial FMPs**

Two Secretarial Fishery Management Plans are effective in the Gulf of Mexico, South Atlantic, U.S. Caribbean, and Mid-Atlantic: the Highly Migratory Species (Tunas, Sharks, and Swordfish) FMP and the Atlantic Billfish FMP (HMSMD, 1999). Under the Magnuson-Stevens Act, federal jurisdiction of EFH for Highly Migratory Species and Atlantic Billfish spans the area between the Canadian border in the north and the Dry Tortugas in the south.

The following sections address EFH for managed species that may be encountered during community-based restoration projects in the Gulf of Mexico, South Atlantic, and U.S. Caribbean. Table 1 lists the FMPs and species that have EFH designations and are likely to be encountered in a CRP project. Table 2 lists the FMPs and species unlikely to be found in a CRP project area.

Table 1. Fishery Management Plans (FMPs), species managed under each FMP, and the reasons for *inclusion* under the programmatic Environmental Assessment (EA) in the Gulf of Mexico, South Atlantic, and Caribbean regions.

| **GULF OF MEXICO** | | |
|---|---|---|
| Fishery Management Plan | Species Managed Under FMP | Reason for Inclusion |
| Gulf of Mexico FMP for Shrimp Fishery | 3 species/life stages: brown shrimp, pink shrimp, white shrimp | Found in inshore waters and estuaries |
| Gulf of Mexico FMP for Red Drum Fishery | Red drum & life stages | Found in coastal inlets, sounds, bays, seagrass beds, shallow estuarine rivers and mainland shores |
| Gulf of Mexico FMP for Reef Fish Fishery | 11 species/life stages: including grouper, snapper & triggerfish | Some found in shallow nearshore waters, mangroves, salt marshes, seagrass beds, coral reefs, algal mats |
| Gulf of Mexico FMP for Stone Crab Fishery | Stone crab & its life stages | Found in intertidal zone, seagrass beds, rocky or soft bottoms |
| Gulf of Mexico FMP for Coral and Coral Reefs Fishery | Coral and coral reefs & life stages | Some found in shallower waters CRP coral reef restoration projects |
| Gulf of Mexico FMP for Spiny Lobster Fishery | Spiny lobster & its life stages | Found in shallow subtidal bottoms, seagrass beds, soft bottoms, coral reefs and mangroves |
| Gulf of Mexico FMP for Coastal Migratory Pelagics | Cobia, Spanish mackerel, bluefish, little tunny & life stages | Some found in offshore, beaches, estuaries, and inlets. |
| Secretarial FMP for Tunas, Sharks, and Swordfish | 3 species/life stages of tuna, 1 species of swordfish, and 3 species of shark (great hammerhead, nurse shark, blacktip shark) | Some found in near-shore waters, bays and estuaries |

| SOUTH ATLANTIC & MID-ATLANTIC | | |
|---|---|---|
| Fishery Management Plan | Species Managed Under FMP | Reason for Inclusion |
| South Atlantic FMP for Spiny Lobster Fishery | Spiny lobster & its life stages | Found in shallow subtidal bottoms, seagrass beds, soft bottoms, coral reefs, and mangroves |
| South Atlantic FMP for Shrimp Fishery | Penaieds (brown, pink, and white shrimp) rock shrimp, royal red shrimp and life stages. | Found in tidal freshwater, estuarine, and marine emergent wetlands, seagrass, and sub-tidal and intertidal non-vegetated flats. |
| South Atlantic FMP for Red Drum Fishery | Red drum & life stages | Found in tidal freshwater, flooded salt marshes, brackish marsh, tidal creeks, mangrove fringe, SAV, oyster reefs, artificial reefs, and soft bottoms. |
| South Atlantic FMP for Snapper Grouper Fishery | 72 species/life stages including triggerfish, jacks, grunts, snappers, tilefish, temperate basses, sea basses and groupers, porgies, wrasses, and spadefish. | Some found in coral reefs, live/hard bottoms, SAV, oyster & artificial reefs. Specific life stages may occur in salt marshes, tidal creeks, and soft bottoms as well. |
| South Atlantic FMP for Coastal Migratory Pelagic Resources (Mackerels) | Cobia, Spanish mackerel and life stages. | Spanish mackerel found in beaches and estuaries. Cobia found in estuaries and coastal areas. |
| South Atlantic FMP for Coral and Coral Reefs and Live/Hard Bottom Habitat Fishery | Stony coral, octocorals, and black corals | Rough, hard, exposed stable substrate and muddy silty bottoms in offshore to outer shelf depths. |
| South Atlantic/Mid-Atlantic FMP for Bluefish | Bluefish & life stages | Found in shores and estuaries |
| South Atlantic/Mid-Atlantic FMP for Summer Flounder | Summer flounder & life stages | Found in shelf waters and estuaries |
| Secretarial FMP for Tunas, Sharks, and Swordfish | 3 species/life stages of tuna, 1 species of swordfish, and 3 species of shark (great hammerhead, nurse shark, blacktip shark) | Found in near-shore waters, bays and estuaries |

| U.S. CARIBBEAN | | |
|---|---|---|
| Fishery Management Plan | Species Managed Under FMP | Reason for Inclusion |
| Puerto Rico and U.S. Virgin Islands FMP for Shallow Water Reef Fish Fishery | 13 species and life stages groupers, snappers, grunts, triggerfish and red hind | Found in mangroves, seagrass beds, non-vegetated bottoms (sand, mud), algal plains, coral reefs and hard-bottom. |
| Puerto Rico and U.S. Virgin Islands FMP for Coral and Reef Associated Plants and Invertebrates | Over 100 species/life stages of coral: including stony corals, sea fans & gorgonians<br>Over 60 species/life stages of plants: including seagrass & invertebrates | Found in areas with natural, rough substrate covered with other living organisms and larvae.<br>Some found in shallower water seagrass CRP coral reef restoration projects |
| Puerto Rico and U.S. Virgin Islands FMP for Queen Conch Resources | Queen conch & life stages | Coral sand, seagrass beds, algae, gravel, coral rubble, beach rock bottoms, and nearshore, sandy areas. |
| Puerto Rico and U.S. Virgin Islands FMP for Spiny Lobster Fishery | Spiny lobster & life stages | Found in mangroves, seagrass, reefs, algal beds, and hard-bottoms. |
| Secretarial FMP for Tunas, Sharks, and Swordfish | 3 species/life stages of tuna, 1 species of swordfish, and 3 species of shark (great hammerhead, nurse shark, blacktip shark) | Found in near-shore waters, bays and estuaries |

Table 2. Fishery Management Plan (FMP), species managed under FMP, and the reasons for *exclusion* under the programmatic Environmental Assessment (EA) in the Gulf of Mexico, South Atlantic, and Caribbean regions.

| GULF OF MEXICO/SOUTH ATLANTIC/MID-ATLANTIC/U.S. CARIBBEAN | | |
|---|---|---|
| Fishery Management Plan | Species Managed Under FMP | Reason for Exclusion |
| South Atlantic FMP for Golden Crab Fishery | Golden crab & its life stages | Found in mounds of dead coral, ripple habitat, dunes, black pebble habitat, low outcrop, soft bioturbated habitat. |
| South Atlantic/Mid-Atlantic FMP for Spiny Dogfish | Spiny dogfish & life stages | Found in depths of 33 to 1480 ft. |
| Secretarial FMP for Atlantic Billfish | Blue marlin, White marlin, Longbill spearfish, Sailfish & life stages | Found in epipelagic waters in upper 300-600 ft open sea areas and neritic waters over the continental shelf. |

**Types of EFH Affected by Program Activities and Assessment of Effects on EFH**

EFH is described and identified as everywhere that the above managed species commonly occur. Because these species collectively occur in all estuarine and marine habitats in the southeast region, EFH is separated into estuarine and marine components for the Gulf of Mexico, South Atlantic, and U.S. Caribbean. In the Gulf of Mexico, the EFH determination is based on species distribution maps and habitat association tables presented in Section 5 of the Amendment (GMFMC, 1998). In estuaries, the EFH of each species consists of those areas depicted in the maps as "common", "abundant" and "highly abundant." In offshore areas, EFH consists of those areas depicted as "adult areas," "spawning areas" and "nursery areas." EFH identifications for the South Atlantic are available in Section 4 of the Amendment (SAFMC, 1998a) Habitat association tables and catch distribution maps are also available for species managed by the Caribbean Council in Section 4.1 of the Amendment (CFMC, 1998). These tables summarize data on the presence or absence of each species within a certain habitat for each life stage.

The following discussions of estuarine and marine environments, excerpted from the CRP EA (2001), complement the EFH descriptions of the Gulf of Mexico, South Atlantic, and U.S. Caribbean Fishery Management Councils. Because of the large variability in the types of species comprising living marine resources, a wide range of coastal regions and riparian systems along streams and rivers that support fish have been identified as EFH for marine species. Most CRP projects occur in urban areas impacted by human development and pollution as well as in remote rural locations. Living marine resources also utilize a wide variety of coastal biological habitats that are restored under the CRP, including submerged aquatic vegetation (SAV) beds, marshes, oyster reefs, riparian areas, and mangroves. These various habitats are targeted for restoration because they have suffered considerable degradation and loss of area in recent decades due to dredging and filling, pollution, construction, and erosion. Each discussion is followed by a description of potential restoration activities that may occur during CRP projects and an assessment of their impacts to EFH. Implementation of restoration activities under the CRP may have a very localized and temporary adverse impact over the short-term, but will provide beneficial habitat in the long-term. Under the CRP, these restoration activities do not individually or cumulatively have significant adverse impacts on the human environment, and many projects may be eligible for categorical exclusion under NOAA NEPA Guidance.

A. Estuarine Environments

For the estuarine component, EFH is described and identified as all estuarine waters and substrates (mud, sand, shell, rock, oyster reefs, and associated biological communities), including the sub-tidal vegetation (SAV and algae) and adjacent inter-tidal vegetation (marshes and mangroves). The restoration of estuarine environments typically include similar types of activities such as removal of invasive species, revegetation, and the placement or removal of structures such as logs or culverts.

1. Riparian Areas

Riparian zones are defined as the land immediately adjacent to a stream or a river. They are characteristic associations of substrate, flora, and fauna within the 100-year flood plain of a stream or, if a flood plain is absent, zones that are hydrologically influenced by a stream or river (Hunt, 1988). In the East, riparian zones are commonly characterized by bottomland hardwood and floodplain forests (Mitsch and Gosselink, 1993). Riparian environments are maintained by high water tables and experience seasonal or periodic flooding.

*Description of Habitat (EFH) Affected:*
Essential fish habitat descriptions provided by the Gulf, South Atlantic, and Caribbean Councils do not include detailed descriptions of riverine or riparian systems and their distribution within each of the management areas. Potential impacts to managed species would be limited to species within estuarine habitats such as marsh edges, SAV, mangroves, and tidally-influenced scrub/shrub and forested habitats.

In the Gulf of Mexico, some managed species exist within estuarine habitats, depending on life stages. Juvenile brown, white, and pink shrimp are present in marsh edges, SAV, and bottom habitats which may be impacted by activities further upstream (GMFMC, 1998). Juvenile and adult red drum are present in estuarine mud bottoms, marsh, and SAV habitats. Some species of juvenile reef fish and stone crabs also occur in these habitats. In the South Atlantic, juvenile shrimp occur in estuarine areas such as marsh edges, SAV and tidal creeks which may be impacted by upstream activities (SAFMC, 1998b). Juvenile species of red drum, jewfish, gray snapper, and mutton snapper may also occur in these habitats. Bluefish and summer flounder managed by the Mid-Atlantic Council may also occur in these areas. Snapper and grouper species managed by the Caribbean Council are present in SAV and mangrove habitats during various life stages (CFMC, 1998). Other managed species are only found in marine habitats and are not affected by activities upstream of estuaries.

*Potential impacts from restoration activities:*
Riparian habitat restorations usually involve re-vegetation activities and placement of large natural vegetation. Placement of natural vegetation is manually done by volunteers, which may result in minor disturbance of the surrounding habitat through increased foot traffic. This may result in soil compaction as well as disturbance of existing vegetation or other habitat structures.

Measures to eliminate or reduce potential impacts include planning ingress and egress routes to keep the impacted area to a minimum. To prevent damage to stream bottoms during project implementation, activities may be limited to periods when water levels are low. In addition, the use of measures to protect the water column such as erosion mats can prevent further damage to habitat and species.

2. Shoreline Habitats

Shore environments are widely varying in nature, from low-energy sheltered environments to more exposed coastline, subjected to high-energy wave and tidal action. Low-energy shorelines may be characterized by finer-grained, muddier sediments, which tend to accrete in depositional zones. Along higher-energy shorelines, SAV and certain benthic organisms, such as mollusks and worms, may be found because they can withstand the turbulence of such an intertidal zone. Such environments may exhibit low species diversity, but high population densities of those species that can tolerate the high-energy conditions (for example, some invertebrates). Activities occurring in these areas may have impacts to habitats immediately offshore such as SAV beds, mangroves, and reefs. Coastal habitats such as reefs, SAV, and mangroves are all interconnected physically, chemically, and biologically providing mutual support and operating as one system (SAFMC, 1998b).

*Description of Habitat (EFH) Affected:*
Texas contains approximately 367 miles of open Gulf shoreline and 2,125 miles of bay-estuary-lagoon shoreline (GMFMC, 1998). These areas are the most biologically rich and diverse regions in the state. From the Louisiana border to Galveston, the shoreline is comprised of marshy plains and low, narrow beach ridges. From Galveston Bay to the Mexican border, long barrier islands and large shallow lagoons dominate. The Louisiana coast is indented with numerous shallow bays containing valuable areas for the

growth, feeding and foraging of managed species. The total area of Florida's west coast estuaries is 3,003,312 acres which contain areas of open water, tidal marsh and mangroves. Managed species of various life stages may be found off the Gulf coast. These include brown, white, and pink shrimp of postlarvae/juvenile life stages which may inhabit marsh edges and SAV off coasts. Brown shrimp are in greatest abundance from Apalachicola Bay to Mexico while white shrimp are in greatest abundance in coastal areas from the Suwannee River to Mexico. Pink shrimp are most common off Florida coasts. Postlarvae/juvenile red drum are found in SAV as well as estuarine mud bottoms from Florida through Texas. Juvenile reef fish species such as black grouper, gag grouper, gray snapper, and yellowtail snapper are found in estuarine SAV, coastal lagoons, and mangrove habitats in the eastern Gulf of Mexico. Two species of coastal migratory pelagics are found off coastal areas in the Gulf. These include juvenile Spanish mackerel and bluefish which occur off beaches and in estuaries from Florida through Texas. Juvenile and adult stone crabs also occur in SAV and shell habitats from Florida through Texas.

The South Atlantic Region has approximately 20,350 miles of coastline, including Florida's Gulf Coast (CZM, 2001). In the South Atlantic Region, offshore habitats such as SAV, coral and oyster/artificial reefs are inhabited by several managed species of the South Atlantic Council. EFH for peneaid shrimp includes inshore estuarine areas for growth, foraging, and protection as well as offshore marine habitats used for spawning and growth to maturity from North Carolina to the Florida Keys (SAFMC, 1998b). EFH for red drum also occur in these nearshore habitats to a depth of 50 meters offshore from Virginia to the Florida Keys. Snapper grouper species may also occupy near shore areas inshore of the 100-foot contour such as SAV, estuarine emergent vegetated wetlands, tidal creeks, mangrove fringe, and reefs. EFH for coastal migratory pelagics includes sandy shoals of capes and offshore bars, high profile rocky bottom, and barrier island ocean-side waters. For cobia, EFH includes high salinity bays, estuaries and SAV habitat. Bluefish and summer flounder managed by the Mid-Atlantic Council may also occur in these nearshore areas.

Puerto Rico and the U.S. Virgin Islands contain a total of 875 miles of coastline (CZM, 2001). EFH for reef fish include offshore habitats such as SAV, reefs, mangroves, and sand (CFMC, 1998). Mangroves are essential juvenile spiny lobsters. Adults also feed on SAV and may be found in reefs. The queen conch is found in various offshore locations in the Caribbean. Juveniles may be found buried in sand/seagrass beds while adults occupy sand, SAV, and reef habitats.

*Potential impacts from restoration activities:*
Shoreline restoration involves the removal of invasive species which may result in potential adverse impacts to non-target species. Invasive species removal may be performed using chemical, mechanical, biological and ecological control methods, depending on the characteristics of species being eradicated. CRP projects involving invasive plant removals are usually accomplished using chemical methods, where volunteers spot-treat plants individually, or mechanical methods where plants are manually removed by hand. Herbicide application is often effective in the removal of invasive species, but minor impacts to surrounding areas may occur. Rainfall and wind may cause herbicides to leach into the surrounding soil or be transported to non-invasive plants, causing unintentional damage. The physical removal of invasive species may also be effective but potential impacts may occur if revegetation doesn't occur immediately.

In order to minimize the potential impacts from invasive species removal activities, certain precautions are taken. If volunteers manually remove plants, ingress and egress routes are planned to minimize the area impacted. Prior to project implementation, volunteers receive proper training on technically sound

methods to apply herbicides and remove invasive plants by hand. This ensures the proper application of herbicides used to remove invasive species to avoid unintentional damage to native plants. Pesticides are not applied during rainy or windy periods.

3. Marsh Habitats

Marsh habitats vary with coastal geographic location. Salt marshes exist on the transition zone between the land and the sea in protected low-energy areas such as estuaries, lagoons, bays, and river mouths (Copeland, 1998). Marsh ecosystems, like all wetlands, are a function of hydrology, soil, and biota. Tidal cycles allow salty and brackish water to inundate and drain the salt marsh, circulating organic and inorganic nutrients throughout the marsh. Water is also the medium in which most organisms live. The marshes are strongly influenced by tidal flushing and stream flow, which affect the inundation and salinity regimes of salt marsh soils. In areas with enough runoff, salt marshes transition into brackish and freshwater marshes (Copeland, 1998). Sand- and mudflats occur at extreme low water, whereas salt marsh vegetation develops where the soils are more exposed to the air than inundated by tides, usually above mean sea level. *Spartina* spp. (cordgrass) typically dominate the lower marsh. Salt marshes are of paramount ecological importance because they 1) export vital nutrients to adjacent waters; 2) improve water quality through the removal and recycling of inorganic nutrients; 3) absorb wave energy from stops and act as a water reservoir to reduce damage further inland; and 4) serve an important role in nitrogen and sulfur cycling (Mitsch and Gosselink, 1993; Turner, 1977; Thayer et al., 1981; Zimmerman et al., 1984).

*Description of Habitat (EFH) Affected:*
The Gulf of Mexico Estuarine Inventory (GMEI) measured 6.0 million acres of emergent tidal vegetation with 63% of the marsh found in Louisiana (GMFMC, 1998). The Gulf Coast contains a variety of salt, brackish, intermediate, and fresh wetlands. In Texas, saline and brackish marshes are mostly distributed south of Galveston Bay and intermediate marshes occurring east of the Bay (Henderson, 1997). In Louisiana, emergent marsh amounts to more than 3.9 million acres consisting of saline, brackish, intermediate, and fresh water marsh (GMFMC, 1998). Tidal marshes in Florida cover 528,528 acres and extend northward the full length of the coast. Wetlands are of special interest in the Gulf because of their importance in maintaining the production of the rich Gulf fisheries resources by serving as fishery grounds for larvae, post larvae, juveniles, and adults of several species.(GMFMC, 1998). Brown, white and pink shrimp are intimately linked to salt marshes where they grow, feed and forage. In their postlarvae and juvenile stages, densities are highest in marsh edge habitat and SAV. These areas provide postlarvae, juvenile, and subadult shrimp with food and protection from predation and also help maintain the essential gradient between fresh and salt water. Estuarine wetlands are also important to larval, juvenile, and subadult red drum.

In the South Atlantic, salt and brackish marshes occur in all four states and cover approximately 894,200 acres (SAFMC, 1998b). These marshes account for about 16% of the nation's total coastal wetlands. They are most common in the Carolinas with the greatest amount of marsh habitat within the Albemarle-Pamlico Sound (NC) and the St. Andrews-Simons Sound (SAFMC, 1998b). Smooth Cordgrass (*Spartina alterniflora*) is the dominant vegetation in marshes along the Gulf and Atlantic coasts. For penaeid shrimp, essential fish habitat includes inshore estuarine areas used for spawning and growth to maturity. Inshore areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g. intertidal salt marshes) from North Carolina through the Florida Keys (SAFMC, 1998b). Estuarine emergent vegetated wetlands are also EFH for red drum and snapper-grouper species. Estuarine marshes

are uncommon in Puerto Rico (CFMC, 1998). Species managed by the Mid-Atlantic Council such as the bluefish and summer flounder may also be found in these areas.

*Potential Impacts From Restoration Activities:*
Salt marsh restorations may involve removal of invasive vegetation, revegetation of native plants, and culvert replacement to restore tidal flushing. Revegetation is usually performed with the help of volunteers which may result in minor disturbance of the surrounding habitat through increased foot traffic. This may result in soil compaction as well as disturbance of existing vegetation or other habitat structures. Invasive species removal is performed using similar methods to those described in the section under shoreline habitats.

Measures to eliminate or reduce potential impacts from restoration activities include the use of turbidity curtains and other forms of water column protection to prevent the flow and/or washing out of disturbed debris from the tidal creek. These measures should also localize erosion to an isolated area. In order to minimize the potential impacts from invasive species removal activities, certain precautions are taken. Ingress and egress routes for volunteers are planned to minimize the area impacted. Volunteers are also properly trained on sound methods to apply herbicides and removing invasive plants. Herbicides used to remove invasive species are applied directly with special care to avoid unintentional damage to native plants. Herbicides are not be applied during rainy or windy periods.

4. Submerged Aquatic Vegetation (SAV)

Submerged grasses or SAV differ from most other wetland plants in that they are almost exclusively subtidal, occur mainly in marine salinities and utilize the water column for support. SAV occur across a wide depth range, from rocky intertidal habitats to depths of 40 meters, and for some species, broad latitudinal ranges. Distribution patterns are influenced by light, salinity, temperature, substrate type, and currents. SAV habitat is currently threatened because of the cumulative effects of overpopulation, commercial development, and recreation activities in the coastal zone. SAV supply many habitat functions, including: (1) support of large numbers of epiphytic organisms; (2) damping of waves and slowing of currents which enhances sediment stability and increases the accumulation of organic and inorganic material; (3) binding by roots of sediments, thus reducing erosion and preserving sediment microflora; and, (4) roots and leaves provide horizontal and vertical complexity to habitat, which, together with abundant and varied food sources, support densities of fauna generally exceeding those in unvegetated habitats (Wood *et. al.*, 1969; Thayer *et. al.*, 1984). They also provide nursing grounds for many juvenile fish species and habitat for many larval and adult invertebrates critical to near-shore food chains (GMFMC, 1998).

*Description of Habitat (EFH) Affected:*
About 3,700,000 acres of SAV are found in the estuaries and shallow coastal waters within the Gulf of Mexico, with most occurring in Florida and Texas. On the Gulf coast, SAV are particularly abundant and diverse along the shores of central and southern Florida, covering nearly 50% of the estuarine bottoms (GMFMC, 1998). Five species of seagrass are commonly found in the Gulf of Mexico. The seagrass meadows are populated by diverse and abundant fish faunas. Seasonal resident fish such as drums (*Sciaenidae*), porgies (*Sparidae*), grunts *(Pomadasyidae*), snappers (*Lutjanidae*), and mojarras (*Gerreidae*) spend much of their juvenile and adult stages or spawning seasons in seagrass meadows. Juvenile brown shrimp and white shrimp are also found in SAV as well as managed species such as red drum, groupers, reef fish, stone crabs, and spiny lobster larvae.

In the South Atlantic region, SAV is found primarily in the states of Florida and North Carolina (SAFMC, 1998b). In North Carolina, SAV coverage is estimated to be around 200,000 acres. Three seagrass species grow in North Carolina but are limited to areas within coastal lagoons, protected inland waterways and river mouths protected by barrier islands (SAFMC, 1998b). There are no known open ocean seagrass beds in North Carolina. In Florida, total SAV coverage is estimated to be 2.9 million acres. Other species may be found in Florida within protected inland waters as well as oceanic environments. In north-central, central, and southeast Florida, all of the SAV occur within protected coastal lagoons and in the Intracoastal Waterway (ICW). Seven species of SAV are found in Florida's shallow coastal areas in concentrations along Florida's east coast as well as Florida Bay. In North Carolina, three dominant species are concentrated in the southern and eastern Pamlico Sound, Core Sound, Back Sound, Bogue Sound, and the numerous small southern sounds. SAV is not found in Georgia and South Carolina because of highly turbid freshwater discharges, suspended sediments and a large tidal amplitude which prevents their permanent establishment. In Florida, many economically important species utilize SAV beds as growth and feeding grounds as well as spawning habitat (SAFMC, 1998a). These species include the spotted seatrout (*Cynoscion nebulosus*), grunts (Haemulids), snook (*Centropomus* sp.), bonefish (*Albulu vulpes*), tarpon (*Megalops atlanticus*) and several species of snapper (*Lutianids* sp.) and grouper (*Serranids* sp.). In North Carolina, 40 species of fish and invertebrates have been found on seagrass beds. Larval and juvenile managed fish and shellfish species including red drum (*Sciaenops ocellatus*), gag (*Mycteroperca microlepis*), and white grunt (*Haemulon plumieri*) utilize the SAV beds as growth and foraging areas. SAV meadows are also frequented by bluefish (*Pomatomus saltatrix*), pink and brown shrimp, as well as offshore reef fishes such as gag (*Mycteroperca microlepis*), gray snapper (*Lutianus griseus*), lane snapper (*Lutjanus synagris*), and mutton snapper (*Lutianus analis*).

Puerto Rico has one of the most diverse seagrass floras of the north Atlantic Ocean with seven species of seagrass recorded, turtlegrass (*Thalassia testudinum*) being most common (CFMC, 1998). In the U.S. Caribbean, seagrass beds are important for the brooding of eggs and for fishes with demersal eggs. The spiny lobster (*Panulirus argus*), is one managed species strongly reliant on seagrass habitats including seagrass supported trophic intermediaries. Many fish also reside in grass beds to temporarily forage, spawn, or escape predation. Seagrass beds are EFH for shallow water reef fish including juvenile Nassau and schoolmaster, juvenile and adult mutton snapper, gray snapper, yellowtail, white grunt, and adult banded butterflyfish. Queen conch also feeds on certain species of seagrass beds throughout its life stages.

*Potential impacts from restoration activities:*
SAV restoration often involves transplanting seagrass plants from existing SAV donor beds, which can cause short-term adverse impacts to SAV. These include temporary damages to existing beds by volunteers which may reduce the quality and quantity of EFH in the donor area. SAV plants may also be damaged during transplant. Planting may result in disturbance of existing bottom-substrate from clearing or digging.

A number of methods may be used to avoid or reduce potential impacts to SAV during restoration activities. One method of reducing potential impacts by volunteers is through the use of TERFS ™ racks (Transplanting Eelgrass Remotely using Frame Systems) which allows seagrass to be transplanted with little contact with the water. This system attaches seagrass plants to reusable wire frames with biodegradable ties which are dropped to the bottom of the restoration site where seagrass roots can then anchor new shoots in place. This method minimizes potential impacts to bottom sediment from divers as well as impacts to SAV plants from handling and storage. In order to avoid damage to transplanted SAV plants, projects may also be required to complete transplanting activities within 24 hours of collection

from donor beds. Plants should also be gathered through careful field collection to minimize damage to existing beds. TERFS ™ racks and other similar planting techniques may be used to plant other types of SAV.

5. Oyster Reefs

Oyster reefs may be found in intertidal and subtidal areas, where suitable substrate and adequate larval supply exist, along with appropriate (brackish to estuarine) salinity levels and water circulation. Oyster beds historically were found along the East and Gulf Coasts, but have been greatly reduced in occurrence as a result of anthropogenic impacts in the past 200 years (Kennedy and Sanford, 1995). Oyster beds are built by the cementing together of oyster shells, with additional hard substrate provided by associates such as other bivalves, barnacles, and calcareous tube builders such as some polychaetes (Kennedy and Sanford, 1995). Larvae of these invertebrates settle seasonally on this substrate. Eventually, a mound forms and grows vertically and laterally as oysters accumulate and shell is scattered in the bed's vicinity (Bahr and Lanier, 1981). Oyster reefs can vary in morphology, influenced by local effects (Kennedy and Sanford, 1995). Oyster beds have in the past been an important food source as well as providing shore protection (hard substrate), water clarification, and habitat for other invertebrates.

*Description of Habitat (EFH) Affected:*
Oyster reefs are EFH for a number of species managed by the Gulf Council. Postlarvae and juvenile brown and white shrimp occur in oyster reefs at high densities. Oyster reef substrates are also preferred by subadult and adult red drum. The juvenile and adult life stages of reef fish are associated with bottom topographies on the continental shelf such as artificial reefs. Oyster shells are also habitat for stone crabs after they reach a width of about one-half inch, but large juveniles or small adults are also abundant on oyster reefs.

In the South Atlantic, oysters are found at varying distances up major drainage basins depending upon typography, salinity, substrate and other variables (SAFMC, 1998b). The most extensive contiguous intertidal oyster reefs occur in the South Carolina coastal zone. For red drum, EFH includes oyster reefs and shell banks to a depth of 50 meters offshore from Virginia through the Florida Keys. Artificial reefs from shore to at least 600 feet are EFH for snapper-grouper species with oyster reefs inshore of 100 feet being EFH for specific life stages. In the Charleston Bump, oyster/shell habitat is state-designated habitat of particular importance for the growth and foraging of snapper-grouper species.

*Potential impacts from restoration activities:*
Shellfish creation involves the placement of shell and/or other materials at specific sites to provide hard substrate for aquatic communities. The placement of the reef may result in impacts to bottom-dwelling benthic organisms and fish in the area which may be buried during the placement of reef material. Temporary increases in turbidity may also result when materials are placed. When oyster shell is used, is it often washed overboard from barges which minimizes turbidity problems.

Impacts may also result depending on the source from which shell for the reef is obtained. Shells are commonly acquired via two method. Dredge shell programs obtain buried shells by dredging areas, which can cause short-term turbidity problems. In addition, any aquatic organisms in the area would be eliminated. The other method of obtaining shell is to purchase them through shucking houses. This method has no adverse impacts to the aquatic environment.

Potential impacts from oyster reef creation may be minimized by ensuring that shells are washed overboard onto the reef sites instead of being dumped overboard, which would result in turbidity plumes.

In addition, shell should only be obtained from shucking houses where no impacts to habitat were made during shell acquisition.

6. Mangroves

Mangroves are woody plant communities that develop in sheltered tropical and subtropical coastal estuarine environments. Mangroves are adapted to survive in very saline, waterlogged, reduced soils that are often poorly consolidated and subject to rapid environmental changes (eg. salinity changes) (Cintron-Molero, 1992). Mangrove communities, like salt marshes, facilitate much nutrient cycling, trapping nutrient-rich sediments and maintaining high rates of organic matter fixation (Cintron-Molero, 1992). Mangroves also provide important shelter for larval fish and crustaceans, and contribute detritus and dissolved organic carbon to estuarine food webs (Heald, 1969; Odum, 1971; Twilley, 1982). Mangrove ecosystems are coupled to other systems such as seagrass beds and coral reefs, supporting species of fish, shrimp, and birds. Mangroves are highly productive structures. A significant amount of the net production is incorporated into leaves and fruits, allowing more energy to be incorporated into the food web. This results in an abundance of shellfish and finfish in mangrove areas, as well as a diversity and abundance of other associated fauna.

*Description of Habitat (EFH) Affected:*
Three species comprise the major elements of mangrove communities in Florida, Puerto Rico, and the U.S. Virgin Islands—red, black, and white mangroves. A fourth species, the buttonwood (*Conocarpus erectus*), is also common in the Caribbean. Red mangroves are usually found in fringe or riverine environments characterized by active water flow and a high degree of flushing. The other two species tend to dominate in stagnant environments where water flows are reduced and often seasonal (Cintron-Molero, 1992). Mangroves represent a major coastal wetland habitat in the southeastern United States, occupying in excess of 494,200 acres along the coastlines of all Gulf coast states, Puerto Rico, and the U.S. Virgin Islands (CFMC, 1998). They are the dominant type of emergent wetlands in Puerto Rico. The southern coast of Florida contains some 395,000 acres of mangrove (GMFMC, 1998). The distribution of mangrove along the Gulf Coast is limited to areas where hard freezes do not occur.

A few species of reef fish are found on Florida's Gulf Coast. These include gray snapper, yellowtail snapper, lane snapper, and gray triggerfish. In the South Atlantic, mangroves are EFH for sub-adult red drum. Jewfish, gray snapper, mutton snapper, and white grunt are also found in mangroves during juvenile or adult stages. In the Caribbean, spiny lobsters (*Panulirus argus*) are the most important commercial and recreation invertebrates found in the prop roots of mangroves. Reef fish such as red hind, Nassau grouper, mutton snapper, schoolmaster, gray snapper yellowtail snapper, white grunt, and banded butterflyfish are also common in mangroves, using it as a refuge and source of food.
*Potential impacts from restoration activities:*
Mangrove restoration may involve invasive species removal and revegetation of mangrove species. Revegetation is usually performed with the help of volunteers which may result in minor disturbance of the surrounding habitat through increased foot traffic. This may result in soil compaction as well as disturbance of existing vegetation or other habitat structures. Invasive species removal is performed using similar methods used in shoreline restoration from above.

In order to minimize the potential impacts from invasive species removal activities, certain precautions are taken. Ingress and egress routes for volunteers planned to minimize the area impacted. Volunteers are also properly trained on sound methods to apply herbicides and removing invasive plants. Herbicides

used to remove invasive species are applied directly with special care to avoid unintentional damage to native plants. Herbicides are not be applied during rainy or windy periods.

B. Marine Environments

In marine waters, EFH includes all marine waters and substrates (mud, sand, shell, rock, hardbottom, and associated biological communities) from the shoreline to the seaward limit of the EEZ.

1. Artificial Reefs

Artificial reefs are structures or materials that are intentionally placed in aquatic environments to enhance fishery habitat by replacing habitat and ecosystem functions to support entire biological communities (SAFMC, 1998b). Artificial reefs are used in almost every possible marine environment, from shallow-water estuarine creeks to offshore sites up to several hundred feet in depth. They provide new primary hard substrate similar in function to newly exposed hard bottom (Goren, 1985). They also increase habitat complexity which provides shelter and foraging habitat for numerous species.

*Description of Habitat (EFH) Affected:*
In the Gulf of Mexico, artificial reefs have been used to enhance fishing success for many years. Texas, Louisiana, and Florida have legislative or agency sanctioned artificial reef plans which permit reef creation in designated sites in inshore and offshore waters (GMFMC, 1998). Florida has more than 587 sites permitted for artificial reefs on 378,898 acres on their west coast. Common materials used to form reefs include ships, concrete rubble, barges, tires, oyster shells and car bodies. Alabama has its own artificial reef program with five permit areas and 768,000 acres approved for permitting of artificial reefs. Mississippi, Louisiana, and Texas also have numerous sites permitted for artificial reefs in their inshore, coastal and offshore waters.

Depending on environmental conditions on a specific reef site, and the behavior patterns of certain fish, species within the Snapper-Grouper group tend to be long to short-term reef residents, while those among the Coastal Pelagics tend to be more transient visitors to the reefs as they migrate up and down the coast (SAFMC, 1998b). In the South Atlantic, artificial reefs from shore to at least 600 feet are EFH for snapper-grouper species with oyster reefs inshore of 100 feet being EFH for specific life stages. Red drum and spiny lobster, as well as some of the managed shrimp species, may be found on and around specific reef sites at different times of the year, depending on the exact location and design of the reef. While some species of managed corals may occur on reef structures as far north as the Carolina's, the waters off South Florida are the predominant site where such species are found attached to manmade substrate.

*Potential impacts from restoration activities:*
Artificial reef creation involves the placement of materials at specific sites to provide hard substrate for aquatic communities. The placement of the reef may result in impacts to bottom-dwelling benthic organisms and fish in the area which may be buried during the placement of reef material. Temporary increases in turbidity may also result when materials are placed.

Artificial reefs should be constructed using materials that do not impact EFH. In addition, shell used should only be obtained from shucking houses where no impacts to habitat were made during shell acquisition.

2. Coral Reefs

Coral reefs are wave resistant structures made of calcium carbonate secreted by, and harboring plants and animals in shallow tropical seas. While most of the reef environment is depositional, the seaward growing portion of the reef is essential for the survival and maintenance of the rest of the reef system (Wiens, 1962; Guilcher, 1987). Coral may dominate a habitat (coral reefs), be a significant component (hardbottom), or be individuals within a community characterized by other fauna (solitary corals) (GMFMC, 1998). Coral reef systems provide food, shelter, breeding, and growth areas for many reef and non-reef organisms. Coral reefs are also linked to mangroves and SAV where these systems occur in close proximity to one another (Maragos, 1992). A number of rare or endangered species inhabit or use coral reef environments. Hardbottoms constitute a group of communities characterized by a thin veneer of live corals and other biota overlying associated sediment types. They are usually of low relief and occur on the continental shelf and may be associated with relict reefs.

*Description of Habitats (EFH) Affected:*
Coral reef communities and solitary specimens exist throughout the eastern Gulf of Mexico and occur in near-shore environments. Coral and coral reefs are managed species under the Gulf Council. EFH for corals include both the coral organism itself and the reef formation as well as the fishery associated with the reef. Coral reefs are found in the East and West Flower Garden Banks, the Florida Middle Grounds, and the extreme southwestern tip of the Florida Reef Tract (GMFMC, 1998). The East and West Flower Garden Banks contain a total of 175 acres of reef and are the northernmost reefs in the Gulf of Mexico. The Florida Middle Ground is a live hardbottom area located on the outer edge of the continental shelf in the eastern Gulf. Coral reefs are EFH for all reef fish species managed by the Gulf Council. Juvenile and adult reef fish are often associated with bottom topographies on the continental shelf which have high relief. Offshore coral reefs are the principal habitats used by spiny lobster. The spiny lobster also spawns in offshore waters along the deeper reef fringes. Coral is also EFH for stone crabs which may burrow under them.

Coral reef communities and solitary specimens may be found in the South Atlantic region and are found more frequently in the U.S. Caribbean from nearshore environments to continental slopes and canyons, including the intermediate shelf zones (SAFMC, 1998b). In the South Atlantic, coral habitat (i.e. habitats to which coral is a significant contributor) are divided into five categories: solitary corals, hardbottoms, deepwater banks, patch reefs, and outer bank reefs. Solitary corals are a minor component of coral stacks in the South Atlantic. Hardbottoms are most widely distributed across the management area and occur off the coasts of each state. Deepwater banks exist in the Straight of Florida off Little Bahama Bank. About 6,035 individual linear- and dome- shaped patch reefs and about 60 miles of outer bank reefs are distributed in the Florida reef tract (SAFMC, 1998b). The South Atlantic FMP for coral, coral reefs, and live/hard bottom habitats incorporates habitat requirements for over 200 species. Coral reefs provide habitat for a number of species managed by the Council. The identification of these habitats enable the Council to protect EFH effectively for other managed species. Coral reefs are EFH for nearly all snapper-grouper species managed by the South Atlantic Council. Juvenile and adult spiny lobsters also use coral reefs as EFH in Florida.

Coral reefs and other coral communities are one of the most important ecological coastal resources in the Caribbean, and they are more prevalent in the geographical areas of authority of the Caribbean Council (CFMC, 1998). Corals grow around much of Puerto Rico, but physical conditions result in only localized reef formations. High rainfall, run-off, and intense wave action causing erosion and removal of suitable substrate for growth has prevented reef development. Reef growth increases towards the east.

Small reefs are found in abundance on the south coast because of low rainfall and river influx. Submerged reefs can also be found on the shelf edge in the south and west. In the U.S. Virgin Islands, the island of St. Croix has the most extensive reefs with several miles of bank-barrier reefs extending from Coakley Bay on the north coast to Great Pond Bay in the south (CFMC, 1998). Other reef areas include South-eastern St. Thomas, Saba Island/Perseverance Bay, and the Salt River Submarine Canyon. Corals are managed by the Caribbean Council through an existing Coral FMP. The FMP prohibits the taking of coral reef resources from the EEZ as well as possession or harvest of any managed species. Many other species are highly dependent on reefs for shelter, food, and as spawning sites. The FMP for corals includes over 100 coral species and over 60 species of plants and invertebrates. Most juvenile and adult snapper-grouper species managed by the Caribbean Council occur in coral reefs during various life stages. The spiny lobster is also found in coral reef and hardbottom habitats during its juvenile and adult stages. Corals reefs are also spawning areas for spiny lobster.

*Potential impacts from restoration activities:*
The restoration of coral reefs requires direct contact of volunteer divers with the aquatic environment. Potential impacts include accidental contact with already-damaged corals by divers, equipment, and anchoring boats. Divers may also disturb bottom sediment with fins, causing turbidity problems. The use of healthy, intact coral sites as donor sites increases the potential for damage to the existing corals by transplanting methods and by activities of the divers themselves.

To minimize potential impacts, divers are required to be skilled in the use of standard diving principles. These principles include rules such as not touching any coral tissue, knowing the location of all equipment, and staying off the bottom in sediment-laden areas. Prior to restoration activities, divers are also trained in coral biology, reef ecology, and restoration methods. During transplant, coral are stored in such a way to minimize movement to prevent damage to cores.

**RC Conservation Measures**
The RC has developed measures to mitigate possible impacts of CRP activities on environmental resources and non-CRP activities. These measures are specific to restoration activities within project areas and have already been put to use in funded projects. These recommendation which are normally specified in CRP contracts are:

1. Use of Best Management Practices (BMP)

Best management practices (BMPs) are measures to minimize and avoid all potential impacts to EFH during CRP restoration activities. This conservation measure requires the use of BMPs during restoration activities to reduce impacts from project implementation. BMPs shall include but are not limited to:

a. Measures to protect the water column - Turbidity curtains, haybales, and erosion mats shall be used
b. Staging areas - Areas used for staging will occur in non-wetland areas only. Planning for use of these staging areas will be carried out in advance and impact areas will be kept to a minimum size.
c. Buffer areas around sensitive resources - Rare plants, archeological sites, etc., will be flagged and avoided.
d. Invasive species - Measures to ensure native vegetation or revegetation success will be identified and implemented.

2. Use of FMP Conservation Measures

In addition to measures stated in this section, applicable EFH conservation measures provided by each Council will be incorporated into projects to minimize potential impacts. These measures address project-specific activities that may impact EFH and offer guidance to reduce these impacts.

3. Adequate Training of Volunteers

The adequate training measure is intended to ensure minimal impact to the restoration site through proper training and education of volunteers. Volunteers shall be trained in the use of low-impact techniques for planting, equipment handling, and any other activities associated with the restoration. Proper diving techniques will also be used by volunteer divers.

Training volunteers to perform restoration activities using low-impact techniques will minimize impacts to critical habitat for species managed under the Gulf Council.

4. Monitoring

Monitoring will be conducted before, during, and after project implementation to ensure compliance with project design and restoration success. If immediate post-construction monitoring reveals that unavoidable impacts to EFH have occurred, appropriate coordination with regional EFH personnel will take place to determine appropriate response measures, possibly including mitigation.

5. Post-Project Implementation Removal

Any temporary access pathways and staging areas will be removed or restored to re-establish or improve site conditions. Monitoring steps in Section 4 will assess whether unexpected impacts to EFH have occurred.

6. Herbicide Application Controls

Use of herbicides in project areas will be conducted according to established protocols. Such protocols will include information and guidelines for appropriate use, timing, amounts, application methods, and safety procedures relevant to the herbicide application. For example,

- Herbicide applications should have a six-hour contact time prior to rain
- Herbicides should never be applied during periods of wind or rain.
- Herbicides should be directly applied using spray bottles or garden sprayers
- If removal takes place in the aquatic environment (e.g., Brazilian pepper removal), appropriate herbicides such as Rodeo® must be used, but only if the stump is cut at least 1 foot above the water line (MRC, 1998).

7. Use of Heavy Equipment

The use of heavy equipment (e.g., graders, front-end loaders, and backhoes -- to move earth, trees, etc.) that has the potential to impact soil stability should be avoided to the maximum extent possible. If the use of heavy equipment is not avoidable, then project-specific consultation will be required.

8. Multiple Tracking Events/Soil Compaction

If activities in the project site necessitates multiple episodes of individuals accessing or tracking through the site, appropriate methods to avoid or minimize impacts will be used. On a case-by-case basis, potential impacts to the project site as a consequence of these activities will be evaluated in the project planning phase prior to the start of these activities.

**Project-Specific Consultation**

If the proposed project plans are substantially different than plans mentioned in this consultation or if new information becomes available that affects the basis for no adverse affect determination, then EFH consultation will be reinitiated.

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