



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

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AUG 22 2016

F/SER31:MET

MEMORANDUM FOR: F/HC3 – Leslie Craig

FROM:

for F/SE – Roy E. Crabtree, Ph.D. *RC*

SUBJECT:

Deepwater Horizon-Early Restoration Plan Phase IV,
Endangered Species Act Section 7 Consultations for
10 living shoreline and subtidal reef projects in Mississippi coastal
waters within the Gulf of Mexico

Project	Applicants	SER Number	Project Name/Type
1	National Marine Fisheries Service (NMFS) Restoration Center's (RC) and Mississippi Department of Environmental Quality (MDEQ)	SER-2015-16957	Wolf River Living Shoreline and Subtidal Reef
2	NMFS RC and MDEQ	SER-2015-16956	Bay St. Louis Living Shoreline
3	NMFS RC and MDEQ	SER-2015-16960	Graveline Bay Subtidal Reefs
4	NMFS RC and MDEQ	SER-2015-16959	Graveline Bay Intertidal Reefs
5	NMFS RC and MDEQ	SER-2015-16955	Grand Bay Subtidal Reefs
6	NMFS RC and MDEQ	SER-2015-16990	Grand Bay Intertidal Reefs
7	NMFS RC and MDEQ	SER-2015-16958	Back Bay Little Island Living Shoreline
8	NMFS RC and MDEQ	SER-2015-16963	Back Bay Deer Island Subtidal Reef
9	NMFS RC and MDEQ	SER-2015-16962	Back Bay Channel Island Living Shoreline and Subtidal Reefs
10	NMFS RC and MDEQ	SER-2015-16961	Back Bay Big Island Living Shoreline

This memorandum responds to the NMFS RC's July 7, 2015, memorandum and supporting materials for the 10 living shoreline and intertidal/subtidal reef projects in Mississippi coastal waters in the Gulf of Mexico, requesting concurrence under Section 7 of the Endangered Species



Endangered Species Act (ESA) with the project-effects determinations associated with these projects. We have determined that these 10 projects should be batched into a single consultation due to their spatial proximity, similarities in construction techniques, and potential effects on listed species. You determined that the proposed activities may affect, but are not likely to adversely affect, 5 sea turtle species (green, hawksbill, Kemp's ridley, leatherback, and loggerhead) and Gulf sturgeon.

NMFS requested additional information from the applicant via email on June 8, 2015 and October 13, 2015. We also conducted several teleconferences with the consulting parties to discuss and clarify project details on March 30, June 15, and July 7, 2015, and on February 25, 2016. We received the applicant's final biological evaluations for the projects on May 25, 2016, and we initiated consultation on that day. NMFS's determinations regarding the effects of the proposed actions are based on the description of the actions in this informal consultation. Any changes to the proposed actions may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

Project Location

Project Number	Latitude/Longitude (North American Datum 1983)	Water body
1	30.354289 N, 89.291246 W	Bay St. Louis, Harrison County, MS
2	30.359709 N, 89.361370 W	Bay St. Louis, Hancock County, MS
3	30.362738 N, 88.437808 W	Graveline Bay, Jackson County, MS
4	30.370111 N, 88.714440 W	Graveline Bay, Jackson County, MS
5	30.356818 N, 88.478082 W	Grand Bay, Jackson County, MS
6	30.379254 N, 88.472404 W	Grand Bay, Jackson County, MS
7	30.421308 N, 88.915534 W	Back Bay of Biloxi, Harrison and Jackson Counties, MS
8	30.385273 N, 88.857752 W	Back Bay of Biloxi, Harrison County, MS
9	30.416038 N, 88.857355 W	Back Bay of Biloxi, Harrison and Jackson Counties, MS
10	30.415435 N, 88.875274 W	Back Bay of Biloxi, Harrison County, MS

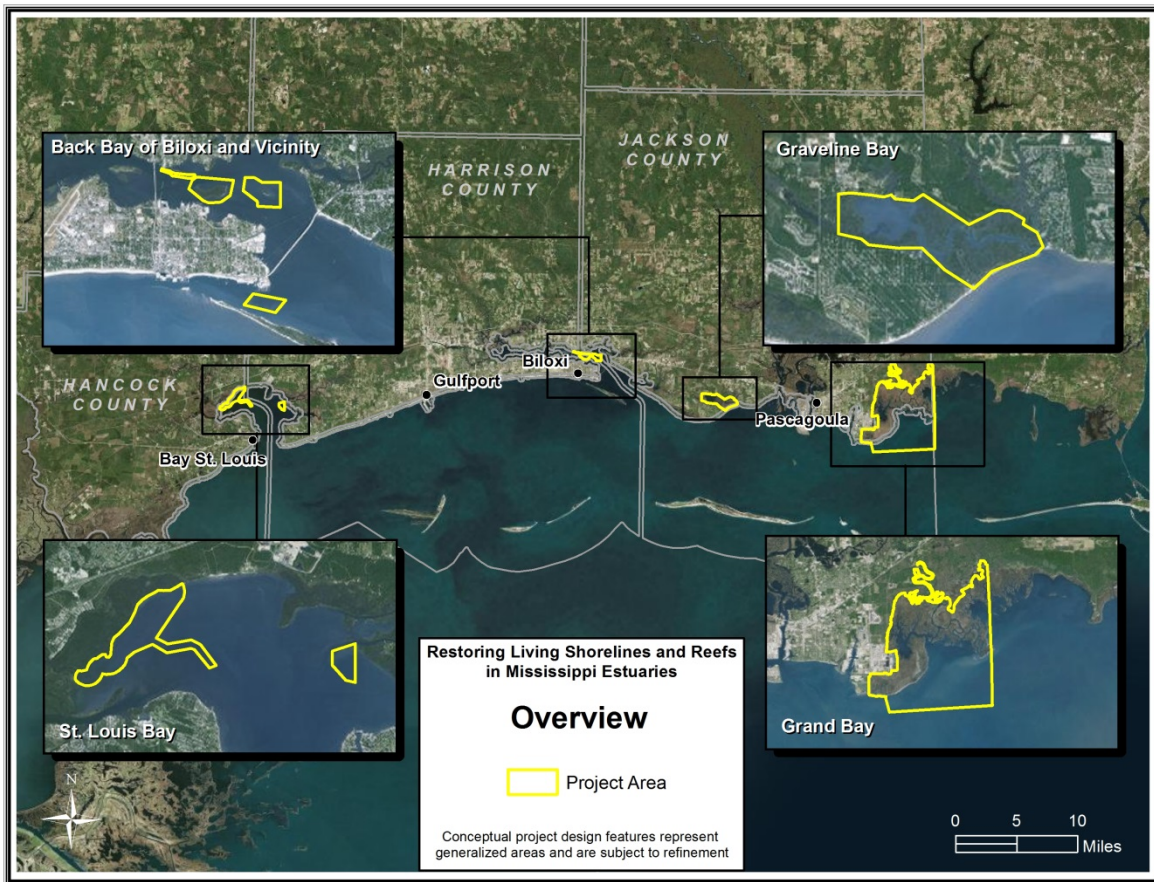


Figure 1. Image from “Endangered Species Act Biological Evaluation Form for Wolf River Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is Figure 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries-Vicinity Map Depicting Project Locations and Project Areas)

Project Descriptions

Project 1. Wolf River Living Shoreline and Subtidal Reef

The proposed project includes construction of approximately 1,388 feet (ft) of breakwater along an island at the mouth of the Wolf River in St. Louis Bay. The project also includes construction of approximately 30 acres (ac) of subtidal reef habitat in St. Louis Bay, adjacent to current reef projects at the mouth of the Wolf River. Approximate site locations for the breakwater and subtidal reefs are depicted in Figure 2, below. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below mean low lower water (MLLW). Construction of the subtidal reef would permanently cover approximately 30 ac of this substrate and the breakwater would permanently cover an additional 1.3 ac. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic oyster reef habit. Submerged aquatic vegetation (SAV) is not anticipated to be present in the project area and no impacts to SAV are anticipated at this time. If there is any potential for SAV to be present in the project area, SAV surveys would be completed prior to final site selection to avoid impacting SAV to the extent practicable. Navigation signs

may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 9. Navigation signs would consist of a 12-inch (in) treated wood piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to install piles to a depth ranging from 10-30 ft below the substrate. Construction is expected to take 2-6 months.

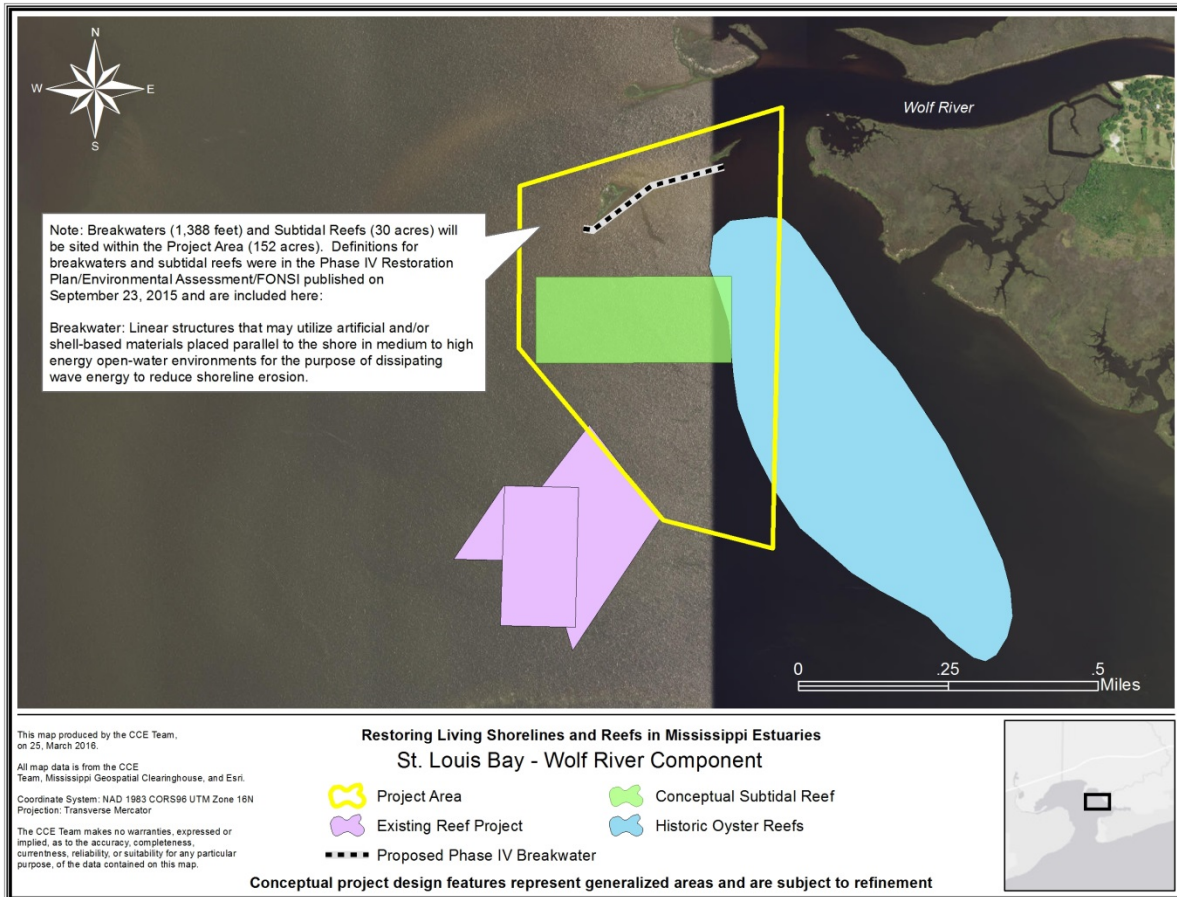


Figure 2. Image from “Endangered Species Act Biological Evaluation Form for Wolf River Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is “Figure 3: Current Wolf River Living Shoreline and Subtidal Reef Project Component”)

Project 2. Bay St. Louis Living Shoreline

The proposed project includes the construction of approximately 10,812 linear feet (lin ft) of breakwater in western St. Louis Bay near the city of Diamondhead. The approximate site location for the breakwater is depicted in Figure 3, below. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth of no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 9.9 ac of soft bottom habitat (sand, muddy sand, and mud bottom). SAV is not anticipated to be present in the project area and no impacts to SAV are anticipated at this time. If there is any potential for SAV to be present in the project area, SAV surveys would be completed prior to final site selection to avoid impacting SAV to the extent practicable. Navigation signs may be required

along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 56. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take up to 12 months.

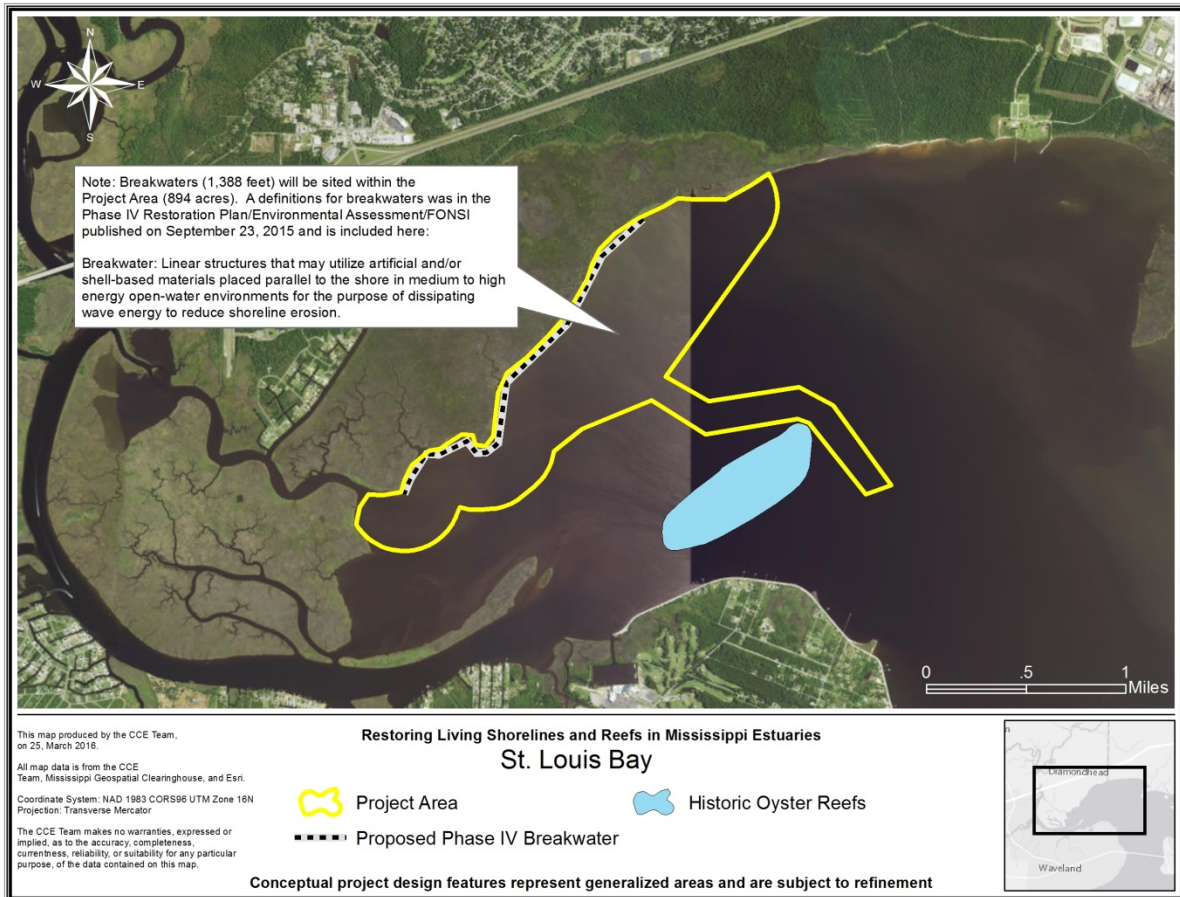


Figure 3. Image from “Endangered Species Act Biological Evaluation Form for St. Louis Bay Living Shoreline Project, MDEQ (2014). (Image is “Figure 3: Current St. Louis Bay Living Shoreline Project Component”)

Project 3. Graveline Bay Subtidal Reefs

The proposed project includes the construction of up to 70 ac of subtidal reef within Graveline Bay, between the cities of Biloxi and Pascagoula, MS (see Figure 4, below). The substrate in the action area is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at a depth no greater than 7 ft below MLLW. A total of approximately 70 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic oyster reef habit. SAV is not anticipated to be present in the project area, and none is expected to be impacted at this time. If there is any potential for SAV to be present in the project area, SAV surveys will be completed prior to final site selection to avoid

impacting SAV to the extent practicable. The entire construction project is expected to take 4 months.

Project 4. Graveline Bay Intertidal Reefs

The proposed project includes the construction of up to 2 ac of subtidal reefs within Graveline Bay, between the cities of Biloxi and Pascagoula, MS (see Figure 4, below). The substrate in the action area is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at a depth no greater than 5 ft below MLLW. A total of approximately 2 ac of soft bottom and remnant reef habitat would be covered with hard structure. SAV is not anticipated to be present in the project area, and none is expected to be impacted at this time. If there is any potential for SAV to be present in the project area, SAV surveys will be completed prior to final site selection to avoid impacting SAV to the extent practicable. To the extent practicable, intertidal reef would be sited adjacent to existing or historic intertidal reef habitat. The entire construction project is expected to take 4 months.

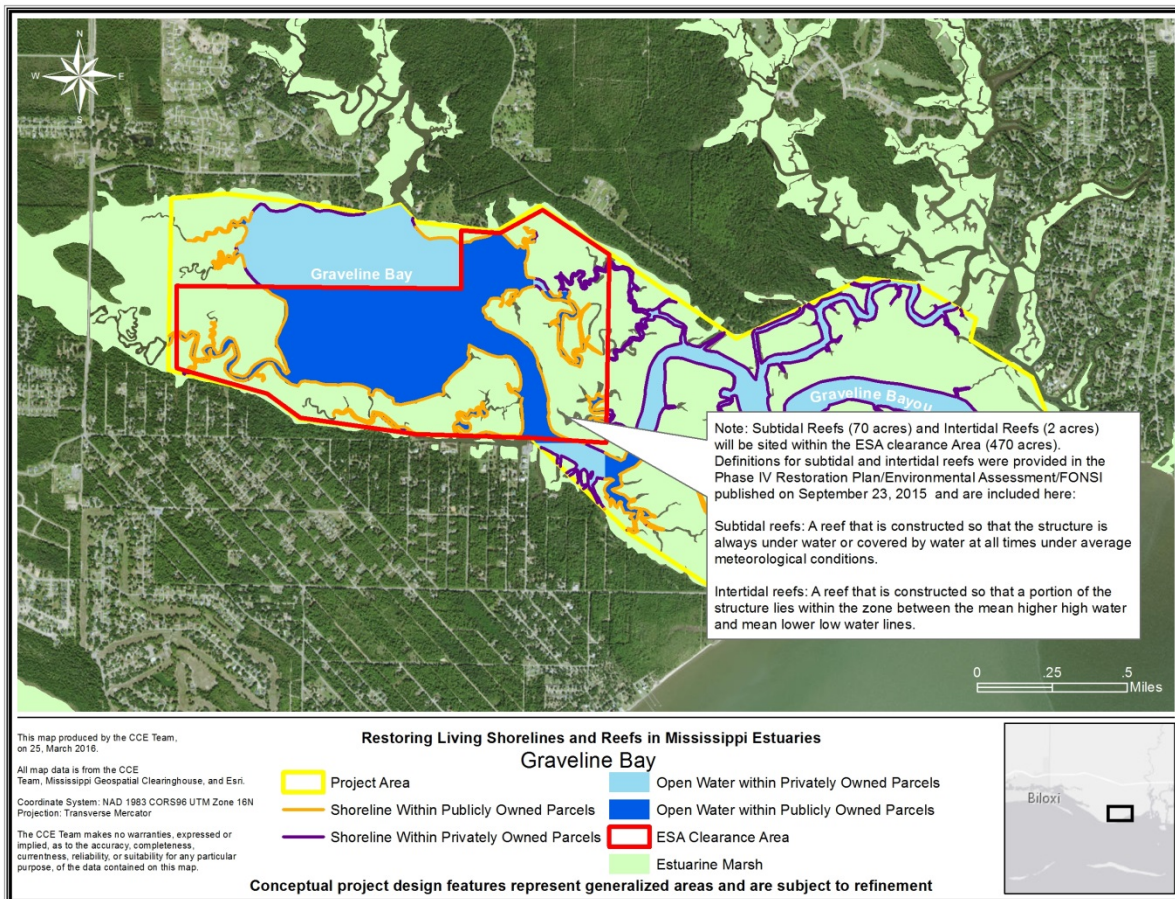


Figure 4. Image from “Endangered Species Act Biological Evaluation Form for Graveline Bay Intertidal Reefs Project, MDEQ (2014). (Image is “Figure 3: Current Graveline Bay Intertidal Reef Component”)

Project 5. Grand Bay Subtidal Reefs

The proposed project includes the construction of up to 77 ac of subtidal reefs in Bangs Lake at the far western end of Grand Bay, east of the city of Pascagoula, MS. The approximate site

locations for the reefs are depicted in Figure 5, below. Substrates in the proposed subtidal reef habitat areas are unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at depths of no greater than 10 ft below MLLW. A total of approximately 77 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. Large SAV beds exist in the Grand Bay estuary and are monitored by the Grand Bay NERR staff at various locations annually. The last mapping effort took place in 2010, when a total of 530 ac were documented. No SAV beds have been mapped in Bang's Lake and none are expected to be impacted at this time; the closest mapped SAV beds are located over 1 mile east of Bang's Lake. The entire construction project is expected to take 4 months.

Project 6. Grand Bay Intertidal Reefs

The proposed project includes the construction of up to 3 ac of subtidal reefs at several locations in Bangs Lake at the far western end of Grand Bay, east of the city of Pascagoula, MS. The approximate site locations for the reefs are depicted in Figure 5, below. Substrates in the proposed intertidal reef habitat areas are unconsolidated soft bottom (sand, muddy sand and mud bottom) in shallow water at depths of no greater than 6 ft below MLLW. A total of approximately 3 ac of soft bottom habitat would be covered with hard structure. Large SAV beds exist in the Grand Bay estuary and are monitored by the Grand Bay NERR staff at various locations annually. The last mapping effort took place in 2010, when a total of 530 ac of SAV were documented. No SAV beds have been mapped in Bang's Lake, and none are expected to be impacted at this time; the closest mapped SAV beds are located over 1 mile east of Bang's Lake. The entire construction project is expected to take 4 months.

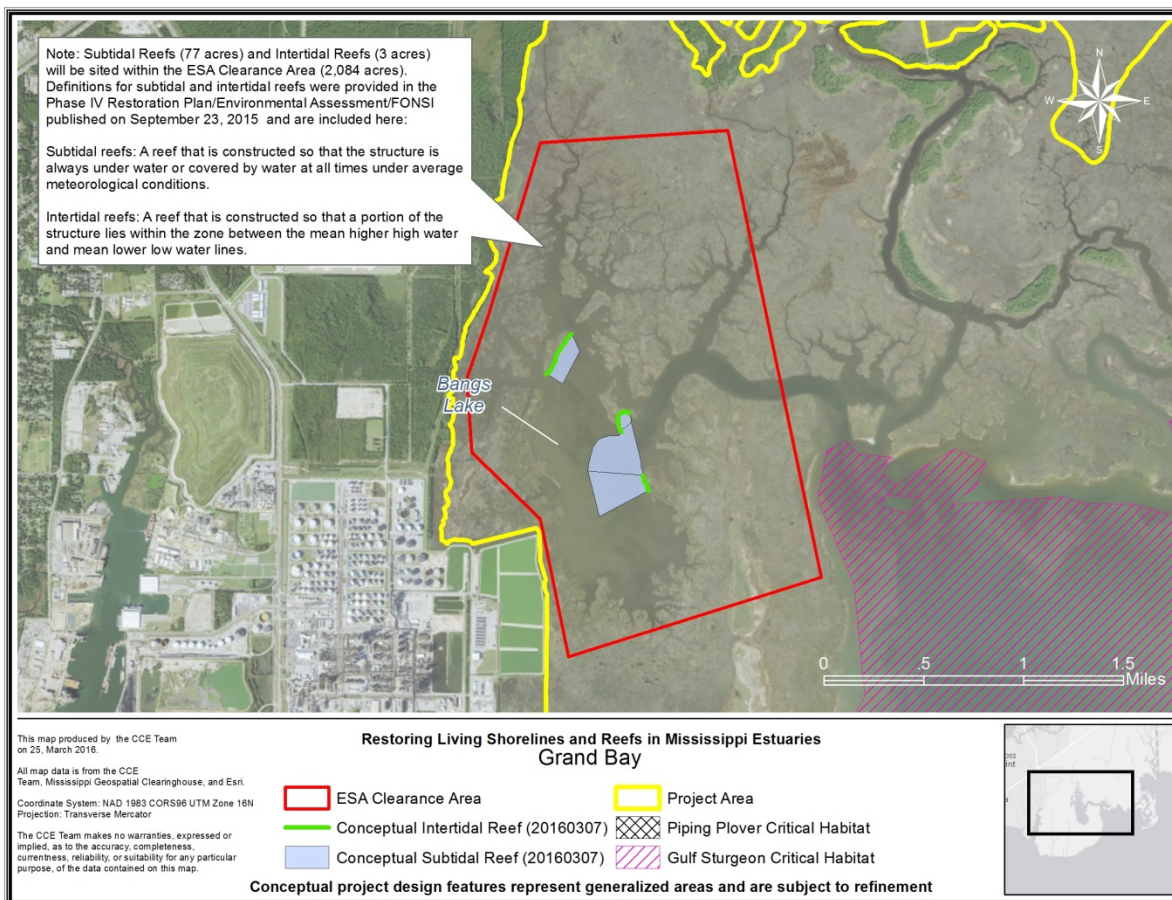


Figure 5. Image from “Endangered Species Act Biological Evaluation Form for Grand Bay Intertidal Reefs Project, MDEQ (2014). (Image is “Figure 4. Current Grand Bay Intertidal Reef Components not within Gulf Sturgeon Critical Habitat”)

Project 7. Back Bay Little Island Living Shoreline

The Little Island Living Shoreline project includes construction of approximately 2,316 lin ft of breakwater along the southern facing shoreline of Little Island, north of the city of Biloxi, MS. The approximate location of the breakwater is depicted in Figure 6. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 14. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance, and as necessary, a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 8 months.

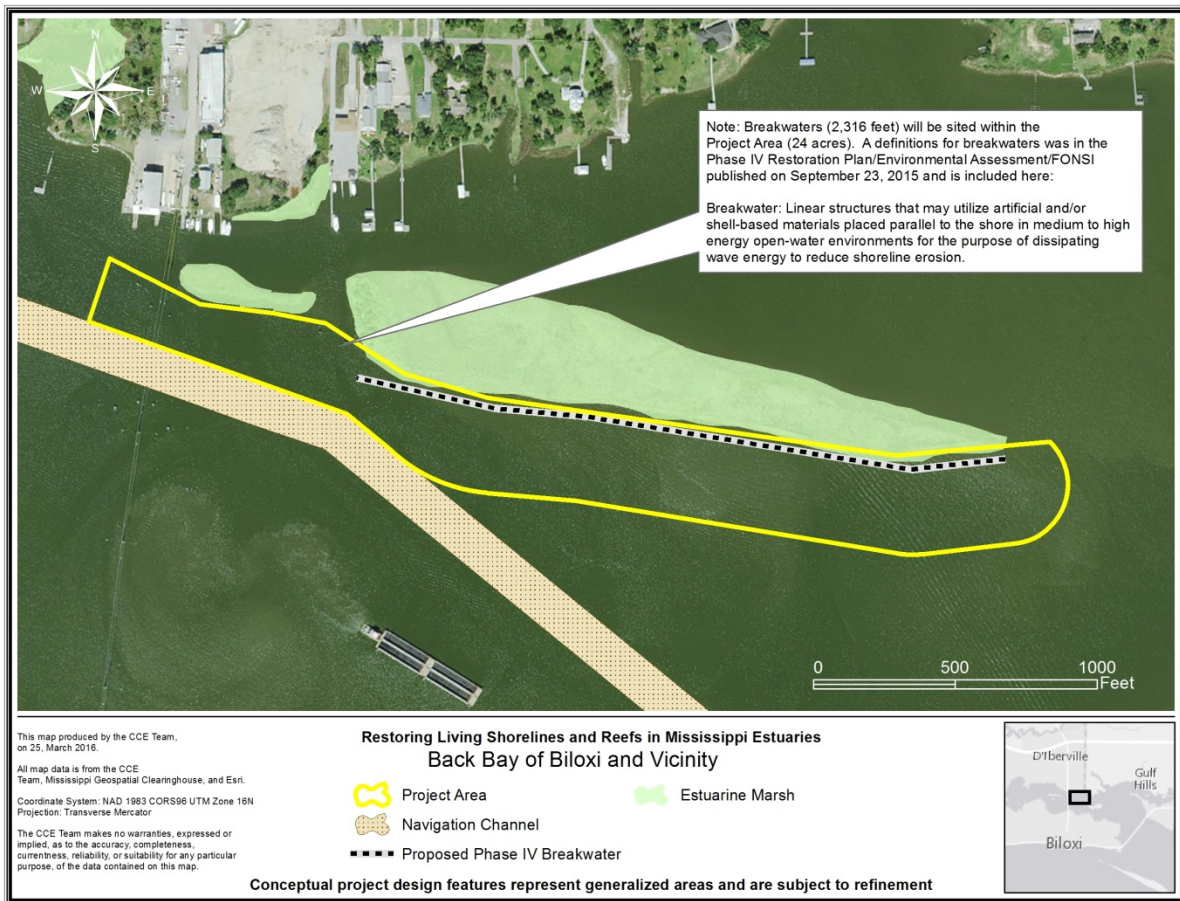


Figure 6. Image from “Endangered Species Act Biological Evaluation Form for Little Island Living Shoreline Project, MDEQ (2014). (Image is “Figure 3: Current Little Island Living Shoreline Project Component”)

Project 8. Back Bay Deer Island Subtidal Reef

The Deer Island Subtidal Reef project would expand an existing MDEQ reef project to create approximately 20 ac of additional subtidal reef habitat north of Deer Island and southeast of the city of Biloxi, MS. The project area falls within Unit 8 of Gulf sturgeon critical habitat (68 FR 13370 2003). The approximate location for the subtidal reef is depicted in Figure 7, below. The substrate at the project site is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at a depth no greater than 3 ft below MLLW. A total of approximately 20 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. The entire construction period is expected to last 1-5 months, and in-water work is expected to be completed in spring and summer months.

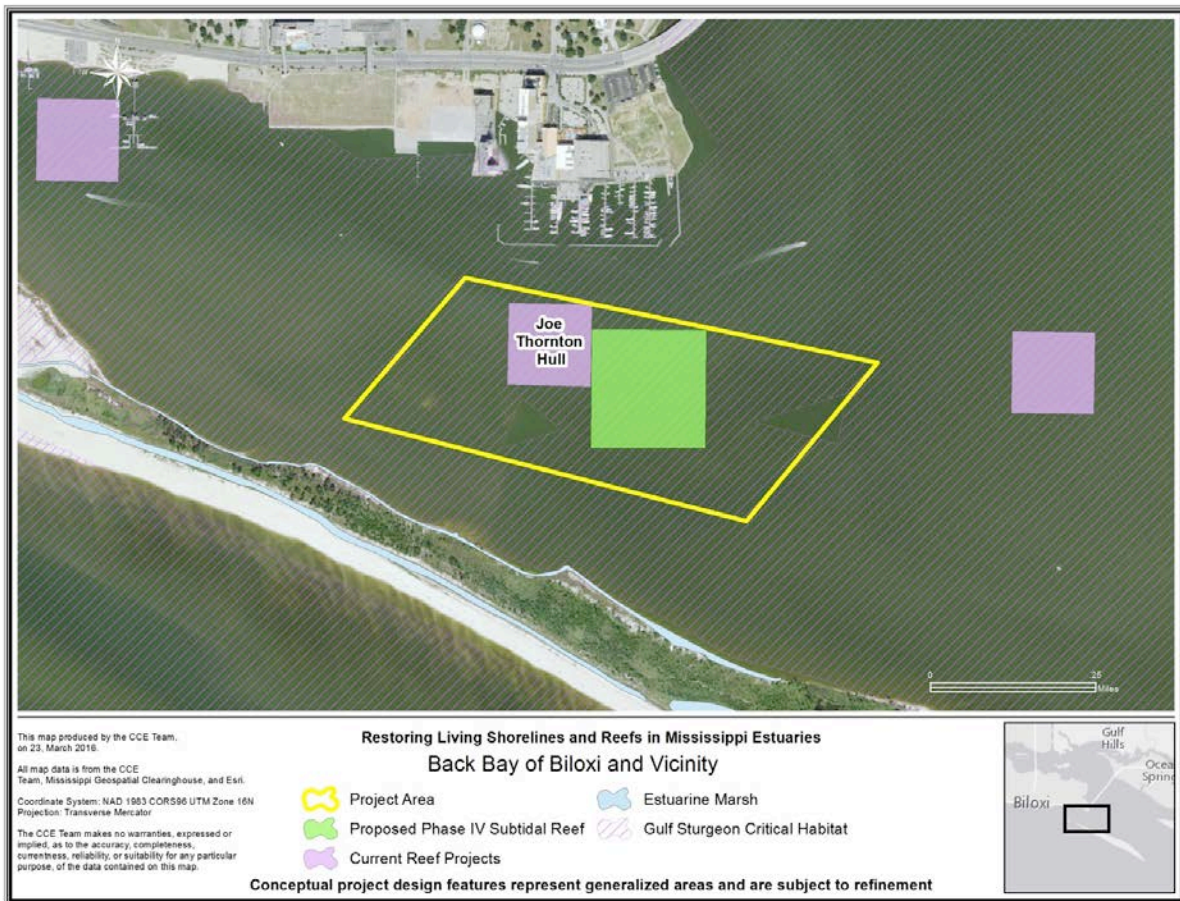


Figure 7. Image from “Endangered Species Act Biological Evaluation Form for Deer Island Subtidal Reef Project, MDEQ (2014). (Image is “Figure 3: Current Deer Island Subtidal Reef Project Component”)

Project 9. Back Bay Channel Island Living Shoreline and Subtidal Reef

The Channel Island Living Shoreline and Subtidal Reefs project includes construction of approximately 2,385 ft of breakwater along the shoreline, along with approximately 70 ac of subtidal reef habitat which would connect the breakwater structure to an existing subtidal reef on the north and south sides of Channel Island in the Back Bay of Biloxi, northeast of the city of Biloxi, MS. The approximate site locations for the breakwater and subtidal reefs are depicted in Figure 8, below. The substrate at the project site is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat and the subtidal reef would cover a total of approximately 70 ac of soft bottom and remnant reef habitat with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 14. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum

day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 8 months.

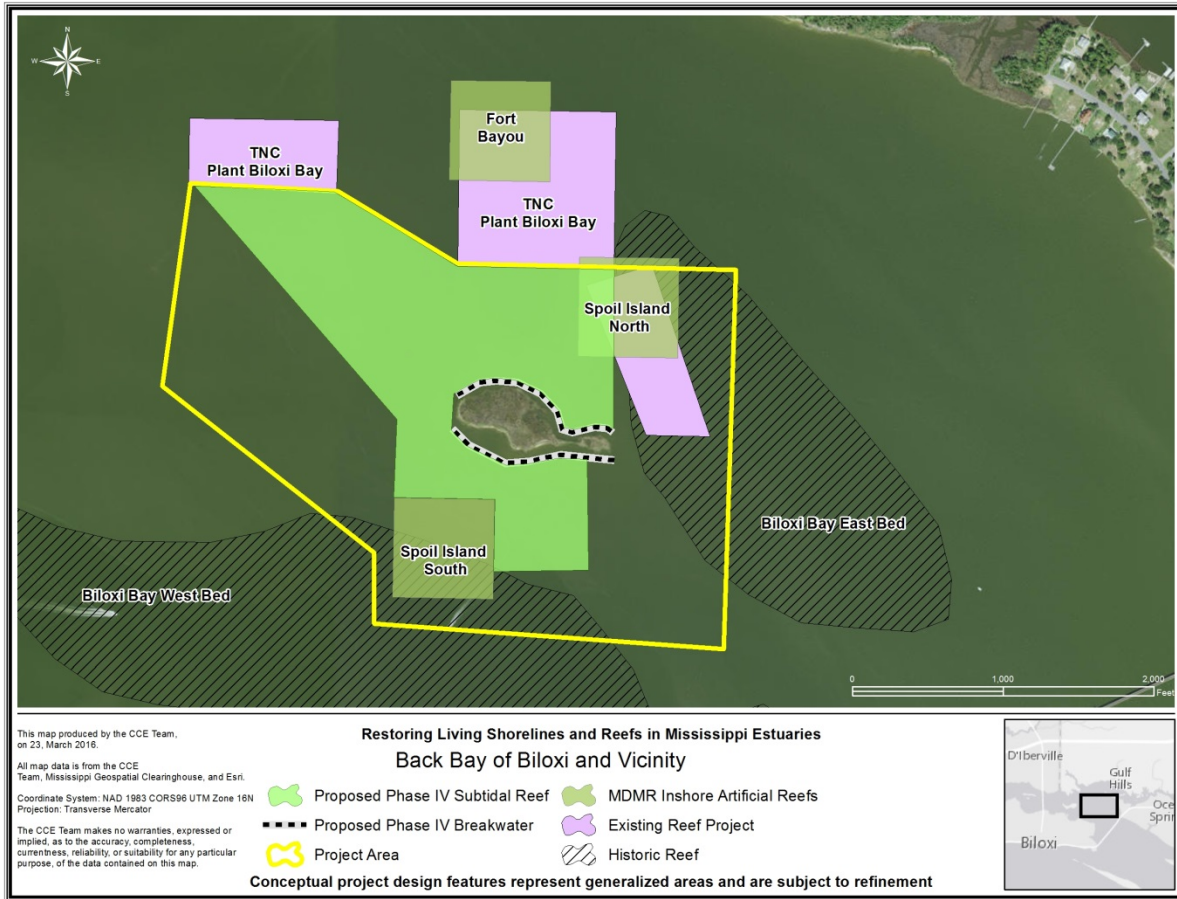


Figure 8. Image from “Endangered Species Act Biological Evaluation Form for Channel Island Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is “Figure 3: Current Channel Island Living Shoreline and Subtidal Reef Project Component”)

Project 10. Back Bay Big Island Living Shoreline

The Big Island Living Shoreline project includes construction of approximately 5,011 lin ft of breakwater along the southern facing shoreline of Big Island in the Back Bay of Biloxi, northeast of the city of Biloxi, MS. The approximate site location for the breakwater is depicted in Figure 9, below. The substrate at the project site is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat (sand, muddy sand, and mud bottom). The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 27. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum

day board sign and lighted beacon. The piles would be driven by hand to resistance, and as necessary, a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 12 months.



Figure 9. Image from “Endangered Species Act Biological Evaluation Form for Big Island Living Shoreline Project, MDEQ (2014). (Image is “Figure 3: Current Big Island Living Shoreline Project Component”)

General Descriptions of Project Components

Breakwaters: The breakwater dimensions presented in Table 1 (below) represent the maximum proposed footprint that would be impacted by placement of the structures for each project. Any adjustments during final design would not exceed the parameters in Table 1. Construction would take place within the maximum bottom width identified in Table 1. The alignment and limits of the breakwaters would be sited within the project study area shown in the figures for each project. Navigation signs may be required by the USCG Private Aids to Navigation Office. The numbers of navigation signs, if required, are estimated in Table 1 below.

The breakwaters would be constructed using approved manufactured and/or natural materials (quarried rock, coir logs, Reef Balls or similar products). The materials would be stockpiled at an existing, previously developed staging area (such as a parking lot) near the project area, which has water access. Mechanical equipment would be utilized to load the materials onto a material

handling barge. The materials would be transported to the work area to be deployed by a crane and/or long-armed trackhoe located on an equipment barge. Placement of the breakwater structure would be monitored to ensure the breakwater dimensions, slopes, and crest elevations are achieved. Design and materials used will not create an entanglement or entrapment risk to ESA species or block migration.

Table 1. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Preliminary Design Parameters and Construction Techniques for Breakwater Structures

Project Component	Maximum Structure Width (ft)	Maximum Structure Length (ft)	Maximum Footprint (acres)	Navigation Signs (each)*	Estimated in-water Construction Time (months)
Wolf River Living Shoreline	30	1,388	1.3	0 to 9	6
St. Louis Bay Living Shoreline	40	10,812	9.9	0 to 56	12
Little Island Living Shoreline	30	2,316	1.6	0 to 14	8
Channel Island Living Shoreline	30	2,385	1.6	0 to 14	8
Big Island Living Shoreline	30	5,011	3.5	0 to 27	12

* Represents preliminary estimate of number of signs; consultation with the U.S. Coast Guard Private Aids to Navigation Division would be coordinated to determine the required type and spacing of navigation signs.

Subtidal Reef Habitat: The subtidal reef habitat would be constructed using material appropriate for development of living oyster reefs (limestone, crushed concrete, oyster shells or a combination thereof). These cultch materials would be stockpiled at an existing upland staging area, which has water access to the project area. The cultch materials would be inspected at the existing staging area prior to being loaded onto a barge to ensure the materials are clean and free of all debris. Mechanical equipment would be utilized to load the materials onto shallow draft barges or shallow draft self-powered marine vessels. The material would be deployed using a high-pressure water jet or using a clam shell bucket mounted on a crane or a long-armed trackhoe located on a separate equipment barge. The cultch material would be deployed in water depths ranging from 0 to -10 MLLW. The cultch material thickness would range from approximately 1-12 in.

Table 2. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Subtidal Reef Habitat

Project Component	Subtidal Reef Habitat Area (acres)	Volume of proposed reef material (cubic yards)	Estimated Construction Time (months)
Wolf River Subtidal Reef	30	24,210	2
The Graveline Bay Subtidal Reefs	70	56,490	4

Grand Bay Subtidal Reefs	77	62,139	4
Deer Island Subtidal Reef	20	16,140	5
Channel Island Subtidal Reef	70	24,210	8

Intertidal Reef Habitat

Intertidal reef habitat would be constructed using loose or bagged oyster shells. Oyster shells would be bagged and stockpiled at an existing upland staging area which has water access to the project area. The bagged oyster shells would be loaded by hand onto shallow draft marine vessels. The shallow draft vessels would transport the bagged oyster shells to the project location where they would be unloaded and placed by hand from the vessel. The intertidal reef habitat would be constructed along the water’s edge between MLLW and mean higher high waterMHHW. Tide surveys would be conducted prior to beginning construction and PVC poles would be pushed in the ground to mark the high- and low-tide elevations. To the extent practicable, intertidal reef would be sited where there is existing adjacent or historic intertidal reef habitat. Existing staging areas will be used which are not located in habitats used by listed or at-risk species. No new access to staging areas will be necessary.

Table 3. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Intertidal Reef Habitat

Project Component	Intertidal Reef Habitat Area (acres)	Estimated Construction Time (months)
The Graveline Bay Intertidal Reefs	2	4
Grand Bay Intertidal Reefs	3	4

Post-Construction Monitoring

All 10 projects include standard post-construction monitoring. The basic parameters to be monitored include:

- Structural integrity of breakwaters and reefs
- As-designed height/elevation and area of breakwaters and reefs
- Infauna and epifauna species composition, density, and biomass on breakwaters and reefs
- Water temperature, salinity, and dissolved oxygen in project areas

In addition, breakwater projects will include post-construction monitoring of:

- Shoreline profile/elevation
- Marsh edge position

These monitoring activities will be conducted on foot and/or from small water craft. Monitoring will occur infrequently (once per year to once every 5 years). No heavy equipment or hazardous materials will be utilized in monitoring activities. Many of the monitoring plans include “corrective actions” to be implemented if the monitoring shows that the new structures are not meeting specific performance criterion. These corrective measures include “add structural material to existing structure or construct new structures in a more suitable location(s).” Due to

the absence of information on how, when, and where such activities might be undertaken, it is impossible to analyze the potential effects of these corrective actions at this time. Therefore, this consultation does not cover any such corrective actions. If the action agency determines that corrective actions are necessary, and that those actions may affect listed species or designated critical habitat, the action agency will need to initiate a new consultation process once sufficient detail has been developed to allow an analysis of the potential effects of the corrective actions.

Conservation Measures and Best Management Practices (BMPs)

The following conservation measures and BMPs will be implemented during all construction projects:

- Material used for construction will not contain trash, debris, or toxic pollutants.
- All vessels/barges will travel at slow speed in and around construction zones (5 knots or less).
- SAVs and living oysters would be avoided to the extent practicable.
- All in-water construction activities will comply with NMFS’s *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS March 23, 2006).

All in-water project work will be conducted during daylight hours, and noise will be kept to the minimum feasible level.

- Project components will not impede migratory paths. Design and materials used will not create an entanglement or entrapment risk to ESA species or block migration. Completed projects will not impede ingress, egress, or migration of ESA species between shoreline and open water.
- Project work will be scheduled for the spring and summer months when sturgeon are not expected in saline environments. For those projects that require work to continue outside of the May-to-October window, continued adherence to the *Sea Turtle and Smalltooth Sawfish Construction Conditions* will help to reduce the potential for impacts to Gulf sturgeon.
- Prior to bringing any equipment (including personal gear, machinery, vehicles or vessels) to the work site, each item shall be inspected for mud or soil, seeds, and vegetation. If present, the equipment, vehicles, or personal gear shall be cleaned until they are free from mud, soil, seeds, and vegetation. This inspection will occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.

Table 4. Effects Determinations for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
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Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North and South Atlantic distinct population segment [DPS])	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Loggerhead (Northwest Atlantic Ocean DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Gulf sturgeon (Atlantic sturgeon, Gulf subspecies)	T	NLAA	NLAA
E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect			

Critical Habitat

Nine of the projects are not located in critical habitat and no routes of effect to critical habitat are anticipated. One of the proposed projects (Back Bay Deer Island Subtidal Reef Project) is located in Unit 8 of Gulf sturgeon critical habitat. There are 4 essential features within Unit 8: abundant prey items, water quality, sediment quality, and safe, unobstructed migratory pathways. The proposed project has the potential to affect any or all of these essential features.

Analysis of Potential Routes of Effects to Species

NMFS has identified the following potential effects to sea turtles and Gulf sturgeon from the proposed projects and concluded that these species are not likely to be adversely affected.

Routes of Effects for Living Shoreline Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by the materials placed into the water to form the breakwaters or by the heavy equipment placing those materials (bucket/arm of crane or backhoe). We believe this adverse effect is discountable because these species are highly mobile and are expected to exhibit avoidance behavior by moving away from any heavy equipment operating in the marine environment. The action agency's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for listed species. Operation of any mechanical construction equipment will cease immediately if a sea turtle or Gulf sturgeon is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.
2. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites renders the possibility of injury due to a vessel strike discountable.

3. Sea turtles and Gulf sturgeon may be temporarily unable to use the project sites for forage and shelter habitat due to avoidance of construction activities including placement of materials and related turbidity and noise. However, we believe any potential effects are insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.
4. Effects to sea turtles and Gulf sturgeon as a result of noise created by construction activities can physically injure these animals or change their behavior in the affected areas. Injurious effects can occur in 2 ways. First, effects can result from a single noise event's exceeding the threshold for direct physical injury to animals, and these constitute an immediate adverse effect on these animals. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse if such effects prevent animals from migrating, feeding, resting, or reproducing, for example. None of the proposed construction activities including the installation of 12-in wood signposts by vibratory hammer are expected to generate noise levels sufficient to cause peak-pressure injury to sea turtles or Gulf sturgeon, nor would they produce daily cumulative sound exposure levels over the course of a day sufficient to cause injury to these species.

Noise from signpost installation could potentially cause behavioral effects for sea turtles and Gulf sturgeon. Due to the mobility of these species, we expect them to move away from noise disturbances. Because there is an abundance similar habitat throughout the surrounding area, we believe behavioral effects will be insignificant, as they would not prevent animals from migrating, feeding, resting, or reproducing.

5. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Routs of Effects for Subtidal Reef Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by the materials placed to form the subtidal reefs or by the heavy equipment placing those materials (bucket/arm of crane or backhoe). We believe this adverse effect is discountable because these species are highly mobile and are expected to exhibit avoidance behavior by moving away from any heavy equipment operating in the marine environment. The action agency's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for listed species. Operation of any mechanical construction equipment will cease immediately if a sea turtle or Gulf

sturgeon is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.

2. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites, the risk of adverse effects from vessel strikes is discountable.
3. Construction activities including placement of materials and related turbidity and noise may temporarily impede foraging and sheltering activities by sea turtles and Gulf sturgeon in and around the project sites, and may force these species to temporarily avoid the project sites all together. However, we believe any potential effects would be insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.
4. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Roots of Effects for Intertidal Reef Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites, the risk of adverse effects from vessel strikes is discountable.
2. Construction activities including placement of materials and related turbidity and noise may temporarily impede foraging and sheltering activities by sea turtles and Gulf sturgeon in and around the project sites, and may force these species to temporarily avoid the project sites all together. However, we believe any potential effects would be insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.
3. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a

possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Routs of Effects for Post-Construction Monitoring

1. Sea turtles and Gulf sturgeon may be injured if struck by vessels conducting post-construction monitoring. Due to the species' mobility and the requirement for all monitoring vessels to maintain slow transit speeds (5 knots or less) to and from (and within) the monitoring sites, the risk of adverse effects from vessel strikes is discountable.

Analysis of Potential Routes of Effects to Critical habitat

The Back Bay Deer Island Subtidal Reef Project is the only project that has the potential to affect designated critical habitat. The project involves creation of approximately 20 ac of subtidal reef in Unit 8 of Gulf sturgeon critical habitat, in an area with a water depth no greater than 3 ft below MLLW. The essential features that may be affected are described below.

Abundant prey items

Impacts to benthic prey species from placement of cultch material may occur in the footprint of the project area where individuals could be covered or displaced by the reef. Due to the relatively small area to be altered by this project and the ability of prey species to move out of the affected area, any effect that the proposed project may have on this essential feature would be insignificant. It should also be noted that the proposed reef is designed to restore secondary productivity. Over time, the cultch material would develop into a living reef that supports benthic secondary productivity, including, but not limited to, bivalve mollusks, annelid worms, shrimp, and crabs.

Water quality

Placement of cultch material will likely cause increased turbidity in and around the area of activity. However, the action area is naturally turbid and any increases in turbidity would be temporary and localized as disturbed sediments would settle out (likely within 1-2 days following completion of reef construction). Therefore, any effect that the proposed project may have on this essential feature would be insignificant.

Sediment quality

The creation of subtidal the reef will cover the sediments in the footprint of the activity; these sediments will no longer be accessible to Gulf sturgeon. Again, the affected area (20 ac) is a tiny fraction of the overall habitat available in Unit 8 (approximate area of critical habitat in Unit 8 is 881,231 ac). Therefore, any effect that the proposed project may have on this essential feature would be insignificant.

Safe and unobstructed migratory pathways

Subtidal reefs constructed within migratory pathways, particularly near the mouths of spawning rivers could hinder migration within and between freshwater spawning habitat and

marine/estuarine foraging habitat. The proposed project would be constructed in an area of extremely shallow water and would not block any channels or river mouths that might act as migratory pathways. Therefore, the potential for the project to adversely affect this essential feature is discountable.

Cumulative effects of the DWH Early Restoration Program

NMFS has also considered the effects of this project in conjunction with the effects associated with the Phase I and Phase III projects that involve construction activities and that have previously undergone Section 7 consultations.¹ NMFS concludes there are no additive effects of the overall projects that rise above the level of effects considered for each of the individual projects. The potential impacts to listed species from construction activities are limited in time and place, and they cease to exist once the projects are complete.

Conclusion

Because all potential project effects to listed species were found to be discountable or insignificant, we conclude that the proposed action is not likely to adversely affect listed species under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We've enclosed additional relevant information for your review. We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions about this consultation, please contact Mike Tucker, Consultation Biologist, at (727) 209-5981, or by email at michael.tucker@noaa.gov.

Literature Cited

Cho, H.J.; Biber, Patrick; Poirrier, Michael; and Graner, James. 2010. Aquatic Plants of Mississippi Coastal River Systems. *Journal of the Mississippi Academy of Sciences*. Volume 55, Number 4. October.

Attachments:

1. *Sea Turtle and Smalltooth Sawfish Construction Conditions* (Revised March 23, 2006)
2. *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised March 10, 2015)

File: 1514-22C.

¹ All of the early restoration projects that have previously undergone Section 7 consultations are described below in "*Background: Deepwater Horizon Oil Spill Early Restoration*"

Background: Deepwater Horizon Oil Spill Early Restoration

Under the Oil Pollution Act, designated agencies of the federal government and affected state governments act as trustees on behalf of the public. The Trustees are charged with recovering damages from the responsible parties to restore the public's natural resources that sustained injuries. NOAA shares trusteeship with the other natural resource trustees over all of the resources that will benefit from these restoration actions. The Trustees developed the Early Restoration selection process to be responsive to the purpose and need for conducting Early Restoration. Early Restoration project selection is a process requiring several steps: (1) project solicitation, (2) project screening, (3) negotiation with BP, and (4) public review and comment.

The Trustees released a Phase I Early Restoration Plan (ERP) in April 2012, a Phase II ERP in December 2012, a draft Phase III ERP on May 6, 2013, and a final Phase III Plan on June 26, 2014. On February 17, 2015, the Trustees released a Phase IV ERP. These plans contain a series of restoration actions that may be selected independently by the Trustees. NMFS PRD has previously completed consultations on the Phase I ERP projects and 39 of the projects included in the Phase III ERP.² To date, NMFS PRD completed 2 consultations on 4 individual projects included in Phase IV (3 living shoreline projects were batched together under a single consultation as described below).

The Phase I ERP consists of 8 projects that address an array of injuries and are located throughout the Gulf of Mexico (GOM) (see Appendix 1). Specifically, Phase I includes 2 oyster projects (1 in Louisiana and 1 in Mississippi), 2 marsh projects (1 in Louisiana and 1 in Alabama), a nearshore artificial reef project in Mississippi, and 2 dune projects and a boat ramp enhancement project in Florida. Consultation on the Phase I projects was completed on April 2, 2012. NMFS PRD determined that 1 of the marsh projects and both dune projects would have no effect on listed species and that the other projects are not likely to adversely affect listed species or designated critical habitat under NMFS PRD's purview. NMFS PRD evaluated potential impacts on listed species (5 species of sea turtles, Gulf sturgeon, and smalltooth sawfish) from placement of material, site exclusion, and dredging. It determined that these effects will be discountable or insignificant because of the species' mobility and ability to find suitable habitat for foraging in the surrounding areas. NMFS PRD also evaluated potential impacts to sea turtles and Gulf sturgeon from fishing activities associated with the artificial reef project. It determined that the effects are discountable because the enhancement of the existing artificial reefs is not expected to induce new fishing effort or increase the risk of harmful interactions between recreational fishers and listed species. The boat ramp project will enhance 2 existing boat ramps and create 2 new public boat ramps that will allow the launch of an additional 92 vessels. The purpose of these projects is to relieve traffic and congestion at other boat ramps in the area. NMFS PRD determined that any increase in vessel strike risk to sea turtles is discountable because the new boat ramps are likely to be used by people who currently have vessels. A previous NMFS PRD analysis concluded that a typical dock or marina project in Florida that introduces fewer than 300 new vessels to an area will have an insignificant or discountable effect on sea turtles.³

² None of the Phase II ERP projects involved in-water work and, therefore, NMFS PRD did not receive a request for Section 7 consultation.

³ Barnette, M. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. NMFS SERO PRD Memorandum. April 18, 2013.

Three of the Phase I projects (1 boat ramp, 1 oyster project, and the nearshore artificial reef project) are located in Gulf sturgeon critical habitat. The boat ramp is located in Unit 9, while the oyster and artificial reef projects are located in Unit 8. NMFS PRD determined that the boat ramp project is not likely to adversely affect Gulf sturgeon critical habitat in Unit 9 because the construction will occur in the same footprint and will be the same dimensions as the existing boat ramp. Any increases in suspended sediments in the water column (i.e., turbidity) are expected to be localized, temporary, and insignificant, and the texture and quality of the sediments and its ability to support prey items are expected to be the same pre- and post-project. NMFS PRD similarly concluded that the oyster project and artificial reef project will not adversely affect Gulf sturgeon critical habitat in Unit 8 because the placement of clean, toxin-free material will not alter the water or sediment quality. Also, the addition of this material to existing hard bottom will not alter prey availability.

NMFS PRD completed 20 consultations on 35 individual projects out of a total of 39 projects⁴ included in Phase III (see Appendix 2). These projects are:

- 4 artificial reef projects (3 in Texas and 1 in Florida)
- 2 oyster projects (1 in Florida and 1 in Alabama)
- 4 living shoreline projects (1 in Alabama, 1 in Mississippi, and 2 in Florida)
- 10 Florida boat ramp/dock projects
- 1 Florida scallop-enhancement project
- 1 Florida beach-enhancement project
- 1 Louisiana-North Breton Island restoration project
- 1 Mississippi fishing pier project
- 2 Florida observation/canoe launch dock projects
- 1 Florida erosion-control project
- 1 Florida small fishing pier project
- 1 Florida oyster reef and salt marsh-enhancement project
- 1 Florida fish hatchery project
- 1 Florida-St. George Island bulkhead improvements project
- 1 Texas ship artificial reef
- 1 Florida Mexico Beach marina project
- 1 Florida Gulf Island National Seashore ferry service project
- 1 Louisiana outer coast restoration-Chenier Ronquille barrier island project

As with the Phase I projects, NMFS PRD evaluated potential impacts on listed species (5 species of sea turtles and Gulf sturgeon) from placement of material, site exclusion, and dredging, and determined that these effects will be discountable or insignificant because of the species' mobility and ability to find suitable habitat for foraging in the surrounding areas. NMFS PRD also evaluated the impacts of noise created from construction, where applicable, and determined that the risk of short- or long-term exposure to harmful noise is discountable, and any sound heard by the ESA-listed species will have insignificant health effects. NMFS PRD determined that the potential impacts to sea turtles and Gulf sturgeon from fishing activities associated with

⁴ Five additional restoration projects were included on September 12, 2014.

the 4 artificial reef projects are discountable because the enhancement of the existing artificial reefs is not expected to produce new fishing effort. NMFS PRD also determined that the risk of vessel strike impacts to turtles from future use of the artificial reef sites is discountable because use of the site will generally coincide with fair weather patterns and calm sea states that will allow boaters to detect and avoid any sea turtles in their path. Subsequently, in the consultation on the Texas ship artificial reef, NMFS PRD recognized that the effects of recreational fishing for reef fish and reef fish vessels on sea turtles were analyzed in NMFS's GOM Reef Fish Fishery Biological Opinion dated September 30, 2011. NMFS PRD concluded that because the artificial reef would not result in any net increase in fishing activities and would not result in any measurable change in the Gulf-wide distribution of fishing effort or the distribution of turtles, the Texas ship artificial reef project would not result in any fishing or vessel impacts beyond those described in the 2011 Biological Opinion.

There were 16 of the Phase III projects located in Gulf sturgeon critical habitat:

- 3 living shoreline projects
- 1 Florida artificial reef project
- 1 Florida fish hatchery
- 3 Florida boat ramp projects
- 1 Florida beach-enhancement project
- 2 Florida oyster reef projects
- 1 scallop-enhancement project
- 1 erosion-control project
- 2 observation/canoe launch docks
- 1 Florida St. George Island bulkhead improvements project

The living shoreline projects are located in Units 8, 9, and 13. The Florida fish hatchery is located in Unit 9. The boat ramp projects are located in Units 9 and 13. The beach enhancement project is located in Unit 11. The oyster projects are located in Units 9 and 13. The scallop enhancement project is located in Units 9, 10, 12, and 13. The erosion control project is located in Unit 12, the observation/canoe launch dock projects are in Units 10 and 12, and the St. George Island bulkhead improvements project is located in Unit 13.

NMFS PRD determined that the scallop-enhancement project and Florida fish hatchery project will have no effect on Gulf sturgeon critical habitat and that the other projects are not likely to adversely affect the essential features of Gulf sturgeon critical habitat (water quality, sediment quality, prey abundance, and safe and unobstructed migratory pathways). The oyster reef projects will place clean, non-toxic material over existing hard bottom, which will make any impacts to water quality, sediment quality, or prey abundance discountable. The beach-enhancement project will improve sediment quality and effects to prey abundance, water quality and migratory pathways will be insignificant because the work will take place in shallower water than normal foraging depths. Any increased turbidity will be temporary and within natural background levels and sand placement in the shallow waters along the beach will not interfere with migration. The Florida artificial reef project will have no effect on the sediment quality. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in

the areas surrounding the modules. Any impacts to migratory pathways will be discountable because the reef structures are in open water and spaced out sufficiently for Gulf sturgeon to move. The installation of the 8-in-diameter seawater intake pipe for the fish hatchery project will have no effect on sediment quality. The effects to water quality and prey abundance will be insignificant because the turbidity will be temporary, within natural background levels, and will not reduce prey availability in the areas surrounding the pipe.

Similarly, the boat ramp and dock projects will have no effect on sediment quality. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in the areas surrounding the ramps or docks. The erosion-control structure project will have no effects on sediment quality as the composition of the dredge materials to be placed behind the groins are expected to be similar or identical to what is currently present. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in the areas surrounding the modules. The living shoreline projects may temporarily increase turbidity and displace some prey species, but we expect these impacts to be insignificant. With respect to prey abundance, the living shoreline projects are expected to have long-term beneficial impacts by increasing prey abundance in adjacent areas. The St. George Island bulkhead improvements project may affect water and sediment quality from construction activities, but effects will be short-lived and localized. Similarly, any impacts to prey abundance will be localized but are not expected to reduce overall prey abundance in the project area or critical habitat unit.

Only 4 projects of the Phase III projects (3 Texas artificial reefs and 1 ship artificial reef project) are located in loggerhead critical habitat LOGG-S-02-Gulf of Mexico (*Sargassum*). NMFS PRD determined that none of the project actions would affect the location of convergence zones, surface-water downwelling areas, or other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for optimal growth of *Sargassum* and inhabitation of loggerheads. None of the 4 artificial reef project actions would adversely affect the availability of prey for hatchling loggerhead sea turtles or other material associated with *Sargassum* habitat. Neither will they affect the water depth or proximity to currents necessary for offshore transport, foraging, and cover. While the vessels associated with these projects may transit through *Sargassum* habitats, those vessel tracks are not anticipated to scatter *Sargassum* mats to the point of appreciably affecting the functionality of the primary constituent elements (PCEs). Therefore, any adverse effects to the PCEs of *Sargassum* habitat will be insignificant.

NMFS PRD evaluated potential impacts from Phase IV Pelagic Longline (PLL) Bycatch Reduction project on ESA-listed species (5 species of sea turtles and marine mammals) and determined that these effects from the proposed action will be completely beneficial. The PLL Bycatch Reduction project promotes both the cessation of PLL fishing and the use of greenstick gear and buoy gear in a fishery that currently allows the use of this gear as authorized by the HMS FMP. Reducing PLL fishing and increasing the use of the authorized greenstick gear and buoy gear will reduce the extent of the adverse effects to ESA-listed sea turtles and marine mammals that are anticipated from the continued harvest of PLL species. With respect to ESA-listed corals, NMFS PRD had previously determined that both green-stick and buoy gear do not come into contact with the ocean floor or any benthic habitats; thus, they are anticipated to have

no effect on listed corals. With regard to scalloped hammerhead sharks, the distribution and range of the threatened Central and Southwest Atlantic DPS of scalloped hammerhead shark does not overlap the PLL Bycatch Reduction Project area in the GOM. Therefore, the proposed action will not affect the Central and Southwest Atlantic DPS of the scalloped hammerhead shark.

The PLL Bycatch Reduction project is also located in loggerhead critical habitat LOGG-S-02-Gulf of Mexico (*Sargassum*). NMFS PRD determined that none of the project activities would affect the location of convergence zones, surface-water downwelling areas, or other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for optimal growth of *Sargassum* and inhabitation of loggerheads. The project activities would not affect the availability of prey for hatchling loggerhead sea turtles or other material associated with *Sargassum* habitat. They will not affect the water depth or proximity to currents necessary for offshore transport, foraging and cover. To the extent PLL fishing vessels may impact the *Sargassum* habitat, the voluntary repose period in PLL fishing each year would reduce the impact, resulting in effects that are completely beneficial, and the increase in use of greenstick gear and buoy gear on these vessels would have no effect on the habitat. Thus, we conclude that the proposed action is not likely to adversely affect the *Sargassum* loggerhead critical habitat.

Finally, NMFS PRD evaluated potential impacts from 3 batched living shoreline projects submitted under Phase IV. All 3 projects are located in Portersville Bay, Mobile County, Alabama. None of the projects are located within, nor will they have any effects on critical habitat designated for species under NMFS' purview. The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below MLLW using a small trackhoe located on a shallow-draft barge or from shore using a wide-tracked long-arm trackhoe. NMFS PRD determined that potential effects from listed species being struck by construction materials, equipment or vessels were discountable and any effects from temporary increases in turbidity or displacement from the action area would be insignificant.

Appendix 1. Phase I Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P1-1	SER-2012-889	Louisiana Lake Hermitage Marsh Creation – NRDA Early Restoration Project	Project proposed involves the creation of marsh within the project footprint of the larger Lake Hermitage Marsh Creation Project. The primary goals of the project are the following: (1) to restore the eastern Lake Hermitage shoreline to reduce erosion and prevent breaching into the interior marsh, and (2) to re-create marsh in the open-water areas south and southeast of Lake Hermitage. The marsh creation project will substitute approximately 104 acres of created brackish marsh for approximately 5-6 acres (7,300 linear feet [lin ft]) of earthen terraces.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat. All activities associated with the Lake Hermitage Restoration project are outside the known range of Gulf sturgeon. Sea turtles are not likely to be at the dredge site in the Mississippi River, which is 70 miles from the Gulf of Mexico. Additionally, sea turtles are not likely to be at the marsh restoration site.
P1-2	SER-2012-889	Louisiana Oyster Cultch Project	Project involves (1) the placement of oyster cultch onto approximately 850 acres of public oyster seed grounds throughout coastal Louisiana, and (2) construction of an oyster hatchery facility that will produce supplemental larvae and seed. The project consists of placing oyster cultch material on public oyster seed grounds to produce seed- and sack-sized oysters to compensate the public for impacts to oyster areas exposed to oil, dispersant, and response activities.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat.
P1-3	SER-2012-889	Mississippi Oyster Cultch Restoration	Project consists of placing oyster cultch material on public oyster seed grounds in the footprint of existing oyster cultch areas to produce seed- and sack-sized oysters to compensate the public for impacts to oyster areas exposed to oil, dispersant, and response activities.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat.
P1-4	SER-2012-889	Mississippi Artificial Reef Habitat	Project includes the deployment of artificial reefs in bays and nearshore Mississippi Sound waters in and off of Hancock, Harrison, and Jackson Counties, Mississippi.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat.
P1-5	SER-2012-889	Mississippi Marsh Island (Portersville Bay) Marsh Creation	Project involves the addition 50 acres of salt marsh to the existing 24 acres along Marsh Island in the Portersville Bay portion of Mississippi Sound in south Mobile County, Alabama. This entails the construction of a permeable segmented breakwater, the placement of sediments, and the planting of native marsh vegetation.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P1-6	SER-2012-889	Alabama Dune Restoration Cooperative Project	Project will restore 55 acres of dune habitat by installing sand fencing and planting native dune vegetation in Orange Beach and Gulf Shores, Alabama.	The project will have no effect on listed species or designated critical habitat under NMFS PRD's jurisdiction. NMFS PRD does not believe there will be any direct or indirect effects to our listed species or designated critical habitat, as all activities will occur solely in upland areas.
P1-7	SER-2012-889	Florida Boat Ramp Enhancement and Construction Project	Project will entail repairing the existing Navy Point Park public boat ramp, located in a developed residential area in Pensacola Bay, and constructing the new Mahogany Mill public boat ramp that will be located in a commercial and industrial area in Pensacola Bay.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, smalltooth sawfish, or Gulf sturgeon critical habitat. The Navy Point project is not likely to adversely affect Gulf sturgeon critical habitat in Unit 9, Pensacola Bay. The remaining boat ramp projects are not located in designated critical habitat.
P1-8	SER-2012-889	Florida (Pensacola Beach) Dune Restoration	Native dune vegetation will be planted on the primary dune on Pensacola Beach in Escambia County, Florida.	This project will have no effect on listed species or designated critical habitat under NMFS PRD's jurisdiction. NMFS PRD does not believe there will be any direct or indirect effects to listed species or designated critical habitat, as all activities will occur solely in upland areas.

Appendix 2. Phase III Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-1	SER-2014-12910	Texas, Artificial Reefs, Corpus	The applicant will propose 3 projects to install artificial reefs in Texas coastal waters. They are not located within designated Gulf sturgeon critical habitat but are located in loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [<i>Sargassum</i>]).	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp’s ridley, hawksbill, loggerhead, or green sea turtles) or loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [<i>Sargassum</i>]).
P3-2	SER-2014-12916	Texas, Artificial Reefs, Freeport		
P3-3	SER-2014-12920	Texas, Artificial Reefs, Matagorda		
P3-4	SER-2014-12924	Alabama, Oyster Cultch	The applicant proposes to restore and enhance 319 acres of oyster reefs within historic footprint of oyster reefs in Mobile Bay. It is not located within any designated critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp’s ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon).
P3-5	SER-2014-12925	Florida, Hancock County Living Shorelines	The applicant proposes to reduce shoreline erosion and restore oyster and marsh habitat by (1) use of breakwater materials to reduce shoreline erosion, (2) creation of 46 acres of salt marsh, and (3) enhancement of 46 acres of oyster reef habitat that have historically supported oysters. It is located within designated Gulf sturgeon critical habitat Unit 8 but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp’s ridley, loggerhead, or green sea turtles, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles were withdrawn from the ESA consultation process.
P3-6	SER-2014-12926	Florida, Swift Tract Living Shorelines	The applicant proposes to reduce shoreline erosion by creating breakwaters (8,500 ft) from natural materials (15,800 tons of riprap and 2,200 cubic yards [yd ³] of bagged oyster shell) covering 2.9 acres of fine-grained sediment. It is not located within any designated critical habitats.	The project is not likely to adversely affect ESA-listed species (Kemp’s ridley, loggerhead, or green sea turtles, or Gulf sturgeon). Leatherback and hawksbill sea turtles were withdrawn from the ESA consultation process.



Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-7	SER-2014-13016	Florida, Pensacola Bay Living Shorelines	The applicant proposes to reduce shoreline erosion by expanding existing breakwaters at 2 sites (25,000 tons of riprap, covering 5 acres of fine-grained sediment total) and backfilling marsh areas with 102,000 yd ³ of fill, total. It is located within designated Gulf sturgeon critical habitat Unit 9 but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles and smalltooth sawfish were withdrawn.
P3-8	SER-2014-13083	Florida, Cat Point Living Shorelines	The applicant proposes to reduce shoreline erosion by expanding an existing breakwater structure (up to 0.3 mile) and creating 1 acre of salt marsh habitat. It is located within designated Gulf sturgeon critical habitat Unit 13, but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles and smalltooth sawfish were withdrawn.
P3-9	SER-2014-13017	Florida, Beach Enhancement Project at Gulf Island National Seashore	The applicant proposes to remove fragments of asphalt and road-base material from a long, thin area approximately 20 ft wide by 2 miles long (211,200 ft ² or ~ 4.8 acres) in the inter- and sub-tidal zone within the GUI. The project is located within Gulf sturgeon critical habitat Unit 11 and is not in loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon) or designated critical habitats for these species.
P3-10	SER-2014-13018	Louisiana, North Breton Island Restoration	The applicant proposes to dredge 3.7 million yd ³ (2.8 x 10 ⁶ cubic meters [m ³]) of sand, silt, and clay materials, using a cutterhead dredge, from 1 or more sites within offshore shoals borrow sites from a water depth range of 6-20 ft or 1.8-6.1 m mean lower low water (MLLW). The in-water project footprint is 38 square miles (mi ²) or 98.4 square kilometers (km ²); 41.4 mi ² (or 106.4 km ²) including proposed North Breton Island restoration. The project is not located within Gulf sturgeon critical habitat or loggerhead sea	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon).

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
			turtle critical habitat.	
P3-11	SER-2014-13026	Mississippi, Popp's Ferry Causeway Park	The applicant proposes to install 4 fishing piers and 1 overlook pier, covering approximately 5,000 ft ² of open water with vibratory hammering. It is not located within any designated critical habitat.	These projects are not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, or Gulf sturgeon). Leatherback and hawksbill sea turtles were withdrawn.
P3-12	SER-2014-13079	Florida, Oysters Cultch	The applicant proposes to restore and enhance oyster populations in Pensacola and Apalachicola Bays in Florida (total placement of 42,000 yd ³ of cultch material over 210 acres of previous oyster reefs). It is located within designated Gulf sturgeon critical habitat Units 9 and 13. It is not located in loggerhead sea turtle critical habitat.	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon) or Gulf sturgeon-designated critical habitat.
P3-13	SER-2014-13080	Florida, Scallop Enhancement	The applicant proposes to restore and enhance scallop production by the placement of scallop spat into Florida coastal waters. It is located within designated Gulf sturgeon critical habitat Units 9, 10, 12, and 13. It is not located in loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) and there will be no effect on Gulf sturgeon-designated critical habitat.
P3-14	SER-2014-13081	Florida, Artificial Reefs	The applicant proposes to build and deploy artificial reefs offshore in Florida coastal waters in 5 Florida counties: Escambia, Santa Rosa, Okaloosa, Walton, and Bay counties. The project spans 123 miles (107 nautical miles or 198 km) along the coast of Florida in the nearshore as well as the offshore zone. Although some project sites are located within Gulf sturgeon critical habitat Unit 11, there are no sites in loggerhead sea turtle critical habitat.	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles) and are not likely to adversely affect Gulf sturgeon critical habitat Unit 11.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-15	SER-2014-13077	Florida, Gulf Coast Marine Fisheries Hatchery/ Enhancement Center	The applicant proposes to construct and operate a saltwater sportfish hatchery on a 10-acre vacant lot to enhance recreational fishing opportunities through aquaculture in Pensacola Bay, Escambia County, Florida.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles) and is not likely to adversely affect Gulf sturgeon critical habitat Unit 9.
P3-16	SER-2014-13124	Florida, Big Lagoon State Park Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 9.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 9.
P3-17	SER-2014-13131	Florida, Gulf Breeze, Wayside Park Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 9.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 9.
P3-18	SER-2014-13127	Florida, Franklin County Waterfront Park Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 13.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 13.
P3-19	SER-2014-13135	Florida, Enhancement of Franklin County Parks and Boat Ramps, Indian Creek Park	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-20	SER-2014-13119	Florida, Port St. Joe, Frank Pate Boat Ramp Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-21	SER-2014-13140	Florida, Walton County, Lafayette Creek Boat Dock Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-22	SER-2014-13277	Florida, Panama City, St. Andrews Marina Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-23	SER-2014-13272	Florida, Parker Earl Gilbert Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-24	SER-2014-13085	Florida, Wakulla County, Marshes Sand Park Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-25	SER-2014-13278	Florida, City of St. Marks, Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-26	SER-2014-13270	Florida, Bayside Ranchettes Park Improvements	The applicant proposes the construction of a new parking area, a picnic table, an observation dock, and steps from the shoreline into the water allowing access to the bay.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 12.
P3-27	SER-2014-13275	Florida, Navarre Beach Park Coastal Access and Dune Restoration	The applicant will construct new infrastructure to increase the public's opportunities to safely access coastal resources, including the beach and waters of Santa Rosa Sound. The project includes design and construction of 2 new beach-access boardwalks from the existing pavilion/parking lots to the Santa Rosa Sound and a new dock for launching canoes/kayaks.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 10.
P3-28	SER-2014-13086	Florida, Norriego Point Restoration	The applicant will enhance and increase the public's enjoyment of the natural resources by stabilizing ongoing erosion and re-establishing Norriego Point using erosion control structures (groins) and placement of dredged sand fill.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 12.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-29	SER-2014-13101	Florida, Apalachicola River Fishing Viewing – Cash Bayou	The applicant will improve public access at Cash Bayou by providing a small fishing and wildlife observation pier, a parking area with an entrance kiosk, and an information station along State Route 65, east of the Cash Creek Bridge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-30	SER-2014-13276	Florida, Estuarine Habitat Restoration, Protection, and Education	The applicant will improve and lengthen the existing interactive boardwalks, expand existing inter-tidal oyster reefs, and restore a degraded salt marsh.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 10.
P3-31	SER-2014-13886	Florida, St. George Island Bulkhead Improvements	The applicant will repair approximately 275 ft of degraded bulkhead by removing existing, damaged/collapsed sections of the concrete sheet bulkhead, placing new sections of sheet pile, and constructing a new cap. The project is located in Gulf sturgeon critical habitat Unit 13.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, smalltooth sawfish, or Gulf sturgeon critical habitat Unit 13.
P3-32	SER-2014-12923	Texas, Ship Artificial Reef Project	The applicant will acquire a 1,000-ft (304.80-m) ship that is a complete product ready for immediate use as an artificial reef (i.e., turnkey ship). The applicant will clean the vessel of any hazardous toxins and make any hull modifications as necessary or determined by the Texas Parks and Wildlife Department, transport the vessel to the deployment site, and subsequently sink the vessel on barren sand and silt substrate at a water depth of 135 ft (41.15 m) at MLLW. The project is not located in Gulf sturgeon critical habitat, but it is situated in loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [<i>Sargassum</i>]).	The project is not likely to adversely affect leatherback, Kemp’s ridley, loggerhead, or green sea turtles, or loggerhead critical habitat LOGG-S-02-Gulf of Mexico (<i>Sargassum</i>).
P3-33	SER-2014-13144	Florida, City of Mexico Beach	The applicant proposes to construct a 1,700-lin-ft steel sheet-pile retaining wall approximately 2 ft in	The project is not likely to adversely affect sea turtles, smalltooth sawfish, and

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
		Marina, Bay County	front of the existing wooden retaining wall. The proposed volume of fill between the wall and the shore will be 440.7 yd ³ . The project also includes replacing 18 existing finger piers along the northern side as well as 3 finger piers along the western side, and creating 8 new finger piers (16 slips) located along the western edge of the canal, for a total of 56 boat slips. The finger piers will be 16 ft long by 3 ft wide, with a terminal pile to be installed approximately 17 ft from the terminal pier. No seagrasses or mangroves were documented at the project site. Construction will take place from the uplands for the majority of the project; a small barge will be used for pier placement and dock construction. Piles will be installed primarily by low-pressure jet; however, a drop hammer may be used to finish installing the piles when necessary.	Gulf sturgeon.
P3-34	SER-2014-15032	Florida, Gulf Island National Seashore Ferry Project	The National Park Service completed a permanent pier in the Fort Pickens Area of the GINS to accommodate a pedestrian ferry service to Fort	The project is not likely to adversely affect sea turtles, smalltooth sawfish, Gulf sturgeon, and Gulf sturgeon critical

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
			<p>Pickens from the mainland. The 2 ferryboats that will provide the service will travel a 3-stop loop, in opposite directions, 3 times a day. Ferry traffic will follow a designated navigational route. NPS anticipates that the 2 ferries combined will run 6 round-trips per day during a 15-week peak season, depending on weather conditions and demand. Ferry service will operate 6 days a week, Tuesday through Sunday, during daylight hours only. The passenger ferry vessels will be approximately 65 ft long, hold up to 150 passengers, and cruise at a maximum 12-20 knots.</p>	<p>habitat Unit 9.</p>
P3-35	SER-2014-15033	Louisiana, Chenier Ronquille Barrier Island Restoration Project	<p>The project purpose is to restore the integrity of the Chenier Ronquille barrier island by creating 309 acres of marsh and 189 acres of dune and beach. Approximately 11.1×10^6 yd³ of material may be dredged (a minimum of 2.9×10^6 yd³ will be dredged) from 4 borrow sites (S-1, S-2, D-1, and Quatre Bayou), consisting of 832 acres of unvegetated borrow site in the Gulf of Mexico southwest of Chenier Ronquille. The borrow sites will be dredged from the current depth of approximately -8 to -30 ft (North American Vertical Datum 1988) to a maximum of -37 ft. Dredged sediments will be pumped to the marsh via a dredge pipeline.</p>	<p>These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, loggerhead, or green sea turtles).</p>

Appendix 3. Phase IV Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P4-1	SER-2015-16919	Pelagic Longline Bycatch Reduction Project	The project’s purpose is to reduce Pelagic Longline fishing bycatch and compensate fishers to not fish with PLL gear. A compensation-based, voluntary, 6-month temporary repose period in PLL fishing, having a duration between 5-10 years, will prevent bycatch of ESA-listed species from PLL gear. The repose period would be from January to June of each year. The project would promote the use of buoy gear and green-stick gear, which is more discriminate than PLL gear in regards to the species targeted, and has been shown to have low post-release mortality of bycatch, and regulatory discards. The PLL Bycatch Reduction Project repose period will reduce PLL effort, resulting in fewer PLL hook sets. In doing so, the repose period will eliminate dead discarded bycatch from participating PLL vessels that would have otherwise been caught.	This project has no effect on marine mammals, and is not likely to adversely affect ESA-listed species (leatherback, Kemp’s ridley, loggerhead, or green sea turtles, or Gulf sturgeon), nor likely to adversely affect the <i>Sargassum</i> loggerhead critical habitat.
P4-2	SER-2015-16817	Point aux Pins/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon
P4-3	SER-2015-16818	Shell Belt Road/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge or from shore using a wide-tracked long-arm trackhoe.	The project is not likely to adversely affect sea turtles or Gulf sturgeon

P4-4	SER-2015-16819	Codon Belt Road/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon
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