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SEFSC:MC

MEMORANDUM FOR: THE RECORD

FROM: Cisco Werner, Ph.D.
Acting SEFSC Director

DATE: February 7, 2018

SUBJECT: Section 7 Endangered Species Act Consultation for Northern Gulf of Mexico sea turtle carcass constant submergence cage study

The NOAA Fisheries Southeast Fisheries Science Center (SEFSC) is proposing a Northern Gulf of Mexico sea turtle carcass constant submergence cage study in federal waters in depths of 20-40 m south of Mississippi. This project will determine the depth at which sea turtle carcasses cannot generate enough gases to float and thus remain at the bottom of the sea. Field work will consist of simultaneously deploying three cages in various depth strata during four different times of the year. Three wire mesh weighted cages measuring 4'x2'x2' will be constructed to each hold two turtle carcasses. One cage will be deployed at each depth (20, 30 and 40 m) in federal waters in the northern Gulf of Mexico off Mississippi (Attachment 1; location map). Deployments will occur in 1) mid-March, 2) April/May, 3) June/July, and 4) July/Aug. A lighted highflyer, surface floats, and SPOT satellite tags will be attached to the cages so they can easily be observed and located. Stiff buoy lines will be used to reduce the looping and entanglement potential of any animals that may encounter the line. A Temperature-Depth-Orientation-Recorder attached to each carcass will record bottom temperature, depth and pitch/roll every 5 minutes to determine when and if the carcass floats off the bottom of the cage. A camera will photograph carcasses every 30 minutes to record decomposition progress and ensure that nothing unexpected occurred. Cages will be monitored weekly using a remote operated vehicle (ROV) to check decomposition progress. When it is observed that both carcasses have floated to the top of the cage, the cage will be retrieved. Retrieval will occur slowly and carcasses will be refloated at the surface to see if they are able to continue to float or if decomposition or gas expansion during ascent compromised the tissues so much that they sink. If carcasses are not floating, monitoring will continue until carcasses have decomposed to bones or are compromised so much that floating is not possible. Carcasses will be discarded at the end of the experiment. Bottom temperatures will likely range from 20°C to 27°C depending on depth and time of year. We are estimating that in March it will take carcasses 8-15 days to float in the cage and during summer will take 4-12 days so some cages will be deployed for several weeks.

This assessment has been prepared on behalf of the SEFSC in response to the current U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) Endangered Species Act (ESA) listings. Since this project is only conducted in federal waters, USFWS species



are not present in the vicinity of the project area. We also evaluated the presence of Essential Fish Habitat (EFH) as indicated in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The NMFS ESA species list was accessed on January 18, 2018 to determine the potential presence of species and critical habitats in the project area (Table 1).

Table 1. NMFS listed species and critical habitats potentially present in the vicinity of the northern Gulf of Mexico in federal waters off Mississippi.

http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf

Marine Mammal Species	Scientific Name	Status	Designated Critical Habitat Present
fin whale	<i>Balaenoptera physalus</i>	Endangered	No
sei whale	<i>Balaenoptera borealis</i>	Endangered	No
sperm whale	<i>Physeter macrocephalus</i>	Endangered	No
Sea Turtle Species			
green sea turtle	<i>Chelonia mydas</i>	Threatened ¹	No
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	No
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	No
leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	No
loggerhead sea turtle	<i>Caretta caretta</i>	Threatened ²	No
Fish Species			
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	Threatened	No
Nassau grouper	<i>Epinephelus striatus</i>	Threatened	No
smalltooth sawfish	<i>Pristis pectinata</i>	Endangered ³	No
Invertebrate Species			
rough cactus coral	<i>Mycetophyllia ferox</i>	Threatened ⁴	No
pillar coral	<i>Dendrogyra cylindrus</i>	Threatened ⁴	No
lobed star coral	<i>Orbicella annularis</i>	Threatened	No
mountainous star coral	<i>Orbicella faveolata</i>	Threatened	No
boulder star coral	<i>Orbicella franksi</i>	Threatened	No
staghorn coral	<i>Acropora cervicornis</i>	Threatened ⁴	No
elkhorn coral	<i>Acropora palmata</i>	Threatened ⁵	No

¹ North Atlantic and South Atlantic Distinct Population Segments.

² Northwest Atlantic Distinct Population Segment.

³ U.S. Distinct Population Segment

⁴ Colonies located at Dry Tortugas National Park.

⁵ Colonies located at Flower Garden Banks National Marine Sanctuary and Dry Tortugas National Park.

The action area for the proposed project is made up of sand or mud substrate in areas that typically experience otter trawling activity. There are no corals or hard bottom located in any of the proposed site locations. The total footprint of all of the cages is 0.018 sq. mi. which is less than 0.0001% of the total area of the U.S. Gulf of Mexico.

ESA protected marine mammal species are not found in the vicinity of the project area. Sperm whales are common in the Gulf of Mexico in waters >200 m deep. Occurrences of fin and sei whales in the Gulf of Mexico are probably accidental and records, mostly from strandings, are very uncommon to rare. Gulf sturgeon could be located in the vicinity of the project area but it is unlikely as they are typically found inshore of the project area and are known to be in the rivers during the project period. Gulf sturgeons migrate up the rivers beginning in February and migrate back out to the Gulf of Mexico between September and November¹. Gulf sturgeon critical habitat is designated in Mississippi state waters² and the project area is in federal waters only. Nassau grouper and smalltooth sawfish are not found in the project vicinity.

Sea turtles in the northern Gulf of Mexico inhabit shallow coastal areas to deep oceanic waters. There are no reports of hawksbill sea turtles in the project area. Remaining sea turtle species could be found in the vicinity of the project sites. We estimated the number of sea turtle captures using the same methodology used in the NMFS Integrated Fisheries Independent Monitoring Activities in the Southeast Region (SER-2009-07541). The cage study only deploys 12 cages total during the project. Even if we conservatively apply the highest sea turtle entanglement rate per trap hour (2×10^{-6} sea turtles/trap hours; source Table 5.1a SER-2009-07541) to the maximum amount of time the cages would soak, the greatest number of animals captured would be 0.01593 animals (Table 2) during the entire study (or 1 every 63 years). For this reason, we do not believe a sea turtle would become entangled in a cage line from this experiment.

Table 2. Estimated Sea Turtle Entanglements during sea turtle cage study per station and total.

	Depth (m)	Est. Bottom Temp (°C)	Est. time to float (days)	Maximum days soaked (est. time to float X 3)	Sea turtle capture rate per station
Trip 1 (Mid March):	20	20	8.3	24.9	0.00120
	30	20	11	33	0.00158
	40	20	15.8	47.4	0.00228
Trip 2 (April/May):	20	23	6.5	19.5	0.00094
	30	21	10.2	30.6	0.00147
	40	21	12.7	38.1	0.00183
Trip 3 (June/July):	20	25	5.4	16.2	0.00078
	30	23	8.5	25.5	0.00122
	40	22	11.7	35.1	0.00168
Trip 4 (July/Aug):	20	28	4.2	12.6	0.00060
	30	26	7.1	21.3	0.00102
	40	25	9.2	27.6	0.00132
Grand Total				331.8	0.01593

In summary, listed species will not be susceptible to impacts related to project activities because protected corals, marine mammals and Gulf sturgeon do not occur in the action area and there is no possibility of effects to sea turtle populations or habitats from the project. Therefore, we have

¹ <http://www.nmfs.noaa.gov/pr/species/fish/gulf-sturgeon.html>

² <http://www.nmfs.noaa.gov/pr/pdfs/criticalhabitat/gulfsturgeon.pdf>

determined that this project will have “no effect” on listed species. Additionally, the project will have “no effect” on designated critical habitats for these species because there is no critical habitat in the vicinity of the project area.

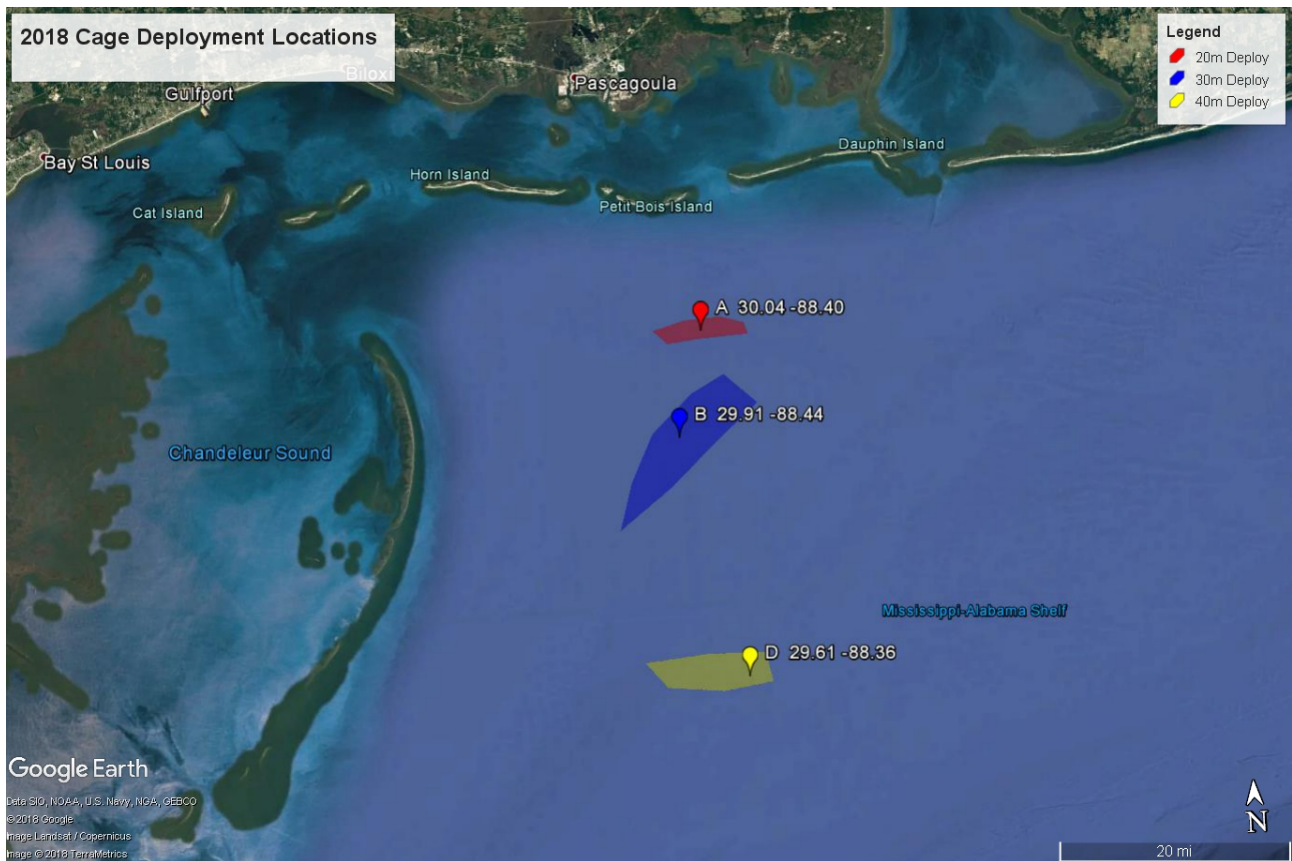
The Magnuson-Stevens Act mandates that NMFS must identify EFH for federally managed marine fish. Federal agencies are required to consult with NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Gulf of Mexico Fishery Management Council has designated EFH for red drum, reef fish, coastal migratory pelagics, shrimp, spiny lobster and coral. We have determined that this project will have no effect on any designated EFH due to either lack of designation in the project area or the large amount of available habitat in the immediate vicinity of the project.

This assessment satisfies the NOAA Fisheries SEFSC responsibilities under Section 7(c) of the ESA and the Magnuson-Stevens Act at this time. We are sending you this copy of our assessment for your files. We will continue to remain aware of any change in status of these species and will be prepared to re-evaluate potential project impacts if necessary.

If you require additional information or clarification regarding this project, please contact the project Principal Investigator, Dr. Melissa Cook at (228) 549-1628 or melissa.cook@noaa.gov.

Attachments: Vicinity map

cc: Theo Brainerd
Lisa Desfosse
Karen Mitchell
Stacy Hargrove
Laurel Jennings



Vicinity map showing cage deployment locations for the Northern Gulf of Mexico sea turtle carcass constant submergence cage study. Shaded areas encompass target depth ranges.