

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center

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Pascagoula, MS 39567

Cruise Report

Date Submitted: 12/20/2024


Platform: NOAA Ship OREGON II

Cruise Number: SJ-24-04

Project Title: Red Snapper/Shark Bottom Longline

Cruise Dates: 10/22/2024 - 10/25/2024

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CRUISE RESULTS

R/V *Southern Journey* SJ-24-04

INTRODUCTION

Due to delays experienced aboard NOAA Ship *Oregon II* throughout the 2024 Red Snapper/Shark Bottom Longline Survey, a final leg was conducted aboard R/V *Southern Journey*. The trip left Pascagoula, MS, on October 22 and returned on October 25, 2024. The eight stations completed during this trip finished the remaining primary stations in the central Gulf and closed the gap in survey coverage for the year in the Gulf of Mexico (GOM).

The annual Red Snapper/Shark Bottom Longline Survey is conducted in U.S. waters in the western North Atlantic Ocean. The purpose of the longline survey is to collect information on coastal species found between 9 and 366 m, in particular red snapper (*Lutjanus campechanus*) and sharks to gain further understanding of abundance, distribution, and life history traits of captured species. In addition, environmental data are collected to help characterize the abiotic and biotic conditions at each sampling location.

SUMMARY OF OBJECTIVES

1. Collect data within the sampling universe pertaining to the abundance and distribution of shark and red snapper populations for stock assessment purposes.
2. Collect morphological measurements and biological samples to facilitate life history studies.
3. Tag coastal teleosts and sharks to assess their residency and movement patterns.
4. Conduct Conductivity, Temperature, Depth (CTD) casts to profile water column temperature, conductivity (salinity), transmissivity, dissolved oxygen concentrations and fluorometry.
5. Characterize bottom type at each sampling site using videos, obtained from Paralenz cameras mounted on the CTD rosette.

MATERIALS AND METHODS

Sampling gear consisted of 1.842 km (1 nm) of monofilament mainline (4 mm diameter); 100 gangions constructed of a snap, 3.7 m monofilament leader (3 mm diameter) and a hook (#15/0 circle, Mustad #39960D) baited with Atlantic mackerel (*Scomber scombrus*), cut to fit the circle hooks; three weights (5-10 kg, at beginning, mid, and end of the mainline); and two radar reflective highflyers, one at each end of the mainline. Mainline length was determined as the distance between the first and last weight deployed. Vessel speed ranged from 2.5 – 3.5 kt during deployment. Gear was allowed to soak for 1 hr, defined by the time between the last highflyer deployed and the first highflyer retrieved; however, some variability in soak times occurred due to inclement weather or gear problems. Haulback speed was approximately 3.0 kt, with haulback time ranging from 30 – 120 min depending on catch rate and sea conditions.

Environmental data were collected during the longline soak time using a Seabird SBE-911+ CTD and observations by the scientific party. An Orion LDO HQ10 portable DO meter was also used at a random station once a week, or as necessary, to verify DO readings collected by oxygen sensors on the CTD. Percent cloud cover, sea state and Forel-ule water color were recorded by scientific personnel during the CTD cast. A Paralenz Vaquita dive camera and light were also deployed on the frame of the CTD in order to characterize bottom type.

Longline gear deployment and haulback were monitored using the shipboard Scientific Computing System (SCS)/Fisheries Scientific Computing System (FSCS) and the Southeast Longline Input Technology (SELLIT, v. 7). CTD cast data were also recorded using SCS and the program SeaSave 7.

SURVEY DESIGN

Stations were pre-selected before the beginning of the survey using a stratified- random sampling design with proportional allocation. Strata were defined by water depth with stratum size determined by continental shelf area within 60 nm zones. In the GOM three depth strata were utilized; 9 – 55 m (5 – 30 fm), 55 – 183 m (30 – 100 fm), 183 – 366 m (100 – 200 fm), with effort being allocated respectively to depth, 50%, 40%, 10%.

In some instances, pre-selected stations were moved or dropped to avoid hazards to navigation (e.g. shipping lanes, oil rigs), bad conditions (i.e. fast current), or to ensure adequate coverage of the survey area in the available number of sea days. The number of pre-selected stations generated each year is based on previous survey years' results and the number of available sea days.

RESULTS

There were 187 total bottom longline sets completed for the Red Snapper/Shark Bottom Longline Survey on the NOAA Ship *Oregon II* and R/V *Southern Journey*. Of the total sets, 38 sets were completed off the East Coast and 149 sets occurred in the northern GOM (Figure 1). All the stations, except for eight in the central Gulf done aboard the R/V *Southern Journey*, were conducted aboard NOAA Ship *Oregon II*. There were 184 total CTD casts associated with the longline sets; mechanical issues with the CTD unit or problems with sensors resulted in the loss of 3 casts. CTD videos for bottom type characterization were available for 169 of the stations; mechanical issues with some of the cameras or the light source malfunctioning prevented collection at all sites. Longline effort resulted in 1,364 total captures. Elasmobranchs represented 49% of the catch, with representation from 24 species. Teleosts constituted the remaining 51%, with representation from 35 species. The most frequently captured elasmobranch was the Atlantic sharpnose shark (*Rhizoprionodon terraenovae*) constituting 44% of shark captures, followed by the sandbar shark (*Carcharhinus plumbeus*) (17%), the blacktip shark (*Carcharhinus limbatus*) (8%), and the tiger shark (*Galeocerdo cuvier*) (8%). The most frequently captured teleost was red snapper constituting 55% of teleosts captured, followed by gafftopsail catfish (*Bagre marinus*) (26%), red grouper (*Epinephelus morio*) (6%), and yellowedge grouper (*Hyporthodus flavolimbatus*) (2%) (Table 1).

A total of 151 NEFSC Narragansett Lab tags were deployed on 12 different species during cruise R2-24-03 (353). An additional 105 SEFSC tags were deployed on 13 different species. Samples were collected on NOAA Ship *Oregon II* for various life history, genetic and diet projects at both SEFSC and collaborative agencies. All biological samples collected were frozen or preserved as specified and returned to NOAA MS Labs, NOAA Panama City Labs (otoliths, genetics, gonads, eyes), Texas A&M University (blood, tissue, tag data), and Florida International University (tissue) (Table 2).

CRUISE PARTICIPANTS

Leg I R/V *Southern Journey* (22 October – 25 October, 2024)

Name	Title	Organization
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Kristin Hannan
William Driggers
William Tilley

Field Party Chief/WL
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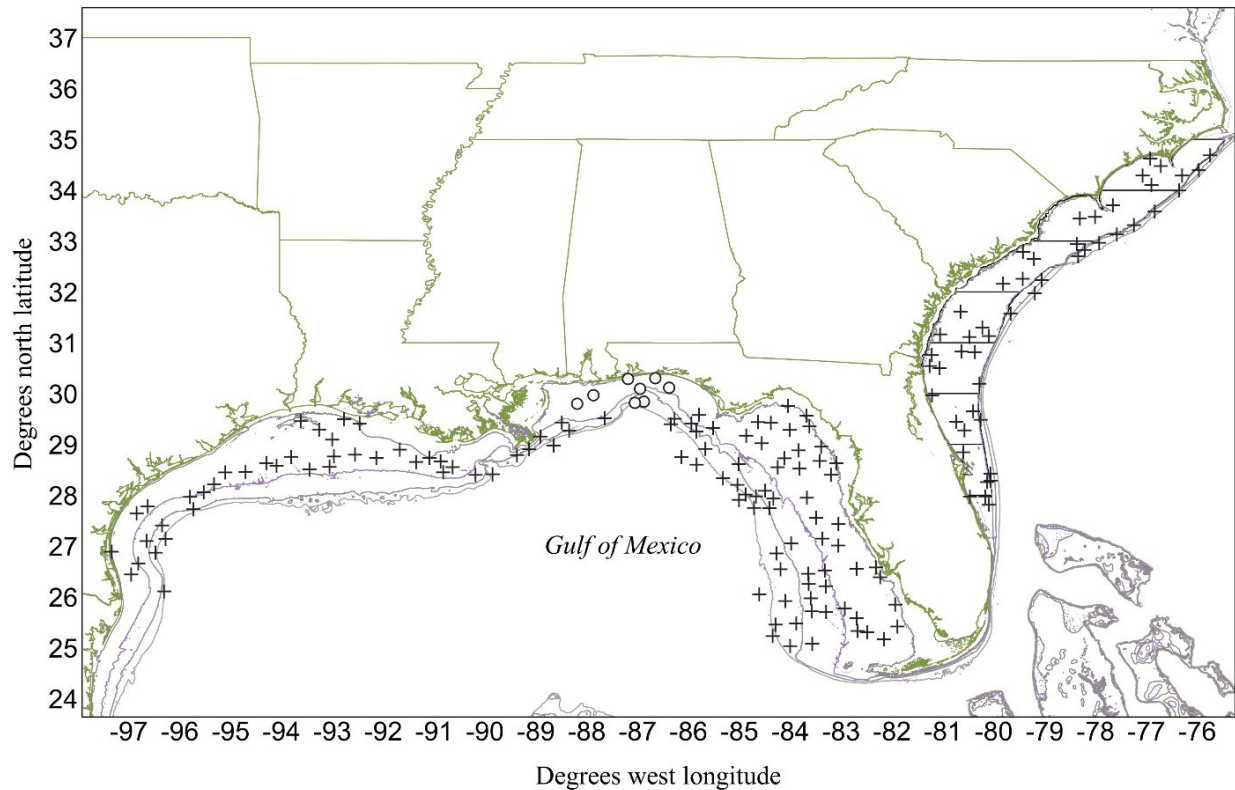


Figure 1. Locations of completed bottom longline stations during NOAA Ship OREGON II Cruise R2-24-03 (353) (crosses) and SJ-24-04 (circles). Pictured isobaths are 10, 50, 100, and 200 m.

Table 1. Catch summary for 2024 Red Snapper/Shark Bottom Longline survey, catch is presented from each cruise: a. R2-24-03 (353), b. SJ-24-04

a. R2-24-03(353) Catch

Elasmobranchs	Number
Atlantic sharpnose shark (<i>Rhizoprionodon terraenovae</i>)	290
Sandbar shark (<i>Carcharhinus plumbeus</i>)	113
Blacktip shark (<i>Carcharhinus limbatus</i>)	53
Tiger shark (<i>Galeocerdo cuvier</i>)	52
Blacknose shark (<i>Carcharhinus acronotus</i>)	47
Gulf smoothhound (<i>Mustelus sinusmexicanus</i>)	24
Nurse shark (<i>Ginglymostoma cirratum</i>)	24
Bull shark (<i>Carcharhinus leucas</i>)	13
Great hammerhead (<i>Sphyrna mokarran</i>)	11
Spinner shark (<i>Carcharhinus brevipinna</i>)	6
Silky shark (<i>Carcharhinus falciformis</i>)	6

Lemon shark (<i>Negaprion brevirostris</i>)	5
Scalloped hammerhead (<i>Sphyrna lewini</i>)	5
Gulper shark (<i>Centrophorus uyato</i>)	4
Genie's dogfish (<i>Squalus clarkae</i>)	3
Bonnethead (<i>Sphyrna tiburo</i>)	2
Sixgill shark (<i>Hexanchus griseus</i>)	1
Bignose shark (<i>Carcharhinus altimus</i>)	1
Dusky smoothhound (<i>Mustelus canis</i>)	1
Narrowfin smoothhound (<i>Mustelus norrisi</i>)	1
Dusky shark (<i>Carcharhinus obscurus</i>)	1
Carcharhinidae	2

Teleosts	Numbers
Red snapper (<i>Lutjanus campechanus</i>)	377
Gafftopsail catfish (<i>Bagre marinus</i>)	178
Red grouper (<i>Epinephelus morio</i>)	39
King snake eel (<i>Ophichthus rex</i>)	13
Yellowedge grouper (<i>Hyporthodus flavolimbatus</i>)	13
Tilefish (<i>Lopholatilus chamaeleonticeps</i>)	11
Great barracuda (<i>Sphyraena barracuda</i>)	8
Hardhead catfish (<i>Ariopsis felis</i>)	4
Whitefin sharksucker (<i>Echeneis neucratoides</i>)	4
Snakefish (<i>Trachinocephalus myops</i>)	3
Pale spotted eel (<i>Ophichthus puncticeps</i>)	3
Sharksucker (<i>Echeneis naucrates</i>)	3
Blacktail moray (<i>Gymnothorax kolpos</i>)	2
Gag grouper (<i>Mycteroperca microlepis</i>)	2
Cobia (<i>Rachycentron canadum</i>)	2
Almaco jack (<i>Seriola rivoliana</i>)	2
Spotted moray eel (<i>Gymothorax moringa</i>)	1
Reticulate moray eel (<i>Muraena retifera</i>)	1
Conger eel (<i>Conger oceanicus</i>)	1
Scamp (<i>Mycteroperca phenax</i>)	1
Blueline tilefish (<i>Caulolatilus microps</i>)	1
Spinycheek scorpionfish (<i>Neomerinthe hemingwayi</i>)	1
Sand perch (<i>Diplectrum formosum</i>)	1
Dwarf sand perch (<i>Diplectrum bivittatum</i>)	1
Florida hake (<i>Urophycis floridana</i>)	1
Speckled hind (<i>Epinephelus drummondhayi</i>)	1
Goliath grouper (<i>Epinephelus itajara</i>)	1
Greater amberjack (<i>Seriola dumerili</i>)	1
Lesser amberjack (<i>Seriola fasciata</i>)	1

Pinfish (<i>Lagodon rhomboides</i>)	1
Croaker (<i>Micropogonias undulatus</i>)	1
Red drum (<i>Sciaenops ocellatus</i>)	1
Mutton snapper (<i>Lutjanus analis</i>)	1
Vermillion snapper (<i>Rhomboplites aurorubens</i>)	1
Gray snapper (<i>Lutjanus griseus</i>)	

b. SJ-24-04 Catch

Elasmobranchs	Number
Atlantic sharpnose shark (<i>Rhizoprionodon terraenovae</i>)	4
Sandbar shark (<i>Carcharhinus plumbeus</i>)	1
Dusky shark (<i>Carcharhinus obscurus</i>)	1
Bull shark (<i>Carcharhinus leucas</i>)	1
Great hammerhead (<i>Sphyrna mokarran</i>)	1

Teleosts	Numbers
Hardhead catfish (<i>Ariopsis felis</i>)	3
Gafftopsail catfish (<i>Bagre marinus</i>)	2
Gulf hake (<i>Urophycis cirrata</i>)	1
Blacktail moray (<i>Gymnothorax kolpos</i>)	1
Echeneis sp.	1

Table 2. Summary of samples collected on the 2024 Red Snapper/Shark Bottom Longline Survey, R2-24-03 (353). No additional samples were taken on SJ-24-04.

Specimen	Otoliths	Genetics	Gonads	Eye lenses	Muscle	Parasites	Vertebrae
Bigeye thresher shark (<i>Alopias superciliosus</i>)		1					
Hardhead catfish (<i>Ariopsis felis</i>)							
Blacknose shark (<i>Carcharhinus acronotus</i>)		34					
Bignose shark (<i>Carcharhinus altimus</i>)		1					
Spinner shark (<i>Carcharhinus brevipinna</i>)		2					
Silky shark (<i>Carcharhinus falciformis</i>)		5					
Bull shark (<i>Carcharhinus leucas</i>)		6					
Blacktip shark (<i>Carcharhinus limbatus</i>)		36	2				3
Dusky shark (<i>Carcharhinus obscurus</i>)		1					
Sandbar shark (<i>Carcharhinus plumbeus</i>)		92				1	
Blueline tilefish (<i>Caulolatilus microps</i>)	1	1	1		1	1	
Little gulper shark (<i>Centrophorus uyato</i>)		4					
Sandperch (<i>Diplectrum bivittatum</i>)							
Whitefin sharksucker (<i>Echeneis neucratoides</i>)							

Speckled hind (<i>Epinephelus drummondhayi</i>)	1	1	1		1	1	
Red grouper (<i>Epinephelus morio</i>)	35	35	35	35	6		
Tiger shark (<i>Galeocerdo cuvier</i>)		30					
Nurse shark (<i>Ginglymostoma cirratum</i>)		35					
Sixgill shark (<i>Hexanchus griseus</i>)		1					
Yellowedge grouper (<i>Hyporthodus flavolimbatus</i>)	13	13	11	11	3	2	
Tilefish (<i>Lopholatilus chamaeleonticeps</i>)	11	11	11	9	3	1	
Red snapper (<i>Lutjanus campechanus</i>)	348	346	187	59	53		
Gray snapper (<i>Lutjanus griseus</i>)	1	1			1		
Dusky smoothhound (<i>Mustelus canis</i>)		1					
Gulf smoothhound (<i>Mustelus sinusmexicanus</i>)		20					
Gag grouper (<i>Mycteroperca microlepis</i>)	2	2	2		2		
Scamp (<i>Mycteroperca phenax</i>)	1	1		1			
Lemon shark (<i>Negaprion brevirostris</i>)		5					
Cobia (<i>Rachycentron canadum</i>)	1	1		1			
Atlantic sharpnose shark (<i>Rhizoprionodon terraenovae</i>)	1	55	1				
Vermillion snapper (<i>Rhomboplites aurorubens</i>)	1	1	1	1			
Lesser amberjack (<i>Seriola fasciata</i>)	1	1	1	1			
Scalloped hammerhead (<i>Sphyrna lewini</i>)		4					
Great hammerhead (<i>Sphyrna mokarran</i>)		9					
Bonnethead (<i>Sphyrna tiburo</i>)		1					
Genie's dogfish (<i>Squalus clarkae</i>)		3					