U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
3209 Frederic St, Pascagoula,
MS 39567

Cruise Report

Date Submitted: 10/16/2015

Platform: NOAA Ship OREGON II

Cruise Number: R2-15-04(314)

Project Title: Red Snapper/Shark Bottom Longline

Cruise Dates: 07/25/2015 - 09/27/2015

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CRUISE RESULTS

NOAA Ship *Oregon II*, Cruise R2 15-04 (314)

INTRODUCTION

NOAA Ship *Oregon II* departed Pascagoula, MS on July 25, 2015 for the annual Bottom Longline Red Snapper/Shark Survey conducted along the coasts of the U.S. Western North Atlantic and the U.S. Gulf of Mexico (GOM). The purpose of the longline survey is to collect information on coastal species found along the continental shelf between 9 and 366 m, in particular red snapper (*Lutjanus campechanus*) and sharks to gain further understanding of distribution, abundance and life history traits. In addition, environmental data is collected in order to help characterize the survey area. The cruise was divided into four planned legs covering the U.S. Atlantic from Cape Hatteras, NC (35.15 N) to West Palm Beach, FL (26.40 N) and in the northern GOM from southwest Florida (25 N) to Brownsville, TX (26 N) with port calls in Cape Canaveral, FL, Pascagoula, MS and Galveston, TX.

SUMMARY OF OBJECTIVES

1. Sample the U.S. Atlantic and northern GOM for data concerning the distribution and abundance of shark and red snapper populations to aid in stock assessments.
2. Collect morphological measurements and biological samples to facilitate life history studies.
3. Tagcoastal teleosts and sharks to assess their movement patterns.
4. Conduct Conductivity, Temperature, Depth (CTD) casts to profile water column temperature, conductivity (salinity), transmissivity, dissolved oxygen concentrations and fluorometry.

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 variance in soak times occurred due to inclement weather or gear problems. Haulback speed was approximately 3.0 kt, with time ranging from 20 – 60 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. The CTD provided vertical profiles of temperature, conductivity (salinity), dissolved oxygen (DO), light transmissivity, and fluorescence. An Orion LDO HQ10 portable DO meter was also used at a random station once a week to verify DO readings collected by the oxygen sensors on the CTD. Percent cloud cover, sea state and Forel-ule water color were recorded by scientific personnel during the CTD cast.

Longline gear deployment and haulback were monitored using the shipboard Scientific Computing System (SCS)/Fisheries Scientific Computing Systems (FSCS) and the program SELLIT (v. 7). CTD casts were also recorded using SCS and the program SeaSave 7.

SURVEY DESIGN

Stations were pre-selected before the beginning of the cruise with 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. Two depth strata were utilized in the Atlantic; 9 – 55 m (5 – 30 fm), 55 – 183 m (30 – 100 fm); and three in the GOM; 9 – 55 m (5 – 30 fm), 55 – 183 m (30 – 100 fm), 183 – 366 m (100 – 200 fm). In some instances pre-selected stations were moved up to 0.5 nm or dropped to avoid obstacles (i.e. shipping lanes, 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 205 total bottom longline sets completed, with 44 sets in the Atlantic and 161 sets in the northern GOM (Figure 1). Longline effort resulted in 2,749 total captures. Elasmobranchs represented 83% of the catch, with representation from 25 species (Table 1). Teleosts constituted the remaining 17%, with representation from 32 species. The most frequently captured elasmobranch was the Atlantic sharpnose shark (*Rhizoprionodon terraenovae*) constituting 62.7% of shark captures, followed by the blacktip shark (*Carcharhinus limbatus*) (8.7%), the sandbar shark (*Carcharhinus plumbeus*) (7.2%), and blacknose shark (*Carcharhinus acronotus*) (3.5%). The most frequently captured teleost was red snapper (*Lutjanus campechanus*) constituting 56.8% of teleost captured, followed by red grouper (*Epinephelus morio*) (10%), tilefish (*Lopholatilus chamaeleonticeps*) (8.6%) and king snake eels (*Ophichthus rex*) (4.6%).

A total of 371 tags were deployed on 14 different species, including two satellite tags from Louisiana Department of Wildlife and Fisheries. All biological samples collected were frozen or preserved as specified, and returned to NOAA MS Labs, NOAA Panama City Labs, National Seafood Inspection Laboratory (NSIL), University of Southern Mississippi, Xavier University, University of Florida, and Florida State University (Table 2).

Shipboard training requirements resulted in the loss of one sea day at the beginning of Leg III while weather resulted in the loss of three sea days at the end of Leg IV.

CRUISE PARTICIPANTS

Leg I (25 July – 8 August, 2015)

Name	Title	Organization
Kristin Hannan	Field Party Chief/WL	Riverside/NMFS MS Lab
Trey Driggers	Biologist/WL	NMFS MS Lab
Kenny Wilkinson	Biologist	NMFS Stennis
Chrissy Stepongzi	Biologist	Riverside/NMFS MS Lab
Jim Nienow	Volunteer	Valdosta State, Valdosta, GA
Ian Davenport	Volunteer	Xavier University, New Orleans, LA
Kathleen Gibson	Teacher At Sea	
Sean Granata	Intern	NMFS MS Lab
Erika Nuss	Volunteer	Nichols State University
Lydia Crawford	Volunteer	Tulane University
Brittany Hollman	Volunteer	Auburn, AL

Leg II (10 August – 26 August, 2015)

Name	Title	Organization
Kristin Hannan	Field Party Chief/WL	Riverside/NMFS MS Lab
Lisa Jones	Biologist/WL	NMFS MS Lab
Trey Driggers	Biologist	NMFS MS Lab
Christian Jones	Biologist	NMFS MS Lab
Chrissy Stepongzi	Biologist	Riverside/NMFS MS Lab
Michael Cyrana	Volunteer	Tulane University
Pavel Dimens	Volunteer	Texas A&M University
Amanda Barker	Volunteer	Texas A&M University
Brent Winner	Volunteer	Florida Fish & Wildlife Comm.
Johanna Imhoff	Volunteer	Florida State University

Leg III (1 September -14 September, 2015)

Name	Title	Organization
Lisa Jones	Field Party Chief/WL	NMFS MS Lab
Trey Driggers	Biologist/WL	NMFS MS Lab
Taniya Wallace	Biologist	Riverside/NMFS MS Lab
Joseph Salisbury	Biologist	Riverside/NMFS MS Lab
Alyssa Mathers	Biologist	NMFS PC Lab
Jeff Miller	Teacher At Sea	Phoenix, AZ
Claire Iseton	Volunteer	Texas Parks and Wildlife
Chelsey Taylor	Volunteer	Hamilton, MI
Alejandra Mickle	Volunteer	Florida State University
Michael Bradley	Volunteer	Galveston, TX
Charles Duffie	Volunteer	Florida Fish and Wildlife Comm

Leg IV (16 September – 27 September, 2015)

Name	Title	Organization
Lisa Jones	Field Party Chief/WL	Riverside/NMFS MS Lab
Christian Jones	Biologist/WL	NMFS MS Lab
Eric Hoffmayer	Biologist	NMFS MS Lab
Taniya Wallace	Biologist	Riverside/NMFS MS Lab
Kevin Rademacher	Biologist	NMFS MS Lab
Adam Pollack	Biologist	Riverside/NMFS MS Lab
Brian Bartram	Volunteer	TX Parks and Wildlife
Michael McNulty	Volunteer	Land O Lakes, FL
Andrew Rubin	Fellow	HMS, Silver Springs, MD
Daniel Geary	Volunteer	Orlando, FL

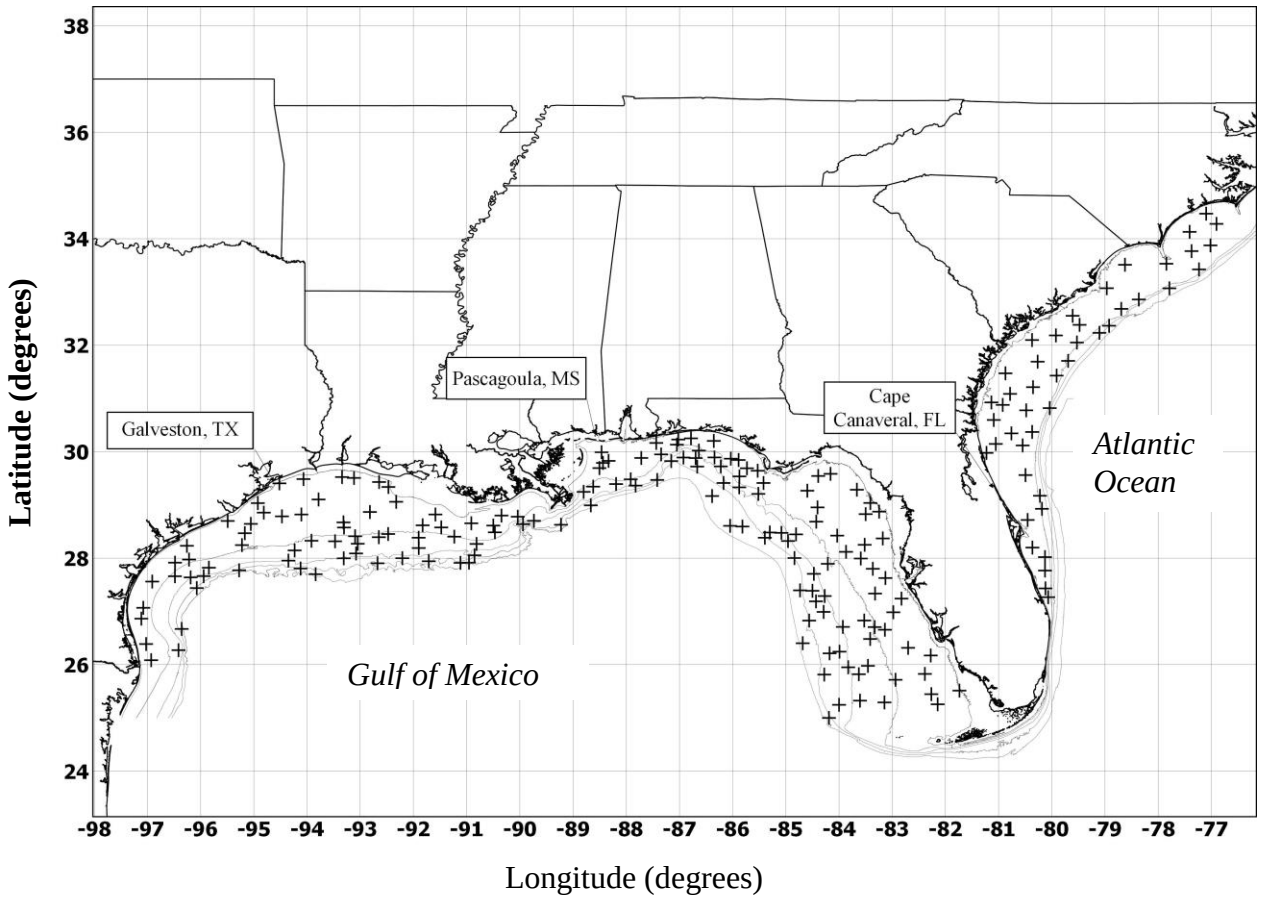

Figure 1. Locations of completed bottom longline stations during NOAA ship OREGON II Cruise R2-15-04 (314). Pictured isobaths are 10, 50, 100, 200, and 400 m. Plus symbols indicate locations of NOAA/NMFS individual longline sets.

Table 1. Catch summary for 2015 bottom longline survey OREGON II R2-15-04 (314).

Elasmobranchs	**Number**
Carcharhinidae	1
Carcharhiniformes	3
Blacknose shark (*Carcharhinus acronotus*)	79
Silky shark (*Carcharhinus falciformis*)	13
Bull shark (*Carcharhinus leucas*)	29
Blacktip shark (*Carcharhinus limbatus*)	197
Spinner shark (*Carcharhinus brevipinna*)	116
Sandbar shark (*Carcharhinus plumbeus*)	164
Dusky shark (*Carcharhinus obscurus*)	2
Bignose shark (*Carcharhinus altimus*)	1
Night shark (*Carcharhinus signatus*)	1
Finetooth shark (*Carcharhinus isodon*)	2
Lemon shark (*Negaprion brevirostris*)	3
Atlantic sharpnose shark (*Rhizoprionodon terraenovae*)	1422
Tiger shark (*Galeocerdo cuvier*)	79
Mustelus sp.	2
Dusky smoothhound (*Mustelus canis*)	3
Gulf smoothhound (*Mustelus sinusmexicanus*)	41
Scalloped hammerhead (*Sphyrna lewini*)	30
Great hammerhead (*Sphyrna mokarran*)	6
Bonnethead (*Sphyrna tiburo*)	2
Centrophorus sp.	45
Cuban dogfish (*Squalus cubensis*)	3
Shortspine spurdog (*Squalus mitsukurii*)	1
Southern stingray (*Dasyatis americana*)	5
Cownose ray (*Rhinoptera bonasus*)	1
Nurse shark (*Ginglymostoma cirratum*)	17
Southern stingray (*Dasyatis americana*)	1
Teleosts	**Number**
Snakefish (*Trachinocephalus myops*)	4
Prickly spider crab (*Stenocionops spinimana*)	1
Hardhead catfish (*Arius felis*)	2
Gafftopsail catfish (*Bagre marinus*)	11
Spotted moray (*Gymnothorax moringa*)	1
Blacktail moray (*Gymnothorax kolpos*)	2
Conger eel (*Conger oceanicus*)	1
Spinycheek scorpionfish (*Neomerinthe hemingwayi*)	10
King snake eel (*Ophichthus rex*)	22

Gulf hake (*Urophycis cirratus*)	1
Southern hake (*Urophycis floridanus*)	1
Great barracuda (*Sphyraena barracuda*)	9
Sharksucker (*Echeneis naucrates*)	5
Red grouper (*Epinephelus morio*)	48
Yellowedge grouper (*Hyporthodus flavolimbatus*)	21
Snowy grouper (*Hyporthodus niveatus*)	2
Speckled hind (*Epinephelus drummondhayi*)	1
Black seabass (*Centropristis striatus*)	2
Blueline tilefish (*Caulolatilus microps*)	5
Tilefish (*Lopholatilus chamaeleonticeps*)	41
Cobia (*Rachycentron canadum*)	3
Queen snapper (*Etelis oculatus*)	1
Mutton snapper (*Lutjanus analis*)	2
Red snapper (*Lutjanus campechanus*)	271
Gray snapper (*Lutjanus griseus*)	2
Wenchman (*Pristipomoides aquilonaris*)	1
Vermillion snapper (*Rhomboplites aurorubens*)	1
Tomtate (*Haemulon aurolineatum*)	1
Croaker (*Micropogonias undulatus*)	1
Red drum (*Sciaenops ocellata*)	2
Wahoo (*Acanthocybium solanderi*)	1
Other	**Number**
Loggerhead sea turtle (*Caretta caretta*)	3

Table 2. Summary of samples collected and tags deployed on bottom longline cruise OREGON II R2-15-04 (314). Samples saved for the National Seafood Inspection Laboratory (NSIL) included either muscle tissue from larger fish unable to be preserved intact or whole animals.

Specimen	Fin clip	Life history	Muscle	Otolith	Stomach	Tags	Total
Atlantic sharpnose shark (*Rhizoprionodon terraenovae*)	62	16				22	100
Bignose shark (*Carcharhinus altimus*)	1						1
Blacknose shark (*Carcharhinus acronotus*)	43	1				30	74
Blacktip shark (*Carcharhinus limbatus*)	109		3			66	178
Blueline tilefish (*Caulolatilus microps*)	5		5	4	2		16

Bonnethead (*Sphyrna tiburo*)	2	1				1	4
Bull shark (*Carcharhinus leucas*)	17	1				16	34
Centrophorus sp.	22	6					28
Cuban dogfish *(Squalus cubensis*)	3	3					6
Dusky smoothhound (*Mustelus canis*)	2	3					5
Gag grouper (*Mycteroperca microlepis*)				2			2
Gray snapper (*Lutjanus griseus*)	1			2			3
Great hammerhead (*Sphyrna mokarran*)	4						4
Gulf smoothhound (*Mustelus sinusmexicanus*)	11	34	1			1	47
King snake eel (*Ophichthus rex*)			6		3		9
Lemon shark (*Negaprion brevirostris*)	2					2	4
Mutton snapper (*Lutjanus analis*)				2			2
Night shark (*Carcharhinus signatus*)		1					1
Nurse shark (*Ginglymostoma cirratum*)	11					12	23
Queen snapper (*Etelis oculatus*)	1		1	1			3
Red grouper (*Epinephelus morio*)	38			43			81
Red snapper (*Lutjanus campechanus*)	1			249			250
Sandbar shark (*Carcharhinus plumbeus*)	123					125	248
Scalloped hammerhead (*Sphyrna lewini*)	25					14	39
Sharksucker (*Echeneis naucrates*)			2				2
Shortspine spurdog (*Squalus mitsukurii*)	1	1					2
Silky shark (*Carcharhinus falciformis*)	10					5	15
Snowy grouper *(Hyporthodus niveatus*)	1		2	2	1		6

Speckled hind (*Epinephelus drummondhayi*)			1	1			2
Spinner shark (*Carcharhinus brevipinna*)	27	1				23	51
Spinycheek scorpionfish (*Neomerinthe hemingwayi*)				5			5
Tiger shark (*Galeocerdo cuvier*)	55	1	1			34	91
Tilefish (*Lopholatilus chamaeleonticeps*)	10		18	40			68
Vermillion snapper (*Rhomboplites aurorubens*)				1			1
Yellowedge grouper (*Hyporthodus flavolimbatus*)	1			21			22
TOTAL	**588**	**68**	**38**	**373**	**6**	**371**	**1446**