

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:**

**Platform:**

**Cruise Number:**

**Project Title:**

**Cruise Dates:** -

Submitted by:  
Field Party Chief

Date:

Approved by:  
Dr. Lisa Desfosse  
Director, Mississippi Laboratory  
NMFS, Pascagoula, MS

Date:

Approved by:  
Dr. Bonnie Ponwith  
Director, SEFSC  
NMFS, Miami, FL

Date:

# CRUISE RESULTS

NOAA Ship *Oregon II*, Cruise R2 12-03 (300)

## INTRODUCTION

The NOAA Ship *Oregon II* departed Pascagoula, MS on July 27, 2012 for the annual Bottom Longline Red Snapper/Shark Survey conducted along the coasts of the U.S. Western North Atlantic and northern 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 concurrently in order to characterize the survey area. The cruise was divided into 4 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 Mayport, FL, Pascagoula, MS and Galveston, TX.

Sailing for the first leg of the survey was delayed by 1 day in order to commemorate the 300th cruise of the Oregon II. At the beginning of the third leg, 4 days were lost due to delayed sailing for Hurricane Isaac. An additional 3 working days were lost during the fourth leg due to an unscheduled overnight port call for ship repairs and the disembarking of an injured scientist.

## 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. Provide tagging opportunities for coastal teleosts and sharks.
4. Conduct Conductivity, Temperature, Depth (CTD) casts to profile water column temperature, salinity, conductivity, 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; 3 weights (5-10 kg, at beginning, mid, end); and 2 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 survey conditions 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, dissolved oxygen (DO), light transmissivity, and fluorometry. An Orion LDO HQ10 portable DO meter was also used at a random station once a week to verify

DO readings. 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 3 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 within 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 sample 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. The end result is often a slight overestimation in order to provide an adaptable survey plan.

## RESULTS

There were 183 bottom longline sets completed in the Atlantic and northern GOM (Figure 1). Fifty stations were tentatively planned for the Atlantic and 41 completed, with 8 stations dropped due to high current and 1 due to too great a distance to be completed in the allotted sea days. Two hundred stations were tentatively planned for the GOM and 142 completed, with 58 stations dropped for time limitations due to the large shelf area and subsequent transit time in the eastern Gulf and time lost due to Hurricane Isaac, the unscheduled maintenance and disembarking of the injured member of the scientific party. Longline effort resulted in 2,404 captures with a catch per unit effort (CPUE, defined as catch per 100 hook hours) of 0.21. Elasmobranchs represented 78% of the catch, with representation from 24 species (Table 1). Teleosts constituted the remaining 22%, with representation from 39 species. The most frequently captured elasmobranch was the Atlantic sharpnose shark (*Rhizoprionodon terraenovae*) constituting 68.3% of shark captures, followed by the blacknose shark (*Carcharhinus acronotus*) (7.2%), the sandbar shark (*Carcharhinus plumbeus*) (6.3%) and the Gulf smoothhound (*Mustelus sinusmexicanus*) (4.7%). The most frequently captured teleost was red snapper (*Lutjanus campechanus*) constituting 29.8% of teleost captures, followed by red grouper (*Epinephelus morio*) (25.9%), king snake eels (*Ophichthus rex*) (10.7%), and tilefish (*Lopholatilus chamaeleonticeps*) (8.6%).

Biological samples were collected and a number of shark tags deployed during the survey. A total of 404 tags were deployed on 17 different species, including 14 satellite tags from Louisiana Department of Wildlife and Fisheries. All biological samples were frozen or preserved as specified, and returned by NOAA MS Labs staff to NOAA MS Labs, NOAA Panama City Labs, National Seafood Inspection Laboratory (NSIL), University of New England and Auburn University (Table 2).

## CRUISE PARTICIPANTS

### Leg I (27 July – 8 August, 2012)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Kristin Hannan	Field Party Chief	IAP/NMFS MS Lab
Mark Grace	Biologist	NMFS MS Lab
Travis Holland	Biologist	IAP/NMFS MS Lab
Lisa Jones	Biologist	NMFS MS Lab
Andrew Moorehead	Volunteer	EMSCC, Columbus, MS
Jim Nienow	Volunteer	Valdosta State, Valdosta, GA
Anastasia Nienow	Volunteer	Valdosta State, Valdosta, GA
Muri Alexander	Volunteer	Univ. of FL, Gainesville, FL
Steven Frantz	Teacher at Sea	Smithville, OH
Justin McDonald	Volunteer	Dauphin Island Sea Lab, AL
Trevor Harting	Volunteer	Stony Brook, Long Island, NY

### Leg II (10 August – 25 August, 2012)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Kristin Hannan	Field Party Chief	IAP/NMFS MS Lab
Mark Grace	Biologist	NMFS MS Lab
Michael Hendon	Biologist	NMFS MS Lab
Justin Goggins	Biologist	IAP/NMFS MS Lab
David Huddleston	Biologist	IAP/NMFS MS Lab
Karen Rodriguez	Biologist	NMFS Panama City Lab
Jennifer McKinney	Volunteer	LDWF, Baton Rouge, LA
Daniel Geary	Volunteer	Orlando, FL
David Seay	Volunteer	Auburn Univ., Auburn, AL
Debra Novak	Teacher at Sea	Albuquerque, NM

### Leg III (3 September – 12 September, 2012)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Christian Jones	Field Party Chief	NMFS MS Lab
Lisa Jones	Biologist	NMFS MS Lab
William Driggers	Biologist	NMFS MS Lab
Eric Hoffmayer	Biologist	NMFS MS Lab
Drew Rosati	Biologist	NMFS Panama City, FL
Bianca Prohaska	Volunteer	Univ. New England, Biddeford, ME
Amy Carlson	Volunteer	Univ. New England, Biddeford, ME
Wally Bubley	Volunteer	TXPW, Port O'Conner, TX
Bethany Jones	Volunteer	Univ. New Hampshire, Durham, NH
Dan Beaulieu	Volunteer	Univ. New Hampshire, Durham, NH

### Leg IV (14 September – 29 September, 2012)

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Lisa Jones	Field Party Chief	NMFS MS Lab
William Driggers	Biologist	NMFS MS Lab
Joey Salisbury	Biologist	IAP/NMFS MS Lab

Matt Campbell  
Linda Lombardi  
Thomas VanNice  
Matt Lotti  
Brooke Reber  
Michael Piersiak

Biologist  
Biologist  
Volunteer  
Volunteer  
Volunteer  
Volunteer

NMFS MS Lab  
NMFS Panama City, FL  
Cove, OR  
Univ. Rhode Island, Kingston, RI  
Salt Lake City, UT  
Cape Eleuthra Institute, Eleuthra,  
Bahamas

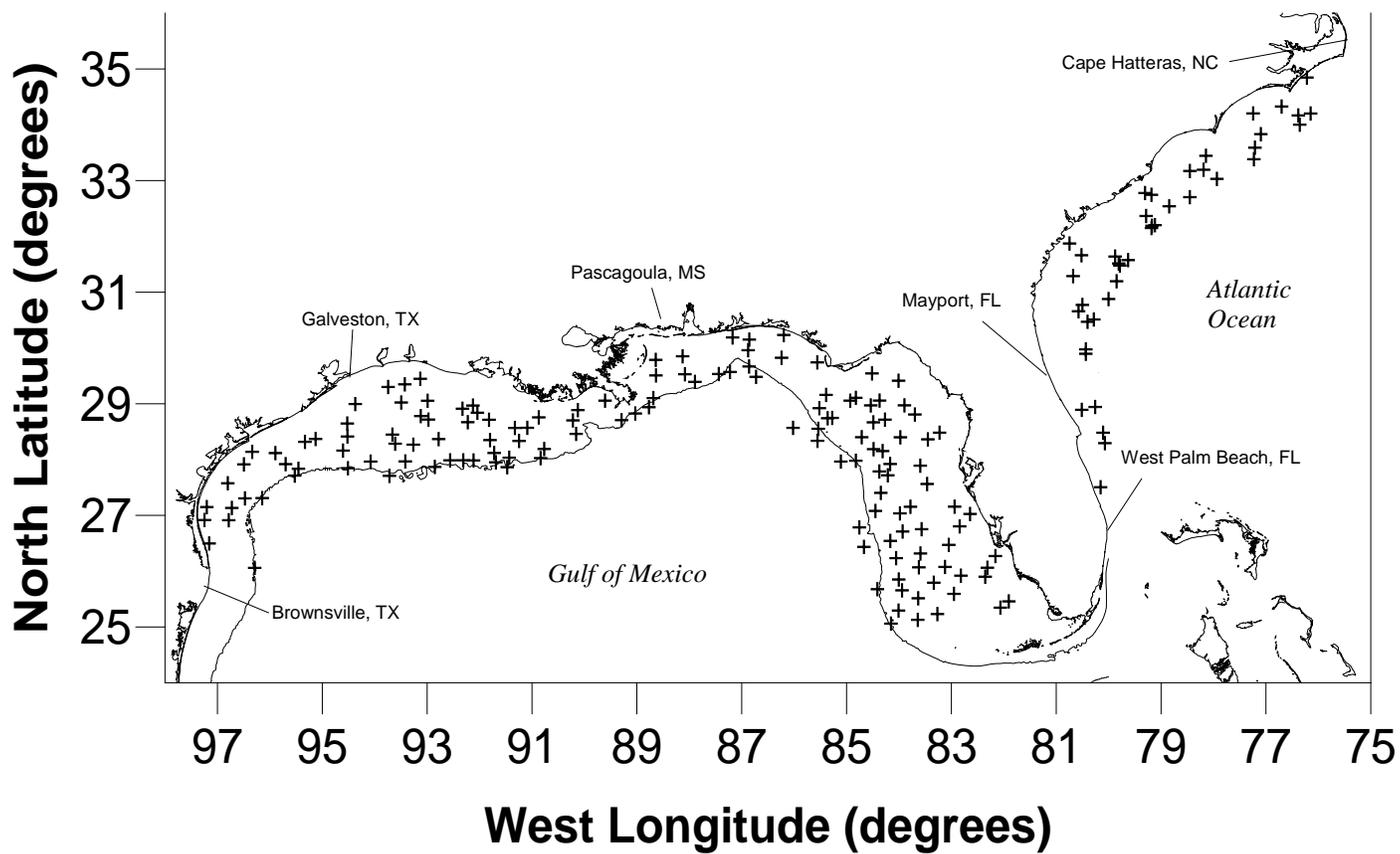


Figure 1. Locations of completed bottom longline stations during NOAA ship OREGON II Cruise R2-12-03 (300). Pictured isobath is 200 m.

Table 1. Catch summary for 2012 bottom longline survey OREGON II R2-12-03 (300).

Elasmobranchs	Number	Frequency of Occurrence
Atlantic sharpnose shark ( <i>Rhizoprionodon terraenovae</i> )	1287	116
Blacknose shark ( <i>Carcharhinus acronotus</i> )	136	46
Sandbar shark ( <i>Carcharhinus plumbeus</i> )	118	56
Gulf smoothhound ( <i>Mustelus sinusmexicanus</i> )	89	17
Blacktip shark ( <i>Carcharhinus limbatus</i> )	65	22
Tiger shark ( <i>Galeocerdo cuvier</i> )	49	33
Spinner shark ( <i>Carcharhinus brevipinna</i> )	29	7
Silky shark ( <i>Carcharhinus falciformis</i> )	22	17
Bull shark ( <i>Carcharhinus leucas</i> )	18	15
Nurse shark ( <i>Ginglymostoma cirratum</i> )	14	11
Narrowfin smoothhound shark ( <i>Mustelus norrisi</i> )	11	5
Scalloped hammerhead ( <i>Sphyrna lewini</i> )	11	9
Great hammerhead ( <i>Sphyrna mokarran</i> )	7	6
<i>Mustelus</i>	6	3
Carcharhinidae	3	3
Cuban dogfish ( <i>Squalus cubensis</i> )	3	3
Caribbean reef shark ( <i>Carcharhinus perezi</i> )	2	2
Night shark ( <i>Carcharhinus signatus</i> )	2	2
Southern stingray ( <i>Dasyatis americana</i> )	2	2
Smooth dogfish ( <i>Mustelus canis</i> )	2	1
Lemon shark ( <i>Negaprion brevirostris</i> )	2	2
Bonnethead shark ( <i>Sphyrna tiburo</i> )	2	2
<i>Squalus</i>	2	1
Clearnose skate ( <i>Raja eglanteria</i> )	1	1

Teleosts	Number	Frequency of Occurrence
Red snapper ( <i>Lutjanus campechanus</i> )	155	26
Red grouper ( <i>Epinephelus morio</i> )	135	25
King snake eel ( <i>Ophichthus rex</i> )	56	20
Tilefish ( <i>Lopholatilus chamaeleonticeps</i> )	45	15
Gafftopsail catfish ( <i>Bagre marinus</i> )	40	8
Yellowedge grouper ( <i>Hyporthodus flavolimbatus</i> )	21	13
Pale spotted eel ( <i>Ophichthus puncticeps</i> )	8	8
Great barracuda ( <i>Sphyraena barracuda</i> )	7	6
Greater amberjack ( <i>Seriola dumerili</i> )	6	5
Hardhead catfish ( <i>Arius felis</i> )	4	4
Southern hake ( <i>Urophycis floridanus</i> )	4	3
Blueline tilefish ( <i>Caulolatilus microps</i> )	3	3
Snowy grouper ( <i>Hyporthodus niveatus</i> )	3	3
Gag grouper ( <i>Mycteroperca phenax</i> )	3	3
Snakefish ( <i>Trachinocephalus myops</i> )	3	3
Black seabass ( <i>Centropristis striatus</i> )	2	2

Table 1. Continued		
Sharksucker ( <i>Echeneis naucrates</i> )	2	2
Reticulate moray ( <i>Muraena retifera</i> )	2	1
Red drum ( <i>Sciaenops ocellatus</i> )	2	2
Conger eel ( <i>Conger oceanicus</i> )	1	1
Dolphinfish ( <i>Coryphaena hippurus</i> )	1	1
Sand perch ( <i>Diplectrum formosum</i> )	1	1
Speckled hind ( <i>Epinephelus drummondhayi</i> )	1	1
Little tunny ( <i>Euthynnus alletteratus</i> )	1	1
Green moray eel ( <i>Gymnothorax funebris</i> )	1	1
Blacktail moray ( <i>Gymnothorax kolpos</i> )	1	1
Warsaw grouper ( <i>Hyporthodus nigritus</i> )	1	1
Pinfish ( <i>Lagodon rhomboides</i> )	1	1
Mutton snapper ( <i>Lutjanus analis</i> )	1	1
Grey snapper ( <i>Lutjanus griseus</i> )	1	1
Lane snapper ( <i>Lutjanus synagris</i> )	1	1
Spinycheek scorpionfish ( <i>Neomerinthe hemingwayi</i> )	1	1
Bluefish ( <i>Pomatomus saltatrix</i> )	1	1
Cobia ( <i>Rachycentron canadum</i> )	1	1
Remora ( <i>Remora remora</i> )	1	1
Vermillion snapper ( <i>Rhomboplites aurorubens</i> )	1	1
Chub mackerel ( <i>Scomber japonicas</i> )	1	1
Lizardfish ( <i>Synodus foetens</i> )	1	1
Gulf hake ( <i>Urophycis cirratus</i> )	1	1
<b>TOTAL</b>	<b>2404</b>	

Table 2. Summary of samples collected and tags deployed on bottom longline cruise OREGON II R2-12-300 (300). Tissue and whole animals were saved for the National Seafood Inspection Laboratory (NSIL).

Specimen	Tags	Otoliths	Gonads	Tissue	Stomachs	NSIL	Hearts	Blood
<b>TOTAL</b>	404	326	325	432	28	7	33	14
<i>Carcharhinus acronotus</i>	75	---	---	69	3	---	1	---
<i>Carcharhinus brevipinna</i>	9	---	---	11	---	---	1	---
<i>Carcharhinus falciformis</i>	13	---	---	13	---	---	---	---
<i>Carcharhinus leucas</i>	10	---	---	9	---	---	---	---
<i>Carcharhinus limbatus</i>	36	---	---	32	---	---	1	1
<i>Carcharhinus perezii</i>	2	---	---	2	---	---	---	---
<i>Carcharhinus plumbeus</i>	98	---	---	93	---	---	---	2
<i>Carcharhinus signatus</i>	1	---	---	1	---	---	---	1
<i>Caulolatilus microps</i>	---	3	2	2	---	1	---	---
<i>Epinephelus drummondhayi</i>	---	1	1	---	---	1	1	---
<i>Epinephelus morio</i>	---	108	107	11	19	---	11	---
<i>Galeocerdo cuvier</i>	28	---	---	31	---	---	---	---
<i>Ginglymostoma cirratum</i>	11	---	---	11	---	---	---	---
<i>Hyporthodus flavolimbatus</i>	---	21	21	3	---	---	1	---
<i>Hyporthodus nigritus</i>	---	1	1	---	---	1	---	---
<i>Hyporthodus niveatus</i>	---	3	3	---	---	2	---	---
<i>Lopholatilus chamaeleonticeps</i>	---	42	43	8	---	---	4	---
<i>Lutjanus analis</i>	---	1	1	1	---	---	---	---
<i>Lutjanus campechanus</i>	---	141	141	16	5	---	6	---
<i>Lutjanus griseus</i>	---	1	1	1	---	---	---	---
<i>Lutjanus synagris</i>	---	1	1	---	---	---	---	---
<i>Mustelus</i>	5	---	---	3	---	---	---	---
<i>Mustelus canis</i>	---	---	---	2	---	---	---	---
<i>Mustelus norrisi</i>	3	---	---	5	---	---	---	---
<i>Mustelus sinusmexicanus</i>	74	---	---	75	---	---	---	1
<i>Mycteroperca phenax</i>	---	3	3	1	---	1	---	---
<i>Negaprion brevirostris</i>	1	---	---	1	---	---	---	---
<i>Rhizoprionodon terraenovae</i>	19	---	---	15	1	---	7	9
<i>Sphyrna lewini</i>	10	---	---	10	---	---	---	---
<i>Sphyrna mokarran</i>	9	---	---	6	---	---	---	---