

Bottom Longline Survey
Coastal Sharks - Red Snapper
NOAA Ship OREGON II, OT-06-04 (272)

SURVEY PERIOD: 9/29 - 9/25/2006

CRUISE RESULTS

AREA OF OPERATION

Survey operations were conducted 07/29 - 09/25/2006 North Atlantic Ocean along the U.S. east coast from off shore of Cape Canaveral, FL, and along the U.S. Gulf of Mexico (Fig. 1).

OBJECTIVES

NOAA Ship OREGON II, cruise OT-06-04 (272)

- 1) Conduct a study to assess the distribution and abundance of coastal sharks, red snapper (*Lutjanus campechanus*) and grouper.
- 2) Collect biological and environmental data at survey sites.
- 3) Tag and release.
- 4) Capture.

MATERIALS AND METHODS

The survey platform NOAA Ship OREGON II, was outfitted with commercial-type longline gear. The mainline (425 kg or 1000 lb test 4 mm diameter, 1 nautical mile) was deployed through a series of blocks. Radar reflector buoys (start and end of set) with strobes at night, 5 kg (11 lb) weights (start, mid-set, end set), and 3.56 m (12 ft) gangways (357 kg or 700 lb test 3 mm diameter) with hooks (#15 circle) were clipped to the mainline as it was deployed. Vessel speed ranged from 3.5 - 4 knots during the set. A trained heeper was used to establish relatively uniform spacing for attaching buoys to the mainline. Hand-held radios were used for communications between the bridge, stern and longline reel operator.

Bottom longline effort was 100 heeper fished for 1 hour (soak time). Soak time was determined from the time the last radar reflector buoy was deployed during the set until the first radar reflector buoy was retrieved at the haulback. Soak times varied depending on survey conditions or gear problems but were generally 1 hour. Hooks were baited with Atlantic menhaden (*Brevoortia tyrannus*, 12 kg or 26 lb per set) or in the circle hooks. Catch was brought aboard (for sharks less than approximately 1.5 m total length, all finfish) or held at surface for estimating size and weight or for tagging. Provided set conditions were favorable a catch landing sling deployed with the ship's articulating crane was used to bring specimens to the ship's rail height for collecting biological data (lengths, weights and to confirm identifications) including tagging and collection of fin clip samples. The landing sling was outfitted with a remotely operation electronic scale used for obtaining specimen weights. Haulback speed was

Bottom Longline Survey
Coastal Sharks – Red Snapper
NOAA Ship OREGON II, OT-06-04 (272)

SURVEY PERIOD: 07/29 – 09/25/2006

AREA OF OPERATION:

Survey operations were conducted in the western North Atlantic Ocean along the U.S. east coast from offshore of Cape Hatteras south to Cape Canaveral, FL, and along the U.S. Gulf of Mexico (Figure 1.).

OBJECTIVES:

- 1) Conduct a study to assess the distribution and abundance of coastal sharks, red snapper (*Lutjanus campechanus*) and grouper.
- 2) Collect biological and environmental data at survey sites.
- 3) Tag and release sharks.
- 4) Conduct plankton and neuston sampling at longline locations.

MATERIALS AND METHODS:

The survey platform NOAA/NMFS research vessel OREGON II, was outfitted with commercial-type longline gear. Monofilament mainline (426 kg or 1000 lb test 4 mm diameter, 1 nautical mile length), was deployed off the stern through a series of blocks. Radar reflector buoys (start and end of set); with strobes at night, 5 kg (11 lb) weights (start, mid-set, end set), and 3.66 m (12 ft) gangions (332 kg or 700 lb test 3 mm diameter) with hooks (#15 circle) were clipped to the mainline as it was deployed. Vessel speed ranged from 3.5 – 4 knots during the set. A timed beeper was used to establish relatively uniform spacing for attaching hooks to the mainline. Hand-held radios were used for communications between the bridge, stern and longline reel operator.

Bottom longline effort was 100 hooks fished for 1 hour (soak time). Soak time was determined from the time the last radar reflector buoy was deployed during the set until the first radar reflector buoy was retrieved to begin the haulback. Some soak times varied depending on survey conditions or gear problems but were generally 1 hour. Hooks were baited with Atlantic mackerel (*Scomber scombrus*, 12 kg or 26 lb per set) cut to fit the circle hooks. Catch was brought aboard (for sharks less than approximately 1.5 m total length, all finfish) or held at surface for estimating size and weight or for tagging. Provided sea conditions were favorable a catch landing sling deployed with the ship's articulating crane was used to bring specimens to the ship's rail height for collecting biological data (lengths, weights and to confirm identifications) including tagging and collection of fin clip samples. The landing sling was outfitted with a remotely operation electronic scale used for obtaining specimen weights. Haulback speed was

approximately 3.5 - 4 knots and haulback time ranged from 20 - 60 minutes depending on catch rates and sea conditions.

Environmental data were collected using a CTD deployed during the soak. The CTD provides a surface to bottom profile of temperature, salinity, dissolved oxygen, chlorophyll, and turbidity.

Longline sets and haulbacks were monitored using shipboard SCS/FSCS systems operated with weatherproof laptop computers programmed with touch screen options. SCS/FSCS software allowed data acquisition needed to describe set and haulback events (GMT time/date stamp, location, ship sensor information), and to describe catch and gear specifics. Other data elements recorded on a per hook basis were hook status (bait missing, damaged or whole), gear status (hook damaged or missing) and visual events (e.g., dolphins sighted).

Shark tagging protocols followed procedures established by NMFS Narragansett Laboratory and NMFS Panama City Laboratory, catch sampling and plankton/neuston effort followed SEFSC SEAMAP protocols. Finfish, including red snapper and grouper were sampled for otoliths and other tissues.

SURVEY DESIGN:

All randomly selected longline survey sites were occupied in the most time efficient manner possible and were not designated as day or night sites prior to the survey. Survey sites for bottom longline effort were selected at random within 3 depth strata; 9 - 55 m (5 - 30 fm), 55 - 183 m (30 - 100 fm), 183 - 366 m (100 - 200 fm). Most bottom longline sets were conducted parallel to depth contours unless survey conditions (i.e., current, sea state, wind) necessitated a different orientation. The number of randomly selected survey sites occupied within 60 nautical mile contiguous sampling zones was proportionally allocated based on the amount of continental shelf area within each of the depth strata. Fifty percent of stations were allocated between 5 - 30 fm, 40% between 30 - 100 fm, and 10% between 100 - 200 fm. Sampling zones with a broad continental shelf were allocated more survey sites than sampling zones with a narrow shelf.

RESULTS:

Bottom longline effort produced 2842 captures from 208 bottom longline sets (Table 1). Elasmobranchs constituted 89% of the catch, teleosts constituted the remaining 10.9%, with 0.1 % others. Elasmobranchs captured were represented by 20 shark species and 2 ray species; teleosts were represented by 30 species (Table 2).

Catch rate for all sharks combined was 12.1 sharks/100 hook hr. The most frequently captured shark was the Atlantic sharpnose shark constituting 75 % of shark captures (Table 2), followed by the blacknose shark, tiger shark, and blacktip shark (Table 2). The most frequently captured teleost was the king snake eel, followed by red

grouper, red snapper, and yellowedge grouper (Table 2). The sharks and teleost listed as unidentified in Table 2 were captures that escaped from the hook before a positive identification could be determined.

Survey sites were originally selected in the Atlantic from Cape Hatteras south to offshore of West Palm Beach, FL, and the entire U.S. Gulf of Mexico shelf, however, due to vessel related problems and slower than anticipated survey progress, the entire survey area could not be covered during Legs II and IV. In general (in order for the survey to progress), survey sites that were preselected within 5 nautical miles of another preselected site were dropped provided they both occupied the same depth strata; other sites were eliminated to reduce excessive transit times. Randomly selected sites within the 183 – 366 m (100 – 200 fm) depth strata were not eliminated.

SURVEY PARTICIPANTS:

Leg I, 7/29 – 8/11/06

Trey Driggers	FPC	NMFS/MS Lab
Lisa Jones	Biologist	NMFS/MS Lab
Christian Jones	Biologist	NMFS/MS Lab
Dean Landi	Biologist	NMFS/MS Lab
Adam Pollack	Biologist	NMFS/MS Lab
Courtney Johnson	Intern	NMFS/MS Lab
Loraine Cook	Volunteer	
Cory Philip	Volunteer	
Bradley Easton	Volunteer	
Heidi Jones	Volunteer	
Mike Clark	Volunteer	NMFS, HMS

Leg II, 8/12 – 8/25/06

Mark Grace	FPC	NMFS/MS Lab
Lisa Jones	Biologist	NMFS/MS Lab
Dean Landi	Biologist	NMFS/MS Lab
Michael Hendon	Biologist	NMFS/MS Lab
Carolyn Burks	Biologist	NMFS/MS Lab
Joseph Salisbury	Intern	NMFS/MS Lab
Linda Lombardi	Biologist	NMFS/PCity, FL
Lori Hale	Biologist	NMFS/PCity, FL
Jill Frank	Volunteer	Univ. MS
Saket Wagmode	Volunteer	TX Tech
Brad McHale	Volunteer	HMS, NMFS

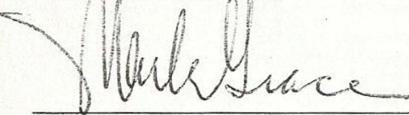
Leg III, 8/28 – 9/11/06

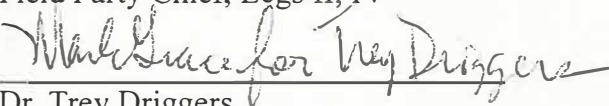
Trey Driggers	FPC	NMFS/MS Lab
John Moser	Biologist	NMFS/MS Lab
Andre Debose	Biologist	NMFS/MS Lab
Michael Felts	Biologist	NMFS/MS Lab
Carrie Horton	Biologist	NMFS/MS Lab
Laura Goetz	Biologist	NMFS/PCity, FL
Saket Wagmode	Volunteer	TX Tech
Patrick Casey	Volunteer	FL DMR
Jeff Kneebone	Volunteer	Univ. FL
Josh Harper	Volunteer	TX Parks and Wildlife

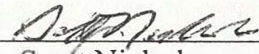
Leg IV, 9/12 – 9/25/06

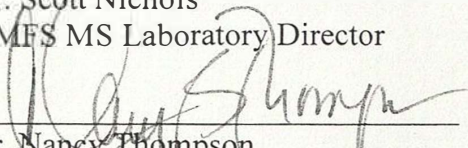
Mark Grace	FPC	NMFS/MS Lab
Trey Driggers	Biologist	NMFS/MS Lab
Karen Mitchell	Biologist	NMFS/MS Lab
Michael Hendon	Biologist	NMFS/MS Lab
Carrie Horton	Biologist	NMFS/MS Lab
Dana Bethea	Biologist	NMFS/PCity, FL
Ivy Baremore	Biologist	NMFS/PCity, FL
Fernando Martinez	Volunteer	TX Parks and Wildlife
Liberty Lohr, D	Volunteer	
Sara McTee, D	Volunteer	NMFS, HMS

SUBMITTED BY:


Mark Grace
Field Party Chief, Legs II, IV


Dr. Trey Driggers
Field Party Chief, Legs I, III


Dr. Scott Nichols
NMFS MS Laboratory Director


Dr. Nancy Thompson
NMFS, SEFSC Center Director

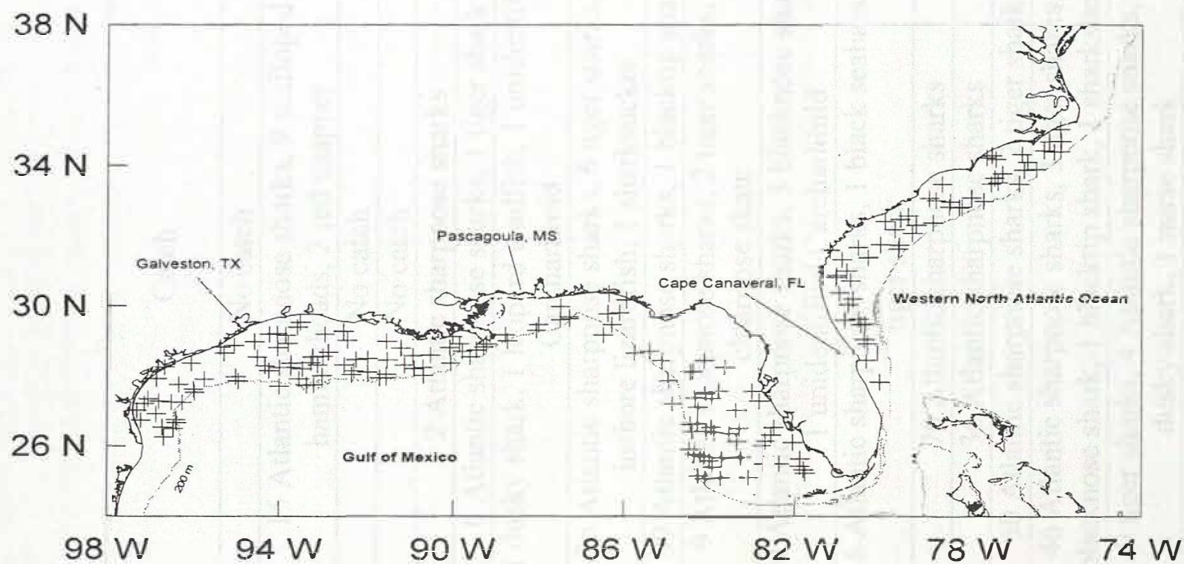


Figure 1. Station locations for the 2006 Bottom Longline Survey OT-06-04(272); station locations (+), degrees latitude north (N), degrees longitude west (L).

Date	Section	Lat °N	Long °W	Depth (m)	Time (GMT)
07/29/06	001	29 48.52	080 04.91	40.3	173
07/29/06	002	29 26.15	080 32.83	19.3	223
07/29/06	003	29 39.23	080 07.97	59.0	031
07/30/06	004	29 41.87	080 21.1	20.0	087
07/30/06	005	29 03.27	080 25.09	28.0	114
07/30/06	006	29 28.29	080 20.30	28.0	161
07/30/06	007	29 29.76	080 28.02	34.0	164
07/30/06	008	29 38.15	080 30.53	28.0	272
07/31/06	009	29 26.06	080 52.48	24.1	041
07/31/06	010	30 02.02	080 47.64	28.0	075
07/31/06	011	30 22.86	081 00.71	25.0	145
07/31/06	012	30 12.03	080 41.60	24.0	190
08/01/06	013	30 41.72	080 45.69	31.0	4319
08/01/06	014	30 57.58	081 09.38	15.8	4757
08/01/06	015	29 55.82	081 02.52	18.0	1114
08/01/06	016	31 01.54	080 48.48	24.0	1525
08/02/06	017	31 20.70	080 54.97	17.0	2102
08/02/06	018	31 24.26	080 19.81	36.0	0707

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

Date	Station	Lat °N	Lon °W	Depth (m)	Time (GMT)	Catch
07/29/06	001	27 48.52	080 04.01	40.3	1721	No catch
07/29/06	002	28 26.35	080 22.83	19.5	2230	15 Atlantic sharpnose sharks, 9 scalloped hammerheads, 2 red snapper
07/30/06	003	28 39.23	080 07.27	59.0	0339	No catch
07/30/06	004	28 55.87	080 21.1	30.0	0828	No catch
07/30/06	005	29 03.27	080 25.69	28.0	1149	2 Atlantic sharpnose sharks
07/30/06	006	29 28.29	080 30.30	28.0	1648	6 Atlantic sharpnose sharks, 1 tiger shark
07/30/06	007	29 29.77	080 24.62	34.0	1947	1 dusky shark, 1 leopard toadfish, 1 unidentified Carcharhinid
07/30/06	008	29 38.19	080 33.53	28.0	2329	26 Atlantic sharpnose sharks, 6 tiger sharks, 1 inshore lizardfish, 1 sharksucker
07/31/06	009	29 36.06	080 52.48	24.1	0419	39 Atlantic sharpnose sharks, 1 blacktip shark
07/31/06	010	30 02.62	080 47.64	28.0	0956	9 Atlantic sharpnose sharks, 2 tiger sharks, 1 clearnose skate
07/31/06	011	30 22.86	081 00.21	25.0	1430	59 Atlantic sharpnose sharks, 3 blacknose sharks, 1 unidentified Carcharhinid
07/31/06	012	30 12.63	080 41.60	34.0	1936	6 Atlantic sharpnose sharks, 1 black seabass, 1 tiger shark
08/01/06	013	30 44.72	080 43.49	31.0	0319	70 Atlantic sharpnose sharks
08/01/06	014	30 50.58	081 03.38	15.8	0757	36 Atlantic sharpnose sharks
08/01/06	015	30 53.88	081 02.32	18.0	1115	50 Atlantic sharpnose sharks, 2 tiger sharks
08/01/06	016	31 01.54	080 48.48	24.0	1525	46 Atlantic sharpnose sharks, 3 tiger sharks, 1 blacknose shark, 1 blacktip shark, 1 sharksucker
08/01/06	017	31 20.70	080 54.97	17.0	2132	9 tiger sharks, 4 Atlantic sharpnose sharks, 1 dusky shark, 1 nurse shark
08/02/06	018	31 24.26	080 19.01	36.0	0307	52 Atlantic sharpnose sharks, 1 sandbar shark, 1

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

						tiger shark
08/02/06	019	31 36.80	080 28.05	24.7	0719	20 Atlantic sharpnose sharks, 2 tiger sharks, 1 blacktip shark
08/02/06	020	31 41.45	080 33.29	19.7	1020	3 Atlantic sharpnose sharks, 11 tiger sharks, 1 great barracuda, 1 nurse shark
08/02/06	021	31 46.12	080 02.43	33.6	1538	50 Atlantic sharpnose sharks
08/02/06	022	31 38.63	079 37.93	72.0	2025	5 dusky sharks, 1 great barracuda, 1 scalloped hammerhead
08/02/06	023	31 45.50	079 36.85	63.8	2341	1 sandbar shark, 1 scamp, 1 warsaw grouper,\
08/03/06	024	32 05.19	079 18.63	69.7	0456	1 palespotted eel
08/03/06	025	32 11.65	079 42.83	29.0	0940	55 Atlantic sharpnose sharks, 1 tiger shark
08/03/06	026	32 25.67	079 55.99	15.0	1357	17 tiger sharks
08/03/06	027	32 29.07	079 35.07	22.0	1834	14 Atlantic sharpnose sharks, 3 tiger sharks
08/03/06	028	32 35.15	079 24.27	23.0	2148	16 Atlantic sharpnose sharks, 1 blacknose shark
08/04/06	029	32 19.25	079 13.35	43.0	0203	12 Atlantic sharpnose shark, 1 tiger shark
08/04/06	030	32 23.05	078 50.53	126.0	0627	No Catch
08/04/06	031	33 04.59	078 55.95	15.5	1320	10 Atlantic sharpnose sharks, 6 tiger sharks
08/04/06	032	33 00.96	078 46.72	23.0	1626	9 Atlantic sharpnose sharks, 1 dolphinfish
08/04/06	033	33 28.87	078 38.14	20.0	2127	6 tiger sharks, 2 Atlantic sharpnose sharks, 1 great barracuda, 1 nurse shark
08/05/06	034	32 58.92	078 26.81	35.0	0323	31 Atlantic sharpnose sharks, 1 clearnose skate, 1 tiger shark
08/05/06	035	32 49.02	078 14.24	114.0	0709	1 pale spotted eel
08/05/06	036	32 49.81	078 10.35	134.0	1006	1 bigeye thresher shark, 1 night shark
08/05/06	037	33 05.63	077 57.43	39.0	1747	11 Atlantic sharpnose sharks, 1 smooth dogfish
08/05/06	038	32 59.93	077 40.63	183.0	2206	No catch
08/06/06	039	33 39.29	077 25.26	31.0	0536	23 Atlantic sharpnose sharks, 3 tiger sharks, 1 sandbar shark
08/06/06	040	33 29.25	077 30.35	24.0	0929	39 Atlantic sharpnose sharks
08/06/06	041	33 31.37	077 20.91	32.0	1244	15 Atlantic sharpnose sharks, 6 red grouper, 3

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

						sandbar sharks, 1 dolphinfish
08/06/06	042	33 29.35	076 51.48	190.3	1824	1 scalloped hammerhead
08/06/06	043	33 53.01	076 44.65	42.0	2328	21 Atlantic sharpnose sharks, 3 red grouper, 1 tiger shark
08/07/06	044	34 06.17	076 40.10	36.4	0434	23 Atlantic sharpnose sharks, 1 nurse shark
08/07/06	045	33 54.05	076 27.80	65.0	0727	12 Atlantic sharpnose sharks, 3 tiger sharks
08/07/06	046	34 23.59	076 02.77	53.0	1406	8 Atlantic sharpnose sharks, 1 blacknose shark, 1 tiger shark
08/07/06	047	34 24.22	075 54.03	116.0	1724	2 pale spotted eels, 1 sandbar shark
08/07/06	048	34 41.36	075 53.27	39.00	2201	32 Atlantic sharpnose sharks, 1 tiger shark
08/08/06	049	35 01.76	075 54.23	23.0	0411	54 Atlantic sharpnose sharks
08/08/06	050	34 41.31	076 09.67	27.0	0900	8 Atlantic sharpnose sharks
08/08/06	051	34 25.79	076 16.89	33.0	1314	55 Atlantic sharpnose sharks, 1 blacktip shark
08/08/06	052	34 19.44	076 47.76	27.0	1857	16 Atlantic sharpnose sharks, 2 black seabass, 2 tiger sharks, 1 unidentified shark
08/09/06	053	34 11.36	077 23.58	23.0	0106	14 Atlantic sharpnose sharks
08/09/06	054	34 17.42	077 29.19	20.0	0419	15 Atlantic sharpnose sharks, 1 blacktip shark, 1 tiger shark
08/09/06	055	34 14.02	077 36.76	16.0	0729	27 Atlantic sharpnose sharks
08/09/06	056	33 46.70	077 14.70	34.0	1322	13 Atlantic sharpnose sharks, 1 great barracuda, 1 spinner shark, 1 tiger shark
08/09/06	057	32 15.48	077 51.52	33.0	2021	19 Atlantic sharpnose sharks
08/10/06	058	32 50.03	078 28.01	41.0	0247	15 Atlantic sharpnose sharks, 1 clearnose skate
08/14/06	059	25 06.89	083 04.05	54.8	1716	1 barracuda, 1 dolphinfish, 1 red grouper
08/14/06	060	25 30.08	082 43.03	38.2	2159	20 Atlantic sharpnose sharks, 3 blacknose sharks, 1 tiger shark
08/15/06	061	25 29.59	082 29.74	33.0	0142	5 Atlantic sharpnose sharks, 2 nurse sharks, 2 red grouper, 1 blacktip shark
08/15/06	062	25 30.13	082 21.82	31.0	0527	4 Atlantic sharpnose sharks, 2 nurse sharks, 1 blacknose shark, 1 spinner shark, 1 red grouper

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

08/15/06	063	25 38.22	081 53.49	15.1	1052	7 nurse sharks, 5 blacknose sharks, 2 blacktip sharks
08/15/06	064	25 25.49	081 53.86	15.0	1501	3 nurse shark, 1 loggerhead turtle
08/16/06	065	25 25.49	081 53.86	15.0	0112	3 blacknose sharks, 1 nurse shark
08/16/06	066	25 13.70	081 46.60	16.0	0331	10 blacknose sharks, 2 blacktip sharks, 1 Atlantic sharpnose shark, 1 bonnethead shark
08/16/06	067	25 19.85	081 48.68	15.0	0638	14 Atlantic sharpnose sharks, 7 blacknose sharks, 2 blacktip sharks, 2 nurse sharks, 1 bonnethead, 1 unidentified Carcharhinid
08/16/06	068	26 05.80	082 03.43	13.6	1439	4 blacknose sharks, 2 nurse sharks
08/16/06	069	26 18.46	082 33.09	24.5	2003	3 nurse sharks, 1 silky shark
08/17/06	070	26 08.27	082 41.40	31.5	0010	2 Atlantic sharpnose sharks
08/17/06	071	26 00.31	082 45.94	37.0	0409	6 Atlantic sharpnose sharks, 6 red grouper, 1 goliath grouper, 1 nurse shark,
08/17/06	072	25 40.86	083 15.29	59.0	0948	1 Atlantic sharpnose shark
08/17/06	073	25 39.80	083 41.99	88.7	1425	1 red grouper
08/17/06	074	25 06.36	083 43.26	85.5	1939	No catch
08/19/06	075	25 04.69	084 04.51	134.7	0105	No catch
08/19/06	076	25 09.27	084 14.42	203.0	0440	1 snowy grouper
08/19/06	077	25 24.68	083 54.56	126.0	0950	1 reticulate moray, 1 scalloped hammerhead, 1 snowy grouper
08/19/06	078	25 34.75	083 58.75	136.0	1318	4 snowy grouper, 1 red snapper
08/19/06	079	25 42.00	084 06.02	148	1617	1 yellowedge grouper
08/19/06	080	25 43.55	084 11.55	162.1	2002	3 yellowedge grouper, 1 palespotted eel
08/19/06	081	25 46.46	084 20.07	157.9	2323	1 blueline tilefish
08/20/06	082	25 53.93	084 27.83	208.0	0310	1 blacktail moray, 1 Florida smoothhound, 1 yellowedge grouper
08/20/06	083	26 07.45	083 21.68	68.0	1222	5 great barracuda, 2 blacknose sharks, 1 scalloped hammerhead
08/20/06	084	26 23.14	083 52.74	106.7	1634	1 great barracuda

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

08/20/06	085	26 24.79	084 04.18	136.7	2025	1 Florida smoothhound
08/20/06	086	26 24.34	084 23.80	192.8	2347	2 yellowedge grouper
08/21/06	087	26 36.49	084 26.19	190.0	0357	2 yellowedge grouper
08/21/06	088	26 37.74	084 16.07	152.0	0724	7 snowy grouper
08/21/06	089	26 31.80	083 56.87	113.0	1132	No Catch
08/21/06	090	26 20.68	083 31.97	59.5	1605	3 Atlantic sharpnose sharks, 2 blacknose sharks
08/21/06	091	26 29.74	083 18.03	49.8	1943	16 Atlantic sharpnose sharks, 1 blacknose shark, 1 great barracuda
08/22/06	092	26 31.28	082 29.26	20.0	0219	4 blacktip sharks, 2 blacknose sharks, 1 nurse shark, 1 sand perch
08/22/06	093	27 16.46	082 49.72	16.0	0925	3 blacknose sharks, 1 spinner shark
08/22/06	094	27 33.09	082 59.68	16.0	1345	13 blacknose sharks, 1 nurse shark
08/22/06	095	27 00.95	083 22.68	47.2	1532	10 red grouper, 8 Atlantic sharpnose sharks
08/23/06	096	27 06.17	084 15.61	122.0	0258	1 palespotted eel
08/23/06	097	27 12.32	084 51.03	196.0	0824	No catch
08/23/06	098	27 22.28	084 19.05	106.0	1352	No catch
08/23/06	099	27 20.94	083 56.01	63.3	1745	No catch
08/23/06	100	27 33.67	083 47.10	48.7	2132	13 Atlantic sharpnose sharks, 3 red grouper, 2 blacknose sharks
08/24/06	101	27 30.04	084 04.76	68.6	0132	2 Atlantic sharpnose sharks, 1 sand perch
09/01/06	102	26 15.05	096 39.86	46.0	1901	2 Atlantic sharpnose sharks, 2 king snake eels
09/01/06	103	26 32.22	096 42.07	55.0	2317	No catch
09/02/06	104	26 29.19	096 26.70	82.3	0314	3 red snapper, 2 king snake eels, 2 smooth dogfish, 1 sandbar shark, 1 silky shark, 1 spoon-nose eel
09/02/06	105	26 39.69	096 22.36	210.0	0635	1 sevengill shark, 1 smooth dogfish, 1 southern stingray, 1 yellowedge grouper
09/02/06	106	26 44.98	096 23.40	309.0	0954	4 goldface tilefish, 1 gulf hake
09/02/06	107	26 54.83	096 50.31	60.0	1500	30 Atlantic sharpnose sharks, 2 sandbar sharks, 1 silky shark
09/02/06	108	26 44.05	097 11.79	18.0	2002	2 blacknose sharks, 2 sandbar sharks

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

09/03/06	109	27 00.86	097 17.17	20.0	0014	2 blacknose sharks
09/03/06	110	27 12.39	097 06.91	30.0	0351	9 Atlantic sharpnose sharks, 1 spinner shark
09/03/06	111	27 20.65	097 01.85	32.0	0701	8 Atlantic sharpnose sharks, 1 spinner shark
09/03/06	112	27 55.15	096 49.81	18.0	1912	5 blacktip sharks, 2 Atlantic sharpnose sharks, 1 southern stingray
09/04/06	113	27 16.53	096 46.76	56.0	0151	17 Atlantic sharpnose sharks, 1 red snapper
09/04/06	114	27 15.04	096 29.55	102.5	0543	3 red snapper, 2 sharpnose sharks, 2 smooth dogfish, 1 king snake
09/04/06	115	27 14.61	096 14.61	223.0	0920	2 tilefish, 1 unknown grouper
09/04/06	116	27 45.15	096 19.52	62.0	1435	29 Atlantic sharpnose sharks, 2 blacknose sharks, 2 red snapper, 1 blacktip shark
09/04/06	117	27 37.05	095 58.61	130.0	1853	4 yellowedge grouper, 2 smooth dogfish, 1 king snake eel
09/04/06	118	27 31.57	095 57.21	224.0	2210	4 tilefish, 1 smooth hound
09/05/06	119	27 54.29	095 43.74	57.0	0254	3 red snapper, 2 silky sharks, 1 Atlantic sharpnose shark, 1 unid carcharhinid
09/05/06	120	28 21.65	096 01.89	22.0	0903	4 Atlantic sharpnose sharks, 1 blacktip shark
09/05/06	121	28 15.25	096 38.66	32.0	1325	23 Atlantic sharpnose sharks, 3 blacknose sharks, 1 blacktip sharks, 1 unid. carcharhinid
09/05/06	122	28 38.81	095 15.90	24.0	1836	No catch
09/05/06	123	28 49.39	095 20.79	14	2206	27 Atlantic sharpnose sharks, 3 blacktip sharks
09/06/06	124	28 52.15	095 01.86	20.0	0238	7 blacknose sharks, 5 Atlantic sharpnose sharks, 1 blacktip shark
09/06/06	125	29 35.59	095 07.03	29.0	0639	1 tiger shark, 4 blacknose sharks, 3 Atlantic sharpnose sharks
09/06/06	126	27 58.67	094 59.79	85.0	1235	2 smooth dogfish
09/06/06	127	27 51.31	094 56.52	194.0	1552	4 tilefish, 2 Cuban dogfish, 1 smooth dogfish
09/06/06	128	28 16.98	094 19.26	48.0	2251	23 Atlantic sharpnose sharks, 3 blacknose sharks
09/07/06	129	28 09.01	094 13.80	59.0	0224	27 Atlantic sharpnose sharks, 2 blacknose sharks, 1 bull shark

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

09/07/06	130	28 14.30	093 59.45	61.0	0614	36 Atlantic sharpnose sharks, 1 blacknose, 1 king snake eel, 1 tiger shark,
09/07/06	131	28 14.52	093 44.00	44.0	0948	7 Atlantic sharpnose sharks, 2 king snake eels, 1 king mackerel, 1 silky shark
09/07/06	132	28 22.17	093 43.72	54.0	1257	10 Atlantic sharpnose sharks, 1 king snake eel, 1 red snapper
09/07/06	133	27 54.85	093 32.80	126.0	1805	3 yellowedge groupers, 1 king snake eel
09/07/06	134	27 44.25	093 22.42	213.0	2147	5 tilefish, 2 yellowedge grouper
09/08/06	135	27 44.53	093 13.13	222	0116	1 night shark, 1 smooth dogfish
09/08/06	136	27 42.13	093 59.93	223.0	0514	2 cuban dogsharks, 2 king snake eels
09/08/06	137	28 00.59	093 01.42	103.0	0940	3 smooth dogfish, 2 yellowedge groupers, 1 king snake eel
09/08/06	138	28 12.24	093 28.30	60.0	1539	3 Atlantic sharpnose sharks, 1 sandbar shark
09/08/06	139	28 18.94	093 07.70	56.0	1940	6 Atlantic sharpnose sharks, 1 great barracuda, 1 sandbar shark, 1 silky shark, 1 red snapper
09/08/06	140	28 22.47	093 16.70	53.0	2322	7 Atlantic sharpnose sharks, 5 red snapper, 1 smooth dogfish
09/08/06	141	28 32.60	093 14.23	71.0	0239	52 Atlantic sharpnose sharks, 1 blacknose shark
09/09/06	142	28 32.25	094 30.01	35.0	1150	19 Atlantic sharpnose sharks, 1 blacknose shark
09/09/06	143	28 49.66	080 04.01	41.0	1721	2 blacknose sharks, 1 blacktip shark, 1 great hammerhead, 1 tiger shark
09/09/06	144	28 58.51	094 33.84	19.0	1917	3 blacknose sharks, 1 Atlantic sharpnose shark, 1 loggerhead turtle, 1 tiger shark
09/10/06	145	28 48.66	094 01.60	25.0	0102	20 blacknose sharks, 4 blacktip sharks, 1 bull shark
09/10/06	146	28 55.72	093 47.68	23.0	0749	3 Atlantic Sharpnose sharks, 3 blacknose sharks
09/10/06	147	29 09.93	093 50.82	18.0	1128	6 blacknose, 3 Atlantic sharpnose sharks, 2 hardhead sea catfish, 1 great hammerhead
09/10/06	148	29 23.42	093 34.80	14.0	1553	7 Atlantic sharpnose shark, 1 blacknose shark, 1 great hammerhead, 1 southern stingray

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

09/10/06	149	29 32.08	093 30.81	11.0	1855	4 blacktip sharks, 4 bull sharks, 3 southern stingrays
09/10/06	150	29 12.71	094 02.21	16.0	0227	17 Atlantic sharpnose sharks, 4 red drum
09/12/06	151	29 11.49	094 13.02	14.3	0025	10 Atlantic sharpnose sharks, 5 blacknose sharks, 1 blacktip shark, 1 gaffsailtop catfish
09/13/06	152	29 11.50	092 57.20	20.0	0900	15 Atlantic sharpnose sharks, 3 blacknose sharks, 1 hardhead catfish, 1 tiger shark
09/13/06	153	29 16.80	092 31.59	14.0	1359	7 blacktip sharks, 3 gafftopsail sea catfish, 2 southern stingrays, 1 Atlantic sharpnose shark, 1 spinner shark
09/13/06	154	29 01.19	092 26.35	23.8	1807	2 dolphinfish, 1 Atlantic sharpnose shark
09/13/06	155	28 40.78	092 52.43	34.7	2342	26 Atlantic sharpnose sharks, 3 blacknose sharks, 2 blacktip sharks
09/13/06	156	28 33.53	093 00.00	42.0	0326	32 Atlantic sharpnose sharks, 3 red snapper, 1 croaker
09/14/06	157	28 18.68	092 30.99	60.0	0856	5 Atlantic sharpnose sharks, 3 blacknose sharks, 1 blacktip shark
09/14/06	158	28 02.41	092 20.83	109.0	1253	10 smooth dogfish, 2 king snake eels, 2 yellowedge grouper, 1 sand seatrout, 1 sandbar shark
09/14/06	159	28 09.04	092 17.58	77.3	1031	10 Atlantic sharpnose, 2 smooth dogfish, 1 king snake eel, 1 sailfish
09/14/06	160	28 28.37	092 14.34	52.7	0749	2 Atlantic sharpnose sharks, 1 king snake eel, 1 unidentified shark
09/14/06	161	28 30.09	091 58.65	49.1	1129	11 Atlantic sharpnose sharks, 7 red snapper
09/15/06	162	28 06.82	091 58.58	89.0	1612	2 Atlantic sharpnose sharks, 2 king snake eels, 2 smooth dogfish
09/15/06	163	27 56.74	091 41.93	139.0	0853	1 king snake eel
09/15/06	164	27 57.06	091 32.61	204.0	1146	1 king snake eel, 1 smooth dogfish, 1 yellowedge grouper

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

09/15/06	165	28 02.94	091 32.50	126.0	1436	11 smooth dogfish
09/15/06	166	28 27.40	091 31.15	51.1	1857	11 Atlantic sharpnose sharks, 3 blacknose sharks
09/16/06	167	28 59.60	091 32.03	12.0	0024	22 spinner sharks, 15 blacktip sharks, 5 Atlantic sharpnose sharks, 2 bull sharks
09/16/06	168	28 48.05	091 12.35	12.0	0636	3 blacknose sharks, 2 blacktip sharks, 1 Atlantic sharpnose shark
09/16/06	169	28 35.06	090 55.62	22.4	1107	21 Atlantic sharpnose shark, 6 blacknose sharks, 3 tiger sharks, 2 blacktip sharks, 2 gattsailtop catfish, 1 scalloped hammerhead
09/16/06	170	28 18.65	091 07.71	63.2	1529	6 Atlantic sharpnose sharks, 1 smooth dogfish
09/16/06	171	28 12.77	090 54.21	78.8	1903	8 Atlantic sharpnose sharks, 2 king snake eels
09/16/06	172	28 01.42	090 41.45	184.7	2252	2 Atlantic sharpnose sharks, 2 Smooth dogfish
09/17/06	173	28 15.10	090 42.14	62.0	0327	40 Atlantic sharpnose sharks, 3 red snapper, 2 blacknose sharks, 1 blacktip shark, 1 bull shark, 1 king snake eel
09/17/06	174	28 36.13	090 31.51	27.0	0841	12 Atlantic sharpnose sharks, 5 blacknose sharks, 1 blacktip shark
09/17/06	175	28 22.44	090 03.57	85.0	1358	7 smooth dogfish, 2 king snake eels, 1 scalloped hammerhead
09/17/06	176	28 49.17	090 04.78	35.0	1844	26 Atlantic sharpnose sharks, 4 blacknose sharks, 2 blacktip sharks
09/17/06	177	29 07.89	090 00.92	13.7	2333	10 blacktip sharks, 7 spinner sharks, 1 unidentified carcharhinid
09/18/06	178	28 55.78	089 51.27	41.0	0426	26 Atlantic sharpnose sharks, 3 blacktip sharks, 1 blacknose shark
09/18/06	179	28 42.96	089 47.07	47.1	0844	15 Atlantic sharpnose sharks, 6 smooth dogfish, 4 king snake eels, 1 blacktip shark, 1 scalloped hammerhead
09/18/06	180	28 33.17	089 36.30	309.0	1224	6 king snake eels, 2 yellowedge grouper, 1 blacktail moray, 1 Gulf hake, 1 smooth dogfish, 1

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

						tiger shark
09/18/06	181	28 45.14	089 27.60	98.9	1853	13 Smooth dogfish, 9 king snake eels, 4 Atlantic sharpnose sharks
09/18/06	182	28 50.21	089 17.55	86.7	2244	13 king snake eels, 12 Atlantic sharpnose sharks, 3 smooth dogfish
09/19/06	183	28 55.43	089 13.50	51.0	0248	9 Atlantic sharpnose sharks, 9 blacktip sharks, 2 spinner sharks, 1 finetooth shark
09/19/06	184	29 00.67	088 44.75	229.0	0826	9 king snake eels, 2 smooth dogfish, 1 night shark, 1 tilefish
09/19/06	185	29 11.17	088 47.68	70.0	1147	31 Atlantic sharpnose sharks, 3 smooth dogfish, 1 king snake eel, 1 scalloped hammerhead
09/19/06	186	29 18.75	088 04.43	96	1723	2 Florida smoothhounds, 1 Mustelus sp.
09/19/06	187	29 28.53	088 01.08	48.5	2045	3 blacknose sharks, 2 scalloped hammerheads
09/19/06	188	29 49.66	080 04.65	40.3	1701	No catch
09/20/06	189	29 59.36	087 30.26	30.0	0721	1 hardhead sea catfish
09/20/06	190	29 36.63	087 30.58	66.0	1159	1 red snapper, 1 reticulate moray, 1 snake fish
09/20/06	191	29 38.24	087 17.47	202.0	1528	6 tilefish, 3 smooth dogfish
09/20/06	192	29 41.63	087 18.05	160.0	1812	4 yellowedge grouper, 2 silky sharks, 2 tilefish
09/20/06	193	30 21.71	086 21.71	20.4	0152	13 gafftopsail sea catfish, 1 tiger shark
09/21/06	194	30 10.73	085 56.82	24.0	0818	1 hardhead sea catfish
09/21/06	195	29 48.83	086 06.62	42.0	1303	1 blacknose shark, 1 sandbar shark, 1 sharksucker
09/21/06	196	29 47.18	086 23.11	93.9	1622	2 Florida smoothhounds, 1 king snake eel
09/21/06	197	29 28.31	086 17.49	147.0	2030	2 tilefish, 1 Cuban dogfish
09/21/06	198	29 10.81	086 29.62	352.6	0051	1 tilefish
09/22/06	199	28 39.36	085 44.72	229.0	0838	2 yellowedge grouper, 1 smooth dogfish, 1 tilefish
09/22/06	200	28 42.43	085 23.87	157.0	1254	No catch
09/22/06	201	28 26.14	085 06.11	139.4	1704	1 smooth dogfish
09/22/06	202	27 51.57	084 56.46	267.3	2240	1 gulf hake
09/23/06	203	28 07.10	084 25.81	67.0	0413	20 Atlantic sharpnose sharks, 1 blacknose shark, 1 red grouper

Table 1. Station summary for 2006 Bottom Longline Cruise OT-06-04(272).

09/23/06	204	28 08.11	084 22.24	56.4	0629	10 Atlantic sharpnose sharks
09/23/06	205	28 14.60	083 37.88	30.9	1259	7 red grouper, 2 blacknose sharks, 2 nurse sharks, 1 tiger shark
09/23/06	206	28 26.46	084 06.86	38.4	1738	6 blacknose sharks, 1 nurse shark, 1 red grouper

Table 2. Bottom longline catch totals for 2006 OREGON II OT-06-04 (272).

Elasmobranchs (2530)

- Tiger shark, *Galeocerdo cuvieri* (98)
- Blacktip shark, *Carcharhinus limbatus* (95)
- Spinner shark, *Carcharhinus brevipinna* (37)
- Nurse shark, *Ginglymostoma cirratum* (31)
- Scalloped hammerhead, *Sphyrna lewini* (20)
- Sandbar shark, *Carcharhinus plumbeus* (16)
- Silky shark, *Carcharhinus falciformis* (9)
- Bull shark, *Carcharhinus leucas* (9)
- Night shark, *Carcharhinus signatus* (9)
- Dusky shark, *Carcharhinus obscurus* (7)
- Unidentified carcharhinid (7)
- Great hammerhead, *Sphyrna mokarran* (3)
- Sevengill shark, *Notorynchus cepedianus* (2)

- Atlantic sharpnose shark, *Rhizoprionodon terraenovae* (1904)
- Blacknose shark, *Carcharhinus acronotus* (178)
- Smooth dogfish, *Mustelus canis* (85)
- Florida smoothhound, *Mustelus norrisi* (6)
- Cuban dogfish, *Squalus cubensis* (5)
- Bonnethead shark, *Sphyrna tiburo* (2)
- Finetooth shark, *Carcharhinus isodon* (1)
- Mustelus* unidentified (1)

- Southern stingray, *Dasyatis americana* (8)
- Clearnose skate, *Raja eglanteria* (3)

Teleosts (309)

- King snake eel, *Ophichthus rex* (72)
- Red grouper, *Epinephelus morio* (43)
- Red snapper, *Lutjanus campechanus* (38)
- Yellowedge grouper, *Epinephelus flavolimbatus* (34)
- Tilefish, *Lopholatilus chamaeleonticeps* (27)
- Gafftopsail catfish, *Bagre marinus* (19)
- Barracuda, *Sphyraena barracuda* (13)
- Dolphinfish, *Coryphaena hippurus* (5)
- Hardhead catfish, *Arius felis* (5)
- Red drum, *Sciaenops ocellatus* (4)
- Scamp, *Mycteroperca phenax* (3)
- Shark sucker, *Echeneis naucrates* (3)
- Black seabass, *Centropristis striata* (3)

Table 2 (continued).

Sand perch, *Diplectrum formosum* (3)
Gulf hake, *Urophycis cirrata*, (2)
Blacktail moray, *Gymnothorax kolpos* (2)
Reticulate moray, *Muraena retifera* (2)
Sailfish, *Istiophorus platypterus* (1)
Goliath grouper, *Epinephelus itajara* (1)
Snowy grouper, *Epinephelus niveatus* (1)
Atlantic croaker, *Micropogonias undulatus* (1)
Leopard toadfish, *Opsanus pardus* (1)
Inshore lizardfish, *Synodus foetens* (1)
Blueline tilefish, *Caulolatilus microps* (1)
Snakefish, *Trachinocephalus myops* (1)
Warsaw grouper, *Epinephelus nigritus* (1)
Palespotted eel, *Ophichthus ocellatus* (1)
Spotted spoon-nose eel, *Echiophis intertinctus* (1)
Unidentified fish, (1)

Other (2)

Loggerhead turtle, *Caretta caretta* (2)