

Project Title: INSHORE FINFISH MONITORING & RESEARCH

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Reporting Period: July 1, 2009 – June 30, 2010.

Project Objectives:

- Item 1. Trammel net survey: Monitoring of higher salinity (>8 ppt) estuarine areas in SC.
- Item 2. Electrofishing survey: Monitoring of lower salinity (≤ 8 ppt) estuarine areas in SC.
- Item 3. Adult long-line survey: Monitoring of offshore areas of SC (outside the estuaries), especially of adult (spawning) red drum and coastal shark species.
- Item 4. Fish rack program: Measurements and biological samples from fish ‘racks’ (filleted carcasses) that anglers donate at conveniently located freezer locations.
- Item 5. Fish tournament program: Measurements and biological samples from fish caught at fishing tournaments.
- Item 6. Tagging program: Tag information from anglers that have caught a tagged fish.
- Item 7. State Finfish Survey (SFS): Information on statewide participation, catch and fishing effort.
- Item 8. Charterboat Logbook Program: Logbook information of catch and effort from vessels carrying fishermen on a for-hire basis (captains/owners required to submit these data by law).
- Item 9. Public survey of opinions of MRD and selected fisheries . Information on the opinions of SC saltwater recreational fishing license holders.

Summary of Activities / Accomplishments to Date:

- *Item 1. Trammel net survey: Monitoring of higher salinity (>8 ppt) estuarine areas in SC.*

During the reporting period (Jul 1, 2009 – Jun 30, 2010), a total of 982 trammel sets were made in nine survey strata along the SC coast (**Table 1**). The trammel survey included two new strata (the Broad and Colleton Rivers, both in Port Royal Sound), giving the most complete coverage of the South Carolina coastline in the survey’s 20 year history.

The trammel survey caught a total of 17,897 specimens belonging to 65 species (**Appendix 1**). Length and weight measurements were taken from the majority of fish before releasing them alive at the site of capture. A total of 3,584 biological samples (e.g. otoliths, scales, fin clips, etc.) were collected from a proportion of the specimens caught (**Table 2**).

Table 1 Number of trammel sets made, per month, in each sampling stratum during Jul 2009 - Jun 30 2010.

Stratum	2009						2010						Total
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
ACE Basin	10	9	12	13	10	12	13	8	13	12	7	13	132
Lower Ashley River	13	10	14	13	15	14	12	14	13	12	14	12	156
Broad River		11		13			12			14			50
Charleston Harbor	10	7	10	10	11	11	12	12	10	10	10	8	121
Collecton River		14		12			13			14			53
Lower Wando River	11	11	11	9	11	12	11	11	12	11	10	9	129
Muddy/Bulls Bay	13	10	14		12	11	13	12	13		11	10	119
Cape Romain	11		13	12	14	14	9	13	12	8	12	10	128
Winyah Bay	12		12	6	12	13		10	10	12		7	94
Total	80	72	86	88	85	87	95	80	83	93	64	69	982

Table 2 Number of biological samples collected from specimens caught during Jul 2009 – Jun 2010, by survey type

Biological sample	Purpose	Trammel	Electro	Longline	Total
Fin clip	Genetics	2,009	1,122	51	3,182
Otoliths	Ageing	642	138	68	848
Scales	Ageing	468	-	-	468
Whole specimen	Parasite examination (CofC)	186	193	42	421
Gonads	Maturity and fecundity	155	77	59	291
Muscle fillet	Mercury analysis (DHEC)	86	3	19	108
Whole specimens	Various student/intern projects	12	76	-	88
Other	Various (samples for other institutes)	26	32		58
Blood/Fin/Muscle	Telomere ageing genetics project	-	-	51	51
Stomach	Stomach content analysis	-	-	3	3
		3,584	1,641	293	5,518

- *Item 2. Electrofishing survey: Monitoring of lower salinity (≤ 8 ppt) estuarine areas in SC.*

During the reporting period, a total of 401 electrofishing sets was made in six survey strata (areas) along the SC coast (Table 3). One new stratum (“Freshwater Ashley”) was added to the program as part of a Mariculture project examining stocked striped bass survival and distribution patterns.

The electrofishing survey caught a total of 37,230 specimens belonging to 74 species (**Appendix 2**). Length and weight measurements were taken from the majority of fish before releasing them alive at the site of capture. A total of 1,641 biological samples (e.g. otoliths, scales, fin clips, etc.) was collected from a proportion of the specimens caught (**Table 2**).

Table 3 Number of electrofishing sets made, per month, in each sampling stratum during Jul 2009 - Jun 2010.

Stratum	2009						2010						Total
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Combahee River	5	6	6	6	5	6	5	6	5	6	6	7	69
Waccamaw River	4	5	3	3	5	6	5	4	5	5	7	6	58
Freshwater Ashley River	6	6	6	6	8	6	6	6	6	6	6	6	74
Lower Edisto River	6	5	6	6	6		5	6	6	6	5	6	63
Upper Ashley River	6	6	6	7	7	6	5		6	6	6	6	67
Upper Cooper River	6	6	6	5	6	4	6	6	6	6	7	6	70
Total:	33	34	33	33	37	28	32	28	34	35	37	37	401

- *Item 3. Adult long-line survey: Monitoring of offshore areas of SC (outside the estuaries), especially of adult (spawning) red drum and coastal shark species.*

During the reporting period, a total of 370 1/3rd-mile long-line sets were made in four survey strata along the SC coast (**Table 4**). These sets caught 1,715 specimens belonging to 26 species, of which red drum was the second most abundant (**Appendix 3**). Length measurements were taken from all specimens before releasing most of them alive at the site of capture. A total of 69 red drum was sacrificed for ageing purposes (as requested by the Atlantic States Marine Fisheries Commission) and a total of 293 biological samples was collected for a variety of purposes (**Table 2**).

Table 4 Number of long-line sets made during Jul 2009 – Jun 2010.

Gear type	Stratum	Jul '09	Aug '09	Sep '09	Oct '09	Nov '09	May '10	Total
1/3rd mile longline	Charleston Harbor	-	30	-	30	27	-	87
	Port Royal Sound	28	-	-	30	28	20	106
	St Helena Sound	30	-	-	30	30	-	90
	Winyah Bay	-	30	-	30	27	-	87
	Total:	58	60	0	120	112	20	370

- *Item 4. Fish rack program: Measurements and biological samples from fish 'racks' (filleted carcasses) that anglers donate at conveniently located freezer locations.*

A total of 305 fish racks belonging to 5 species was acquired through the freezer program during the reporting period, with sheepshead accounting for more than half of those collected (Table 5). Length, sex and maturity (where possible) were determined for each specimen, and otoliths were extracted and preserved for ageing. Starting in 2010, a fin clip from each specimen was also preserved for genetic analysis.

Table 5 Number of fish acquired from the freezer and tournament monitoring programs.

Scientific name	Common name	Program		Total
		Freezer	Tournament	
<i>Archosargus probatocephalus</i>	sheepshead	172	123	295
<i>Cynoscion nebulosus</i>	spotted seatrout	14	199	213
<i>Paralichthys lethostigma</i>	southern flounder	38	86	124
<i>Sciaenops ocellatus</i>	red drum	78	30	108
<i>Pomatomus saltatrix</i>	bluefish	-	37	37
<i>Pogonias cromis</i>	black drum	3	22	25
<i>Rachycentron canadum</i>	cobia	-	2	2
<i>Cynoscion regalis</i>	weakfish	-	1	1
		305	500	805

- *Item 5. Fish tournament program: Measurements and biological samples from fish caught at fishing tournaments.*

During the reporting period, SCDNR Inshore Fisheries attended nine fishing tournaments, including four from Jul-Oct 2009 and five from Apr-Jun 2010. Measurements and biological samples were obtained from 500 fish belonging to 8 species, of which spotted seatrout was the most numerous, followed by sheepshead and southern flounder (Table 5).

- *Item 6. Tagging program: Tag information from anglers that have caught a tagged fish.*

During the reporting period, the trammel and electrofishing surveys tagged 3,237 fish belonging to four species, with the majority being red drum (Table 6). Over the same period, the surveys recaptured 329 fish and recreational anglers reported 551 recaptures (Table 7). Approximately 74% (407/551) of the angler recaptures were released alive.

Table 6 Number of fish tagged by the Trammel and Electrofishing surveys period Jul 2009 – Jun 2010.

Species	Electro	Trammel	Total
BLACK DRUM		105	105
RED DRUM	664	2,347	3,011
SHEEPSHEAD	4	109	113
TRIPLETAIL		8	8
Total	668	2,569	3,237

Table 7. For fish originally tagged by the Trammel and Electrofishing surveys, number and fate of recaptured fish during the period Jul 2009 – Jun 2010.

Species	Gear	ANGLER RECAPTURES			SURVEY RECAPTURES			Total
		Killed	Release d (w/ tag)	Release d (w/o tag)	Killed	Released (w/ tag)		
BLACK DRUM	Trammel survey					4	4	
	Hook & Line	18		7			25	
	Gig	1					1	
BLACK DRUM Total		19		7		4	30	
RED DRUM	Trammel survey				2	298	300	
	Electro survey					21	21	
	Longline survey				1		1	
	Hook & Line	120	31	367			518	
	Gig	1					1	
	Cast net	1					1	
	Hand picking	1			1	1	3	
	RED DRUM Total		123	31	368	4	319	845
SHEEPSHEAD	Trammel survey					2	2	
	Hook & Line	2		1			3	
SHEEPSHEAD Total		2		1		2	5	
Total		144	31	376	4	325	880	
				551		329	880	

- *Item 7. State Finfish Survey (SFS): Information on statewide participation, catch and fishing effort.*

During the reporting period (July 1, 2009 – May 31, 2010; June data are still being entered and proofed), 1,707 fishing parties were interviewed in private boat mode representing contact with 3,530 recreational fishermen. 94% of fishing parties interviewed fished in inshore waters, while 2% fished in nearshore state waters (0-3 miles offshore) and 4% fished in offshore federal waters (greater than 3 miles offshore). Interviews were conducted at public and selected private boat landings in all coastal counties throughout the reporting period (**Table 8**). The top species targeted by fishing parties were red drum (*Sciaenops ocellatus*), spotted seatrout (*Cynoscion nebulosus*), flounder (*Paralichthys sp.*), and spot (*Leiostomus xanthurus*). Fishing parties interviewed caught a total of 19,720 fish belonging to 62 species (Appendix 4) of which 45% were harvested by anglers and kept for consumption (**Table 9**). Of those fish harvested (Appendix 5), 3,820 finfish were measured by SCDNR staff belonging to 47 species. Fifteen species accounted for 94% of all finfish measured (Table 10). Additionally in June 2010 SFS staff began collecting otoliths from a proportion of selected species (black drum, bluefish, Atlantic croaker, weakfish, sheepshead, and spot) to assist other MRD projects.

Table 8. Number of site visits and completed interviews by SFS staff, per month, in each coastal region during July 2009 – May 2010.

Region	Site Visits												Interviews											
	2009						2010						2009						2010					
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
Horry	3	3	4	3	10	14	6	3	16	5	2	69	21	23	8	33	21	5	0	0	8	33	14	166
Georgetown	7	7	9	10	12	29	29	15	36	7	5	166	53	27	59	106	82	21	32	18	54	33	45	530
Upper Charleston County	9	21	14	20	13	16	15	19	22	22	13	184	24	59	43	53	19	7	8	19	28	42	39	341
Lower Charleston and Colleton Counties	19	16	29	19	24	31	30	29	29	25	24	275	43	36	46	33	28	26	14	17	28	27	48	346
Beaufort and Jasper Counties	48	35	43	24	25	37	28	47	29	33	24	373	44	36	42	32	29	34	19	13	24	29	22	324
Total	86	82	99	76	84	127	108	113	132	92	68	1067	185	181	198	257	179	93	73	67	142	164	168	1707

Table 9. Disposition of fish caught by fishing parties interviewed by SFS staff during July 2009 – May 2010.

Disposition of fish	Number of Fish Caught	Percent of Catch
Kept to eat	8,943	45.3
Kept for bait	79	0.4
Released (legal)	6,188	31.4
Released (illegal, under size limit)	4,271	21.7
Released (illegal, over size limit)	205	1.0
Released (dead)	34	0.2
Total	19,720	100

Table 10. Mean total length (TL; mm), and size range (mm) of top fifteen finfish measured by SFS staff during July 2009 – May 2010.

Scientific Name	Common Name	Number of Fish Measured	Mean TL (mm)	Size Range TL (mm)
<i>Leiostomus xanthurus</i>	Spot	676	233	180 - 323
<i>Cynoscion nebulosus</i>	Spotted Seatrout	589	413	335 - 584
<i>Sciaenops ocellatus</i>	Red Drum	570	465	294 - 590
<i>Paralichthys lethostigma</i>	Southern Flounder	530	412	280 - 614
<i>Menticirrhus americanus</i>	Southern Kingfish	347	282	135 - 404
<i>Archosargus probatocephalus</i>	Sheepshead	250	337	217 - 479
<i>Centropristis striata</i>	Black Seabass	196	361	295 - 452
<i>Micropogonias undulatus</i>	Atlantic Croaker	111	247	184 - 333
<i>Pomatomus saltatrix</i>	Bluefish	102	360	246 - 457
<i>Scomberomorus maculatus</i>	Spanish Mackerel	70	396	306 - 642
<i>Pogonias cromis</i>	Drum, Black	41	489	362 - 643
<i>Scomberomorus cavalla</i>	Mackerel, King	34	832	638 - 1020
<i>Chaetodipterus faber</i>	Atlantic Spadefish	33	364	277 - 440
<i>Rhomboplites aurorubens</i>	Vermillion Snapper	26	346	318 - 377
<i>Coryphaena hippurus</i>	Dolphin	25	751	553 - 1080

- *Item 8. Charterboat Logbook Program: Logbook information of catch and effort from vessels carrying fishermen on a for-hire basis (captains/owners required to submit these data by law).*

During this reporting period (July 1, 2009 – June 30, 2010) there were 486 licensed six-passenger or fewer charterboat operators in South Carolina. Trip level data are submitted by licensed

vessel owners/operators on a monthly basis. June’s charter data was not required to be submitted to the agency until July 10th, 2010 and that data was not successfully edited, entered and verified prior to this Annual Project Progress Report submission deadline. Since the available data are not representative of a complete fiscal year and in order to assess the yearly trends in SC recreational charter fishing, the following tables summarize the 2009 calendar year charterboat data (**Tables 11 and 12**).

Table 11. “Top 10 Species” caught, landed, and/or released during charter trips in 2009.

10 Most Caught Species	10 Most Landed Species	10 Most Released Species
Accounts for 76.3% of all Species Caught	Account for 79.3% of all Species Landed	Accounts for 80.4% of all Species Released
Black Sea Bass	Spanish Mackerel	Red Drum
Red Drum	Dolphin	Black Sea Bass
Spotted Seatrout	Black Sea Bass	Spotted Seatrout
Spanish Mackerel	Vermilion Snapper	Atlantic Sharpnose Shark
Atlantic Sharpnose Shark	King Mackerel	Shark (Unclassified)
Dolphin	Spotted Seatrout	Blacktip Shark
Unclassified Shark	Red Drum	Bluefish
Vermilion Snapper	King Whiting	Flounder (Unclassified)
Bluefish	Bluefish	Ladyfish
Blacktip Shark	White Grunt	Vermilion Snapper

Table 12. Charter boat percentage of effort by area fished in 2009.

2009	Totals	Estuarine %	Inshore %	Offshore %
Trips	9,215	50.3	25.3	24.4
Boat Hours	40,977	48.1	22.4	29.4
Anglers	31,342	39.7	27.9	32.4
Angler Hours	142,149	36.9	24.1	39.0

- *Item 9. Public survey of opinions of MRD and selected fisheries. Information on the opinions of SC saltwater recreational fishing license holders.*

Changes were made to the saltwater recreational fishing license in July 2009, requiring individuals recreationally fishing from the shore and those recreationally shrimping and crabbing to have saltwater recreational fishing licenses for the first time. These license changes made shore-based anglers part of the known license holder population for the first time. During spring 2010, a telephone survey of saltwater recreational fishing license holders was designed in collaboration with Responsive Management, Inc. to help characterize saltwater recreational shore-based fishermen. The telephone survey was conducted by Responsive Management in May 2010. Participants were selected randomly from FY10 saltwater recreational license holders. 1,720 license holders participated in the survey. All respondents were asked questions about their saltwater fishing activities and their opinions of the Marine Resource Division and its activities. Respondents that indicated they saltwater fished from shore within the past 12 months were asked additional questions about their behaviors, opinions, and fishing activities. An executive summary of the survey results can be found in Appendix 6. A report with detailed survey results will be available upon request.

Appendix 1 Total catch of each species by the trammel net survey during Jul 1 2009 – Jun 30 2010.

Common name	Scientific name	Number caught	Rank
red drum	<i>Sciaenops ocellatus</i>	3,621	1
striped mullet	<i>Mugil cephalus</i>	2,735	2
spotted seatrout	<i>Cynoscion nebulosus</i>	2,726	3
spot	<i>Leiostomus xanthurus</i>	1,729	4
atlantic croaker	<i>Micropogonias undulatus</i>	1,171	5
blue crab	<i>Callinectes sapidus</i>	1,090	6
Diamondback terrapin	<i>Malaclemys terrapin centrata</i>	799	7
southern flounder	<i>Paralichthys lethostigma</i>	569	8
pinfish	<i>Lagodon rhomboides</i>	398	9
menhaden	<i>Brevoortia tyrannus</i>	359	10
atlantic sharpnose shark	<i>Rhizoprionodon terraenovae</i>	227	11
atlantic stingray	<i>Dasyatis sabina</i>	223	12
longnose gar	<i>Lepisosteus osseus</i>	216	13
bonnethead shark	<i>Sphyrna tiburo</i>	204	14
ladyfish	<i>Elops saurus</i>	197	15
harvestfish	<i>Peprilus alepidotus</i>	191	16
black drum	<i>Pogonias cromis</i>	189	17
sheepshead	<i>Archosargus probatocephalus</i>	132	18
southern whiting	<i>Menticirrhus americanus</i>	118	19
silver perch	<i>Bairdiella chrysoura</i>	111	20
bluefish	<i>Pomatomus saltatrix</i>	106	21
horseshoe crab	<i>Limulus polyphemus</i>	85	22
striped burrfish	<i>Chilomycterus schoepfi</i>	85	22
white mullet	<i>Mugil curema</i>	68	24
gizzard shad	<i>Dorosoma cepedianum</i>	65	25
bluntnose stingray	<i>Dasyatis sayi</i>	54	26
cownose ray	<i>Rhinoptera bonasus</i>	49	27
pigfish	<i>Orthopristis chrysoptera</i>	42	28
jack crevalle	<i>Caranx hippos</i>	40	29
atlantic bumper	<i>Chloroscombrus chrysurus</i>	32	30
spadefish	<i>Chaetodipterus faber</i>	30	31
northern puffer	<i>Sphoeroides maculatus</i>	29	32
green sea turtle	<i>Chelonia mydas</i>	27	33
sea catfish	<i>Arius felis</i>	25	34
hogchoker	<i>Trinectes maculatus</i>	22	35
finetooth shark	<i>Carcharhinus isodon</i>	17	36
lookdown	<i>Selene vomer</i>	15	37
smooth butterfly ray	<i>Gymnura micrura</i>	14	38
blacktip shark	<i>Carcharhinus limbatus</i>	13	39
lemon shark	<i>Negaprion brevirostris</i>	10	40
triple tail	<i>Lobotes surinamensis</i>	9	41
summer flounder	<i>Paralichthys dentatus</i>	8	42
butterfish	<i>Peprilus triacanthus</i>	5	43
permit	<i>Trachinotus falcatus</i>	5	43
atlantic needlefish	<i>Strongylura marina</i>	3	45
Atlantic ridley turtle	<i>Lepidochelys kempii</i>	3	45
blueback herring	<i>Alosa aestivalis</i>	3	45
gafftopsail catfish	<i>Bagre marinus</i>	3	45
lizardfish	<i>Synodus foetens</i>	3	45
spanish mackerel	<i>Scomberomorus maculatus</i>	3	45
spotted eagle ray	<i>Aetobatus narinari</i>	3	45
bay whiff	<i>Citharichthys spilopterus</i>	2	52
bighead searobin	<i>Prionotus tribulus</i>	2	52
blue catfish	<i>Ictalurus furcatus</i>	1	54
cobia	<i>Rachycentron canadum</i>	1	54
gulf flounder	<i>Paralichthys albigutta</i>	1	54
ocellated flounder	<i>Ancyloperca quadrocellata</i>	1	54
oyster toadfish	<i>Opsanus tau</i>	1	54
sandbar shark	<i>Carcharhinus plumbeus</i>	1	54
shortnose sturgeon	<i>Acipenser brevirostrum</i>	1	54
striped bass	<i>Morone saxatilis</i>	1	54
tarpon	<i>Megalops atlanticus</i>	1	54
weakfish	<i>Cynoscion regalis</i>	1	54
white catfish	<i>Ictalurus catus</i>	1	54
white shrimp	<i>Penaeus setiferus</i>	1	54
		17,897	

Appendix 2 Total catch of each species by the electrofishing survey during Jul 1 2009 – Jun 30 2010.

Common name	Scientific name	Number caught	Rank
striped mullet	<i>Mugil cephalus</i>	16,820	1
spot	<i>Leiostomus xanthurus</i>	6,381	2
tidewater silverside	<i>Menidia beryllina</i>	2,603	3
menhaden	<i>Brevoortia tyrannus</i>	2,396	4
mummichog	<i>Fundulus heteroclitus</i>	934	5
red drum	<i>Sciaenops ocellatus</i>	911	6
threadfin shad	<i>Dorosoma petenense</i>	647	7
bluegill	<i>Lepomis macrochirus</i>	643	8
american eel	<i>Anguilla rostrata</i>	589	9
largemouth bass	<i>Micropterus salmoides</i>	544	10
bay anchovy	<i>Anchoa mitchilli</i>	526	11
gizzard shad	<i>Dorosoma cepedianum</i>	488	12
silver perch	<i>Bairdiella chrysoura</i>	460	13
southern flounder	<i>Paralichthys lethostigma</i>	394	14
blue catfish	<i>Ictalurus furcatus</i>	371	15
longnose gar	<i>Lepisosteus osseus</i>	302	16
striped bass	<i>Morone saxatilis</i>	254	17
redeer sunfish	<i>Lepomis microlophus</i>	217	18
redbreast sunfish	<i>Lepomis auritus</i>	199	19
sheepshead minnow	<i>Cyprinodon variegatus</i>	169	20
spotted seatrout	<i>Cynoscion nebulosus</i>	152	21
atlantic croaker	<i>Micropogonias undulatus</i>	136	22
white mullet	<i>Mugil curema</i>	136	22
white catfish	<i>Ictalurus catus</i>	128	24
bowfin	<i>Amia calva</i>	111	25
tidewater mojarra	<i>Eucinostomus harengulus</i>	74	26
carp	<i>Cyprinus carpio</i>	65	27
black crappie	<i>Pomoxis nigromaculatus</i>	56	28
mosquitofish	<i>Gambusia affinis</i>	56	28
channel catfish	<i>Ictalurus punctatus</i>	49	30
rainwater killifish	<i>Lucania parva</i>	37	31
freshwater goby	<i>Gobionellus shufeldti</i>	35	32
hogchoker	<i>Trinectes maculatus</i>	35	32
pinfish	<i>Lagodon rhomboides</i>	28	34
pumpkinseed sunfish	<i>Lepomis gibbosus</i>	23	35
golden shiner	<i>Notemigonus crysoleucas</i>	22	36
Minnow - species TBI	<i>Minnow - Species TBI</i>	21	37
bay whiff	<i>Citharichthys spilopterus</i>	20	38
white perch	<i>Morone americana</i>	20	38
american shad	<i>Alosa sapidissima</i>	18	40
sheepshead	<i>Archosargus probatocephalus</i>	18	40
speckled worm eel	<i>Myrophis punctatus</i>	16	42
blueback herring	<i>Alosa aestivalis</i>	15	43
spotted sunfish	<i>Lepomis punctatus</i>	11	44
flathead catfish	<i>Pylodictis olivaris</i>	10	45
atlantic needlefish	<i>Strongylura marina</i>	9	46
brook silverside	<i>Labidesthes sicculus</i>	7	47
sailfin molly	<i>Poecilia latipinna</i>	7	47
sharptail goby	<i>Gobionellus hastatus</i>	6	49
warmouth sunfish	<i>Lepomis gulosus</i>	6	49
white amur	<i>Ctenopharyngodon idellus</i>	6	49
jack crevalle	<i>Caranx hippos</i>	5	52
black drum	<i>Pogonias cromis</i>	4	53
bluefish	<i>Pomatomus saltatrix</i>	4	53
chain pickerel	<i>Esox niger</i>	3	55
spotted sucker	<i>Minytrema melanops</i>	3	55
striped anchovy	<i>Anchoa hepsetus</i>	3	55
gray snapper	<i>Lutjanus griseus</i>	2	58
green sunfish	<i>Lepomis cyanellus</i>	2	58
gulf pipefish	<i>Syngnathus scovelli</i>	2	58
ladyfish	<i>Elops saurus</i>	2	58
leatherjacket	<i>Oligoplites saurus</i>	2	58
naked goby	<i>Gobiosoma boscii</i>	2	58
opossum pipefish	<i>Microphis brachyurus lineatus</i>	2	58
oyster toadfish	<i>Opsanus tau</i>	2	58
spinycheek sleeper	<i>Eleotris pisonis</i>	2	58
Tilapia species	<i>Tilapia sp.</i>	2	58
atlantic stingray	<i>Dasyatis sabina</i>	1	68
Caranx spp.	<i>caranx spp.</i>	1	68
fat sleeper	<i>Dormitator maculatus</i>	1	68
flier	<i>Centrarchus macropterus</i>	1	68
great barracuda	<i>Sphyrna barracuda</i>	1	68
pirate perch	<i>Aphredoderus sayanus</i>	1	68
star drum	<i>Stellifer lanceolatus</i>	1	68
		37,230	

Appendix 3 Total catch of each species by the 1/3rd mile long-line survey during Jul 1 2009 – Jun 30 2010.

Common name	Scientific name	Total catch	Rank
Shark, Atlantic sharpnose	<i>Rhizoprionodon terraenovae</i>	864	1
Red drum	<i>Sciaenops ocellatus</i>	314	2
Shark, sandbar	<i>Carcharhinus plumbeus</i>	143	3
Shark, blacktip	<i>Carcharhinus limbatus</i>	88	4
Shark, blacknose	<i>Carcharhinus acronotus</i>	64	5
Shark, finetooth	<i>Carcharhinus isodon</i>	55	6
Sea bass, black	<i>Centropristis striata</i>	30	7
Skate, clearnose	<i>Raja eglanteria</i>	25	8
Shark, bonnethead	<i>Sphyrna tiburo</i>	23	9
Toadfishes	<i>Batrachoididae</i>	22	10
Stingray, bluntnose	<i>Dasyatis say</i>	13	11
Stingray, Atlantic	<i>Dasyatis sabina</i>	10	12
Shark, lemon	<i>Negaprion brevirostris</i>	8	13
Stingray, southern	<i>Dasyatis americana</i>	7	14
Shark, spinner	<i>Carcharhinus brevipinna</i>	6	15
Stingray, rougtail	<i>Dasyatis centroura</i>	6	15
Dogfish, smooth	<i>Mustelus canis</i>	5	17
Shark, tiger	<i>Galeocerdo cuvier</i>	5	17
Horseshoe crab	<i>Limulus polyphemus</i>	5	17
Shark, scalloped hammerhead	<i>Sphyrna lewini</i>	4	20
Ray, cownose	<i>Rhinoptera bonasus</i>	4	20
Amberjack, greater	<i>Seriola dumerili</i>	3	22
Shark, nurse	<i>Ginglymostoma cirratum</i>	3	22
Catfish, gafftopsail	<i>Bagre marinus</i>	3	22
Whiting	<i>Menticirrhus americanus</i>	3	22
Shark, great hammerhead	<i>Sphyrna mokarran</i>	2	26
		1,715	

Appendix 4. Total catch of each species by fishing parties interviewed during the SFS from July 2009 – May 2010.

Species Name	Number Caught	Percent Of Total	Species Name	Number Caught	Percent Of Total
Spot	5,224	26.49%	Grouper, unidentified	20	0.10%
Red Drum	2,555	12.96%	Barracuda, Great	18	0.09%
Pinfish (Lagodon)	2,282	11.57%	Tarpon	15	0.08%
Seatrout, Spotted	1,455	7.38%	Cobia	13	0.07%
Seabass, Black	1,377	6.98%	Sea Catfish, Family	13	0.07%
Flounder, Paralichthidae	831	4.21%	Puffer, Family	13	0.07%
Kingfish, Southern	803	4.07%	Snapper, Red	11	0.06%
Bluefish	609	3.09%	Perch, Sand	11	0.06%
Flounder, Southern	550	2.79%	Wahoo	9	0.05%
Croaker, Atlantic	444	2.25%	Amberjack, Greater	8	0.04%
Unidentified Shark	421	2.13%	Triggerfish, Gray	6	0.03%
Toadfish, Oyster	370	1.88%	Bass, Striped	5	0.03%
Sheepshead	353	1.79%	Garfishes	4	0.02%
Kingfish	235	1.19%	Skate	4	0.02%
Stingray	224	1.14%	Jack, Crevalle	4	0.02%
Mackerel, Spanish	182	0.92%	Sailfish, Family	4	0.02%
Grunt Family	148	0.75%	Grouper, Scamp	4	0.02%
Lizardfish	125	0.63%	Seabasses, Family	4	0.02%
Perch, Silver	114	0.58%	Bonito, Atlantic	3	0.02%
Drum, Black	113	0.57%	Tunny, Little	3	0.02%
Snapper, Vermilion	104	0.53%	Tripletail	3	0.02%
Puffer, Northern	86	0.44%	Ribbonfish, Family	3	0.02%
Pigfish	76	0.39%	Jack, Family	3	0.02%
Pinfish (Diplodus)	75	0.38%	Catfish, Gafftopsail	2	0.01%
Searobin	66	0.33%	Shark, Blacktip	2	0.01%
Weakfish	65	0.33%	Porgy, Knobbed	2	0.01%
Unidentified Fish	64	0.32%	Skate, Clearnose	2	0.01%
Porgy, Red	60	0.30%	Tautog	2	0.01%
Mackerel, King	56	0.28%	Catfish, Flathead	2	0.01%
Seabass, Bank	49	0.25%	Flounder, Summer	2	0.01%
Spadefish, Atlantic	48	0.24%	Lionfish, <i>Pterois volitans</i>	1	0.01%
Porcupine Fish	48	0.24%	Unidentified Bottom Fish	1	0.01%
Catfish, Blue	39	0.20%	Leatherjacket, Family	1	0.01%
Shark, Bonnethead	38	0.19%	Butterfly Ray, <i>Gymnura</i> spp	1	0.01%
Ladyfish	37	0.19%	Snappers, Family	1	0.01%
Shark, Atlantic Sharpnose	36	0.18%	Shark, Blacknose	1	0.01%
Dolphin	33	0.17%	Flounder, Gulf	1	0.01%
Grouper, Gag	32	0.16%	Tuna, Blackfin	1	0.01%
Grunt, White	24	0.12%	Bass, Largemouth	1	0.01%
Eel, American	22	0.11%	Hind, Speckled	1	0.01%
Rays, Dasyatidae	21	0.11%	Look Down	1	0.01%
Pompano, Florida	20	0.10%			

Appendix 5. Total harvest of each species by fishing parties interviewed during the SFS from July 2009 – May 2010.

Species Name	Number Harvested	Percent Of Total	Species Name	Number Harvested	Percent Of Total
Spot	4,951	54.88%	Shark, Atlantic Sharpnose	11	0.12%
Kingfish, Southern	796	8.82%	Ladyfish	11	0.12%
Seatrout, Spotted	592	6.56%	Flounder, Paralichthidae	10	0.11%
Red Drum	576	6.38%	Cobia	9	0.10%
Flounder, Southern	541	6.00%	Wahoo	9	0.10%
Sheepshead	255	2.83%	Weakfish	7	0.08%
Seabass, Black	231	2.56%	Triggerfish, Gray	6	0.07%
Croaker, Atlantic	179	1.98%	Grouper, Gag	5	0.06%
Bluefish	115	1.27%	Jack, Crevalle	4	0.04%
Pinfish (Lagodon)	102	1.13%	Tripletail	3	0.03%
Mackerel, Spanish	76	0.84%	Grouper, Scamp	3	0.03%
Kingfish	71	0.79%	Toadfish, Oyster	3	0.03%
Perch, Silver	46	0.51%	Tautog	2	0.02%
Drum, Black	44	0.49%	Flounder, Summer	2	0.02%
Pinfish (Diplodus)	42	0.47%	Bass, Striped	2	0.02%
Mackerel, King	42	0.47%	Catfish, Flathead	2	0.02%
Catfish, Blue	35	0.39%	Porgy, Knobbed	2	0.02%
Spadefish, Atlantic	33	0.37%	Shark, Blacktip	1	0.01%
Snapper, Vermilion	31	0.34%	Tuna, Blackfin	1	0.01%
Pigfish	31	0.34%	Seabass, Bank	1	0.01%
Grunt Family	26	0.29%	Hind, Speckled	1	0.01%
Dolphin	25	0.28%	Snapper, Red	1	0.01%
Porgy, Red	22	0.24%	Flounder, Gulf	1	0.01%
Grunt, White	20	0.22%	Amberjack, Greater	1	0.01%
Tarpon	14	0.16%	Shark, Blacknose	1	0.01%
Pompano, Florida	14	0.16%	Skate	1	0.01%
Shark, Bonnethead	12	0.13%			