Results From the 1984 and 1985 Charterboat Surveys in Southeastern U.S. Waters and the U.S. Caribbean Sea

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Introduction

In 1982, the Panama City Laboratory of the National Marine Fisheries Service's Southeast Fisheries Center initiated a catch and effort survey of charterboat captains (Brusher et al., 1984). Charterboat captains are an easily identifiable component of marine recreational fisheries; their livelihood depends on a high frequency of fishing trips and repeated angling success. The charterboat survey, with some modifications, has been run annually with each year's results finalized by mid-February of the following year (Williams et al., 1984a, b, 1985; Brusher and Palko, 1986). The computerized data were subjected to continuous quality control. The result was a reporting system designed to provide data relatively quickly. The objectives of these surveys were to determine the relative abundance and distribution of coastal pelagic and demersal fishes by collecting daily catch and effort data (CPUE) from a segment of the recreational fishery.

This report describes the 1984 and 1985 surveys and examines the catch and effort data submitted by charterboat captains located along coastal areas of the southeastern United States and the U.S. Caribbean Sea.

Methods

The 1984 survey (Fig. 1) did not cover the 16 areas that were sampled in 1983, but involved captains located in the following coastal areas: North Carolina, east Florida (Daytona Beach through Ft. Pierce), southeast Florida (Stuart through Miami), south Florida (Florida Keys), southwest Florida (Everglades through Bonita Springs), west Florida (Ft. Myers through Crystal River), northwest Florida (Cedar Key through Pensacola), Louisiana, south Texas (Rockport through Port Isabel), and the U.S. Caribbean (Puerto Rico, U.S. Virgin Islands). In 1985, all 16 areas were sampled. The selection of, and the contractual agreements with, these captains have been described by Brusher and Palko (1985).

In both 1984 and 1985, the surveys

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ABSTRACT—In 1984 and 1985, surveys of southeastern U.S. waters, including the Gulf of Mexico and the U.S. Caribbean Sea, were conducted to gather catch and effort records from charterboat captains located along coastal areas. Captains were contracted to supply daily records of fishing activity. During the 2-year period, 10,380 fishing trips, 48,231 hours of fishing effort were expended and 342,258 fishes were caught. Species, catches, and catch-per-boat-fishing-hour (CPH) are presented by year, month, and area. Major species groups caught by trolling included mackerels and tunas (Scombridae), while other-than-trolling methods caught mostly snappers (Lutjanidae), groupers (Serranidae), and croakers (Sciaenidae). Annual response rates for returning log forms for the 1984 and 1985 surveys were 98.8 and 95.7 percent, respectively.
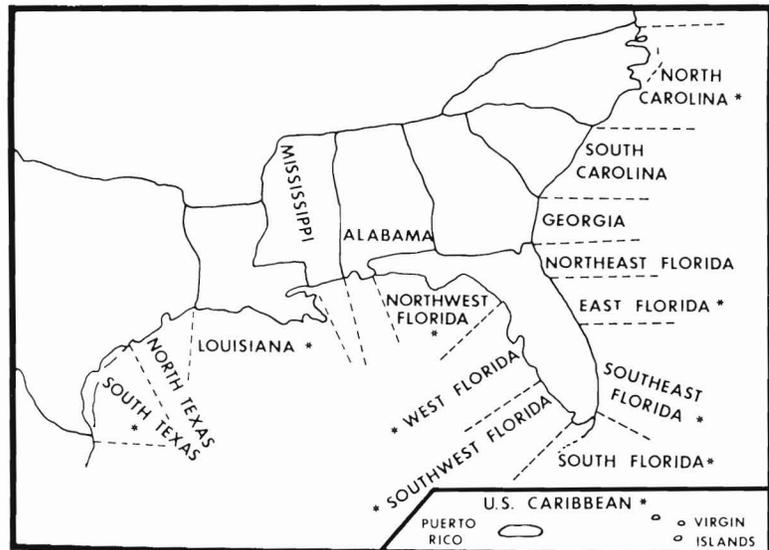
Figure 1.—Coastal areas used in reporting 1984 (*) and 1985 charterboat catch and effort from southeastern U.S. waters, the Gulf of Mexico, and the U.S. Caribbean Sea.

CHARTER BOAT SURVEY

LOG FOR _____

FOR OFFICE USE ONLY: 13

DAY		SUNDAY		MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		COMMENTS
FISHING METHOD		TROLL	OTHER	TROLL	OTHER	TROLL	OTHER	TROLL	OTHER	TROLL	OTHER	TROLL	OTHER	TROLL	OTHER	
FISHING ZONE(S)																
HOURS ACTUALLY FISHED																
SPECIES						NUMBER CAUGHT										
KING MACKEREL	1															
SPANISH MACKEREL	3															
LITTLE TUNNY	6															
ATLANTIC BONITO	8															
BLUE RUNNER	7															
YELLOWFIN TUNA	21															
BLACKFIN TUNA	23															
DOLPHIN	24															
GREAT BARRACUDA	11															
WAHOO	22															
GREATER AMBERJACK	13															
CREVALLE JACK	12															
BLUEFISH	5															
TARPON	10															
LADYFISH	9															
COBIA	2															
RED DRUM	4															
RED SNAPPER	14															
SCAMP	16															
GAG	17															
RED GROUPER	18															
BLACK GROUPER	19															
BLACK SEA BASS	15															
GRAY TRIGGERFISH	20															
TARGET GROUP		1 2 3 1 2 3		1 2 3 1 2 3		1 2 3 1 2 3		1 2 3 1 2 3		1 2 3 1 2 3		1 2 3 1 2 3		1 2 3 1 2 3		

Figure 2.—Logform used in both 1984 and 1985 charterboat surveys.

operated in three phases. The first, from 1 January through 31 March, excluded North and South Carolina, Georgia, northeast and northwest Florida, Mississippi, Alabama, and Texas where virtually no charter fishing occurs during winter months. Phase 2, from 1 April through 30 November, included all areas shown in Figure 1. Phase 3 was the month of December which actually began the "winter" 1984-85 fishing season, and included the same seven areas as in Phase 1.

Each captain was provided with a logbook which included up to 52 weekly logforms (Fig. 2). All captains were to mail results of a fishing week (Sunday through Saturday) within 7 days after that particular fishing week. If captains failed to respond in a timely manner, they were replaced by random selection from a list of cooperative captains in their area.

Collected data for each fishing day included zones, method (either trolling or other fishing), hours fished (running times to and from fishing grounds not included), and the species and number of each species caught. Fishing zones were recorded numerically where "1" represented estuarine or bay waters, "2" represented oceanic waters ≤10 fathoms, and "3" represented oceanic waters >10 fathoms. If captains fished in more than one zone, the appropriate numbers were recorded and recoded depending on the zone combinations (Brusher et al., 1984).

Other methods concerning the maintenance of the charterboat survey are similar to those reported for the 1982 (Brusher et al, 1984) and 1983 (Brusher and Palko, 1985) surveys. Briefly, the incoming data were coded, put on computer, proofed, and archived for future analysis.

During the 1984-85 charterboat sur-veys, a monthly newsletter, "Channel 68", was produced by project personnel and sent to all participating captains as well as other interested correspondents. This newsletter summarized the previous month's catch-per-boat-hour (CPH) data and reported CPH by fishing method per survey area for the top five species. CPH data were computed from total hours fished and total species caught during a specific period in a particular area (e.g., total caught divided by total fishing hours). "Channel 68" was also a medium that project personnel used to discuss problems in identification and the recording of catches.

Charterboat Characteristics

In both surveys, our definition of a charterboat was a vessel at least 25 feet in length that was available for hire and included the services of a licensed captain. Surveyed charterboats generally carried

Table 1.—Total fishing hours by area, zone, and method of fishing during the 1984 charterboat survey off the southeastern United States and in the U.S. Caribbean Sea.

| | Hours trolling and other fishing[1] by fishing zones | | | | | | | |
Area	1 Estuarine	2 Oceanic (<10 fm)	3 Oceanic (>10 fm)	4 Estuarine and oceanic (<10 fm)	5 Estuarine and oceanic (>10 fm)	6 Oceanic (all depths)	7 Estuarine and oceanic (all depths)	Totals
North Carolina	23.0 (–)[2]	811.0 (8.5)	904.5 (88.0)	– (–)	3.0 (–)	36.0 (–)	– (–)	1,777.5 (96.5)
Florida (E)	2.0 (–)	24.0 (6.0)	764.5 (353.5)	– (1.5)	– (–)	1,477.5 (15.0)	– (–)	2,268.0 (376.0)
Florida (SE)	– (–)	6.0 (–)	646.5 (173.0)	– (–)	– (–)	94.0 (4.0)	– (–)	746.5 (177.0)
Florida (S)	– (19.5)	271.5 (54.0)	2,064.0 (231.0)	– (–)	– (–)	441.5 (5.5)	7.0 (–)	2,784.0 (310.0)
Florida (SW)	– (786.0)	38.5 (296.5)	– (109.5)	– (203.5)	– (–)	– (–)	– (–)	38.5 (1,395.5)
Florida (W)	13.5 (407.5)	1,156.5 (543.0)	73.0 (110.5)	29.0 (17.5)	– (–)	292.0 (9.0)	– (–)	1,564.0 (1,087.5)
Florida (NW)	65.0 (7.0)	245.5 (111.5)	156.0 (926.0)	4.0 (–)	– (–)	– (9.5)	– (–)	470.5 (1,054.0)
Louisiana	– (9.0)	75.5 (25.0)	184.0 (2,231.5)	– (–)	– (4.0)	11.0 (90.5)	– (–)	270.5 (2,360.0)
Texas (S)	– (22.0)	24.0 (61.0)	810.0 (1,225.5)	– (–)	– (–)	24.0 (–)	– (–)	858.0 (1,308.5)
U.S. Caribbean	2.0 (–)	– (–)	3,347.0 (–)	– (–)	– (–)	– (–)	– (–)	3,349.0 (–)
Totals	105.5 (1,251.0)	2,652.5 (1,105.5)	8,949.5 (5,542.5)	33.0 (128.5)	3.0 (4.0)	2,376.0 (133.5)	7.0 (–)	14,126.5 (8,165.0)

[1]Other fishing data is given in parentheses.
[2]Dashes indicate no effort within this fishing zone for this area.

Table 2.—Total fishing hours by area, zone, and method of fishing during the 1985 charterboat survey off the southeastern United States and in the U.S. Caribbean Sea.

| | Hours trolling and other fishing[1] by fishing zones | | | | | | |
Area	1 Estuarine	2 Oceanic (<10 fm)	3 Oceanic (>10 fm)	4 Estuarine and oceanic (<10 fm)	5 Estuarine and oceanic (>10 fm)	6 Oceanic (all depths)	Totals
North Carolina	7.5 (–)[2]	134.5 (47.0)	1,491.0 (37.5)	– (–)	– (–)	4.5 (–)	1,637.5 (84.5)
South Carolina	14.5 (8.0)	172.5 (31.0)	339.5 (1.0)	– (–)	– (–)	31.0 (–)	557.5 (40.0)
Georgia	16.0 (84.0)	114.5 (155.0)	58.0 (71.5)	– (–)	– (–)	– (–)	188.5 (310.5)
Florida (NE)	9.0 (182.0)	152.5 (99.5)	186.0 (52.5)	21.0 (–)	– (–)	167.5 (–)	536.0 (334.0)
Florida (E)	– (5.0)	13.0 (35.5)	663.5 (367.5)	– (–)	– (–)	951.0 (103.0)	1,627.5 (511.0)
Florida (SE)	– (3.0)	18.0 (14.0)	1,261.0 (484.0)	– (4.0)	– (–)	41.0 (9.0)	1,320.0 (514.0)
Florida (S)	– (38.5)	283.5 (142.0)	1,457.5 (354.5)	– (–)	3.0 (–)	413.0 (128.5)	2,157.0 (663.5)
Florida (SW)	– (861.0)	36.0 (319.5)	– (363.0)	– (86.0)	– (–)	– (–)	36.0 (1,629.5)
Florida (W)	– (–)	912.0 (667.0)	143.5 (375.5)	– (–)	– (–)	17.0 (40.0)	1,072.5 (1,082.5)
Florida (NW)	125.5 (–)	56.5 (66.5)	167.0 (1,396.0)	4.0 (3.0)	6.0 (–)	– (9.5)	359.0 (1,475.0)
Alabama	2.0 (2.0)	148.0 (24.5)	75.0 (398.5)	16.0 (3.0)	222.0 (8.0)	121.0 (20.5)	584.0 (456.5)
Mississippi	5.0 (3.5)	678.0 (261.0)	26.5 (47.5)	– (–)	– (–)	– (–)	709.5 (312.0)
Louisiana	11.0 (–)	222.5 (–)	199.5 (805.5)	– (–)	– (–)	34.5 (17.0)	467.5 (822.5)
Texas (N)	– (22.0)	118.0 (99.0)	328.5 (168.5)	12.0 (3.0)	– (–)	324.0 (13.5)	782.5 (306.0)
Texas (S)	19.0 (190.5)	600.0 (66.5)	688.0 (21.0)	12.5 (–)	– (–)	79.5 (8.5)	1,399.0 (286.5)
U.S. Caribbean	– (–)	7.5 (–)	3,670.0 (–)	– (–)	– (–)	– (–)	3,677.5 (–)
Totals	209.5 (1,399.5)	3,667.0 (2,028.0)	10,754.5 (4,944.0)	65.5 (99.0)	231.0 (8.0)	2,184.0 (349.5)	17,111.5 (8,828.0)

[1]Other fishing data is given in parentheses.
[2]Dashes indicate no effort within this fishing zone for this area.

up to six fishermen, trolled no more than four lines, and bottom fished using from six to eight lines. This definition described vessel characteristics for most surveyed areas, especially where running times to offshore fishing grounds (>10 fathoms) were short. However, in areas such as Louisiana, where running times to deeper depth zones were often 2-3 hours, some charterboats carried 10-20 passengers, especially when using "other fishing" methods. These "other fishing" methods included bottom fishing, flylining, or drift fishing whereby unweighted live or dead bait were fished from anchored or drifting vessels. Bottom fishing, where weighted live or dead baits were fished, was the most frequent other-fishing method used.

Results

The 1984 data, published by Williams et al. (1985), and the 1985 data, published by Brusher and Palko (1986), included catch and effort records from both contracted and volunteer captains. For this paper, we used only data from contracted captains to indicate species composition and species abundances between fishing areas.

In 1984, 51 charterboat captains reported their catches and effort from 4,676 trips. They submitted 1,241 weekly logs of the 1,255 total possible logs (98.9 percent response rate). A trip was defined as an absence from a dock during which at least one of two fishing methods was used in a 24-hour day. Captains reported fishing a total of 22,291.5 hours, of which 14,126.5 hours (63.4 percent) were spent trolling and 8,165.0 hours (36.6 percent) were spent other fishing (Table 1).

In 1985, 57 captains submitted 1,639 weekly logs, and reported 5,704 trips (94.3 percent response rate). They fished a total of 25,939.5 hours, of which 17,111.5 hours (66.0 percent) were spent trolling and 8,828.0 hours (34.0 percent) were spent other fishing (Table 2).

The 1984 data showed that 6.1 percent

Table 3.—Number of each species making up at least 0.5% of the total caught by trolling during the 1984 charterboat survey off the southeastern United States and the U.S. Caribbean.

Common name	Scientific name	Catch	Percent of total catch	Common name	Scientific name	Catch	Percent of total catch
Dolphin	Coryphaena hippurus	8,578	21.0	Yellowtail snapper	Ocyurus chrysurus	400	1.0
Spanish mackerel	Scomberomorus maculatus	5,698	14.0	Wahoo	Acanthocybium solanderi	364	0.9
King mackerel	Scomberomorus cavalla	5,380	13.2	Greater amberjack	Seriola dumerili	333	0.8
Little tunny	Euthynnus alletteratus	4,784	11.7	Crevalle jack	Caranx hippos	318	0.8
Bluefish	Pomatomus saltatrix	3,064	7.5	Black sea bass	Centropristis striata	288	0.7
Great barracuda	Sphyraena barracuda	2,820	6.9	Skipjack tuna	Euthynnus pelamis	269	0.7
Blue runner	Caranx crysos	2,598	6.4	Cero	Scomberomorus regalis	215	0.5
Atlantic bonito	Sarda sarda	1,984	4.9	Black grouper	Mycteroperca bonaci	209	0.5
Blackfin tuna	Thunnus atlanticus	1,098	2.7	Sailfish	Istiophorus platypterus	207	0.5
Yellowfin tuna	Thunnus albacares	793	1.9	Total		39,399	96.6

Table 4.—Number of each species or species group making up at least 0.5 percent of the total caught by other fishing during the 1984 charterboat survey off the southeastern United States.

Common name	Scientific name	Catch	Percent of total catch	Common name	Scientific name	Catch	Percent of total catch
Sand seatrout	Cynoscion arenarius	55,574	34.9	Spotted seatrout	Cynoscion nebulosus	2,071	1.3
Atlantic croaker	Micropogonias undulatus	29,232	18.4	Dolphin	Coryphaena hippurus	1,795	1.1
Red snapper	Lutjanus campechanus	14,468	9.1	Gray snapper	Lutjanus griseus	1,435	0.9
Black sea bass	Centropristis striata	8,516	5.4	Grunts	Haemulidae	1,429	0.9
Seatrouts	Cynoscion spp.	8,417	5.3	Blue runner	Caranx crysos	1,275	0.8
King mackerel	Scomberomorus cavalla	3,474	2.2	Silver seatrout	Cynoscion nothus	1,232	0.8
Gray triggerfish	Balistes capriscus	3,337	2.1	Sheepshead	Archosargus probatocephalus	1,207	0.8
Greater amberjack	Seriola dumerili	3,264	2.1	Crevalle jack	Caranx hippos	1,202	0.8
Red drum	Sciaenops ocellatus	3,043	1.9	Red grouper	Epinephelus morio	1,123	0.7
Gag	Mycteroperca microlepis	2,546	1.6	Ladyfish	Elops saurus	1,083	0.7
Bluefish	Pomatomus saltatrix	2,378	1.5	Vermilion snapper	Rhomboplites aurorubens	1,047	0.7
Porgies	Sparidae	2,257	1.4	Total		146,405	95.4

Table 5.—Number of each species or species group making up at least 0.5 percent of the total caught by trolling during the 1985 charterboat survey off the southeastern United States and the U.S. Caribbean.

Common name	Scientific name	Catch	Percent of total catch	Common name	Scientific name	Catch	Percent of total catch
Spanish mackerel	Scomberomorus maculatus	11,864	21.9	Crevalle jack	Caranx hippos	843	1.6
Dolphin	Coryphaena hippurus	9,990	18.5	Red snapper	Lutjanus campechanus	774	1.4
King mackerel	Scomberomorus cavalla	9,183	17.0	Blackfin tuna	Thunnus atlanticus	593	1.1
Little tunny	Euthynnus alletteratus	4,943	9.1	Red drum	Sciaenops ocellatus	474	0.9
Blue runner	Caranx crysos	2,735	5.1	Cero	Scomberomorus regalis	429	0.8
Great barracuda	Sphyraena barracuda	2,658	4.9	Wahoo	Acanthocybium solanderi	397	0.7
Atlantic bonito	Sarda sarda	2,427	4.5	Black grouper	Mycteroperca bonaci	358	0.7
Yellowfin tuna	Thunnus albacares	2,014	3.7	Sharks	Squaliformes	290	0.5
Greater amberjack	Seriola dumerili	935	1.7	Total		51,752	95.7
Bluefish	Pomatomus saltatrix	845	1.6				

of the total fishing effort in all areas occurred in estuarine areas, 16.8 percent in oceanic waters ≤10 fathoms, 64.6 percent in oceanic waters >10 fathoms, and 12.5 percent in combinations of the above. The 1985 data showed that for all areas 6.2 percent of the total fishing occurred in estuarine waters, 22.0 percent in waters ≤10 fathoms, 60.5 percent in >10 fathoms, and 11.3 percent in combinations.

In 1984, trolling was the dominant fishing method used by charterboat captains off North Carolina (94.9 percent); east (85.8 percent), southeast (80.8 percent), west (59.0 percent), and south (90.0 percent) Florida; and the U.S. Caribbean (100 percent). Other fishing methods were used most frequently off southwest (97.3 percent) and northwest (69.1 percent) Florida, Louisiana (89.7 percent), and south Texas (60.4 percent).

Trolling was the prevalent fishing method in 1985 in North Carolina (95.1 percent), South Carolina (93.3 percent); northeast (61.6 percent), east (76.1 per-

cent), southeast (72.0 percent), and south (76.5 percent) Florida; Alabama (56.1 percent), Mississippi (69.5 percent); north (71.9 percent) and south (83.0 percent) Texas; and the U.S. Caribbean (100.0 percent). Other fishing was the prevalent method in Georgia (62.2 percent); southwest (97.8 percent) and northwest (80.4 percent) Florida; and Louisiana (63.8 percent). West Florida fishing effort was almost equally divided between trolling (49.8 percent) and other fishing (50.2 percent).

Table 6.—Number of each species or species group making up at least 0.5 percent of the total caught by other fishing during the 1985 charterboat survey off the southeastern United States.

Common name	Scientific name	Catch	Percent of total catch	Common name	Scientific name	Catch	Percent of total catch
Sand seatrout	*Cynoscion arenarius*	14,817	16.8	Red drum	*Sciaenops ocellatus*	1,367	1.5
Red snapper	*Lutjanus campechanus*	7,693	8.7	Blue runner	*Caranx crysos*	1,310	1.5
Black sea bass	*Centropristis striata*	7,567	8.6	Ladyfish	*Elops saurus*	1,179	1.3
Gag	*Mycteroperca microlepis*	6,018	6.8	Sheepshead	*Archosargus probatocephalus*	1,151	1.3
Atlantic croaker	*Micropogonias undulatus*	5,634	6.4	Bluefish	*Pomatomus saltatrix*	1,030	1.2
Gray triggerfish	*Balistes capriscus*	4,873	5.5	Little tunny	*Euthynnus alletteratus*	973	1.1
Yellowtail snapper	*Ocyurus chrysurus*	3,542	4.0	King mackerel	*Scomberomorus cavalla*	908	1.0
Greater amberjack	*Seriola dumerili*	3,495	4.0	Atlantic bonito	*Sarda sarda*	899	1.0
Red grouper	*Epinephelus morio*	3,364	3.8	Sharks	Squaliformes	614	0.7
Porgies	Sparidae	3,022	3.4	Pinfish	*Lagodon rhomboides*	575	0.7
Gray snapper	*Lutjanus griseus*	3,019	3.4	Crevalle jack	*Caranx hippos*	565	0.6
Seatrouts	*Cynoscion* spp.	3,013	3.4	Lane snapper	*Lutjanus synagris*	509	0.6
Vermilion snapper	*Rhomboplites aurorubens*	2,894	3.3	Kingfishes	*Menticirrhus* spp.	456	0.5
Grunts	Haemulidae	1,959	2.2	Total		84,087	95.2
Spotted seatrout	*Cynoscion nebulosus*	1,641	1.9				

Table 7.—Ten most abundant species caught by trolling in each area off the southeastern United States and in the U.S. Caribbean during the 1984 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
North Carolina				East Florida cont.				South Florida cont.			
1 Bluefish	2,831	1.59	26.4	9 Bluefish	110	0.05	1.7	4 Atlantic bonito	668	0.24	7.3
2 Spanish mackerel	2,465	1.39	23.0	10 Greater amberjack	107	0.05	1.6	5 King mackerel	523	0.19	5.7
3 King mackerel	1,825	1.03	17.0		6,371		96.1	6 Yellowtail snapper	397	0.14	4.4
4 Dolphin	1,717	0.97	16.0					7 Black grouper	184	0.07	2.0
5 Yellowfin tuna	618	0.35	5.8	Southeast Florida				8 Cero	141	0.05	1.5
6 Blue runner	459	0.26	4.3	1 Dolphin	326	0.44	23.3	9 Little tunny	138	0.05	1.5
7 Black sea bass	285	0.16	2.7	2 Atlantic bonito	191	0.26	13.6	10 Mutton snapper	110	0.04	1.2
8 Little tunny	152	0.09	1.4	3 Great barracuda	150	0.20	10.7		8,396		92.0
9 Albacore	106	0.06	1.0	4 Spanish mackerel	140	0.19	10.0				
10 Wahoo	48	0.03	0.4	5 Little tunny	136	0.18	9.7	U.S. Caribbean			
	10,506		98.0	6 Blue runner	102	0.14	7.3	1 Little tunny	528	0.16	28.5
				7 King mackerel	89	0.12	6.4	2 King mackerel	351	0.10	19.0
East Florida				8 Skipjack tuna	71	0.10	5.1	3 Great barracuda	223	0.07	12.0
1 King mackerel	1,168	0.52	17.6	9 Sailfish	54	0.07	3.9	4 Dolphin	213	0.06	11.5
2 Little tunny	1,098	0.48	16.6	10 Bluefish	33	0.04	2.4	5 Blue marlin	140	0.04	7.6
3 Dolphin	1,069	0.47	16.1		1,292		92.4	6 Wahoo	85	0.03	4.6
4 Blue runner	1,007	0.44	15.2					7 Yellowfin tuna	65	0.02	3.5
5 Great barracuda	806	0.36	12.2	South Florida				8 Blackfin tuna	60	0.02	3.2
6 Atlantic bonito	749	0.33	11.3	1 Dolphin	4,211	1.51	46.2	9 Cero	53	0.02	2.9
7 Spanish mackerel	135	0.06	2.0	2 Great barracuda	1,195	0.43	13.1	10 Skipjack tuna	48	0.01	2.6
8 Gag	122	0.05	1.8	3 Blackfin tuna	829	0.30	9.1		1,766		95.4

Table 8.—Ten most abundant species caught by trolling in each area of the Gulf of Mexico during the 1984 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
Southwest Florida				Northwest Florida				Louisiana cont.			
1 Spanish mackerel	130	3.38	63.1	1 Blue runner	638	1.36	28.3	7 Yellowfin tuna	24	0.09	1.1
2 Bluefish	68	1.77	33.0	2 Little tunny	636	1.35	28.2	8 Wahoo	12	0.04	0.5
3 Unidentified seatrouts	8	0.21	3.9	3 King mackerel	334	0.71	14.8	9.5 Blackfin tuna	4	0.01	0.2
	206		100.0	4 Dolphin	177	0.38	7.9	9.5 Cobia	4	0.01	0.2
				5 Atlantic bonito	164	0.35	7.3		2,229		99.7
West Florida				6 Spanish mackerel	106	0.23	4.7				
1 Spanish mackerel	2,098	1.34	46.0	7 Unidentified porgies	31	0.07	1.4	South Texas			
2 Little tunny	729	0.47	16.0	8 Gray triggerfish	30	0.06	1.3	1 Little tunny	1,005	1.17	60.8
3 King mackerel	677	0.43	14.9	9.5 Greater amberjack	29	0.06	1.3	2 King mackerel	155	0.18	9.4
4 Great barracuda	390	0.25	8.6	9.5 Wahoo	29	0.06	1.3	3 Blackfin tuna	136	0.16	8.2
5 Atlantic bonito	168	0.11	3.7		2,174		96.5	4 Dolphin	76	0.09	4.6
6 Blue runner	161	0.10	3.5					5 Blue runner	68	0.08	4.1
7 Crevalle jack	115	0.07	2.5	Louisiana				6 Yellowfin tuna	64	0.07	3.9
8 Dolphin	42	0.03	0.9	1 Dolphin	747	2.76	33.4	7 Atlantic bonito	29	0.03	1.8
9 Greater amberjack	34	0.02	0.7	2 Spanish mackerel	572	2.11	25.6	8 Wahoo	26	0.03	1.6
10 Gag	33	0.02	0.7	3 Little tunny	346	1.28	15.5	9 Great barracuda	23	0.03	1.4
	4,447		97.5	4 King mackerel	248	0.92	11.1	10 Skipjack tuna	22	0.03	1.3
				5 Red drum	193	0.71	8.6		1,604		97.1
				6 Blue runner	79	0.29	3.5				

Table 9.—Ten most abundant species caught by trolling in each area off the southeastern United States and U.S. Caribbean during the 1985 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
North Carolina				**Georgia cont.**				**Southeast Florida cont.**			
1 Dolphin	3,102	1.89	41.3	9 Greater amberjack	15	0.08	2.1	4 Great barracuda	155	0.12	12.4
2 Yellowfin tuna	1,778	1.09	23.7	10 Bluefish	12	0.06	1.7	5 Blue runner	88	0.07	7.0
3 King mackerel	1,739	1.06	23.1		720		99.4	6 Sailfish	45	0.03	3.6
4 Spanish mackerel	294	0.18	3.9					7 Bluefish	33	0.02	2.6
5 Bluefish	178	0.11	2.4	**Northeast Florida**				8 Greater amberjack	32	0.02	2.6
6 Atlantic bonito	119	0.07	1.6	1 King mackerel	301	0.56	22.7	9 Little tunny	30	0.02	2.4
7 Wahoo	78	0.05	1.0	2 Greater amberjack	248	0.46	18.7	10 Hammerhead shark	25	0.02	2.0
8 Greater amberjack	60	0.04	0.8	3 Great barracuda	211	0.39	15.9		1,128		90.1
9 Great barracuda	43	0.03	0.6	4 Spanish mackerel	173	0.32	13.1				
10 Little tunny	40	0.02	0.5	5 Bluefish	126	0.24	9.5	**South Florida**			
	7,431		98.9	6 Silver seatrout	60	0.11	4.5	1 Dolphin	3,033	1.41	43.7
				7 Kingfishes	40	0.07	3.0	2 Great barracuda	781	0.36	11.2
South Carolina				8 Dolphin	38	0.07	2.9	3 King mackerel	632	0.29	9.1
1 King mackerel	619	1.11	48.5	9 Leatherjacket	26	0.05	2.0	4 Blackfin tuna	403	0.19	5.8
2 Spanish mackerel	166	0.30	13.0	10 Wahoo	23	0.04	1.7	5 Black grouper	358	0.17	5.2
3 Great barracuda	99	0.18	7.8		1,246		94.0	6 Cero	311	0.14	4.5
4 Little tunny	98	0.18	7.7					7 Atlantic bonito	251	0.12	3.6
5 Dolphin	83	0.15	6.5	**East Florida**				8 Yellowtail snapper	211	0.10	3.0
6 Yellowfin tuna	64	0.11	5.0	1 Blue runner	1,166	0.72	23.0	9 Blue runner	153	0.07	2.2
7 Atlantic bonito	49	0.09	3.8	2 Little tunny	1,054	0.65	20.8	10 Little tunny	115	0.05	1.7
8 Greater amberjack	40	0.07	3.1	3 King mackerel	956	0.59	18.9		6,248		90.0
9 Wahoo	31	0.06	2.4	4 Dolphin	704	0.43	13.9				
10 Gray triggerfish	10	0.02	0.8	5 Great barracuda	551	0.34	10.9	**U.S. Caribbean**			
	1,259		98.6	6 Atlantic bonito	236	0.14	4.7	1 Little tunny	492	0.13	25.6
				7 Spanish mackerel	88	0.05	1.7	2 King mackerel	359	0.10	18.6
Georgia				8 Sailfish	87	0.05	1.7	3 Great barracuda	280	0.08	14.5
1 Spanish mackerel	184	0.98	25.4	9 Bluefish	84	0.05	1.7	4 Dolphin	266	0.07	13.8
2 King mackerel	179	0.95	24.7	10 Wahoo	42	0.03	0.8	5 Yellowfin tuna	124	0.03	6.4
3 Great barracuda	167	0.89	23.1		4,968		98.1	6 Cero	107	0.03	5.6
4 Little tunny	66	0.35	9.1					7 Wahoo	104	0.03	5.4
5 Crevalle jack	45	0.24	6.2	**Southeast Florida**				8 Blue marlin	61	0.02	3.2
6 Black sea bass	18	0.10	2.5	1 Atlantic bonito	278	0.21	22.2	9 Blackfin tuna	39	0.01	2.0
7.5 Dolphin	17	0.09	2.3	2 King mackerel	229	0.17	18.3	10 Sailfish	17	0.00	0.9
7.5 Ladyfish	17	0.09	2.3	3 Dolphin	213	0.16	17.0		1,849		96.0

Table 10.—Ten most abundant species caught by trolling in each area of the Gulf of Mexico during the 1985 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
Southwest Florida				**Alabama**				**Louisiana cont.**			
1 Spanish mackerel	63	1.75	36.6	1 Spanish mackerel	430	0.74	31.0	6 Crevalle jack	132	0.28	2.2
2 Ladyfish	54	1.50	31.4	2 Little tunny	374	0.64	26.9	7 Dolphin	26	0.06	0.4
3 Bluefish	50	1.39	29.1	3 King mackerel	329	0.56	23.7	8 Blackfin tuna	21	0.04	0.3
4 Crevalle jack	5	0.14	2.9	4 Atlantic bonito	69	0.12	5.0	9 Wahoo	18	0.04	0.3
	172		100.0	5 Blue runner	61	0.10	4.4	10 Yellowfin tuna	14	0.03	0.2
				6 Dolphin	39	0.07	2.8		5,989		99.6
West Florida				7 Ladyfish	18	0.03	1.3				
1 Spanish mackerel	1,234	1.15	36.3	8 Crevalle jack	16	0.03	1.2	**North Texas**			
2 Little tunny	564	0.53	16.6	9 Cobia	11	0.02	0.8	1 Dolphin	1,969	2.52	36.9
3 King mackerel	408	0.38	12.0	11 Bluefish	10	0.02	0.7	2 King mackerel	1,135	1.45	21.3
4 Great barracuda	336	0.31	9.9	11 Greater amberjack	10	0.02	0.7	3 Red snapper	732	0.94	13.7
5 Atlantic bonito	165	0.15	4.9	11 Yellowfin tuna	10	0.02	0.7	4 Atlantic bonito	556	0.71	10.4
6 Blue runner	156	0.15	4.6		1,377		99.2	5 Bluefish	208	0.27	3.9
7 Dolphin	127	0.12	3.7					6 Spanish mackerel	175	0.22	3.3
8 Crevalle jack	99	0.09	2.9	**Mississippi**				7 Unidentified sharks	136	0.17	2.5
9 Unidentified lizard fishes	80	0.07	2.4	1 Spanish mackerel	4,217	5.94	73.1	8 Blue runner	84	0.11	1.6
10 Greater amberjack	71	0.07	2.1	2 Atlantic bonito	434	0.61	7.5	9 Crevalle jack	67	0.09	1.3
	3,240		95.4	3 King mackerel	249	0.35	4.3	10 Greater amberjack	49	0.06	0.9
				4 Red drum	224	0.32	3.9		5,111		95.8
Northwest Florida				5 Blue runner	210	0.30	3.6				
1 Spanish mackerel	546	1.52	33.1	6 Crevalle jack	203	0.29	3.5	**South Texas**			
2 Blue runner	443	1.23	26.9	7 Ladyfish	70	0.10	1.2	1 King mackerel	1,498	1.07	40.5
3 King mackerel	159	0.44	9.6	8 Bluefish	57	0.08	1.0	2 Little tunny	801	0.57	21.6
4 Greater amberjack	154	0.43	9.3	9 Little tunny	43	0.06	0.7	3 Dolphin	249	0.18	6.7
5 Dolphin	100	0.28	6.1	10 Blacktip shark	28	0.04	0.5	4 Crevalle jack	183	0.13	4.9
6 Atlantic bonito	75	0.21	4.6		5,735		99.3	5 Blue runner	173	0.12	4.7
7 Bluefish	45	0.13	2.7					6 Atlantic bonito	168	0.12	4.5
8 Skipjack tuna	32	0.09	1.9	**Louisiana**				7 Atlantic sharpnose shark	142	0.10	3.8
9 Gag	24	0.07	1.5	1 Spanish mackerel	4,224	9.04	70.4	8 Unidentified sharks	129	0.09	3.5
10 Ladyfish	23	0.06	1.4	2 Little tunny	734	1.57	12.2	9 Greater amberjack	112	0.08	3.0
	1,601		97.1	3 King mackerel	391	0.84	6.5	10 Blackfin tuna	43	0.03	1.2
				4 Red drum	246	0.53	4.1		3,498		94.4
				5 Blue runner	183	0.39	3.0				

Table 11.—Ten most abundant species caught by other fishing in each area off the southeastern United States during the 1984 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
North Carolina				East Florida cont.				Southeast Florida cont.			
1 Black sea bass	6,344	65.74	91.5	5 Greater amberjack	229	0.61	7.2	9 Dusky shark	9	0.05	2.5
2 Unidentified porgies	417	4.32	6.0	6 Snowy grouper	125	0.33	3.9	10 Blue runner	8	0.05	2.2
3 Unidentified sand perches	56	0.58	0.8	7 Gray triggerfish	89	0.24	2.8		321		88.9
4 Unidentified grunts	27	0.28	0.4	8.5 Scamp	76	0.20	2.4				
5 Red snapper	19	0.20	0.3	8.5 Spotted seatrout	76	0.20	2.4	South Florida			
6 King mackerel	16	0.17	0.2	10 Unidentified tilefishes	75	0.20	2.4	1 King mackerel	590	1.90	57.7
7 Spottail pinfish	11	0.11	0.2		2,721		85.9	2 Yellowtail snapper	133	0.43	13.0
8.5 Albacore	8	0.08	0.1					3 Unidentified grunts	52	0.17	5.1
8.5 Gag	8	0.08	0.1	Southeast Florida				4 Unidentified porgies	29	0.09	2.8
10 Gray triggerfish	7	0.07	0.1	1 Unidentified snappers	108	0.61	29.9	5 Red grouper	26	0.08	2.5
	6,913		99.7	2 Vermillion snapper	41	0.23	11.4	6 Gray snapper	24	0.08	2.3
				3 Unidentified tilefishes	39	0.22	10.8	7 Mutton snapper	22	0.07	2.2
East Florida				4.5 Almaco jack	32	0.18	8.9	8.5 Black grouper	19	0.06	1.9
1 Black sea bass	942	2.51	29.8	4.5 Greater amberjack	32	0.18	8.9	8.5 Blue runner	19	0.06	1.9
2 Vermillion snapper	525	1.40	16.6	6 Snowy grouper	29	0.16	8.0	10 Cero	18	0.06	1.8
3 Red snapper	299	0.80	9.4	7 Hammerhead shark	12	0.07	3.3		932		91.2
4 Unidentified grunts	285	0.76	9.0	8 Gray triggerfish	11	0.06	3.0				

Table 12.—Ten most abundant species caught by other fishing in each area of the Gulf of Mexico during the 1984 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area	Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
Southwest Florida				West Florida cont.				Louisiana cont.			
1 Gag	1,100	0.79	10.7	9 Ladyfish	210	0.19	3.8	4 Unidentified seatrouts	7,475	3.17	6.6
2 Spotted seatrout	1,064	0.76	10.3	10 Red grouper	190	0.17	3.5	5 Red drum	2,258	0.96	2.0
3 Unidentified seatrouts	916	0.66	8.9		5,018		91.3	6 Blue fish	2,200	0.93	1.9
4 Ladyfish	850	0.61	8.3					7 Dolphin	1,465	0.62	1.3
5 Sheepshead	818	0.59	8.0	Northwest Florida				8 Gray triggerfish	1,330	0.56	1.2
6 Red grouper	810	0.58	7.9	1 Gray triggerfish	1,621	1.54	18.0	9 King mackerel	993	0.42	0.9
7 Gray snapper	774	0.55	7.5	2 Red snapper	1,559	1.48	17.3	10 Greater amberjack	948	0.40	0.8
8 Unidentified grunts	612	0.44	6.0	3 Unidentified porgies	1,379	1.31	15.3		112,059		98.9
9 Silver perch	528	0.38	5.1	4 Greater amberjack	1,262	1.20	14.0				
10 Greater amberjack	510	0.37	5.0	5 Gag	778	0.74	8.6	South Texas			
	7,982		77.7	6 Little tunny	546	0.52	6.1	1 Red snapper	1,706	1.30	25.4
				7 Blue runner	506	0.48	5.6	2 King mackerel	1,675	1.28	24.9
West Florida				8 Dolphin	252	0.24	2.8	3 Silver seatrout	870	0.66	12.9
1 Black sea bass	1,137	1.05	20.7	9 Scamp	198	0.19	2.2	4 Crevalle jack	729	0.56	10.8
2 Spotted seatrout	902	0.83	16.4	10 King mackerel	185	0.18	2.1	5 Atlantic spadefish	482	0.37	7.2
3 Gray snapper	583	0.54	10.6		8,286		92.0	6 Atlantic bonito	277	0.21	4.1
4 Gag	524	0.48	9.5					7 Atlantic sharpnose shark	268	0.20	4.0
5 Unidentified grunts	447	0.41	8.1	Louisiana				8 Gray triggerfish	114	0.09	1.7
6 Sheepshead	389	0.36	7.1	1 Sand seatrout	55,334	23.45	48.8	9 Red drum	92	0.07	1.4
7 Silver seatrout	362	0.33	6.6	2 Atlantic croaker	29,220	12.38	25.8	10 Blacktip shark	87	0.07	1.3
8 Red drum	274	0.25	5.0	3 Red snapper	10,836	4.59	9.6		6,300		93.7

During the 1984 survey, 199,836 fishes were caught. The trolling catch of 40,776 fishes, which represented 66 species or species groups, was made up mostly of coastal (88.8 percent) and oceanic (7.6 percent) pelagics (Table 3). Other fishing techniques produced 159,060 fishes, representing 108 species or species groups, of which 89.3 percent were demersal (Table 4).

In 1985, 142,419 fishes were caught. Troll-caught fishes numbered 54,090, which represented 82 species or species groups, of which 89.4 percent were coastal pelagic and 7.1 percent were oceanic pelagic (Table 5). Other fishing techniques caught 88,329 fishes, representing 102 species or species groups, of which 81.8 percent were demersal (Table 6).

The CPH of the top ten species varied by method and by area in both 1984 and 1985 (Tables 7-14). For both years, and in all areas, the importance of scombrids (tunas and mackerels) in trolling catches was apparent (Tables 7-10), while catches using other fishing techniques showed the importance of snappers (lutjanids), groupers (serranids), and croakers (sciaenids), (Tables 11-14).

Discussion and Summary

Aside from providing fishing information on what can be caught by recreational user groups in given locations, the data from charterboat surveys can be used to investigate variations and trends in seasonality and abundance of coastal pelagic and demersal fishes. For example, CPUE data are now available for five areas (North Carolina, south and northwest Florida, Louisiana, and south Texas) of the southeastern United States from 1982 through 1985. All 16 coastal areas now have at least two years of

Table 13.—Ten most abundant species caught by other fishing in each area off the southeastern United States during the 1985 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
North Carolina			
1 Black sea bass	3,473	41.10	97.6
2 Unidentified porgies	60	0.71	1.7
3 Gag	15	0.18	0.4
4 King mackerel	6	0.07	0.2
5 Crevalle jack	2	0.02	0.1
6 Cobia	1	0.01	0.0
	3,557		100.0
South Carolina			
1 Black sea bass	40	1.00	47.1
2 Greater amberjack	21	0.53	24.7
3 Blacktip shark	6	0.15	7.1
4.5 Great barracuda	4	0.10	4.7
4.5 Unidentified sharks	4	0.10	4.7
6.5 Atlantic spadefish	3	0.08	3.5
6.5 Bluefish	3	0.08	3.5
8 Hammerhead shark	2	0.05	2.4
9.5 King mackerel	1	0.03	1.2
9.5 Spanish mackerel	1	0.03	1.2
	85		100.1
Georgia			
1 Black sea bass	805	2.59	33.9
2 Vermillion snapper	570	1.84	24.0
3 Bluefish	215	0.69	9.1
4 Red snapper	159	0.51	6.7
5 Great barracuda	111	0.36	4.7
6 King mackerel	104	0.33	4.4
Georgia cont.			
7 Greater amberjack	85	0.27	3.6
8 Unidentified sharks	82	0.26	3.5
9 Ladyfish	43	0.14	1.8
10 Blacktip shark	36	0.12	1.5
	2,210		93.2
Northeast Florida			
1 Black sea bass	504	1.51	24.9
2 Unidentified seatrouts	366	1.10	18.1
3 Kingfish	353	1.06	17.4
4 Sheepshead	289	0.87	14.3
5 Bluefish	169	0.51	8.3
6 Red drum	89	0.27	4.4
7 Unidentified sharks	61	0.18	3.0
8 Unidentified flounders	34	0.10	1.7
9 Gray triggerfish	32	0.10	1.6
10 Red snapper	24	0.07	1.2
	1,921		94.9
East Florida			
1 Yellowtail snapper	788	1.53	16.7
2 Black sea bass	695	1.35	14.7
3 Unidentified grunts	630	1.22	13.3
4 Vermillion snapper	543	1.05	11.5
5 Blue runner	354	0.69	7.5
6 Red snapper	325	0.63	6.9
7 Gray triggerfish	298	0.58	6.3
8 Greater amberjack	242	0.47	5.1
East Florida cont.			
9 Atlantic sharpnose shark	86	0.17	1.8
10 Snowy grouper	72	0.14	1.5
	4,033		85.3
Southeast Florida			
1 Little tunny	104	0.20	24.9
2 Hammerhead shark	43	0.08	10.3
3 Spanish mackerel	41	0.08	9.8
4 Greater amberjack	39	0.08	9.3
5 Sailfish	34	0.07	8.1
6 Blue runner	28	0.05	6.7
7 Great barracuda	25	0.05	6.0
8 Dolphin	19	0.04	4.5
9 Unidentified snappers	16	0.03	3.8
10 Atlantic bonito	13	0.03	3.1
	362		86.5
South Florida			
1 Yellowtail snapper	1,190	1.79	30.0
2 Gray snapper	517	0.78	13.0
3 Mutton snapper	268	0.40	6.8
4 Blue runner	234	0.35	5.9
5 Greater amberjack	181	0.27	4.6
6 Little tunny	163	0.25	4.1
7.5 Crevalle jack	144	0.22	3.6
7.5 King mackerel	144	0.22	3.6
9 Vermillion snapper	81	0.12	2.0
10 Ladyfish	78	0.12	2.0
	3,000		75.6

Table 14.—Ten most abundant species caught by other fishing in each area of the Gulf of Mexico during the 1985 charterboat survey.

Area, rank, and species	Number caught	CPH	Percent of total catch w/i area
Southwest Florida			
1 Red grouper	2,382	1.46	19.0
2 Gray snapper	1,648	1.01	13.2
3 Spotted seatrout	1,159	0.71	9.3
4 Ladyfish	1,008	0.62	8.1
5 Gag	807	0.50	6.5
6 Sheepshead	805	0.49	6.4
7 Yellowtail snapper	760	0.47	6.1
8 Unidentified seatrouts	623	0.38	5.0
9 Greater amberjack	593	0.36	4.7
10 Lane snapper	350	0.21	2.8
	10,135		81.1
West Florida			
1 Gag	2,182	2.02	29.1
2 Black sea bass	1,983	1.83	26.4
3 Gray snapper	815	0.75	10.9
4 Red grouper	723	0.67	9.6
5 Unidentified grunts	573	0.53	7.6
6 Gray triggerfish	234	0.22	3.1
7 Unidentified porgies	148	0.14	2.0
8 Unidentified squirrelfishes	112	0.10	1.5
9 Greater amberjack	108	0.10	1.4
10 Yellowtail snapper	104	0.10	1.4
	6,982		93.0
Northwest Florida			
1 Gray triggerfish	3,076	2.09	21.4
2 Unidentified porgies	2,441	1.65	17.0
3 Gag	2,303	1.56	16.1
4 Greater amberjack	1,991	1.35	13.9
5 Red snapper	1,759	1.19	12.3
6 Vermillion snapper	1,364	0.92	9.5
7 Little tunny	334	0.23	2.3
8 Blue runner	271	0.18	1.9
Northwest Florida cont.			
9 Scamp	208	0.14	1.4
10 Dolphin	172	0.12	1.2
	13,919		97.0
Alabama			
1 Red snapper	1,623	3.56	46.1
2 Gray triggerfish	747	1.64	21.2
3 Gag	473	1.04	13.4
4 Vermillion snapper	324	0.71	9.2
5 Greater amberjack	95	0.21	2.7
6 Unidentified porgies	92	0.20	2.6
7 Unidentified grunts	44	0.10	1.2
8 Cobia	24	0.05	0.7
9 Red grouper	16	0.04	0.5
10 Scamp	13	0.03	0.4
	3,451		98.0
Mississippi			
1 Sand seatrout	887	2.84	31.2
2 Atlantic bonito	513	1.64	18.0
3 Red snapper	470	1.51	16.5
4 Spotted seatrout	296	0.95	10.4
5 Blacktip shark	196	0.63	6.9
6 Unidentified sharks	88	0.28	3.1
7 Crevalle jack	75	0.24	2.6
8 Red drum	62	0.20	2.2
9 Gray triggerfish	52	0.17	1.8
10 Bluefish	36	0.12	1.3
	2,675		94.0
Louisiana			
1 Sand seatrout	13,864	16.76	51.9
2 Atlantic croaker	5,608	6.78	21.0
3 Unidentified seatrouts	1,963	2.37	7.3
Louisiana cont.			
4 Red snapper	1,644	1.99	6.1
5 Yellowtail snapper	700	0.85	2.6
6 Red drum	547	0.66	2.0
7 Bluefish	528	0.64	2.0
8 Pinfish	474	0.57	1.8
9 Unidentified sharks	299	0.36	1.1
10 King mackerel	244	0.30	0.9
	25,871		96.7
North Texas			
1 Red snapper	1,551	5.07	58.1
2 Little tunny	212	0.69	7.9
3 King mackerel	153	0.50	5.7
4 Atlantic bonito	140	0.46	5.2
5 Greater amberjack	116	0.38	4.3
6 Gray triggerfish	112	0.37	4.2
7 Sand seatrout	96	0.31	3.6
8 Black sea bass	48	0.16	1.8
9 Bluefish	43	0.14	1.6
10 Atlantic sharpnose shark	37	0.12	1.4
	2,508		93.8
South Texas			
1 Red drum	344	1.20	45.6
2 Spotted seatrout	149	0.52	19.8
3 Red snapper	62	0.22	8.2
4 Ladyfish	33	0.12	4.4
5 Blacktip shark	29	0.10	3.8
6 Hardhead catfish	23	0.08	3.1
7 Pinfish	19	0.07	2.5
8 Unidentified flounders	17	0.06	2.3
9 Atlantic spadefish	14	0.05	1.9
10 Unidentified seatrouts	10	0.03	1.3
	700		92.9

CPUE information (Fig. 1). Similarly, annual variations in relative abundance of several species may be examined, such as king mackerel (Trent et al., 1987) and Spanish mackerel (Palko et al., 1987). However, geographic comparisons are not always possible for demersal species due to differences in distribution or occurrence (e.g., yellowtail snapper in south Florida, black sea bass on the Atlantic coast, red grouper in south and southwest Florida, and Atlantic croaker or sand seatrout in Louisiana). The latter, however, may be a function of target species, and may reflect fishermen preference within areas. Other limitations of survey data have been previously discussed by Brusher et al. (1984) and Brusher and Palko (1985).

In summary, the data from the 1982 through 1985 charterboat surveys provided information on catches and effort, which in turn permits examination of seasonal and geographic abundance of fishes caught by trolling and by other fishing methods.

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