A survey of offshore fishing in Florida

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A SURVEY OF OFFSHORE FISHING IN FLORIDA

by

MARTIN A. MOE, JR.

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FLORIDA STATE BOARD OF CONSERVATION
MARINE LABORATORY
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Florida State Board of Conservation Marine Laboratory
Maritime Base, Bayboro Harbor, St. Petersburg, Florida

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SUMMARY

1. This generalized survey of offshore fishing in Florida is presented to provide valuable background information for future research and to report the present development of the offshore fisheries of each coastal county.
2. The operators of vessels in the categories of commercial, party, charter, and private were contacted and were requested to report on their local offshore fishing activity. During the course of this survey 16.4% of the commercial boats, 31.9% of the party boats, 12.8% of the charter boats, and 3.4% of the private boats throughout the state reported. In all, information was obtained from a total of 4,706 boat operators.
3. A one to two hour personal interview was conducted with the operators of the commercial, party and charter vessels. Ten per cent of the registered private boat owners were contacted by a post card questionnaire and 33.6% were returned.
4. The location, depth, bottom composition and topography, fishes taken, seasonality, and a subjective estimate of the fishing effort are reported for the major offshore fishing grounds throughout the littoral waters of Florida.
5. The techniques and equipment used in the offshore hire and commercial fisheries throughout the State are described.
6. The existing development of the offshore fisheries, their relationship to the geography, coastal population, and operational facilities of the coastal counties are discussed.
7. The fishing effort in fisherman days expended by the commercial, party, and charter boats is broken down to surface and bottom effort and tabulated for each coastal county.
8. The major offshore fishes are listed by primary common name, scientific name and secondary common names with information on seasonal and geographic availability, abundance, habitat. Relative importance to the fishery is included when available.
9. The King Mackerel supports the greatest amount of offshore sport fishing activity. This effort is expended primarily from the charter and private boat populations. The snappers are the most sought after of the bottom fishes on a State wide basis although the groupers follow very closely and exceed the snappers along the West Coast. The party and private boats expend the greatest bottom sport fishing effort.
10. A movement inshore in the summer and offshore in the winter by the commercial and party boats is noted throughout the State with the exception of the party boats on the West Coast (see Map VIII) which have the opposite pattern of movement.
11. The opinions of the operators of commercial and hire vessels concerning the effects of Red Tide on offshore fishing are presented and discussed.

INTRODUCTION

The State of Florida has one of the most extensive and diversified coast lines in the United States. The environs of Florida waters vary from the rolling surf of the temperate Atlantic to the only barrier coral reef in the continental United States; from myriad islands along the West Coast to the steep rolling sand dune bottom of the North East Gulf of Mexico. The littoral waters of Florida support a commercial and recreational fishery that is increasing in intensity with the sharp gains in resident and tourist populations, and the rapid technological advances in traditional fishing gear. The exploitation of the reef fishes on the offshore fishing grounds of Florida has increased tremendously since World War II. The possibility of the depletion of the stocks of reef fishes through the effects of intense fishing pressure, slow growth rate, and destruction of young fishes in infestations of Red Tide should not be ignored.

Contribution No. 72, Florida State Board of Conservation Marine Laboratory

There is a great need at this time for fundamental research on those fishes that are the staple of the offshore fishing industry. Only through research into the ecology and biology of these fishes can we hope to achieve the enactment of sound conservation measures that will preserve the legacy of Florida's offshore waters for this generation and the generations to come. This survey of the existing offshore fishing industry represents the beginning step of an extensive research program designed to aid in achieving the goal of a maximum sustained yield from Florida's littoral waters.

ACKNOWLEDGEMENTS

The nature of this study required the cooperation and assistance of thousands of individuals from many walks of life throughout Florida. I am deeply indebted to the many fishermen, boat operators and owners, dockmasters, and fish house operators who graciously contributed of their time and knowledge. This survey would not have been possible without their complete cooperation. The law enforcement officers of Florida State Board of Conservation aided greatly with wise counsel and thorough knowledge of the fisheries in their locality. I extend my sincere appreciation to these officers and their superiors for greatly facilitating the field work of this survey.

I gratefully acknowledge the staff of the Marine Laboratory for the many helpful suggestions with the field work and the preparation of the manuscript. Mr. Robert M. Ingle, Director of Research and Assistant Director, proposed the survey and guided it toward its completion. He also aided in offering constructive criticism of the completed manuscript.

METHODS AND MATERIALS

The purpose of this survey was to obtain data on the major offshore fishing activity in Florida waters. These data included: information on the offshore boat population; identification and description of the major offshore fishing grounds; determination of the seasonality and extent of development of the offshore fisheries of each coastal county; determination of the degree of exploitation of the major commercially valuable offshore fishes by sport and commercial fishing vessels throughout the State; and reports of various local conditions that affect the offshore fishing of each coastal county. This survey provides extensive background information that will be very useful in future research on the offshore reef fishes.

The methods used in the accumulation of the data presented consisted of personal interviews with a representative sample of the operators of party, charter and commercial snapper/grouper vessels operating from the confines of each coastal county; personal interviews with the operators of fish houses and docking locations for sport fishing vessels; and post card questionnaires mailed to ten per cent of the private boat owners throughout the State.

The average length of the interviews with the operators of the fishing vessels was about one hour and usually took place aboard the vessel. Many interviews were made during the operation of the vessel and were supplemented by personal observations of the author. The individuals that were interviewed were normally selected with the help of the local conservation officers and other individuals familiar with the operations of the fishing vessels. Success as a fisherman, length of time employed as the operator of the fishing vessel, and degree of expected cooperation were the positive criteria utilized in the selection of these individuals where option was possible. A two page questionnaire was used during the personal interviews to record specific information on the size, equipment and power of the vessel, the nature of the most frequented fishing grounds, advantageous and adverse local conditions in

regard to fishing operations, methods and frequency of operation of the vessel, and seasonality and relative abundance of the fishes taken.

The docking locations for sport fishing vessels were visited in each coastal county and information pertaining to the number of year round and seasonal boats was obtained at each location. The numbers of commercial vessels engaged in fishing for offshore reef fishes were obtained from the fish houses with which they deal. Since the dockage of these vessels is relatively inconsistent, it would be difficult to estimate their numbers through dock site assessment. An accurate estimate by county of the numbers of these vessels on a year round and seasonal basis was obtained through compilation of all the reports from each county.

A post card questionnaire was used to contact a representative sample of the private boat owners throughout Florida. The card was designed to obtain information on the size and equipment of the boats, frequency of use in offshore fishing, methods of fishing, and fishes that are primarily sought by private boats.

DEFINITIONS OF TERMS

The equipment and techniques that are used throughout the State by fishing operations of a similar nature are described below to avoid repetitious descriptions in other sections of this paper. The terms listed below are defined according to their connotation in the context of this publication.

Coastal County: All counties bordering either the Gulf of Mexico, Tampa Bay, or the Atlantic Ocean are considered coastal counties.

Commercial Boat: The vessels that fish commercially for snapper and grouper using a baited hook and line technique are the primary commercial fishing operations. A small hook and line fishery on the lower east coast is also included.

Party Boat: The terms "Party Boat", "Head Boat", and "Drift Boat" are synonymous. The type of fishing operation is characterized by the use of a large boat, usually in the range of 55 to 65 feet in length. Bottom fishing consumes the majority of the allotted fishing time, although drift fishing and, very rarely, trolling methods are used in various localities. The party boats normally charge a set fee (four to seven dollars) per person or "head". Many of the boats must have a certain minimum number of paid fares aboard before the boat will undertake a fishing trip. In most operations there is a separate charge of one or two dollars for rental of fishing equipment. Occasionally the entire boat will be chartered by a large organization for a private or closed fishing trip. In a few localized areas the party boats are termed charter boats.

Charter Boat: The terms "Charter Boat" and "Trolling Boat" are synonymous. This type of fishing operation is characterized by a small boat, usually in the range of 30 to 45 feet in length. Trolling is the primary method of fishing and consumes a large majority of fishing time. Bottom fishing methods are used extensively by the charter boats in some locales. The entire charter boat is usually rented or chartered for the length of the fishing trip by a single party of one to six people. The captain of the charter boat will occasionally arrange for different parties of two to four people to share the cost of the charter and thus form a complete party. Tackle is supplied to the fishermen without extra cost and used under the supervision of the captain and the mate. The rental of the boat varies from 40 to 80 dollars a full day trip depending on the local conditions. The price of a half day trip is usually half the cost of the full day trip.

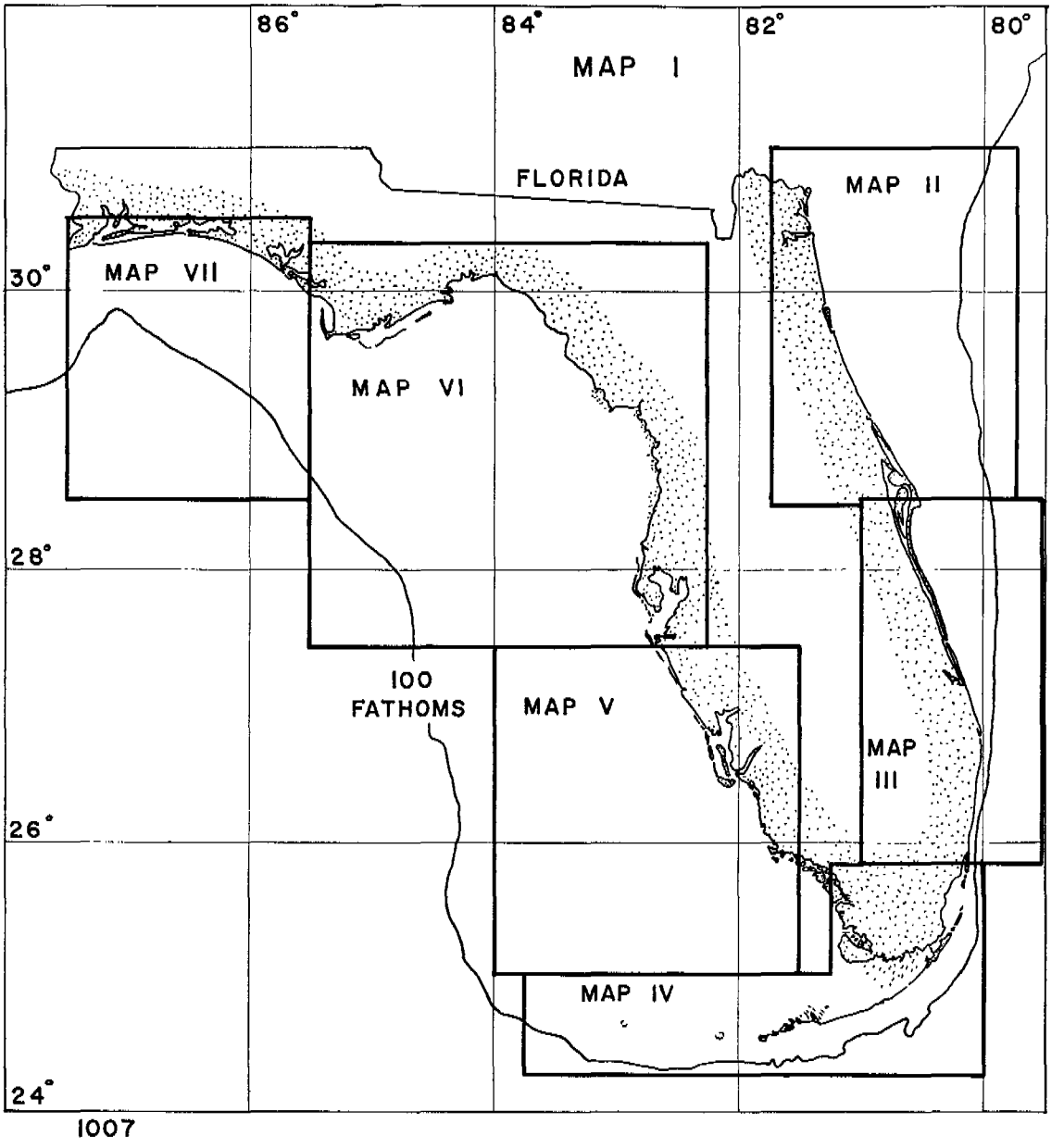
Winter: December, January and February.
Spring: March, April and May.
Summer: June, July and August.
Fall: September, October and November.

OFFSHORE FISHING GROUNDS OF THE STATE OF FLORIDA

The term "offshore" has different connotations in the various sections of the State. The offshore fishing grounds of areas with a broad

expanse of shallow water are far removed from the shoreline. In contrast, areas with very deep water close to the coast enjoy offshore fishing within sight of land. The offshore fishing grounds are usually contained within the 100 fathom contour and their nature is determined by the slope of the continental shelf, bottom composition and topography, currents, and population of the adjacent coastal areas.

There is a great wealth of information concerning the characteristics of localized fishing grounds available from the operators of fishing vessels that consistently fish specific areas. The extensive use of electronic navigational and



Offshore Areas Included in Sectional Maps

depth sounding equipment in commercial and sport fishing vessels insures a high degree of accuracy in the description of fishing areas. Of the vessels interviewed, 34.5 per cent were equipped with both electronic navigational and depth sounding equipment, and 84.8 per cent of the vessels interviewed were equipped with electronic depth sounding equipment. Additional assurance of accuracy was obtained through compilation of numerous descriptions of individual areas and personal observation of several areas with SCUBA equipment.

The State has been divided into six areas of geologic similarity, as indicated on Map I, to facilitate the generalized description of the offshore fishing grounds. The specific areas are described in tabular form following each of the six area maps. The description of the fishing areas are generally of those areas that are well known and fished by the majority of the boats in that coastal region. Many areas of a minor nature were not included in this report. The designations of CO, PA, and CH refer to areas frequented by commercial, party, and charter boats respectively. The configuration, size, and relationship to the coast of the areas described in the tables are shown in the area maps.

There has been a marked increase in the number of commercial and sport fishing vessels since World War II. Future technical advances in processing and marketing and the development of additional recreational facilities will increase the present demand for the offshore fishes, and result in consistent additions to the offshore fleet. It was not possible to measure the fishing effort in units of fisherman days on the specific areas described because of limitations in time and personnel. A subjective estimate of the relative fishing effort expended on the individual areas was developed in accordance to the following scale: (1) intense—consistent fishing by a fleet of boats; (2) heavy—well known and fished by numerous boats; (3) moderate—fished frequently by a few boats or infrequently by many boats; (4) slight—fished infrequently by a few boats. The fishing effort was estimated for the season of greatest activity as reported by the fishing vessels.

UPPER EAST COAST (MAP II)

The continental shelf of the eastern coast of Florida is generally very narrow and thus covers a small area. The northern or upper portion of the coast has the greatest expanse of the continental shelf reaching a width of 80 miles off Fernandina Beach and narrowing to 35 miles off Cape Canaveral.

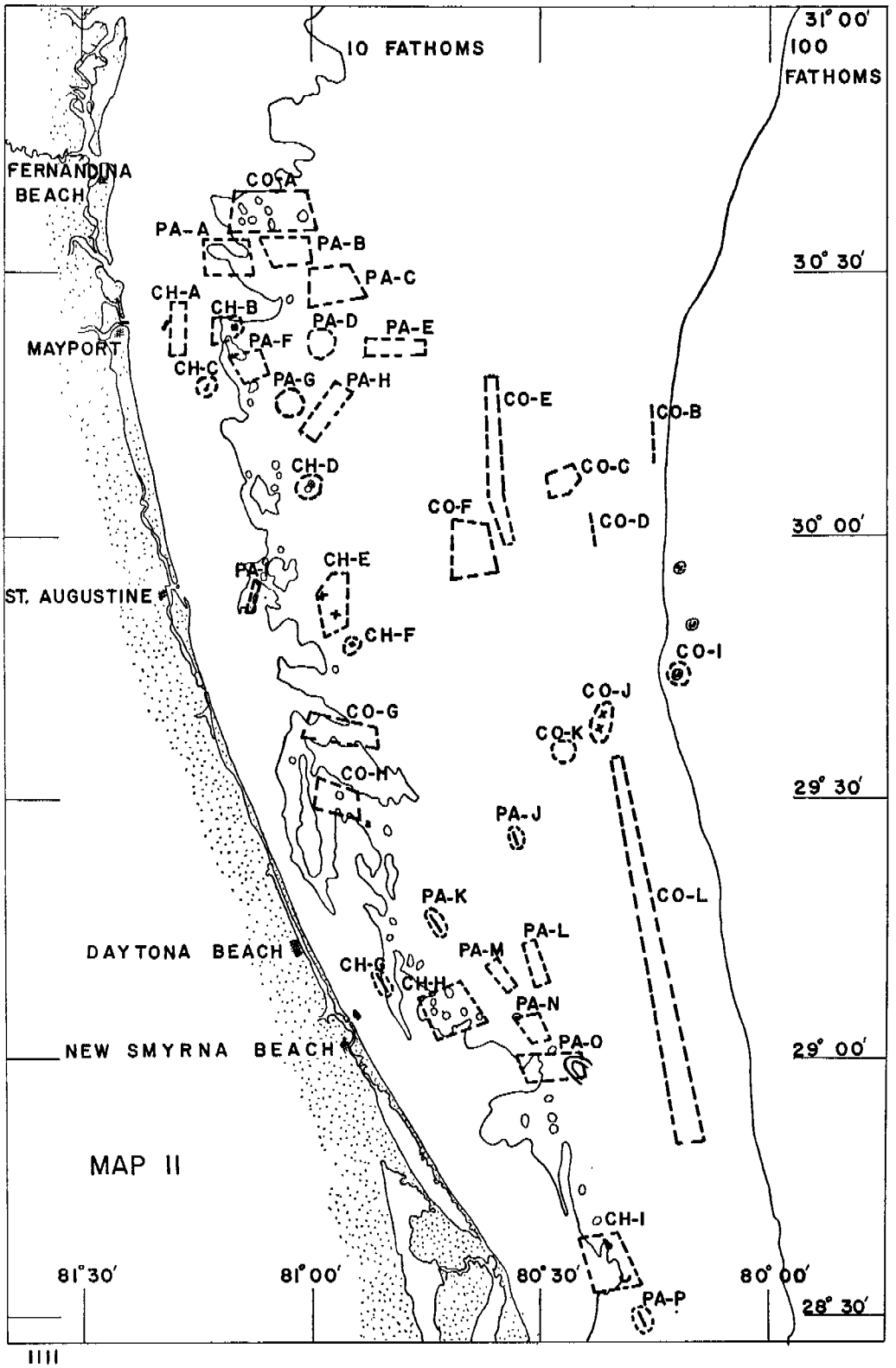
The continental shelf of this coast is not well known. The following generalized description of the bottom composition and topography was obtained from the reports of fishermen engaged in fishing and shrimping throughout this area. The bottom composition is primarily a coarse sand grading into gravel in localized areas. There are many hills, ridges, depressions, and valleys formed from this sand and gravel that result in a very irregular topography. There are numerous rocky reefs throughout the area that are usually associated with patches of shell. These reefs have a marked tendency to lie parallel to the 100 fathom contour. The reefs closest to the shore are generally obscured by sediments and exhibit low relief in areas where they are not completely hidden. The reefs gradually become more pronounced as they progress offshore and obtain maximum relief, 30 to 75 foot ledges and cliffs, near the edge of the continental shelf in 30 to 100 fathoms. The areas that are most intensively fished by the sport and commercial fishermen are close to shore and exhibit maximum relief for the inshore areas. Sessile invertebrate growth predominates on the reef areas with the soft corals appearing to be the most abundant.

The prevalent direction of the offshore currents is northward although a strong southerly current is occasionally found a few miles offshore. The fishermen report that the currents increase in strength and consistency of direction as the distance offshore increases.

The majority of the vessels through this area follow a consistent annual pattern in their activities. The months for commercial snapper fishing are January through May, for sport fishing May through August, and for shrimping September through January. Most of the vessels engage in two or three of these various forms of fishing and thus find profitable activity throughout the year. Commercial snapper fishing is the only activity that is carried on throughout the year by some vessels. Sport fishing is restricted to the summer months by tourism and shrimping is restricted to the fall by the abundance of the shrimp.

The Red Snapper is the most sought after and most caught fish of the party and commercial fishing vessels. The charter boats rely upon the King Mackerel to provide the greatest amount of fishing activity. Both of these fishes reach their annual peak of abundance at some time between the months of April and August.

As in the Northwest Coast area (see below) Red Snapper spawning grounds have been suggested by fishermen who noted voracious biting, schooling behavior and presence of spawn in landed individuals. The areas of these occurrences were identified as CO-G and CO-H, (Map II). July and August were mentioned as being the most likely months.



Upper East Coast

Table 1. Upper East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A		30° 34′ to 30° 39′ N. 80° 59′ to 81° 10′ W.	9 to 12 Fathoms	Irregular sand, gravel, and mud bottom; scattered rock outcroppings of low relief; many sand hills and depressions up to 15 feet.	Sea Bass Red Snapper Red Grouper	Spring Summer	Spring	Moderate
CO-B		30° 09′ to 30° 17′ N. 80° 16′ W.	40 to 50 Fathoms	Highly irregular bottom; 30 foot ledges and cliffs common; areas of sand shell are scattered through the rocky reef areas.	Red Grouper Red Snapper Yellow Eye Snapper Vermilion Snapper	Winter Spring	Spring	Moderate
CO-C		30° 07′ N. 80° 27′ W.	25 Fathoms	Hard bottom of sand and shell—irregular pattern of rocky reefs with 10′ ledges and cliffs common.	Red Snapper Red Grouper Vermilion Snapper	Winter	Spring Winter	Moderate
CO-D		29° 58′ to 30° 03′ N. 80° 24′ W.	23 to 26 Fathoms	Steep cliff of Limestone rock reaches a height of 20 to 25 feet; a section of reef that runs parallel to the 100 fathom contour.	Red Snapper Red Grouper Vermilion Snapper	Winter	Spring Winter	Slight
CO-E		29° 58′ to 30° 18′ N. 80° 33′ W.	18 to 22 Fathoms	Rolling hard sand bottom, exposed rock reef with relief of 5 to 7 feet. The reefs lay parallel to the 100 fathom contour.	Red Snapper Red Grouper	Winter Spring	Winter Spring	Moderate
CO-F		29° 55′ to 30° 02′ N. 80° 36′ to 80° 43′ W.	19 to 22 Fathoms	Hard sand bottom, rock reefs with 10 foot cliffs and slopes—sand and shell are scattered around the reefs; heavy coral growth.	Red Snapper Red Grouper Sea Bass Black Grouper	Winter	Winter	Moderate
CO-G		30° 05′ to 40° 00′ N. 80° 51′ to 81° 02′ W.	9 to 12 Fathoms	Valley indented into 10 fathom contour; hard sand and shell bottom with few rocky reef areas; the reef areas are of low relief. Spawning grounds for the Red Snapper.	Red Snapper	Summer	Summer	Intense

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 1. Upper East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-H		29° 27′ to 29° 37′ N. 80° 52′ to 81° 00′ W.	9 to 12 Fathoms	Valley indented into 10 fathom contour; hard sand and shell bottom with few rocky areas of low relief. Spawning grounds for Red Snapper.	Red Snapper	Summer	Summer	Heavy
CO-I		29° 44′ N. 80° 13′ W.	60 Fathoms	A 60 fathom peak that extends up from the surrounding bottom of 150 to 200 fathoms. Less than 2 square miles across.	Yellow Eye Snapper Red Snapper Vermilion Snapper	Winter		Slight
CO-J		24° 37′ to 29° 42′ N. 80° 23′ W.	21 Fathoms	Two airplane wrecks in a large gradual depression in an area of hard sand and rock bottom. Rock has low relief.	Red Snapper Amberjack Black Grouper	Winter	Spring Winter	Slight
CO-K		29° 36′ N. 80° 23′ W.	18 Fathoms	Area of about 3 square miles—hard sand, shell and rock of low relief; heavy coral and vegetative growth.	Red Snapper Red Grouper Black Grouper	Winter	Winter	Moderate
CO-L		28° 50′ to 29° 35′ N. 80° 11′ W.	23 to 34 Fathoms	Long reef of limestone rock that lies parallel to the 100 fathom contour in about 26 fathoms; this reef has many crevices and cliffs and is stronger with fewer interruptions in this area than elsewhere along the coast.	Red Snapper Red Grouper Black Grouper Grunt	Winter Spring	Winter Spring	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 2. Upper East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A	Hammer Grounds	30° 29′ to 30° 34′ N. 81° 07′ to 81° 13′ W.	8 to 12 Fathoms	A valley of reddish sand and gravel indented into the 10 fathom contour. There are scattered occurrences of rock reefs with 6 to 10 foot ledges and cliffs.	Sea Bass Red Snapper Red Grouper	Summer	Summer	Moderate
PA-B	North East Grounds	30° 31′ to 30° 34′ N. 81° 00′ to 81° 06′ W.	13 to 15 Fathoms	Hard sand and gravel bottom with exposed areas of rocky reef, 6 to 10 foot relief.	Sea Bass Red Snapper Red Grouper Vermilion Snapper	Summer	Spring Summer	Moderate
PA-C	Big Grounds	30° 26′ to 30° 31′ N. 80° 52′ to 81° 00′ W.	13 to 17 Fathoms	Rolling sand and shell bottom, scattered areas of rock reefs with relief of 5 to 10 feet, coral and sponge growth.	Sea Bass Red Snapper Red Grouper Vermilion Snapper	Summer	Spring Summer	Heavy
PA-D	15's and 16's	30° 22′ N. 80° 58′ W.	15 to 16 Fathoms	Hard sand, shell bottom, low scattered reefs.	Sea Bass Red Snapper Red Grouper	Spring Summer	Spring	Moderate
PA-E	East Grounds	30° 22′ N. 80° 47′ to 80° 54′ W.	17 to 18 Fathoms	Rolling hard sand and shell bottom, scattered low rocks with sponge and coral growth.	Sea Bass Red Snapper Black Grouper Vermilion Snapper	Spring	Spring	Moderate
PA-F	Main 14's and 15's	30° 17′ to 30° 21′ N. 81° 05′ to 81° 10′ W.	14 to 15 Fathoms	Hard sand bottom with scattered areas of shell associated with rocky reefs; 3 to 6 foot relief.	Red Snapper Sea Bass Red Grouper	Spring	Spring Summer	Heavy
PA-G	East South East Grounds	30° 15′ N. 81° 03′ W.	13 to 14 Fathoms	Hard sand bottom with patches of rock and shell; relief of 2 to 4 feet in rocky areas.	Sea Bass Red Snapper Red Grouper Vermilion Snapper	Summer	Spring Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 2. Upper East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-H	South East Grounds	30° 10′ to 30° 18′ N. 80° 56′ to 81° 02′ W.	12 to 16 Fathoms	Hard sand bottom with scattered areas of shell and rock; six to ten foot relief on the rocky areas.	Sea Bass Red Snapper Red Grouper	Summer	Spring Summer	Heavy
PA-I	Nine Mile Reef	29° 51′ to 29° 55′ N. 81° 08′ W.	9 to 10 Fathoms	Hard bottom; sand and low rock supplemented by drops of 200 old appliances and 500 automobile tires; many colonial tunicates.	Sea Bass Red Snapper Red Grouper Trigger Fish	Summer	Summer	Heavy
PA-J	Long John	29° 20′ to 29° 23′ N. 80° 34′ W.	13 to 14 Fathoms	Ridge of rock creating a steep cliff with a surrounding bottom of sand and shell.	Red Snapper Red Grouper Vermilion Snapper	Winter Spring	Winter Spring	Slight
PA-K	15 Mile Bank	29° 13′ to 29° 17′ N. 80° 44′ W.	12 to 13 Fathoms	Ridge of rock creating a steep cliff with a surrounding bottom of sand and shell; the cliff faces offshore and lies parallel to the coast.	Red Snapper Sea Bass King Mackerel Red Grouper	Spring	Spring Summer	Moderate
PA-L	East Ridge	29° 07′ to 29° 13′ N. 80° 31′ W.	13 to 14 Fathoms	Length of exposed rock reef lying parallel to the 100 fathom contour; steep cliff facing offshore at N. and S. end. Sand and shell surround the area and are found in breaks in the reef.	Red Snapper Sea Bass Red Grouper Black Grouper	Summer	Spring Summer	Heavy
PA-M	Party Grounds	29° 07′ to 29° 11′ N. 80° 33′ to 80° 37′ W.	13 to 14 Fathoms	A ridge of rock with a 1 to 2 fathom drop facing the S.W. Surrounding bottom of sand and shell; coral growth on the rocks.	Red Snapper Sea Bass Red Grouper Black Grouper	Summer	Summer	Heavy
PA-N	Half North and East "11" Grounds	29° 02′ to 29° 05′ N. 80° 29′ to 80° 33′ W.	11 to 13 Fathoms	Several cliffs in the area. They face the S.W. and drop from 1 or 2 fathoms. The longer ridges are about 2 miles long. Reefs are surrounded by sand and shell bottom.	Sea Bass Red Snapper Red Grouper Black Grouper	Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 2. Upper East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-O	Turtle Mound Grounds	28° 57′ to 29° 01′ N. 80° 24′ to 80° 33′ W.	8 to 14 Fathoms	Extensive area of rolling sand bottom with many scattered low rocks. The main reef forms a semicircle facing the S.E.	Sea Bass Red Snapper Red Grouper Black Grouper Grunt	Summer	Summer	Heavy
PA-P	Party Grounds	28° 27′ N. 80° 17′ W.	16 to 17 Fathoms	Small cliff about ½ mile long, 1 fathom drop facing toward the N.E.; sand and shell surrounding rock; coral growth.	Red Snapper Red Grouper Grunt Black Grouper Trigger Fish	Summer	Summer	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 3. Upper East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A	Off the Sea Buoy	30° 20′ to 30° 27′ N. 81° 18′ W.	7 to 8 Fathoms	Hard sand bottom with patches of shell and grass; gently rolling or flat bottom. Scattered low rock.	Spanish Mackerel King Mackerel Bonito	Summer	Summer	Intense
CH-B	Sailfish Alley, Nine Mile Reef	30° 21′ to 30° 25′ N. 81° 09′ to 81° 12′ W.	8 to 11 Fathoms	Generally even bottom of hard sand; sharp rocky dropoff of one fathom on eastern edge of area. Low rocky area on western edge supplemented with appliances and other metallic junk.	Spanish Mackerel King Mackerel Bonito Amberjack	Summer	Summer	Heavy
CH-C	The Wreck	30° 17′ N. 81° 13′ W.	10 Fathoms	Metal wreck of an old tanker on sand and gravel bottom; approximately 20 years old.	King Mackerel Barracuda Cobia Amberjack	Summer	Summer	Intense
CH-D	The Wreck	30° 00′ N. 81° 07′ W.	10 Fathoms	Shipwreck on hard sand bottom.	Barracuda Cobia Amberjack King Mackerel Red Snapper	Summer	Summer	Moderate
CH-E	Airplane Wrecks	29° 48′ to 29° 55′ N. 80° 56′ to 80° 59′ W.	12 to 13 Fathoms	A rock reef of 2 to 5 foot relief runs through an area of hard sand and gravel. Scattered areas of shell near the rock; two wrecks in area—one ship, one airplane. Wrecks produce well when located.	Red Snapper Red Grouper King Mackerel Amberjack Barracuda	Summer	Spring Summer	Moderate
CH-F		29° 47′ N. 80° 55′ W.	13 Fathoms	Shipwreck on a hard sand bottom; few low rocks in the area.	King Mackerel Barracuda Cobia Bonito Amberjack	Summer	Summer	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 3. Upper East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-G	7 mile reef or 9 mile reef	29° 08′ N. 80° 50′ W.	10 Fathoms	Rock reef lying parallel to shore with dropoff of several feet facing east; small amounts of old tires and appliances supplement rock areas. Surrounding bottom is hard sand and shell.	King Mackerel Red Snapper Sea Bass Bonito	Summer	Summer	Intense
CH-H		29° 02′ to 29° 08′ N. 80° 37′ to 80° 44′ W.	9 to 12 Fathoms	Large area of gently rolling bottom and scattered low flat rock and shell; heavy invertebrate growth.	Red Snapper Sea Bass Spanish Mackerel King Mackerel Bonito	Summer	Summer	Heavy Occasionally fished by commercial vessels.
CH-I	Kingfish Grounds	28° 32′ to 28° 38′ N. 80° 17′ to 80° 24′ W.	3 to 11 Fathoms	Shallow areas with grass bottom merging into sand and shell; few low rocks, uneven bottom.	King Mackerel Bonito Spanish Mackerel Dolphin	Summer	Summer	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

LOWER EAST COAST (MAP III)

The continental shelf narrows from 35 miles offshore at Cape Canaveral to four miles offshore at Miami Beach. The shelf is very rough and craggy through this area primarily because of a series of coral rock reefs dispersed between the shore line and the continental slope. From Cape Canaveral southward to West Palm Beach these reefs are widely separated and are erratic in form and occurrence. In this northern section of the area the reefs with the highest relief are sought as the best fishing areas. The reefs assume better definition and greater height as the continental shelf narrows from Stuart to West Palm Beach.

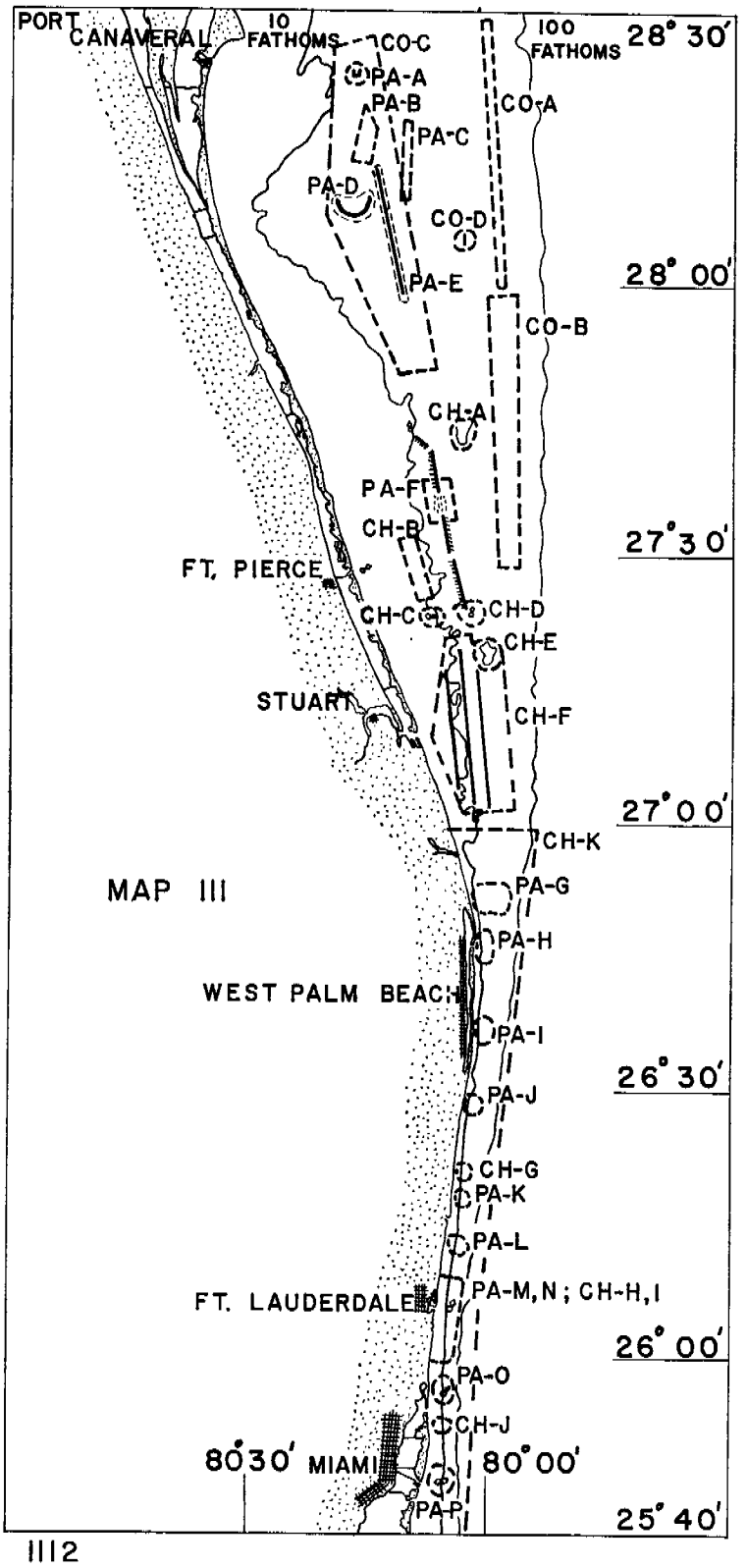
From West Palm Beach to the Florida Keys there are three sharply defined series of reefs. The first or inshore reef is the weakest and the third or offshore reef is the strongest with the highest and most rugged relief. The middle reef is intermediate in size. These three reefs generally occur at depths of 45, 75, and 125 feet offshore of West Palm Beach, and they shallow to depths of 30, 50, and 80 feet offshore of Miami Beach. There are occasional occurrences of additional reefs at various areas along the coast. The most common of these supplemental reefs is found at a depth of 15 feet inshore of the first reef. The others are found just offshore of the third reef at a depth of 200 feet and more rarely between the second and third reef at a depth of 60 feet. These supplemental reefs are normally not of great relief and not renowned as fishing areas. The bottom between these reefs is composed of sand and fine shell with beds of sea grasses in the shallower areas. The reefs are usually projected above the surrounding bottom and have a short abrupt cliff on the inshore side and a long steep slope on the offshore side. The most sought fishing areas are disjunctions in the reef system that form depressions filled with scattered broken rock. Some of these areas are 20 to 30 feet below the surrounding bottom. There is a heavy invertebrate growth, predominantly coral, present on the reefs.

The Florida Current varies from one-half mile to 15 miles offshore throughout this area and thus the strongest, most consistent current is northward. A strong southerly current that runs close to the shore line is not uncommon when the Florida Current is furthest from the shore.

The full time commercial snapper fishing is restricted to the northern section of this area. The only extensive commercial hook and line fishing in the southern section of this area is for the King Mackerel. This fishery is intense but restricted to localized peaks of abundance known as runs. These runs of King Mackerel occur from late fall to early spring in this area. The sport fishing is intense and diversified due to the high resident population and heavy tourism. The most intensive sport fishing occurs during the winter months when the King Mackerel are most abundant and tourism is greatest. Tourism reaches a second peak during the summer months and the fishing effort intensifies but does not reach the level of the winter months. The benthic reef fishes are caught year round but appear to be more abundant during the summer months.

The King Mackerel is the staple fish of the charter and party boat fishery. During the summer when the King Mackerel are not abundant the charter boats rely upon the Dolphin and the Sailfish and the party boats rely upon the snappers and groupers.

The reef fishing area of this region, particularly between Palm Beach and Fowey Rock Light, is so narrowly constricted that intensive fishing pressure can be applied. There is a strong presumption that this heavy prosecution may have resulted in a diminution of catches of grouper and snapper.



Lower East Coast

Table 4. Lower East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A		28° 00′ to 28° 30′ N. 80° 00′ W.	35 to 50 Fathoms	Ridge of highly irregular coral rock lying parallel to the 100 fathom contour. The reef has many steep cliffs and ledges. 15 to 20 feet is the usual relief. Slopes steeply toward deep water. High coral growth.	Red Snapper Vermilion Snapper Red Grouper Trigger Fish	Winter	Winter	Moderate
CO-B	The Peaks	27° 28′ to 28° 00′ N. 79° 57′ to 80° 00′ W.	35 to 65 Fathoms	Highly irregular reef of coral rock that lies parallel to the 100 fathom contour. The reef has many high peaks and ledges up to 50 fathoms in places. Typical drops are 15 to 25 feet. High coral growth.	Red Snaper Vermilion Snapper Red Grouper Black Grouper	Winter	Winter	Moderate
CO-C	Inshore Grounds Melbourne Grounds	27° 50′ to 28° 27′ N. 80° 08′ to 80° 21′ W.	11 to 19 Fathoms	Hard sand bottom with shell and gravel. Coral rock relief up to 10′ with a few 15′ ledges—highest relief in 14 fathoms, low scattered rock in the 12 and 16 fathom depths.	Red Snapper Red Grouper Vermilion Snapper Black Grouper	Summer	Summer	Heavy
CO-D		28° 05′ N. 80° 04′ W.	29 to 30 Fathoms	Small area of flat coral rock bottom with a sharp 2 fathom drop on the offshore side; sponge and coral growths.	Red Snapper Vermilion Snapper Black Grouper Red Grouper	Winter	Winter	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 5. Lower East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A	The Wreck	28° 23′ N. 80° 17′ W.	7 Fathoms	Shipwreck on hard sand bottom with scattered coral rock.	Red Snapper Red Grouper Cobia Amberjack	Winter	Summer	Heavy
PA-B	First Ridge, Pelican Grounds	28° 13′ to 28° 19′ N. 80° 16′ W.	12 to 13 Fathoms	Generally a flat bottom of sand and low coral rock; many corals and other invertebrates present. A coral rock reef with ledges up to 5 and 7 feet is present on the western edge of the area.	Red Snapper Red Grouper Black Grouper Grunt King Mackerel	Summer	Summer	Moderate
PA-C	Second Ridge	28° 09′ to 28° 18′ N. 80° 11′ W.	19 to 21 Fathoms	Irregular hard bottom of sand and shell; a reef of coral rock with 6 to 10 foot ledges lies parallel to the coast in this area. High coral growth.	Red Snapper Red Grouper Grunt Sea Bass Vermilion Snapper	Summer	Summer	Moderate
PA-D	Horseshoe Ridge	28° 09′ N. 80° 16′ to 80° 19′ W.	12 to 13 Fathoms	A crescentric ridge of sand and low coral rock with the horns pointing N. Generally flat bottom of sand and shell.	Red Snapper Red Grouper Grunt Sea Bass Trigger Fish	Summer	Summer	Moderate
PA-E	72 foot ridge	27° 59′ to 28° 13′ N. 80° 12′ to 80° 15′ W.	12 to 14 Fathoms	Reef of coral rock lying parallel to the coast in 72 feet of water; the inshore side has a steep cliff of 2 fathoms and the offshore side slopes downward more gradually; heavy coral growth, ragged relief.	Red Snapper Red Grouper Grunt Triggerfish Vermilion Snapper	Summer	Summer	Moderate
PA-F	North East Grounds	27° 36′ N. 80° 07′ W.	12 to 14 Fathoms	Wide break in a reef of coral rock; scattered, broken rock covers several miles. Strong reef extends northward 5 miles with a sharp 10 foot drop on the inshore side; strong reef extends southward 5 miles with an 8 foot drop on the offshore side. Heavy invertebrate growth.	Sea Bass Vermilion Snapper Red Snapper Red Grouper	Winter	Summer Winter	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 5. Lower East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-G	Off Juno Beach, off the Golf Ball Water Tower	26° 52′ N. 79° 59′ W.	75 to 240 Feet	Section of coral rock reef that is exceptionally rugged with heavy coralline growth.	King Mackerel Mutton Snapper Vermilion Snapper Red Grouper	Winter	Fall Winter	Heavy
PA-H	Off the Inlet	26° 46′ N. 80° 01′ N.	75 to 200 Feet	Typical section of coral rock reef easily accessible because of nearness to the inlet. Large coral formation present north of the inlet; small artificial reef just south of the inlet in 100 feet of water, composed of automobile bodies and a few appliances.	King Mackerel Mutton Snapper Vermilion Snapper Red Grouper	Winter	Summer Winter	Intense
PA-I	Off Lake Worth Pier	26° 37′ N. 80° 01′ W.	70 to 200 Feet	Area of rugged, well defined coral rock reef with profuse coralline growth.	King Mackerel Mutton Snapper Vermilion Snapper Grunt Red Grouper	Winter	Summer Winter	Intense
PA-J	The Kingfish Hole, the Cuda Hole	26° 28′ N. 80° 02′ W.	50 to 100 Feet	A disjunction occurs in the 2nd and 3rd reefs, causing 2 depressions of 50 and 100 feet; these depressions are filled with scattered, broken rock covered with corals.	King Mackerel Mutton Snapper Grunt Vermilion Snapper Barracuda Red Grouper	Winter	Summer Winter	Intense
PA-K	Snapper Hole	26° 18′ N. 80° 03′ W.	75 Feet	Small disjunction in the reef structure causing a 75′ depression with scattered broken rock, surrounded by sand and shell.	King Mackerel Snappers Groupers	Winter	Summer Winter	Heavy
PA-L	Off Atlantic Blvd.	26° 14′ N. 80° 03′ W.	100 to 150 Feet	Off the edge of the 3rd reef, ragged bottom where reef is slightly broken. Heavy coral growth.	Mutton Snapper King Mackerel Vermilion Snapper Yellow Tail Snapper Red Grouper	Winter	Summer Winter	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 5. Lower East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-M	Two Tank Range	26° 07′ N. 80° 05′ W.	80 Feet	An 80 foot hole between the 2nd and 3rd reefs; scattered, broken rock over the bottom. Heavy coral growth.	Mutton Snapper King Mackerel Vermilion Snapper Yellowtail Snapper Red Grouper	Winter	Summer Winter	Intense
PA-N	Off Hollywood Beach Hotel	26° 01′ N. 80° 05′ W.	110 Feet	Disjunction of the 3rd reef; depression with scattered rock; ragged bottom, PA-M, PA-N, CH-H and CH-I are included in one area on Map III.	Mutton Snapper King Mackerel Vermilion Snapper Yellowtail Snapper Red Grouper	Winter	Summer Winter	Intense
PA-O	Buoy No. 4	25° 56′ N. 80° 05′ W.	45 to 60 Feet	The buoy is very near the 3rd reef. It is used as a marker when the vessels drift up on the 3rd reef; the top of the reef is about 40 feet in this area and slopes off to several 100 rapidly; ragged bottom.	Mutton Snapper Yellowtail Snapper King Mackerel Red Grouper Dolphin Southern Black Grouper	Winter	Summer Winter	Intense
PA-P	Buoy No. 2	25° 46′ N. 80° 05′ W.	30 to 100 Feet	The buoy is on the edge of the 3rd reef; it marks the beginning of an intensely fished area to the south; the rugged slope of the 3rd reef is fished in this area.	Mutton Snapper Yellowtail Snapper King Mackerel Red Grouper Dolphin Southern Black Grouper	Winter	Summer Winter	Intense

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 6. Lower East Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A	Horseshoe Bottom	27° 43′ N. 80° 04′ W.	21 to 23 Fathoms	Rough uneven rock bottom shaped similar to a horseshoe, the horns pointing North. Heavy coral growth.	King Mackerel Bonito Dolphin Cobia	Winter	Summer Winter	Moderate
CH-B		27° 25′ to 27° 32′ N. 80° 10′ W.	8 to 10 Fathoms	Flat bottom with occasional areas of coral rock reef; heavy coral growth.	King Mackerel Spanish Mackerel Bonito Dolphin Grouper	Winter	Summer Winter	Moderate
CH-C	Buoy No. 12	27° 23′ N. 80° 08′ W.	50 Feet	Scattered rock; shipwreck in vicinity.	King Mackerel Bonito Barracuda Dolphin	Winter	Summer Winter	Heavy
CH-D	Buoy No. 12 A	27° 23′ N. 80° 03′ W.	42 Feet	Shipwreck on a rocky area; surrounding bottom drops to 100 feet.	King Mackerel Bonito Barracuda Dolphin	Winter	Summer Winter	Heavy
CH-E	Peanut Bottom	27° 19′ N. 80° 01′ W.	120 to 160 Feet	Hard rough bottom; a depression; high coral growth; strong rocky relief.	King Mackerel Bonito Spanish Mackerel Dolphin	Winter	Summer Winter	Slight
CH-F	Off Stuart	27° 02′ to 27° 22′ N. 79° 57′ to 80° 08′ W.	6 to 50 Fathoms	Primarily a rolling sand and shell bottom with 3 series of coral rock reefs at depth of 35, 70, and 130 to 140 feet. The first reef is obscured by sedimentation in some areas.	King Mackerel Bonito Dolphin Sailfish Bottom Fishes	Winter	Summer Winter	Intense
CH-G	North East Hole	26° 20′ 6″ N. 80° 03′ 3″ W.	120 Feet	Disjunction of the outer reef; depression with scattered rock; heavy coral growth; rugged relief.	King Mackerel Amberjack Grouper, Red and Black Barracuda	Winter	Summer Winter	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 6. Lower East Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-H	The Grouper Hole	26° 05′ N. 80° 04′ W.	320 Feet	Rock bottom with invertebrate growth; CH-H and CH-I are indicated on Map III in the same area as PA-M and PA-N.	Amberjack Warsaw Grouper	Winter	Winter	Heavy
CH-I	Sailfish Alley	Straight line course from Port Everglades sea buoy to Hillsboro light.	90 to 35 Feet	The course cuts across the second and third reef although the majority of the distance is on the outside edge of the 3rd reef.	Bonito Dolphin King Mackerel Sailfish Amberjack	Winter	Fall Spring	Intense
CH-J	The Amberjack Hole	25° 52′ N. 80° 05′ W.	65 to 70 Feet	An artificial structure just inshore of the 3rd reef. The boom of a crane sunk about 1947.	Amberjack Barracuda	Winter	Winter	Intense
CH-K		25° 40′ to 27° 00′ N.; within 7 miles of the shore	1 to 200 Fathoms	This area includes the entire continental shelf of the southern section of Map III. The edge of the Florida current, evidenced by a color change to deep blue, is most heavily fished.	King Mackerel Bonito Dolphin Amberjack Barracuda Sailfish	Winter	Summer Winter	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

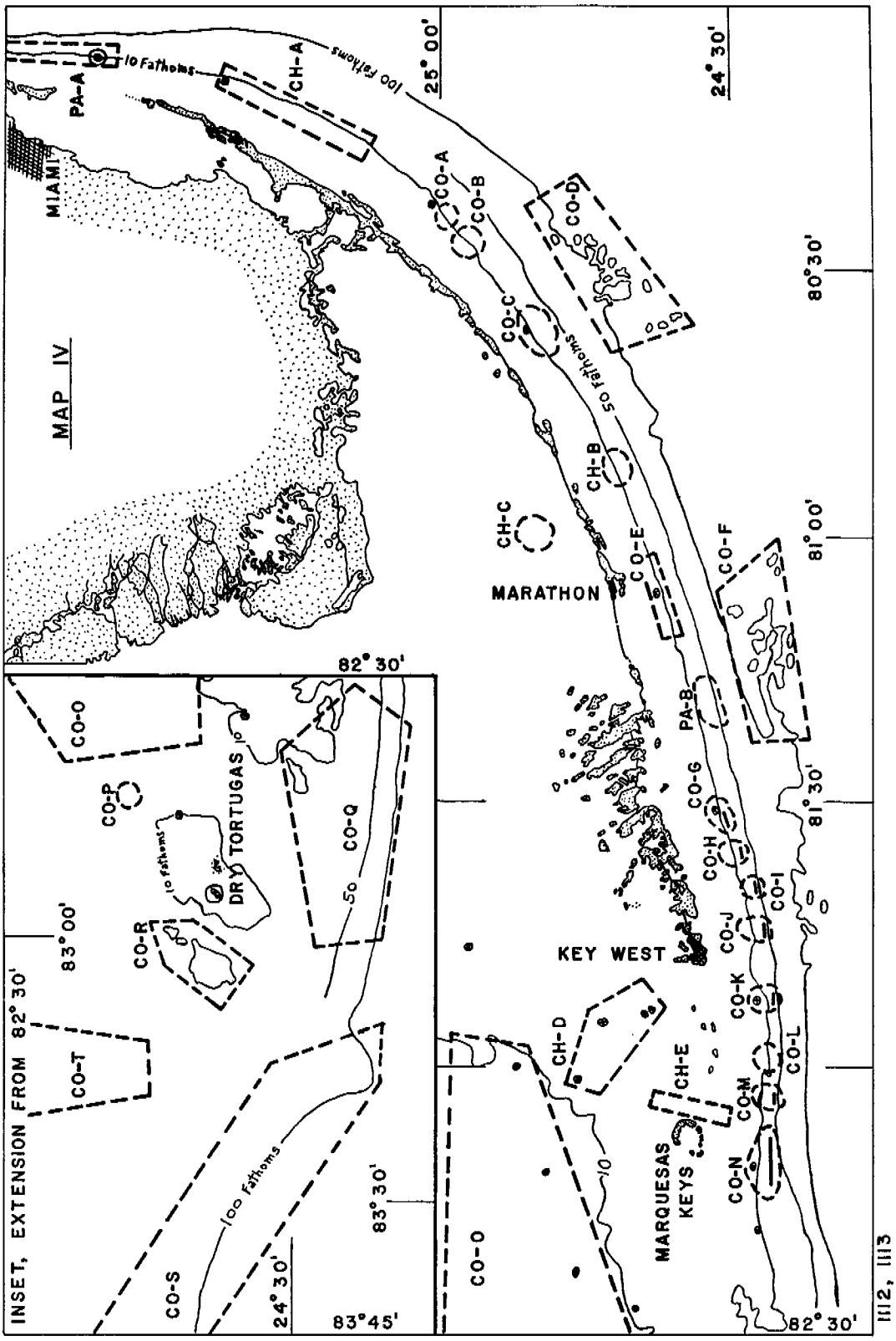
FLORIDA KEYS (MAP IV)

The Florida Keys extend for about 200 miles along the southern edge of the Florida Plateau. The islands of the Florida Keys are composed of coral rock formed by the coral reefs of Pleistocene times. The modern live coral reef of the Florida Keys is a bank reef and extends from Fowey Rocks to the Tortugas reefs. These reefs are built upon a platform formed by erosion of the Pleistocene reefs. They are within ten miles of the Keys and are found at depths of six to 150 feet. The configuration of the reefs vary with the particular locale. In some areas chemical and mechanical sedimentation have obscured the reef structure and in other areas the reefs slope steeply and exhibit a very rugged relief with high coral growth. The latter areas are the favored fishing locations for the reef fishes.

The Florida Keys area is one of the most heavily fished areas in Florida. A large majority of the fishing effort is expended upon the narrow coral reefs that extend into the waters of the Florida Straits. The shallower waters of the Gulf of Mexico and Florida Bay are fished primarily during the winter months when the King Mackerel are present. The entire reef area is heavily fished year round, although there are definite seasonal peaks in fishing intensity caused by the incidence of tourism. The highest peak in fishing intensity occurs during the winter months with a secondary peak during the summer months. The emphasis of both sport and commercial fishing during the winter months is placed on the King Mackerel and during the summer months on the reef fishes. The catch from the same reef area can vary greatly with the methods and time of operation. Navigational aids are usually placed in geographical propinquity to the reef areas of maximum relief and thus these markers serve as indexes to the more productive fishing grounds.

The major current flow in this area is the Florida Current which flows along the curve of the Keys, first eastward, and then northward to become part of the Gulf Stream. The tidal currents leaving and entering Florida Bay through the Keys modify this flow in varying degrees. The speed and direction of the inshore currents depends largely on the amount of the tidal flow between the Keys.

The fishing grounds of the Florida Keys are a tropical environment and offer the greatest variety of sport and commercial fishes in Florida waters. Many of the numerous species of fishes present in this area are in the northernmost sectors of their ranges. In Tables 7, 8, and 9 the groupers have been treated collectively in most cases because of the large number of species present. The Red Grouper is usually the most abundant grouper in the catch. The Yellowtail Snapper is the most abundant fish in the commercial catch from the Keys area. The high rock projections offshore of the Keys in the Florida Straits and the areas to the north and west of the Tortugas produce Red Snapper in commercial quantities during the winter months.



Florida Keys

Table 7. Florida Keys

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A	Pickles Reef	24° 59′ N. 80° 24′ W.	30 to 70 Feet	Patch of high coral reef on the edge of the main bank reef; extensive coral growth; high irregular relief.	Yellowtail Snapper Groupers Mangrove Snapper Mutton Snapper	Spring Summer	Summer	Intense
CO-B	Conch Reefs	24° 57′ N. 80° 27′ W.	30 to 70 Feet	Patch of high coral reef on the edge of the main bank reef; extensive coral growth; high irregular relief.	Yellowtail Snapper Groupers Mangrove Snapper Mutton Snapper	Spring Summer	Summer	Intense
CO-C	Alligator Reef	24° 50′ N. 80° 37′ W.	25 to 65 Feet	S.W. of the light; 30 feet; flat bottom of sand and shell with grass and coral growth S. E. of the light.	Groupers Yellowtail Snapper Mutton Snapper	Winter Summer	Summer	Heavy
CO-D	The Humps	24° 33′ to 24° 51′ N. 80° 21′ to 80° 38′ W.	46 to 160 Fathoms	The bottom is fine sand, shell and some mud with many high rock peaks; relief up to 100 fathoms; the summits of the highest peaks are at 49 fathoms of water; these peaks are rugged.	Red Snapper Yellow Eye Snapper Red Grouper Vermilion Snapper Warsaw Grouper Tilefish	Winter	Winter	Moderate
CO-E	Sombrero Key	24° 37′ N. 81° 02′ to 81° 12′ W.	18 to 110 Feet	Section of rough, rugged coral reef. Steep slope off to deeper water with many rocky sections.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper	Spring Summer	Summer	Intense
CO-F	The Humps	24° 22′ to 24° 30′ N. 81° 02′ to 81° 23′ W.	60 to 115 Fathoms	Bottom of fine sand, shell and some mud with high rock peaks; these peaks extend upward to within 60 fathoms of the surface; the summits of these peaks are rough and covered with invertebrate growth.	Red Snapper Yellow Eye Snapper Red Grouper Vermilion Snapper Warsaw Grouper Tilefish	Winter	Winter	Moderate
CO-G		24° 30′ N. 81° 32′ W.	9 to 20 Fathoms	Sharp rocky cliff several 100 yards offshore of the main reef; drop of about 11 fathoms with coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 7. Florida Keys—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-H		24° 28′ N. 81° 36′ W.	9 to 20 Fathoms	Sharp rocky cliff several 100 yards offshore of the main reef; drop of about 11 fathoms with coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Heavy
CO-I		24° 27′ N. 81° 35′ W.	9 to 20 Fathoms	Sharp rocky cliff several 100 yards offshore of the main reef; drop of about 11 fathoms with coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Heavy
CO-J	Eyeglass Bar	24° 26′ N. 81° 45′ W.	10 Fathoms	Ridge of coral rock with sloping sides that occurs about 100 yds. offshore of the main reef. The bar is covered with heavy coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Intense
CO-K		24° 25′ N. 81° 53′ W.	9 to 20 Fathoms	Sharp rocky cliff several hundred yards offshore of the main reef; drop of about 11 fathoms with coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Heavy
CO-L	Vestal Shoals	24° 26′ N. 81° 58′ W.	19 to 120 Feet	Prominent patch of reef on the surface of the main reef structure; the slope to deeper water is rugged with high relief and is most fished. Heavy coral growth.	Yellowtail Snapper Groupers Mangrove Snapper Mutton Snapper	Spring Summer	Summer	Intense
CO-M		24° 25′ N. 82° 03′ W.	9 to 20 Fathoms	Sharp rocky cliff several hundred yards offshore of the main reef; drop of about 11 fathoms with coral and other invertebrate growth.	Yellowtail Snapper Groupers Mutton Snapper Mangrove Snapper Grunts	Spring Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 7. Florida Keys—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-N	Snapper Bar	24° 26′ N. 82° 07′ to 82° 13′ W.	10 to 60 Fathoms	A long ledge with an offshore drop of several hundred yards off the main reef. The cliff is about 6 to 10 fathoms. Very rugged bottom with heavy coral growth.	Groupers Red Snapper Yellowtail Snapper Mutton Snapper	Winter Summer	Winter Summer	Heavy
CO-O	No Man's Land	24° 40′ to 25° 00′ N. 81° 55′ to 82° 41′ W.	9 to 20 Fathoms	Gently rolling bottom of sand and shell with extensive grass beds and some low scattered rock; coral growth present on rock and shell.	King Mackerel Cero Mackerel	Winter	Winter	Heavy
CO-P		24° 47′ N. 82° 44′ W.	18 Fathoms	Small area of hard rocky bottom surrounded by softer bottom of sand and shell.	King Mackerel Cero Mackerel Mangrove Snapper	Winter	Winter	Moderate
CO-Q	Winter Grounds	24° 18′ to 24° 35′ N. 82° 31′ to 83° 02′ W.	7 to 100 Fathoms	Sand and shell bottom with scattered areas of high rock and coral; the relief gets higher as the distance offshore increases. Heavy flow of tidal water in this area.	Yellowtail Snapper Red Grouper Red Snapper Mutton Snapper	Winter	Summer Winter	Heavy
CO-R	Tortugas Banks	24° 35′ to 24° 44′ N. 82° 59′ to 83° 07′ W.	6 to 20 Fathoms	The bottom slopes downward from the banks; mostly sand and shell with grass. Heavy coral growth occurs in this area, usually on coral rock.	Yellowtail Snapper Red Grouper Mutton Snapper Red Snapper (small)	Winter	Summer Winter	Intense
CO-S	Northwest Peaks	24° 19′ to 24° 51′ N. 83° 10′ to 84° 15′ W.	30 to 200 Fathoms	Bottom composed of sand, mud and shell with high rock formations scattered throughout the area. These rock peaks are more numerous and assume greater height beyond a depth of 70 fathoms. Heavy coral growth on the exposed rock.	Red Snapper Red Grouper Yelloweye Snapper Black Grouper Scamp	Winter	Winter	Moderate
CO-T	R. W. Flats	24° 45′ to 25° 00′ N. 83° 20′ to 83° 40′ W.	32 to 36 Fathoms	Flat bottom of hard sand and shell with extensive areas of low flat rock. Much coral and sponge growth. Three sunken submarines in the northern section.	Red Grouper Red Snapper Black Grouper Mutton Snapper	Winter Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 8. Florida Keys

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A	Sailfish Alley Fowey Rocks	25° 33′ to 25° 40′ N. 80° 05′ W.	25 to 180 Feet	Strong ridge of coral rock with abrupt slope to unfishable depths on the offshore edge. This slope is interrupted by many areas of extensive rock and coral with high rugged relief; beginning of the live coral bank reef of the keys.	Grunt Mutton Snapper Yellowtail Snapper Red Grouper	Winter Summer	Summer	Intense
PA-B		24° 32′ N. 81° 14′ to 81° 21′ W.	3 to 50 Fathoms	Edge of the main reef; heavy coral formations and rugged rock reefs on the slope off the main reef.	King Mackerel Mutton Snapper Grunt Groupers Yellowtail Snapper	Winter	Winter Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 9. Florida Keys

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A	Pacific Reef Carysfort Reef The Elbow	25° 07′ to 25° 24′ N. 80° 07′ to 80° 16′ W.	25 to 200 Feet	Edge of the main reef, a strong coral reef formation with rugged rocky relief. The lights and buoys are near the heaviest reef areas and are guides for the fishermen.	King Mackerel Bonito Dolphin Barracuda Sailfish	Winter	Summer Winter	Heavy
CH-B	Coffins Patch	24° 42′ N. 80° 53′ W.	18 to 100 Feet	Patch reef on the edge of the main reef. Heavy coral growth and high relief; few scattered shipwrecks. Bottom of rock and coral surrounded by sand and shell with growths of sea grasses.	King Mackerel Barracuda Bonito Dolphin Sailfish	Winter	Summer Winter	Intense
CH-C	Bamboo Banks	24° 50′ N. 81° 00′ W.	4 to 12 Feet	Shallow gulf side area. Sand and shell bottom with extensive grass flats and other vegetation.	King Mackerel Cero Mackerel Cobia Tarpon	Winter	Winter	Heavy
CH-D	Smith Shoals to the Wreck Buoy	24° 40′ to 24° 47′ N. 81° 52′ to 82° 03′ W.	15 to 60 Feet	Gulf side area, flat, rolling sand bottom. Abundant vegetation in shallow areas; few scattered rocks.	King Mackerel Jack Crevalle Cero Mackerel Cobia	Winter	Winter Spring	Heavy
CH-E	Boca Grande Channel	24° 30′ to 24° 38′ N. 82° 04′ W.	12 to 24 Feet	Slightly deeper channel cut through from the gulf to the Florida Straits. Sand bottom with grass beds; some scattered coral.	King Mackerel Cero Mackerel Jack Crevalle Cobia Bluefish	Winter	Winter	Intense

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

LOWER WEST COAST (MAP V)

The continental shelf of the Lower West Coast is very broad. At the latitude of Tampa Bay, the 100 ft. contour lies approximately 113 miles offshore. Proceeding southward, this distance increases to about 150 miles at the Naples latitude.

The bottom is composed of extensive sedimentary limestone rock overlaid by a relatively thin layer of detrial sediments. Sand with mud in conjunction with rock is considered to be a very good fishing area. The Lower West Coast differs from the Upper West Coast in that the bottom is smoother, the rocky areas occur with greater regularity and the relief is not as high. These rocky areas achieve greater relief and regularity as the distance offshore and to the south increases. The areas of rock tend to occur in ridges parallel to the 100 fathom contour. In the southern sections of this area there are extensive patches of flat rock covered with heavy coral and sponge growth. Crevices and cliffs provide shelter for the groupers and the snappers and thus these areas produce well for the commercial fishermen. The marine growths on the exposed rock are the same as those of the Upper West Coast, with a higher incidence of coral.

The drowned drainage of the southern section of the Lower West Coast has produced an extensive labyrinth of thousands of small mangrove islands. The shallow waters surrounding these islands provide wonderful fishing for the inshore brackish and euryhaline species of sport fishes. Expansive reaches of shallow water offshore and scarcity of rock bottom near the shore puts the emphasis on inshore fishing and severely limits the offshore activity. The runs of King Mackerel in the late fall and early spring provide the most intensive offshore activity. The charter and private boats will troll six to 12 miles offshore during the local runs of King Mackerel.

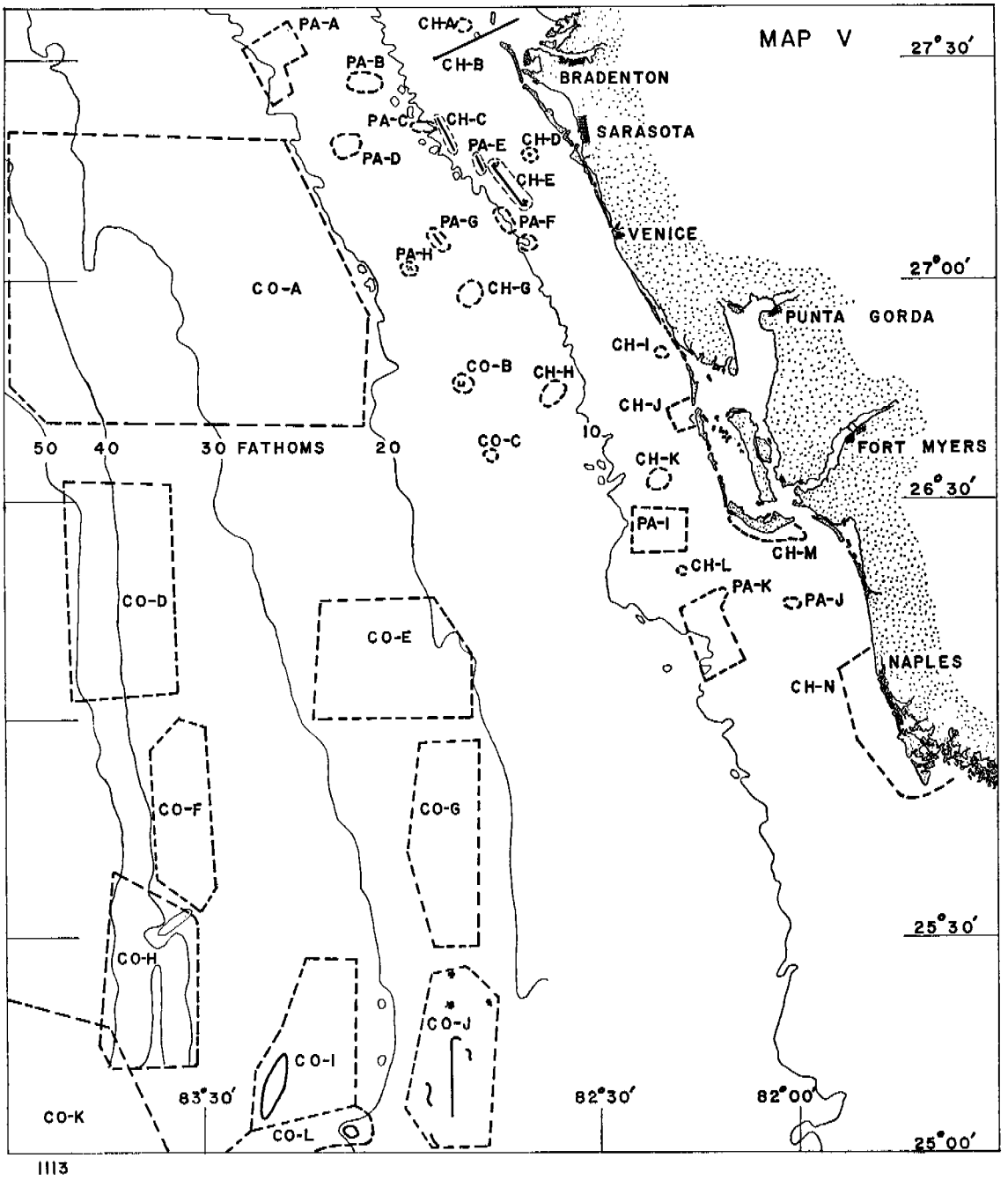
The commercial boats frequenting the offshore areas range over a large bottom area each trip searching for exploitable numbers of reef fishes.

Almost all of this activity takes place seaward of the 20 fathom curve where the offshore fishing grounds cover large expanses of bottom area with indefinite boundaries. The commercial boats usually frequent several major fishing areas on each trip.

The groupers, Red and Black, and the Red Snapper are the major fish in the catch from the commercial areas. The areas furthest offshore produce the greatest percentage of Red Snapper and are generally more productive during the winter months. The areas inshore of the 40 fathom contour produce mostly grouper and are most productive during the spring and fall in the northern areas and during the winter in the southern areas.

The commercial areas on Map V are large and generalized since the commercial boats cover a great deal of territory in their operations, very seldom obtaining their entire catch from the same area. The U. S. Coast and Geodetic Survey Chart #1113 was used in preparing Map V. The 15 degrees of Longitude from 83° 45′ to 84° 00′ W. do not appear on this chart and were added to Map V to cover additional fishing grounds. The depth contours were transposed from Chart #1003.

The major tourist season for this area is the spring and summer months. The northern section of this area has a large winter tourist trade which increases the sport fishing activity during the winter months.



Lower West Coast

Table 10. Lower West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A	The 27's	26° 40′ to 27° 20′ N. 83° 10′ to 84° 00′ W.	12 to 50 Fathoms	The bottom is primarily sand and sand with shell which has rock ridges that follow the depth contours. The rock reefs are fish producing areas. Relief varies from 2 to 3 feet to 3 or 4 fathoms in the deeper waters; these ridges occur in groups of 3 to 5 with reaches of sand and shell between them. There is heavy coral growth on most of the exposed rock.	Red Grouper Black Grouper Red Snapper Scamp	Spring Fall	Spring Fall	Heavy
CO-B	The Wreck	26° 46′ N. 82° 51′ W.	10 Fathoms	Shipwreck on a sand and shell botton with a few scattered low rocks. Large wreck, buoyed.	Red Grouper Black Grouper Sea Bass Grunt	Winter	Winter	Heavy
CO-C		26° 36′ N. 82° 46′ W.	14 Fathoms	Small area of rock formation ¼ mile wide, ¼ mile long. Heavily covered with coral.	Red Grouper Black Grouper Grunt	Winter	Spring Fall	Slight
CO-D	Christmas Ridge	26° 00′ to 26° 35′ N. 83° 33′ to 83° 50′ W.	34 to 50 Fathoms	Well defined rock ridges of high relief (several fathoms). The main reef is in 45 fathoms of water; the ridges are parallel to the contour lines. The rock is very rugged with numerous breaks and cliffs. Heavy sponge and other invertebrate growth.	Red Grouper Red Snapper Black Grouper Scamp	Winter	Late Fall Early Spring	Heavy
CO-E		26° 00′ to 26° 17′ N. 82° 49′ to 83° 15′ W.	20 to 30 Fathoms	Bottom composed of sand, mud and soft flat rock. The rocky areas are 21 to 26 feet high with gentle slopes. The rock occurs in patches rather than ridges. Heavy coral and sponge growth.	Red Grouper Black Grouper Red Snapper	Spring Summer	Spring Summer	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 10. Lower West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-F	Sand Ridges	25° 34′ to 26° 00′ N. 83° 28′ to 83° 39′ W.	35 to 40 Fathoms	A sand bottom with many high sand ridges, rock occurs at the bottom of the sand slopes; these sand ridges are shorter than the analogous rock ridges.	Red Grouper Red Snapper Black Grouper Scamp	Winter	Late Fall Early Spring	Moderate
CO-G		25° 29′ to 25° 58′ N. 82° 47′ to 82° 58′ W.	22 to 27 Fathoms	Flat bottom of sand, shell and mud. Rock occurs in holes and gulleys, rarely protrudes above the bottom, coral and sponge growth present.	Red Grouper Black Grouper Red Snapper	Spring Summer	Spring	Moderate
CO-H	Hambone Ridges, The Finger	25° 12′ to 25° 40′ N. 83° 32′ to 83° 46′ W.	39 to 53 Fathoms	Series of well defined rock ridges occuring on a flat sand bottom. These rock reefs consistently rise 4 to 5 fathoms; the edges of the ridges are most productive; heavy invertebrate growth.	Red Snapper Red Grouper Black Grouper Scamp Mutton Snapper Yellow Eye Snapper	Winter	Winter Spring	Heavy
CO-I		25° 05′ to 25° 27′ N. 83° 05′ to 83° 23′ W.	32 to 35 Fathoms	Flat bottom of sand and mud, shell associated with coral growth on rock. Very heavy coral growth along the western edge of this area (indicated on map); rock occurs in depressions.	Red Grouper Red Snapper Black Grouper Scamp Mutton Snapper	Winter	Winter	Moderate
CO-J		25° 00′ to 25° 26′ N. 82° 46′ to 83° 03′ W.	24 to 29 Fathoms	Flat bottom of sand and shell with occasional 1 fathom depressions of mud with rock; Heavy coral and sponge growth on the rock at the center and edges of the depressions; few high (1 to 2 fathom) rock areas; areas of heavy coral indicated.	Red Grouper Black Grouper Mutton Snapper Red Snapper	Summer	Summer	Moderate
CO-K	Northwest Peaks	25° 00′ to 25° 20′ N. 83° 35′ to 84° 00′ W.	25 to 80 Fathoms	Mostly deep (over 50 fathoms); one peak up to 25 fathoms; high pinnacles of rock reach up from a sand and shell bottom; occasional areas of mud; rock formation very rugged.	Red Snapper Yellow Eye Snapper Red Grouper Warsaw Grouper Scamp	Winter	Winter	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 10. Lower West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-L	R. W. Flats	25° 00′ to 25° 06′ N. 83° 05′ to 83° 26′ W.	29 to 34 Fathoms	Flat sand and shell bottom with many areas of mud associated with flat rock. Heavy coral and sponge growth on hard bottom areas. Rock ridge in the eastern section (29 fathoms); few grass beds in shallower areas.	Red Grouper Red Snapper Black Grouper Mutton Snapper	Winter Spring	Winter Spring	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.
** Four levels: Intense; Heavy; Moderate; Slight.

Table 11. Lower West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A		27° 24′ to 27° 35′ N. 83° 15′ to 83° 23′ W.	90 to 126 Feet	Sand and shell bottom; patches of exposed rock reef with sponge and coral growth.	Red Grouper Black Grouper Dolphin Grunt Red Snapper	Summer	Summer	Moderate
PA-B		27° 27′ N. 83° 05′ W.	72 to 92 Feet	Area of about 5 square miles. Rock and coral patches scattered on a sand and shell bottom. Relief of 4 to 5 feet on the rocky areas.	Red Grouper Black Grouper Red Snapper	Winter	Winter	Slight
PA-C	245° from Longboat Pass	27° 51′ N. 82° 56′ W.	68 to 74 Feet	Rocky area on sand and shell bottom; maximum relief of 6 feet; rugged rock formations; heavy invertebrate growth.	Red Grouper Black Grouper Grunt	Winter	Fall Winter	Moderate
PA-D		27° 28′ N. 83° 07′ W.	96 to 106 Feet	Flat bottom; patches of flat rock with drop of 3 feet; heavy growth on the edges of the rocks.	Red Grouper Black Grouper Red Snapper	Winter	Winter	Slight
PA-E	9 Fathom Gully, Barracuda Hole	27° 19′ N. 82° 49′ W.	9 Fathoms	Rock ledges with 5 and 6 foot relief on a sand and shell bottom; the ledges are parallel to the coast and form a small gully about 1 mile in length.	Red Grouper Black Grouper Grunt King Mackerel	Spring	Spring Fall	Heavy
PA-F		27° 08′ N. 82° 44′ W.	60 Feet	Irregular rocky bottom; moderate relief; heavy invertebrate growth.	Red Grouper Black Grouper Sea Bass Grunt	Spring	Spring Fall	Heavy
PA-G	17 Fathom Hole	27° 06′ N. 82° 54′ W.	16 to 17 Fathoms	Rock formations in and surrounding a depression of one fathom; sand and shell bottom; heavy invertebrate growth.	Red Grouper Black Grouper Grunt Dolphin	Summer	Spring Summer	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 11. Lower West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-H		27° 02′ N. 82° 58′ W.	17 Fathoms	Flat rock bottom with heavy coral growth; sand and shell scattered through the area.	Red Grouper Black Grouper Grunt	Summer	Spring Summer	Slight
PA-I		26° 23′ to 26° 29′ N. 82° 16′ to 82° 25′ W.	5 to 9 Fathoms	Rolling bottom of sand and shell; few sand hills 10 feet in height. Scattered rock occurs in the depressions formed by the sand hills. A few 6 to 10 foot rock ledges are in the area.	Red Grouper Black Grouper Grunt King Mackerel	Winter	Winter	Moderate
PA-J	The Mud Hole	26° 11′ N. 82° 01′ W.	60 Feet	A fresh water spring has created a cavity in the base rock 25 to 30 feet below the level of the bottom. There is a boil of discolored water at this location. The steep rock sides of the cavity are most productive.	Red Grouper Black Grouper Cobia Jew Fish	Spring	Summer	Heavy
PA-K		26° 05′ to 26° 17′ N. 82° 08′ to 82° 17′ W.	40 to 60 Feet	Irregular sand and shell bottom; many holes and dips with rock ledges and scattered rock. The eastern side has large patches of flat rock 2 to 3 feet above the bottom level; heavy sponge and coral growth.	Red Grouper Black Grouper Grunt	Winter	Winter	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 12. Lower West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A		27° 34′ N. 82° 50′ W.	20 to 25 Feet	Hard bottom of sand and shell; flat with sparse grass growth.	Spanish Mackerel King Mackerel Bluefish Cobia	Spring	Spring Summer	Heavy
CH-B	Southwest Pass	27° 30′ to 27° 38′ N. 82° 40′ to 82° 55′ W.	25 to 30 Feet	Hard sand and shell bottom with scattered grass areas.	Spanish Mackerel King Mackerel Bluefish Cobia	Spring	Spring Summer	Heavy
CH-C		27° 17′ to 27° 22′ N. 82° 53′ W.	50 Feet	Bottom of sand and shell surrounding a patch of flat rock 6 miles long and one mile wide. Many deep crevices and caves.	Black Grouper Red Grouper Grunt Sea Bass	Spring	Summer	Moderate
CH-D		27° 12′ N. 82° 41′ W.	30 Feet	Small, high rock formation on a bottom of sand and shell.	King Mackerel Spanish Mackerel Bluefish Blue Runners	Spring	Spring Summer	Moderate
CH-E	The Ice Box The Barracuda Hole	27° 10′ to 27° 16′ N. 82° 41′ to 82° 47′ W.	50 Feet	Two areas of heavy rock bottom; one 50 feet, 220° from Sarasota Pass and one 260° from Sarasota Pass. The rock area extends between these two locations; the rock is usually found in gullys.	King Mackerel Black Grouper Spanish Mackerel Barracuda Cobia	Spring	Spring Summer	Heavy
CH-F		27° 05′ N. 82° 41′ W.	60 Feet	Old shipwreck, hard to find; relief of wreck not high; surrounding bottom of sand, shell and sparse rock.	King Mackerel Barracuda Cobia Groupers	Spring	Spring Fall	Moderate
CH-G	210° from New Pass	26° 58′ N. 82° 50′ W.	90 to 100 Feet	Rock formation heavily grown with coral; moderate relief.	Dolphin Black Grouper Barracuda Sailfish	Summer	Summer	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

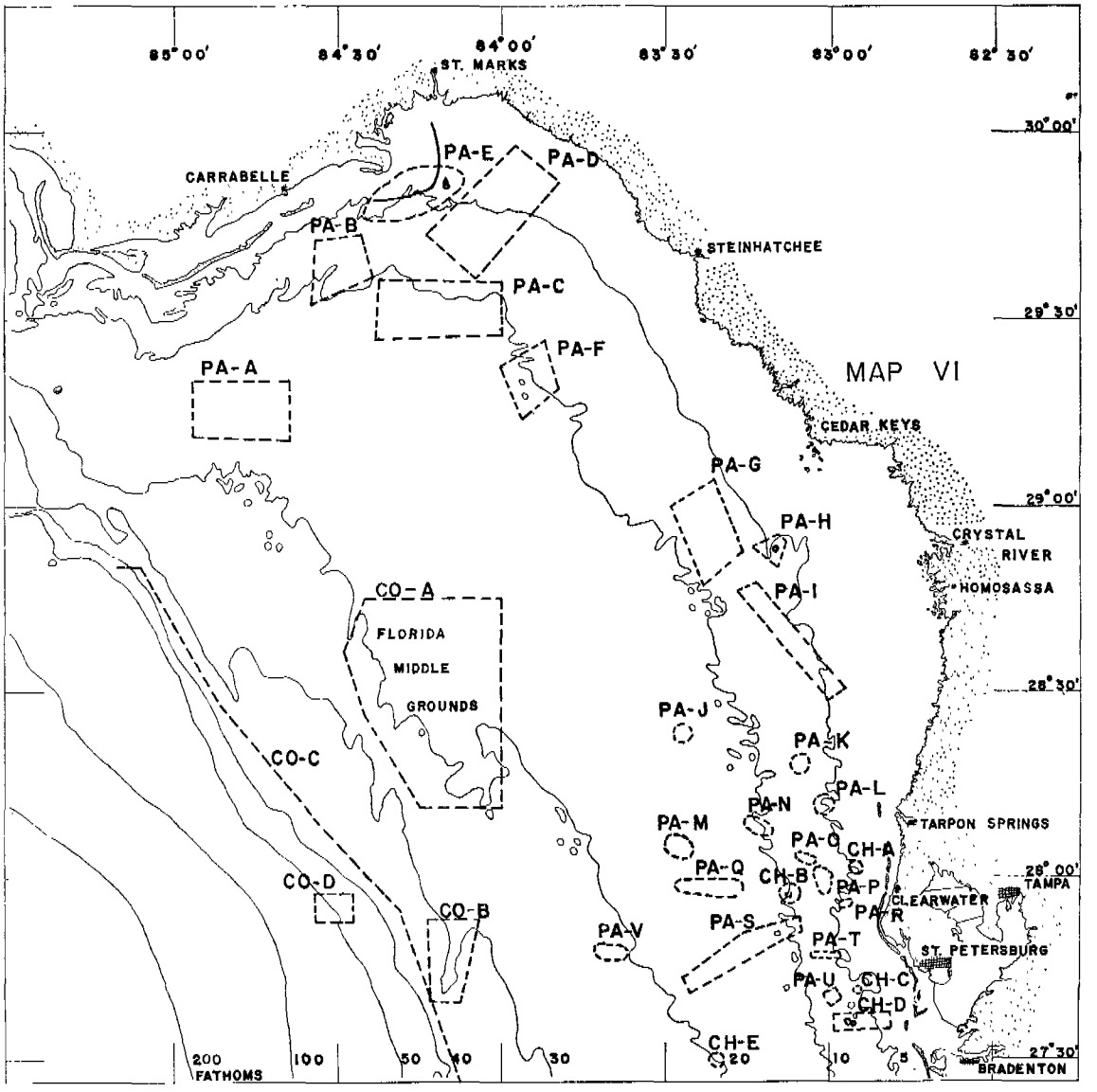
** Four levels: Intense; Heavy; Moderate; Slight.

Table 12. Lower West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-H	245° from Stump Pass	26° 45′ N. 82° 36′ W.	72 Feet	Flat bottom of sand and shell with one area of rock; relief of one fathom.	Red Grouper Black Grouper Grunt Sea Bass	Summer	Summer	Slight
CH-I	Off Little Gasparilla Pass	26° 50′ N. 82° 21′ W.	22 to 55 Feet	Sand and shell bottom with scattered areas of rock; 3 to 7 foot relief; heavy invertebrate growth.	Black Grouper King Mackerel Bonito Red Grouper	Spring	Fall Winter	Moderate
CH-J	Boca Grande Pass	26° 42′ N. 82° 16′ W.	40 to 80 Feet	Main pass to Charlotte Harbor; deep with strong tidal flow; hard bottom of sand and rock.	Tarpon King Mackerel Snook Cobia	Spring	Spring	Intense
CH-K	West of Redfish Pass	26° 33′ N. 82° 21′ W.	40 to 45 Feet	Extensive sand bottom with scattered patches of flat rock.	Spanish Mackerel King Mackerel Black Grouper Bluefish	Spring	Spring Fall	Moderate
CH-L		26° 20′ N. 82° 17′ W.	40 Feet	Small area of flat rock and gravel with heavy invertebrate growth; low relief.	Spanish Mackerel King Mackerel Black Grouper	Spring	Spring Fall	Slight
CH-M	Off Sanibel Beach	26° 25′ N. 82° 00′ to 82° 10′ W.	10 to 25 Feet	Sand bottom with a gentle slope to deeper water; few sparse areas of shell.	Tarpon Spanish Mackerel Bluefish	Spring	Spring	Heavy
CH-N	Naples Grounds	25° 50′ to 26° 10′ N. 81° 40′ to 81° 55′ W.	5 to 30 Feet	Sand and mud bottom; sand occurs offshore and mud occurs inshore by the mangroves. Very few areas of exposed rock.	Spanish Mackerel Tarpon Snook Redfish Speckled Trout	Spring	Spring	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.



Upper West Coast

UPPER WEST COAST (MAP VI)

The Upper West Coast of Florida has one of the most extensive reaches of shallow water in the State. The gradient of the continental shelf throughout the area is very gentle which places the 50 fathom contour at approximately 100 miles offshore of the coast line. The submarine topography of this area has been described by Price (1954) as a limestone plateau exhibiting a young, drowned karst topography. This limestone base is covered by a thin layer of detrital sediments and presents the general picture of a hard gently rolling bottom broken by the localized occurences of sink holes, fissures, and protuberances of the underlying rock. The localized relief of this area reaches the greatest proportions in the Florida Middle Grounds

where hills and cliffs of up to seven fathoms have been recorded.

The type of reef configuration most often reported in the interviews is a limited area of rock protuberances projecting two to eight feet above the surrounding sand and shell bottom. These rocky areas are infused with crevices, ledges, and caverns and are generally covered with extensive invertebrate and vegetative growth. The most common invertebrate growths on the reefs are small hard and soft corals, sponges, and colonial tunicates. The colonial tunicates are termed "tapioca" by the local fishermen because of the resemblance to the granular food made from cassava starch. The preponderant vegetative growths on the reefs are the marine algae. These descriptions concur with observations made by the author with SCUBA equipment offshore of Cedar Keys and with the observations of Phillips and Springer (1960) offshore of Pinellas County. Dr. Robert N. Ginsburg described a sample of the limestone collected offshore of Pinellas County by Phillips and Springer (1960) as a "dolomitic calcarenite, possibly of Tertiary age". These observations were made within the ten fathom contour and the interviews with the commercial and party fishermen indicate that the relief of the rocky areas in greater depths is higher and more elaborate. All of the fishermen interviewed from this area stated that the greatest degree of fishing success was found on small, isolated rocky areas or wrecks located within large expanses of sand bottom termed "deserts".

The areas individually described on the map of the Upper West Coast are the areas that are most well known and most intensively fished. The fishing vessels are consistently exploring new areas in search of fishes when the well known fishing grounds fail to produce.

None of the fishermen interviewed had kept accurate records of the current flow in the area that they fished. The interviews were consistent in reporting that the currents were tidal and moved parallel to the coast at speeds up to four knots. The currents were reported strongest during the full moon varying in strength and direction with the season of the year.

The primary sport and commercial fishes through the major portion of this area are the Red and Black Grouper. The Red Grouper is the most abundant in the total sport and commercial catch. The fishermen operating within the 15 fathom contour report that the Black Grouper is replacing the Red Grouper in relative abundance. Red Snapper are caught in limited quantities by the larger commercial vessels that frequent the deeper waters. Except for occasional summer occurrences in the Apalachicola area, Red Snappers are seldom caught inshore of 20 fathoms along the Upper West Coast.

This area of the State can be divided into two sections differentiated by seasonal fishing pressure. The region from Apalachicola to Tarpon Springs has the most favorable weather for fishing and the greatest tourism coincident with the spring and summer months. There is very little offshore fishing activity during the winter months.

The second section, Pinellas County, also has a heavy fishing pressure during the summer, but the impetus of tourism results in substantial fishing activity in the winter, also. As a result, Pinellas experiences extensive hook and line angling throughout the year.

The commercial effort varies in much the same way, seasonally, but not in as great a degree.

Table 13. Upper West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A	Florida Middle Grounds	28° 11′ to 28° 45′ N. 84° 00′ to 84° 25′ W.	13 to 25 Fathoms	Extensive, irregular area with relief up to 7 fathoms common; sand, shell and broken rock in depressions and gullies; edges of hills most productive; heavy invertebrate and vegetative cover.	Red Grouper Black Grouper Red Snapper Scamp	Summer	Summer	Heavy
CO-B	The Elbow	27° 37′ to 27° 53′ N. 84° 04′ to 84° 14′ W.	25 to 34 Fathoms	Basically a ridge formed from limestone rock; about 3 nautical miles at its widest point; 4 to 8 fathoms above the surrounding bottom; edges of the ridge most productive; scattered areas of sand and shell.	Red Grouper Black Grouper Red Snapper Scamp	Fall Winter	Fall Winter	Heavy
CO-C	The 40 Fathom Edge The Edges	26° 40′ to 28° 50′ N.; Longitude varies with the 40 fathom contour line	36 to 45 Fathoms	Extensive linear area along the 40 fathom contour line; ridges of limestone rock extending parallel to the coast line through flat areas of sand and shell.	Red Grouper Black Grouper Red Snapper Scamp	Summer	Summer	Heavy to Moderate
CO-D	Steamboat Lumps	27° 55′ N. 84° 30′ W.	43 to 49 Fathoms	Flat bottom of sand and shell with mild relief caused by flat limestone rock; the rocky area covers a few square miles; many colonial tunacates cover the rocks.	Red Grouper Red Snapper Black Grouper Scamp	Winter	Winter Spring	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 14. Upper West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A		29° 11′ to 29° 20′ N. 84° 39′ to 84° 56′ W.	12 to 19 Fathoms	Flat limestone bottom with ridges, holes, and crevices of 2 to 15 feet; expanses of sand, gravel and mud are common.	Red Grouper Sea Bass Grunt	Summer	Summer	Moderate
PA-B		29° 33′ to 29° 48′ N. 84° 24′ to 84° 35′ W.	6 to 11 Fathoms	Uneven, slightly rolling sand bottom with ridges of limestone rock and shell lying parallel or at a slight angle to the coastline; few ledges of rock 6 to 8 feet high scattered through the area.	Sea Bass Black Grouper Grunt	Spring Summer	Spring Summer	Moderate
PA-C		29° 27′ to 29° 36′ N. 84° 00′ to 86° 23′ W.	9 to 13 Fathoms	Hard sand bottom with scattered holes and gullies; broken rock on the edges and bottoms of the depressions; gentle slope toward deeper water.	Sea Bass Grunt Black Grouper	Summer	Summer	Slight
PA-D		29° 37′ to 29° 57′ N. 83° 50′ to 84° 14′ W.	2 to 7 Fathoms	Hard sand bottom with a series of gullies running N.E. and S.W. in direction with shell and broken rock in the depressions.	Sea Bass Grunt Black Grouper Spanish Mackerel	Summer	Summer	Moderate
PA-E		29° 46′ to 29° 54′ N. 84° 07′ to 84° 25′ W.	1.5 to 7 Fathoms	In vicinity of sea buoy; inshore area with expanses of sand, grass flats, and shell and rock; gentle rolling relief; extensive sand ridge runs through the area ridge marked on map.	Spanish Mackerel King Mackerel Black Grouper	Spring Summer	Spring Summer	Heavy
PA-F		29° 14′ to 29° 26′ N. 83° 50′ to 84° 00′ W.	10 to 11 Fathoms	Flat sand and shell bottom with scattered outcroppings of limestone rock; gentle slope toward deep water with mild relief.	Grunt Sea Bass Grouper Flounder	Summer	Summer	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 14. Upper West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-G		28° 47′ to 29° 04′ N. 83° 16′ to 83° 29′ W.	30 to 54 Feet	Flat bottom; north end has rock outcroppings in depressions on a sand and shell bottom; south end has low rock ridges extending along a sand and shell bottom.	Black Grouper Grunt Sea Bass	Summer	Summer	Slight
PA-H	Yulle Rock	28° 53′ N. 83° 10′ W.	20 to 30 Feet	Relief up to 10 feet; rock ledges and rounded rock coming up through a flat sand bottom.	Black Grouper Sea Bass Grunt	Spring Summer	Spring	Moderate
PA-I		28° 28′ to 28° 48′ N. 82° 57′ to 83° 17′ W.	28 to 42 Feet	North end—flat gravel and sand bottom with sink holes and rock outcroppings; south end—flat bottom of sand, gravel, and grass with a few ridges and rock outcroppings.	Black Grouper Sea Bass Grunt	Spring Fall	Spring Summer	Moderate
PA-J		28° 23′ N. 83° 22′ W.	65 to 70 Feet	Area of 2 square miles; high relief; 14 foot ledges and rock formations; sand and shell surrounding rock.	Red Grouper Black Grouper	Winter	Winter Spring	Slight
PA-K	Off North Pass	28° 23′ N. 83° 06′ W.	36 Feet	Area of 3 square miles; flat sand and shell bottom; numerous exposed rocks with high coral or vegetative growth; 12 foot relief in some areas.	Black Grouper Grunt	Winter	Spring Fall	Moderate
PA-L	West of South Pass	28° 11′ N. 83° 02′ W.	30 to 35 Feet	Generally flat and rough; few areas of strong relief; large flat topped rocks with crevices and ledges.	Red Grouper Black Grouper Grunt Sea Bass	Winter	Spring Fall	Moderate
PA-M		28° 05′ N. 83° 27′ W.	80 to 85 Feet	Flat bottom; very slight relief; few scattered rocks on sand and shell bottom; many sponges and coral growth.	Black Grouper	Summer	All Year	Slight
PA-N		28° 08′ N. 83° 13′ W.	57 to 70 Feet	Generally flat sand and shell bottom with rocky areas of up to 14 feet in relief scattered through the area.	Black Grouper Grunt	Winter	Winter	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 14. Upper West Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-O	Hotel Range	28° 03′ N. 83° 04′ W.	40 to 45 Feet	Rocky bottom 2 to 3 foot relief; sharp ledges and crevices; extensive invertebrate and vegetative growth; some shell.	King Mackerel Spanish Mackerel Black Grouper Red Grouper	Spring Fall	Spring Fall	Heavy
PA-P		27° 58′ to 28° 01′ N. 83° 02′ W.	36 to 42 Feet	Oblong area 3 miles long; scattered rock on sand and shell bottom; six areas with ledges of 9 feet in the southern section.	King Mackerel Spanish Mackerel Black Grouper Red Grouper	Spring Fall	Winter Spring	Moderate
PA-Q		27° 58′ N. 83° 16′ to 83° 28′ W.	80 to 100 Feet	Flat, gently sloping bottom, sand and shell; scattered out-croppings of rock; sponge and coral growth.	Red Grouper Black Grouper Grunt Red Snapper	Winter	Winter	Moderate
PA-R		27° 56′ N. 82° 57′ W.	25 to 30 Feet	Two square mile area; flat bottom; scattered low rock with coral growths.	Grunt Red Grouper Black Grouper Sea Bass	Summer	Winter Spring	Moderate
PA-S		27° 42′ to 27° 53′ N. 83° 16′ to 83° 28′ W.	54 to 100 Feet	Southern portion has a rolling sand and shell bottom with scattered rock and sponges; northern portion has flat sand and shell bottom with rocky areas of moderate relief; numerous ledges and crevices.	Red Grouper Black Grouper King Mackerel Grunt	Winter Spring	Summer	Heavy
PA-T		27° 47′ N. 82° 58′ to 83° 04′ W.	50 to 54 Feet	Small artificial reef built on surrounding rock and mud bottom; dropped in 1959; mild relief.	Grouper (Red & Black) Grunt Cobia	Summer	Fall Winter	Heavy
PA-U		27° 40′ N. 82° 59′ W.	36 to 45 Feet	Rocky bottom; relief of several feet; rocks scattered over sand and shell bottom with heavy vegetation.	Grouper (Red & Black) Grunt Sea Bass	Summer	Winter	Heavy
PA-V		27° 48′ N. 83° 40′ W.	120 to 138 Feet	Mud and sand bottom with rock patches 4 to 8 feet high.	Red Grouper Black Grouper Red Snapper	Summer	Winter	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 15. Upper West Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A	Dunedin Wreckage Drop	28° 03′ N. 82° 55′ W.	28 to 32 Feet	Flat sand and shell with a small area of rock, 4 foot relief; auto bodies and other junk dropped in 1960.	King Mackerel Spanish Mackerel Bonito Cobia	.....	Summer	Moderate
CH-B	The Wreck	27° 57′ N. 83° 08′ W.	30 to 60 Feet	Flat sand bottom with exposed rock in the vicinity; wreck of old dredging barge sunk about 1920.	King Mackerel Barracuda Cobia Bonito Jacks	Spring Summer	Summer	Intense
CH-C	Times Square	27° 41′ N. 82° 55′ W.	35 Feet	Sand and flat rock of low relief; additional rock in the vicinity; wreck of an old barge supplemented with auto bodies and other junk; most drops were made about 1955.	King Mackerel Spanish Mackerel Barracuda Groupers	Spring Summer	Summer	Intense
CH-D	Egmont Channel	27° 36′ N. 82° 56′ W.	6 to 90 Feet	Large and varied area; channel depth averages 25 feet; one rocky depression 90 feet in depth at north end of Egmont Key; bottom mostly sand and mud; offshore end of Channel most productive.	Spanish Mackerel King Mackerel Jacks Bluefish	Summer	Summer	Intense
CH-E	Ten Fathom Wreck	27° 29′ N. 83° 21′ W.	60 Feet	Rocky bottom; shipwreck in vicinity; sand and shell around rocks.	King Mackerel Barracuda Bonito Amberjack	.....	.....	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

NORTHWEST COAST (MAP VII)

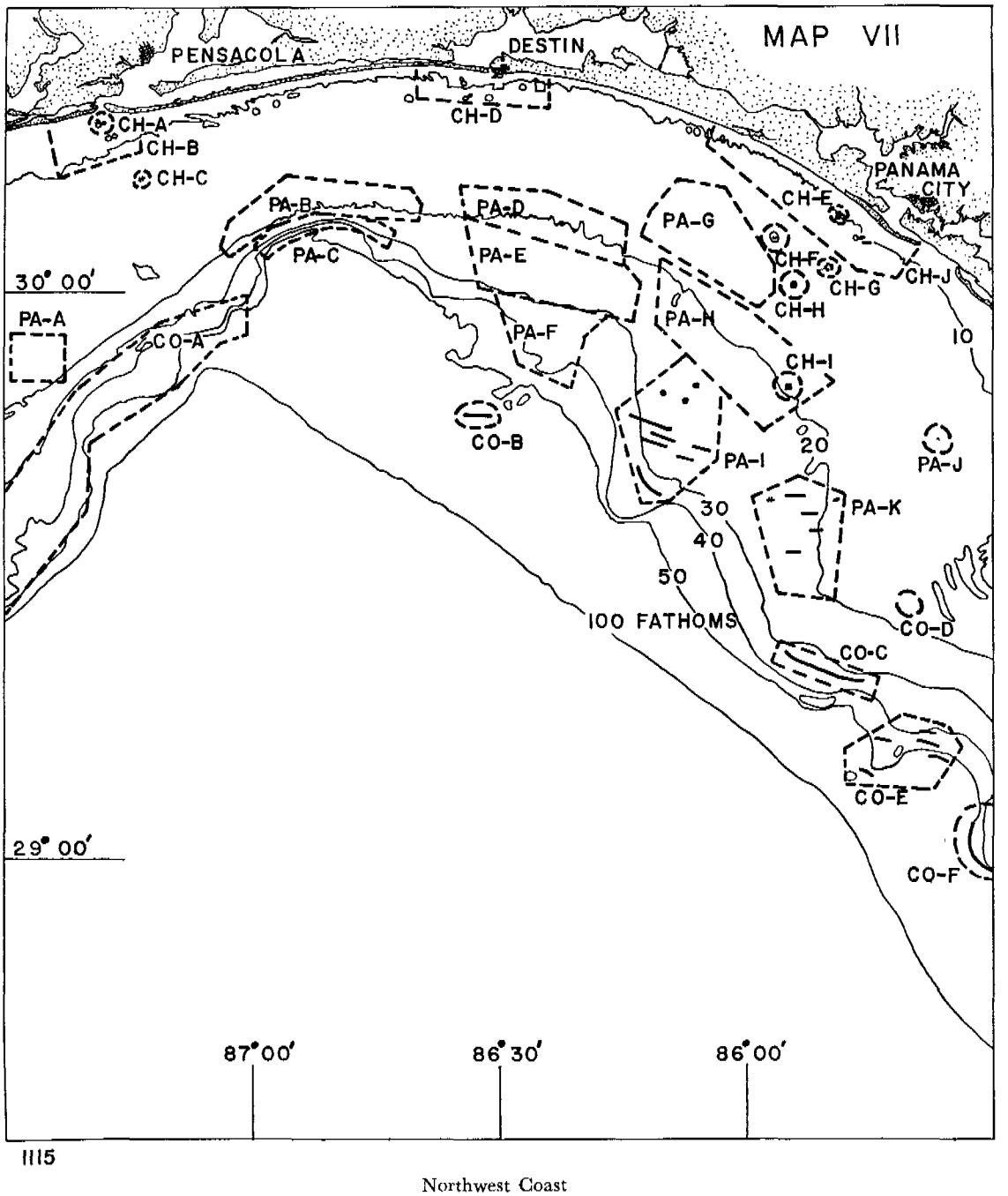
The prominent submarine feature of the continental shelf off the Northwest Coast of Florida is the De Soto Canyon. The presence of this canyon brings deep water close to the shore. The bottom is composed of sand and limestone with the sand usually covering the limestone completely. The occurrence of rock is much greater in the eastern section of this area than in the western part. The rock generally occurs in deeper water, offshore of 12 fathoms, and is found in the bottom of gullies and holes formed in the irregular sand bottom or along the sides of ledges and cliffs that drop to deeper water. The cliffs and ledges generally lie parallel to the depth contours. A few of these are indicated on Map VII by solid dark lines within the fishing areas. Mud is often found in conjunction with the rock areas, usually at the foot of the ledges and cliffs. The relief varies from a few feet to 11 or 12 fathoms. The greatest relief is found near the head of the De Soto Canyon in area PA-C, the 29 Edges.

The most sought after and most numerous fish in the catch of the sport and commercial vessels is the Red Snapper. The fishing vessels seek out rocky areas, wrecks of ships and airplanes, and other irregularities of the bottom as these areas are the most productive. In the eastern section of this area there is often a coral growth on the exposed rock as well as other invertebrate organisms. Vegetation was not often reported by the fishermen.

Areas PA-J and CO-D on Map VII indicate reported spawning grounds. The fishermen report that the Red Snapper will be found on these areas for three to five days during the months of July and August in great schools. They bite the hook vigorously and when brought on board the vessel the spawn extrudes from the cloaca without the application of external pressure. These areas have been fished only in the last few years and it is not known whether these areas are visited frequently or infrequently by the spawning fish. The bottom is composed of a firm sand with a gentle gradient and little relief.

The currents in the offshore areas vary with the winds and the tides. The fishermen report that the currents most often flow eastward or westward in the offshore areas and flow parallel to the shore line in the inshore areas.

Only the smaller commercial boats from ports of the Northwest Coast fish commercially in Florida waters. They frequent the areas between 30 and 60 fathoms. The larger commercial vessels journey to the Campeche Banks and to the areas offshore of the coast from Texas to Mississippi. The majority of the commercial fishing is done during the winter months and the sport fishing pressure is greatest during the summer months. Tourism is greatest during the summer months.



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Northwest Coast

Table 16. Northwest Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CO-A	50 Fathom Edge, the Edges	29° 26′ to 30° 00′ N. 87° 00′ to 87° 30′ W.	30 to 80 Fathoms	Sand and shell bottom with rock ledges. The rock ledges are steep and rugged and run parallel to the contour lines; large expanses of rolling sand bottom, 30 to 50 fathoms is the most fished area.	Red Snapper Black Grouper Scamp	Winter	Winter	Moderate
CO-B	Mingo Ridge	29° 47′ N. 86° 33′ W.	61 to 63 Fathoms	A steep rock ridge; the ridge rises abruptly from 190 feet to 180 feet and then drops off sharply 200 feet to a sand and mud bottom. The rock formations are rugged and heavy with invertebrate growth.	Red Snapper Vermilion Snapper Warsaw Grouper Red Grouper	Winter	Winter	Moderate
CO-C	The Mud Banks	29° 19′ to 29° 22′ N. 85° 45′ to 85° 55′ W.	31 to 34 Fathoms	Rock ledge; sharp rise of one fathom followed by a steep drop of 3 to 4 fathoms. The rock face of the cliff is very rugged, covered with invertebrate growth. Ledge extends 7 to 8 miles.	Red Snapper Red Grouper Black Grouper Vermilion Snapper Scamp	Winter	Winter	Heavy
CO-D	Spawning Grounds	29° 27′ N. 85° 40′ W.	16 Fathoms	Hard sand bottom, occasional patches of shell; fished only when Red Snapper are spawning.	Red Snapper	July August	July August	Intense
CO-E	Whoopie Grounds	29° 09′ to 29° 15′ N. 85° 35′ to 85° 48′ W.	36 to 60 Fathoms	Sand bottom with rock ledges of 3 to 4 fathoms relief. The rock ledges have steep rugged slopes; few areas of rock with 5 fathom relief; covered with coral and other invertebrate growth.	Red Snapper Red Grouper Black Grouper Vermilion Snapper Scamp	Winter	Winter	Moderate
CO-F	The Elbow	28° 58′ to 29° 04′ N. 85° 27′ to 85° 33′ W.	50 Fathoms	Extends along the 50 fathom contour partially illustrated on Map VII; rock ledge of 4 fathoms dropping into sand and mud bottom.	Red Snapper Red Grouper Black Grouper Vermilion Snapper Scamp	Winter	Winter	Slight

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 17. Northwest Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-A	Trisler Grounds	30° 51′ to 30° 56′ N. 87° 22′ to 87° 29′ W.	17 to 20 Fathoms	Three rock formations on a hard sand bottom; few rocky patches between the larger widespread rock formations; shell and invertebrate growth occur on and near the rock formations.	Red Snapper Black Grouper Vermilion Snapper Scamp	Summer	Summer	Moderate
PA-B	The Timber Holes	30° 05′ to 30° 12′ N. 86° 40′ to 87° 05′ W.	15 to 21 Fathoms	This area stretches just inshore of the 20 fathom contour. The bottom is mostly sand and occasionally sand and shell; numerous holes, dips and gullies of one to several fathoms are present. Rock formations are in the deeper protions of these depressions; coral and other invertebrate growth on the rock.	Red Snapper Porgy Black Grouper Vermilion Snapper Red Grouper Scamp	Summer	Summer	Intense
PA-C	29 Edge 27 Edge	30° 04′ to 30° 07′ N. 86° 44′ to 87° 00′ W.	24 to 30 Fathoms	Northernmost section of the DeSoto Canyon. Very steep slope with high rugged rock cliffs. Area of 27 to 31 fathoms most fished. Slopes from 30 to 50 fathoms in 2 miles; coral and other invertebrate growth on the exposed rock; large deposits of sand and shell.	Red Snapper Vermilion Snapper Porgy Black Grouper Red Grouper Scamp	Summer	Summer	Heavy
PA-D	Southeast Grounds	30° 04′ to 30° 11′ N. 86° 14′ to 86° 34′ W.	15 to 21 Fathoms	Rolling sand bottom with occasional areas of shell and gravel. Low rock formations occur occasionally at the foot of the sand hills; sponge and coral growth on the hard bottom and rock areas.	Red Snapper Black Grouper Vermilion Snapper Porgy Red Grouper	Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 17. Northwest Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-E	27 Fathom Area Southeast Grounds	29° 57′ to 30° 04′ N. 86° 12′ to 86° 33′ W.	22 to 32 Fathoms	Irregular sand bottom. Holes and gullies 6 feet to 12 feet deep with rock formations in the bottom of these depressions. The wrecks of a few airplanes are scattered through the northwestern section of this area.	Red Snapper Vermilion Snapper Black Grouper Porgy	Summer	Summer	Heavy
PA-F		29° 51′ to 29° 57′ N. 86° 13′ to 86° 30′ W.	33 to 41 Fathoms	Irregular sand and shell bottom. Numerous rock formations, some occuring in depressions and others as small cliffs. The sand ridges and rock ledges are generally parallel to the coast line. Heavy invertebrate growth on most of the exposed rock ridges.	Red Snapper Vermilion Snapper Black Grouper Porgy	Early Spring	Winter Spring	Moderate
PA-G		29° 58′ to 30° 11′ N. 85° 56′ to 86° 11′ W.	13 to 18 Fathoms	Irregular sand bottom, occasional holes with rock in the deepest sections of the depressions; scattered grass in the shallower areas. Colonial tunicates are found on the rocks.	Red Snapper Black Grouper Red Grouper Vermilion Snapper Porgy	Summer	Summer	Heavy
PA-H	3 to 5's	29° 46′ to 30° 04′ N. 85° 50′ to 86° 12′ W.	17 to 23 Fathoms	Irregular sand bottom. Many sharp dips and ledges of 3 to 5 fathoms in relief; coral and other invertebrate growth on the rock areas. The ledges are parallel to the 20 fathom contour.	Red Snapper Black Grouper Vermilion Snapper Porgy Scamp Red Grouper	Summer	Summer	Heavy
PA-I		29° 39′ to 29° 52′ N. 86° 04′ to 86° 18′ W.	23 to 45 Fathoms	Sand bottom; irregular relief of 3 to 4 fathoms; ridges of rocks run parallel to the coast; extensive soft and hard coral growth. Three airplane wrecks present in the shallow portion of this area. Rock cliffs are rugged with protrusions and caves.	Red Snapper Vermilion Snapper Black Grouper Scamp Red Grouper	Shallower areas, Summer Deeper areas, Winter	Shallower areas, Summer Deeper areas, Winter	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 17. Northwest Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
PA-J	Spawning Grounds	29° 45′ N. 85° 35′ W.	13 to 14 Fathoms	Flat, hard sand bottom; occasional patches of shell. Heavily fished for 3 to 5 days when Red Snapper are spawning in this area.	Red Snapper	July August	July August	Intense
PA-K	3 to 5's	29° 27′ to 29° 41′ N. 85° 49′ to 85° 59′ W.	17 to 25 Fathoms	Sand bottom, occasional areas of shell and mud, usually associated with rock ledges. The rock ledges have a relief of 3 to 4 and sometimes 5 fathoms; the rock ridges are heavily covered with coral and other invertebrates. There are a few wrecks in this area that produce well when located.	Red Snapper Black Grouper Vermilion Snapper Red Grouper Porgy	Shallow, Summer Deeper, Winter	Shallow, Summer Deeper, Winter	Moderate

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 18. Northwest Coast of Florida

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-A	The Massachusetts	30° 16′ N. 87° 19′ W.	Exposed	Sand bottom; wreck of old battleship.	King Mackerel Spanish Mackerel Bluefish Cobia	Summer	Summer	Intense
CH-B	The Sea Buoy	30° 14′ to 30° 17′ N. 87° 14′ to 87° 23′ W.	3 to 10 Fathoms	Rolling sand bottom with rare occurrences of low rock; occasional patches of shell, gravel or grass. One small privately constructed artificial reef.	King Mackerel Spanish Mackerel Bluefish Cobia	Summer	Summer	Heavy
CH-C	The Wreck	30° 12′ N. 87° 13′ W.	13 to 14 Fathoms	Metal wreck of an old Russian freighter; located on a hard sand bottom.	Red Snapper King Mackerel Bonito Cobia Black Grouper	Summer	Summer	Heavy
CH-D	The Sea Buoy	30° 19′ to 30° 23′ N. 86° 24′ to 86° 33′ W.	4 to 13 Fathoms	Sloping flat sand bottom. Very few rock areas; some wreckage present; obstructions are the best producing areas.	King Mackerel Red Snapper Black Grouper Cobia	Summer	Summer	Intense
CH-E	The Rock Pile	30° 07′ N. 85° 49′ W.	70 to 80 Feet	Rock formation on an expansive sand bottom; relief of one fathom.	King Mackerel Bonito Cobia Red Snapper Black Grouper	Summer	Summer	Heavy
CH-F	Tarpon Wreck	30° 06′ N. 85° 56′ W.	16 Fathoms	Sand bottom; wreck of a freighter sunk in 1932.	Red Snapper Black Grouper King Mackerel Bonito	Summer	Summer	Intense
CH-G	Warsaw Hole	30° 02′ N. 85° 50′ W.	80 to 85 Feet	Abrupt break in hard sand bottom; depressions 2 to 3 fathoms deep with steep rocky sides; cave present, supplemented by automobile bodies and other junk. Heavy invertebrate growth.	King Mackerel Bonito Spanish Mackerel Red Snapper Warsaw Grouper Black Grouper	Summer	Summer	Intense

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

Table 18. Northwest Coast of Florida—(Continued)

Area	Local Name	Location	Depth	Bottom Composition, Topography	Fishes Taken*	Seasonality		Fishing Effort**
						Most Fished Season	Most Productive Season	
CH-H	Offshore Platform	30° 01′ N. 85° 54′ W.	15 Fathoms	Sand bottom with a Navy maintained oceanographic station built on a permanent platform. Wreck of a barge just northwest of the platform; few low rock formations in the vicinity.	Red Snapper King Mackerel Black Grouper Cobia	Summer	Summer	Intense
CH-I	The "Leroy"	29° 50′ N. 85° 55′ W.	19 Fathoms	Sloping sand bottom with the wreck of the tugboat "Leroy", sunk about 1932—only the boiler remains; due south of the Oceanographic Platform; sand and sparse shell surrounding the wreck.	Red Snapper Black Grouper Porgy Vermilion Snapper Red Grouper	Summer	Summer	Moderate
CH-J	Trolling Grounds	30° 02′ to 30° 16′ N. 85° 39′ to 86° 04′ W.	3 to 12 Fathoms	Sand bottom with rare occurrences of shell and rock. One artificial reef in the area. Buoys and one high rock formation are the most frequently fished areas.	King Mackerel Spanish Mackerel Bonito Red Snapper Black Grouper Dolphin	Summer	Summer	Heavy

* Fishes retained by the boat listed in relative order of abundance in the total catch.

** Four levels: Intense; Heavy; Moderate; Slight.

EQUIPMENT AND TECHNIQUES

General Equipment:

Loran: The word "Loran" is a composite of the first letters of the term "long range navigation". A loran device receives radio signals from government operated stations placed along the shore line and interprets these signals into code numbers. These code numbers are used to find the vessel's position on a U. S. Coast and Geodetic Survey chart which is lined with the code numbers in a grid pattern. The vessel's position can be found to an accuracy of one-quarter of a mile under the best conditions. This navigational system enables the captain of the fishing vessel to return quickly and accurately to productive areas such as wrecks, rocky reefs, and areas of heavy coral growth thus increasing his production and reducing his expenses.

Fathometers: There are three main types of fathometers in use on fishing boats in Florida waters today. The type of fathometer most widely used is the recording fathometer. These fathometers are made by many different companies and can be obtained in a wide range of price and sensitivity. All of these recording fathometers produce a continuous record of the bottom topography on a section of graph paper. Many of these fathometers are sensitive enough to indicate schools of fish through markings on the paper on and above the bottom line. The bottom composition may be obtained from the markings on the graph from many of these fathometers as the characteristics of the reflected sound differ with various types of bottom.

The second most widely used type of fathometer is the "Fischlupe". This instrument utilizes an oscilloscope to electronically portray the bottom composition and fishes present under the boat. It indicates but does not record the depth and is ineffective in determining the bottom topography. Many fishermen experienced in the use of the "Fischlupe" claim to be able to recognize the species of a school of fish under the boat from the pattern of the school on the oscilloscope. This type of fathometer is most often used as an additional instrument on board a vessel equipped with a recording fathometer.

The third type of fathometer is the indicator type with no provision for recording depth or electronically picturing the immediate bottom and schools of fish. A flashing light usually indicates the depth. Because of the above limitations, this type of fathometer is rarely used.

Radio: The wide usage of ship to shore and ship to ship radio has enabled the fishermen to become more aware of fish movement and feeding. Many fishermen, both sport and commercial, will inform their fellows when a large school of fish are found. The effect has been to increase the fishing pressure on most productive areas. Many commercial boats leaving port will determine their course and the fishing grounds they will frequent by radio reports of the fishing vessels on, and returning from, the fishing grounds.

Deep Water Commercial Snapper/Grouper Operations:

The deep water commercial snapper/grouper vessels will spend from three to 25 days on each fishing trip. The average length of their fishing trip is seven to 11 days. The limiting factors on these trips in order of importance are (1) the length of time the boat can keep the ice used for preserving the catch, (2) the amount of provisions for the crew, and (3) the amount of fuel carried. The fuel carried is usually in excess of the amount required for one trip. The vessel will set course for a certain fishing ground and begin the trip at that area. The captain will usually move the boat from one area to another until a school of feeding fish is found. The boat will often find a school of fish indicated on the fathometer and not be able to catch any fish from the school. The boat usually moves on to find a school of feeding fish rather than stay with the quiescent school.

The gear used by the fishermen is heavy and rugged so the fishes must be actively feeding and aggressively attacking the bait in order for the gear to be effective. When the fish are actively feeding, the bait is taken as soon as the hook reaches the vicinity of the bottom. The bait usually consists of either Lisa (Mullet), Ladyfish or whitebait. The Lisa and Ladyfish, either fresh or salted, is cut into small strips and threaded on the hook. The whitebait is first

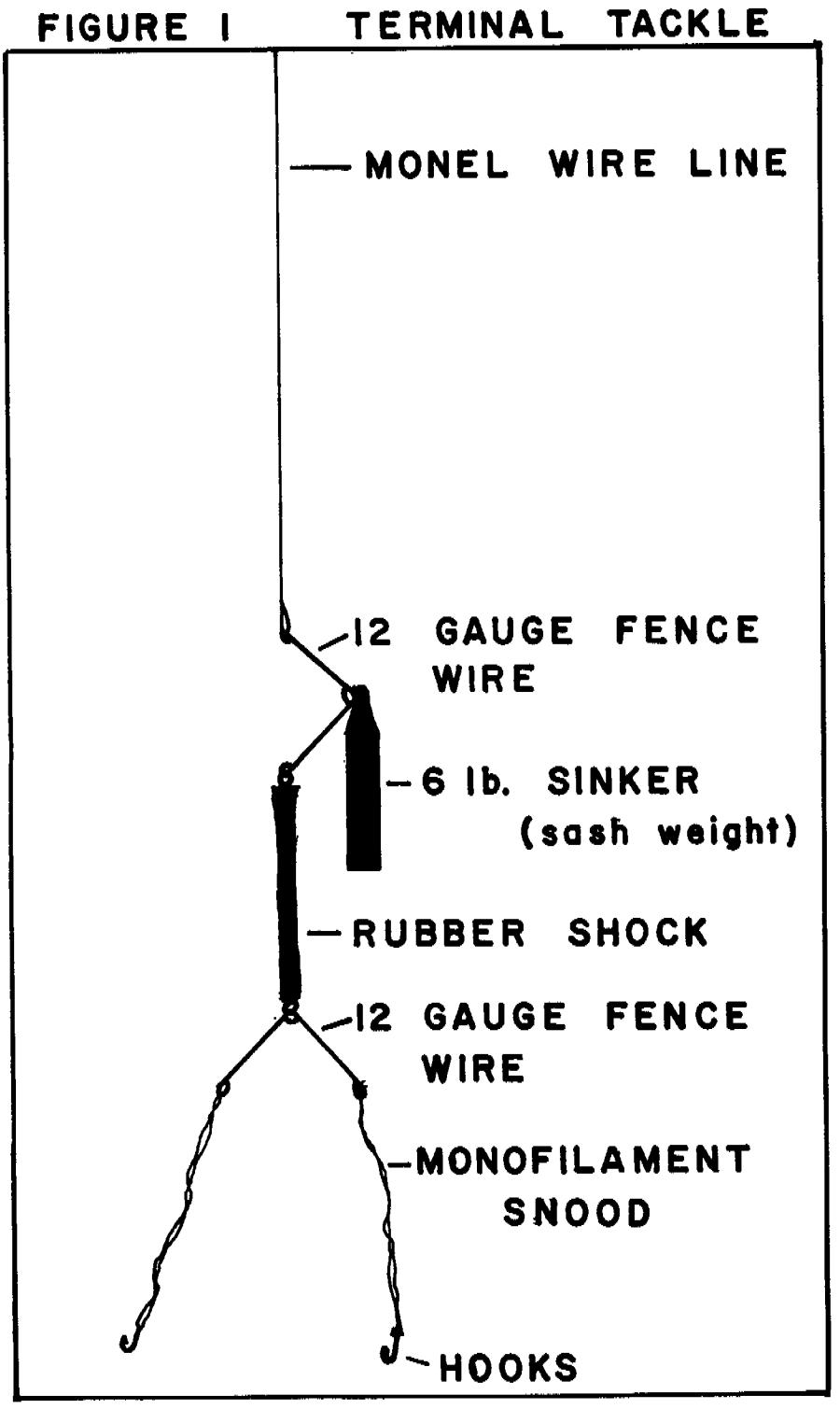


FIGURE 1 TERMINAL TACKLE
MONEL WIRE LINE
12 GAUGE FENCE WIRE
6 lb. SINKER (sash weight)
RUBBER SHOCK
12 GAUGE FENCE WIRE
MONOFILAMENT SNOOD
HOOKS

Figure 1

thawed and then one or two entire fish are used on the hook. Trash fishes taken on the fishing grounds are often cut up and used for bait. Some fishermen depend upon this "bank bait" to supply enough for the trip.

A manual deck reel of the same basic design as described by Siebenaler and Brady (1952) is used almost exclusively throughout the State by the full time commercial fishing vessels. There is a slow but steady trend toward the use of power reels since an automatic power reel system enables one man to fish two reels, each with two hooks, and thus double the effort expended per man. Powerful electric motors designed to provide power for auxiliary systems on wartime aircraft and obtained through war surplus supply are widely used to power these reels. The reels are designed with an automatic shut off operated when the leader wire reaches the reel. This device allows the fisherman to leave the reel unattended after the fish is hooked and the electric motor engaged.

A braided Monel steel wire line is used on both the conventional manual deck reel and the newer power reels. The terminal tackle used with these reels differs from the tackle described by Siebenaler and Brady (1952). At the terminal end of the Monel steel wire line a heavy 12 gauge wire about one and one-half feet long is attached at one end (see Fig. 1). The wire is bent into a right angle at the center and a sinker made from a three to six pound sash weight is fastened to the right angle in the center of the wire. A rubber shock one and one-half feet long is attached to the other end of the wire. A wire spreader of various length is attached to the rubber shock and serves to spread the monofilament snoods to which the hooks are attached. These snoods are constructed from 200 pound monofilament leader line doubled from the wire spreader to the hook. The hooks commonly used are conventional styles in sizes of 6/0 to 8/0 of various makes. The Mustad Tuna Hook in sizes 3 and 4, commonly termed the "Japanese Circle Hook," is getting wide usage from the commercial boats. The fishermen claim that the fish does not have to be struck with this hook as the fish will hook himself if the bait is taken into the mouth. There are many variations to the above arrangement but the monofilament snoods and rubber shocks are always an integral part of the terminal tackle. It is the opinion of the fishermen that the monofilament snood has increased the catch considerably since the monofilament has low visibility in the water and the fish does not see the connection between the bait and the sinker.

Red Snapper brings the highest price and is most desired by the commercial fishermen. Red and Black Grouper are the most abundant fishes in the total offshore catch from Florida waters and, although the price is approximately one-third that of the Red Snapper, they are the staple fishes of many of Florida's commercial fishermen.

The fish are taken on board rapidly during a period of heavy feeding, termed a "rally" or "heavy bite," and are allowed to lie on the deck until time for storage becomes available. The fishes accumulated on the deck are then drawn and stacked between layers of ice in the vessel's fish boxes or holds with the drawn side downward to allow for drainage. The quality of the fish depends upon how soon they are drawn, the cleanliness of the fish after they are drawn, and the amount of ice used in storage. Each layer of fish should be completely separated by a layer of ice to cool them rapidly and reduce the incidence of spoilage. If the above procedure is not carried out well, the boat will lose a portion of the catch because of spoilage. Since some of the fish must remain on ice for ten days or more, proper care of the fish is important to the fishermen.

Commercial Yellowtail Snapper Operations:

Longly and Hildebrand (1941) commented that the Yellowtail Snapper is found in great abundance in the Florida Keys and feeds principally at night. The commercial fishery for the Yellowtail Snapper in the Florida Keys, off the lower east coast of Florida, and on the Bahama Banks, depends upon abundance, night feeding and schooling behavior for successful operation.

The crew of the fishing vessel is composed of a captain and a mate or just the captain. The boats are seldom larger than 40 feet in length and many smaller vessels of 25 to 30 feet are in operation throughout the Florida Keys.

The boat leaves port in the late afternoon and with a fathometer the captain finds and then

anchors upon a section of rugged coral reef in 30 to 80 feet of water. The Yellowtail fishery is successful only when there is a moderate but consistent current flowing across the reefs. The current is necessary to disseminate the chum into a steady stream behind the boat. The chum consists of one part ground fish to six parts sand mixed thoroughly.

After the sun sets the fishermen will begin tossing handfuls of chum behind the boat causing wandering schools of Yellowtails to follow the chum stream into the vicinity of the boat. A handline of 60 pound test monofilament line without leader or weight is used by most of the fishermen. The hook, size 1/0 or smaller, is attached directly to the monofilament line. A small piece of cut bait is threaded onto the hook and then a coating of the chum is packed around the bait in the form of a ball, giving the bait additional weight. The bait is cast into the chum stream and allowed to drift to the bottom behind the boat. After the bait reaches the proper area, measured by arm lengths, the fisherman gives the line a sharp jerk which breaks the chum ball surrounding the bait into a cloud. The action and the cloud of chum attracts the fish which takes the largest bait available and is hooked. The school is gradually drawn up to the surface behind the boat and the bait can be offered without the addition of the coating of chum. If the school is not disturbed it will remain in position behind the boat for several hours if the chum stream is continually renewed. Under ideal conditions recruitment from other schools occurs.

The fish are taken to a fish house early in the morning after the nights fishing and sold by the smaller vessels. The larger vessels that remain at the distant fishing grounds for several days or more employ a special method in processing the fish. The freshly caught fish is placed while still alive into a "kill box" which is a box filled with ice cold fresh water. Fish killed in this way retain their color and firmness after they are placed on ice in the fish boxes, according to commercial fishermen. The value of the Yellowtail Snapper is about the same as the value of the Red Snapper.

There is a small hook and line fishery, mostly part-time, for the King Mackerel that is concentrated on the Lower East Coast and along the Florida Keys. This fishery is active only when the King Mackerel are "running" in the locality. The schools are sighted as they feed near the surface and the fishing boats will troll in a circle around the active schools.

Handlines are widely used in the commercial fishery although electrically powered reels are used to boat the fish by a few vessels. The commonly used bait is a jig constructed by attaching a small section of hemp rope to the shank of a 6/0 or 7/0 hook and spreading the fibers of the rope out to form a skirt around the bend and barb of the hook. If the fish are feeding below the surface a weight is added to lower the jig. The line is worked by hand with a series of short, sharp jerks from a trolling or drifting boat. When a fish is hooked it is either pulled in hand over hand or by an electric reel activated by a switch closed with the foot or knee.

This fishing is done primarily with small boats 25 to 30 feet in length. The fish are taken to a fish house and sold immediately after being caught.

Party Boat Operations:

Offshore party boats throughout the State fish primarily for the reef fishes that are found near the bottom. In a few areas where a strong consistent current is present the party boats will drift fish. In this method of fishing the captain first determines the direction of the drift, which is a resultant of the vector forces of wind and current, and then allows the boat to drift over a productive reef area. This gives the fishermen the option of adding weight and fishing on the bottom or omitting weight and allowing the bait to drift near the surface. The drifting bait may attract the faster game fishes, primarily King Mackerel, usually taken by a trolling boat. The use of rod and reel has almost universally replaced the handline on the party boats. The captain will signal the fishermen to begin and to end their fishing at each location by sounding a bell or similar device.

Charter Boat Operations:

The primary method used by the charter boats is trolling. The percentage of time spent in bottom fishing is higher in the northern sections of the State. Almost all of the boats that engage in extensive trolling are equipped with

outriggers. The outriggers on a charter boat are two long poles, 12 to 20 feet in length, mounted at midship on each side and extending toward the stern at an angle of about 60° from the deck. During the trolling the outriggers are tilted outward from the boat. These poles are rigged with a stout cord threaded through a pulley at both ends and tied to a strong wooden clip. The wooden clip can be pulled along the length of the outrigger by moving the cord through the pulleys.

The bait, a long leader, and the line from a heavy rod and reel is extended to the desired distance behind the boat. The line from the rod tip is placed into the wooden clip which is pulled to the top of the outrigger. The line is held by the wooden clips at the top of the outrigger which keeps the bait well away from the boat and on the surface. When a fish strikes the bait trolled from the outrigger the line pulls out of the wooden clip. The pull of the line on the bait ceases momentarily when the line falls free of the outrigger allowing the fish to grasp the bait firmly. The boat will pull the slack line taut as soon as the excess line released by the outrigger has been taken up by the motion of the boat. The sharp return of tension on the line will hook the fish. The release of the line from the outrigger signals the fisherman of a strike and he will take the rod to play the fish.

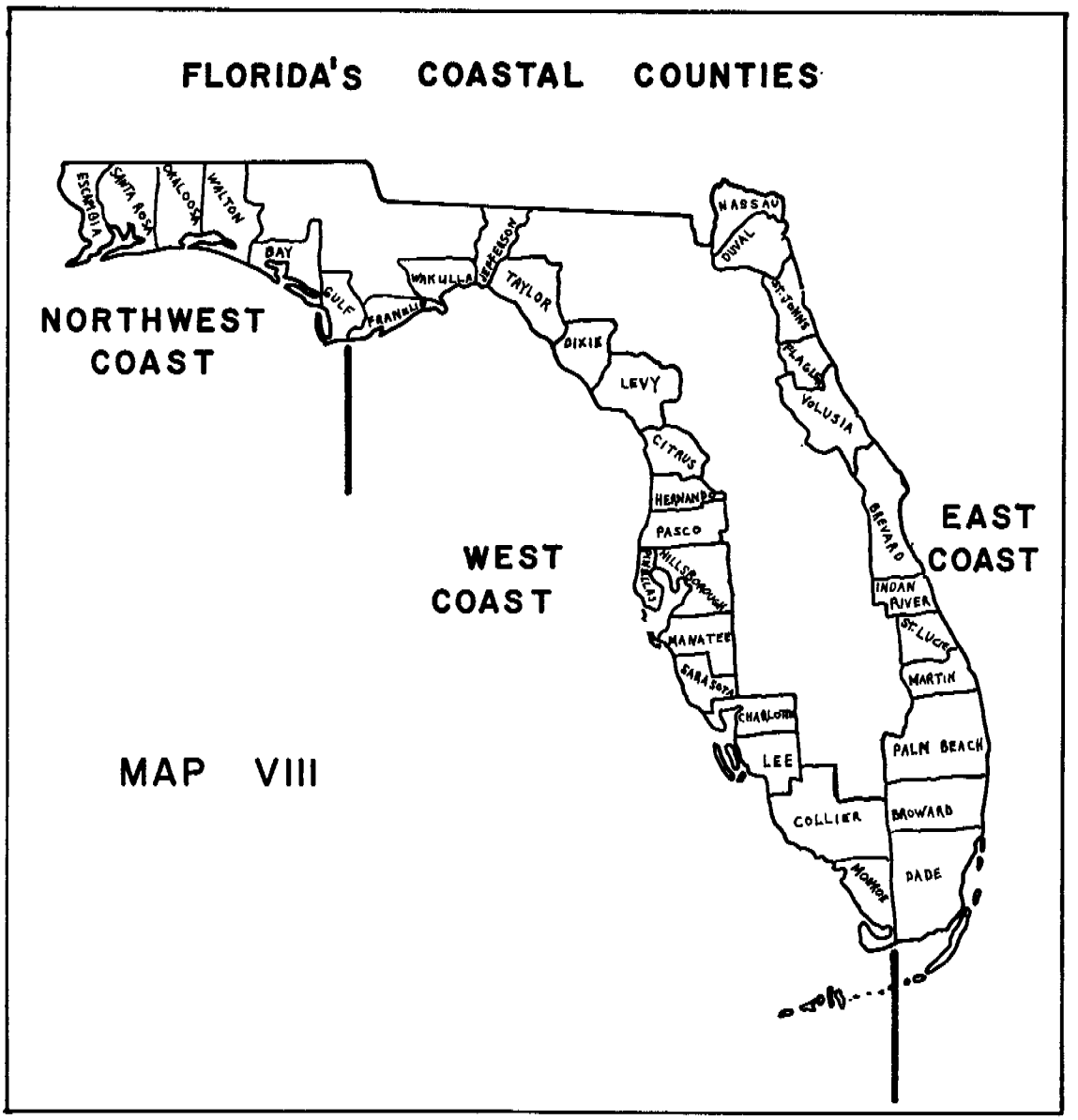
The bait usually consists of a small fish with the backbone either removed or broken to prevent spinning and simulate natural action. Jigs with bait strips and spoons are also widely used. Small live fish are often used as bait for the larger bottom feeding fish. A weight is used only when the bait must be trolled deeply to catch fish.

ACCOUNT OF THE DEVELOPMENT AND EFFORT OF OFFSHORE FISHING IN THE COASTAL COUNTIES

The nature and extent of the development of the offshore sport and commercial fisheries of the coastal counties are dependent upon many factors. The more important of these factors are: adequacy of the harbor and access to deeper offshore waters, population of the coastal areas, development of industry and availability of transportation, and geographic propinquity of good fishing grounds. The following descriptive accounts of the coastal counties are listed in geographical order beginning with Nassau County on the northeast coast, following the perimeter of the peninsula, and terminating with Escambia County on the northwest coast. The tables that refer to the coastal counties also follow this geographical order as the patterns in the fisheries of the State are more evident through this arrangement. Map VIII indicates the position of each coastal county and shows the division of the State into the East Coast, West Coast and Northwest Coast.

Tables 19 and 20: The data in Tables 19 and 20 were grouped together to facilitate comparison. Well-known part time sport and commercial fishing operations were included in Table 19 under the seasonal category since they are most active at the height of the fishing season. The most active season for the sport fishing vessels coincides primarily with the tourist season and the active periods of the commercial vessels are regulated by the abundance and price of the fish. The statistics for the private boats were taken from the boat registrations issued through June, 1961 by State agencies. The sport fishing season is the period in which the maximum number of boats is present.

Table 20 contrasts the fishes that are most sought after by the sport and commercial interests with the fishes that are taken most frequently by these vessels. The latter fishes do not receive extensive publicity or the highest prices on the market, but they are normally the staple of the local fishery. The commercial fisherman will seek the fish that brings the highest price on the market but the majority of his catch may be a more available, lower priced fish. The highly publicized, fighting game fishes may be most desired by the operators of sport fishing vessels, and yet represent only a small portion of the total catch. The patrons of the sport fishing vessels will generally be satisfied with a catch of the more abundant and less spectacular fishes of the region. Table 20 was prepared in



the following manner. All the fishermen interviewed were asked to list the fishes most preferred in their particular operation, commercial, party or charter, and later in the interview they were asked to list the fishes most numerous in the catch on a year round basis. Each county and each category, most preferred and most caught, were analyzed separately. First place in each category was assigned a value of three points, second place two points and third place one point. The scores for the fishes mentioned by the fishermen in each type of operation were summed, and the three fishes with the highest scores were listed in order of their scores as the most preferred and most abundant in the catch.

Table 20 provides a good indication of the nature of the offshore fisheries of each coastal county with developed sport and commercial activity. The data on Table 20 is not suitable

for use in a State-wide analysis of the preferences and catch composition since the boat population is not equally distributed through all coastal counties. Eight (32%) of the coastal counties that report offshore sport fishing activity, Bay, Broward, Dade, Monroe, Okaloosa, Palm Beach, Pinellas, and Volusia, have 75.8% of the total number of sport fishing vessels. Six (28.6%) of the coastal counties reporting offshore commercial fishing activity, Bay, Escambia, Hillsborough, Monroe, Pinellas, and Volusia, have 72.3% of the maximum number of commercial fishing vessels. In treating the reports of all counties equally the greatest majority of the fishing effort would be disregarded.

This table does present a few indications of importance that should be mentioned. The King Mackerel is a major fish to the charter boats throughout the State and to the party boats on the Lower East Coast by virtue of its high desirability and abundance. This fish also supports a small hook and line commercial industry. The Dolphin is second in importance to the charter boats on a State-wide basis. In the southeastern section of the State the Dolphin equals the King Mackerel in abundance and preference, but is found in limited numbers throughout the remainder of the State and thus is of lesser importance to the State-wide charter industry. The Sailfish is most highly preferred along the East Coast, but represents a small portion of the total catch. The Bonito was never mentioned as a preferred fish yet represents a very large portion of the total catch. Red Snapper is the staple of a large party and commercial fishing industry in the northern areas of both coasts of the State. It is the most preferred and the most abundant fish in the catch for the party, commercial, and many charter boats from the northern areas. The Red Snapper is the most preferred fish by the extensive commercial offshore fishery on the West Coast, however, it is secondary to the Red and Black Grouper in abundance. The least desired commercial fish, the Red Grouper, is the most numerous in the catch from the West Coast. The Sea Bass and the Grunts must be considered important offshore sport fishes since they compose a large percentage of the catch of many party boats even though they are not highly desired. The staple for the party boats on the West Coast is the Red and Black Grouper with the Red Grouper being more abundant and less desired then the Black Grouper. There are exceptions to this in Citrus, Levy, Taylor, and Wakulla Counties where the Red Grouper is not frequently taken and the Black Grouper is most abundant in the catch.

Fishing Pressure: A recall estimate of the approximate fishing effort exerted by their vessel was obtained from the operators of commercial, party, and charter vessels throughout the State. The estimate was restricted to the months of greatest activity to obtain the seasonal fishing effort. The operator was first asked to list the months of greatest activity for his vessel. Information pertaining to these months was then obtained. This included the average number of trips, the duration of the trip (often a mixture of one half and full day trips was recorded), the amount of time spent fishing on the surface and on the bottom (many party boats estimated the number of fishermen that fished on the bottom and on the surface), and the number of fishermen (spectators not included) that fished in both situations. From this information the total number of full fisherman days of effort spent on the surface and on the bottom could be calculated for each coastal county with offshore activity. The total effort for both surface and bottom fishing was summed for each month from the commercial, party and charter boats reporting effort in each county. This figure was divided by the total number of reporting boats in each category and multiplied by the total number of boats in that category in order to obtain a projected estimate of total seasonal effort expended in each county. These figures represent a rough estimate of the seasonal fishing pressure in each county and must be considered correct only to the magnitude represented by each figure. Tables 21 through 44 report the fishing pressure from each county and are included and discussed in the next section along with the development of the offshore fisheries of each coastal county. Seasonal peaks in fishing pressure are very apparent due to the variability of the reports of the fishermen pertaining to the months of greatest activity.

Figure 2 shows the seasonal fishing effort expended both on the surface and the bottom for the commercial, party and charter boats for the

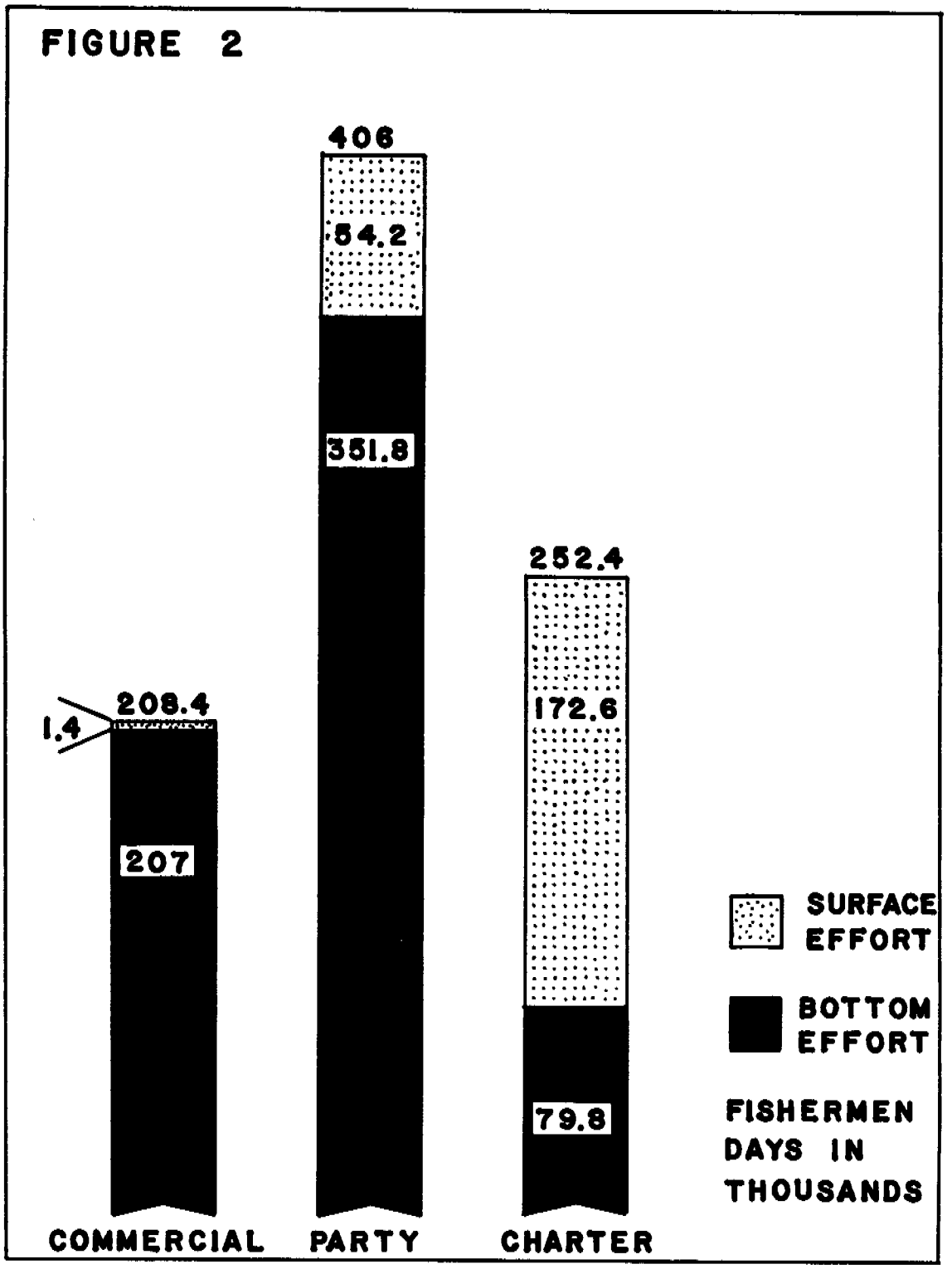


Figure 2

TOTAL STATE WIDE SEASONAL FISHING EFFORT IN FISHERMEN DAYS FOR A PERIOD OF ONE YEAR

The surface commercial effort is expended almost entirely on the King Mackerel in the southern sections of the State. The surface party boat effort is expended almost entirely for the King Mackerel along the Lower East Coast of Florida. The bottom charter boat effort is expended almost entirely on the Red Snapper in the northern sections of the State.

entire State. The total fishing effort for an entire year of the sport fishing vessels would be only slightly higher than the seasonal figure, since very few trips are made during the off season months throughout most of Florida. The commercial boats will fish consistently year round without regard to season unless there is a season imposed by another commercial venture. Due to the almost 12 months fishing period, the estimated seasonal fishing pressure for the commercial boats is very close to the total fishing pressure on a year round basis. Almost all of the surface effort for the party boats is expended along the southeastern section of the State and all the surface effort for the commercial boats is expended along this section.

There is a total of 866,800 fisherman days of effort expended seasonally during the year by the three categories of fishing vessels. Most of this effort is expended in bottom fishing, 73.6% of the total. The charter boats account for the major portion of the surface effort (75.6%). Only 31.6% of the total effort of the charter boats is expended on bottom fishing. Only 13.3% of the total party boat effort is expended on the surface and 0.7% of the total commercial effort is spent on the surface. The party boats account for 6.8% of the total fishing effort, the charter boats are next with 29.1% of the total effort, and the commercial boats expend 4.0% of the total effort.

Coastal counties not listed below lack development of offshore fishing activity because of absence of facilities and adequate harbors and/or small coastal populations. Map VIII shows the area occupied by each coastal county.

List of Counties:

Nassau. The waters offshore of Nassau County are relatively shallow and cover an expanse of sand and mud bottom. The northern and southern borders of this County are formed by rivers that flow into the Atlantic. These rivers form extensive inland waters that provide good fishing for many inland and coastal species. The mouth of the St. Marys River at the northern border of the County forms a good inlet for larger vessels from the Atlantic. There is very little offshore sport fishing because of the lack of favorable fishing grounds close to the shore. The offshore fishing is restricted to the occasional runs of the pelagic surface fishes. The majority of the ocean fishing is done near the jetties and in the inlet.

The commercial activity of the County depends upon the availability of the shrimp found just offshore on the sand and mud bottoms. Offshore fishing for the Red Snapper and the Red and Black Grouper is restricted to the spring and summer months when the shrimp are not available in commercial quantity. The shrimp boats make a few snapper trips during the off season. There is no pattern or regularity to these trips beyond the completion of 10 to 12 two or three day trips per year per boat. These commercial trips are seldom further offshore than 15 fathoms as hand lines are used in this fishery. The major Menhaden industry operating in Florida is found in Fernandina Beach. The products of this fishery are not edible and the methods used are not comparable with other offshore fisheries of Florida. This industry is not included in this survey.

Duval. The shoreline of Duval County is broken only by the Ft. George Inlet and the mouth of the St. Johns River which provides a major access to the Atlantic. The only offshore activity in Duval County is located in Mayport at the mouth of the St. Johns River. The development of the offshore fisheries is small compared to the large population of this County. The sport fishing season begins in April, reaches its peak in June and July, and terminates in September. There is very little sport fishing during the rest of the year. The private and charter boats depend on the King Mackerel to provide the major portion of the fishing activity. Some of the party boats mount nets and winches on the boat and engage in commercial shrimping during the fall and early winter. After the shrimp run and before the sport fishing season a few commercial fishing trips for the Red Snapper will be completed by the party boats. The charter boats either stay idle, leave for South Florida, or make a few commercial fishing trips during the rest of the year. There are no vessels that fish exclusively for the Red Snapper on a year round basis operating from Duval County at this time. All of the commercial fishing activity is carried on by the shrimp and sport fishing boats during the winter and spring months.

Table 19. Offshore Vessel and Interview Statistics by Coastal County

COUNTY	PARTY					CHARTER					COMMERCIAL					NUMBER OF REGISTERED PRIVATE BOATS	TOTAL INTERVIEWS	SPORT FISHING SEASON
	Number Year Round	Number Seasonal	Per Cent Increase	Maximum Number	Number of Interviews	Number Year Round	Number Seasonal	Per Cent Increase	Maximum Number	Number of Interviews	Number Year Round	Number Seasonal**	Per Cent Increase	Maximum Number	Number of Interviews			
Bay	11	13	118.2	24	4	36	53	147.2	89	6	15	2	13.3	17	3	2,615	13	Summer
Brevard	3			3	1	4	1	25.0	5	1		4		4	1	4,042	3	Spring & Summer
Broward	14	2	14.3	16	6	32	53	60.4	85	9		2		2	1	10,498	17*	Winter
Charlotte						3			3	2	1			1		1,227	2	Summer
Citrus	1			1		3			3	2		1		1		521	2	Spring
Collier						18	3	17.7	21	1	4			4	1	1,140	2	Winter & Spring
Dade	19	1	5.3	20	6	96	8	8.3	104	16						18,559	22	Winter
Dixie	No offshore activity															134		
Duval	4	3	75.0	7	3	2	10	500.0	12	2		14		14	1	8,707	6	Summer
Escambia	3	1	25.0	4	2	3	2	66.7	5	3	25	1	4.0	26	1	4,988	6	Summer
Flagler	No offshore activity															188		
Franklin	6			6	2						12	1	8.3	13	3	283	5	Summer
Gulf	1			1												491		
Hernando	No offshore activity															304		
Hillsborough											15			15	1	8,752	1	
Indian River	No offshore activity															928		
Jefferson	No offshore activity															102		
Lee	2			2	1	41	7	17.1	48	6	6	2	33.3	8	2	3,242	9	Spring
Levy	1			1	1						1	1	100.0	2	1	340	2	Summer
Manatee	3			3	1	6	3	50.0	9	1	3			3	2	2,964	4	Winter & Spring
Martin						18	10	55.6	28	7						1,275	7	Winter
Monroe	7	2	28.6	9	2	77	20	26.0	97	7	64	15	23.4	79	10	2,521	19	Winter
Nassau						1			1	1		6		6	1	518	2	Summer
Okaloosa	13			13	6	26	3	11.5	29	1	6			6		2,510	7	Summer
Palm Beach	10	4	40.0	14	6	39	44	112.8	83	8						6,312	14	Winter
Pasco	No offshore activity															981		
Pinellas	17			17	7	52	6	11.5	58	9	54	5	9.3	59	11	11,242	29*	Spring & Summer
St. Johns	1			1		4	3	75.0	7	3	3	5	166.7	8	2	630	5	Summer
St. Lucie	1	3	300.0	4	1	2	5	250.0	7	1	5			5	2	1,134	4	Winter
Santa Rosa	No offshore activity															1,001		
Sarasota	2	2	100.0	4	1	10	5	50.0	15	3	4			4	1	4,670	5	Spring & Summer
Taylor	1	1	100.0	2	1											371	1	Summer
Volusia	7	5	71.4	12	1	9	13	144.4	22	3	7	8	114.3	15	4	3,651	8	Summer
Wakulla		2		2	1	8			8	3						165	4	Summer
Walton	No offshore activity															277		
Totals	127	39	30.7	166	53	490	249	50.8	739	95	225	67	29.8	292	48	107,283	199*	

* Private boat interviews included.

** Includes part time commercial boats.

Table 20. The Basic Fishes of the Offshore Fishery of Each Coastal County

		Type of Vessel		
County	Status of Fish	Commercial	Party	Charter
Nassau	Most abundant fishes in the catch	1. Sea Bass 2. Red Snapper 3. Black Grouper		1. King Mackerel 2. Spanish Mackerel 3. Tarpon
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Sea Bass		1. King Mackerel 2. Tarpon 3. Spanish Mackerel
Duval	Most abundant fishes in the catch	1. Red Snapper 2. Black Grouper 3. Porgies	1. Sea Bass 2. Red Snapper 3. Vermilion Snapper	1. King Mackerel 2. Spanish Mackerel 3. Bonito
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. Sea Bass 3. Vermilion Snapper	1. Sailfish 2. King Mackerel 3. Spanish Mackerel
St. Johns	Most abundant fishes in the catch	1. Red Snapper 2. Red Grouper 3. Sea Bass		1. King Mackerel 2. Bonito 3. Amberjack
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper		1. Sailfish 2. King Makerel 3. Dolphin
Volusia	Most abundant fishes in the catch	1. Red Snapper 2. Red Grouper 3. Porgies	1. Red Snapper 2. King Mackerel 3. Sea Bass	1. Red Snapper 2. King Mackerel 3. Amberjack
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. King Mackerel 3. Dolphin	1. Red Snapper 2. King Mackerel 3. Sailfish
Brevard	Most abundant fishes in the catch	1. Red Snapper 2. Red Grouper 3. Black Grouper	1. Red Snapper 2. Red Grouper 3. Grunts	1. King Mackerel 2. Bonito 3. Dolphin
	Most preferred fishes	1. Red Snapper 2. Red Grouper 3. Black Grouper	1. Red Snapper 2. Red Grouper 3. Sea Bass	1. Sailfish 2. Dolphin 3. Cobia
St. Lucie	Most abundant fishes in the catch	1. Red Snapper 2. Red Grouper 3. Sea Bass	1. Sea Bass 2. Vermilion Snapper 3. Red Snapper	1. King Mackerel 2. Bonito 3. Dolphin
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Sailfish 2. King Mackerel 3. Dolphin
Martin	Most abundant fishes in the catch			1. Bonito 2. Dolphin 3. King Mackerel
	Most preferred fishes			1. Sailfish 2. King Mackerel 3. Dolphin
Palm Beach	Most abundant fishes in the catch	1. King Mackerel	1. King Mackerel 2. Mutton and Yellowtail Snapper 3. Dolphin	1. Bonito 2. Dolphin 3. King Mackerel
	Most preferred fishes	1. King Mackerel	1. King Mackerel 2. Mutton and Yellowtail Snapper 3. Dolphin	1. Sailfish 2. King Mackerel 3. Dolphin

Table 20. The Basic Fishes of the Offshore Fishery of Each Coastal County—(Continued)

		Type of Vessel		
County	Status of Fish	Commercial	Party	Charter
Broward	Most abundant fishes in the catch	1. King Mackerel	1. King Mackerel 2. Mutton and Yellowtail Snapper 3. Dolphin	1. Dolphin 2. Bonito 3. King Mackerel
	Most preferred fishes	1. King Mackerel	1. King Mackerel 2. Mutton and Yellowtail Snapper 3. Dolphin	1. Sailfish 2. Dolphin 3. King Mackerel
Dade	Most abundant fishes in the catch		1. Mutton Snapper 2. King Mackerel 3. Groupers	1. Dolphin 2. Bonito 3. King Mackerel
	Most preferred fishes		1. Mutton Snapper 2. King Mackerel 3. Dolphin	1. Sailfish 2. Dolphin 3. King Mackerel
Monroe	Most abundant fishes in the catch	1. Yellowtail Snapper 2. Groupers 3. King Mackerel	1. King Mackerel 2. Groupers 3. Grunts	1. King Mackerel 2. Dolphin 3. Barracuda
	Most preferred fishes	1. Yellowtail Snapper 2. Groupers 3. King Mackerel	1. Mutton Snapper 2. Sailfish 3. King Mackerel	1. Sailfish 2. King Mackerel 3. Dolphin and Barracuda
Collier	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper		1. Spanish Mackerel 2. King Mackerel 3. Bluefish
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper		1. King Mackerel 2. Spanish Mackerel 3. Tarpon
Lee	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper	1. Red Grouper 2. Black Grouper 3. King Mackerel	1. Spanish Mackerel 2. Tarpon 3. Bluefish
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Black Grouper 2. Red Grouper 3. Jewfish	1. Tarpon 2. King Mackerel 3. Spanish Mackerel
Charlotte	Most abundant fishes in the catch			1. Red Grouper 2. Black Grouper 3. Spanish Mackerel
	Most preferred fishes			1. Black Grouper 2. Red Grouper 3. Red Snapper
Sarasota	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper	1. Red Grouper 2. Black Grouper 3. Amberjack	1. King Mackerel 2. Spanish Mackerel 3. Red Grouper
	Most preferred fishes	1. Red Snapper 2. Red Grouper 3. Black Grouper	1. Black Grouper 2. Red Grouper 3. Grunts	1. King Mackerel 2. Spanish Mackerel 3. Sailfish

Table 20. The Basic Fishes of the Offshore Fishery of Each Coastal County– (Continued)

		Type of Vessel		
County	Status of Fish	Commercial	Party	Charter
Manatee	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper	1. Black Grouper 2. Red Grouper 3. Red Snapper	1. King Mackerel 2. Red Grouper 3. Bluefish
	Most preferred fishes	1. Red Snapper 2. Yelloweye Snapper 3. Black Grouper	1. Black Grouper 2. Red Grouper 3. Red Snapper	1. King Mackerel 2. Black Grouper 3. Red Grouper
Hillsborough	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper		
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper		
Pinellas	Most abundant fishes in the catch	1. Red Grouper 2. Black Grouper 3. Red Snapper	1. Red Grouper 2. Black Grouper 3. Grunts	1. Spanish Mackerel 2. King Mackerel 3. Black Grouper
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Black Grouper 2. Red Grouper 3. Grunts	1. King Mackerel 2. Spanish Mackerel 3. Black Grouper
Citrus	Most abundant fishes in the catch	1. Black Grouper		1. Black Grouper 2. Spanish Mackerel 3. Sea Bass
	Most preferred fishes	1. Black Grouper		1. Black Grouper 2. Red Grouper 3. King Mackerel
Levy	Most abundant fishes in the catch	1. Red Grouper 2. Black Grouper 3. Sea Bass	1. Black Grouper 2. Grunts 3. Sea Bass	
	Most preferred fishes	1. Black Grouper 2. Red Grouper 3. King Mackerel	1. Black Grouper 2. Grunts 3. Sea Bass	
Taylor	Most abundant fishes in the catch		1. Grunts 2. Sea Bass 3. Black Grouper	
	Most preferred fishes		1. Black Grouper 2. Sea Bass 3. Grunts	
Wakulla	Most abundant fishes in the catch		1. Grunts 2. Sea Bass 3. Spanish Mackerel	1. Grunts 2. Sea Bass 3. Black Grouper
	Most preferred fishes		1. King Mackerel 2. Spanish Mackerel 3. Black Grouper	1. King Mackerel 2. Black Grouper 3. Spanish Mackerel
Franklin	Most abundant fishes in the catch	1. Red Grouper 2. Red Snapper 3. Black Grouper	1. Red Grouper 2. Sea Bass 3. Black Grouper	
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Black Grouper 2. Red Grouper 3. Red Snapper	

Table 20. The Basic Fishes of the Offshore Fishery of Each Coastal County—(Continued)

County	Status of Fish	Type of Vessel: Commercial	Party	Charter
Bay	Most abundant fishes in the catch	1. Red Snapper 2. Red Grouper 3. Black Grouper	1. Red Snapper 2. Red Grouper 3. Vermilion Snapper	1. King Mackerel 2. Red Snapper 3. Red Grouper
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Scamp	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. King Mackerel 3. Black Grouper
Okaloosa	Most abundant fishes in the catch	1. Red Snapper	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. King Mackerel 2. Red Snapper 3. Bonito
	Most preferred fishes	1. Red Snapper	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. King Mackerel 2. Red Snapper 3. Dolphin
Escambia	Most abundant fishes in the catch	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. Vermilion Snapper 3. Black Grouper	1. King Mackerel 2. Bonito 3. Spanish Mackerel
	Most preferred fishes	1. Red Snapper 2. Black Grouper 3. Red Grouper	1. Red Snapper 2. Black Grouper 3. Scamp	1. King Mackerel 2. Cobia 3. Dolphin

Table 21. Nassau County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom				24	24	24	24	24	24				864		
	Total Reported				24	24	24	24	24	24				864	1	6
	Projected				144	144	144	144	144	144						
Party.....	Surface															
	Bottom															
	Total Reported															
	Projected															
Charter.....	Surface						60	60	60					180		
	Bottom						5	5	5					15		
	Total Reported						65	65	65					195	1	1
	Projected						65	65	65							

Table 22. Duval County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom		45	45	45	45								2520		
	Total Reported		45	45	45	45								2520	1	14
	Projected		630	630	630	630										
Party.....	Surface															
	Bottom				975	1975	1975	1975	1075					18608		
	Total Reported				975	1975	1975	1975	1075					18608	3	7
	Projected				2275	4608	4608	4608	2508							
Charter.....	Surface				16	27	165	165	154					3162		
	Bottom				8	13	13	13	8					330		
	Total Reported				24	40	178	178	162					3492	2	12
	Projected				144	240	1068	1068	972							

There is a scarcity of natural hard rock bottom to attract bottom fishes within 10 to 15 fathoms of the shoreline. The fishing within these depths is concentrated around a few scattered formations of rock and artificial bottoms such as ship and airplane wrecks, buoys and artificial reefs. The Montgomery artificial reef was constructed offshore of Duval County in 70 feet of water on a hard rock bottom. The reef is composed of 170 wrecked automobile bodies, 1000 appliances, 3000 tires filled with concrete and chained together by threes, and a small amount of assorted scrap iron. The materials were dropped during a period of one year, April 1960 to April 1961. The reef is considered to be very successful in attracting both bottom and surface fishes. The effectiveness of the reef is limited only by the difficulty of finding it since it was not buoyed. This artificial reef is in fishing area CH-B on Map II, the Upper East Coast, in Section VI.

St. Johns. There are two inlets along the shoreline of St. Johns County. The northern inlet, the St. Augustine Inlet, is a good deep water inlet and provides the major access from the Atlantic. The southern inlet, Matanzas Inlet, is very shallow and is crossed by a low bridge. The latter inlet is used by only a few small charter and private boats of shallow draft and low rigging. The St. Augustine harbor can accommodate offshore fishing vessels with ease and provides the docking area for many shrimp boats. The development of offshore fishing in St. Johns County is not extensive. The sport fishing season is sharply defined as the months of May through September with the major portion of the activity occurring during June, July and August. On Table 23 the effort for the party boats was not available and the estimate presented was transposed from the party boats of Duval County which have a very similar operation. This prevented the elimination of important fishing effort data from an entire county. The majority of the commercial fishing effort is expended by full time snapper fishing vessels. Shrimp and sport fishing boats make many commercial Red Snapper fishing trips during the winter and spring months when other types of fishing are not lucrative. The summer months are the best months for the full time snapper fleet since the weather is favorable and the Red Snappers are found closer to shore. St. Johns County has not developed a large sport fishing fleet because the emphasis placed upon fishing is not great and the demand for sport fishing vessels has not been created. The offshore bottom is primarily hard sand and provides few good areas. The offshore fishing is concentrated around scattered areas of rock bottom, wrecks of ships and airplanes, and a small artificial reef that was formed on an existing rock bottom. This reef is in 60 feet of water and made up of 200 large appliances and about 500 tires. The reef is several years old and is reported to have improved the fishing greatly. This artificial reef is included in fishing area PA-I, on Map II, the Upper East Coast, in Section VI. The charter and private boats depend primarily upon the pelagic surface fishes to provide fishing activity.

Volusia County. There is one inlet in Volusia County, The Ponce de Leon Inlet, that provides the only access to the Atlantic. The sport and commercial fishing vessels are located close to the inlet to prevent lengthy running times on the inland waters. The inlet is not stabilized by jetties and adverse weather conditions often prohibit passage through the inlet. Volusia County has the most extensive development of sport and commercial fisheries along the Upper East Coast of Florida. The inland waters provide excellent accommodations for offshore fishing vessels, and the resort center of the Daytona Beach complex supports a good seasonal sport fishing industry. There is a small amount of sport fishing activity during the entire year when favorable weather conditions exist. The peak of the sports fishing season occurs during the summer months after a gradual increase in fishing activity over a period of one to two months. The commercial activity is greatest during the months of February through September because of the increased number of vessels, high incidence of favorable weather, and occurrence of the Red Snapper in shallower waters. Several boats come to this area from West Coast ports in order to take advantage of Red Snapper abundance during spring months. Many of the seasonal snapper vessels engage in commercial shrimping during the fall months. The sport fishing vessels make occasional com-

Table 23. St. Johns County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial...	Surface															
	Bottom	84	84	84	84	84	36	36	36	36	36	36	84	2880		
	Total Reported	84	84	84	84	84	36	36	36	36	36	36	84	2880	2	8
	Projected	336	336	336	366	336	144	144	144	144	144	144	336			
Party.....	Surface															
	Bottom														0	1
	Total Reported															
	Projected					531*	531*	531*	531*	531*				2655*		
Charter.....	Surface					72	212	212	212	90				1862		
	Bottom					12	42	42	42	10				346		
	Total Reported					84	254	254	254	100				2208	3	7
	Projected					196	593	593	593	233						

* Estimate based upon reports from party boats in Duval County.

Table 24. Volusia County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial...	Surface															
	Bottom	45	45	93	96	96	96	48	48					2126		
	Total Reported	45	45	93	96	96	96	48	48					2126	4	15
	Projected	169	169	349	360	360	360	180	180							
Party.....	Surface					40	50	57	46					2316		
	Bottom					80	100	108	92					4560		
	Total Reported					120	150	165	138					6876	1	12
	Projected					1440	1800	1980	1656							
Charter.....	Surface					97	135	135	135	135				4671		
	Bottom					225	300	300	300	300				10450		
	Total Reported					322	435	435	435	435				15121	3	22
	Projected					2360	3188	3188	3188	3188						

mercial fishing trips for Red Snapper during the fall and winter months when weather conditions are favorable.

The sport fishing activity is centered around occasional out-croppings of rock in the form of ridges and drops on the sand bottom. Most of the charter boat activity is expended on the bottom which indicates that the emphasis is placed on quantities of edible rather than game fish. The commercial boats frequent the waters further offshore in search of areas with greater populations of Red Snappers.

Volusia County has a large influx of seasonal sport fishing boats that sharply increase the fishing effort during the summer months. The Red Snapper, followed closely by the King Mackerel, is the fish most sought after by the private boats.

Brevard. The extensive inland waters of Brevard County are not directly connected with the waters of the Atlantic. The only inlet is separated from the inland waters by a narrow strip of land. All offshore activity from Brevard County is based in Port Canaveral which has a stabilized inlet and adequate facilities to accommodate offshore fishing vessels. The bottom becomes more irregular offshore of Brevard County with a higher incidence of exposed rock reefs. The development of offshore fishing in Brevard County is not extensive although there are small, well established sport and commercial fisheries. There are very few boats that migrate to Brevard County for the sport fishing season since the industry has not been able to support many boats in past years.

The sport fishing season reaches the greatest peak of activity during the months of May through July. A seasonal peak of activity occurs during the fall months but activity is not as intense and is subject to a greater amount of adverse weather conditions. The party boats are the most active and are responsible for most of the fishing effort. The offshore commercial fishery is entirely seasonal. Most of the commercial vessels from this port fish the West Coast during the summer and the East Coast during the winter, and in doing this, they are able to maintain a high incidence of Red Snapper in their catch.

The fishing is centered on the reef fishes and the areas of exposed rock reefs are most heavily fished. There are a few artificial reef areas that are heavily fished. These are wrecks of ships and airplanes and not deliberately placed structures. The Red Snapper is the major offshore sport and commercial fish although the King Mackerel attracts a large amount of sport fishing activity.

St. Lucie. St. Lucie County is the southernmost county on the East Coast to have an established commercial Red Snapper fishery and the northernmost county to have a major winter sport fishing season. The sport fishery is highly seasonal. Only a third of the sport fishing boats are local and these boats do not have a large summer clientele. The Ft. Pierce Inlet is the only passage to the Atlantic available to boats in St. Lucie County. The inlet is navigable under most weather conditions and there is ample anchorage and facilities for offshore fishing vessels. This is the southernmost County in the State in which the Red Snapper is the primary objective of the party boats. The fishing grounds are more extensive than those to the south and more rugged than those to the north. The charter boats fish extensively for the larger game fishes and do very little bottom fishing. The Sailfish and the King Mackerel are in the greatest abundance during the sport fishing season and are the main objective of the charter boats. The fishing of the party boats is concentrated around natural and artificial reef formations. There is a small private boat population that fishes primarily for the King Mackerel.

The major fishing grounds for the fleet of private boats is the artificial reef built offshore of Ft. Pierce one mile north of the north jetty and one mile offshore in 34 feet of water. The reef is placed on a sand and shell bottom between two natural coral rock reefs. The reef is constructed almost entirely of 735 automobile bodies dropped in groups of one to three at acute angles and strewn on a north and south line. The reef was constructed in two drops, the first on August 28, 1960, and the second on January 1 & 2, 1961. The artificial reef doubled the available reef area and has produced excellent fishing for both bottom and surface species of fishes. The charter boats fish further offshore and in deeper water than the artificial reef, trolling over shipwrecks and natural reef formations.

Table 25. Brevard County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom	54	54	54							54	54	54	1296		
	Total Reported	54	54	54							54	54	54	1296	1	4
	Projected	216	216	216							216	216	216			
Party	Surface															
	Bottom					450	450	450						4050		
	Total Reported					450	450	450						4050	1	3
	Projected					1350	1350	1350								
Charter	Surface				72	72	72	72			72	72		2160		
	Bottom															
	Total Reported				72	72	72	72			72	72		2160	1	5
	Projected				360	360	360	360			360	360				

Table 26. St. Lucie County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom	126	126	126	126	174	174	174	174	126	126	126	126	4260		
	Total Reported	126	126	126	126	174	174	174	174	126	126	126	126	4260	2	5
	Projected	315	315	315	315	435	435	435	435	315	315	315	315			
Party	Surface															
	Bottom	400	400	400										4800		
	Total Reported	400	400	400										4800	1	4
	Projected	1600	1600	1600												
Charter	Surface	52	52	52										1092		
	Bottom															
	Total Reported	52	52	52										1092	1	7
	Projected	364	364	364												

There is small but active commercial fishery for the Red Snapper. The summer months are the months of greatest activity since the weather is favorable and the fish are found closer to shore. There is a large commercial fishery for King Mackerel from this County. The fish are taken either by hook and line or by nets.

Martin. Offshore fishing in Martin County is limited to a fleet of charter boats that operate on a highly seasonal basis and depend upon the large numbers of Sailfish found a few miles to the south to draw their winter clientele. There is only one inlet, the St. Lucie River Inlet, that provides access to the offshore fishing grounds. This inlet limits the fishing to a considerable extent since it is shallow and unnavigable during adverse wind and weather conditions. A strong northeast wind will cause extreme turbulence in the waters of the inlet, creating a dangerous passage. The inlet is one of the main reasons for lack of development of the offshore fishing since a boat that must sail with regularity needs a more stable inlet. The large charter boat population is able to arrange the offshore trips to coincide with favorable conditions, navigate the inlet with less difficulty, and thus succeed in a profitable operation.

The fishing grounds consist of three well defined coral rock reefs spaced at intervals of one-half, six, and eight miles offshore. The charter boats troll parallel to these reefs frequenting the area offshore of Hobe Sound where the Sailfish are usually most abundant during the winter months. The private boats frequent the areas close to shore and fish primarily for the Bluefish, King Mackerel, and Spanish Mackerel in that order.

The commercial hook and line fishery is almost non-existent although there is a large net fishery for the inshore and smaller pelagic offshore surface fishes.

Palm Beach. Palm Beach County has four inlets that provide passage to the Atlantic. The northern inlet, Jupiter Inlet, is very shallow and does not have stabilizing jetties. It can be used only by small boats under good wind and weather conditions. The North Lake Worth Inlet is very wide and deep and offers good transit under all but the most adverse conditions. The majority of the offshore activity is centered around this inlet. The South Lake Worth Inlet is narrow and shallow but is not unsafe and has a large amount of offshore activity regularly using the inlet to gain access to the Atlantic. The southern inlet, the Boca Raton Inlet, is used by only a few boats from Palm Beach and Broward Counties. The inlet is poor with the channel altering in configuration every few days. Palm Beach County has a large expanse of inland salt water, Lake Worth, which supports a great deal of small boat activity that rarely ventures into the Atlantic.

Palm Beach County has the fifth largest fleet of charter and party boats in the State. The major sport fishing season is the months of January through March although there is consistent year round activity with a second peak in the months of June through August. The King Mackerel is the major offshore sport fish during the winter season and the Dolphin stimulates the greatest activity during the summer months. Table 28 shows the two peaks of activity and their strength in effort expended. There is a large fleet of privately owned boats that engage in offshore fishing when the wind and weather conditions are favorable. The King Mackerel, followed by the Spanish Mackerel, the Bluefish, and the snappers, receives the greatest fishing pressure from the private boats. The most sought of these fishes are present in greatest number during the winter and spring season which coincides with the fishing pressure exerted by the private boats. The party boats from Palm Beach County, spend the majority of their fishing time drifting. This places the emphasis upon surface fishing and the King Mackerel is the major sport fish for the party boats. The charter boats spend the majority of the available fishing time in search of the Sailfish.

Palm Beach County has one artificial reef placed in 100 feet of water 3200 to 3600 yards off northern Palm Beach. It is composed of automobile bodies and a small number of large appliances dropped in August of 1960. These were dropped to form a semi-circle, but have become greatly dispersed over the bottom according to the reports of divers. This reef is not successful to date in the opinion of the party and charter boat operators. It was originally intended to draw and hold the King Mackerel at

Table 27. Martin County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface															
	Bottom															
	Total Reported															
	Projected															
Charter.....	Surface	556	456	276	116							50	180	7614		
	Bottom															
	Total Reported	556	456	276	116							50	180	7614	6	28
	Projected	2596	2128	1288	540							232	840			

Table 28. Palm Beach County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface	1593	1593	1593			362	362	586	362	362		844	17866		
	Bottom	1489	1489	1489			113	113	785	113	113		677	14889		
	Total Reported	3082	3082	3082			475	475	1371	475	475		1521	32755	6	14
	Projected	7191	7191	7191			1108	1108	3199	1108	1108		3549			
Charter.....	Surface	455	410	410	285		112	187	187				320	28054		
	Bottom	60	35	35	35			25	25				60	3261		
	Total Reported	515	445	445	320		112	212	212				380	31315	7	83
	Projected	6106	5276	5276	3794		1328	2514	2514				4506			

this location. The party or drift boats do not fish the bottom over this reef because the loss of tackle from snagging the reef is too great, and the King Mackerel have not acquired any special affinity for this location.

The main factors affecting the offshore fishing are the wind and weather. A northwind brings the fish into shore during the winter months. Strong winds and heavy weather from the northeast or east brings the Gulf Stream into shore and the larger game fish move inshore with the Stream. This wind also makes the inlets difficult to navigate and a ground swell along with the east wind keeps most of the boats at the dock. A wind from the south or southwest gives good sailing weather but blows the Gulf Stream offshore and causes the boats to travel further in search of the game fish.

The offshore commercial fishery for bottom fish in Palm Beach County is very small and consists primarily of part time operations.

There is an irregular, seasonal but extensive commercial fishery for King Mackerel in which both nets and hook and line methods are used. In other pelagic fishing, nets dominate the commercial effort.

Broward. Broward County has two inlets to the Atlantic, Hillsboro Inlet and Port Everglades Inlet. The most heavily fished areas are those that are close to these inlets. The Port Everglades Inlet is one of the largest and deepest on the East Coast and is rarely impassable because of inclement weather. The Hillsboro Inlet is shallow and becomes impassable during adverse weather conditions; however, a large number of party and charter boats depend upon the inlet for access to the offshore fishing grounds. The shoreline of Broward County is very close to the edge of the continental shelf. This causes the reefs offshore of this section of the State to be sharp and precipitous and the waters to be deep and clear. The resulting condensation of the available offshore fishing grounds eliminates an extensive offshore commercial hook and line fishery and brings large deep water game fishes within easy reach of the sport fishermen. The Gulf Stream further aids the sport fishermen by bringing warm, clear water and accompanying sport fishes close to the shoreline during the entire year. The above conditions occur along the shoreline from Palm Beach to Monroe Counties.

Broward County has a large coastal population and a high incidence of tourism. This enables the County to support an extensive sport fishing and boating industry. The County has a labyrinth of inland waterways winding through the business and residential sections that contain the third highest private boat population in the State. Very few of the private boats, in proportion to the total number, are used for intensive fishing as they are active for only a few months of the year.

The fishing is concentrated along the sections of natural coral rock reef that occur offshore of the County. The party boats usually drift over the reefs with patrons fishing both on the surface and the bottom. The main surface fish in the winter months is the King Mackerel and in the summer months the Dolphin is the main fish. The snappers, primarily the Mutton Snapper, are the main bottom fishes throughout the year. The charter boats troll along the edge of the deepest reef in search of the Sailfish. When the surface fishes are not available many boats fish deeper waters on wrecks and natural depressions for large Warsaw Groupers, Amberjack, and Tilefish. The private boats expend their effort on the Dolphin, King Mackerel, snappers, and Sailfish in that order.

The party and charter boat fleet is the third largest in the State. Sport fishing activity is present throughout the year. The peak season occurs during the months of January, February, and March with the greatest activity occurring in March. There is a gradual increase and decrease of activity before and after the peak months rather than a sudden beginning and end to the fishing season.

Broward County has one artificial reef built in late 1958 under 115 feet of water and located about two and one half miles north of the Port Everglades Inlet. It is composed of 100 automobile bodies tied together with rope and dropped on a north to south line ten feet apart. Opinions on the effectiveness of the reef are divided pro and con. Those that possess the navigational skills necessary to find the reef and remain in position over the reef by compensating for the forces of wind and current are

Table 29. Broward County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface	935	935	755	522		230	230	230				702	12104		
	Bottom	876	876	981	748	225	230	230	230		225	225	643	14637		
	Total Reported	1811	1811	1736	1270	225	460	460	460		225	225	1345	26741	6	16
	Projected	4829	4829	4629	3386	600	1227	1227	1227		600	600	3585			
Charter.....	Surface	447	532	592	215	90	90				150	150	202	23309		
	Bottom	30	30	50		10	10				110	110	90	4156		
	Total Reported	477	562	642	215	100	100				260	260	292	27465	9	85
	Projected	4505	5307	6063	2030	944	944				2456	2456	2757			

Table 30. Dade County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasona Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface	752	752	482	157	157	157	457	715	715	157	157	482	20560		
	Bottom	772	772	472	157	157	727	813	813	157	157	157	682	23344		
	Total Reported	1524	1524	954	314	314	884	1270	1528	872	314	314	1164	43904	5	20
	Projected	6096	6096	3816	1256	1256	3536	5080	6112	3488	1256	1256	4656			
Charter.....	Surface	467	682	633	394		171	574	574	139	163	104	140	26267		
	Bottom	20	25	25	4									481		
	Total Reported	487	707	658	398		171	574	574	139	163	104	140	26748	16	104
	Projected	3166	4596	4278	2588		1112	3729	3729	904	1060	676	910			

able to fish effectively. These individuals believe that the reef attracts large grouper and other reef fish. The majority of the fishermen, those that cannot effectively fish on the reef, attribute no improvement in fishing to the reef.

Commercial fishing activity in Broward County is negligible. There is a small sporadic commercial fishery for the Yellowtail Snapper and the King Mackerel. Net fishing is absent.

Dade. Dade County has the largest population and the largest fleet of private, party, and charter boats in the State. There are three main passages to the Atlantic that are used by the party and charter boats: Bakers Haulover Cut, Government Cut, and around the tip of Key Biscayne. Most of the offshore fishing is done in areas close to these inlets. The extensive inland waters of Biscayne Bay are used by many private boats in the major portion of their fishing activity. The northern section of the offshore fishing grounds of Dade County are confined to a narrow strip along the coast with steep slopes and sharply defined reefs. The shoreline curves away from the edge of the continental shelf in the southern section and results in a shallower, more uniform submarine terrain with a precipitous slope on the offshore side. As one progresses southward, there is a greater amount of shallow reef area that can be fished. Fowey Rocks, offshore of the southern section of the County, marks the northern boundary of living reef building corals of the Florida bank reef (Smith 1948). The reefs to the north are composed of soft and hard coral formations anchored upon the remains of ancient coral reefs.

Party boats that fish the northern areas employ drift fishing methods during the day and anchor in shallower areas on the night trips. Most party boats in the northern section make two half-day trips during the daylight hours and one four-hour trip at night. Party boats that fish the southern areas make only one eight-hour trip per day and fish the shallower bottoms for reef fish. Drift methods produce King Mackerel, Dolphin, and a scattering of bottom fish. Anchored boats produce a wide variety of bottom fishes, with snappers, groupers, and Grunts predominating.

Charter boats are highly competitive in both soliciting customers and magnitude of catches. Fishing trips are mostly on a half-day basis although full day trips are desired by the operators of the vessels. Sailfish is the most desired, and thus the greatest portion of the fishing effort is spent searching for this fish. Many charter boats in this area are using large reels with heavy wire line and fishing at depths down to 600 feet in search of Tilefish, large Warsaw Grouper and large Amberjack. This deep line fishing is practiced when the more conventional methods do not produce the well known game fishes of the area.

Private boats fish for bottom fishes more often than surface fishes. Snappers are most desired followed by groupers, Dolphin, and King Mackerel. Many private boats sell a large percentage of their catch to fish houses according to reports of fish dealers. Reports from the post card questionnaire indicate that very few private boat owners sell their surplus fish. This contradiction indicates that a few private boat owners sell a large amount of fish.

Dade County has very little commercial fishing. There are some part time commercial operations and some seasonal fishing for the King Mackerel but there is no full-time commercial hook and line fishery based in this County.

Dade County has a year round sport fishing season. The months of greatest activity are February and March. There is a secondary peak of activity during July and August that rivals the winter peak, and, for a few boats, surpasses it. Ten and seven-tenths per cent of the seasonal sport fishing in the State occurs in Dade County. Almost all of the sport fishing boats in Dade County remain throughout the year because of the year round season and the residency required by the County.

Monroe. It is very likely that the majority of the resident population of Monroe County depends, directly or indirectly, upon either sport or commercial fishing as a means of livelihood. The locations supporting offshore fishing are stretched out over 150 miles of small islands connected by bridges. These islands separate the Atlantic from Florida Bay and the Gulf of Mexico. Most of the fishing for offshore species of fishes is done on the Atlantic side of the Keys. The Florida bank reef extends

outward from the Keys for several miles and then drops off sharply along the continental slope. This drop off and pronounced reef formations inshore of the continental slope are favored fishing grounds for reef fishes.

The commercial fisheries are very extensive and highly diversified. Monroe County has the largest fleet of commercial vessels in the State. The majority of the commercial fishing vessels are small and readily adaptable to various types of fishing. There is a large net fishery that operates primarily on the inshore side of the Keys. Yellowtail Snapper is the major fish taken commercially by hook and line. Other species of reef fishes, primarily groupers and Mutton and Mangrove Snappers, are taken in quantity by the Yellowtail boats. On Table 31 the fishing effort shown expended on the bottom from the commercial vessels is almost entirely night fishing for Yellowtail Snapper and other incidental species. This night reef fishing is done mostly during warm weather months. The fishery for Yellowtail Snapper slows down during cold weather months and many of the smaller vessels troll for King Mackerel during this time. Trolling for King Mackerel is lucrative only when they are abundant and easily caught. The shrimp fleet seldom engages in commercial fishing and fish sold by shrimp boats are those that are taken by the crew during the day with hook and line and those that are occasionally taken in the nets at night. There is a large part-time commercial fishery for King Mackerel and Yellowtail Snapper as many individuals supplement a steady income from another source with sporadic commercial fishing.

The number of party boats in Monroe County is not high. Probably this is because the population is scattered and the large number of people needed to patronize the party boats is not available. Both drift and anchor methods are used, although anchoring and fishing on a reef formation is the most often used method of fishing. Catches are usually composed of snappers, groupers, Grunts and King Mackerel. The boats run one six-hour trip per day as this is more profitable than two four-hour trips because of the limited clientele.

The charter boats are widely scattered throughout the Keys. There are a large number of part-time operations in the more sparsely populated areas. A large boat is not necessary for a successful charter operation because of the close proximity of the fishing grounds and the many species of game fish found in inshore waters. The Bonefish supports a large business involving the charter of a skiff and guide. Tarpon support a large small boat charter industry that fishes on inshore waters. The more conventional charter boats are of greater size and fish offshore waters for Sailfish, King Mackerel, Dolphin, Barracuda, and other species of game fishes. Occasionally a few of the charter boats fish offshore in the Florida Current on some high pinnacles of rock that reach within 60 fathoms of the surface for large Warsaw Grouper, Amberjack, and Red Snapper. Many boats depend upon an established clientele for the majority of their business.

Private boats fish the reefs for groupers and snappers primarily and secondarily for King Mackerel, Dolphin, and Sailfish. Many private boats are brought into the Keys from other areas of the State for fishing purposes.

The sport fishing season in Monroe County reaches its greatest peak during the major tourist season for south Florida, the months of January, February, and March. There is a smaller peak during the months of July and August with limited activity. The summer fishing activity is developing rapidly according to the reports of the fishermen.

Collier. The development of offshore fishing in Collier County is small. Offshore fishing grounds available to sport fishing boats are composed of extensive shallow flat bottoms of sand and mud with very few areas of exposed rock. The maze of mangrove islands that compose the shoreline create an ideal habitat for numerous inshore game fishes. The salt water sport fishery of Collier County is primarily inshore because of the above factors. Offshore sport fishing is largely restricted to local runs of King and Spanish Mackerel and is centered at Naples.

There is a small fleet of commercial offshore fishing vessels that make regular trips to the grouper and snapper banks off the West Coast. These boats are most active during the summer months because the weather conditions are more favorable for offshore fishing.

Table 31. Monroe County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial	Surface	57	57	48									9	1351		
	Bottom	98	98	84	136	398	398	398	194	146	60	44	58	16685		
	Total Reported	155	155	132	136	398	398	398	194	146	60	44	67	18036	10	79
	Projected	1225	1225	1043	1074	3144	3144	3144	1533	1153	474	347	529			
Party	Surface	34	34	34	34	34							34	918		
	Bottom	867	867	867	267	267							267	15309		
	Total Reported	901	901	901	301	301							301	16227	2	9
	Projected	4054	4054	4054	1354	1354							1354			
Charter	Surface	284	284	250	60			36	36			25	85	14692		
	Bottom	109	109	43				36	36			25	25	5308		
	Total Reported	393	393	293	60			72	72			50	110	20000	7	97
	Projected	5447	5447	4061	832			998	998			693	1525			

Table 32. Collier County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial	Surface															
	Bottom	48	48	48	72	72	72	72	72	72	48	48	48	2880		
	Total Reported	48	48	48	72	72	72	72	72	72	48	48	48	2880	1	4
	Projected	192	192	192	288	288	288	288	288	288	192	192	192			
Party	Surface															
	Bottom															
	Total Reported															
	Projected															
Charter	Surface		40	40	40									2520		
	Bottom															
	Total Reported		40	40	40									2520	1	21
	Projected		840	840	840											

Charter boats are most active during the months of January, February, and March since King Mackerel are present during this time and the winter tourist season is at its peak. The majority of the fishing effort on a year round basis is expended on the inshore fishes. This inshore fishing effort is not shown on Table 32. Tarpon, Snook, Spotted Seatrout, and Redfish are most sought by the inshore charter boats.

Spanish Mackerel and King Mackerel, in that order, account for most of the offshore fishing of the private boats. Artificial reefs are greatly desired since they will create new fishing grounds. There is one small artificial reef. It was constructed in February-March of 1962 in 26 feet of water two miles offshore of the Naples City Pier. The reef is composed of metallic scrap.

Lee. Lee County has an extensive and highly diversified commercial and sport fishery. The shallow inland waters are broken by many small mangrove islands and semi-exposed oyster reefs that form a complex system of channels and bays. These waters support a large sport and commercial fishery for inland species of salt water fishes. The offshore bottom is composed of hard sand and shell with a few scattered areas of exposed rock with reef growth. These rocky areas increase in number and expanse as the distance offshore increases. Most of these areas are too far offshore to be frequented regularly by the sport fishing vessels. The emphasis in sport and commercial fishing is strongly directed toward the inshore fishes because of the above factors. Lee County has adequate facilities for offshore fishing vessels and harbors a large fleet of shrimp boats.

The offshore commercial fishing boats frequent shallower grounds on five to eight day trips. Red and Black Grouper compose over five-sixths of the total catch. The boats fish regularly throughout the year but more intensively during summer months because of favorable weather.

Party boats are limited in number since their scope of activity is confined to offshore areas. These sources are not as accessible as the highly productive inshore locations. The months of greatest activity are January, February, March and April with a second peak of activity occurring in June, July, and August. Winter and spring months have slightly more activity than summer months. Party boats frequent scattered rocky areas in offshore waters. Red and Black Grouper form almost the entire catch from bottom fishing. King Mackerel are taken during periods of abundance by trolling in transit to the fishing grounds.

Charter boats are located at scattered intervals along the coast with two major locations at Ft. Myers Beach and Boca Grande. Most of the offshore fishing vessels are located at Ft. Myers Beach. Activity takes place during King and Spanish Mackerel runs, although some charter boats make frequent trips for Red and Black Grouper. Charter boats located at Boca Grande spend over 75% of their fishing effort on Tarpon within Boca Grande Pass. March and April are the months of greatest activity. Table 33 includes the fishing effort expended on inshore fish since both inshore and offshore fishing are often included in the same trip.

Offshore activity of the private boats is concentrated on groupers and Spanish Mackerel which are the most abundant fishes. Construction of an artificial reef is anticipated four nautical miles south of Sanibel Island in 25 feet of water. Fishermen of Lee County believe that the construction of this reef will improve the inshore bottom fishing for groupers and other reef fishes. It will be constructed of metallic scrap, primarily automobile bodies.

Charlotte and Sarasota. Charlotte and Sarasota Counties are considered together because of the limited activity in Charlotte County, the similarity in development of offshore fishing, and geographic propinquity. The following account pertains to both counties unless otherwise stated.

This area, especially Sarasota County, has ample facilities and waterways for an extensive sport and commercial fishery. The Sarasota resort complex and the high coastal population support a large seasonal sport fishery. The shoreline of the central West Coast of Florida curves outward on the continental shelf and eliminates much of the shallow flat bottom found near the shore of other West Coast areas. Hard rocky bottom that supports populations of reef fishes occurs more frequently within the range of the sport fishing vessels offshore of these Counties.

Table 33. Lee County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial	Surface															
	Bottom	72	72	72	72	72	72	72	72	72	72	72	72	3456		
	Total Reported	72	72	72	72	72	72	72	72	72	72	72	72	3456	2	8
	Projected	288	288	288	288	288	288	288	288	288	288	288	288			
Party	Surface															
	Bottom	575	575	575	575		575	575	575					8050		
	Total Reported	575	575	575	575		575	575	575					8050	1	2
	Projected	1150	1150	1150	1150		1150	1150	1150							
Charter	Surface	40	67	216	195	168	168	68						12264		
	Bottom	10	15	71	67	62	62	62						4188		
	Total Reported	50	82	287	262	230	230	230						16452	4	48
	Projected	600	984	3446	3144	2760	2760	2760								

Table 34. Sarasota and Charlotte Counties
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial	Surface															
	Bottom				63	63	63	63	63	63				1512		
	Total Reported				63	63	63	63	63	63				1512	1	4
	Projected				252	252	252	252	252	252						
Party	Surface															
	Bottom					630	630	630	630					10080		
	Total Reported					630	630	630	630					10080	1	4
	Projected					2520	2520	2520	2520							
Charter	Surface	60	60	130	143	143	13	13	13		30	130	130	3460		
	Bottom			30	75	75	45	45	45		30	30	30	1620		
	Total Reported	60	60	160	218	218	58	58	58		60	160	160	5080	4	16
	Projected	240	240	640	872	872	232	232	232		240	640	640			

Commercial vessels frequent offshore reef areas for grouper and snapper on regular five to ten day trips throughout the year. Summer months are months of greatest activity because of favorable weather conditions.

Party boats engage in bottom fishing exclusively. They frequent areas of hard rocky bottom that are within reach of an eight hour trip. The months of May through August have the greatest activity. The number of party boats doubles during these months. They operate during the remainder of the year on a reduced scale of effort catering to a local clientele.

Charter boats fish primarily on the surface for King Mackerel. This fish is most abundant during the months of greatest activity for charter boats, April and May. The secondary peak of activity occurs during November and December and coincides with the fall run of King Mackerel. Locations supporting charter boat activity are scattered throughout the area with the largest concentration occurring in Sarasota.

Spanish Mackerel, King Mackerel, and groupers are the fishes most sought by the private boats. This indicates that they are most active during the runs of the surface fishes.

Manatee. Manatee County has a small but very active commercial and sport offshore fishery. The shoreline extends along linear barrier islands on the Gulf coast and small sandy islands on the Tampa Bay shore. Longboat Pass is the main access route of the offshore fishing vessels. The offshore waters are deeper along the central portion of the West Coast and the offshore sport fishing vessels can find ample rocky bottom within reach of a day's trip.

Commercial fishing boats are few in number but produce well. Some of them based in Manatee County, sell their catch to fish houses in other counties. There is a great deal of intercounty traffic by the grouper boats of the West Coast. Many of them change their home ports with regularity in search of better operating conditions. Those based in Manatee County are larger than average and able to fish in adverse weather conditions, frequent deeper waters, and extend the length of the trip to 12 days. The above factors result in a higher percentage of Red Snapper in the catch and allow the boats to fish more intensively during the spring and fall months when the offshore reef fishes are reported to be most abundant. The months of greatest activity are April and May in the spring and October and November in the fall. Red and Black Grouper are the staples of the industry.

Party boats are most active during the months of January, February, and March. There is a small amount of year round activity. Boats fish with fewer patrons during the off season months and make fewer trips. They fish on the offshore reef areas using electronic instruments to detect schools of Red and Black Grouper.

Charter boats are few in number and many of the year round boats run on a part-time basis. March, April, and May are the months of greatest activity. The fish most sought is the King Mackerel and these months coincide with the local peak of abundance reported for this fish. The charter boat effort was projected from the report of one boat. This boat indicated that half of the fishing effort was expended on the bottom. According to the reports of the dockmasters, the part-time charter boats expend more effort on the surface than is indicated on Table 35, although bottom fishing is an important part of their activity.

Private boats fish primarily for Spanish Mackerel. Groupers, followed closely by King Mackerel, are the second most sought fish. The majority of the private boats are small boats with outboard motors.

Hillsborough. The shoreline of Hillsborough County is restricted to the inshore side of Tampa Bay. Although there are ample facilities for anchorage of large commercial vessels, there is very little offshore sport fishing since the distance that must be travelled to reach the Gulf of Mexico is prohibitive to party or charter sport fishing ventures. The shallow waters of Tampa Bay support most of the recreational fishery of Hillsborough County. The most sought fish by the private boats is the Spotted Seatrout.

Hillsborough County supports a large fleet of commercial shrimp and grouper/snapper boats because of the large population and ex-

Table 35. Manatee County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial	Surface															
	Bottom			144	264	264	120	120	120	120	264	264	144	2736		
	Total Reported			144	264	264	120	120	120	120	264	264	144	2736	2	3
	Projected			216	396	396	180	180	180	180	396	396	216			
Party	Surface															
	Bottom	875	875	875										7875		
	Total Reported	875	875	875										7875	1	3
	Projected	2625	2625	2625												
Charter	Surface			20	20	20								540		
	Bottom			40	40	40								1080		
	Total Reported			60	60	60								1620	1	9
	Projected			540	540	540										

Table 36. Hillsborough County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial	Surface	96	96	96	96	96	96	96	96	96	96	96	96	17280		
	Bottom	96	96	96	96	96	96	96	96	96	96	96	96	17280	1	15
	Total Reported	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440			
	Projected															
Party	Surface															
	Bottom															
	Total Reported															
	Projected															
Charter	Surface															
	Bottom															
	Total Reported															
	Projected															

tensive facilities for the processing and transportation of seafood products. The lengthy run to the Gulf of Mexico is not important to commercial vessels that remain on the fishing grounds for many days. Many commercial fishing boats make two to three week trips to the fishing grounds of the Campeche Banks. The length of these vessels varies between 65 and 105 feet and the capacity is 25,000 to 50,000 pounds of fish. These vessels catch a preponderance of Red Snapper which enables them to operate on a profitable basis. The smaller vessels, under 50 feet, catch predominantly grouper on the Florida Banks. Their low operating cost enables them to profit from shorter trips limited by a smaller capacity for supplies and ice. Many of these smaller vessels are docked in Tarpon Springs on the Gulf of Mexico to avoid the lengthy trip through Tampa Bay to Tampa. The catch is trucked to the fish houses in Tampa upon unloading. The fishing pressure exerted by these commercial boats remains constant throughout the year. It is estimated that only five boats fished Campeche Banks regularly. Three more fished Mexican waters occasionally.

Pinellas. Pinellas County has the most extensive development of offshore commercial and sport fishing on the West Coast. The major portion of the County forms a peninsula that separates Tampa Bay from the Gulf of Mexico. The offshore activity is concentrated along the West Coast of the County where a line of barrier islands forms many protected harbors with easy access to the offshore waters. There is abundant inshore activity on the east coast of the County but very little offshore activity originates here because of the lengthy trip to the offshore waters. The offshore rocky reefs are close to the coast of Pinellas County because of the outward projection of the land mass of the central West Coast of Florida. The large population and high degree of tourism in this coastal area supports a vast sport and commercial offshore fishery. The second largest fleet of commercial boats, the third largest fleet of party boats, and the sixth largest fleet of charter boats in the State are found in this County.

The majority of the offshore commercial boats are between 33 and 45 feet in length and have a capacity of between 3,600 and 6,500 pounds of fish. These boats fish the rocky reefs offshore of the Florida West Coast between the Florida Middle Grounds and the Dry Tortugas at depths of 20 to 50 fathoms. Activity is consistent throughout the year with a slight increase in intensity during the summer months because of favorable weather conditions. Red Grouper and the Black Grouper are the staple fishes of the industry. Red Grouper is slightly more abundant than Black. Red Snapper represents less than one-fourth of the total catch. Red Snapper often amounts to one-half the catch of the vessels that can fish deeper than 50 fathoms.

Party boats fish the offshore rocky reefs that are within reach of an eight hour fishing trip. There are a few boats that make half-day or four-hour trips and a few that make trips up to 50 miles offshore and cover a duration of 16 hours. The operator of the party boat uses electronic instruments to detect the presence of good bottom and in some cases the presence of schools of fishes under the boat. The boats travel until productive bottom is found. Red and Black Grouper make up the majority of the catch and Grunts and Sea Bass are taken secondarily. The half-day boats rely upon the Grunts and Sea Bass to supply the majority of the fishing action. Red and Black Grouper are the staple fishes of the party boats and are only slightly less abundant in the catch than Grunts. There are two seasons of marked fishing activity for party boats. Months of greatest activity are June, July, and August, and a smaller but notable activity occurs during the months of January, February, and March. The relative intensity of fishing in June, July and August is three times as great as that of January, February and March. The activity of the party boats is continuous throughout the year with fewer trips and less patrons during off seasons.

Charter boats are not as homogeneous in their fishing activities as other large charter fleets in Florida. Many charter boats specialize in bottom fishing for grouper and others specialize in trolling for faster pelagic game fishes. There is a higher degree of surface fishing during the months of greatest activity, April and May, than at other times of the year since King Mackerel is in greatest abundance at this time. Spanish Mackerel is very numerous in the catch

but is usually taken incidentally to King Mackerel. The secondary peak of activity during the months of October and November coincides with the fall run of the King Mackerel. The Black Grouper is considered a game fish by many charter boat operators and is taken by trolling slowly with a deep running spoon or plug. This method of fishing for Black Grouper is most prevalent during the winter months when it is most abundant and King Mackerel are scarce. Charter boats operate on a limited basis during the off season although there is activity throughout the year. Locations that sponsor charter activity are scattered along the west coast of the County. Major fishing areas are the prominent submarine features of offshore waters. The majority of these irregularities are artificial since natural features of high relief are infrequent close to the coast. Shipwrecks and artificial reefs are the most frequently fished structures.

Pinellas County has the second largest fleet of private boats in the State. Fishes most sought by these boats are Spanish Mackerel, King Mackerel, and groupers in order of desirability. A highly seasonal expenditure of fishing effort is indicated since the most sought fishes appear in seasonal peaks of abundance. The private boats fish on natural and artificial reef structures with a slightly higher incidence of bottom fishing reported.

Pinellas County has a large number of artificial reefs servicing its private and charter boat population. "Times Square" is the oldest and best established of these reefs and has a long history of fishing success. This reef is described in Section VI, The Upper West Coast, on Map VI and Table 15 as area CH-C. The other artificial reefs are placed closer to shore to provide offshore fishing areas for the smaller private boats. There are four small artificial reefs placed approximately one mile offshore at regular intervals between Blind Pass and the southern tip of Pass-a-Grille Island. The reefs are placed in 20 feet of water and constructed of automobile tires partially filled with concrete and supplemented with concrete and tile debris. The configuration of the reefs is a semicircle with the circular side facing offshore, a radius of 500 feet, and a buoy placed at the center of the diameter. The construction of these reefs was begun in April of 1962 and were producing fish a short time after the initial drops. A small artificial reef known as the "Dunedin Wreckage Drop" exists offshore of Dunedin, Florida. The reef was built in July of 1960 five miles offshore on a course of 282° from Dunedin in 28 feet of water. It is constructed of automobile bodies and other metallic scrap dropped near a small area of natural rock. This area is listed as area CH-A on Map VI and Table 15 of the Upper West Coast in Section VI. The construction of an additional artificial reef offshore of Clearwater, Florida is anticipated in the near future.

Citrus and Levy. Citrus and Levy Counties were considered together since the offshore activity of each County is small and very similar in nature. The offshore fishing grounds of each county are geologically alike and are merged into one large area. There are extensive grass flats and numerous small islands, with winding waterways, along the shoreline of this area that provide excellent fishing for the inshore species of game and food fishes. The effort of the offshore sport fisheries is expended primarily on the bottom. Surface effort is expended on Spanish and King Mackerel during their periods of local abundance. Months of greatest activity for the party boats are July and August. The number of passengers and frequency of operation gradually increases before this peak of activity and decreases after it. Months of greatest activity for charter boats are March and April. A secondary peak of less intensity occurs during September through December. These months are the months of greatest abundance of the Spanish Mackerel, King Mackerel, and Black Grouper, as reported by the fishermen. Non-resident fishermen account for most of the seasonal fishing effort.

Party and charter boats fish on natural rocky reefs offshore in 25 to 50 feet of water. These reefs are composed of projections of limestone rock extending three to five feet above the sand and shell bottom and are covered with vegetative and invertebrate life. Black Grouper is the main reef fish taken from these areas although Grunts and Sea Bass are numerous in the catch.

The existing offshore commercial fishery is restricted to the summer months and is very

Table 37. Pinellas County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial...	Surface															
	Bottom	564	564	564	564	564	564	564	564	564	564	564	564	36297		
	Total Reported	564	564	564	564	564	564	564	564	564	564	564	564	36297	11	59
	Projected	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021			
Party	Surface															
	Bottom	1275	1275	1275	400		4164	4164	3380	750				40539		
	Total Reported	1275	1275	1275	400		4164	4164	3380	750				40539	7	17
	Projected	3098	3098	3098	972		10119	10119	8213	1822						
Charter	Surface			393	503	432	75	75	75		79	79	28	11199		
	Bottom			272	392	242	25	25	25		61	61	35	7329		
	Total Reported			665	895	674	100	100	100		140	140	63	18528	9	58
	Projected			4286	5765	4344	644	644	644		905	905	406			

Table 38. Citrus and Levy Counties
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS												Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
Commercial...	Surface															
	Bottom				27	27	27	27	27	27				486		
	Total Reported				27	27	27	27	27	27				486	1	3
	Projected				81	81	81	81	81	81						
Party	Surface															
	Bottom							180	180					720		
	Total Reported													720	1	2
	Projected							360	360							
Charter	Surface															
	Bottom		80	200	200	80	80			120	120	120	120	1680		
	Total Reported		80	200	200	80	80			120	120	120	120	1680	2	3
	Projected		120	300	300	120	120			180	180	180	180			

sporadic in frequency of trips. Inshore commercial fishing takes precedence over offshore activity.

Taylor. Taylor County has limited offshore fishing because of a low coastal population and lack of adequate facilities for a large number of offshore vessels. Steinhatchee has a large seasonal sport fishery and although the inshore fishes are most exploited there are a small number of party boats that make regular offshore trips. The offshore fishing grounds are beyond the reach of the small private boats and their offshore activity is restricted to the runs of Spanish and King Mackerel. Spotted Seatrout is the most exploited inshore fish by hook and line sport fishermen.

Offshore activity of party boats begins in May and continues through October. July and August are the months of greatest activity. The area fished by these party boats is described under the designation PA-F in Section VI on Map VI and Table 14. Black Grouper is the most desired fish but Sea Bass and Grunts are the staple of the catch. Boats move steadily offshore as the fishing season progresses in order to find fish. Party boats depend upon the influx of seasonal fishermen to provide the clientele for the boats.

Wakulla. Wakulla County has a small coastal population and lacks the facilities for extensive development of offshore sport and commercial activity. The shoreline of this County is within the confines of Apalachee Bay and is bordered by many small islands and grass flats. The emphasis in sport and commercial fishing is placed upon the inshore fishes because of their abundance and availability. Offshore fishing is largely restricted to April through September with the greatest activity occurring during April and May. King Mackerel and Black Grouper are the mainstay of the offshore sport fishing. These fishes are in greatest abundance during April, May, and June and are the primary objective of both the party and charter boats. Black Grouper is the main fish sought and is taken more often than King Mackerel. Grunts and Sea Bass, the fishes taken incidental to the Black Grouper, constitute the largest portion of the catch of the party and charter boats. Fishing effort is expended principally upon scattered areas of low rock reefs that occur on the offshore side of Apalachee Bay. Black Grouper are present on the areas close to shore in the early spring and move offshore with the advent of warm weather. The clientele of party and charter boats is composed of non-resident fishermen from inland areas. The objective of the sport fishing boats is to catch a quantity of edible fishes rather than to fish strictly for game fishes.

Offshore commercial activity is sporadic and results in a very small amount of fish sold locally. Wakulla has few private boats large enough to be registered with the State and these boats fish offshore only during the runs of Spanish and King Mackerel. The comparatively large number of registered commercial boats engage in commercial exploitation of the inshore fisheries.

Franklin. Offshore sport and commercial fishing in Franklin County is centered in Carabelle. The shoreline of this County is formed by several barrier islands enclosing Appalachicola Bay and St. George Sound. The offshore fishing effort is expended entirely on the bottom from party and commercial boats. Small charter boats do not operate from this port. Party boats frequent the rocky reefs offshore which generally occur in ridges and are covered with vegetative and invertebrate growth. Commercial vessels frequent the Florida Middle Grounds, area CO-A, Map VI, and other shallower areas. Reef areas are more prominent on the fishing grounds furthest offshore.

The activity of party boats is usually restricted to April through September with the greatest activity occurring during June, July, and August. The clientele is entirely non-resident fishermen. Red and Black Grouper are the mainstays of the party boats although numerous Grunts and Sea Bass are taken. The incidence of Red Snapper in the catch is higher in this County than in other West Coast counties.

Commercial boats fish throughout the year although trips during the winter months are restricted to periods of favorable weather. June and July are the months of greatest commercial activity. Commercial boats fish solely on the Florida Banks. Red Grouper is the most abundant fish in the catch. Red Snapper is

Table 39. Taylor County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface															
	Bottom							400	400					1600		
	Total Reported							400	400					1600	1	2
	Projected							800	800							
Charter.....	Surface															
	Bottom															
	Total Reported															
	Projected															

Table 40. Wakulla County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported															
	Projected															
Party.....	Surface				78	78	78							468		
	Bottom				143	143	143							858		
	Total Reported				221	221	221							1326	1	2
	Projected				442	442	442									
Charter.....	Surface				76	76	60	60	76	36				1920		
	Bottom				182	182	110	110	182	112				4390		
	Total Reported				258	258	170	170	258	148				6310	3	15
	Projected				1290	1290	850	850	1290	740						

slightly more abundant than the Black Grouper.

Bay. The shoreline of Bay County is composed of expansive white sand beaches and sand dunes that separate the shallow inland waters from the Gulf of Mexico. The continental shelf slopes steeply and creates a deep water environment near the shoreline. The only inlet stabilized by jetties and used by the offshore fishing vessels is the Panama City Inlet. The offshore bottom is composed of irregular sand formations with scattered infrequent areas of exposed rock. The rocky areas become more frequent as the distance offshore increases. The areas most fished by all categories of offshore vessels are the scattered outcroppings of natural rock and artificial bottom structures such as shipwrecks, airplane wrecks, and deliberately placed man-made reefs. Panama City has adequate facilities for a large fleet of offshore sport and commercial fishing vessels.

Bay County has the largest seasonal development of offshore fishing in the State. The seasonal offshore fishing activity begins in April and extends through September with the greatest activity occurring in the months of June, July, and August. There is very little offshore sport fishing activity during the cold weather months because of unfavorable weather and lack of clientele. Non-residents form the major portion of the seasonal offshore sport fishermen and account for the greatest amount of fishing effort. Bay County has the largest seasonal fleet of party boats which account for 25.9% of the total seasonal fishing effort expended from all the party boats in the State. This County has the third largest fleet of charter boats which account for 17.5% of the total seasonal fishing effort expended from all the charter boats in the State. The combined effort of the sport fishing vessels amounts to 22.7% of the State total of seasonal sport fishing effort in fishermen days.

Commercial vessels are of two general types with different methods of operation. Larger boats are mostly 65 feet in length and have a capacity of around 30,000 to 40,000 pounds of fish. These boats do not fish in the waters off the coast of Florida since they cannot obtain the necessary quantities of Red Snapper from these areas. The fishing grounds most frequented are the areas between 30 and 60 fathoms west of Alacran Reef on Campeche Bank. Camber (1955) terms this area "The Eastern" and reports that it has been fished since 1897. A large amount of the commercial landings of Red Snapper are taken from the Campeche Banks and the areas of high relief off the Texas, Louisiana, and Mississippi Coasts. The smaller boats average around 40 feet in length and have a capacity of less than 20,000 pounds of fish. These boats seldom leave the waters off the coast of Florida because of limited supplies of ice and fuel. The main fishing grounds are along the West Coast of Florida and thus a large portion of the catch is grouper. Manual deck reels are used almost exclusively in the fishery for Red Snapper and grouper. Red Snapper is most numerous in the catch followed by the Red Grouper. Bay County lands the largest amount of Red Snapper in the State (Rosen, 1962). The commercial vessels from Okaloosa County land their catch in Bay County and transport the fish by truck to Niceville to avoid the lengthy trip over the inland waterway.

The main objective of the party boats is Red Snapper. This fish is the most desired and the most abundant in the catch. Party boats fish all day trips, eight to ten hours, in order to reach the areas up to 35 fathoms. They make occasional four to eight day commercial trips during the winter months to the areas out of reach of sport fishing activities. Many of the sport fishermen on the party boats sell their catch to the fish houses when the boat docks and thus reduce the monetary expenditure of the trip.

Over half of the fishing effort expended by the charter boats is spent in fishing for Red Snapper on or near the bottom. Most of the remaining effort is expended on King Mackerel and Cobia when these fishes are locally abundant. Charter boats engage in a few commercial fishing trips for Red Snapper during the winter months when the weather is favorable.

Both of these types of vessels fish on the same bottom formations and the operators of these vessels zealously protect knowledge pertaining to the exact location of obscure rock formations and wrecks.

Private boats fish mostly for King Mackerel

Table 41. Franklin County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom				60	204	294	294	234	90	90			6365		
	Total Reported				60	204	294	294	234	90	90			6365	3	13
	Projected				260	883	1273	1273	1013	390	390					
Party.....	Surface															
	Bottom					300	800	800	800					8100		
	Total Reported					300	800	800	800					8100	2	6
	Projected					900	2400	2400	2400							
Charter.....	Surface															
	Bottom															
	Total Reported															
	Projected															

Table 42. Bay County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom	266	266	266	266	266	266	266	266	266	266	266	266	27132		
	Total Reported	266	266	266	266	266	266	266	266	266	266	266	266	27132	2	17
	Projected	2261	2261	2261	2261	2261	2261	2261	2261	2261	2261	2261	2261			
Party.....	Surface															
	Bottom				1200	1200	4650	4650	4650	1200				105300		
	Total Reported				1200	1200	4650	4650	4650	1200				105300	4	24
	Projected				7200	7200	27900	27900	27900	7200						
Charter.....	Surface					39	243	243	251	99				12950		
	Bottom					314	444	444	540	374				31317		
	Total Reported					353	687	687	791	473				44267	6	89
	Projected					5224	10168	10168	11706	7000						

because they seldom go far enough offshore to reach the Red Snapper grounds. There is an artificial reef placed at 30° 04′ 51″ N., 85° 45′ 30″ W. that provides good bottom fishing for the smaller boats. It was constructed from automobile bodies, appliances, and scrap steel from ships and was built in several drops. The last of these was in September, 1961, on a hard sand bottom with no previous history of fishing success, in 70 feet of water. Small Red Snapper appeared on the reef shortly after the drops occurred and larger Red Snapper and grouper have been taken since then. This reef is not fished by the party and charter boats and is not included in Section VI, Offshore Fishing Grounds.

Okaloosa. The shoreline of Okaloosa County is similar to the shoreline of Bay County. The offshore fishing activity is centered around scattered rock formations and the wrecks of ships and airplanes that are found on hard sand bottom. Surface fishing effort is spent around buoys and other irregularities present on the bottom near the shore. Sport fishing vessels of Destin are gathered in a small bay protected from the Gulf of Mexico by a narrow peninsula of land. There is very little offshore activity originating from Choctawhatchee Bay because of adverse navigational conditions and lack of adequate harbors and facilities.

Niceville is the center for all full time offshore commercial fishing in Okaloosa County. Commercial vessels from Niceville dock in Bay County, unless extensive repairs are needed, to avoid the lengthy trip along the inland waterway. The catch is shipped by truck to Niceville where it is processed. The operation of the commercial vessels is the same as the operation of the Bay County vessels and the interview with one boat from Okaloosa County is included with the forms from Bay County. Fishing effort shown on Table 43 was computed from the average effort of the 17 boats from Bay County to secure an accurate estimate for this County. Both party and charter boats make numerous offshore commercial fishing trips for Red Snapper during the winter months when the weather is favorable. Many of the fishermen on the party and commercial boats during the sport fishing season sell part of their catch to the fish houses to help pay for the expenses of the trip. Most of the local fish houses obtain their offshore fish solely from the sport fishing boats.

Party boats fish the offshore grounds from 10 to 35 fathoms with the specific area determined by the season of the year, movements of fish, and number of fishermen on board. When the boats are heavily loaded (some carry over 100 passengers) the shallower areas will be fished to avoid tangling of lines and the resulting confusion. Red Snapper is the primary objective of the party boats and is also most numerous in the catch. The months of greatest activity are June, July, and August. There is a gradual increase and decrease in the number of sport fishing trips before and after these months. Charter boats follow the same seasonal pattern of fishing activity.

Charter boats are generally large in size (35 to 40 feet in length), able to carry six to 15 passengers, and designed for either surface or bottom fishing. Often both bottom and surface fishing are incorporated in one trip. King Mackerel and the Red Snapper are the major offshore fishes, both in preference and in numbers. King Mackerel is the most numerous in in the catch and the most sought since it is found close to shore and because the most productive offshore Red Snapper grounds are out of reach of a half day trip. The spring run of Cobia creates a small peak in offshore activity. Few transient boats operate from Okaloosa County because of the large number of resident boats.

Private boats fish the inland waters more often than the offshore areas since the Red Snapper grounds are too far offshore for smaller private boats and the inland waters are productive areas for many species of fishes. King Mackerel, followed by the Red Snapper, is the most sought offshore fish. Offshore activity of the private boats is greatest during the summer when the King Mackerel are present and Red Snapper are close to shore.

Sailfish and Marlin are sought occasionally by sports fishermen as in Escambia County (see below).

Escambia. The shoreline of Escambia County is formed from barrier islands that border the coast. The entrance to Pensacola Bay is the only passage to the Gulf of Mexico.

Table 43. Okaloosa County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom															
	Total Reported													9576	*	6
	Projected	798	798	798	798	798	798	798	798	798	798	798	798			
Party.....	Surface															
	Bottom					3883	4283	4283	4283	2783	3595			60086		
	Total Reported					3883	4283	4283	4283	2783	3595			60086	5	13
	Projected					10096	11136	11136	11136	7236	9347					
Charter.....	Surface				56	56	56	56	56	56	56			11368		
	Bottom				19	19	19	19	19	19	19			3857		
	Total Reported				75	75	75	75	75	75	75			15225	1	29
	Projected				2175	2175	2175	2175	2175	2175	2175					

* Commercial boats from Okaloosa County dock in Bay County. The projected commercial effort of Okaloosa County boats was computed from the average effort of the Bay County boats. One Okaloosa County boat is included in the Bay County interviews but the effort for Bay County does not include the effort for Okaloosa County. All above commercial effort is expended on the bottom.

Table 44. Escambia County
Fishing Effort in Fisherman Days for the Months of Greatest Activity

Vessel		MONTHS Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Projected Seasonal Fishing Effort	Total Boats Reporting	Maximum Number of Vessels
Commercial...	Surface															
	Bottom	220	220	220	220	220	220	220	220	220	220	220	220	68640		
	Total Reported	220	220	220	220	220	220	220	220	220	220	220	220	68640	1	26
	Projected	5720	5720	5720	5720	5720	5720	5720	5720	5720	5720	5720	5720			
Party.....	Surface															
	Bottom					56	896	896	896	56	56			5712		
	Total Reported					56	896	896	896	56	56			5712	2	4
	Projected					112	1792	1792	1792	112	112					
Charter.....	Surface				40	130	130	130	130	40	40			1600		
	Bottom															
	Total Reported				40	130	130	130	130	40	40				2	5
	Projected				100	325	325	325	325	100	100			1600		

All offshore activity is centered in Pensacola where adequate harbor and facilities for offshore vessels are present. Extensive sport fishing is not developed, although the potential for a larger industry seems to exist. Offshore sport fishing is concentrated on scattered areas of natural rock formations and on occasional wrecks and artificial reefs. Many operators of sport fishing vessels supplement good natural areas in obscure locations with small amounts of metallic scrap to create a "private" artificial reef. These areas are used as a last resort to prevent the boat from returning to the dock without fish. A few of these small artificial reefs can be found along the entire Northwest Coast of Florida. One of these small reefs is located southwest of Pensacola Pass five to seven miles offshore in 54 feet of water. The reef is constructed of three automobile bodies, 100 tires, and 23 washing machines dropped between 1953 and 1956 on a hard sand bottom. The reef has drawn Red Snapper, grouper, King Mackerel, and Cobia to the vicinity.

The commercial boats fish strictly for Red Snapper. Larger vessels fish areas on the Campeche Banks and areas off the coast of Texas to Mississippi. Smaller vessels fish along the 40 to 50 fathom line off Florida and Alabama. Red Snapper is far more numerous in the catch than groupers. The Red Snapper catch includes a high incidence of Hambone Snapper and Yelloweye Snapper which are usually not separated from the Red Snapper. There are large numbers of part-time commercial operations that fish irregularly on the nearby offshore areas.

The primary objective of the party boats is the Red Snapper. Black Grouper and Scamp are also desired but are not as numerous in the catch. These boats fish the natural rock bottom areas between 16 and 40 fathoms within reach of an eight to ten hour trip. There is a gradual increase and decrease in the number of sport fishing trips before and after the months of greatest activity, June, July, and August.

Charter boats are mostly small, under 35 feet in length, and fish the inshore waters for the pelagic surface fishes. Most of the trips are one-half day trips which prevent the boats from reaching the offshore Red Snapper fishing areas. The months of greatest activity are May through August. These months coincide with runs of Cobia in late spring and King Mackerel in the summer. There are a few charter operations that are attempting to fish the area of the 100 fathom contour line, approximately 40 statute miles offshore, for Sailfish and the Marlin during the summer months. There have been Sailfish taken and Marlin sighted in this area. Success of the fishery depends upon the establishment of a clientele for this type of sport fishing.

Private boat population is composed of mostly small outboard motor boats that are kept on trailers and thus are highly mobile. These boats fish mostly on the surface for Spanish and King Mackerel. Bottom fishing is primarily for Red Snapper and occurs on areas close to the shore.

PRIVATE BOAT OPERATIONS

There were 136,000 private boats registered with the State as of June 30, 1962. It was not possible for a single investigator to personally contact a representative sample of the owners of private boats to determine the nature and extent of their offshore fishing activity. To secure this data, a post card questionnaire was sent to 14,000 (approximately 10%) of the registered private boat owners. Pleasure boats with less than ten horsepower engines are not required to possess a State boat registration and are not included in this survey. These boats are too small to engage in regular offshore fishing although they contribute heavily to the fishing pressure on inland waters. A total of 4,706 cards were returned which represents 33.6% of the cards mailed and 3.36% of the total registered pleasure boats. The cards were sent to the first ten per cent of the pleasure craft owners to register their boats in each county. The returned cards were sorted and only those cards that indicated "yes" on the first three questions were used in the descriptive accounts of the coastal counties. The first three questions determined that the boat owner used his boat in salt water, traveled further than one-half

mile from the coast line, and fished more than once a month. The boat owners answering these three questions affirmatively could generally contribute the most accurate and perceptive information based upon their experience. This remainder of 1,676 represented 12% of the total cards mailed and 1.2% of the total registered pleasure boats.

The coastal counties have the largest number of registered private boats, 110,000 or 78.6% of the State total. Of the 11,040 cards sent to the boat owners in coastal counties, 3,743 (33.9%) were returned and 1,553 (14.7%) of the cards mailed answered the first three questions affirmatively. Those boat owners answering the first three questions affirmatively represented 41.5% of the total cards returned from the coastal counties. The results of the questionnaires are presented in Tables 45 and 46. This data can be interpreted in many ways and should be useful to individuals and organizations interested in offshore fishing on local and State-wide levels.

Table 45. Columns 1 and 2 show the total cards mailed and returned to and from each county. Column 1 represents 10% of the total number of registered pleasure boats in each county. Those cards that were returned with insufficient information were disqualified from further use and listed in column 3. Column 4 lists the per cent return, including the disqualified cards, from each county and from the State total. Column 5 lists the boats that are used only in fresh water and eliminates them from further analysis. Columns 6 and 7 show the structure of the private boat population used in salt water from each county and in the State. The majority, 2,599 or 67.4% of the reporting private boats are powered by outboard motors and are kept on trailers. This indicates the private boats enjoy great mobility and can be highly selective in choice of fishing areas. Columns 8 and 9 eliminate from further analysis the boats that fish within one-half mile of the shoreline and boats that fish offshore less than once a month. Column 10 lists the remainder of the cards that fulfill the three basic criteria and are used in the rest of Table 45 and in Table 46. Column 11 shows the number of private boats equipped with a fathometer. Columns 12 and 13 indicate that artificial reefs are highly desired throughout the State and that the belief that they will improve the fishing on offshore areas is widely accepted. Column 14 lists those that have no opinion on the desirability of artificial reefs. Columns 15 through 18 show that natural reefs are highly favored fishing areas and that the fishing effort is almost evenly divided between surface and bottom techniques. Columns 19 and 20 indicate that a small number of private boats (6.5%) are responsible for most of the commercial fishing from pleasure craft.

Table 46. Table 46 shows the fishes that are most sought by the private boats throughout the State on a county level. The postcard questionnaire instructed the boat owner to list the four most fished for fishes in order of the time spent in fishing for each species or group. The boat owners had the choice of the following fishes listed on the questionnaire: Grunts, Groupers, Snappers, Tarpon, Sailfish, Dolphin, Spanish Mackerel, King Mackerel, Cobia, Bluefish, Bonito, Barracuda, and Others. These include the major offshore fishes and are listed on Table 46. The number of times a fish was designated first, second, and third in each county is listed on this Table. The last column shows the number of cards, 20.3% of the remainder, that did not answer the question correctly and were not included in the analysis. The reports of 1,336 registered private boat owners were used in determining the fishes most sought in each county. The fish most often chosen first was King Mackerel followed by Spanish Mackerel, snappers and groupers. The species of snapper and grouper referred to by the boat owner would be the species most common in his locality. This Table strongly indicates that King Mackerel and Spanish Mackerel are the most important fishes to the private boat owners throughout the State. The blank for others was most often filled in with Snook, Speckled Trout, or Redfish and these composed only a very small portion of the reported fishing choices since the cards used in Table 46 were selected for a high incidence of offshore activity.

Table 45. Results of the Post Card Questionnaire Sent to Private Boat Owners

COUNTY	1. Total Cards Sent	2. Total Cards Returned	3. Disqualified	4. % Returned	5. Boat Not Used In Salt Water	6. OUTBOARD: On Trailer 15' & under	6. OUTBOARD: In Water 15' & under	6. OUTBOARD: On Trailer 16' & over	6. OUTBOARD: In Water 16' & over	7. INBOARD: On Trailer 15' & under	7. INBOARD: On Trailer 16' & over	7. INBOARD: In Water	8. Fishes Within ½ Mile of Shoreline	9. Fishes Less Than Once/Month	10. Cards Used in Remainder of Analysis	11. With Fathometer	12. Artificial Reefs Desired	13. Artificial Reefs Not Desired	14. No Opinion	15. Fishes On Natural Reefs	16. Does Not Fish On Natural Reefs	17. Fishes Surface	18. Fishes Bottom	19. Sells Surplus Catch	20. Does Not Sell Surplus Catch
Alachua	145	62	1	42.7	16	24	2	14	2	1		1	6	24	15	1	13		2	15		10	5		15
Baker	10	3		30	2				1						1		1			1		1			1
*Bay	260	81		31.2	9	26		39				4	19	17	36		36			27	9	25	11	5	31
Bradford	32	10		31.3	6	3		1					2	2											
*Brevard	405	94	1	23.7	13	19	5	40	10			6	31	26	23	3	23			18	5	11	12	3	20
*Broward	1,150	335	8	29.1	24	33	17	112	40	1	2	98	58	57	188	33	161	16	11	172	16	102	48	6	182
Calhoun	20	4		20	4																				
*Charlotte	125	65	1	52	2	10	10	12	16	1		10	25	11	26	5	24	1	2	24	2	17	7	1	23
*Citrus	55	20		36.4	5	2		3	4				3	6	6	1	5	2		6		3	1		5
Clay	60	18		30	13			4	4			1	3	3	2	1	2			2		2			2
*Collier	115	45	1	39.1		3	2	9	15		1	14	7	8	29	12	27			26	3	12	17	6	23
Columbia	35	9		25.7	3	4		1			1		1	4	1		1			1			1		1
*Dade	2,000	577	19	28.9	11	143	6	266	7	1	27	87	86	148	313	27	283	24	16	306	7	115	142	7	306
DeSoto	25	8		32	4	2		2					3	1											
*Dixie	15	9		60	1	2		1				1		1	7	1	5	2		7		2	3		
*Duval	880	256	3	28.9	70	65	1	87	3		2	23	79	36	68	23	68			58	20	44	17	2	66
*Escambia	500	170	2	34	20	66	4	50	6		2	19	59	40	49	7	47	1	1	40	9	28	15	1	48
*Flagler	20	7		35	2			2				3		1	4	1	4			4		3	1		4
*Franklin	30	10	1	33.3	1	2	3		2			1	5	2	1		1			1			1		1
Gadsden	30	11		36.6	6	1		4					1	1	2		1		1			1	1		2
Gilchrist	5	3		60	2	1							1												
Glades	20	7		35	4			2			1			2	1		1			1		1			1
*Gulf	50	19	1	38	6	3		2				2	4		8	2	8			7	1	7	1		7
Hamilton	35	9		25.7	2	5		1				1	2	3	3	1	3			3	1	1	1		3
Hardee	45	23	1	51.1	14	3		5					2	3	2	2	2			2					
Hendry	30	10		33.3	3			6				1	2	3	2	1	2			2		1	1		2
*Hernando	30	12	1	40	2	5		4						3	6	1	6			6		2	4		6
Highlands	70	25		35.7	15	1		8			1		4	5	1	2	1			1			1		1
*Hillsborough	875	311	5	35.6	49	102	5	121	5	1	2	18	82	82	93	27	82	5	6	83	10	25	47	6	87
Holmes	5	1		20	1																				
*Indian River	95	26		27.4		10	2	9				5	9	9	8	4	7	1		8		3	3		8
Jackson	40	15	4	37.1	6	3		1				1	3	3	1		1			1			1		1
*Jefferson	10	6	60		1		4					1		3	3		2			3		3			3
Lafayette	5	2		40		1			1					1	1		1			1					1
Lake	250	103	8	41.2	82	6	1	8	2			1	5	7	6	2	6			6		3	3		6

* Indicates coastal counties.

** Indicates one additional boat kept in the water.

Table 45. Results of the Post Card Questionnaire Sent to Private Boat Owners—(Continued)

COUNTY	1. Total Cards Sent	2. Total Cards Returned	3. Disqualified	4. % Returned	5. Boat Not Used In Salt Water	6. OUTBOARD 15′ & under On Trailer	6. OUTBOARD 15′ & under In Water	6. OUTBOARD 16′ & over On Trailer	6. OUTBOARD 16′ & over In Water	7. INBOARD 15′ & under On Trailer	7. INBOARD 16′ & over On Trailer	7. INBOARD 16′ & over In Water	8. Fishes Within ½ Mile of Shoreline	9. Fishes Less Than Once/Month	10. Cards Used in Remainder of Analysis	11. With Fathometer	12. Artificial Reefs Desired	13. Artificial Reefs Not Desired	14. No Opinion	15. Fishes On Natural Reefs	16. Does Not Fish On Natural Reefs	17. Fishes Surface	18. Fishes Bottom	19. Sells Surplus Catch	20. Does Not Sell Surplus Catch
*Lee	325	151	5	46.5	5	25	13	43	19	1**		35	45	38	58	17	55	3		52	6	18	34	10	48
Leon	130	56	1	43.1	12	19		21				1	6	11	26	6	23	1	2	26		15	3		26
*Levy	35	9	1	25.7	2	1	1	2	2				1	3	2		2			2			1	1	1
Liberty	5	1		20	1																				
Madison	10	4	1	40	1	1		1							2	1	1	1		2			1		2
*Manatee	300	147	2	49	7	49	14	33	20	1	1	18	52	44	42	9	39	3		40	2	12	22	4	38
Marion	130	49		37.7	23	6		17	1			2	6	9	11	2	10	1		10	1	2	9	2	9
*Martin	130	55	1	42.3	6	9	8	6	13			11	21	5	22	3	15	5	2	22		14	6	2	20
*Monroe	250	81	3	32.4	3	9	6	19	25			16	4	11	60	6	41	11	8	56	4	18	30	2	58
*Nassau	55	17		30.9	2	8		5	1			1	5	5	5	2	4	1		5		3	1		5
*Okaloosa	250	85	8	34	21	18	4	16	4	**	3	9	23	17	16	6	15	1		12	4	8	7	3	13
Okeechobee	30	9		30	5			3	1				2	2											
Orange	800	196	2	24.4	107	46	4	39	3	1	1	3	41	24	22	7	20		3	23		10	6	1	22
Osceola	90	32	4	35.5	17	3		6			1		5	1	5	1	5			4	1	1	4		5
*Palm Beach	650	209	2	32	13	59	6	99	8		3	17	72	38	84	10	72	7	5	78	6	53	17	1	83
*Pasco	100	31		31	5	11	1	13	1				6	7	13	3	13			13		6	5	1	12
*Pinellas	1,125	487	11	43.2	19	120	21	180	46		6	78	107	117	233	43	215	8	10	207	26	81	101	28	203
Polk	600	196	6	32.6	112	19	3	49	2		1	4	33	28	17	10	13	2	2	16	1	6	9	1	16
Putnam	110	27	1	24.5	19	1		4				1		6	1	1	1				1				1
*St. Johns	65	23		35.5	3	6		11				3	11	4	5	2	5			4	1	4	1		5
*St. Lucie	115	44	1	38.3	1	9	2	22	1		2	5	14	8	20	1	18		2	18	2	13	5	3	17
*Santa Rosa	100	23	1	23	8	7	1	1	3	**		1	7	3	4	1	3	1		3	1	3	1	1	3
*Sarasota	470	185	2	39.4	7	36	16	40	36	1	5	41	64	30	82	26	75	7		73	8	41	22		82
Seminole	140	52		37.1	34	8		9	1				8	6	4	1	3		1	4		4		2	2
Sumter	25	4		16	4																				
Suwannee	15	4		26.7		1	3							1	3		3			2	1		2		3
*Taylor	40	18		45	1	11		4		1		1	1	5	11		7	1	3	5	6	8	3	1	10
Union	4	1		25	1																				
*Volusia	365	122	2	35.8	7	42	7	38	2		2	16	77	16	20	5	18		2	18	2	6	10	5	15
Wakulla	20	6		30		2	1	1			2		1	3	2		2			2		2			2
*Walton	30	10		33.3	3	4		3					5		2		2			2		1	1		2
Washington	10	6		60	2	4							2	2											
Totals	14,001	4,706	106	33.6	849	1,080	176	1,519	308	13	66	561	1,117	958	1,676	320	1,500	107	80	1,529	158	749	645	108	1,565

* Indicates coastal counties.

** Indicates one additional boat kept in the water.

Table 46. Most Sought Fishes by the Private Boats
Figures Indicate the Number of Times a Fish Was Chosen First, Second or Third Most Sought in Each County

FISH CAUGHT

County	Cards With Insufficient Information	Grunts			Grouper			Snapper			Tarpon			Sailfish			Dolphin			Spanish Mackerel			King Mackerel			Cobia			Bluefish			Bonito			Barracuda		
		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
Alachua	3										1									2	4	2		1				1		2	3						
Baker																					1																
*Bay	6					5	1	9	4	2									2	2	7	7	16	4	3		5	6		2	8		3				1
Bradford																																					
*Brevard	4				1	3	1	4	3	3			1					2			3	2	6	4	3		1	3	5	2	3			1			
*Broward	41	1		9	7	17	12	25	17	18	1	3	2	21	11	17	42	42	12	7	8	23	31	37	30			3	4	3	8			3	1	3	2
Calhoun																																					
*Charlotte	4		2		5	2	4	2	1	1			2							11	3	3		5	6		2			4	2					
*Citrus	1				4						1		2								2	1		1				1									
Clay	1																																				
*Collier	4				2	4	1	1	2	5		1	5		1					7	5	5	4	6	2		1			1	1						
Columbia																						1															
*Dade	52	15	13	14	35	98	37	102	45	26	2		4	9	9	3	34	22	28	15	27	67	25	31	46		1	1	2	5	8		1	2	4	7	13
DeSoto																																					
*Dixie	4					1				2										2	4																
*Duval	12				1	3		7	7	6		1	5	4	10	5		2	8	4	3	3	33	10	3		8	8		1	5		3	5	1	2	2
*Escambia	5				1	4	3	12	4	1						1		1		10	13	9	7	4	3	6	5	10	1	6	8		2	7			
*Flagler	2								1							1							2					1					1				
*Franklin					1															1																	
Gadsden	1																			1				1													
Gilchrist																																					
Glades								1		1																											
*Gulf					1		1			1			2					1		6	3		2	2	1		2	3									
Hamilton					1																	2									1						
Hardee																																					
Hendry					1															1																	
*Hernando				1	3																2			1				1									
Highlands																1								1													
*Hillsborough	23	3	9	4	25	13	14		5	2	2		2							5	33	15			3			1							1	3
Holmes																																					
*Indian River	3					1	1	1		1										1	3	1	3		1				2	1							
Jackson						1		1																	1												
*Jefferson										1										2	1		1					1		2							
Lafayette	1																																				
Lake					3	1	2		2	1										1	3							1		2	1						
*Lee	9				16	8	8	5	10	5	3	2	5							9	9	14	3	12	7	1	1	1			2						
Leon	7				1		3			2										15	2	1		11	1		1	3		2	6						
*Levy					1	1															1	1			1												
Liberty																																					
Madison							1	1													1			1							1						
*Manatee	9	1			10	5	7		5	2			1							11	8	6	4	8	9			1	1	4	1			1	1		1
Marion	2			1	5	1	1		1	1											2	3		1	1	1	2									
*Martin	3					1	2	1		2				1	3			1	3	5	8	1	4	2	6			1	6	4	4						
*Monroe	16	3	1	2	11	14	5	12	7	8	2	1		5	3	2	1	3	9	2	3	5	3	6	3									2	4	2
*Nassau	2																			2	1	2	3				1			1			1			
*Okaloosa	4				1	2	1	4	5							1			1	2		3	5	2	3			1		2	1		1				1
Okeechobee																																					
Orange	4		1		2	1	1		5	3		1		1		3	1	2	3	2	2	4	8	6	3				4	2	1					
Osceola	2					1	1	1	2													1	1						2								
*Palm Beach	18		3	2	2	4	2	10	2	7		1	2	11	4	5	5	14	9	13	12	11	21	17	12	1		2	2	10	10			3		1	1
*Pasco	4				4	1	1			1									1	3	5		1	2	3			3									
*Pinellas	54	1	13	5	46	17	34	1	5	5	5	3	10			4		1		47	71	43	29	51	38		1	10		3	11		1	4			
Polk	1				7	2	3		3	3	1			1				1		1	7	3	4	2	5			2									
Putnam																																					
*St. Johns				1				1		1		2			2				1			1	4					1		1							
*St. Lucie	5	1				6		3		3				1	1	1		2		2	1	4	6	3	2	1			1	2	1			2			2
*Santa Rosa	1					1		1	1	1	1										1							1	1							
*Sarasota	21				8	5	17	3	3	5		2	8						2	25	20	5	19	31	4			3		1	9	1		1			
Seminole	1									1									1		1		3				1			1						
Sumter																																					
Suwannee	1																			1		1			1		1	1								
*Taylor	2					2														1	2	3	1	2	2		1	1		2	3					
Union																																					
*Volusia	7				1	2	2	5	3	2			1							1	1	2	1	6	3			1	2	2	1			1			
*Wakulla																				2				2													
*Walton							1	1		1										1	2									2							
Washington																																					
Totals	340	25	42	39	206	226	167	214	143	123	19	17	52	54	44	44	83	93	80	222	285	255	252	273	207	10	34	74	33	70	101	1	12	32	9	18	28

*Coastal county

OFFSHORE FISHES

Briggs (1958) states that there are 1120 species of fishes recorded from Florida's fresh and salt waters. Only a small fraction of these fishes can be considered to have direct significant value to the offshore sport and commercial fisheries, but even this small portion contains a relatively large number of valuable fishes compared with many other fishing areas of the world. Fishes listed in this section are staples of the offshore sport and commercial fisheries of the State. They appeared most frequently in the reports of the sport and commercial fishermen from the localities in which they occur. Some of the inshore sport fishes are also mentioned because of their importance to the charter boats in a few localities. Most of these fishes are known by more than one common name although there is usually one name that is used more widely than the others. The common name that is used throughout most of the State for each fish is designated as the primary common name and is used throughout this publication in place of the scientific name to facilitate comprehension of the text and tables. The following list includes the primary common name, the scientific name, and the secondary common name of each fish. The primary common name occasionally refers to more than one fish when the fishermen do not differentiate between closely related species. The secondary common names, when present, are listed along with the localities in which they are used. Additional remarks on distribution (distribution as related to importance in the fishing industry, not incidence of occurrence), seasonality, migration as evidenced by the fishery, abundance, importance as a sport or commercial fish, and habitat are included for the major fishes where supplementary information is available. Fishes of major importance are indicated by an asterisk * after the primary common name.

The scientific names are those listed in the American Fisheries Society, Special Publication Number 2, 1960.

Primary Common Name	Scientific Name	Secondary Common Name & Remarks
Sharks	Carcharhinidae Sphyrnidae	The sharks most commonly encountered are members of these families. Sharks are usually considered a nuisance and avoided when possible.
Ladyfish	*Elops saurus*	Bonefish, West Coast; Skipjack, Northwest Coast; Tenpounder. Used as commercial grouper bait. Minor sport fish. Throughout Florida.
Tarpon*	*Megalops atlantica*	Silver King. Inshore/offshore sport fish of great importance on the Lower West Coast and Florida Keys. Throughout Florida in shallow shore waters.
Bonefish	*Albula vulpes*	Phantom. Inshore sport fish of the Florida Keys.
Snook	*Centropomus undecimalis*	Robalo, Linesider. Popular inshore sport fish in south and central Florida.
Sea Bass*	*Centropristes melanus* and *C. striatus*	Rock Bass, West Coast; Rockfish, West Coast; Rock Squirrel, Northwest Coast. Small shallow water fish of importance to party boats. Very abundant on rocky bottom. Minor commercial importance. Exploited on Upper East Coast and West Coast. Possibly undergo small seasonal inshore/offshore movement.

Rock Hind	*Epinephelus adscensionis*	Kitty Mitchell, West Coast and Northwest Coast. Throughout Florida in deeper water. Minor commercial fish. Taken on party boats in southern Florida.
Speckled Hind	*Epinephelus drummondhayi*	Taken on party boats in southern Florida.
Red Hind	*Epinephelus guttatus*	Taken on party boats in southern Florida.
Jewfish	*Epinephelus itajara*	Giant Sea Bass. Shallow water throughout Florida. Minor sport and commercial fish.
Red Grouper*	*Epinephelus morio*	Ocean Perch, Sea Bass. Sport and commercial fish of major importance throughout Florida. *E. morio* is the most numerous fish in the catches of the commercial vessels on the West Coast. Jarvis (1935) mentions that *E. morio* was probably the most numerous of the groupers and believed to be the most important at the time of his study. It prefers rock bottom and does not appear to undergo extensive migration. It is generally found in deeper water than *M. microlepis*. Often the term grouper is applied collectively to both fish. Rosen and Ellis (1961) do not mention the groupers although they are the most numerous fishes in the offshore commercial landings, the staples of the West Coast party fishery, and are the fourth most sought fishes by the private boats. *E. morio* appears to move inshore in summer and offshore in winter. The movement is slow and not extensive according to the collective reports of the fishermen. Very few fishermen reported observing sexual development in any of the groupers. Spawning behavior is unknown to the fishermen beyond infrequent conjectures based upon hearsay. It should be mentioned that gonadal development is rarely noticed by the fishermen unless the milt and roe are ripe. Most of the reports of roe in grouper occur in the spring of the year.
Warsaw Grouper	*Epinephelus nigritus*	Giant Sea Bass. Taken throughout Florida in deep water. Commercial and sport fish of minor importance.
Nassau Grouper	*Epinephelus striatus*	Nassau Rockfish, Florida Keys. Minor sport and commercial fish in the Florida Keys.
Black Grouper*	*Mycteroperca microlepis*	Gag, throughout Florida; Gray Grouper, Northeast and Northwest Florida. Second to *E. morio* in the catches of West Coast party and commercial boats. Appears in shallower water

		during the winter and spring. Taken most often on rock bottom but occasionally found on flat hard bottom. Has a greater seasonal movement than *E. morio* traveling inshore in the winter and spring and offshore in the summer and fall with some coastal movement in the northern sections of the State according to the compiled reports of the fishermen. According to the sport and commercial fishermen *M. microlepis* appears to be increasing in abundance in the coastal areas of the West Coast. This concurs with the report of Springer and Woodburn (1960). Considered a game fish by some charter boats and fished with a deep trolled lure. Highly desired because of larger size and freedom from parasites in the musculature. Juvenile *M. microlepis* are taken on shallow grass flats and are called Grass Grouper.
Southern Black Grouper	*Mycteroperca bonaci*	Black Grouper. Taken throughout Florida. Abundant in the Florida Keys. Sport and commercial fish of minor import. Often confused with *M. microlepis* because of the similitude of the common names.
Scamp*	*Mycteroperca phenax*	Taken from deep water throughout Florida. Sport fish in Northwest Florida. The Scamp is considered a delicacy by most fishermen and is increasing in importance as a commercial fish throughout the State because of its exceptional food quality. Represents only a small portion of the grouper catch.
Yellowfin Grouper	*Mycteroperca venenosa*	Throughout Florida, common only in the Florida Keys. Minor sport fish.
Striped Bass	*Roccus saxatilis*	Striper. Found in limited numbers in fresh and brackish waters of northern Florida. Sport fish of minor importance in the State.
Tripletail	*Lobotes surinamensis*	Buoyfish, Buoy Tender. Taken throughout Florida. Occasionally found in the catches of the commercial, party, and charter boats.
Mutton Snapper*	*Lutjanus analis*	Muttonfish, Florida Keys; Important sport fish throughout the Lower East Coast and the Florida Keys. Many *L. analis* are included in commercial catches of Red Snapper from the Southern areas of the State. Attains an average size of 8 to 10 pounds and is highly prized by the South Florida party boats.
Red Snapper*	*Lutjanus aya*	Sow Snapper (large individual), Rat Snapper (small individual), Northwest Coast; Mule Snapper (large individual), Chicken Snapper

		(small individual), Northeast Coast. Sport and commercial fish of great importance to northern Florida. Some fishermen claim that there are two types of Red Snapper easily distinguishable from each other and from other species, but the majority of fishermen could detect no difference. *L. aya* is the staple of the commercial and party fisheries of Northwest Florida. It is rarely taken inshore of 20 fathoms on the West Coast although large schools are found in 10 fathoms off the Northwest and Upper East Coast during the summer months. Many fishermen have reported large catches of *L. aya* off mud bottoms in 40 to 60 fathoms, but the primary habitats are the rocky reefs offshore of 20 fathoms. A small depression or short break of several feet are considered very productive areas. A movement inshore in the summer and offshore in the winter is accepted as a definite fact by the operators of commercial and party fishing vessels. Smaller fish are taken more often during the summer. Jarvis (1935) reports a definite decline in the abundance of the Red Snapper. The commercial fishermen are almost unanimous in stating that they must travel further and stay on the grounds longer to catch progressively fewer fish. Many fishermen believe that the increase in shrimping activity destroyed many juvenile Red Snapper and is responsible for the decline although a decrease in the availability of Red Snapper was noticed many years ago. Camber (1955) states that the snapper boats ceased fishing the Florida Banks about 1900 and moved to the Campeche Banks. The data presented by Camber (1955) shows that the availability of Red Snapper on the Campeche Banks declined steadily since World War II in spite of technicological advances. The cause of the decline in the availability of this fish has not been satisfactorily explained and should be the subject of further research.
Hambone Snapper*	*Lutjanus buccanella*	Ham Snapper, Blackfin Snapper, Northwest Coast. Commercial fish of importance. Taken from the southern areas of the Gulf of Mexico. Not as highly desired as *L. aya* because it is tougher and curls while cooking. The price is often lower than the price for *L. aya*.
Schoolmaster	*Lutjanus apodus*	School Snapper. Taken incidentally on party boats in southern Florida.

Mangrove Snapper	*Lutjanus griseus*	Black Snapper, Northwest Coast; Gray Snapper, Mango Snapper. Taken throughout Florida. Minor importance to commercial and party boats. Important inshore sport fish.
Lane Snapper	*Lutjanus synagris*	Spot Snapper, Silk Snapper. Taken primarily in southern Florida.
Yelloweye Snapper*	*Lutjanus vivanus*	Silk Snapper, Goldeneye, Northwest Coast. Commercially important fish taken from deep water (over 60 fathoms) from the southern sections of the Gulf of Mexico. Not as highly desired as *L. aya*. Some fish houses will pay only grouper price. High incidence of *L. vivanus* in the catch from the Campeche Banks.
Yellowtail Snapper*	*Ocyurus chrysurus*	Taken in abundance on the Lower East Coast and the Florida Keys. *O. chrysurus* brings the same price as *L. aya* and is the staple of a large commercial fishery in the Florida Keys (described in Section VII). This fish is most abundant during the summer months and travels in large schools.
Vermilion Snapper*	*Rhomboplites aurorubens*	Mingo Snapper, Beeliner, Bastard Snapper, Northwest Coast; Mutton Snapper, Bee Snapper, California Red, Northeast Coast. Very numerous in deeper waters of northern Florida. Occasionally sold as Red Snapper. Small and usually considered a nuisance by the party and commercial boats. The fish is important primarily because of its abundance.
Tilefish	*Lopholatilus chamaeleonticeps*	Taken on the Lower East Coast in deep water (400 to 600 feet) by charter boats. Not important commercially in Florida.
Bluefish	*Pomatomus saltatrix*	Blue. Taken primarily on the East Coast in the surf and near the coast by the charter boats. Important inshore sport and commercial fish.
Cobia*	*Rachycentron canadum*	Ling, Black Salmon, Northwest Coast. Cabio, Lemonfish, East Coast. Taken throughout Florida by charter boats. Found near wrecks and buoys. Fished for with live bait or crabs. Found in the vicinity of Manta Rays on the Lower East Coast. *R. canadum* appears in large numbers off the Northwest Coast during the spring.
Blue Runner	*Caranx crysos*	Hardtail, Runner; abundant throughout Florida. Minor sport fish, important bait fish.
Crevalle Jack	*Caranx hippos*	Jack, Jack Crevalle. Throughout Florida. Minor offshore sport fish.

Amberjack*	*Seriola dumerili*	Rock Salmon (small individuals), Northwest Coast; Runners (small individuals) Northeast Coast. Taken throughout Florida. Important sport fish to the charter boats. Very large individuals are taken 300 to 600 feet of water off the lower East Coast.
Permit	*Trachinotus falcatus*	Round Pompano. Taken throughout Florida. Popular sport fish in central and south Florida. Not abundant in the catches of the charter boats.
Dolphin*	*Coryphaena hippurus*	Taken throughout Florida during the summer months. Found year round off the Lower East Coast. Very important as a sport fish to the charter and party boats. Usually taken in the vicinity of floating *Sargassum* weed and other debris, when trolling methods are used. Highly desired by charter boats when locally available.
Grunt*	*Haemulon plumieri*	Key West Grunt, Ruby Red Lips, White Grunt. Taken in varying abundance throughout Florida. *H. plumieri* is the most common pomadasyid in the catches of the party boats. The differentation of other pomadasyids from *H. plumieri* by the fishermen is slight. This fish forms an important part of the catches of the party boats on the West Coast, and has a small commercial value. It is considered an important fish because of its abundance and availability. *H. plumieri* is generally more abundant in the summer months where a fluctuation in numbers is apparent.
Spotted Seatrout	*Cynoscion nebulosus*	Trout, Speckled Trout, taken throughout Florida. Inshore sport and commercial fish of great importance. Taken by charter boats in many areas of the State.
Black Drum	*Pogonias cromis*	Drumfish, Drum, Sea Drum. Taken throughout Florida. Occasionally found in the catches of party and charter boats.
Redfish	*Sciaenops ocellata*	Red Drum, Spottail, Channel Bass, Bass. Taken throughout Florida. Inshore sport and commercial fish of importance. Taken by charter boats in many areas of the State.
Sheepshead	*Archosargus probatocephalus*	Convictfish. Taken throughout Florida. Inshore sport and commercial fish of minor importance. Appears occasionally in the catches of party and charter boats.

Porgy	*Calamus arctifrons* and *C. calamus* and *C. proridens*	Bank Porgy, Key West Porgy, Grass Porgy, White Snapper. Offshore commercial fish of minor importance. Taken on the offshore commercial snapper and grouper grounds. The common names applied to these fish by the fishermen are not consistent to species. They are of small commercial value and usually considered as a nuisance by the fishermen. Often used as fresh bait.
Spadefish	*Chaetodipterus faber*	Angelfish. Taken throughout Florida. Sport and commercial fish of minor importance. Abundant in the vicinity of wrecks and piers.
Angelfish	Chaetodontidae	Many species. Taken on party boats in the Florida Keys. Minor sport fish.
Hog Snapper	*Lachnolaimus maximus*	Hogfish. Taken primarily in the Florida Keys. Sport and commercial fish of minor importance. Not in great abundance. Highly desired because of exceptional food quality.
Wahoo	*Acanthocybium solanderi*	Taken along the lower East Coast and the Florida Keys. An uncommon catch by the charter boats. Famed as a game fish.
Bonito*	*Euthynnus alletteratus*	False Albacore, Little Tuna. Throughout Florida. Most numerous in the northern areas during the summer months. Although not highly desired this fish represents a large portion of the catch of the charter boats throughout the State. The food value of the fish is not considered good. Many charter boats will avoid this fish to search for the more highly favored species. *E. alletteratus* is a very rapid moving, schooling, surface fish and is usually taken on a trolled bait. It is widely used as cut bait for both sport and commercial fishing.
Atlantic Bonito	*Sarda sarda*	Bonito. Taken occasionally by charter boats on the East Coast.
King Mackerel*	*Scomberomorus cavalla*	Kingfish, West Coast. Taken in great numbers throughout the State. *S. cavalla* is the staple of the charter boat industry throughout most of the State and is the most sought offshore fish of the private boats. This fish travels in large schools and appears with seasonal regularity along the Florida coast in localized peaks of abundance known as "runs". The fishermen accept as fact the theory that *S. cavalla* moves along the coastline in a seasonal pattern regulated by temperature change in the water. It is most often fished on the surface with a trolled lure or small fish although large catches have

		been made on the bottom using live shrimp as bait. *S. cavalla* is fished primarily within the 10 fathom contour and is often found as shallow as 15 feet of water. The waters over rocky bottom seem to be most productive although fishermen watch for the signs of surface activity that indicate a school of *S. cavalla* over any type of bottom.
Spanish Mackerel*	*Scomberomorus maculatus*	Mackerel. Taken throughout Florida. Inshore sport and commercial fish of great importance. *S. maculatus* is usually present in greatest numbers in conjunction with *S. cavalla* although it is commonly found inshore of *S. cavalla.* Many of the charter boats depend on *S. maculatus* to form the major portion of the sport catch. *S. maculatus* is very similar to *S. cavalla* in habits and movements although the localized peaks of abundance are not as sharply defined as in *S. cavalla.* The major difference between the two as far as the fishermen are concerned is that *S. cavalla* is usually much larger and thus more highly desired. *S. maculatus* is taken by a trolled bait. The private boats exploit this fish much more than the charter boats which go further offshore in search of *S. cavalla. S. maculatus* is the second most fished for fish by the private boats, *S. cavalla* being more highly desired.
Cero Mackerel	*Scomberomorus regalis*	Cero. Abundant in the Florida Keys. Not numerous in northern Florida. Apparently more numerous than *S. maculatus* in the Florida Keys area.
Blackfin Tuna	*Thunnus atlanticus*	Tuna, Albacore. Taken primarily in southern and central Florida by the charter boats. Minor sport fish. Not usually abundant.
Sailfish*	*Istiophorus albicans*	Atlantic Sailfish, Sail, Lower East Coast. Taken occasionally on the Northwest Coast, Upper East Coast, and central West Coast. The area of greatest abundance is the Lower East Coast and the Florida Keys. *I. albicans* is highly desired by the sport fishery because of its reputation as an exceptional game fish. It is not numerous in the catch of the charter boats in relation to other common species. It is the subject of extensive conservation measures and research. The fish is most numerous offshore of Hobe Sound on the Lower East Coast during the months of December and January when they school. Specimens of *I. albicans* under

		three feet are very rare and highly desired. According to DeSylva (1957) the growth rate is rapid, the fish reaching five feet in six months, and the age seldom exceeds three years.
White Marlin	*Makaira albida*	Taken from the Gulf Stream off the Lower East Coast and the Florida Keys. Rare catch brought in occasionally by the charter boats.
Blue Marlin	*Makaira nigricans*	Taken from the Gulf Stream off the Lower East Coast. Very rare catch occasionally brought in by the charter boats.
Swordfish	*Xiphias gladius*	Broadbill. Taken in deep water off the Florida Keys. A small commercial fishery exists in Key West. Very rare sport catch.
Barracuda*	*Sphyraena barracuda*	Taken throughout Florida. Numerous in the southern areas of the State. Important sport fish to the charter boats. Usually found in greatest numbers on wrecks and prominent reef areas.
Flounder	*Paralichthys* spp.	Doormat. Taken throughout Florida. Important inshore sport and commercial fish. Taken by party and charter boats in some northern areas. Usually found in shallow waters.
Shark Remora	*Echeneis naucrates*	Sharksucker, Sucker, Pilotfish. Taken throughout Florida by party and charter boats. Considered a trash fish and an oddity.
Common Triggerfish	*Balistes capriscus*	Gray Triggerfish, Leatherjacket, West Coast; Suitcase, Satchel, Northwest Coast. Abundant throughout Florida. The fish has minor importance as a sport and commercial fish but is most often considered a nuisance.

Table 47. Fishermen throughout the State were asked to determine the season of peak abundance of the major offshore fishes in their locality. The peak abundance of most of these fish coincided with the months of greatest activity of the boats. The seasons listed on Table 47 indicate the period in which the individual fish is most abundant in the catch of the vessel and this is assumed to be a reliable index of the season in which the fish are present in greatest numbers. An asterisk indicates that the fish is present throughout the year and a peak period of abundance is not noticeable to the fishermen. A blank space indicates that the fish is not taken often enough by the fisheries of the county for the fishermen to have noticed a seasonal peak of abundance. It does not necessarily indicate the absence of the fish in that county since a fishery exploiting the fish may not exist. This Table shows two major patterns in the seasonal occurrence of various fishes. The Barracuda, Dolphin, and Grunts are present in the southern areas throughout the year and appear in greatest numbers in the northern areas during the summer months. The Black Grouper, Bluefish, Bonito, Cobia, King Mackerel, Red Grouper, Spanish Mackerel, and Red Snapper are in greatest abundance in the southern areas during the winter months and in greatest abundance in the northern areas during the summer months. These patterns are not indicative of a coastal migration since an inshore/offshore migration or a combination of both may also exist.

Table 47. Season of Peak Abundance as Evidenced by the Fishery

COUNTY	Amberjack	Barracuda	Black Grouper	Bluefish	Bonito	Cobia	Dolphin	Grunt	King Mackerel	Porgy	Red Grouper	Sailfish	Sea Bass	Spanish Mackerel	Tarpon	Vermilion Snapper	Warsaw Grouper	Yellowtail Snapper	Red Snapper
Nassau	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	*	Late Sp. Ear. Fall	Fall	Summer	.....	.....	Summer
Duval	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	Summer	*	Late Sp. Ear. Fall	Fall	Summer	.....	.....	Summer
St. Johns	Summer	Summer	Winter**	Spring	Summer	Summer	Summer	Summer	Summer	*	Winter**	Summer	*	Spring	.....	Summer	.....	.....	Summer
Volusia	*	Summer	*	Spring	Summer	Summer	Summer	Summer	Spring	*	Summer	Summer	*	Spring Fall	Fall	*	.....	.....	Spring Summer
Brevard	*	Summer	*	.....	Spring	Summer	Summer	*	Spring	*	*	.....	*	.....	.....	Summer	Winter	Summer	Summer
St. Lucie	*	Summer	*	Spring Fall	Spring	Summer	Summer	*	Spring Fall	.....	*	Winter	*	Spring Fall	.....	*	.....	Summer	Winter Spring
Martin	Spring	Spring	.....	Winter	Spring	Spring	Summer	.....	Spring	.....	Winter	Winter	.....	Winter	Summer	.....	.....	.....	Winter
Palm Beach	Summer *	Summer *	*	Fall Winter	Summer Summer	Summer *	*	*	Fall Winter	.....	*	Winter	.....	Fall Winter	Fall	.....	.....	*	
Broward	*	Summer	*	Fall Winter	Spring Fall	Winter	*	*	Winter	.....	*	Fall	.....	Spring Fall	.....	Winter	Winter	Summer	
Dade	*	Summer	*	Winter	*	Winter	Summer	*	Winter	.....	*	Fall	.....	Winter	.....	.....	Winter	*	
Monroe	*	*	*	Winter	Winter	Winter Spring	Spring Summer	*	Winter	*	*	Spring Fall	.....	.....	Spring	.....	.....	Summer	
Collier	Summer	*	*	Fall Winter	Fall	*	Summer	.....	Winter	Summer	*	.....	.....	Winter	Summer	.....	.....	.....	Winter
Lee	.....	.....	Winter	Fall Winter	Spring Fall	Spring	Summer	*	Spring Fall	.....	Winter	.....	.....	Winter	Spring Summer	.....	.....	Summer	Fall
Charlotte	.....	Spring Fall	.....	Spring Fall	Spring Fall	.....	Summer	.....	Spring Fall	.....	.....	.....	.....	Spring Fall	Spring	.....	.....	.....	*
Sarasota	.....	Summer	Spring Fall	Spring Fall	*	Summer	Summer	*	Spring Fall	*	*	Summer	Summer	Spring Fall	Summer	.....	.....	.....	Winter
Manatee	.....	Summer	Spring Fall	Spring	Summer	Summer	Summer	*	Spring Fall	*	Summer	.....	.....	Spring Fall	Summer	.....	.....	.....	Spring
Hillsborough	.....	.....	Winter	.....	.....	.....	.....	.....	.....	.....	*	.....	.....	.....	.....	.....	.....	.....	Winter
Pinellas	Summer	Summer	Spring Winter	Spring Fall	Summer	Spring Summer	Summer	*	Spring Fall	*	*	Summer	Winter	Spring Fall	Summer	.....	.....	.....	Spring Fall
Citrus	.....	Summer	Spring	Spring	.....	Summer	.....	*	Spring	.....	Spring	.....	*	Spring	.....	.....	.....	.....	
Levy	.....	Summer	Spring	Spring	.....	Summer	.....	Summer	Spring	.....	Spring Summer	.....	*	Spring	.....	.....	.....	.....	
Taylor	.....	.....	Summer	Spring Fall	.....	Summer	.....	Summer	Spring	.....	Summer	.....	Spring	Spring	.....	.....	.....	.....	
Wakulla	.....	Summer	Spring	Spring	.....	Spring Summer	Summer	Spring Summer	Spring	.....	Summer	.....	*	Spring Summer	.....	.....	.....	.....	Summer
Franklin	.....	.....	Spring	.....	.....	Summer	Summer	Summer	Spring	*	Summer	.....	*	Spring	.....	.....	.....	.....	Summer
Bay	Spring Summer	Summer	Summer	Spring Fall	*	Spring	Summer	*	Spring Summer	Summer	Summer	Summer	.....	Spring Fall	Summer	Summer	Summer	.....	Summer
Okaloosa	*	Summer	Fall	.....	Summer	Spring Summer	Summer	*	Summer	*	*	Summer	.....	Summer	.....	Summer	*	.....	Summer
Escambia	*	Summer	Summer Fall	Summer	*	Spring	Summer	*	Summer	*	Summer	Summer	.....	Summer	.....	Summer	Summer	.....	Summer

* Indicates no period of peak abundance; the fish is present throughout the year.

** On offshore commercial grounds.

APPENDIX I

Seasonal Changes in Critical Depth of Fishing Success

The offshore sport and commercial fishing vessels that depend on the reef fishes must move about frequently to insure optimum fishing success. The movements of these vessels form seasonal patterns that may coincide with the seasonal movements of the fish. Table 49 shows the pattern of cold and warm weather movement of the party and commercial fisheries in the three major regions of the State as indicated on Map VIII. There is a definite movement inshore during the warm weather and offshore during the cold weather by each category of boat, within their respective depth ranges, with the exception of the party fishery of the West Coast which is exactly the opposite. The assumption that the boats are following the actual movement of the fish and not the incident of active feeding is accepted because the electronic equipment used by the modern fishing vessels can detect the presence of fish in the absence of feeding activity. Table 49 indicates that there is a definite inshore/offshore pattern in the seasonal movements of Florida's important reef fishes. The theory that temperature change may be the main reason for the movement of these fishes appears to be reasonable. The complete reverse of the pattern in the shallow water region of the West Coast may be the result of the shallower waters heating beyond the optimum temperature for these fish and inducing an offshore movement. The party boats from this region take the same species in the winter and summer. The Red Grouper is slightly more abundant in the summer and the Black Grouper is slightly more abundant in the winter.

Table 48. Estimate of Range of Critical Depths of Reef Fish

	Upper East Coast		West Coast		Northwest Coast	
	Winter	Summer	Winter	Summer	Winter	Summer
Commercial	17 to 40 fathoms	10 to 18 fathoms	30 to 60 fathoms	15 to 30 fathoms	25 to 50 fathoms	17 to 30 fathoms
Party	13 to 20 fathoms	9 to 15 fathoms	6 to 13 fathoms	8 to 25 fathoms	15 to 30 fathoms	8 to 20 fathoms
Predominant Fish in Catch	Red Snapper		Red & Black Grouper		Red Snapper	
Counties with Year Round Activity Reporting Depth Ranges	Duval St. Johns Volusia Brevard St. Lucie		Pinellas Hillsborough Manatee Sarasota Lee Collier		Franklin Bay Okaloosa Santa Rosa Escambia	

APPENDIX II

Effect of the "Red Tide" on the Offshore Fisheries of the Lower West Coast

Within the past century devastating fish kills have occasionally occurred in the Gulf of Mexico off the Lower West Coast of Florida. The cause of these fish kills is attributed to the presence of reproductive blooms of a dinoflagellate, *Gymnodinium breve,* commonly termed Red Tide. These reproductive blooms occur when nutrient and weather conditions are favorable. Tremendous numbers of these dinoflagellates (60 million to a quart of sea water) color the water brownish red and create substances toxic to fish. Offshore fishing vessels report that Red

Tide occurs almost annually in small local outbreaks and often causes insignificant fish kills. Red Tide occasionally spreads over vast areas and causes extensive fish kills. Ingle and DeSylva (1955) give examples of the magnitude of the 1947 Red Tide fish kills by stating that one home owner buried 60,000 dead fish in a stretch of beach two hundred feet long. A strip of beach 10 yards wide and five miles long on Ft. Myers Beach had a maximum of 170 dead fish per foot in January. The fishes most often noticed were the smaller bottom fishes found close to shore, noticeably Grunts, Pinfish, etc. Groupers were also present although not as numerous as other smaller species.

Extensive Red Tides have definite adverse effects on offshore fishing in the locality in which they occur. The people most economically affected are the operators of offshore sport fishing vessels. They suffer detrimental publicity, trips further offshore to find unaffected areas, temporary destruction of fishing grounds, and irritant gases associated with Red Tide during severe outbreaks. The commercial fisherman is not directly affected since his fishing grounds lie outside the range of Red Tide.

Twenty-three fathoms is the offshore limit of the occurrence of Red Tide reported by the fishermen. Most commercial fishermen report that the Red Tide has no effect on their fishing since their fishing grounds are offshore of 23 fathoms. A small number of the commercial fishermen expressed the belief that their future fishing success is adversely affected because of the destruction of the juvenile groupers on the inshore areas during severe outbreaks of Red Tide. Ingle and DeSylva (1955) report that the Red Tide fish kills included large grouper and the operators of fishing vessels report that both large and small grouper are frequently seen in extensive fish kills although Grunts and other small bottom fish are most numerous.

The sport fishermen report that the Red Tide annihilates all small fish and reef growth in the areas of heaviest concentrations and many years are required before the affected areas are able to support a large fish population. The areas that have the characteristics of productive bottom on the electronic equipment of the vessel and are notoriously unproductive are termed areas of dead bottom. These dead bottom areas are attributed to the ravages of the Red Tide by the local fishermen. Areas of dead bottom are also found in other areas of the State where Red Tide does not occur and no logical explanations of their presence exists.

Most of the offshore sport and commercial fishermen are able to operate during all but the most severe outbreaks of Red Tide with only minor inconveniences. The major cause of concern for the offshore fishermen is the depletion of the stocks of juvenile and breeding fishes that is thought to occur during extensive outbreaks of the Red Tide. Many fishermen have the opinion that this destruction limits fishing success in the succeeding years on both the commercial and sport fishing grounds.

The bulk of evidence supports the view that reefs close to shore are decimated by severe Red Tide water that may pass over them. Sports fishermen feel very strongly that several years are required for recovery. These opinions are not incompatible with the long established view (and detailed study of landings figures) indicating that *production* is not affected by Red Tide. Sports fishermen and guides, as well as commercial harvesters, are able to move their operations to other, unaffected, spots following a Red Tide denudement of close-to-shore reefs.

The presence of many variables such as natural fluctuations in the stocks of fish, changes in the gear used by the fisheries, introduction of electronic navigational and depth sounding equipment, and increase in the number of fishing vessels complicates the problem of assessing the effects of the Red Tide on the offshore fish population. Very little is known concerning the life history of the groupers and snappers and many biological facts must be established before conservation measures may be taken with assurance that they will be effective.

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