A SURVEY OF THE SPORTS FISHERY OF THE MIDDLE ATLANTIC BIGHT IN 1948

SPECIAL SCIENTIFIC REPORT: FISHERIES No. 7

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

A SURVEY OF THE SPORTS FISHERY OF THE MIDDLE ATLANTIC BIGHT IN 1948

SPECIAL SCIENTIFIC REPORT: FISHERIES No. 7

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Explanatory Note

The series embodies results of investigations, usually of restricted scope, intended to aid or direct management or utilization practices and as guides for administrative or legislative action. It is issued in limited quantities for the official use of Federal, State or cooperating agencies and in processed form for economy and to avoid delay in publication.

Washington, D. C.
January 1950

United States Department of the Interior
Oscar L. Chapman, Secretary
Fish and Wildlife Service
Albert M. Day, Director

Special Scientific Report - Fisheries
No. 7

A SURVEY OF THE SPORTS FISHERY OF THE MIDDLE ATLANTIC BIGHT IN 1948

By

Raymond J. Buller and Harlan S. Spear
Fishery Research Biologists

CONTENTS

ILLUSTRATIONS

INTRODUCTION

One of the principal outdoor recreations offered by the New York City area is "deep sea fishing." This excellent sport draws many of the residents of the city time and again all season, while visitors from the inland areas are justly eager to try fishing in the ocean.

The popularity of this marine sport fishing has come about suddenly. Twenty years ago there were practically no facilities for ocean sport fishing, but since that time a fleet of nearly 1,000 charter and party fishing boats has sprung up. Accordingly, fishermen of small income can avail themselves of this sport.

Problems have appeared in this new fishery. One of the problems concerns the competition exercized between the sports fishermen and the long-established commercial industries for the same fishing grounds. Another very important problem of an industrial nature that conflicts with the growth of this marine sport fishery off the New York and New Jersey coast is the practice of disposing factory-waste at sea. The sport fishery and the practice of disposing waste at sea have expanded to the point where facts and figures are required to evaluate the degree of conflict.

This report, which is based on a survey of the sports fisheries in the vicinity of New York City during 1948, has been prepared to: (1) describe the value of the sports fisheries as a basis for comparing it with the industries with which it conflicts; (2) present data on fishing localities and seasons which can be used to decide means of reducing the area of conflict between the fisheries and the pollutants; and (3) bring together factual data on the abundance of fish in the catch which will supplant the conflicting claims of fishermen.

Many captains, boat owners, and other people have made the present work possible through their cooperation and interest. The authors of this report are particularly indebted to Mr. Harry C. Stille, President, New Jersey Federation of Sportsmen's Clubs; Captain Sam Goode, President, Manasquan River Charter Boatmen's Association; Captain Ed. Keefe, President, Brielle Party Boatmen's Association; Captain Robert Pierpont, President, Wildwood and Cape May Party Boatmen's Association; and Captain Carl Forsberg and Mr. Frank Dorman of the Viking Fleet, Freeport, Long Island.

Early in the 1948 sports fishing season, because no catch records had heretofore been collected, pilot-house logs were distributed to all party and charter boat operators who expressed a desire and willingness to keep a daily account of their fishing locality, number of fishermen, time fished, and catch by species in numbers of fish. Approximately 150 of these logs were distributed.

To serve as a check on the pilot-house log records and to increase the amount of statistical data on the catch an on-the-spot interview system was employed. Sports fishing centers in New York and New Jersey were visited regularly from July 8 to September 28, 1948. During this thirteen-week period, a total of 168 haphazard interviews were collected on the catches made by charter and party vessels. No records on the activities of private yachts were obtained.

A. THE CHARTER BOAT FISHERY

a. DESCRIPTION

1. The boats

With the exception of private yachts, nearly all the boats engaged in the charter boat fishery are chartered for the day by parties of fishermen. The cost of the charter generally ranges from $50 upwards, including tackle, for parties up to six persons. Bait and chum are extra. The boats are cabin cruisers, usually of the 25-to-45-foot class, and are equipped with "fighting" chairs and all other necessary fishing gear. Nearly all boats have, in addition, radio telephones which are constantly used in locating fish, communicating with shore, and calling for assistance when in distress.

The total investment in these boats and equipment is considerable. The average fully equipped vessel in the New York and New Jersey charter boat fleet represents an investment of at least $15,000. This figure is based on $12,000 for the vessel, $2,000 for fishing gear, $500 for a radio telephone, and $500 for incidentals. Inasmuch as there are about 600 charter boats employed in the sports fishery of New York and New Jersey, the total investment in charter boats and equipment amounts to a minimum of $9,000,000.

2. Numbers and locations of charter boats

The sports fishing fleet of New York and New Jersey in 1948 were composed of approximately 1,000 vessels, of which 600 or more were of the charter boat type. New York charter boats that regularly fish the Middle Atlantic Bight, that part of the Atlantic Ocean within the 100 fathom curve extending from Cape Hatteras to Cape Cod, are centered in Freeport, Long Island. Approximately 100 vessels operated out of Freeport during the height of the charter boat season. Sheepshead Bay, an important sports fishing center, had relatively few charter boats.

The charter boat industry of New Jersey is widespread. Practically every harbor from Perth Amboy to Cape May has at least one operator who caters to sports fishermen. The centers, in approximate order of importance and numbers of boats were: Brielle, 300; Atlantic City, 85; Forked River, 75; and Belmar and Waretown, each 15. The number of charter boats operating out of any one of these ports does not remain a fixed figure. Many of the charter boat operators are not year-round residents of New Jersey, going to Florida for the winter sports fishing season, and returning to New Jersey for the summer season. Also, some of these operators move about following schools of fish so that the week-to-week number of vessels operating from a particular sports fishing port fluctuates.

3. Charter boat fishing methods 1/

Two methods of angling are used mostly by charter boat fishermen; trolling and chumming. Trolling is done with feathered "squids," plugs, spoons, or lead and tin "squids." Feathered lures and plugs are usually trolled less than 100 feet behind the boat in such a way that the lure is at or only a few inches below the surface, and directly in the boat's wash. Trolling speeds vary, but are usually between 5 and 12 miles-per-hour. When schools of fish are seen on the surface, they are headed off or "trolled through" by the boat. At times, fish are caught "blind," i.e., without first being seen on the surface.

Spoons and metal "squids" are frequently "jigged." After running up on a school of fish the boat is anchored and the lures are paid out and allowed to sink; they are then trolled or retrieved with a slow jerking motion. There are, of course, many special and individual techniques which are used with these procedures.

The second method used by charter boat patrons to catch fish is by chumming. The boat is anchored in a known fishing area, and spoonfuls of ground-up menhaden, Brevoortia tyrannus (Latrobe) are thrown into the water every few seconds. As this chum is carried away by the tide or currents, it sinks gradually, and is very efficient in attracting fish to the boat. Usually hooks are baited with whole mackerel--most frequently the thimble-eyed variety, Pneumatophorus colias (Gmelin)--pieces of mackerel, or a "gob" of the ground-up chum, and are then allowed to drift away from the boat at the same rate as the chum. The lines are usually paid out by hand, because a natural drift action is frequently essential. Often this is done by the captain or mate, but many anglers prefer to place the rod in a socket and pay out their own line. The strike is sudden and severe, and after setting the hook, the fish is played directly from the rod. Fish frequently come to within a few feet of the boat while feeding on the chum, and often can be observed taking the baited hook.

1/ After Westman and Neville, 1942.

4. Species taken by charter boat fishermen

Because of the angling methods used by charter boat fishermen, the fish taken by this type of fishing are predominantly pelagic (surface) species. The following species are those usually caught --in season--by charter boat patrons: albacore, Thunnus germo (Lacépède); false albacore, Euthynnus alletteratus (Rafinesque); bluefish, Pomatomus saltatrix (Linnaeus); bonito, Sarda sarda (Bloch); mackerel, Scomber scombrus (Linnaeus); skipjack, Katsuwonus pelamis (Linnaeus); striped bass, Roccus saxatilis (Walbaum); and tuna Thunnus thynnus (Linnaeus). Of these, tuna is the species most commonly sought, which because of its "fight" and size, may give the angler the prestige of winning a prize in one of the many tuna tournaments and fishing contests that are sponsored each year.

5. The fishing grounds

New York and New Jersey charter boats, in following schools of surface feeding fish, cover a considerable area in the Middle Atlantic Bight known as the "Mud Hole." This name has been applied to a vaguely defined region in the upper end of the Old Hudson River Gorge. Its center is approximately 6 miles east-southeast of Scotland Lightship. The "Mud Hole" is famous as a tuna fishing area. Tuna are also taken (in the Middle Atlantic Bight) off Fire Island Inlet, east of Ambrose Lightship, in the vicinity of Barnegat Lightship, off Atlantic City, and occasionally as far south as Cape May, and east as far as Montauk Point in varying quantities depending upon the season and the abundance of the species. During the 1948 sports fishing season, large numbers of school tuna (8 to 65 pounds) were taken approximately 50 miles east of Brielle.

The charter boat fishery for albacore, bluefish, bonito, mackerel, skipjack, and striped bass also is not confined to definite areas within the Middle Atlantic Bight. None of these species except mackerel occasionally, are year-round inhabitants of the area but are caught by New York and New Jersey charter boats during their seasonal migrations, so that fishing grounds where these species are caught depends on the time and variation of the migratory pattern.

Some species, especially the striped bass, frequent shoal areas, rocky ledges, and the surf along sandy beaches. Because of this, there is a localized fishery for this species.

During the course of this study, an effort was made to locate the areas in the Middle Atlantic Bight where the pelagic species in the charter boat catch are taken. On the basis of more than 200 interviews and records of charter boat trips the fishing areas used in 1948 have been plotted (Figure 1).

b. THE 1948 CHARTER BOAT SEASON

The 1948 New York and New Jersey charter boat season began about the first of April. Its beginning was sporadic. Small catches of ling, scup, sea bass, and tautog were reported. It was not until the second week of May, when the spring run of mackerel made its initial appearance in the Middle Atlantic Bight, that all the charter boats began sailing with any degree of regularity. The height of the 1948 mackerel season was reached the last week of May, and by the twentieth of June, spring mackerel fishing was virtually over.

With the passing of mackerel fishing, many of the charter boat operators turned to fishing for bluefish, while others began fishing in and around Shrewsbury Rocks for striped bass. Bluefish, according to many long-time New Jersey charter boat operators, were more abundant in the Middle Atlantic Bight during 1948 than they had been for the last 13 to 15 years. These scrappy fish afforded excellent fishing for charter boat patrons until the latter part of September, and often provided the difference between a good catch and a poor one. Good striped bass fishing was found in and about rocky shoals by charter boat fishermen who enjoyed fishing for this species.

Tuna and bonito began to appear late in June. These tuna, of the school variety (8 to 65 pounds), failed to come inshore, and remained instead about 50 miles offshore from Manasquan Inlet. Catches up to 50 fish were reported for as little as 2 hours fishing time. Charter boat operators, however, soon abandoned fishing these schools of tuna because of the excessive running distance, high fuel consumption, and the short periods of fishing time afforded their fares once the schools were located. Fishing for bluefish and bonito was resorted to until the latter part of July when large tuna appeared in the "Mud Hole" and adjoining areas.

Although large tuna (more than 65 pounds in weight) were fairly common both inshore and in the "Mud Hole" area, the catches were light. Prominent among the factors which seemed to influence the availability of large tuna during the 1948 season was the presence or absence of fish at the surface, and unseasonably high winds during the latter part of the season. Many operators reported that

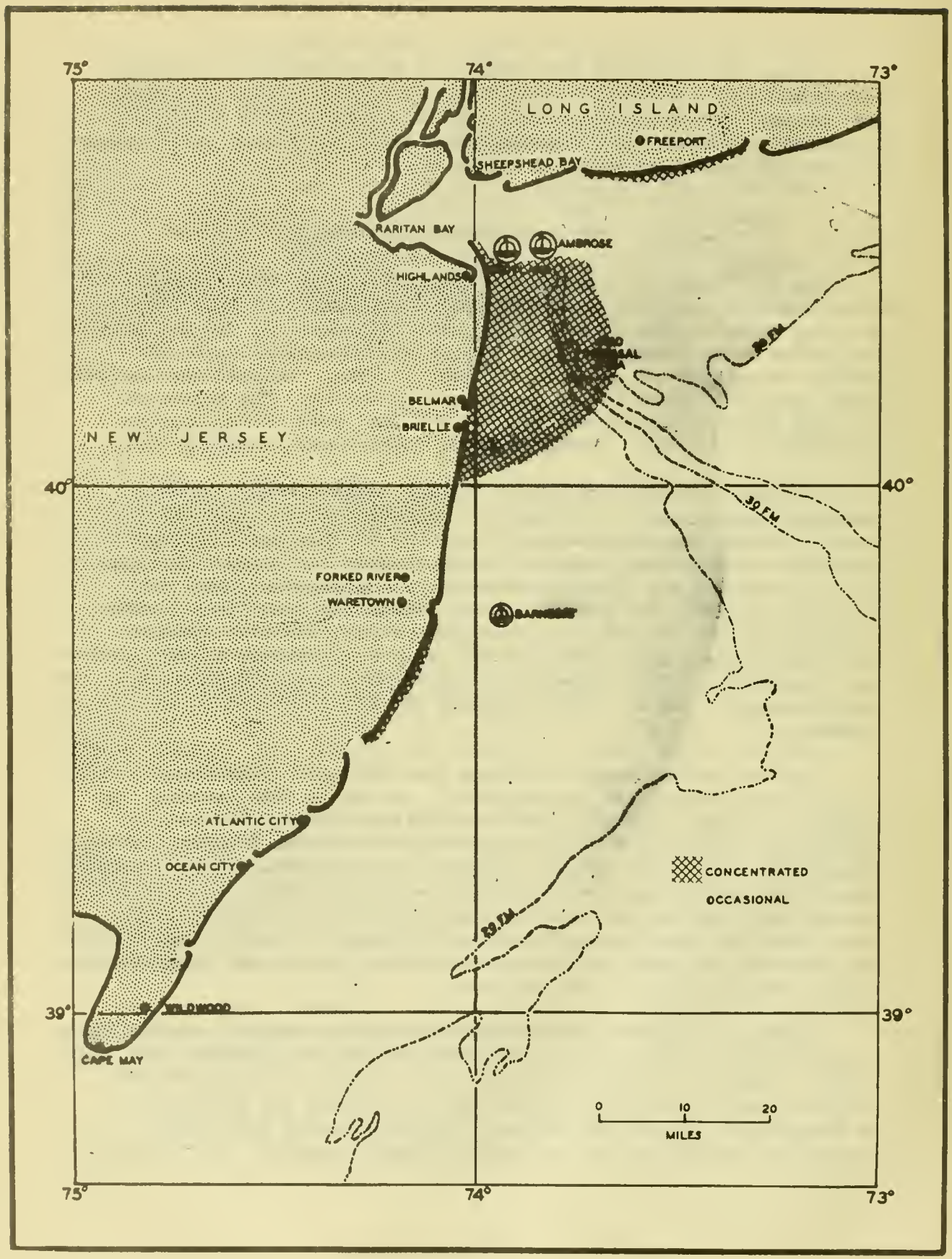

Figure 1.-- Areas fished by charter boats in 1948 season showing the degree of fishing concentration.

their patrons had hooked large fish, played it for an hour or more, only to lose the fish. Consequently, a substantial number of boats returned to port with few, if any, large tuna. Catches of tuna frequently increased during periods of light to moderate winds, and then decreased suddenly after a good "blow."

During the periods when both school and large tuna were unavailable, charter boat operators turned to fishing for bluefish, bonito, albacore, and skipjacks. Albacore were abundant from early August until October, while skipjacks were fairly common during August.

The greatest number of charter boat trips was reported during holiday periods and the months of August and September--the traditional vacation months. Inclement weather, however, brought an early end to the 1948 charter boat fishing season. By the first of October, many operators, discouraged by high winds and cold, rainy weather, began to lay their vessels up for the winter. Several had already sailed for Florida and the winter sports fishing season there, while others were preparing to do so. Those die-hard operators who refused to give up on both the season and weather, were rewarded by good fishing early in November when a large fall run of mackerel appeared in the vicinity of Ambrose Lightship.

Despite the failure of school tuna to appear inshore, the relatively low catch of large tuna, and the unseasonable, inclement weather during the latter part of September and October, the 1948 charter boat fishing season in the Middle Atlantic Bight was considered by most operators to have been an average season for most species, and a better than average season for bluefish.

c. THE ABUNDANCE OF PREDOMINANT SPECIES IN THE 1948 CHARTER BOAT CATCH

An analysis of the catch-per-unit of effort for predominant pelagic species, to determine their abundance during the 1948 charter boat fishing season from pilot-house log records and interviews, is presented in table 1. The table covers the five most important species, and the catch in numbers of fish-per-trip and fishermen. Only those trips whose total catch included 75 percent or more of one species were considered. Thus, the trips used in calculating the abundance were only those in which the species were sought--and caught.

TABLE 1.--The abundance of predominant species in the New York and New Jersey charter boat catch during 1948, based on actual catch records from pilot-house logs and personal interviews

Species	No. of Trips	No. of Fishermen	No. of Fish	No. of Fish/Trip	No. of Fish/Fishermen	Pounds per Fisherman/Trip
Mackerel	26	159	3,992	153.5	25.1	38
Bluefish	95	503	2,856	30.1	5.7	9
Albacore	72	374	872	12.1	2.3	16
Tuna	43	295	322	7.5	1.1	55
Striped Bass	36	151	146	4.1	.9	18

These data are presented primarily to serve as a basis for comparison in subsequent years, but it is possible to make limited comparisons with earlier work. The catch of tuna in 1948 of 7.5 fish-per-trip is not greatly different than the 7.2 fish-per-trip recorded in 1941 by Westman and Neville (1942) and the 9.8 fish-per-trip recorded in 1938 by Moore, et al. (1938).

B. THE PARTY BOAT FISHERY

a. DESCRIPTION

1. The boats

The boats engaged in the party boat fishery (sometimes called "open" boats) are open to all fishermen for a flat fee of $3.00 to $3.50 per day. Patrons of this type of fishing must furnish their own gear--the boat usually furnishes the bait--and do their fishing from the rail. The average capacity of the vessels is 30 fishermen. The boats are usually of the 40-to-50-foot and over class and "open," i.e., relatively little shelter is afforded for the anglers, and the boats are fitted with a high pilot house slightly aft of amidship. Like charter boats, nearly all are equipped with radio telephones.

The total investment in these party boats is considerable. Like the charter boats, the average vessel engaged in the New York and New Jersey party boat fishery represents an investment of about $15,000. This figure is perhaps too low, based on the present cost of constructing a party boat because many of the vessels in the party boat fleet are over 15 years old, and several have been converted from commercial otter trawlers and pleasure craft. There were in 1948 about 400 party boats engaged in the sports fishery of the Middle Atlantic Bight, so that the total investment in party boats amounts to approximately 6 million dollars.

2. Numbers and locations of party boats

The New York center of party boats that regularly fish the Middle Atlantic Bight is located in Sheepshead Bay. Approximately 50 or more vessels operated from this Long Island City. But 10 or less regularly sailed from Freeport during the sports fishing season.

The New Jersey party boat industry, like the charter boat business, is widespread. Well developed harbors along the New Jersey coast line afford excellent docking space for the party boat industry. The centers, in approximate order of importance and numbers of boats were: Brielle (which includes Point Pleasant), 250; Cape

May and Wildwood area, 40; Belmar, 10; Highlands, 10; Ocean City, 3; and Forked River, 2. Nearly every city along the Ocean Drive from Wildwood to Atlantic City has one or more operators who cater to the party boat trade, so that the list above by no means includes all the vessels in the New Jersey party boat fleet.

3. Party Boat fishing methods

The method of fishing generally used by party boat fishermen may be best described as "still fishing." Party boat captains, as a rule, anchor over or near wrecks, rocky ledges, or shoals--areas where fish are known to congregate. Party boat fishermen bait their hooks with clams or pieces of fish, let the baited hook sink to or near the bottom, and wait for a strike. If the catch is poor, the captain will move to some other spot, sometimes trying several favorite spots before finding good fishing.

Party boat operators take their patrons mackerel fishing during the spring and fall runs of mackerel. The methods employed by party boat fishermen in catching these fish are the same as those used by charter boat fishermen, i.e., "jigging" with tin or lead "squids." The schools are located, and the vessel anchored in or near it, the "squids" paid out and allowed to sink; they are then retrieved with a slow jerking motion.

4. Species taken by party boat fishermen

Because of the "still fishing" angling methods used by party boat fishermen, the fish taken by this type of fishery are predominantly demersal (bottom feeding) species. Cod, Gadus callarias (Linnaeus), croaker, Micropogon undulatus (Linnaeus), fluke, Paralichthys dentatus (Linnaeus), ling, Phycis chuss, (Walbaum), scup, Stenotomus chrysops (Linnaeus), Sea bass, Centropristes striatus (Linnaeus), Tautog, Tautoga onitis (Linnaeus), weakfish, Cynoscion regalis, (Bloch & Schneider), are the species most commonly caught. Mackerel, a pelagic species, provides an important fishery for the party boat operators of New York and New Jersey during the spring and fall months.

5. The fishing grounds

New York and New Jersey party boats generally fish definite areas within the Middle Atlantic Bight. These may be wrecks, rocky ledges or shoals, sand or mud bottoms, or shellfish beds. Many of these have been fished for years and have, through the course of

years, been given names by the party boat fishermen. These are illustrated in Figure 2. It will be noted that most of these fishing localities lie within the 20 fathom contour and west of the Hudson Canyon. Relatively little, if any at all, party fishing takes place outside this area.

There are no definite fishing grounds for mackerel other than the area in the vicinity of Ambrose Lightship. The schools are fished by party boats along their entire migratory route from Cape May to Montauk Point and return.

b. THE 1948 PARTY BOAT SEASON

The 1948 New York and New Jersey party boat fishing season was well under way by the third week of April (Figure 3). Good catches of sea bass were made from early April until the last week of September. Peak periods were recorded during the third and fourth weeks of May, the six-week period, June 13 to July 25, and the two-week period, August 22 to September 4.

The party boat fishing season for mackerel began during the first week of May, a week earlier than the charter boat season. The reason for this being that these early catches were made by party boats operating from Southern New Jersey ports. These vessels, because of their location, had the opportunity of fishing the migrating schools of mackerel before they had progressed along the coast and entered the Middle Atlantic Bight proper. In the general area of the "Mud Hole" the mackerel fishing season had its beginning during the second week of May. Like the charter boat fishery for mackerel, the spring party boat fishery for this species was virtually over by the third week of June.

The party boat operators of New York and New Jersey capitalized on the large fall run of mackerel that appeared in the vicinity of Ambrose Lightship early in November. Mr. Henry Bearse, Agent in charge of the New York Fishery Market News Office, reports that several hundred thousand pounds of "jig-caught" mackerel were landed and shipped to New York's Fulton Market during November and December by party boat fishermen.

Scup, fluke, and weakfish began to appear in the party boat catches the fourth week of May. Scup was taken in large quantities from the second week of June through the second week of September. Fluke catches were small until the week of July 4. The peak was reached in late August, after which the catch fell off rapidly. Weakfish catches fluctuated greatly; the greatest weekly catch was registered during the second week of June.

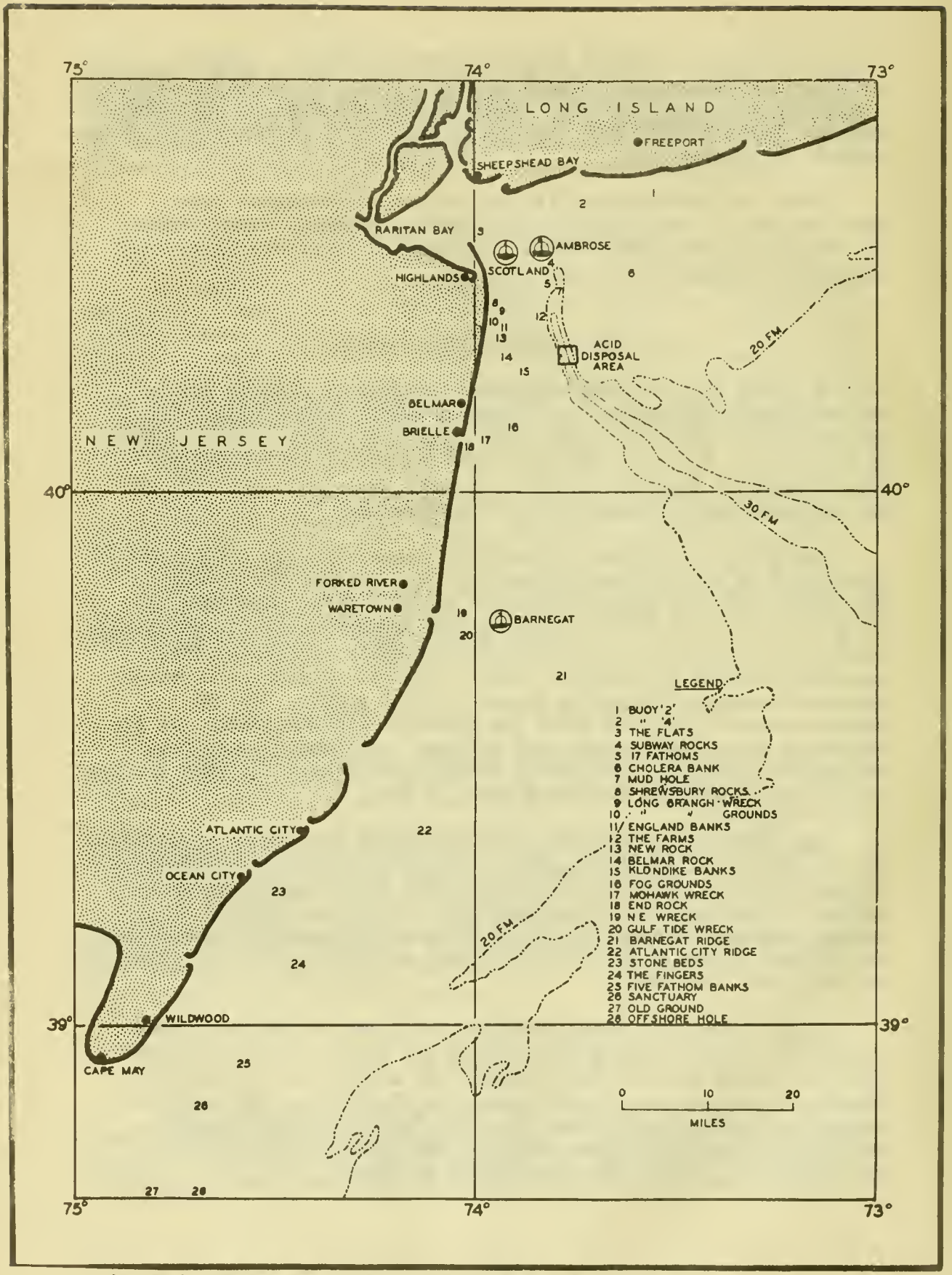

Figure 2.--Names ascribed to various areas in the Middle Atlantic Bight by party boat fishermen.

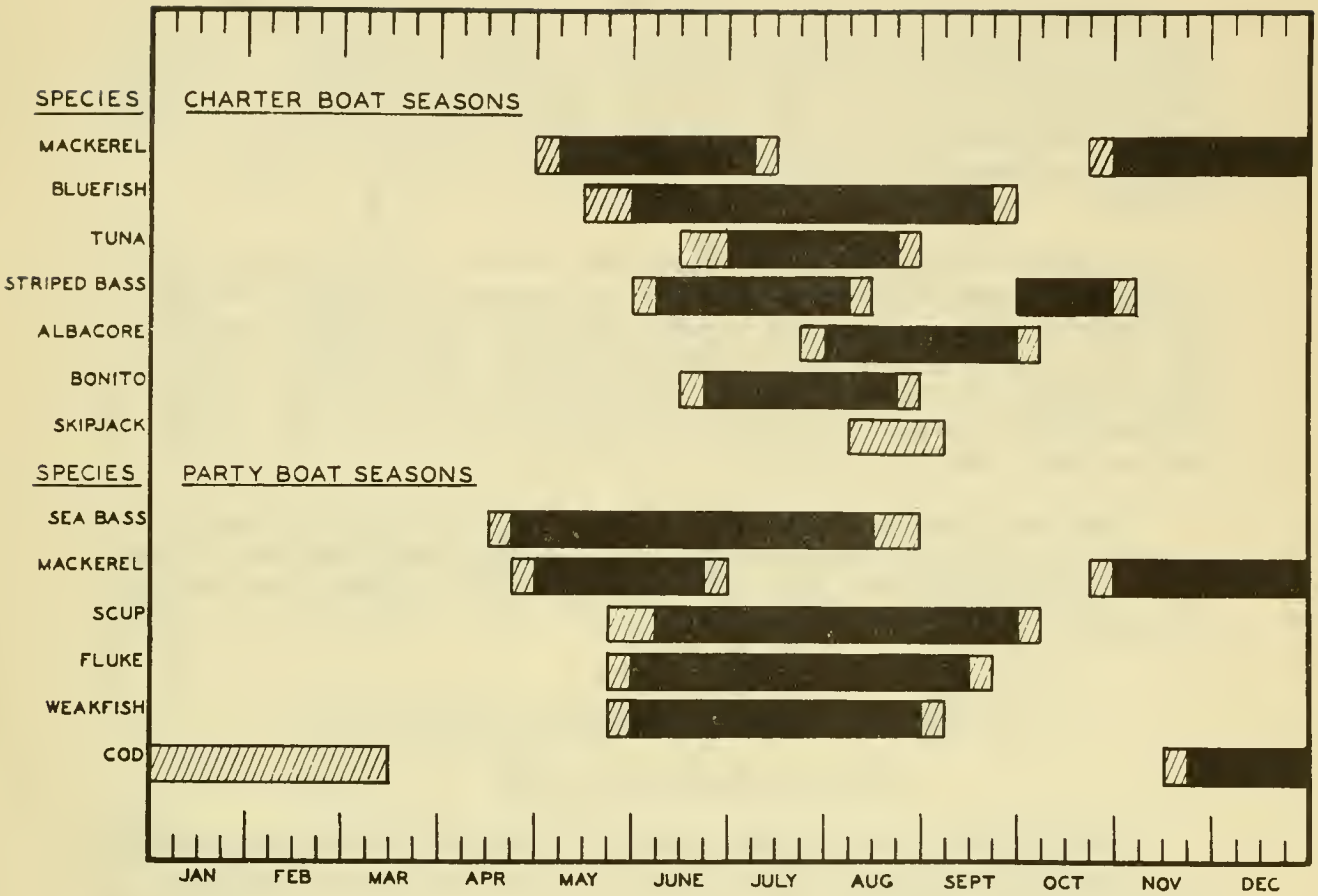

Figure 3.--Comparison of size of catch in various months by species and boat-type. The largest catches are indicated by dark portion of bar.

Unlike the number of charter boat trips which fluctuated greatly, the number of party boat trips steadily increased until the second week of July after which they slowly declined. This may be explained in part by the fact that party boat fishing is available to the low-income fisherman, and that the vessels sail daily, whereas charter boats may stay at the dock for several days without booking a party.

The party boat industry, like the charter boat industry, was hampered by unseasonably high winds and inclement weather during the months of September and October--usually good fishing periods. The late fall run of mackerel afforded party boat operators and their patrons excellent fishing through the winter months. Many of the operators ran regularly throughout the winter--the period during which there is usually little activity.

Upon the conclusion of the regular 1948 party boat fishing season, most of the operators expressed belief that the past season had been an average one for most species, and a better than average season for scup and sea bass.

c. THE ABUNDANCE OF PREDOMINANT SPECIES IN THE 1948 PARTY BOAT CATCH

An analysis of the catch-per-unit of effort for certain species, to determine their abundance during the 1948 party boat fishing season, from pilot-house log records and interviews, is presented in Table 2. The table covers those species occurring most frequently in the catch, and their catch in numbers-per-trip, and per fisherman. Only those trips were considered where 75 percent or more of the total catch was comprised of one species. Thus, as with the charter boats, the trips used in calculating the abundance were only those in which the species were sought and caught.

The data in table 2 are presented primarily to serve as a basis for comparison in subsequent years, but it is possible to make limited comparisons with earlier work. The 1948 catch of 19.8 scup per fisherman and 12.9 sea bass per fisherman is considerably greater than the 1938 catch of 2.7 scup and 3.9 sea bass per party boat angler reported by Moore et al. (1938). Assuming that the fishing methods used in 1938 were identical with those used in 1948, scup were 7.3 times as abundant in 1948 as they were in 1938, and sea bass were 3.3 times as abundant.

TABLE 2.--The abundance of predominent species in the New York and New Jersey party boat catch during 1948, based on actual catch records from pilot-house logs and personal interviews.

Species	No. of Trips	No. of Fishermen	No. of Fish	No. of Fish/Trip	No. of Fish/Fishermen	Pounds per Fishermen
Mackerel	51	995	29,894	586.1	30.0	45
Soup	82	1,287	25,460	310.5	19.8	24
Sea Bass	107	1,327	17,171	160.5	12.9	15
Weakfish	22	163	3,114	141.5	19.1	25
Flounder (Fluke)	79	363	4,212	53.3	11.6	19

Mackerel, as in the charter boat fishery, led all other species in abundance in the party boat fishery during 1948. There was surprisingly little difference in the catch-per-fisherman--an estimate of five fish.

SUMMARY

Briefly summarized, the findings of the 1948 survey of the sports fishery of New York and New Jersey are as follows:

1. Sports fishing, a major form of recreation in New York and New Jersey, involved the use of approximately 1,000 charter and party boats during 1948. The investment in boats and equipment was estimated to approximate nine million dollars for the charter boat industry, and six million dollars for the party boat industry--a total of $15,000,000 for the entire sports fishing industry. Assuming a 5 percent return on their investments, charter and party boat operators of New York and New Jersey net a minimum of $750,000 annually.

2. The sports fishing season was found to extend from the latter part of April until early November, depending upon the seasonal appearance of mackerel off the New Jersey coast. With the passing of the spring migration of mackerel, charter boats turn to albacore, bluefish, bonito, skipjack, and tuna fishing (in season); and party boats shift to bottom fishing for scup, sea bass, fluke, croaker, weakfish, etc.

3. Charter boats were found to fish the entire Middle Atlantic Bight at random out to and sometimes beyond the Old Hudson River Gorge. The "Mud Hole" is an important charter boat fishing area, especially for tuna. Almost 100 percent of the party fishing is confined within the 20 fathom contour and west of the Hudson Canyon, and is centered near wrecks, underwater rocks, shoals, etc.

4. The 1948 charter boat fishing season began early in May, upon the appearance of the spring run of mackerel, and ended about the first of December when the fall run had passed out of the inner portion of the Middle Atlantic Bight. Charter boat fishing for bluefish extended from the middle of May to October. The tuna season lasted approximately ten weeks, from the middle of June until the end of August. Striped bass were found to provide

two fishing seasons: the first, a ten-week period from June to the middle of August; and the second, a five-week period from October through the first week of November. The albacore and bonito fishing seasons lasted approximately ten weeks each. The bonito season, however, preceded the albacore season, occurring from the middle of June through August, while the albacore season extended from the third week of July through the first week of October. Relatively little charter boat fishing took place after the fall mackerel fishing season was over.

5. The 1948 party boat fishing season was found to extend throughout the entire year. During the winter months a limited number of party boats were open for week-end cod fishing. Nearly all the vessels in the 1948 party boat fishing fleet were making regular sea bass fishing trips by the third week of April. Sea bass fishing extended through August. Party boat fishing for mackerel took place during May and June, and again from late October through the winter. Scup, fluke, and weakfish fishing seasons began the latter part of June. Of the three, scup afforded the longest season, ending early in October. Fluke fishing was virtually over the third week of September and the weakfish season by the end of August.

6. An analysis of the 1948 catch-per-trip for several species was derived to be used for comparison with subsequent years. Limited comparisons, however, were made with earlier years. The catch-per-year-trip of tuna during 1948 was not greatly different from the catch-per-trip in 1938 and 1941. The 1948 catch-per-trip of scup and sea bass was found to be greater than the catch-per-trip recorded in 1938.

COMMON AND SCIENTIFIC NAMES OF FISH

REFERRED TO IN THE TEXT

The specific identifications which are marked with an asterisk were made by the senior author, and are after LaMonte (1945) and Roedel (1948). The nomenclature for the remainder, not specifically determined, are after Bigelow and Welsh (1925), Hildebrand and Schroeder (1928), and Breder (1929). The local names as used in the New York-New Jersey area are shown in the second column.

Common name	Local names	Scientific name
bonito	bonito	*Sarda sarda
bluefish	bluefish	Pomatomus saltatrix
cod	cod	Gadus callarias

Common names	Local names	Scientific name
croaker	croaker, hardhead	Micropogon undulatus
fluke	flounder	Paralichthys dentatus
hake	ling	Phycis chuss
little tuna	false albacore	*Euthynnus alletteratus
mackerels:		
Common mackerel	mackerel	Scomber scombrus
Thimble-eye mackerel	thimble-eye, chub	Pneumatophorus colias
menhaden	pogy, bunker	Brevoortia tyrannus
scup	scup, porgy	Stenotomus chrysops
sea bass	sea bass, black bass	Centropristes striatus
skipjack	oceanic bonito, watermelon	*Katsuwonus pelamis
squeteague	weekfish, sea trout	Cynoscion regalis
striped bass	striper	Roccus saxatilis
tautog	blackfish	Tautoga onitis
tuna 1/	horse mackerel	Thunnus thynnus

1/ A specimen tentatively identified in the field as albacore (Thunnus germo) was taken. Since the specimen was not preserved it is not possible to verify the identification.

LITERATURE CITED

Westman, J. R.; and Neville, W. C.

1942. The Tuna Fishery of Long Island, New York, 31 pp. A survey conducted by the U. S. Dept. of the Interior, Fish and Wildlife Service, in cooperation with the county executive and the board of supervisors, Nassau County, Long Island, New York.

Moore, E.; et al.

1938. A Biological Survey of the Salt Waters of Long Island, Part 1. Supplemental to Twenty-eighth Annual Report, 1938. A joint Survey with the U. S. Bureau of Fisheries.

APPENDIX A.--The total catch and catch-per-party boat angler of scup and sea bass by the recreational fishery of Long Island, May to November 15, 1938; and the total catch and catch-per-trip of tuna by the sport fishery of Long Island, June to October, Inclusive, 1938.

Species	No. of Trips	No. of Fishermen	No. of Fish	No. of Fish/Fishermen	No. of Fish/Trip
Scup	66	1,839	4,956	2.7	75
Sea Bass	174	5,250	20,822	3.9	119
Tuna	1,512	10,235	14,769	1.4	9.8