

# SURVEY OF RECREATIONAL TUNA AND MARLIN FISHING IN THE MID-ATLANTIC, 1983

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## INTRODUCTION

Sportfishing for tunas, marlins and swordfish, the so-called big game fishes, began around the turn of the century following the development of tackle heavy enough to handle these large, powerful, deep-sea battlers. Charles Holder is credited with catching the first big game fish on rod and reel, a 193-pound tuna taken off Catalina Island, California in 1898. Four years later, the first billfish, a striped marlin, was boated by another angler off the California coast.

Dramatized by popular writers, such as Zane Grey, Michael Lerner and Ernest Hemingway, big game fishing grew rapidly during the 1920s and 1930s for an elite group of anglers that could afford this sport. Due to the short cruising range of the boats of that time, the initial fishing grounds for tuna and billfish were located in areas where deep water occurred relatively close to shore, such as the Caribbean Islands and the coasts of California and Southern Florida.

Along the Mid-Atlantic coast, big game fishing began in the 1920s, but only for a single species, the bluefin tuna, which could be caught close to shore. Tuna clubs were formed in Brielle and Forked River, New Jersey and tournaments were organized between the Jersey clubs and those in

Freeport, Long Island. Most of their fishing occurred within 20 miles of shore. By the mid-1930s, sportfishermen discovered marlin on the Jack Spot. The success of billfishermen on this ground soon earned Ocean City, Maryland the reputation as the "white marlin capitol of the world."

The electronic gadgetry—LORAN, VHF radios, radar and depth finders—of World War II and the development of fast, planning hulls allowed anglers to venture further offshore in search of tuna and billfish. It wasn't until the mid 1950s that the first sportfishermen reached the submarine canyons along the edge of the continental shelf lying 60 to 90 miles off the Mid-Atlantic coast. Finn Magnus was among the pioneers, and he reportedly frustrated many tournament anglers with repeated catches of billfish taken in the bluewaters well offshore of the traditional fishing grounds. Throughout the remainder of the 1950s and all of the 1960s, only a relatively small number of fishermen made trips to the canyons. In the 1970s, however, this fishery increased tremendously.

Even now, the offshore sportfishery in the Mid-Atlantic is growing rapidly. At this early stage, it is important that information concerning the number of anglers, effort and

catch of the fishery be collected and documented. Such background data are necessary for the evaluation of future trends. In most cases, this type of information is usually not collected until it is too late, a prime example being the bluefin tuna. The bluefin went very quickly from great abundance as the region's prime big game species to its present depleted status. The first efforts to collect sportfishing statistics were made only after this drastic decline was evident.

In addition, data concerning the economic value of a fishery are often needed to defend that fishery against outside interests. At this time, a Japanese longline fishery is being conducted along the Mid-Atlantic coast well inside the United States' 200 mile fishery zone. The Japanese fish without restriction for the various tunas, because these species are not currently protected under the 200 mile limit. Besides tuna, their extensive longlines catch and kill large numbers of swordfish, marlin and sharks. The longline fleets of Japan, Taiwan and South Korea catch between 200,000 and 300,000 blue and white marlin and sailfish in the Atlantic Ocean each year. These massive foreign catches of tuna, billfish and other species may have a serious impact upon

U.S. sport and commercial fisheries.

The purpose of this project is to estimate the participation, effort, catch and value of offshore big game sportfishing in the Mid-Atlantic region, which includes New York, New Jersey, Delaware, Maryland and Virginia. This information is necessary to understand this fishery and to help uphold the interests of sportfishermen relative to competing uses of our living marine resources.

## ACKNOWLEDGMENTS

This survey was a cooperative effort of five Mid-Atlantic states. The people involved included John Mason, Jr. and Jeff Sirkot of the New York Division of Marine Resources, Bill Figley, Bruce Freeman, Paul Hamer, John Makai, Bruce Halgren, Barry Preim, Joanne Guadara, Diana Dougherty, Patti Richardson of the New Jersey Marine Fisheries Administration, Richard Seagraves of Delaware Division of Fish and Wildlife, Ben Florence and Rick Schaefer of the Maryland Tidewater Administration and Jon Lucy and Eleanor Bochenek of the Virginia Sea Grant Marine Advisory Service. Credit must be given to the thousands of sportfishermen who willingly provided the information that made this survey possible.

## METHODS

This survey was a cooperative effort involving fishery biologists and field technicians from New York, New Jersey, Delaware, Maryland and Virginia. A list of 1,500 marlin and tuna fishing boats was compiled in the 5 states by canvassing marinas, tackle shops and offshore fishermen. Each week during the fishing season, from June through October, a random sample of offshore boat captains was contacted by telephone to find out how many times each had fished and his catch during the previous week. In 1983, catch estimates were derived from data collected from 2,618 fishing trips. Length and weight measurements were taken at marlin and tuna tournaments from over 1,500 offshore fish. Information regarding the costs of boats and fishing expenses was obtained through a mail questionnaire that was returned by 480 offshore captains.

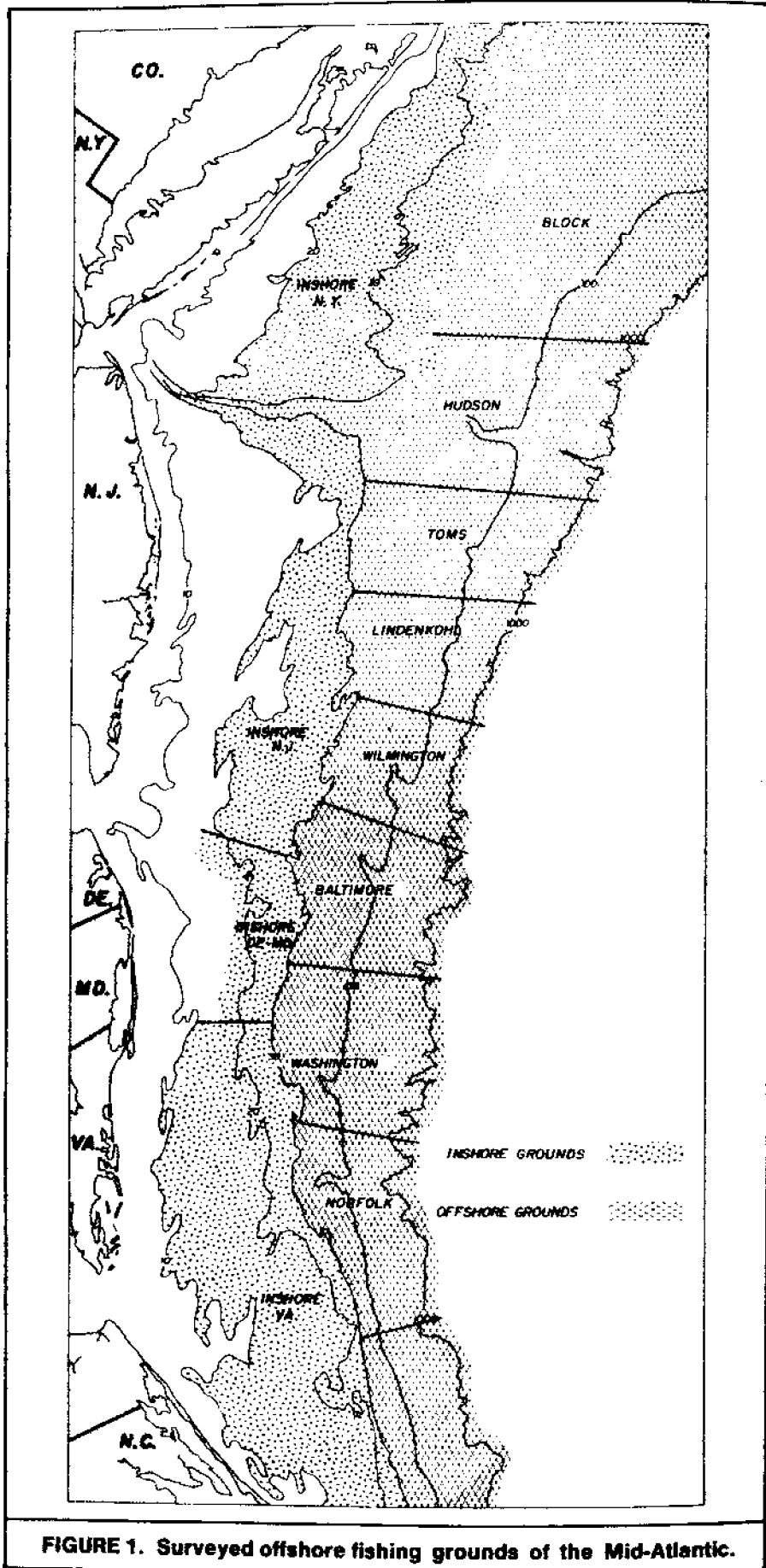


FIGURE 1. Surveyed offshore fishing grounds of the Mid-Atlantic.

## DISTRIBUTION OF MAJOR OFFSHORE PELAGIC SPECIES IN THE MID-ATLANTIC

### Yellowfin Tuna

Throughout Mid-Atlantic; most abundant in depths exceeding 30 fathoms, although common to depths of 20 fathoms in warm water eddies.



### Bigeye Tuna

Northern Mid-Atlantic; prefers deep water seaward of the shelf edge, rarely venturing inshore to depths of 50 fathoms.

### Albacore Tuna

Northern Mid-Atlantic; concentrated in depths between 40 and 100 fathoms.



### Bluefin Tuna

Throughout Mid-Atlantic; most abundant in depths between 15 and 40 fathoms.

### White Marlin

Throughout Mid-Atlantic; most abundant in depths between 20 and 30 fathoms.



### Blue Marlin

Throughout Mid-Atlantic; from the 30 fathom depths to beyond the edge of the shelf.

### Swordfish

Throughout Mid-Atlantic; in depths greater than 100 fathoms, most abundant between 300 and 1,200 fathoms.



### Dolphin

Throughout Mid-Atlantic; most abundant in southern portion, from 15 fathoms to shelf edge.

### Wahoo

Throughout Mid-Atlantic; most abundant in southern portion, especially between 20 and 100 fathom depths.



### King Mackerel

Rarely caught north of Virginia; most abundant between 10 and 20 fathoms.

## FISHING GROUNDS

Tuna, marlin, swordfish, wahoo and dolphin are pelagic species that follow the warm, bluewaters of the Gulf Stream up and down the East Coast. For the most part, these species inhabit the open ocean, well offshore of the fishing grounds of most anglers. These fishes particularly abundant along the edge of the continental shelf which lies 60 to 90 miles offshore of the Mid-Atlantic coast. Depths increase gradually over the shelf to 100 fathoms (600 feet) at the edge of the continental shelf and then drop off precipitously along submarine cliffs and canyons. Some offshore species move onto the shelf, following warm water eddies that spin off the Gulf Stream and more inshore. Bluefin tuna and king mackerel prefer shelf waters, often venturing inshore to depths of 15 fathoms or less.

At this time, Mid-Atlantic fishermen restrict their activities to the area between Block and Norfolk Canyons. The offshore limit is usually the 1,200 fathom contour which lies about 10 miles beyond the shelf edge. For this survey, fishing areas were grouped into two categories, offshore grounds and inshore grounds. The offshore grounds extended from the 30 fathom to the 1,200 fathom contour and encompassed an area of 17,000 square miles. The inshore grounds extended from the 20 to 30 fathom contour off New York and New Jersey and from the 15 to the 30 fathom contour off Delaware, Maryland and Virginia, encompassing an area of almost 12,000 square miles.

## RESULTS

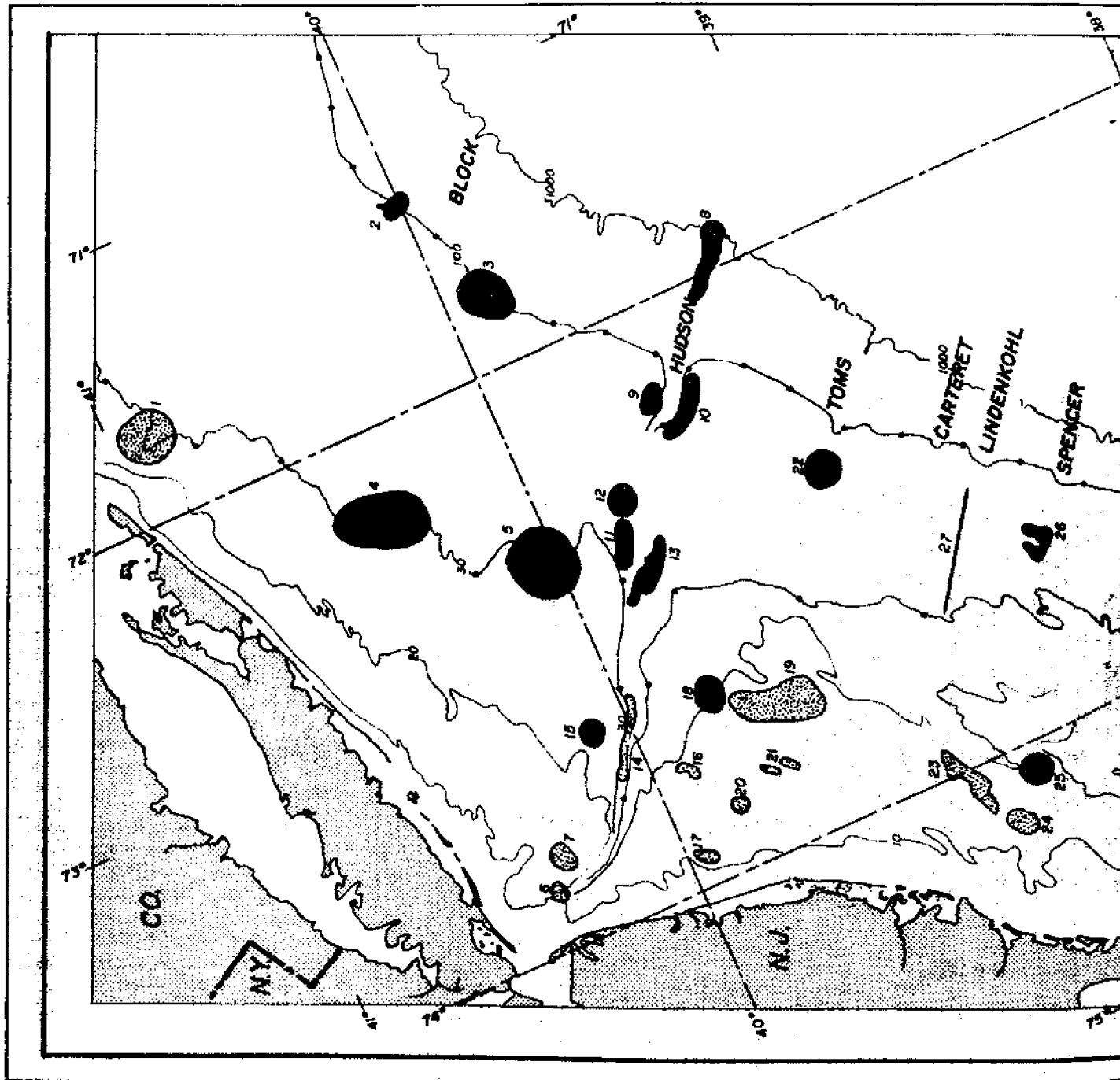
### Participation

In 1983, the Mid-Atlantic marlin and tuna sportfishing fleet consisted of 2,552 boats, including 2,292 private and 260 charter boats.

	Private	Charter	Total
NY	941	21	962
NJ	721	137	858
DE	87	20	107
MD	128	42	170
VA	415	40	455
Total	2,292	260	2,552

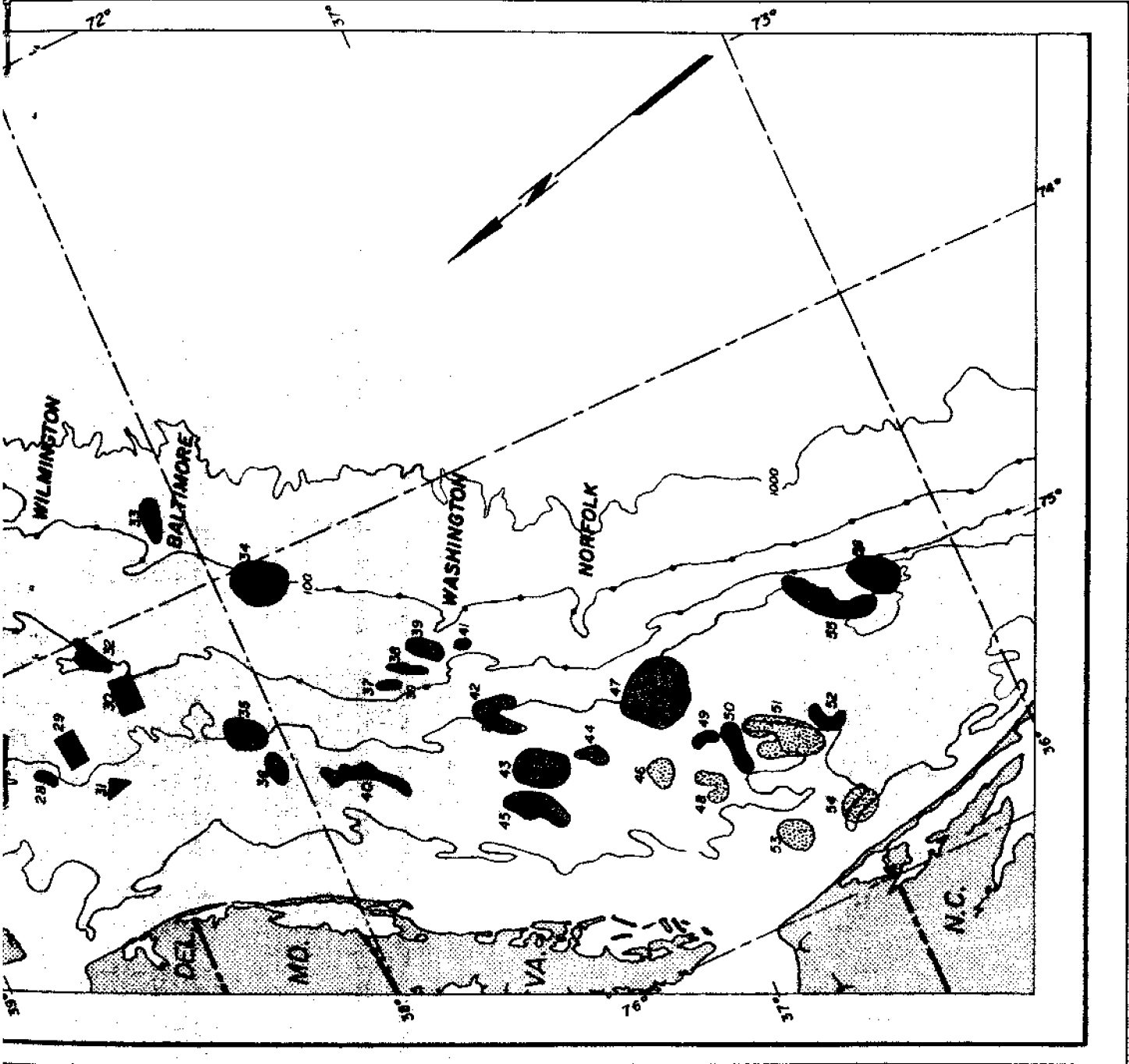
**FIGURE 2.**  
**Tuna and Billfish Grounds**  
**of the Mid-Atlantic**

1. Butterfish Hole
2. Fish Tail
3. The Dip
4. Fingers
5. Compass Rose
6. BA Buoy
7. Acid Waters
8. 1000 Fathom Hole
9. Elbow
10. The Letters
11. Triple Wrecks
12. Texas Tower
13. Chicken Canyon (40 Fathom Hole)
14. Monster Ledge
15. HA Buoy
16. Ole's Lump
17. Manasquan Ridge
18. Resor Wreck
19. Fingers
20. Tolton Lump
21. Barnegat Ridge
22. Dumping Grounds
23. Lobster Hole
24. Atlantic City Ridge
25. 28 Mile Wreck
26. The Fingers
27. 4000 Line
28. Lummis Slough
29. North Dump Site
30. South Dump Site
31. Triple Wrecks
32. Elephants Trunk
33. Alligator Bight
34. Poor Man's Canyon
35. The Fingers
36. Jackspot
37. First Lump
38. Second Lump
39. Rockpile
40. Lumps
41. 29 Fathom Lumps
42. 20 Fathom Fingers
43. 21 Mile Hill
44. Hambone (26 Mile Hill)
45. No Name
46. Triangle Wrecks



- 48. Fish Hook
- 49. Hot Dogs
- 50. SE Lumps
- 51. Horseshoe
- 52. Boomerang
- 53. V Buoy
- 54. 4A Buoy
- 55. Cigar
- 56. Honey Hole

Lighter shading indicates areas limited to bluefin tuna. Thirty and 100 fathom curves indicated by dotted lines.



## Effort

The estimated total number of marlin and tuna fishing trips in the Mid-Atlantic during 1983 was 21,302. In all 5 states, the offshore fishing season began in June, peaked in July and August, and then declined through September and October, due more to the onset of unpredictable weather than the lack of fish. About 65 percent of the trips occurred on the offshore grounds beyond the 30 fathom curve, 25 percent on the inshore grounds between 15 and 30 fathoms and 10 percent off Virginia in depths less than 15 fathoms.

Of the offshore grounds, the Hudson Canyon, a favorite among anglers from New York and New Jersey, received the highest level of fishing activity, followed by Block, Baltimore and Washington Canyons. Of the inshore grounds, those off New York and Virginia received the greatest fishing effort.



## Catch

During 1983, sportfishermen caught 74,000 fish of over 15 species while marlin and tuna fishing (Table 3). Four species of tuna comprised the bulk of the catch, 73 percent, while 3 species of billfish amounted to slightly over 7 percent of the total. Other species included dolphin (9 percent), skipjack (5 percent), king mackerel (2 percent) and wahoo (2 percent). All species of sharks accounted for less than 3 percent of the total. Sharks were caught incidentally while trolling for marlin and tuna or drifting for swordfish; trips specifically directed at catching sharks were not included in the survey.

As the fishing season began in June, cool water temperatures restricted the catch in the northern Mid-Atlantic to yellowfin, bigeye, albacore and sharks. Initial species caught in southern waters were yellowfin and bluefin tuna and due to the slightly warmer water, limited numbers of white marlin, dolphin and wahoo. By July, a full array of offshore species was found throughout the Mid-Atlantic.

In general, fishing in July was poor with almost 40 percent of the fishing trips failing to catch a single marlin or tuna. Catches improved somewhat in August and September, but

**TABLE 1.**  
Fishing effort for  
marlin and tuna by inlet.

State Inlet	Number of Trips
NY Montauk	1,777
Shinnecock	1,113
Moriches	680
Fire Island	2,897
Jones	1,337
East Rockaway	188
NJ Sandy Hook	303
Shark River	220
Manasquan	1,265
Barnegat	374
Beach Heaven	875
Absecon	523
Great Egg	638
Townsend	187
Hereford	77
Cape May	1,045
DE Lewes	385
Indian River	777
MD Ocean City	2,022
VA Chincoteague	32
Wachapreague	678
Sand Shoal	32
Lynnhaven	886
Rudee	2,828
Chesapeake Bay	157

## Fishing Methods

The primary method used for catching tuna, billfish and other offshore pelagic fish is trolling. For tuna, most anglers troll at high speeds, churning up as much white water behind the boat as possible, and use rubber-skirted artificial lures. The traditional marlin fishing technique involves reduced trolling speed and the use of natural, rigged baits. However, many marlin are also taken on high speed lures. The most recent development is night drifting for swordfish, which entails drifting rigged baits and chemical light attractors at various depths. Another technique, used primarily for catching giant bluefin tuna, is anchoring and chumming with chunks of fish.

**TABLE 2.**  
Fishing effort by area.

Area	Number of Trips
Over 30 fathoms	
Block	2,103
Hudson	4,627
Toms	187
Lindenkohl	1,063
Wilmington	1,322
Baltimore	1,890
Washington	1,773
Norfolk	864
20-35 fathoms	
Inshore NY	2,926
20-30 fathoms	
Inshore NJ	679
15-30 fathoms	
Inshore DE-MD	195
Inshore VA	1,570
Less than 15 fathoms	
Inshore VA	2,104

**TABLE 3.**  
**Total catch of offshore pelagic fishes**  
**in the Mid-Atlantic during 1983**

Species	NY	NJ	DE	MD	VA	Total
Yellowfin	5,675	3,861	1,318	1,488	3,775	16,117
Bigeye	2,806	1,514	76	19	78	4,493
Albacore	8,079	11,255	649	420	48	20,451
Bluefin	8,814	1,037	41	5	4,904	12,801
White Marlin	693	1,605	301	693	1,839	5,131
Blue Marlin	16	118	6	15	123	276
Swordfish	63	23	*	6	*	92
Skipjack	295	1,919	437	139	781	3,571
Dolphin	119	2,204	257	751	3,236	6,567
Wahoo	16	100	56	109	919	1,200
King Mackerel	*	*	*	*	1,339	1,339
Mako	300	59	23	48	15	445
Blue Shark	122	86	*	*	*	208
Hammerhead	140	73	*	*	13	226
Other Sharks	822	39	196	25	*	1,082
Total	25,960	23,891	3,380	3,718	17,070	73,999

\*too few to estimate

still, between 20 and 25 percent of the trips ended empty-handed.

Bluefin tuna provided good action off Virginia in June and then off New York and New Jersey during August-October. Yellowfin tuna were evenly distributed throughout all fishing grounds during the entire season. Bigeye and albacore were largely restricted to the offshore grounds north of the Wilmington Canyon, with the Block and Hudson canyons providing excellent fishing for bigeye. White marlin, dolphin and wahoo, on the other hand, showed the exact opposite trend. Catches of these species improved steadily progressing southward and reached a peak in the Norfolk Canyon.

Although caught in small numbers, the size, power and beauty of blue marlin and swordfish make them the most memorable of offshore fishes. Anglers caught about 276 blue marlin in 1983, which probably represents a very good season in the Mid-Atlantic area. Only 92 swordfish were taken, which appears to follow the continued downward trend experienced over the past 5 years. In the case of blue marlin, the odds of any individual fishermen catching one on a given trip during 1983 were 1 in 386.

Concerned about fishing in the future, anglers released alive about 56 percent of the white and 36 percent of the blue marlin brought to the

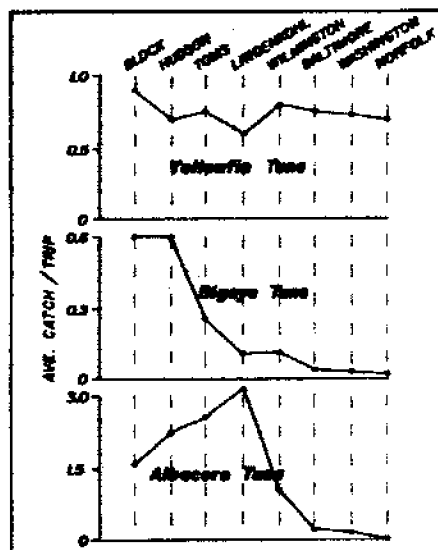
boat. Since most mounted fish today are only molded plastic replicas, even trophy marlin can be released alive.

### Fish Weights

Mid-Atlantic marlin and tuna fishermen landed over 3 million pounds of fish during 1983. The average weights of fish measured during the survey are presented in Table 4. The largest fish taken in the Mid-Atlantic during 1983 was a 970-pound blue marlin caught in the Hudson Canyon.

**TABLE 4.**  
**Average weight and total catch**  
**of selected species.**

Species	Average Weight in pounds	Total Catch in pounds
Yellowfin	46.1	781,000
Bigeye	165.8	728,000
Albacore	37.2	759,000
White Marlin	48.2	246,000
Blue Marlin	374.3	98,000
Swordfish	145.8	14,000
Dolphin	11.4	71,000
Wahoo	27.7	39,000
King Mackerel	11.6	16,000



**FIGURE 3.** Average catch per trip of tuna.

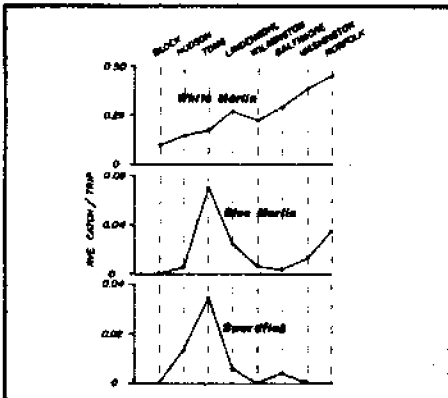
**Value**

The long runs to offshore fishing grounds require large well-equipped boats. The average size of an offshore boat in the Mid-Atlantic is approximately 33 feet long and costs about \$90,000 fully-outfitted. The estimated total value of the Mid-Atlantic offshore sportfishing fleet was \$202 million in 1983.

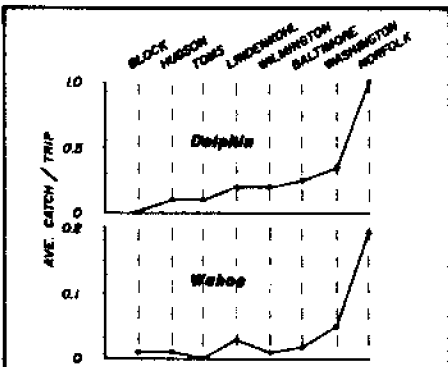
The tackle needed to handle powerful offshore fish must be top quality. On the average, each boat had over \$5,000 worth of rods, reels, line and lures. Adjusting figures to reflect the percentage of a boat's use for marlin and tuna fishing and prorating costs over the life of boats and equipment, the 1983 expenditures by offshore fishermen in the Mid-Atlantic were as follows:

Outfitted boats	\$18.2 million
Preparation,	
repair	7.5 million
Slip, storage	2.0 million
Insurance	1.8 million
Tackle	3.3 million
Tournament Fees	1.3 million
Fuel	4.7 million
Ice, bait	1.1 million

Thus, offshore boat owners in the Mid-Atlantic spent over \$40 million in 1983 for marlin and tuna fishing. An additional \$2 million was spent on charter fees for offshore fishing.



**FIGURE 4. Average catch per trip of billfish.**



**FIGURE 5. Average catch per trip of dolphin and wahoo.**

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