The Driftnet Fishery in the Fort Pierce-Port Salerno Area off Southeast Florida

H. CHARLES SCHAEFER, LYMAN E. BARGER, and HERMAN E. KUMPF

ABSTRACT—From May through September 1987, observations were made on 38 trips in the driftnet fishery off the Fort Pierce-Port Salerno area off southeast Florida. Of the number and weight of fish landed on observed trips, 91.6 percent consisted of king mackerel, Scomberomorus cavalla, *the targeted species. Over 33 species of fishes were observed among the discarded by-catch. The most frequently occurring species in the discards was little tunny,* Euthynnus alletteratus, *which made up 67.0 percent by number of the discarded by-catch. Total landings for all commercial gear from Saint Lucie and Martin counties (the counties of the study area) increased 516,741 pounds from 1986 to 1987. In 1986, 55 percent of the catch was from handline and 45 percent from driftnet landings. In 1987, 78 percent was from driftnet and 22 percent from handline landings. A comparison of lengths from recreational and commercial landings showed recreationally caught fish to be, on the average, smaller. No marine mammals, birds, or turtles were entangled in the net on observed trips. Data on cost of nets, fuel, and supplies plus the distribution of earnings among the crew were obtained for five driftnet boats.*

Introduction

A commercial driftnet fishery for king mackerel, *Scomberomorus cavalla*, in the Fort Pierce-Port Salerno area off the east coast of Florida expanded from 1985 through 1987. The use of driftnets (gillnets that are not anchored) in the king mackerel fishery has concerned traditional handline trollers, as well as recreational and conservation groups. To gain a better understanding of this fishery and to provide the South Atlantic and Gulf of Mexico Fishery Management Councils with information to manage the king mackerel fishery, observations on the driftnet fishery were made by the National Marine Fisheries Service (NMFS) from May through September 1987.

Trips were made during the 5 days before and after the new moon of each month. Every boat captain that was contacted agreed to carry an observer, and during the course of the study, trips were made at least once aboard each of the boats that fished driftnets full time in the area. Thirty-eight observer trips were made. These represented 5.2 percent of the total recorded trips (731) made by driftnetters in 1987. In addition to observations at sea, dock interviews were conducted; information collected during dock interviews was consistent with that collected by shipboard observers. There was no indication that observed trips fished in different areas or in a different manner than unobserved trips. Cooperation of fishermen with observers was excellent throughout the study.

Description of the Fishery

History

The use of power-assisted encircling (run-around) gillnets and spotter planes for king mackerel started in the Naples, Florida area around 1963 (Beaumariage, 1973). The traditional method of commercial fishing for king mackerel in the study area has been handline (trolling), which dates back to at least the turn of the century (Austin et al., 1978). The use of run-around gillnets spread to the Florida Keys in the early 1970's and was later adapted to the Fort Pierce-Port Salerno area in the late 1970's. Boats using this gear had average landings of 8,000-10,000 pounds per successful trip with catches as high as 30,000-35,000 pounds (Austin et al., 1978). Several purse-seine boats fished for king mackerel and Spanish mackerel, *S. maculatus*, from 1983 to 1986 in the study area. The highest catch of king mackerel at that time was 56,650 pounds (Fable and Nakamura, 1986).

Both purse seines and run-around gillnets are only feasible when fish are tightly schooled, which normally happens only in January, February, and March in the study area. Environmental conditions may prolong this condition into April, as was the case in 1988, when successful purse seine and run-around gillnet sets were made.

While the use of king mackerel driftnets by a few small boats can be traced back to at least the early 1960's on a very limited and seasonal basis in the study area, their use by larger power-assisted gillnet boats (hi-rollers) did not start until the early 1980's. Nets used in 1980–81 were made of lighter webbing (#6) and were not as deep (120 meshes) as those used at present. Only a few boats were involved and landings were inconsistent. At least one of the nets used then was 3,000 yards long. Fishermen reported a few good trips, up to 7,700 pounds on one occasion, but had con-

H. Charles Schaefer is with the Economics and Statistics Office, Southeast Fisheries Center, National Marine Fisheries Service, NOAA, 19100 S.E. Federal Hwy., Tequesta, FL 33469. Lyman E. Barger and Herman E. Kumpf are with the Panama City Laboratory, Southeast Fisheries Center, National Marine Fisheries Service, NOAA, 3500 Delwood Beach Road, Panama City, FL 32408.

Table 1.—King mackerel driftnet boats that fished during the 1987 season off the Fort Pierce-Port Salerno area of Florida showing length of boat (feet), length of nets (yards) at start and at end of the season, participation, pounds of king mackerel (KM) landed, number of trips, and home port.

Boat	Boat length	Net length Start	Net length End	When fished	KM catch	No. trips	Home port
A	40	2,800	4,500	Apr.-Sept.	124,449	80	Port Salerno
B	50	4,000	5,500	Apr.-Sept.	121,064	68	Fort Pierce
C	48	2,800	4,500	Apr.-Sept.	118,029	85	Port Salerno
D	50	2,700	3,700	Apr.-Sept.	98,108	77	Fort Salerno
E	48	3,000	3,000	Apr.-Sept.	79,783	77	Fort Pierce
F	46	2,700	3,000	Apr.-Sept.	79,231	83	Fort Pierce
G	34	2,300	3,000	Apr.-Sept.	47,628	79	Port Salerno
H	47	2,400	2,800	June-Sept.	43,441	64	Fort Pierce
I	48	Unknown		Apr.-Sept.	32,024	39	Fort Pierce
J	30	2,000	2,000	Aug.-Sept.	6,899	18	Fort Pierce
K	37	1,500	1,500	July-Aug.	6,831	20	Port Salerno
L	50	Unknown		Sept.	10,249	25	Fort Pierce
M	32	1,000	1,000	May-Sept.	3,330	16	Port Salerno
Totals					771,066	731	

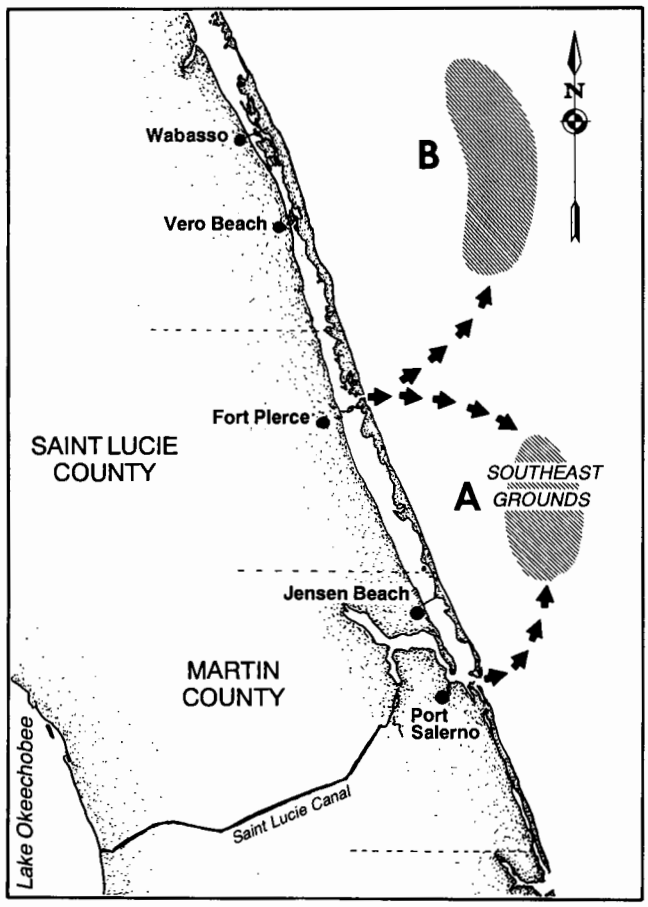

Figure 1.—The fishing grounds in the Fort Pierce (Saint Lucie County)-Port Salerno (Martin County) area of southeast Florida. A = southeast grounds and B = unnamed grounds to the northeast of Fort Pierce.

tinual mending problems, which they blamed on sharks passing through the net.

From 1980 to 1984 king mackerel driftnet effort did not increase substantially. The number of boats, the number of trips, and total landings per year were lower than in the last several years.

In the summer of 1985, a renewed interest in driftnetting by a few Port Salerno gillnet boats occurred. Landings remained inconsistent, but fishermen became more proficient in using the gear. They fished heavily around the new moon, when the nights were the darkest. They also learned to stay away from areas where sharks were concentrated and the water was too deep for effective fishing.

In 1986 the number of driftnet boats increased to seven. Fishermen were using new and stronger nets, which they dipped in black net coating that helped to strengthen the net, as well as decrease visibility to fish. The average length of net was 2,500-3,000 yards. Boats fished on a regular basis from April through September. Catch rates improved and fishermen reported less problems with sharks, possibly due to a developing shark fishery in the same area.

In 1987 the number of king mackerel driftnet boats increased to 13, eight of which fished full time (Table 1). The average length of net increased to ≥3,000 yards. Fishermen realized a direct relationship between length of net and catch.

Net length, labor, and boat space are the main limiting factors to the amount of net that can be feasibly set by one boat. At least one boat, on occasion, has reportedly set as much as 7,000 yards of net. This fishery has yet to draw any boats from outside the study area.

Fishing Area

During the 1987 season, the Port Salerno boats fished in the Southeast Grounds (A, Fig. 1), centered between Saint Lucie and Fort Pierce Inlets off Jensen Beach. The Fort Pierce boats fished this same area, as well as the unnamed grounds to the northeast of Fort Pierce Inlet (B, Fig. 1). Boats must set their nets 3 miles offshore in the Exclusive Economic Zone, since driftnetting for king mackerel is prohibited in Florida waters. Driftnet sets are usually made in 45-65 feet of water over sand bottoms with no noticeable obstructions to hang up the net. Fishermen avoid fishing directly offshore of inlets because of higher boat traffic, and because these areas often have high concentrations of sharks.

Vessels

In 1987, the period covered by this report, 13 vessels were engaged in the driftnet fishery in the Fort Pierce-Port Salerno area. This number includes five boats that did not fish full time for

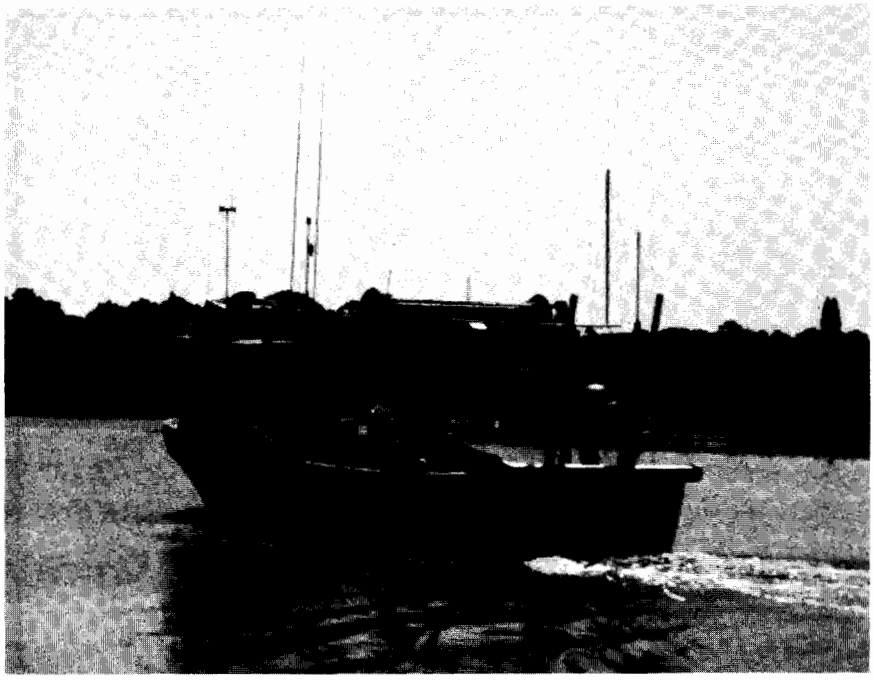

Figure 2.—A typical driftnet boat operating in the Fort Pierce-Port Salerno, Fla., area.

the entire season. Present boats are standard fiberglass run-around gillnet boats (Fig. 2) ranging from 30 to 50 feet in length (Table 1). While driftnetting, each boat is operated by a captain and a crew of two or three. The captain is not necessarily the owner of the boat.

The same vessels in the driftnet fishery normally set run-around gillnets for Spanish mackerel or bluefish, *Pomatomus saltatrix*, from November to March. Some also set larger mesh driftnets for sharks from October through April before and after the Spanish mackerel season. Winter has traditionally been the prime fishing time for these boats. Driftnetting from April to September has helped to fill a void when large net boats used to remain idle. Fishermen have become more dependent on summer driftnet landings for a substantial portion of their income.

Gear

Present driftnets are constructed of #9-nylon 5-inch stretched-mesh webbing that is white when purchased. Webbing is purchased by the pound, with 2,000 pounds of webbing equal to 3,000 yards. Before use, the net is dip-coated in black net coating to increase strength and decrease visibility. All new netting purchased since 1986 is 140 or 150 meshes deep (about 50 feet). Floats are placed about every yard on the top of the net, and the bottom is weighted by a lead core line weighing 85 pounds/200 yards. Buoys equipped with battery-operated strobe lights are secured at both ends of the net. The buoy may or may not include a radar reflector.

Fishing Patterns

The normal driftnet season has been from mid-April through September. Winter driftnetting for king mackerel has been tried on occasion, but with little success. Presently it is not considered feasible because: 1) The same boats are involved in the Spanish mackerel and bluefish run-around gillnet fishery or shark driftnet fishery and 2) large schools of sharks, tarpon, *Megalops atlanticus*; and bluefish are present in the area and are a potential hazard to the net.

All king mackerel driftnetting takes place at night. The amount of moonlight is considered to have a direct effect on catch rates. Fishermen normally do not fish for about 3-4 days before and after the full moon, because the best fishing is considered to occur on the darkest nights (new moon). Net pickup usually starts before dawn, because king mackerel catches decrease and by-catches increase with daylight. Current is another factor considered to have an effect on catch rates. A strong southward current is considered detrimental, and some boats do not fish when such conditions prevail. Fishermen state that bioluminescence in the water is increased by strong currents pushing water through the nets, thus making the nets more visible.

Fishing Procedures

On a normal fishing day, driftnet boats leave port late in the afternoon and return with their catch the following day. Once the boat has reached its chosen destination and is ready to set the net, a strobe-light buoy is fastened to the free end of the net and dropped overboard. The boat then moves in a straight line away from the trailing net and buoy. The boat continues forward until the entire net has been pulled over the stern. Another buoy is then attached to the other end. The net is generally set running east and west, perpendicular to the coast. The net is never deployed before sunset. Optimally, the net remains in a straight line perpendicular to shore for the entire drift, but wind and current may cause it to curve or fold, thus reducing the effective fishing length. When a strong current is running, the nets will sometimes be set at an angle to the shore.

After the net has been set, the boat may decide to: 1) Tie onto one end of the net, 2) drift along with the net but not tie to it, or 3) anchor the boat and let the net drift. This decision is based on weather and current conditions. Driftnet boats are normally in radio contact with each other while setting their nets to assure that there is enough space separating each net to keep them

Table 2.—Discarded by-catch of the drift gillnet boats carrying NMFS observers off Fort Pierce-Port Salerno, Fl., from May through September 1987. Numbers are based on 38 trips.

Species	Number caught	% of by-catch	% of total catch[1]
Little tunny, *Euthynnus alletteratus*	1,854	67.0	23.1
Barracuda, *Sphyraena* sp.	300	10.8	3.7
Atlantic moonfish, *Selene setapinnis*	100	3.6	1.2
Smooth dogfish, *Mustelus canis*	95	3.4	1.2
Sharks, var. spp.	89	3.2	1.1
Filefish, *Aluterus* sp.	73	2.6	0.9
Lookdown, *Selene vomer*	53	1.9	0.7
Remora, *Remora remora*	32	1.2	0.4
Cownose ray, *Rhinoptera bonasus*	27	1.0	0.3
Sailfish, *Istiophorus platypterus*	22	0.8	0.3
Blue runner, *Caranx crysos*	21	0.8	0.3
Hammerhead shark, *Sphyrna* sp.	16	0.6	0.2
Atlantic croaker, *Micropogonias undulatus*	15	0.5	0.2
Crevalle jack, *Caranx hippos*	12	0.4	0.1
Atlantic thread herring, *Opisthonema oglinum*	10	0.4	0.1
Atlantic bumper, *Chloroscombrus chrysurus*	8	0.3	0.1
African pompano, *Alectis ciliaris*	8	0.3	0.1
Greater amberjack, *Seriola dumerili*	6	0.2	0.1
Flounders, var. spp.	5	0.2	0.1
Scorpionfishes, var. spp.	3	0.1	<0.1
Triggerfishes, var. spp.	2	0.1	<0.1
Striped searobin, *Prionotus evolans*	2	0.1	<0.1
Atlantic manta, *Manta birostris*	2	0.1	<0.1
Black snapper, *Apsilus dentatus*	2	0.1	<0.1
Tiger shark, *Galeocerdo cuvieri*	1	<0.1	<0.1
Stingray, Dasyatidae	1	<0.1	<0.1
Permit, *Trachinotus falcatus*	1	<0.1	<0.1
Gag, *Mycteroperca microlepis*	1	<0.1	<0.1
Atlantic guitarfish, *Rhinobatos lentiginosus*	1	<0.1	<0.1
Blacktip shark, *Carcharhinus limbatus*	1	<0.1	<0.1
Cowfish, *Lactophrys* sp.	1	<0.1	<0.1
Butterfish, *Peprilus triacanthus*	1	<0.1	<0.1
Atlantic bonito, *Sarda sarda*	1	<0.1	<0.1

[1]Total catch = number of landed and discarded fishes of all species.

from getting entangled. Six or seven boats may fish in the same immediate area. All driftnet boats are equipped with Loran C and use this to aid in setting and tracking the net.

Total soak time varies with each trip, but rarely exceeds 12 hours. The maximum number of sets per night is two, but boats rarely make more than one set. While the net drifts, the captain and crew may sleep, awakening periodically to check for other boats in the vicinity of the net. Driftnets are occasionally run over and damaged by other boats and may even be severed by large vessels. The current is monitored by tracking the progress of the driftnet with Loran C.

Haulback usually starts before sunrise, taking 3-5 hours. This is accomplished with the help of a hydraulic hi-roller over which the net passes to be pulled onto the boat. Crewmen on either side of the boat pull and neatly stack the net on the aft deck after it has passed over the hi-roller. The catch is removed by the same crew pulling in the net. One strand of the mesh may have to be cut with a knife to remove gilled fish. Some fish may fall out of the net onto the deck in transit to the hi-roller. King mackerel and other commercially valuable species are thrown into a holding compartment or ice box. Ice is normally shovelled onto the catch several times during haulback. Unwanted fish are thrown overboard; most are dead when the net is hauled, though some fish are released alive. Upon completion of the haulback, the catch may be gutted and reiced at sea or left on ice and gutted by the crew at the dock before being weighed. At the fish house, gutted fish are bulk weighed, placed in chill tanks of ice water for several minutes, and packed on ice.

Catches and Landings

Observed Discarded By-Catch

By far the largest, proportion of the discarded by-catch was made up of little tunny, *Euthynnus alletteratus*, called "bonito" by the fishermen (Table 2). Little tunny made up 67.0 percent of the discarded by-catch and 23.1 percent of the total catch (landed plus discarded), by number. Barracuda, *Sphyraena* sp., the next most abundant fish in the discarded by-catch, made up 10.8 percent of the discards and 3.7 percent of the total catch. Each of the other species in the discarded by-catch made up 3.6 percent or less of the discards and 1.2 percent or less of the total catch.

Twenty-two sailfish, *Istiophorus platypterus*, were caught on the observed trips for an average of 0.58 sailfish per trip. On one trip, seven sailfish were caught, though such multiple catches on a single trip were rare.

No marine mammals or birds were observed entangled in the nets on any trip. Porpoises and sea turtles were observed in the vicinity of the nets on haulbacks on numerous trips. On one trip a leatherback sea turtle, *Dermochelys coriacea*, was observed by fishermen in a net at haulback. However, by the time the observer reached the stern, the turtle had freed itself and swam away before the net could be pulled from the water.

Observed Landed Catch

Fifteen species made up the observed landed catch of the driftnet boats. The most abundant fish in the landed catch was the target species, king mackerel, which made up 91.6 percent of the landed catch by number and also by weight, while constituting 60.1 percent of the total catch (Table 3). The next most abundant species in the landed catch was blue runner, *Caranx crysos*, which made up only 2.0 percent by number, 1.0 percent by weight of the landed catch, and 1.3 percent of the total catch by number. Each of the other species landed made up less than 2.0 percent of the landed and total catch by number or weight; most made up less than 1.0 percent.

About 4 percent of the king mackerel caught on the observed vessels were mutilated by predators, most likely sharks. Damaged mackerel that were salvageable were cut into chunks and sold or retained by the fishermen for personal use. The only other species that was observed to be mutilated was little tunny. It was not possible to determine how many fish were removed entirely from the nets by large predators. Large holes were observed frequently in the nets, presumably caused by large fish passing through. Most large sharks, with the exception of hammerheads, seem to be capable of ripping through the net. Fallout of gilled fish from driftnets was not possible to ascertain. No underwater fallout of fish from the net was observed during haulback, as visibility was limited to about 30 feet below the surface during morning daylight.

Table 3.—Landed catch of the driftnet boats carrying NMFS observers off Fort Pierce-Port Salerno, Fl., from May through September 1987. Numbers are based on 38 trips. Numbers in parentheses are fish counted but weight not included.

Species	Number landed	Weight landed (lb)	Percent of land. by no.	Percent of land. by wt.	Percent of total catch by no.[1]
King mackerel, *Scomberomorus cavalla*	4,831	46,325	91.6	91.6	60.1
Blue runner, *Caranx crysos*	106	487	2.0	1.0	1.3
Spanish mackerel, *S. maculatus*	93	367 (6)	1.8	0.7	1.2
Blacktip shark, *Carcharhinus limbatus*	67	478	1.3	0.9	0.8
Cobia, *Rachycentron canadum*	54	857 (4)	1.0	1.7	0.7
Sharks, var spp.	31	90 (1)	0.6	0.2	0.4
Blackfin tuna, *Thunnus atlanticus*	29	604 (1)	0.6	1.2	0.4
Red snapper, *Lutjanus campechanus*	21	64 (4)	0.4	0.1	0.3
Barracuda, *Sphyraena* sp.	15	90 (5)	0.3	0.2	0.2
African pompano, *Alectis ciliaris*	11	260 (1)	0.2	0.5	0.1
Crevalle jack, *Caranx hippos*	5	68	0.1	0.1	0.1
Wahoo, *Acanthocybium solanderi*	4	81	0.1	<0.1	0.1
Greater amberjack, *Seriola dumerili*	4	8	0.1	<0.1	0.1
Dolphin, *Coryphaena hippurus*	3	2 (2)	0.1	<0.1	<0.1
Tripletail, *Lobotes surinamensis*	1	— (1)	<0.1	<0.1	<0.1
Total	5,275	50,591			

[1]Total catch = landed plus discarded fish

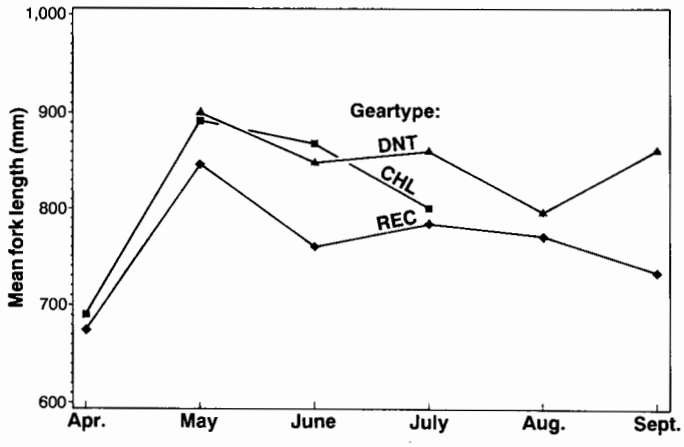

Figure 3.—Mean fork lengths of king mackerel from three gear types off the Fort Pierce-Port Salerno, Fla., area during 1987. DNT = driftnet, REC = recreational hook-and-line and headboat combined, and CHL = commercial hook and line.

Observed and Unobserved Landed Catch

Pounds of gutted weight of king mackerel landed by all driftnet boats were obtained by NMFS from fish-house records in the Fort Pierce (Saint Lucie County)-Port Salerno (Martin County) area for the 1986 and 1987 fishing seasons along with handline catches derived from records of the Florida Department of Natural Resources. Commercial king mackerel catches (all gear) from Saint Lucie and Martin counties increased by 516,741 pounds from 1986 to 1987. During the 1986 season, 465,430 pounds were taken by commercial gear. Driftnets took 208,472 pounds (45 percent) and handlines 256,958 pounds (55 percent) in the two counties where both gears were fished in 1986. In the 1987 season the commercial catch increased to 940,165 pounds with the landings from driftnets accounting for 771,066 pounds (78 percent) and from handlines 169,099 pounds (22 percent).

King mackerel landings from driftnet landings averaged 1,055 pounds per trip. Average mackerel landings by boat varied from 602 to 1,780 pounds among the boats fishing the entire season. One August trip landed 9,831 pounds.

Table 4.—Landed catch of seven mackerel driftnet boats, Fort Pierce-Port Salerno, Fl., April-September, 1987. Data are from 362 trips (50.1 percent of total 731 trips) and represent gutted weights.

Species	Pounds landed	Percent of total	Avg. lb. per trip
King mackerel, *Scomberomorus cavalla*	368,304	84.4	1,017.4
Blackfin tuna, *Thunnus atlanticus*	20,786	4.8	57.4
Sharks, var. spp.	18,174	4.2	50.2
Little tunny, *Euthynnus alletteratus*	7,146	1.6	19.7
Cobia, *Rachycentron canadum*	7,076	1.6	19.5
Weakfish, *Cynoscion regallis*	4,129	0.9	11.4
Spanish mackerel, *Scomberomorus maculatus*	3,322	0.8	9.2
Blue runner, *Caranx crysos*	2,214	0.5	6.1
African pompano, *Alectis ciliaris*	1,942	0.4	5.4
Bluefish, *Pomatomus saltatrix*	1,242	0.3	3.4
Wahoo, *Acanthocybium solanderi*	716	0.2	2.0
Dolphin, *Coryphaena hippurus*	586	0.1	1.6
Blue marlin, *Makaira nigricans*	328[1]	<0.1	0.9
Snappers, var. spp.	283	<0.1	0.8
Pompanoes, var. spp.	13	<0.1	<0.1
Total	436,261		

[1]Two fish, one 200 pounds, one 128 pounds (gutted weight).

By-catch data from seven boats fishing driftnets, but not observed, were obtained (Table 4). These data represented 362 of the total 731 trips made in 1987. Blackfin tuna, *Thunnus atlanticus*, and sharks represented the most common by-catch landings, although making up only 4.8 and 4.2 percent of the total catch by weight, respectively. Two blue marlin, *Makaira nigricans*, were also landed; no other billfish were landed. One species in reported by-catch landings and not in by-catch landings on observed trips was little tunny. This species was always discarded on observed trips. Whether this and other by-catch species were landed or discarded appears to have been influenced by price and other factors on a boat-by-boat basis.

Lengths of Fish

The mean fork lengths from king mackerel taken in three fisheries during 1987 are shown in Figure 3. Drift-

net caught fish (DNT) were measured by NMFS observers, headboat caught fish were measured by NMFS headboat samplers, commercial hook-and-line (handline) caught (CHL) fish were measured by a NMFS port agent and recreational hook-and-line caught fish lengths were collected by the NMFS Marine Recreational Fishing Statistics Survey. Recreationally caught fish (REC) were derived from combining headboat and recreational hook-and-line. The lengths of fish caught by different gear types differed, most likely due to the selectivity of the gear. Recreationally caught king mackerel were, on average, smaller than driftnet caught fish. Average lengths of commercial hook-and-line catches seemed to parallel the driftnet catch in the early season, but were smaller than those in July.

Economic Data

Average net cost, crew size, and average trip cost for five different boats fishing driftnets full time in 1987 are shown in Table 5. Most boats were using nets that were purchased new in 1986 or 1987. The nets cost from $12,000 to $17,500 rigged, depending on their length, and are expected to last 6-8 years. All boats pay the crew a percentage of the catch. Normally the boat gets 40 percent of the revenues off the top and the crew divides the remainder equally. A few boats have a "net fund," usually 10 percent, that is held back from each paycheck and is used for net repairs. At the end of the season any money remaining in the net fund is split among the crew.

Trip costs are relatively low because there is little fuel consumption (average 40-60 gallons per trip or 200-250 gallons per week) due to the fact that most of the time is spent drifting. Ice is used, but is generally provided to the boats by the processors free of charge. The only other significant trip expenses are food and beverages (usually a case of soda per trip) which cost about $10-$20 per trip. By far the major expense in this fishery is the initial capital investment in the net.

Ex-vessel prices for king mackerel ranged from $0.92 to $1.50 per pound for net-caught fish during the 1987 season. Hook-and-line caught fish usually brought $0.20 more per pound. Although there have been claims that net-caught fish were of inferior quality, most dealers have stated that there is no problem with the quality of net-caught fish. Fishermen generally decreased driftnet soak time in the summer to maintain quality of king mackerel as water temperatures increased.

Table 5.—Cost data for mackerel driftnet trips off Fort Pierce-Port Salerno, Fl. Data were collected for five vessels (A-E) fishing in the summer of 1987.

	Vessel				
Item	A	B	C	D	E
Cost of net	$17,500	$12,000	$12,000	$17,000	$12,000
Life of net	72 mo.	72 mo.	84 mo.	60 mo.	84 mo.
No. of crew incl. captain	4	3	3	3	3
Pay shares	50% crew 40% boat 10% net	60% crew 40% boat	60% crew 40% boat	60% crew 40% boat	45% crew 40% boat 10% net 5% supplies
Fuel consumption/trip	50 gal.	35 gal.	45 gal.	50-75 gal.	50-55 gal.
Fuel cost/trip	$50	30	$30-35	$40-60	$45
Ice cost/trip	0	0	$25-50/wk	0	0
Other costs/trip	$15	$20	$10-15	$15	$100/wk

Acknowledgments

We thank Edwin Irby and Robert Muller of the Florida Department of Natural Resources, Cecil Lane of Hudgins Fish Company, Fort Pierce, Bob Crane, C & W Fish Co., Port Salerno, and Glen Black, Inlet Fisheries, Fort Pierce, for assistance in obtaining catch data. We also thank the participating captains for their cooperation and Southeast Fisheries Center personnel for serving as observers.

Literature Cited

Austin, C. B., J. A. Browder, R. D. Brugger, and J. C. Davis. 1978. Mackerel workshop report. Miami Sea Grant Publ., 156 p.

Beaumariage, D. S. 1973. Age, growth, and reproduction of king mackerel, *Scomberomorus cavalla*, in Florida. Fla. Mar. Res. Publ. 1, 45 p.

Fable, W. A., Jr., and E. L. Nakamura. 1986. Observations on purse-seined king mackerel (*Scomberomorus cavalla*) and Spanish mackerel (*Scomberomorus maculatus*), March 1983–March 1986. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFC-183, 44 p.