NOAA Technical Memorandum NMFS-SEFSC-787

OBSERVER COVERAGE OF THE SOUTHEAST U.S. SHARK BOTTOM LONGLINE AND GILLNET FISHERIES: 2019 - 2023

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Introduction

Observations of the shark-directed bottom longline fishery in the Atlantic Ocean and Gulf of Mexico have been conducted since 1994 (Morgan et al. 2009, Mathers et al. 2020 and references therein). There are currently 166 U.S. permits issued to fishers to target sharks in the Atlantic Ocean and Gulf of Mexico, and an additional 204 permits issued to fishers to land sharks incidentally. Amendments to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan implemented a shark research fishery, which allows NMFS to select a limited number of commercial shark vessels on an annual basis to collect life history data and catch data for future stock assessments (NMFS, 2007). Specifically, only commercial shark fishers participating in the research fishery are allowed to land sandbar sharks, *Carcharhinus plumbeus*, and must carry an observer on 100% of all trips (compared to a target coverage level of 1-5 % for the shark targeted bottom longline fishery). Outside the research fishery, fishers are permitted to land other large coastal sharks (e.g. blacktip shark, *Carcharhinus limbatus*, and bull shark, *Carcharhinus leucas*).

The Southeast Gillnet Observer Program (SGOP) has adapted to the changes of the Florida-Georgia shark gillnet fishery since the program began in 1993 (e.g. Carlson and Bethea 2007 and references therein, Mathers et al. 2020). Gillnet effort targeting large coastal and small coastal sharks declined as a result of Amendments 2 and 3 to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan (NMFS 2007, 2010), which implemented a trip head limit. As a result of these regulations, shark targeted gillnet effort has declined and is currently minimal. Fishers increased and continue effort targeting finfish, mainly including Spanish mackerel *Scomberomorus maculatus* and king mackerel *Scomberomorus cavalla* with varying types of gillnet gear. The Southeast Gillnet Observer Program, in its continuing efforts to

adapt to the fishery, currently covers anchored (sink and stab), strike, or drift gillnet fishing, regardless of target, by vessels that fish year-round from the east coast of Florida to the Gulf of Mexico.

Herein, we summarize fishing effort, catch, and bycatch in these fisheries from 2019 to 2023.

Methods

Shark Bottom Longline Fishery

Shark targeted bottom longline observer coverage, not related to the shark research fishery, depended on the time of year, available funding, and fishing seasons. Vessels were randomly selected for coverage on a quarterly basis if they possessed a valid directed shark permit, and reported fishing with longline gear in that selected season in the previous year. There are three fishing zones designated for shark targeted bottom longline observer coverage: northern Atlantic, southern Atlantic and Gulf of Mexico. References to the "northern Atlantic" refer to the coastal waters off the eastern U.S. states from Maine to Virginia, the "southern Atlantic" refers to the coastline from North Carolina to Florida, and the "Gulf of Mexico" refers to the coastline from the Florida Keys to Texas. Because no vessels fished the previous year in the northern Atlantic, vessels were selected from two fishing zones: southern Atlantic and Gulf of Mexico.

Selection letters requiring observer coverage were issued to the permit holder via U.S. Certified mail approximately one month prior to the upcoming fishing season. Upon receipt of the selection letter, the permit holder is required to make contact with the observer coordinator and indicate intent to fish during the upcoming fishing season. If the permit holder intended to

fish, the observer coordinator deployed an observer to the port of departure. Vessels were required to pass a Coast Guard Vessel Safety Examination, as well as a safety evaluation by the observer prior to coverage.

While onboard the vessel, the observer completes three data forms: Longline Gear Log, Longline Haul Log, and Animal Log. The Longline Gear Log is used to record gear characteristics. The Longline Haul Log is used to record the information on set and haul back, as well as environmental information. The Animal Log records all species caught, condition of the catch (e.g. alive, dead, damaged, or unknown), and the final disposition of the catch (e.g. kept, released alive, discarded dead, etc.).

Shark Research Fishery

NMFS announced its request for applications for the Shark Research Fishery from commercial shark fishers with a directed or incidental permit for each year in the fall of the previous year. Commercial shark fishers submitted applications to the Highly Migratory Species (HMS) Management Division. The HMS Management Division provided a list of qualified applicants to the Panama City Laboratory. Based on the temporal and spatial needs of the research objectives, the availability of qualified applicants, available funding, and the available quota; depending on the year, two to five qualified applicants were selected for observer coverage. These vessels carried observers on 100% of trips. Again, depending on the year, there were two to six regions for the Research Fishery: North Atlantic, North Carolina, South Atlantic, Florida Keys, Eastern Gulf of Mexico, and Western Gulf of Mexico (Figure 1). One to two participants were located in each of these regions depending on the year. The Shark Research Fishery began each year once the HMS division issued each participant their permit, in addition

to holding a captain's meeting to review the terms of their permit. The permit is effective for the respective calendar year, beginning anywhere from February to April, and ending on December 31st.

In 2012, HMS Management Division changed the regulations for Shark Research Fishery trips to minimize unnecessary discard of dead sharks. Fishers were required to land all catch of shark species that were legal under a directed shark permit (including sandbar shark, which is otherwise prohibited) unless they could be released alive. In 2021, HMS amended the 2012 model which allows one 150 hook 'feeler' set (a short set that allows the fisher to get a 'feel' for what the catch will be like, including any dusky interactions) with a soak time of no more than two hours. Additionally, fishers had the choice to set any combination of hook number across non-concurrent sets equaling 300 hooks. This model was created to reduce catch of dusky shark, *Carcharhinus obscurus,* which is prohibited. The four fishing regions are also used to help manage interactions of dusky shark throughout the research fishery. A bycatch quota, the number of which varies year to year at the discretion of HMS, of dead dusky shark interactions for all regions was implemented. Every vessel had the option to move between regions to allow some flexibility for the fisherman to avoid seasonal dusky shark areas where catches were high. If the total allowable number of dead dusky sharks in a specified region was observed, new guidelines to reduce soak times to less than 3 hours were enforced to decrease dusky shark mortality. If additional dusky shark interactions (alive or dead), the number of which varied, occurred for the regions described above, the region would be completely closed to fishing for the remainder of the year, unless otherwise permitted by HMS. The number of hooks permitted on board remained at 500 hooks total, which accounted for any lost hooks during a feeler set and provided

fishers flexibility to use different types of hooks while fishing for non-HMS species within the same trip.

Observers continued to opportunistically sample sharks for biological samples, ideally systematically sampling each n^{th} specimen. Observer discretion is advised as *n* might vary based on vessel, catch rates, weather conditions or other situations. These samples are used for updates to life history studies. Vertebrae were collected from sandbar shark, blacktip shark and other select species to maintain time series of age distribution from within the fishery. Increased sampling of vertebrae and reproductive tissue of select species occurred to aid with upcoming stock assessments. Observers were still required to obtain trip weigh out forms, which were compared to shark dealer reports by quota monitoring personnel to manage the sandbar and large coastal shark quotas within the research fishery.

Gillnet Fishery

Vessels were randomly selected on a quarterly basis (January, April, July, and October) from a pool of vessels that had reported fishing with gillnet gear during the same quarter in the previous year in the NMFS Coastal Fisheries Logbook. Selection letters notifying permit holders of required observer coverage were issued via U.S. Certified mail approximately one month prior to the upcoming selection period. Receipt of selection letters was confirmed via signature upon acceptance by the permit holder or their proxy. Once the permit holder received the selection letter, he or she was required to make contact with the observer coordinator and indicate intent to fish during the upcoming selection period. Contact was usually made by phone, and the observer coordinator gathered information concerning the vessel's name, captain, contact persons and phone numbers, communications and safety equipment available aboard the vessel, and

information about the vessel's location, dates, and times of departure and return. Additional information collected included whether the vessel was active in another fishery, under repair, or no longer fishing. Upon notification of the intention to fish, the observer coordinator deploys an observer to the reported port of departure of the permit holder's vessel. Because gillnet trips are generally 24 hours or less (from the time of departure from port to the time of return), the observer remained assigned to the vessel for a minimum of 3 trips.

Observations were made as the net was hauled onboard. The haul target species was determined by the captain and recorded by the observer. The observer remained on the deck of the vessel in a position with an unobstructed view and recorded species and numbers of individuals caught. Status (alive or dead when boated) of individuals was recorded, and disposition of individuals brought onboard was recorded as kept, discarded alive, or discarded dead. Fork lengths (cm FL) were estimated for the entire catch. When time permitted, after the haul back was complete, observers directly measured a random group of 10 individuals from each species for fork length (FL, measured on a straight line) in cm. Sex (sharks only) was determined when possible. When possible or necessary, biological samples (e.g. otoliths, vertebrae, reproductive organs, stomach) were removed and preserved after collection. Data and samples were submitted to the NMFS Southeast Fisheries Science Center (SEFSC) Panama City staff immediately upon completion of observed trips. The data were entered and proofed by SEFSC staff, examined by NMFS/SEFSC Sustainable Fisheries Division staff, and reviewed with observer contract staff to resolve any questions.

Results

Shark Bottom Longline Fishery

Gear and Haul

There were 80 hauls on 42 trips observed targeting sharks in the southern Atlantic and Gulf of Mexico 2019-2021 (Table 1). Trips averaged 1.6 days in length. The mainline length ranged from 0.6 to 23.0 km, with an average of 6.7 km. The bottom depth fished ranged from 4.6 to 33.5 m, with an average of 16.5 m. The number of hooks ranged from 63 to 607 hooks, with an average of 205 hooks fished. The most commonly used hook was the 16/0 circle hook (56.3 %) followed by the 20/0 circle hook (31.3 %). The average soak duration was 5.2 hr. Trips could not be illustrated due to vessel confidentiality.

Catch

There were 2346 individual animals caught on observed bottom longline hauls in the Gulf of Mexico and southern Atlantic 2019-2021. Sharks comprised 99.2 % of the catch, followed by teleosts with 0.5 %, and batoids with 0.2 % of the catch. All catch by year can be found in Tables 2-3. Average fork lengths of sharks measured can be found in Table 9.

Protected Resource Interactions

One smalltooth sawfish was caught in shark targeted bottom longline sets in 2021 and was released alive.

Shark Research Fishery

Gear and Haul

There were 300 hauls on 175 trips observed in the shark research fishery in the southern Atlantic and Gulf of Mexico 2019-2023 (Table 1). Trips averaged 1.7 days in length. The mainline length ranged from 0.9 to 23.3 km, with an average of 9.5 km. The bottom depth fished ranged from 9.1 to 115.8 m, with an average of 34.2 m. The number of hooks ranged from 25 to

301 hooks, with an average of 208 hooks fished. The most commonly used hook was the 20/0 circle hook (41.6 %) followed by the 16/0 circle hook (28.4 %), and 18/0 circle hook (27.4 %). The average soak duration was 4.8 hr. Trips could not be illustrated due to vessel confidentiality.

Catch

There were 13472 individual animals caught on observed shark research fishery bottom longline hauls in the Gulf of Mexico and southern Atlantic 2019-2023. Sharks comprised 98.5 % of the catch, followed by teleosts with 1.2 %, and batoids with 0.1 % of the catch. All catch by year can be found in Tables 4-8. Average fork lengths of sharks measured can be found in Table 10.

In 2020, one vessel participated in the Shark Research Fishery using gillnet gear to target sandbar sharks. These sets could not be further described due to vessel confidentiality.

Protected Resource Interactions

Two loggerhead sea turtles were caught in shark research fishery longline sets in 2019 and were both released alive. Eleven smalltooth sawfish were caught in 2021 and were all released alive. Four smalltooth sawfish were caught in 2022 and were all released alive. Three smalltooth sawfish were caught in 2023 and were all released alive.

Gillnet Fishery

A total of 243 trips comprising various gillnet fisheries was observed 2019-2023 (Table 11). Set locations occurred along the Florida coast in the Atlantic Ocean, as well as the Gulf of Mexico. Location-specific reports of trips cannot be documented herein due to vessel confidentiality laws, therefore observations are summarized by gear type. All gear details, catch, and average length information is summarized by years 2019-2023. Gear details by year can be

found in Table 12, catch information by year can be found in Tables 13-15, and average length information by year can be found in Tables 16-18.

King Mackerel runaround drift gillnet fishery

Twenty-seven runaround drift gillnet sets targeting king mackerel on thirty-three trips were observed 2019-2023. Vessels fished with nets ranging 365.8 – 594.4 m (1200 - 1950 ft) long, net depths of 6.1 – 33.2 m (20.0 – 109.0 ft) and stretched mesh size of 7.6 - 12.7 cm (3.5 - 5 in). The entire fishing process (time net was first set until time haul back was completed) averaged 6.97 hr (3.35 S.D.).

Catch composition by number of all king mackerel targeted sets was 99.9 % teleosts and 0.1 % elasmobranchs. King mackerel made up 99.41 % of the teleost catch by number. Average (S.D.) fork lengths of teleosts caught in king mackerel targeted sets was 93.7 cm (12.2) for king mackerel.

Shark targeted drift and sink gillnet sets

Two gillnet vessels were observed making 15 sink net shark targeted sets on 7 trips 2019-2023. One vessel was observed making 1 drift net shark targeted set on 1 trip. These sets could not be further described due to vessel confidentiality.

Spanish mackerel targeted sink gillnet sets

Six hundred and twenty-nine sink gillnet sets targeting Spanish mackerel on one hundred and forty-four trips were observed 2019-2023. Vessels fished with nets ranging 27.4 – 731.5 m (90 - 2400 ft) long, net depths of 3.0 – 7.6 m (10.0 – 25.0 ft) and stretched mesh size of

7.3 – 9.5 cm (2.875 – 3.75 in). The entire fishing process (time net was first set until time haul back was completed) averaged 0.99 hr (0.81 S.D.).

Catch composition by number of all Spanish mackerel targeted sink sets was 95.4 % teleosts and 4.5 % elasmobranchs. Spanish mackerel made up 62.49 % of the total catch by number, followed by bluefish (14.41 %), and Atlantic bumper (5.21 %). Atlantic sharpnose made up 3.05 % of total catch by number, followed by bonnethead shark (0.96 %).

Spanish mackerel targeted drift gillnet sets

One hundred and nineteen drift gillnet sets targeting Spanish mackerel on twenty-three trips were observed 2019-2023. Vessels fished with nets ranging 13.7 – 548.6 m (45 - 1800 ft) long, net depths of 3.0 – 4.9 m (10.0 – 16.0 ft) and stretched mesh size of 7.3 – 8.9 cm (2.875 – 3.5 in). The entire fishing process (time net was first set until time haul back was completed) averaged 0.72 hr (0.54 S.D.).

Catch composition by number of all Spanish mackerel targeted sink sets was 96.6 % teleosts, 3.0 % elasmobranchs, and 0.4 % invertebrates. Spanish mackerel made up 57.92 % of the total catch by number, followed by bluefish (26.24 %), and Atlantic bumper (4.54 %). Atlantic sharpnose made up 2.14 % of total catch by number, followed by bonnethead shark (0.33 %).

Various species targeted drift and sink gillnet sets

One hundred and twenty-seven sink and drift net mixed species targeted sets on 39 trips were observed 2019-2023. Targets included mixed species (small coastal sharks and

general teleost), general teleost, bluefish, and Atlantic croaker. These sets could not be further described due to vessel confidentiality.

Protected resource interactions in gillnet sets

Three interactions with protected resources were observed in gillnet sets from 2019-2023. One loggerhead sea turtle (*Caretta caretta)* was caught and released alive in 2022 in a Spanish mackerel targeted drift gillnet set, one smalltooth sawfish (*Pristis pectinata*) was caught and released alive in 2023 in a mixed species targeted sink gillnet set, and one bottlenose dolphin was caught and released alive in 2023 in a Spanish mackerel targeted sink gillnet set.

Discussion

Shark Bottom Longline and Shark Research Fisheries

Observer coverage of the shark bottom longline fishery ended in 2021 due to lack of funding. This coverage ran from 2005, when it was transferred from the University of Florida, Florida Museum of Natural History to NMFS, to 2021.

In the shark research fishery, there was a reduction in participants beginning in 2020 due to COVID-19, continuing into 2021 with the absence of a shark buyer, and solidified in 2022 with the passage of the Shark Fin Sales Elimination Act.

The Shark Bottom Longline Observer Program collects and provides vital data on temporal and spatial catch, release mortality, bycatch species, and updates to quota monitoring. Continued observer funding will permit the program to maintain this important time series.

Gillnet Fishery

The declining effort of shark targeted gillnet sets continued to be observed, with only some small coastal shark targeted sets observed. Drift runaround (strike) gillnet gear was observed exclusively in teleost-targeted (king mackerel) sets. This is a derby style fishery that requires a specific permit, with around 20 participants fishing the king mackerel southern Gulf of Mexico zone. The majority of sink and drift gillnet fishers continued to target mostly Spanish mackerel. Incidental take of protected species, such as sea turtles and marine mammals, remained a low occurrence, with three total observed in a 5 year period.

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Figure 1. Shark Research Fishery Regions used 2019-2023. Not all regions were represented by a vessel each year.

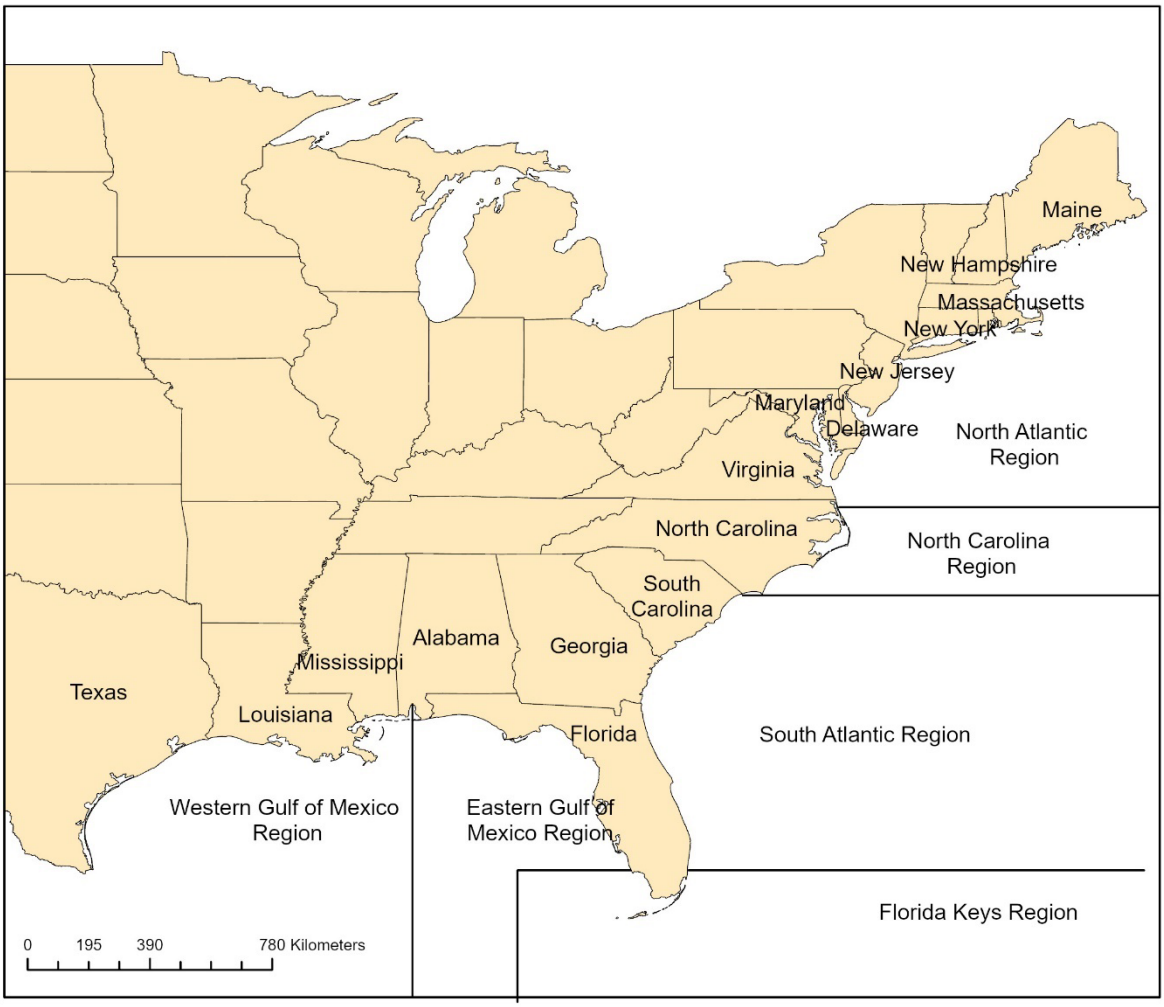

Table 1. Number of vessels, trips, and hauls observed in the Gulf of Mexico and South Atlantic Ocean in the Shark Bottom Longline and Shark Research Fisheries. Years that could not be described due to vessel confidentiality are denoted by C.

	Year	2019	2020	2021	2022	2023
Shark Bottom Longline	Vessels	3	C	6	0	0
	Trips	16	C	24	0	0
	Hauls	39	C	35	0	0
Shark Research Fishery (Bottom Longline Gear)	Vessels*	5 (5)	7 (4)	4 (3)	5 (4)	3 (3)
	Trips	60	36	36	21	22
	Hauls	100	79	62	34	25
Shark Research Fishery (Gillnet Gear)	Vessels	0	C	0	0	0
	Trips	0	C	0	0	0
	Hauls	0	C	0	0	0

*Number in parenthesis denotes number of vessels in the Shark Research Fishery who actively fished.

Table 2. Number caught and disposition of catch in percentage for all observed hauls in the Shark Bottom Longline Fishery in 2019. Disposition of catch for all catch tables is divided into kept (K), discard alive (DA), discard dead (DD), and unknown (U).

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	264	97.0	0.8	1.9	0.4
Carcharhinus limbatus	Blacktip Shark	149	91.3	0.7	7.4	0.7
Carcharhinidae	Requiem Shark	94	89.4	2.1	8.5	0.0
Ginglymostoma cirratum	Nurse Shark	83	4.8	95.2	0.0	0.0
Carcharhinus acronotus	Blacknose Shark	71	29.6	36.6	33.8	0.0
Galeocerdo cuvier	Tiger Shark	67	50.8	46.3	3.0	0.0
Carcharhinus plumbeus	Sandbar Shark	62	0.0	100.0	0.0	0.0
Carcharhinus leucas	Bull Shark	34	100.0	0.0	0.0	0.0
Sphyrna mokarran	Great Hammerhead Shark	28	85.7	3.6	7.1	3.6
Negaprion brevirostris	Lemon Shark	25	96.0	4.0	0.0	0.0
Elasmobranchii	Sharks	17	0.0	23.5	76.5	0.0
Sphyrna lewini	Scalloped Hammerhead Shark	8	75.0	12.5	12.5	0.0
Carcharhinus brevipinna	Spinner Shark	6	100.0	0.0	0.0	0.0
Carcharhinus isodon	Finetooth Shark	5	100.0	0.0	0.0	0.0
Dasyatis	Stingrays	1	0.0	100.0	0.0	0.0
Unknown animal	Unknown Animal	1	0.0	0.0	0.0	100.0

Table 3. Number caught and disposition of catch in percentage for all observed hauls in the Shark Bottom Longline Fishery in 2021.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus limbatus	Blacktip Shark	466	94.0	0.2	5.8	0.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	359	90.8	0.3	8.9	0.0
Carcharhinus leucas	Bull Shark	99	90.9	9.1	0.0	0.0
Ginglymostoma cirratum	Nurse Shark	83	0.0	100.0	0.0	0.0
Carcharhinus acronotus	Blacknose Shark	55	34.6	27.3	38.2	0.0
Carcharhinus perezi	Caribbean Reef Shark	52	0.0	30.8	69.2	0.0
Sphyrna mokarran	Great Hammerhead Shark	41	85.4	4.9	9.8	0.0
Negaprion brevirostris	Lemon Shark	38	94.7	0.0	0.0	5.3
Carcharhinus plumbeus	Sandbar Shark	30	0.0	100.0	0.0	0.0
Galeocerdo cuvier	Tiger Shark	26	11.5	76.9	11.5	0.0
Sphyrna lewini	Scalloped Hammerhead Shark	21	33.3	57.1	9.5	0.0
Carcharhinus brevipinna	Spinner Shark	20	25.0	20.0	55.0	0.0
Elasmobranchii	Sharks	11	0.0	0.0	100.0	0.0
Carcharhinus limbatus	Blacktip Shark	10	0.0	0.0	0.0	100.0
Carcharhinus brevipinna	Spinner Shark	8	0.0	0.0	0.0	100.0
Carcharhinus isodon	Finetooth Shark	6	0.0	0.0	0.0	100.0
Sciaenops ocellatus	Red Drum	5	0.0	100.0	0.0	0.0
Sphyrna tiburo	Bonnethead Shark	3	100.0	0.0	0.0	0.0
Gymnothorax funebris	Green Moray Eel	3	0.0	0.0	100.0	0.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	2	0.0	0.0	0.0	100.0
Bathytoshia centroura	Roughtail Stingray	2	0.0	100.0	0.0	0.0
Bagre marinus	Gafftopsail Catfish	1	0.0	100.0	0.0	0.0
Sciaenops ocellatus	Red Drum	1	0.0	0.0	0.0	100.0
Sphyrna	Hammerhead Shark	1	0.0	100.0	0.0	0.0
Pristis pectinata	Smalltooth Sawfish	1	0.0	100.0	0.0	0.0
Rachycentron canadum	Cobia	1	100.0	0.0	0.0	0.0
Carcharhinus leucas	Bull Shark	1	0.0	0.0	0.0	100.0
Dasyatis	Stingrays	1	0.0	100.0	0.0	0.0

Table 4. Number caught and disposition of catch in percentage for all observed hauls in the Shark Research Fishery in 2019.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus plumbeus	Sandbar Shark	3377	98.4	0.0	0.3	1.2
Carcharhinus limbatus	Blacktip Shark	563	96.8	0.9	1.8	0.5
Galeocerdo cuvier	Tiger Shark	312	27.9	69.6	1.9	0.6
Ginglymostoma cirratum	Nurse Shark	174	2.9	97.1	0.0	0.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	150	57.3	0.7	41.3	0.7
Carcharhinus leucas	Bull Shark	111	91.9	1.8	0.0	6.3
Carcharhinus obscurus	Dusky Shark	79	0.0	77.2	22.8	0.0
Sphyrna mokarran	Great Hammerhead Shark	73	76.7	19.2	4.1	0.0
Carcharhinus acronotus	Blacknose Shark	71	15.5	31.0	53.5	0.0
Sphyrna lewini	Scalloped Hammerhead Shark	62	62.9	27.4	4.8	4.8
Negaprion brevirostris	Lemon Shark	52	92.3	3.9	0.0	3.9
Carcharias taurus	Sand Tiger Shark	48	0.0	100.0	0.0	0.0
Carcharhinus brevipinna	Spinner Shark	20	90.0	5.0	5.0	0.0
Epinephelus morio	Red Grouper	10	10.0	70.0	20.0	0.0
Hypanus americanus	Southern Stingray	6	0.0	100.0	0.0	0.0
Unknown animal	Unknown Animal	5	0.0	20.0	0.0	80.0
Carcharodon carcharias	Great White Shark	4	0.0	75.0	25.0	0.0
Seriola dumerili	Greater Amberjack	4	100.0	0.0	0.0	0.0
Sphyraena	Barracudas	3	33.3	0.0	66.7	0.0
Epinephelus itajara	Goliath Grouper	3	0.0	100.0	0.0	0.0
Caretta caretta	Loggerhead Sea Turtle	2	0.0	100.0	0.0	0.0
Carcharhinus perezi	Caribbean Reef Shark	2	0.0	100.0	0.0	0.0
Sphyrna	Hammerhead Shark	2	100.0	0.0	0.0	0.0
Raja eglanteria	Clearnose Skate	2	0.0	0.0	100.0	0.0
Carcharhinus falciformis	Silky Shark	2	0.0	100.0	0.0	0.0
Elasmobranchii	Sharks	1	0.0	0.0	100.0	0.0
Dasyatis	Stingrays	1	0.0	100.0	0.0	0.0
Centropristis ocyurus	Bank Sea Bass	1	100.0	0.0	0.0	0.0
Sphyrna tiburo	Bonnethead Shark	1	0.0	0.0	100.0	0.0
Tetraodontidae	Puffers	1	100.0	0.0	0.0	0.0
Alopias vulpinus	Common Thresher Shark	1	100.0	0.0	0.0	0.0
Trichiurus lepturus	Atlantic Cutlassfish	1	100.0	0.0	0.0	0.0
Sciaenops ocellatus	Red Drum	1	0.0	100.0	0.0	0.0

Table 5. Number caught and disposition of catch in percentage for all observed hauls in the Shark Research Fishery in 2020.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus plumbeus	Sandbar Shark	563	98.8	0.4	0.4	0.5
Carcharhinus plumbeus	Sandbar Shark	383	96.1	0.0	0.3	3.7
Carcharhinus limbatus	Blacktip Shark	142	95.1	0.0	4.2	0.7
Galeocerdo cuvier	Tiger Shark	133	32.3	64.7	2.3	0.8
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	95	62.1	0.0	37.9	0.0
Galeocerdo cuvier	Tiger Shark	78	37.2	59.0	1.3	2.6
Ginglymostoma cirratum	Nurse Shark	70	2.9	97.1	0.0	0.0
Carcharhinus leucas	Bull Shark	63	92.1	0.0	0.0	7.9
Ginglymostoma cirratum	Nurse Shark	56	69.6	23.2	0.0	7.1
Carcharhinus leucas	Bull Shark	43	100.0	0.0	0.0	0.0
Carcharhinus acronotus	Blacknose Shark	34	2.9	61.8	35.3	0.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	33	75.8	0.0	24.2	0.0
Negaprion brevirostris	Lemon Shark	25	96.0	0.0	0.0	4.0
Sphyrna lewini	Scalloped Hammerhead Shark	24	25.0	70.8	4.2	0.0
Carcharhinus limbatus	Blacktip Shark	19	94.7	0.0	5.3	0.0
Sphyrna mokarran	Great Hammerhead Shark	16	31.3	56.3	6.3	6.3
Sphyrna mokarran	Great Hammerhead Shark	10	60.0	30.0	10.0	0.0
Negaprion brevirostris	Lemon Shark	9	88.9	0.0	0.0	11.1
Epinephelus morio	Red Grouper	8	37.5	50.0	12.5	0.0
Carcharhinus acronotus	Blacknose Shark	7	71.4	0.0	28.6	0.0
Epinephelus itajara	Goliath Grouper	6	0.0	100.0	0.0	0.0
Elasmobranchii	Sharks	6	0.0	0.0	100.0	0.0
Carcharhinus brevipinna	Spinner Shark	4	100.0	0.0	0.0	0.0
Carcharhinus obscurus	Dusky Shark	4	0.0	100.0	0.0	0.0
Carcharhinus falciformis	Silky Shark	4	100.0	0.0	0.0	0.0
Epinephelus itajara	Goliath Grouper	4	0.0	100.0	0.0	0.0
Epinephelus morio	Red Grouper	3	0.0	66.7	33.3	0.0
Carcharhinus brevipinna	Spinner Shark	3	100.0	0.0	0.0	0.0
Sphyrna lewini	Scalloped Hammerhead Shark	3	0.0	100.0	0.0	0.0
Calappa flammea	Flame Box Crab	2	0.0	100.0	0.0	0.0
Bagre marinus	Gafftopsail Catfish	2	0.0	0.0	100.0	0.0
Rhinoptera bonasus	Cownose Ray	1	0.0	0.0	100.0	0.0
Echeneis neucratoides	Whitefin Sharksucker	1	0.0	100.0	0.0	0.0
Bathytoshia centroura	Roughtail Stingray	1	0.0	100.0	0.0	0.0
Opsanus pardus	Leopard Toadfish	1	0.0	100.0	0.0	0.0
Carcharhinus falciformis	Silky Shark	1	0.0	0.0	100.0	0.0
Mycteroperca microlepis	Gag Grouper	1	0.0	100.0	0.0	0.0
Centropristis ocyurus	Bank Sea Bass	1	100.0	0.0	0.0	0.0
Carcharhinus obscurus	Dusky Shark	1	0.0	100.0	0.0	0.0
Sphyrna	Hammerhead Shark	1	0.0	100.0	0.0	0.0

Table 6. Number caught and disposition of catch in percentage for all observed hauls in the Shark Research Fishery in 2021.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus plumbeus	Sandbar Shark	2228	97.9	0.0	0.4	1.8
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	258	2.7	19.4	77.9	0.0
Galeocerdo cuvier	Tiger Shark	164	22.0	73.8	2.4	1.8
Ginglymostoma cirratum	Nurse Shark	82	6.1	91.5	0.0	2.4
Carcharhinus limbatus	Blacktip Shark	76	73.7	11.8	13.2	1.3
Sphyrna mokarran	Great Hammerhead Shark	74	50.0	33.8	16.2	0.0
Sphyrna lewini	Scalloped Hammerhead Shark	73	13.7	67.1	19.2	0.0
Carcharhinus leucas	Bull Shark	66	72.7	24.2	1.5	1.5
Carcharhinus obscurus	Dusky Shark	45	0.0	84.4	11.1	4.4
Seriola dumerili	Greater Amberjack	28	78.6	17.9	3.6	0.0
Negaprion brevirostris	Lemon Shark	22	90.9	4.6	4.6	0.0
Carcharhinus acronotus	Blacknose Shark	18	0.0	38.9	61.1	0.0
Epinephelus morio	Red Grouper	15	6.7	53.3	40.0	0.0
Pristis pectinata	Smalltooth Sawfish	11	0.0	100.0	0.0	0.0
Epinephelus itajara	Goliath Grouper	9	0.0	100.0	0.0	0.0
Lutjanus analis	Mutton Snapper	9	88.9	0.0	11.1	0.0
Carcharhinus brevipinna	Spinner Shark	7	71.4	28.6	0.0	0.0
Carcharhinus falciformis	Silky Shark	7	14.3	71.4	14.3	0.0
Sphyraena barracuda	Great Barracuda	6	0.0	0.0	100.0	0.0
Sphyrna	Hammerhead Shark	4	0.0	50.0	0.0	50.0
Carcharhinus perezi	Caribbean Reef Shark	3	0.0	66.7	33.3	0.0
Sphyraena	Barracudas	3	0.0	0.0	100.0	0.0
Lutjanidae	Snapper Family	2	0.0	0.0	100.0	0.0
Centropristis ocyurus	Bank Sea Bass	2	100.0	0.0	0.0	0.0
Lutjanus campechanus	Red Snapper	2	50.0	50.0	0.0	0.0
Seriola rivoliana	Almaco Jack	2	50.0	50.0	0.0	0.0
Seriola	Amberjacks	2	0.0	0.0	50.0	50.0
Sphyrna zygaena	Smooth Hammerhead Shark	2	0.0	100.0	0.0	0.0
Elasmobranchii	Sharks	2	0.0	0.0	100.0	0.0
Gymnothorax saxicola	Ocellated Moray Eel	1	0.0	0.0	100.0	0.0
Gymnothorax moringa	Spotted Moray Eel	1	0.0	0.0	100.0	0.0
Seriola zonata	Banded Rudderfish	1	0.0	100.0	0.0	0.0
Echeneis naucrates	Sharksucker	1	0.0	100.0	0.0	0.0
Anthozoa	Coral	1	0.0	0.0	0.0	100.0
Echeneis neucratoides	Whitefin Sharksucker	1	0.0	100.0	0.0	0.0
Dasyatis	Stingrays	1	0.0	100.0	0.0	0.0

Table 7. Number caught and disposition of catch in percentage for all observed hauls in the Shark Research Fishery in 2022.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus plumbeus	Sandbar Shark	1890	99.3	0.1	0.3	0.3
Sphyrna lewini	Scalloped Hammerhead Shark	51	5.9	58.8	35.3	0.0
Galeocerdo cuvier	Tiger Shark	50	28.0	68.0	2.0	2.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	33	3.0	30.3	66.7	0.0
Ginglymostoma cirratum	Nurse Shark	27	22.2	74.1	0.0	3.7
Elasmobranchii	Sharks	23	4.4	4.4	39.1	52.2
Carcharhinus leucas	Bull Shark	23	95.7	4.4	0.0	0.0
Carcharhinus obscurus	Dusky Shark	21	0.0	90.5	9.5	0.0
Carcharhinus limbatus	Blacktip Shark	19	94.7	0.0	5.3	0.0
Sphyrna mokarran	Great Hammerhead Shark	18	50.0	27.8	22.2	0.0
Carcharhinus falciformis	Silky Shark	9	77.8	11.1	11.1	0.0
Centropristis ocyurus	Bank Sea Bass	5	100.0	0.0	0.0	0.0
Pristis pectinata	Smalltooth Sawfish	4	0.0	100.0	0.0	0.0
Epinephelus morio	Red Grouper	3	0.0	100.0	0.0	0.0
Negaprion brevirostris	Lemon Shark	3	100.0	0.0	0.0	0.0
Carcharhinus perezi	Caribbean Reef Shark	3	0.0	100.0	0.0	0.0
Lutjanus campechanus	Red Snapper	2	50.0	0.0	50.0	0.0
Carcharodon carcharias	Great White Shark	2	0.0	50.0	50.0	0.0
Carcharhinus acronotus	Blacknose Shark	2	50.0	50.0	0.0	0.0
Epinephelus itajara	Goliath Grouper	2	0.0	100.0	0.0	0.0
Seriola dumerili	Greater Amberjack	2	50.0	0.0	50.0	0.0
Octopoda	Octopus	1	0.0	0.0	0.0	100.0
Ophichthus rex	King Snake Eel	1	0.0	0.0	100.0	0.0
Echeneis naucrates	Sharksucker	1	0.0	100.0	0.0	0.0
Sphyrna	Hammerhead Shark	1	0.0	0.0	0.0	100.0
Hypanus americanus	Southern Stingray	1	0.0	100.0	0.0	0.0
Opsanus beta	Gulf Toadfish	1	0.0	100.0	0.0	0.0
Dasyatis	Stingrays	1	0.0	100.0	0.0	0.0
Carcharhinus brevipinna	Spinner Shark	1	100.0	0.0	0.0	0.0
Lutjanus analis	Mutton Snapper	1	100.0	0.0	0.0	0.0

Table 8. Number caught and disposition of catch in percentage for all observed hauls in the Shark Research Fishery in 2023.

Species Caught	Common Name	Total Caught	Kept (%)	D.A. (%)	D.D. (%)	Unknown (%)
Carcharhinus plumbeus	Sandbar Shark	742	98.7	0.0	0.3	1.1
Sphyrna lewini	Scalloped Hammerhead Shark	49	0.0	61.2	38.8	0.0
Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	47	2.1	25.5	72.3	0.0
Carcharhinus obscurus	Dusky Shark	40	0.0	97.5	2.5	0.0
Carcharhinus leucas	Bull Shark	39	97.4	0.0	0.0	2.6
Galeocerdo cuvier	Tiger Shark	33	3.0	97.0	0.0	0.0
Sphyrna mokarran	Great Hammerhead Shark	31	0.0	41.9	58.1	0.0
Ginglymostoma cirratum	Nurse Shark	14	14.3	71.4	0.0	14.3
Carcharhinus brevipinna	Spinner Shark	11	54.6	45.5	0.0	0.0
Carcharhinus falciformis	Silky Shark	8	25.0	50.0	25.0	0.0
Lutjanus analis	Mutton Snapper	4	100.0	0.0	0.0	0.0
Negaprion brevirostris	Lemon Shark	4	100.0	0.0	0.0	0.0
Pristis pectinata	Smalltooth Sawfish	3	0.0	100.0	0.0	0.0
Sphyraena barracuda	Great Barracuda	2	100.0	0.0	0.0	0.0
Carcharias taurus	Sand Tiger Shark	2	0.0	100.0	0.0	0.0
Carcharhinus limbatus	Blacktip Shark	2	50.0	50.0	0.0	0.0
Mycteroperca bonaci	Black Grouper	1	0.0	100.0	0.0	0.0
Paguroidea	Hermit Crabs	1	0.0	100.0	0.0	0.0
Mustelus norrisi	Florida Smoothhound Shark	1	0.0	100.0	0.0	0.0
Lutjanus cyanopterus	Cubera Snapper	1	100.0	0.0	0.0	0.0
Carcharodon carcharias	Great White Shark	1	0.0	100.0	0.0	0.0

Table 9. Average size (fork length, FL) in centimeters and standard deviation (S.D.) of sharks measured in shark bottom longline sets by year.

Year	Species	Common Name	Total	Avg FL	S.D.
2019	*Rhizoprionodon terraenovae*	Atlantic Sharpnose Shark	264	75.7	6.3
	Carcharhinus limbatus	Blacktip Shark	149	118.3	18.2
	Carcharhinidae	Requiem Shark	94	111.9	21.0
	Ginglymostoma cirratum	Nurse Shark	83	172.9	32.7
	Carcharhinus acronotus	Blacknose Shark	71	87.7	22.1
	Galeocerdo cuvier	Tiger Shark	67	158.5	67.7
	Carcharhinus plumbeus	Sandbar Shark	62	150.9	20.7
	Carcharhinus leucas	Bull Shark	34	186.7	23.6
	Sphyrna mokarran	Great Hammerhead Shark	28	189.2	65.4
	Negaprion brevirostris	Lemon Shark	25	201.9	16.3
	Elasmobranchii	Sharks	17	108.5	31.1
	Sphyrna lewini	Scalloped Hammerhead Shark	8	126.8	66.3
	Carcharhinus brevipinna	Spinner Shark	6	110.5	36.8
	Carcharhinus isodon	Finetooth Shark	5	101.2	11.8
2021	*Carcharhinus limbatus*	Blacktip Shark	417	124.8	14.7
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	353	77.6	4.6
	Carcharhinus leucas	Bull Shark	97	132.4	26.3
	Ginglymostoma cirratum	Nurse Shark	83	159.9	9.1
	Carcharhinus perezi	Caribbean Reef Shark	52	147.2	10.1
	Carcharhinus acronotus	Blacknose Shark	49	90.2	8.4
	Sphyrna mokarran	Great Hammerhead Shark	40	201.7	23.0
	Negaprion brevirostris	Lemon Shark	38	207.1	11.6
	Carcharhinus plumbeus	Sandbar Shark	29	159.0	6.0
	Galeocerdo cuvier	Tiger Shark	26	179.4	72.0
	Sphyrna lewini	Scalloped Hammerhead Shark	21	134.1	56.5
	Carcharhinus brevipinna	Spinner Shark	12	132.3	32.5
	Elasmobranchii	Sharks	11	100.9	11.4
	Sphyrna tiburo	Bonnethead Shark	3	66.7	2.5
	Sphyrna	Hammerhead Shark	1	200.0	0.0
	Pristis pectinata	Smalltooth Sawfish	1	250.0	0.0

Table 10. Average size (fork length, FL) in centimeters and standard deviation (S.D.) of sharks measured in Shark Research Fishery sets by year.

Year	Species	Common Name	Total	Avg FL	S.D.
2019	*Carcharhinus plumbeus*	Sandbar Shark	3377	151.1	21.9
	Carcharhinus limbatus	Blacktip Shark	563	127.3	13.8
	Galeocerdo cuvier	Tiger Shark	312	146.5	66.4
	Ginglymostoma cirratum	Nurse Shark	174	174.8	25.6
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	150	76.5	8.6
	Carcharhinus leucas	Bull Shark	111	193.4	18.0
	Carcharhinus obscurus	Dusky Shark	79	133.8	41.8
	Sphyrna mokarran	Great Hammerhead Shark	73	213.6	33.1
	Carcharhinus acronotus	Blacknose Shark	71	93.1	9.8
	Sphyrna lewini	Scalloped Hammerhead Shark	62	172.9	30.0
	Negaprion brevirostris	Lemon Shark	52	207.9	20.7
	Carcharias taurus	Sand Tiger Shark	48	189.9	29.5
	Carcharhinus brevipinna	Spinner Shark	20	152.3	23.4
	Carcharodon carcharias	Great White Shark	4	230.0	57.2
	Sphyrna	Hammerhead Shark	2	232.5	3.5
	Carcharhinus perezi	Caribbean Reef Shark	2	145.0	7.1
	Carcharhinus falciformis	Silky Shark	2	132.5	3.5
	Sphyrna tiburo	Bonnethead Shark	1	53.0	0.0
	Elasmobranchii	Sharks	1	90.0	0.0
	Alopias vulpinus	Common Thresher Shark	1	159.0	0.0
2020	*Carcharhinus plumbeus*	Sandbar Shark	946	159.1	7.4
	Galeocerdo cuvier	Tiger Shark	211	148.2	66.6
	Carcharhinus limbatus	Blacktip Shark	161	116.4	16.5
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	128	72.6	8.3
	Ginglymostoma cirratum	Nurse Shark	126	191.4	34.2
	Carcharhinus leucas	Bull Shark	106	196.2	27.4
	Carcharhinus acronotus	Blacknose Shark	41	91.8	6.9
	Negaprion brevirostris	Lemon Shark	34	207.4	20.8
	Sphyrna lewini	Scalloped Hammerhead Shark	27	164.3	33.2
	Sphyrna mokarran	Great Hammerhead Shark	26	222.4	54.1
	Carcharhinus brevipinna	Spinner Shark	7	149.6	28.3
	Elasmobranchii	Sharks	6	91.7	9.8
	Carcharhinus obscurus	Dusky Shark	5	225.2	61.6
	Carcharhinus falciformis	Silky Shark	5	142.6	47.0
	Sphyrna	Hammerhead Shark	1	213.0	0.0

Table 10 cont. Average size (fork length, FL) in centimeters and standard deviation (S.D.) of sharks measured in Shark Research Fishery sets by year.

Year	Species	Common_Name	Total	Avg FL	S.D.
2021	*Carcharhinus plumbeus*	Sandbar Shark	2159	161.0	9.5
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	255	73.8	6.0
	Galeocerdo cuvier	Tiger Shark	143	176.7	84.2
	Ginglymostoma cirratum	Nurse Shark	80	134.8	42.7
	Carcharhinus limbatus	Blacktip Shark	74	133.6	13.6
	Sphyrna lewini	Scalloped Hammerhead Shark	73	178.8	23.4
	Sphyrna mokarran	Great Hammerhead Shark	69	211.9	22.9
	Carcharhinus leucas	Bull Shark	61	195.4	16.7
	Carcharhinus obscurus	Dusky Shark	26	219.2	56.9
	Negaprion brevirostris	Lemon Shark	22	221.7	21.5
	Carcharhinus acronotus	Blacknose Shark	18	94.1	9.2
	Pristis pectinata	Smalltooth Sawfish	11	311.5	137.1
	Carcharhinus falciformis	Silky Shark	7	152.3	66.4
	Carcharhinus brevipinna	Spinner Shark	7	122.1	14.8
	Sphyrna	Hammerhead Shark	4	195.0	19.2
	Carcharhinus perezi	Caribbean Reef Shark	3	157.3	6.4
	Sphyrna zygaena	Smooth Hammerhead Shark	2	165.0	21.2
	Elasmobranchii	Sharks	2	50.0	70.7
2022	*Carcharhinus plumbeus*	Sandbar Shark	1120	160.4	8.7
	Galeocerdo cuvier	Tiger Shark	37	169.4	92.7
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	25	70.3	7.9
	Carcharhinus leucas	Bull Shark	21	191.4	38.2
	Sphyrna lewini	Scalloped Hammerhead Shark	18	177.8	39.0
	Ginglymostoma cirratum	Nurse Shark	17	174.8	55.4
	Sphyrna mokarran	Great Hammerhead Shark	11	274.3	93.2
	Carcharhinus limbatus	Blacktip Shark	11	130.6	9.5
	Carcharhinus obscurus	Dusky Shark	10	296.3	85.4
	Elasmobranchii	Sharks	5	24.0	32.9
	Pristis pectinata	Smalltooth Sawfish	4	397.5	28.7
	Negaprion brevirostris	Lemon Shark	2	206.5	29.0
	Carcharhinus acronotus	Blacknose Shark	2	94.5	2.1
	Sphyrna	Hammerhead Shark	1	170.0	0.0
	Carcharodon carcharias	Great White Shark	1	330.0	0.0
	Carcharhinus falciformis	Silky Shark	1	96.0	0.0
	Carcharhinus brevipinna	Spinner Shark	1	166.0	0.0

Table 10 cont. Average size (fork length, FL) in centimeters and standard deviation (S.D.) of sharks measured in Shark Research Fishery sets by year.

Year	Species	Common_Name	Total	Avg FL	S.D.
2023	*Carcharhinus plumbeus*	Sandbar Shark	742	159.9	13.6
	Sphyrna lewini	Scalloped Hammerhead Shark	49	164.8	32.0
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	47	67.9	18.7
	Carcharhinus obscurus	Dusky Shark	40	217.8	59.5
	Carcharhinus leucas	Bull Shark	39	186.9	18.0
	Galeocerdo cuvier	Tiger Shark	33	135.4	67.2
	Sphyrna mokarran	Great Hammerhead Shark	31	188.9	29.2
	Ginglymostoma cirratum	Nurse Shark	14	152.2	42.9
	Carcharhinus brevipinna	Spinner Shark	11	147.6	29.5
	Carcharhinus falciformis	Silky Shark	8	136.1	55.6
	Negaprion brevirostris	Lemon Shark	4	214.3	14.4
	Pristis pectinata	Smalltooth Sawfish	3	230.0	17.3
	Carcharias taurus	Sand Tiger Shark	2	228.5	21.9
	Carcharhinus limbatus	Blacktip Shark	2	125.0	7.1
	Mustelus norrisi	Florida Smoothhound Shark	1	54.0	0.0
	Carcharodon carcharias	Great White Shark	1	274.0	0.0

Table 11. Number of vessels, trips, and sets observed in the Gulf of Mexico and South Atlantic Ocean in the Gillnet Fishery. Years that could not be described due to vessel confidentiality are denoted by C.

	Year	2019	2020	2021	2022	2023
King Mackerel	Total Vessels	C	3	C	5	7
Drift Runaround Gillnet	Total Trips	C	4	C	15	10
	Total Sets	C	5	C	11	7
Spanish Mackerel	Total Vessels	8	7	13	7	7
Sink Gillnet	Total Trips	21	19	63	21	20
	Total Sets	89	61	295	89	95
Spanish Mackerel	Total Vessels	0	0	3	5	C
Drift Gillnet	Total Trips	0	0	9	11	C
	Total Sets	0	0	32	79	C

Table 12. Net details of gillnet sets observed in the Gulf of Mexico and South Atlantic Ocean in the Gillnet Fishery by year and target/gear used. Years that could not be described due to vessel confidentiality are denoted by C.

	Year	2019	2020	2021	2022	2023
King Mackerel	Min Net Length	C	1200	C	1500	1650
Drift Runaround Gillnet	Max Net Length	C	1800	C	1800	2400
	Min Net Depth	C	75	C	70	75
	Max Net Depth	C	109	C	100	90
	Min Mesh Size	C	4.75	C	3.5	4
	Max Mesh Size	C	4.75	C	4.75	4.75
	Avg Gear Soak (hrs)	C	7.96	C	6.57	6.42
Spanish Mackerel	Min Net Length	90	300	150	300	100
Sink Gillnet	Max Net Length	2400	2400	2400	2400	2400
	Min Net Depth	14	10	10	10	10
	Max Net Depth	19	25	18	15	15
	Min Mesh Size	3	3.5	2.875	3	3
	Max Mesh Size	3.75	3.5	3.5	3.5	3.5
	Avg Gear Soak (hrs)	1.1	0.84	1.03	0.93	0.95
Spanish Mackerel	Min Net Length	0	0	300	45	C
Drift Gillnet	Max Net Length	0	0	1800	1800	C
	Min Net Depth	0	0	10	12	C
	Max Net Depth	0	0	12	16	C
	Min Mesh Size	0	0	2.875	3.5	C
	Max Mesh Size	0	0	3.5	3.5	C
	Avg Gear Soak (hrs)	0	0	0.81	0.66	C

Table 13. Total drift runaround gillnet catch from king mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept, percent discarded alive (D.A.), and percent discarded dead (D.D.).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2020	*Scomberomorus cavalla*	King Mackerel	6044	98.01	0.02	1.97
	Carcharhinus plumbeus	Sandbar Shark	2	0	50	50
	Sphyrna mokarran	Great Hammerhead Shark	2	0	0	100
	Carcharhinus limbatus	Blacktip Shark	2	0	100	0
	Lutjanus synagris	Lane Snapper	1	100	0	0
2022	*Scomberomorus cavalla*	King Mackerel	14527	99.13	0	0.87
	Pomatomus saltatrix	Bluefish	79	97.47	0	2.53
	Euthynnus alletteratus	Little Tunny	13	92.31	0	7.69
	Caranx hippos	Crevalle Jack	12	100	0	0
	Carcharhinus limbatus	Blacktip Shark	6	0	83.33	16.67
	Calamus penna	Sheepshead Porgy	3	0	0	100
	Carcharhinus plumbeus	Sandbar Shark	3	0	100	0
	Carcharhinus brevipinna	Spinner Shark	2	0	100	0
	Caranx crysos	Bluerunner Jack	2	100	0	0
	Carangoides bartholomaei	Yellow Jack	1	100	0	0
	Balistidae	Triggerfish	1	0	0	100
	Chaetodipterus faber	Spadefish	1	0	100	0
	Archosargus probatocephalus	Sheepshead	1	0	100	0
	Echeneis naucrates	Sharksucker	1	0	0	100
	Lutjanus analis	Mutton Snapper	1	0	100	0
	Seriola dumerili	Greater Amberjack	1	100	0	0
2023	*Scomberomorus cavalla*	King Mackerel	10192	99.39	0	0.61
	Euthynnus alletteratus	Little Tunny	17	94.12	0	5.88
	Pomatomus saltatrix	Bluefish	16	100	0	0
	Lutjanus griseus	Gray Snapper	12	100	0	0
	Caranx crysos	Bluerunner Jack	7	100	0	0
	Sphyrna tiburo	Bonnethead Shark	3	0	0	100
	Scomberomorus maculatus	Spanish Mackerel	2	100	0	0
	Lutjanus synagris	Lane Snapper	2	0	100	0
	Carcharhinus limbatus	Blacktip Shark	2	0	50	50
	Galeocerdo cuvier	Tiger Shark	1	0	100	0
	Sphyrna lewini	Scalloped Hammerhead Shark	1	0	0	100
	Carcharhinus plumbeus	Sandbar Shark	1	0	100	0
	Epinephelus morio	Red Grouper	1	0	100	0
	Sphyraena barracuda	Great Barracuda	1	100	0	0
	Carcharhinus acronotus	Blacknose Shark	1	0	100	0

Table 14. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2019	*Scomberomorus maculatus*	Spanish Mackerel	8213	99.9	0.0	0.1
	Chloroscombrus chrysurus	Atlantic Bumper	2172	85.8	2.1	12.2
	Pomatomus saltatrix	Bluefish	1791	96.9	1.1	2.0
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	407	9.8	59.0	31.2
	Caranx crysos	Bluerunner Jack	258	100.0	0.0	0.0
	Caranx hippos	Crevalle Jack	173	100.0	0.0	0.0
	Micropogonias undulatus	Atlantic Croaker	170	94.7	1.2	4.1
	Brevoortia smithi	Yellowfin Menhaden	131	100.0	0.0	0.0
	Elops saurus	Ladyfish	106	44.3	0.0	55.7
	Selene setapinnis	Moonfish	70	48.6	20.0	31.4
	Sphyrna tiburo	Bonnethead Shark	67	62.7	22.4	14.9
	Larimus fasciatus	Banded Drum	54	1.9	92.6	5.6
	Brevoortia	Menhadens	51	52.9	15.7	31.4
	Carcharhinus limbatus	Blacktip Shark	44	22.7	61.4	15.9
	Menticirrhus americanus	Southern Kingfish	43	97.7	2.3	0.0
	Arius felis	Hardhead Catfish	38	0.0	100.0	0.0
	Leiostomus xanthurus	Spot	37	94.6	5.4	0.0
	Cynoscion nothus	Silver Seatrout	33	15.2	42.4	42.4
	Cynoscion regalis	Weakfish Seatrout	27	96.3	0.0	3.7
	Carcharhinus brevipinna	Spinner Shark	24	87.5	12.5	0.0
	Peprilus triacanthus	Atlantic Butterfish	21	85.7	14.3	0.0
	Peprilus paru	Harvestfish	18	100.0	0.0	0.0
	Bagre marinus	Gafftopsail Catfish	17	0.0	11.8	88.2
	Carcharhinus acronotus	Blacknose Shark	15	73.3	26.7	0.0
	Decapoda	Crabs	12	0.0	0.0	100.0
	Orthopristis chrysoptera	Pigfish	10	100.0	0.0	0.0
	Scomberomorus cavalla	King Mackerel	10	30.0	0.0	70.0
	Chaetodipterus faber	Spadefish	7	0.0	28.6	71.4
	Cynoscion sp.	Seatrouts	7	57.1	14.3	28.6
	Sphyrna lewini	Scalloped Hammerhead Shark	6	0.0	100.0	0.0
	Lutjanus synagris	Lane Snapper	6	83.3	16.7	0.0
	Synodus foetens	Inshore Lizardfish	5	0.0	80.0	20.0
	Carcharhinus isodon	Finetooth Shark	5	100.0	0.0	0.0
	Rhinoptera bonasus	Cownose Ray	2	0.0	100.0	0.0
	Aluterus monoceros	Unicorn Filefish	1	0.0	100.0	0.0
	Mugil cephalus	Striped Mullet	1	0.0	0.0	100.0
	Echinodermata	Sea Urchins	1	0.0	100.0	0.0

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2019	*Anisotremus virginicus*	Porkfish	1	100.0	0.0	0.0
	Euthynnus alletteratus	Little Tunny	1	100.0	0.0	0.0
	Carangidae	Jack Family	1	100.0	0.0	0.0
	Clupeidae	Herrings	1	0.0	100.0	0.0
	Balistes capriscus	Gray Triggerfish	1	100.0	0.0	0.0
	Trachinotus carolinus	Florida Pompano	1	0.0	100.0	0.0
	Rachycentron canadum	Cobia	1	0.0	100.0	0.0
	Trichiurus lepturus	Atlantic Cutlassfish	1	100.0	0.0	0.0
	Alectis ciliaris	African Pompano	1	0.0	0.0	100.0
2020	*Scomberomorus maculatus*	Spanish Mackerel	6673	99.8	0.0	0.2
	Pomatomus saltatrix	Bluefish	739	100.0	0.0	0.0
	Chloroscombrus chrysurus	Atlantic Bumper	343	72.0	28.0	0.0
	Brevoortia	Menhadens	295	100.0	0.0	0.0
	Caranx crysos	Bluerunner Jack	204	100.0	0.0	0.0
	Brevoortia smithi	Yellowfin Menhaden	178	3.9	41.0	55.1
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	124	56.5	41.9	1.6
	Trichiurus lepturus	Atlantic Cutlassfish	83	100.0	0.0	0.0
	Elops saurus	Ladyfish	64	100.0	0.0	0.0
	Sphyrna tiburo	Bonnethead Shark	47	59.6	34.0	6.4
	Micropogonias undulatus	Atlantic Croaker	17	82.4	17.7	0.0
	Carcharhinus limbatus	Blacktip Shark	16	18.8	43.8	37.5
	Larimus fasciatus	Banded Drum	15	0.0	93.3	6.7
	Carcharhinus brevipinna	Spinner Shark	8	0.0	100.0	0.0
	Scomberomorus cavalla	King Mackerel	8	100.0	0.0	0.0
	Peprilus paru	Harvestfish	7	14.3	0.0	85.7
	Leiostomus xanthurus	Spot	6	100.0	0.0	0.0
	Menticirrhus americanus	Southern Kingfish	6	100.0	0.0	0.0
	Sphyrna lewini	Scalloped Hammerhead Shark	6	0.0	100.0	0.0
	Euthynnus alletteratus	Little Tunny	6	100.0	0.0	0.0
	Arius felis	Hardhead Catfish	5	0.0	100.0	0.0
	Cynoscion regalis	Weakfish Seatrout	4	100.0	0.0	0.0
	Selene setapinnis	Moonfish	4	0.0	100.0	0.0
	Carcharhinus isodon	Finetooth Shark	4	0.0	100.0	0.0
	Menticirrhus littoralis	Gulf Kingfish	3	100.0	0.0	0.0
	Bagre marinus	Gafftopsail Catfish	3	0.0	100.0	0.0
	Carcharhinus acronotus	Blacknose Shark	3	100.0	0.0	0.0

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2020	*Chaetodipterus faber*	Spadefish	2	0.0	0.0	100.0
	Asteroidea	Sea Stars	1	0.0	0.0	100.0
	Remora	Remora	1	0.0	100.0	0.0
	Caranx hippos	Crevalle Jack	1	100.0	0.0	0.0
	Scomberomorus regalis	Cero Mackerel	1	100.0	0.0	0.0
	Peprilus triacanthus	Atlantic Butterfish	1	0.0	100.0	0.0
2021	*Scomberomorus maculatus*	Spanish Mackerel	28719	98.9	0.0	1.1
	Pomatomus saltatrix	Bluefish	3455	99.1	0.1	0.7
	Caranx crysos	Bluerunner Jack	2724	98.5	0.4	1.0
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	1369	25.6	46.1	28.3
	Chloroscombrus chrysurus	Atlantic Bumper	849	23.2	17.6	59.3
	Brevoortia smithi	Yellowfin Menhaden	614	90.6	4.6	4.9
	Sphyrna tiburo	Bonnethead Shark	417	21.8	44.1	34.1
	Selene setapinnis	Moonfish	416	42.3	27.2	30.5
	Leiostomus xanthurus	Spot	410	93.2	3.4	3.4
	Bagre marinus	Gafftopsail Catfish	268	0.0	74.3	25.8
	Trichiurus lepturus	Atlantic Cutlassfish	234	99.2	0.0	0.9
	Scomberomorus cavalla	King Mackerel	171	15.8	9.4	74.9
	Larimus fasciatus	Banded Drum	141	5.0	22.0	73.1
	Caranx hippos	Crevalle Jack	135	87.4	11.1	1.5
	Micropogonias undulatus	Atlantic Croaker	127	94.5	5.5	0.0
	Arius felis	Hardhead Catfish	103	0.0	76.7	23.3
	Cynoscion regalis	Weakfish Seatrout	55	70.9	5.5	23.6
	Sphyrna lewini	Scalloped Hammerhead Shark	55	1.8	67.3	30.9
	Elops saurus	Ladyfish	36	91.7	2.8	5.6
	Carcharhinus limbatus	Blacktip Shark	34	20.6	67.7	11.8
	Carcharhinus acronotus	Blacknose Shark	34	29.4	47.1	23.5
	Menticirrhus americanus	Southern Kingfish	31	96.8	0.0	3.2
	Echeneis naucrates	Sharksucker	30	0.0	93.3	6.7
	Cynoscion nothus	Silver Seatrout	28	28.6	25.0	46.4
	Peprilus triacanthus	Atlantic Butterfish	28	85.7	3.6	10.7
	Trachinotus carolinus	Florida Pompano	23	0.0	100.0	0.0
	Cynoscion nebulosus	Spotted Seatrout	19	0.0	84.2	15.8
	Calamus arctifrons	Grass Porgy	18	0.0	100.0	0.0
	Carcharhinus brevipinna	Spinner Shark	16	37.5	56.3	6.3
	Rachycentron canadum	Cobia	15	13.3	73.3	13.3

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2021	*Brevoortia*	Menhadens	13	100.0	0.0	0.0
	Echeneis neucratoides	Whitefin Sharksucker	12	0.0	91.7	8.3
	Menticirrhus littoralis	Gulf Kingfish	12	91.7	0.0	8.3
	Lutjanus synagris	Lane Snapper	9	0.0	100.0	0.0
	Peprilus paru	Harvestfish	9	55.6	44.4	0.0
	Remora remora	Remora	8	0.0	37.5	62.5
	Umbrina coroides	Sand Drum	7	85.7	14.3	0.0
	Gerres cinereus	Yellowfin Mojarra	6	66.7	0.0	33.3
	Decapoda	Crabs	5	0.0	100.0	0.0
	Anisotremus virginicus	Porkfish	4	100.0	0.0	0.0
	Orthopristis chrysoptera	Pigfish	4	25.0	75.0	0.0
	Synodus foetens	Inshore Lizardfish	4	0.0	50.0	50.0
	Opisthonema oglinum	Atlantic Thread Herring	4	0.0	50.0	50.0
	Prionotus	Searobins	3	0.0	66.7	33.3
	Asteroidea	Sea Stars	3	0.0	100.0	0.0
	Trachinotus falcatus	Permit	3	0.0	100.0	0.0
	Scyphozoa	Jellyfish	3	0.0	100.0	0.0
	Carcharhinus isodon	Finetooth Shark	3	0.0	100.0	0.0
	Chaetodipterus faber	Spadefish	2	0.0	100.0	0.0
	Cynoscion arenarius	Sand Seatrout	2	0.0	0.0	100.0
	Euthynnus alletteratus	Little Tunny	2	100.0	0.0	0.0
	Hippocampus erectus	Lined Seahorse	2	0.0	100.0	0.0
	Sphyraena barracuda	Great Barracuda	2	50.0	0.0	50.0
	Centropristis striata	Black Sea Bass	2	0.0	100.0	0.0
	Anchoa mitchilli	Bay Anchovy	2	0.0	0.0	100.0
	Carangoides bartholomaei	Yellow Jack	1	100.0	0.0	0.0
	Haemulon plumieri	White Grunt	1	0.0	100.0	0.0
	Unknown animal	Unknown Animal	1	0.0	0.0	100.0
	Aluterus monoceros	Unicorn Filefish	1	0.0	100.0	0.0
	Aetobatus narinari	Spotted Eagle Ray	1	0.0	100.0	0.0
	Mustelus canis	Smooth Dogfish	1	0.0	100.0	0.0
	Archosargus probatocephalus	Sheepshead	1	100.0	0.0	0.0
	Elasmobranchii	Sharks	1	0.0	100.0	0.0
	Echinodermata	Sea Urchins	1	0.0	100.0	0.0
	Lutjanus apodus	Schoolmaster Snapper	1	0.0	100.0	0.0
	Sciaenops ocellatus	Red Drum	1	0.0	100.0	0.0
	Lagodon rhomboides	Pinfish	1	0.0	0.0	100.0

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2021	*Ancylopsetta quadrocellata*	Ocellated Flounder	1	0.0	100.0	0.0
	Dendrobranchiata	Marine Shrimp	1	0.0	100.0	0.0
	Selene vomer	Lookdown	1	0.0	100.0	0.0
	Brevoortia patronus	Gulf Menhaden	1	100.0	0.0	0.0
	Peprilus burti	Gulf Butterfish	1	100.0	0.0	0.0
	Dorosoma cepedianum	Gizzard Shad	1	0.0	100.0	0.0
	Calappa flammea	Flame Box Crab	1	0.0	100.0	0.0
	Aluterus	Filefishes	1	0.0	100.0	0.0
	Syacium papillosum	Dusky Flounder	1	0.0	100.0	0.0
	Squalidae	Dogfish	1	0.0	100.0	0.0
	Scomberomorus regalis	Cero Mackerel	1	100.0	0.0	0.0
	Carcharhinus leucas	Bull Shark	1	0.0	100.0	0.0
	Polydactylus virginicus	Barbu Threadfin	1	0.0	0.0	100.0
2022	*Pomatomus saltatrix*	Bluefish	2159	99.5	0.0	0.5
	Scomberomorus maculatus	Spanish Mackerel	1724	99.0	0.0	1.0
	Chloroscombrus chrysurus	Atlantic Bumper	585	65.6	30.8	3.6
	Brevoortia smithi	Yellowfin Menhaden	520	3.3	62.5	34.2
	Leiostomus xanthurus	Spot	235	100.0	0.0	0.0
	Sphyrna tiburo	Bonnethead Shark	139	64.8	23.7	11.5
	Caranx hippos	Crevalle Jack	124	85.5	13.7	0.8
	Caranx crysos	Bluerunner Jack	97	96.9	3.1	0.0
	Elops saurus	Ladyfish	77	97.4	1.3	1.3
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	71	4.2	76.1	19.7
	Selene setapinnis	Moonfish	70	12.9	81.4	5.7
	Bagre marinus	Gafftopsail Catfish	60	0.0	96.7	3.3
	Micropogonias undulatus	Atlantic Croaker	49	98.0	2.0	0.0
	Carangidae	Jacks	40	97.5	0.0	2.5
	Larimus fasciatus	Banded Drum	26	0.0	34.6	65.4
	Carcharhinus isodon	Finetooth Shark	20	0.0	85.0	15.0
	Menticirrhus sp.	Kingfish	17	100.0	0.0	0.0
	Carcharhinus limbatus	Blacktip Shark	15	80.0	20.0	0.0
	Sphyrna lewini	Scalloped Hammerhead Shark	10	10.0	50.0	40.0
	Trachinotus carolinus	Florida Pompano	10	0.0	100.0	0.0
	Opisthonema oglinum	Atlantic Thread Herring	9	0.0	88.9	11.1
	Trichiurus lepturus	Atlantic Cutlassfish	9	100.0	0.0	0.0
	Menticirrhus americanus	Southern Kingfish	8	100.0	0.0	0.0

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2022	*Cynoscion nothus*	Silver Seatrout	7	14.3	14.3	71.4
	Arius felis	Hardhead Catfish	6	0.0	83.3	16.7
	Menticirrhus littoralis	Gulf Kingfish	6	100.0	0.0	0.0
	Echinodermata	Sea Urchins	5	0.0	100.0	0.0
	Decapoda	Crabs	5	0.0	100.0	0.0
	Peprilus triacanthus	Atlantic Butterfish	4	25.0	50.0	25.0
	Carcharhinus brevipinna	Spinner Shark	3	66.7	33.3	0.0
	Prionotus	Searobins	3	0.0	66.7	33.3
	Scomberomorus cavalla	King Mackerel	3	0.0	33.3	66.7
	Echeneis neucratoides	Whitefin Sharksucker	2	0.0	100.0	0.0
	Cynoscion regalis	Weakfish Seatrout	2	100.0	0.0	0.0
	Chaetodipterus faber	Spadefish	2	0.0	100.0	0.0
	Umbrina coroides	Sand Drum	2	100.0	0.0	0.0
	Brevoortia tyrannus	Atlantic Menhaden	2	0.0	100.0	0.0
	Aluterus monoceros	Unicorn Filefish	1	0.0	100.0	0.0
	Galeocerdo cuvier	Tiger Shark	1	0.0	100.0	0.0
	Portunidae	Swimming Crabs	1	0.0	100.0	0.0
	Paralichthys lethostigma	Southern Flounder	1	100.0	0.0	0.0
	Asteroidea	Sea Stars	1	0.0	0.0	100.0
	Lutjanus analis	Mutton Snapper	1	100.0	0.0	0.0
	Sphyrna mokarran	Great Hammerhead Shark	1	0.0	0.0	100.0
	Carcharhinus acronotus	Blacknose Shark	1	100.0	0.0	0.0
	Cancer irroratus	Atlantic Rock Crab	1	0.0	100.0	0.0
2023	*Scomberomorus maculatus*	Spanish Mackerel	3005	98.4	0.0	1.6
	Pomatomus saltatrix	Bluefish	2998	94.3	3.7	2.0
	Caranx crysos	Bluerunner Jack	476	97.9	0.6	1.5
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	387	7.8	37.5	54.8
	Selene setapinnis	Moonfish	183	70.0	20.8	9.3
	Chloroscombrus chrysurus	Atlantic Bumper	81	58.0	24.7	17.3
	Caranx hippos	Crevalle Jack	77	94.8	5.2	0.0
	Sphyrna tiburo	Bonnethead Shark	70	47.1	34.3	18.6
	Brevoortia smithi	Yellowfin Menhaden	64	46.9	0.0	53.1
	Peprilus paru	Harvestfish	41	92.7	4.9	2.4
	Sphyrna lewini	Scalloped Hammerhead Shark	25	0.0	76.0	24.0
	Menticirrhus americanus	Southern Kingfish	24	100.0	0.0	0.0
	Scomberomorus cavalla	King Mackerel	23	39.1	8.7	52.2

Table 14 cont. Total sink gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2023	*Carcharhinus limbatus*	Blacktip Shark	14	92.9	7.1	0.0
	Opisthonema oglinum	Atlantic Thread Herring	10	10.0	80.0	10.0
	Carcharhinus brevipinna	Spinner Shark	9	88.9	11.1	0.0
	Elops saurus	Ladyfish	6	100.0	0.0	0.0
	Bagre marinus	Gafftopsail Catfish	6	0.0	83.3	16.7
	Larimus fasciatus	Banded Drum	6	0.0	0.0	100.0
	Micropogonias undulatus	Atlantic Croaker	6	100.0	0.0	0.0
	Leiostomus xanthurus	Spot	5	80.0	20.0	0.0
	Cynoscion regalis	Weakfish Seatrout	3	66.7	33.3	0.0
	Prionotus evolans	Striped Searobin	3	0.0	100.0	0.0
	Arius felis	Hardhead Catfish	3	0.0	33.3	66.7
	Echeneis naucrates	Sharksucker	2	0.0	0.0	100.0
	Cynoscion arenarius	Sand Seatrout	2	50.0	50.0	0.0
	Menticirrhus littoralis	Gulf Kingfish	2	100.0	0.0	0.0
	Mustelus norrisi	Florida Smoothhound Shark	2	0.0	100.0	0.0
	Carcharhinus acronotus	Blacknose Shark	2	100.0	0.0	0.0
	Carangoides bartholomaei	Yellow Jack	1	0.0	100.0	0.0
	Chaetodipterus faber	Spadefish	1	0.0	100.0	0.0
	Paralichthys lethostigma	Southern Flounder	1	100.0	0.0	0.0
	Istiophorus platypterus	Sailfish	1	100.0	0.0	0.0
	Remora remora	Remora	1	0.0	100.0	0.0
	Ancylopsetta quadrocellata	Ocellated Flounder	1	0.0	100.0	0.0
	Synodus foetens	Inshore Lizardfish	1	0.0	0.0	100.0
	Dactylopterus volitans	Flying Gurnard	1	0.0	100.0	0.0
	Decapoda	Crabs	1	0.0	100.0	0.0
	Carcharhinus leucas	Bull Shark	1	0.0	100.0	0.0
	Tursiops truncatus	Bottlenose Dolphin	1	0.0	100.0	0.0

Table 15. Total drift gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2021	*Scomberomorus maculatus*	Spanish Mackerel	296	97.0	0.0	3.0
	Chloroscombrus chrysurus	Atlantic Bumper	214	78.0	15.4	6.5
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	137	13.9	64.2	21.9
	Pomatomus saltatrix	Bluefish	78	100.0	0.0	0.0
	Caranx crysos	Bluerunner Jack	68	100.0	0.0	0.0
	Caranx hippos	Crevalle Jack	39	100.0	0.0	0.0
	Leiostomus xanthurus	Spot	33	100.0	0.0	0.0
	Menticirrhus americanus	Southern Kingfish	18	100.0	0.0	0.0
	Selene setapinnis	Moonfish	10	30.0	30.0	40.0
	Bagre marinus	Gafftopsail Catfish	10	0.0	60.0	40.0
	Micropogonias undulatus	Atlantic Croaker	7	85.7	14.3	0.0
	Brevoortia smithi	Yellowfin Menhaden	5	100.0	0.0	0.0
	Brevoortia tyrannus	Atlantic Menhaden	5	100.0	0.0	0.0
	Cynoscion nothus	Silver Seatrout	4	25.0	50.0	25.0
	Trachinotus carolinus	Florida Pompano	4	50.0	50.0	0.0
	Decapoda	Crabs	4	0.0	50.0	50.0
	Sphyrna lewini	Scalloped Hammerhead Shark	3	0.0	100.0	0.0
	Carcharhinus brevipinna	Spinner Shark	2	0.0	100.0	0.0
	Peprilus paru	Harvestfish	2	100.0	0.0	0.0
	Menticirrhus littoralis	Gulf Kingfish	2	100.0	0.0	0.0
	Sphyrna tiburo	Bonnethead Shark	2	0.0	100.0	0.0
	Carcharhinus limbatus	Blacktip Shark	2	0.0	100.0	0.0
	Carcharhinus acronotus	Blacknose Shark	2	50.0	0.0	50.0
	Opisthonema oglinum	Atlantic Thread Herring	2	0.0	50.0	50.0
	Peprilus triacanthus	Atlantic Butterfish	2	0.0	0.0	100.0
	Cynoscion regalis	Weakfish Seatrout	1	100.0	0.0	0.0
	Cynoscion arenarius	Sand Seatrout	1	100.0	0.0	0.0
	Elops saurus	Ladyfish	1	100.0	0.0	0.0
	Scomberomorus cavalla	King Mackerel	1	0.0	0.0	100.0
	Paguroidea	Hermit Crabs	1	0.0	100.0	0.0
	Arius felis	Hardhead Catfish	1	0.0	0.0	100.0
	Brevoortia patronus	Gulf Menhaden	1	100.0	0.0	0.0
	Sphyrna mokarran	Great Hammerhead Shark	1	0.0	100.0	0.0
	Istiophorus albicans	Atlantic Sailfish	1	0.0	0.0	100.0

Table 15 cont. Total drift gillnet catch from Spanish mackerel targeted sets by species, and species disposition in order of decreasing abundance for all observed trips by year. Catch disposition is by percent kept (Kept %), percent discarded alive (D.A. %), and percent discarded dead (D.D. %).

Year	Species Caught	Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
2022	*Scomberomorus maculatus*	Spanish Mackerel	3896	99.2	0.0	0.8
	Pomatomus saltatrix	Bluefish	1737	31.9	34.2	33.9
	Caranx crysos	Bluerunner Jack	43	86.1	4.7	9.3
	Brevoortia smithi	Yellowfin Menhaden	36	100.0	0.0	0.0
	Chloroscombrus chrysurus	Atlantic Bumper	34	2.9	23.5	73.5
	Caranx hippos	Crevalle Jack	32	87.5	12.5	0.0
	Bagre marinus	Gafftopsail Catfish	23	0.0	47.8	52.2
	Decapoda	Crabs	23	21.7	78.3	0.0
	Sphyrna tiburo	Bonnethead Shark	20	25.0	45.0	30.0
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	17	0.0	82.4	17.7
	Carcharhinus brevipinna	Spinner Shark	13	7.7	84.6	7.7
	Menticirrhus americanus	Southern Kingfish	6	100.0	0.0	0.0
	Carcharhinus isodon	Finetooth Shark	6	0.0	50.0	50.0
	Cynoscion regalis	Weakfish Seatrout	2	100.0	0.0	0.0
	Selene setapinnis	Moonfish	2	0.0	50.0	50.0
	Elops saurus	Ladyfish	2	100.0	0.0	0.0
	Peprilus paru	Harvestfish	2	0.0	0.0	100.0
	Menticirrhus littoralis	Gulf Kingfish	2	100.0	0.0	0.0
	Trachinotus carolinus	Florida Pompano	2	50.0	50.0	0.0
	Carcharhinus acronotus	Blacknose Shark	2	50.0	50.0	0.0
	Leiostomus xanthurus	Spot	1	0.0	0.0	100.0
	Prionotus	Searobins	1	0.0	100.0	0.0
	Sphyrna lewini	Scalloped Hammerhead Shark	1	0.0	100.0	0.0
	Selene vomer	Lookdown	1	100.0	0.0	0.0
	Caretta caretta	Loggerhead Sea Turtle	1	0.0	100.0	0.0
	Euthynnus alletteratus	Little Tunny	1	100.0	0.0	0.0
	Prionotus scitulus	Leopard Searobin	1	0.0	0.0	100.0
	Arius felis	Hardhead Catfish	1	0.0	0.0	100.0
	Carcharhinus leucas	Bull Shark	1	0.0	100.0	0.0
	Carcharhinus limbatus	Blacktip Shark	1	0.0	100.0	0.0
	Micropogonias undulatus	Atlantic Croaker	1	0.0	0.0	100.0
	Peprilus triacanthus	Atlantic Butterfish	1	0.0	100.0	0.0

Table 16. Average size (fork length, FL in centimeters) and standard deviation (S.D.) of catch measured for all observed runaround drift king mackerel targeted sets, by year, where sample size ≥ 5.

Year	Species	Common Name	Total Measured	Avg FL	S.D.
2020	*Scomberomorus cavalla*	King Mackerel	107	93.7	10.6
2022	*Scomberomorus cavalla*	King Mackerel	91	91.9	11.1
	Pomatomus saltatrix	Bluefish	15	47.1	3.4
	Euthynnus alletteratus	Little Tunny	13	51.5	1.7
	Caranx hippos	Crevalle Jack	10	68.1	3.6
2023	*Scomberomorus cavalla*	King Mackerel	52	85.9	12.1
	Pomatomus saltatrix	Bluefish	16	45.4	2.0
	Euthynnus alletteratus	Little Tunny	10	50.7	6.1
	Lutjanus griseus	Gray Snapper	10	39.6	3.4
	Caranx crysos	Bluerunner Jack	7	38.9	3.5

Table 17. Average size (fork length, FL in centimeters) and standard deviation (S.D.) of catch measured for all observed sink Spanish mackerel targeted sets, by year, where sample size ≥ 5.

Year	Species	Common Name	Total Measured	Avg FL	S.D.
2019	*Scomberomorus maculatus*	Spanish Mackerel	526	42.1	6.6
	Pomatomus saltatrix	Bluefish	354	37.8	4.6
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	141	51.7	13.5
	Caranx crysos	Bluerunner Jack	112	27.6	2.2
	Sphyrna tiburo	Bonnethead Shark	40	56.9	16.2
	Caranx hippos	Crevalle Jack	36	25.9	3.9
	Carcharhinus limbatus	Blacktip Shark	23	71.7	11.5
	Brevoortia	Menhadens	21	22.4	4.2
	Menticirrhus americanus	Southern Kingfish	21	34.9	2.2
	Carcharhinus brevipinna	Spinner Shark	18	64.1	2.5
	Chloroscombrus chrysurus	Atlantic Bumper	17	17.4	1.0
	Micropogonias undulatus	Atlantic Croaker	14	25.7	2.4
	Carcharhinus acronotus	Blacknose Shark	11	87.7	7.3
	Cynoscion nothus	Silver Seatrout	9	23.8	1.4
	Scomberomorus cavalla	King Mackerel	9	43.7	11.5
	Elops saurus	Ladyfish	6	46.2	2.5
	Leiostomus xanthurus	Spot	6	22.0	2.4
	Carcharhinus isodon	Finetooth Shark	5	60.6	2.1
2020	*Scomberomorus maculatus*	Spanish Mackerel	363	42.4	6.6
	Pomatomus saltatrix	Bluefish	197	37.0	4.6
	Caranx crysos	Bluerunner Jack	78	25.9	2.1
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	49	64.0	11.1
	Trichiurus lepturus	Atlantic Cutlassfish	30	100.5	8.2
	Elops saurus	Ladyfish	14	49.9	3.3
	Sphyrna tiburo	Bonnethead Shark	13	66.5	14.9
	Brevoortia smithi	Yellowfin Menhaden	12	24.8	1.3
	Scomberomorus cavalla	King Mackerel	8	65.3	5.0
	Euthynnus alletteratus	Little Tunny	6	59.0	5.6
	Leiostomus xanthurus	Spot	6	21.2	1.3
	Menticirrhus americanus	Southern Kingfish	6	32.5	1.9
2021	*Scomberomorus maculatus*	Spanish Mackerel	1904	40.9	6.0
	Pomatomus saltatrix	Bluefish	893	35.7	3.3
	Caranx crysos	Bluerunner Jack	804	25.6	2.3
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	769	54.3	14.2
	Sphyrna tiburo	Bonnethead Shark	265	52.7	20.7
	Chloroscombrus chrysurus	Atlantic Bumper	221	18.1	2.5
	Selene setapinnis	Moonfish	200	16.3	1.4
	Brevoortia smithi	Yellowfin Menhaden	164	25.3	2.6

Table 17 cont. Average size (fork length, FL in centimeters) and standard deviation (S.D.) of catch measured for all observed sink Spanish mackerel targeted sets, by year, where sample size ≥ 5.

Year	Species	Common Name	Total Measured	Avg FL	S.D.
2021	*Scomberomorus cavalla*	King Mackerel	164	46.3	11.9
	Bagre marinus	Gafftopsail Catfish	143	30.9	4.5
	Trichiurus lepturus	Atlantic Cutlassfish	113	97.2	12.9
	Caranx hippos	Crevalle Jack	109	20.6	2.2
	Leiostomus xanthurus	Spot	108	23.1	2.5
	Larimus fasciatus	Banded Drum	89	20.2	1.3
	Arius felis	Hardhead Catfish	59	29.1	3.2
	Cynoscion regalis	Weakfish Seatrout	53	33.5	6.2
	Micropogonias undulatus	Atlantic Croaker	47	26.2	4.0
	Sphyrna lewini	Scalloped Hammerhead Shark	46	92.7	31.6
	Elops saurus	Ladyfish	38	47.8	4.6
	Menticirrhus americanus	Southern Kingfish	31	33.8	2.8
	Carcharhinus acronotus	Blacknose Shark	30	86.2	11.5
	Carcharhinus limbatus	Blacktip Shark	29	86.5	24.0
	Cynoscion nothus	Silver Seatrout	28	26.8	3.3
	Echeneis naucrates	Sharksucker	28	57.9	6.9
	Trachinotus carolinus	Florida Pompano	22	22.6	3.8
	Cynoscion nebulosus	Spotted Seatrout	19	40.0	9.9
	Calamus arctifrons	Grass Porgy	18	20.1	1.3
	Peprilus triacanthus	Atlantic Butterfish	17	18.3	2.2
	Carcharhinus brevipinna	Spinner Shark	14	63.1	2.7
	Echeneis neucratoides	Whitefin Sharksucker	13	56.0	3.8
	Menticirrhus littoralis	Gulf Kingfish	12	33.8	1.8
	Rachycentron canadum	Cobia	12	71.7	14.2
	Lutjanus synagris	Lane Snapper	9	27.9	1.9
	Peprilus paru	Harvestfish	9	14.9	1.1
	Remora remora	Remora	8	65.0	3.9
	Decapoda	Crabs	7	5.3	7.7
	Umbrina coroides	Sand Drum	7	24.7	4.9
	Gerres cinereus	Yellowfin Mojarra	6	20.2	1.2
2022	*Scomberomorus maculatus*	Spanish Mackerel	450	41.5	5.5
	Pomatomus saltatrix	Bluefish	348	35.6	2.3
	Chloroscombrus chrysurus	Atlantic Bumper	206	18.4	2.2
	Brevoortia smithi	Yellowfin Menhaden	133	25.5	2.4
	Sphyrna tiburo	Bonnethead Shark	105	61.3	16.0
	Caranx crysos	Bluerunner Jack	92	26.0	1.9
	Caranx hippos	Crevalle Jack	82	23.5	4.3
	Elops saurus	Ladyfish	75	46.8	2.3

Table 17 cont. Average size (fork length, FL in centimeters) and standard deviation (S.D.) of catch measured for all observed sink Spanish mackerel targeted sets, by year, where sample size ≥ 5.

Year	Species	Common Name	Total Measured	Avg FL	S.D.
2022	*Rhizoprionodon terraenovae*	Atlantic Sharpnose Shark	62	50.2	11.4
	Bagre marinus	Gafftopsail Catfish	48	29.4	4.4
	Selene setapinnis	Moonfish	38	15.7	1.2
	Carangidae	Jacks	37	25.1	2.8
	Micropogonias undulatus	Atlantic Croaker	22	26.2	1.9
	Carcharhinus isodon	Finetooth Shark	20	59.3	5.4
	Larimus fasciatus	Banded Drum	17	21.4	1.3
	Carcharhinus limbatus	Blacktip Shark	15	72.0	14.3
	Leiostomus xanthurus	Spot	13	23.2	1.8
	Sphyrna lewini	Scalloped Hammerhead Shark	10	122.4	35.6
	Trachinotus carolinus	Florida Pompano	10	19.1	2.7
	Menticirrhus americanus	Southern Kingfish	9	33.1	1.7
	Menticirrhus sp.	Kingfish	8	30.4	1.8
	Opisthonema oglinum	Atlantic Thread Herring	8	15.9	1.5
	Arius felis	Hardhead Catfish	6	27.5	3.5
	Cynoscion nothus	Silver Seatrout	6	24.7	2.5
2023	*Scomberomorus maculatus*	Spanish Mackerel	577	41.9	6.3
	Pomatomus saltatrix	Bluefish	435	35.5	3.3
	Caranx crysos	Bluerunner Jack	264	25.2	2.2
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	151	49.9	11.7
	Caranx hippos	Crevalle Jack	71	21.8	2.8
	Chloroscombrus chrysurus	Atlantic Bumper	60	16.3	2.8
	Sphyrna tiburo	Bonnethead Shark	58	63.6	18.9
	Selene setapinnis	Moonfish	41	14.9	1.7
	Brevoortia smithi	Yellowfin Menhaden	29	25.4	1.2
	Menticirrhus americanus	Southern Kingfish	23	34.2	1.9
	Scomberomorus cavalla	King Mackerel	23	51.6	12.3
	Sphyrna lewini	Scalloped Hammerhead Shark	20	84.6	15.6
	Peprilus paru	Harvestfish	18	13.7	2.0
	Carcharhinus limbatus	Blacktip Shark	14	87.4	21.0
	Opisthonema oglinum	Atlantic Thread Herring	10	17.3	2.6
	Carcharhinus brevipinna	Spinner Shark	9	68.3	2.5
	Elops saurus	Ladyfish	6	49.8	5.6
	Larimus fasciatus	Banded Drum	6	15.8	2.0

Table 18. Average size (fork length, FL in centimeters) and standard deviation (S.D.) of catch measured for all observed drift Spanish mackerel targeted sets, by year, where sample size ≥ 5.

Year	Species	Common_Name	Total	Avg FL	S.D.
2021	*Scomberomorus maculatus*	Spanish Mackerel	103	41.7	7.4
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	96	49.6	16.7
	Caranx crysos	Bluerunner Jack	66	25.2	2.2
	Pomatomus saltatrix	Bluefish	57	33.5	2.7
	Chloroscombrus chrysurus	Atlantic Bumper	52	18.7	2.3
	Leiostomus xanthurus	Spot	33	22.2	1.1
	Menticirrhus americanus	Southern Kingfish	18	32.2	3.2
	Caranx hippos	Crevalle Jack	15	25.1	1.7
	Selene setapinnis	Moonfish	9	14.7	2.2
	Bagre marinus	Gafftopsail Catfish	8	29.9	1.4
	Micropogonias undulatus	Atlantic Croaker	7	24.9	1.8
	Brevoortia smithi	Yellowfin Menhaden	5	23.0	2.8
	Brevoortia tyrannus	Atlantic Menhaden	5	19.8	1.3
2022	*Scomberomorus maculatus*	Spanish Mackerel	460	42.6	5.3
	Pomatomus saltatrix	Bluefish	327	36.0	2.0
	Caranx crysos	Bluerunner Jack	37	26.0	1.7
	Brevoortia smithi	Yellowfin Menhaden	24	24.9	1.7
	Caranx hippos	Crevalle Jack	19	23.7	6.6
	Rhizoprionodon terraenovae	Atlantic Sharpnose Shark	14	38.0	15.7
	Chloroscombrus chrysurus	Atlantic Bumper	13	16.9	2.6
	Sphyrna tiburo	Bonnethead Shark	13	62.8	17.3
	Carcharhinus brevipinna	Spinner Shark	8	66.3	11.4
	Menticirrhus americanus	Southern Kingfish	6	31.7	0.5

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