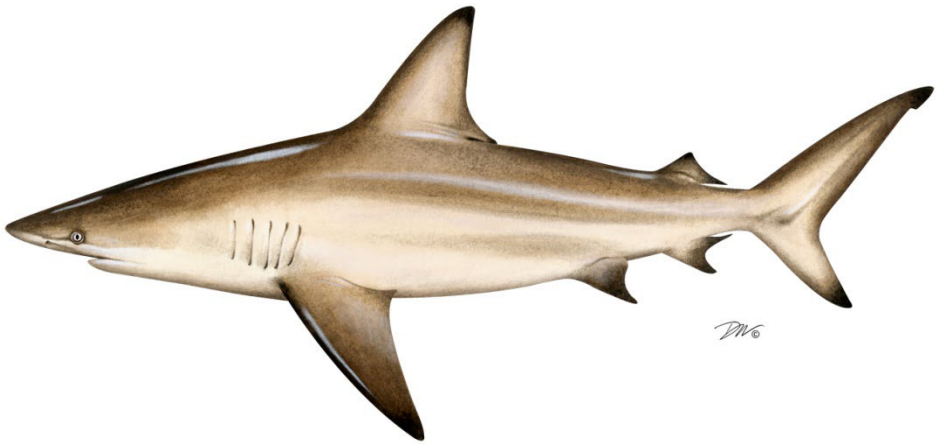
ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR COASTAL SHARKS

2020 FISHING YEAR



Prepared by the Coastal Sharks Plan Review Team

Approved November 9, 2022

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR COASTAL SHARKS FOR THE 2020 FISHERY

Management Summary

Date of FMP Approval:	August 2008
Amendments:	None
Addenda:	Addendum I (September 2009) Addendum II (May 2013) Addendum III (October 2013) Addendum IV (August 2016) Addendum V (October 2018)
Management Unit:	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
States With Declared Interest:	Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Active Boards/Committees:	Coastal Shark Management Board, Advisory Panel, Technical Committee, and Plan Review Team

I. Status of the Fishery Management Plan

The Atlantic States Marine Fisheries Commission (ASMFC; Commission) adopted its first fishery management plan (FMP) for coastal sharks in 2008. Coastal sharks were initially managed under this plan as six different complexes: prohibited, research, small coastal, non-sandbar large coastal, pelagic and smooth dogfish. The Board does not actively set quotas for any shark species. The Commission follows National Oceanic and Atmospheric Administration's (NOAA Fisheries) openings and closures for small coastal sharks, non-sandbar large coastal shark, and pelagic sharks. Species in the prohibited category may not be possessed or taken. Sandbar sharks may only be taken with a shark fishery research permit. All species must be landed with their fins attached to the carcass by natural means. This was adjusted through subsequent addenda listed below. The Interstate Fishery Management Plan for Coastal Sharks (FMP) established the following goals and objectives.

GOAL
The goal of the Interstate Fishery Management Plan for Coastal Sharks is "to promote stock rebuilding and management of the coastal shark fishery in a manner that is biologically, economically, socially, and ecologically sound."

OBJECTIVES

In support of this goal, the following objectives for the FMP include:

1. Reduce fishing mortality to rebuild stock biomass, prevent stock collapse, and support a sustainable fishery.
2. Protect essential habitat areas such as nurseries and pupping grounds to protect sharks during particularly vulnerable stages in their life cycle.
3. Coordinate management activities between state and federal waters to promote complementary regulations throughout the species' range.
4. Obtain biological and improved fishery related data to increase understanding of state water shark fisheries.
5. Minimize endangered species bycatch in shark fisheries.

The FMP has been adapted through the following addenda:

Addendum I (September 2009)

Approved in September 2009, Addendum I modified the FMP to allow commercial fishermen to process (remove the fins of) smooth dogfish at sea from March – June of each year, but also requires a 5-95% fin to carcass ratio for all dressed smooth dogfish carcasses. This Addendum also removed recreational smooth dogfish possession limits, as well as the 2-hour gill-net check requirement for commercial fishermen, which applied to all shark species.

Addendum II (May 2013)

Approved in May 2013, Addendum II modified Addendum I to allow commercial fishermen to process (remove the fins of) smooth dogfish at sea year-round but requires a 12-88% fin-to-carcass ratio for all dressed smooth dogfish carcasses. This ratio was consistent with the Shark Conservation Act of 2010. Addendum II also allocates state-shares of the upcoming federal smoothhound shark quota based on historical landings from 1998-2010.

Addendum III (October 2013)

Addendum III modifies the species groups to ensure consistency with NOAA Fisheries. It creates two new species groups (Blacknose and Hammerhead Species Groups). The addendum also increases the recreational minimum size limit for all hammerhead species to 78" fork length.

Addendum IV (August 2016)

Addendum IV allows smooth dogfish carcasses to be landed with corresponding fins removed from the carcass as long as the total retained catch, by weight, is composed of at least 25 percent smooth dogfish, consistent with federal management measures.

Addendum V (October 2018)

Addendum V allows the Board to respond to changes in the stock status of coastal shark populations and adjust regulations through Board action rather than an addendum, ensuring greater consistency between state and federal shark regulations. Addendum V allows the Board to change a suite of commercial and recreational measures, such as recreational size and possession limits, season length, and area closures (recreational and commercial), in addition to the current specifications for just the commercial fishery, throughout the year when needed.

Under this provision, if the Board chooses to adjust measures through Board action, the public will be able to provide comment prior to Board meetings, as well as at Board meetings at the discretion of the Board Chair. Additionally, the Board can still implement changes in shark regulations through an addendum.

In 2019, in response to measures implemented by NOAA Fisheries through Amendment 11 for Federal Highly Migratory Species (HMS) Permit Holders, the Board approved changes to the recreational size limit for Atlantic shortfin mako sharks in state waters, specifically, a 71-inch straight line fork length (FL) for males and an 83-inch straight line FL for females. These measures were implemented in response to the 2017 Atlantic shortfin mako stock assessment that found the resource is overfished and experiencing overfishing. The states were required to implement the changes to the recreational minimum size limit for Atlantic shortfin mako by January 1, 2020.

Additionally in 2019, the Board moved to require non-offset circle hooks for the recreational shark fishery in state waters with an implementation date of July 1, 2020. The Board chose to do so after NOAA Fisheries requested that the states implement a circle hook requirement for the recreational fishery consistent with the measures approved in HMS Amendment 11.

Table 1. List of commercial shark management groups

Species Group	Species within Group
Prohibited	Sand tiger, bigeye sand tiger, whale, basking, white, dusky, bignose, Galapagos, night, reef, narrowtooth, Caribbean sharpnose, smalltail, Atlantic angel, longfin mako, bigeye thresher, sharpnose sevengill, bluntnose sixgill and bigeye sixgill sharks
Research	Sandbar sharks
Non-Blacknose Small Coastal	Atlantic sharpnose, finetooth, and bonnethead sharks
Blacknose	Blacknose sharks
Aggregated Large Coastal	Silky, tiger, blacktip, spinner, bull, lemon, and nurse sharks
Hammerhead	Scalloped hammerhead, great hammerhead and smooth hammerhead
Pelagic	Shortfin mako*, porbeagle, common thresher, oceanic whitetip and blue sharks
Smoothhound	Smooth dogfish and Florida smoothhound sharks

*Final rule for zero retention of shortfin mako sharks is expected to be posted in July of 2022.

II. Status of the Stocks

Stock status is assessed by species or by species complex if there are not enough data for an individual assessment. Nine species have been assessed domestically, three species have been assessed internationally, and the rest have not been assessed. Table 2 describes the current stock status of all assessed shark species along with references for the stock assessments.

In December 2020, Southeast Data and Assessment Review SEDAR completed a benchmark assessment of the Atlantic blacktip shark (*Carcharhinus limbatus*) stock (SEDAR 65), which indicates the stock is not overfished and not experiencing overfishing.

In June 2020, the International Commission on the Convention of Atlantic Tunas (ICCAT)'s Standing Committee on Research and Statistics (SCRS) completed an assessment of Porbeagle sharks (*Lamna nasus*), which indicates the stock is overfished and not experiencing overfishing. As a result of the previous 2009 assessment, NOAA Fisheries established a 100-year rebuilding plan for porbeagle sharks; the expected rebuilding date is 2108.

The 2017 ICCAT assessment of the North Atlantic population of shortfin mako (*Isurus oxyrinchus)* indicates that the stock is overfished and overfishing is occurring. Multiple models were explored and new data sources were integrated. Combined probability of overfishing occurring and the stock being in an overfished state was 90% across all models.

The 2017 stock assessment (SEDAR 54) for sandbar sharks (*Carcharhinus plumbeus*) indicates the stock is overfished and not experiencing overfishing. This assessment used a new approach (Stock Synthesis) instead of the State Space Age Structure Production Model that was used in the previous assessment (SEDAR 21). A replication analysis conducted using the prior model (updated with data through 2015) resulted in the same stock status as the new model (overfished, no overfishing occurring). The rebuilding date for sandbar sharks is 2070.

The 2016 stock assessment update (SEDAR 21) for Atlantic dusky sharks (*Carcharhinus obscurus*) indicates the stock is overfished and experiencing overfishing. This latest review functioned as an update to the 2011 assessment, so no new methodology was introduced. However, all model inputs were updated with more recent data (i.e., 2010-2015 effort, observer, and survey data). The rebuilding plan for dusky sharks is 2107.

In 2015, a benchmark stock assessment (SEDAR 39) was conducted for the smoothhound complex, including smooth dogfish (*Mustelus canis*), the only species of smoothhound occurring in the Atlantic. The assessment indicates Atlantic smooth dogfish are not overfished and not experiencing overfishing.

The North Atlantic blue shark (*Prionace glauca*) stock was assessed by ICCAT's SCRS in 2015. Similar to the results of the previous 2008 stock assessment, the assessment indicated the stock is not overfished and not experiencing overfishing. However, scientists acknowledge there is a high level of uncertainty in the data inputs and model structural assumptions; therefore, the assessment results should be interpreted with caution.

SEDAR 34 (2013) assessed the status of Atlantic sharpnose sharks (*Rhizoprionodon terraenovae*) and bonnetheads (*Sphyrna tiburo*). The Atlantic sharpnose shark stock is not overfished and not experiencing overfishing. The stock status of bonnethead stocks (Atlantic and Gulf of Mexico) is considered unknown. Assessment results indicated the stock is not overfished with no

overfishing occurring, however all available data pointed towards separate stocks. As the assessment framework would not allow stocks to be split, the assessment continued under a single stock scenario. The results of the assessment were rejected by reviewers noting that the stocks need to be assessed independently. A benchmark assessment is recommended for both stocks of bonnetheads.

A 2011 benchmark assessment (SEDAR 21) of blacknose sharks (*Carcharhinus acrontus*) indicated the stock is overfished and experiencing overfishing. As described in the Magnuson-Stevens Act, NOAA Fisheries must establish a rebuilding plan for an overfished stock. As such, the rebuilding date for blacknose sharks is 2043.

The 2007 SEDAR 13 assessed the SCS complex, finetooth (Carcharhinus isodon), Atlantic sharpnose (Rhizoprionodon terraenovae), and bonnethead (Sphyrna tiburo) sharks (SEDAR 2007). The SEDAR 13 peer reviewers considered the data to be the 'best available at the time' and determined the status of the SCS complex to be adequate. Finetooth, Atlantic sharpnose, and bonnethead were all considered to be not overfished and not experiencing overfishing.

A 2009 stock assessment for the Northwest Atlantic and Gulf of Mexico populations of scalloped hammerhead sharks (*Sphyrna lewini*) indicated the Northwest Atlantic stock is overfished and experiencing overfishing (Hayes et al. 2009). This assessment was reviewed by NOAA Fisheries and deemed appropriate to serve as the basis for U.S. management decisions. In response to the assessment findings, NOAA Fisheries established a scalloped hammerhead rebuilding plan that will end in 2023. However, since the assessment, research has determined that in the U.S. Atlantic, a portion of animals considered scalloped hammerheads are actually a cryptic species, recently named the Carolina hammerhead (*Sphyrna gilberti*; Quattro et al. 2013). Little to no species-specific information exists regarding the distribution, abundance and life history of the two species, therefore for now, both species are currently managed under the name scalloped hammerhead. A research track assessment of the hammerhead complex (SEDAR 77) is ongoing.

Table 2. Stock Status of Atlantic Coastal Shark Species and Species Groups

Species or Complex Name	Stock Status		References/Comments
	Overfished	Overfishing	
Pelagic			
Porbeagle	Yes	No	Porbeagle Stock Assessment, ICCAT Standing Committee on Research and Statistics Report (2020); Rebuilding ends in 2108 (HMS Am. 2)
Blue	No	No	ICCAT Standing Committee on Research and Statistics Report (2015)
Shortfin mako	Yes	Yes	ICCAT Standing Committee on Research and Statistics Report (2017)
All other pelagic sharks	Unknown	Unknown	
Aggregated Large Coastal Sharks (LCS)			
Atlantic Blacktip	No	No	SEDAR 65 (2020)
Aggregated Large Coastal Sharks - Atlantic Region	Unknown	Unknown	SEDAR 11 (2006); difficult to assess as a species complex due to various life history characteristics/ lack of available data
Non-Blacknose Small Coastal Sharks (SCS)			
Atlantic Sharpnose	No	No	SEDAR 34 (2013)
Bonnethead	Unknown	Unknown	SEDAR 34 (2013)
Finetooth	No	No	SEDAR 13 (2007)
Hammerhead			
Scalloped	Yes	Yes	SEFSC Scientific Review by Hayes et al. (2009); Rebuilding ends in 2023 (HMS Am. 5a)
Blacknose			
Blacknose	Yes	Yes	SEDAR 21 (2010); Rebuilding ends in 2043 (HMS Am. 5a)
Smoothhound			
Atlantic Smooth Dogfish	No	No	SEDAR 39 (2015)
Research			
Sandbar	Yes	No	SEDAR 54 (2017); Rebuilding ends 2070 (HMS Am. 2)
Prohibited			
Dusky	Yes	Yes	SEDAR 21 update (2016); Rebuilding ends in 2108 (HMS Am. 5b)
All other prohibited sharks	Unknown	Unknown	

III. Status of the Fishery

Specifications (Opening, closures, quotas)

NOAA Fisheries sets quotas for coastal sharks through the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan and its amendments. The opening dates, closure dates, and quotas are detailed in Table 3. All non-prohibited coastal shark management groups opened on January 1, 2020. NOAA Fisheries closes commercial shark fisheries when 80% of the available quota is reached. When the fishery closes in federal waters, the Interstate FMP dictates that the fishery also closes in state waters. For 2020, the fishery did not close for any of the species groups before December 31.

Table 3. Commercial quotas and opening dates for 2020 shark fishing season

Species Group	Region	2020 Annual Quota (mt dw)	Season Opening Dates
Aggregated Large Coastal Sharks (LCS)	Atlantic	168.9	January 1, 2020
Hammerhead Sharks	Atlantic	27.1	
Non-Blacknose Small Coastal Sharks (SCS)	Atlantic	264.1	January 1, 2020
Blacknose Sharks (South of 34° N. Latitude only)	Atlantic	17.2	
Smoothhound sharks	Atlantic	1,802.6	January 1, 2020
Blue Sharks	No regional quotas	273.0	January 1, 2020
Porbeagle Sharks		1.7	
Pelagic Sharks other than Porbeagle or Blue		488.0	
Shark Research Quota (Aggregated LCS)		50.0	
Sandbar Research Quota		90.7	

Commercial Landings

Preliminary commercial landings of Atlantic large coastal shark species in 2020 were 227,783 pounds (lbs) dressed weight (dw), roughly a 30% increase from 2019 landings (Table 4; Figure 1). Commercial landings of small coastal shark species in 2020 were 234,557 lbs dw, a 28% decrease from 2019 landings (Table 5; Figure 1). Commercial landings of Atlantic pelagic sharks in 2020 were 98,514 lbs dw, which represents an approximate 6% decrease from 2019 landings (Table 6; Figure 1).

Table 4. Commercial landings of authorized Atlantic large coastal sharks by species (lbs dw), 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022. Confidential landings denoted with a "C".

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020
Great hammerhead	371	7,406	13,538	36,892	20,454	17,646	22,881	26,410	27,529
Scalloped hammerhead	15,800	27,229	24,652	13,197	12,329	4,919	5,927	C	12,024
Smooth hammerhead	3,967	1,521	601	304	125	1,193	530	661	0
Unclassified	9,617	0	0	0	0	0	0	0	0
Hammerhead Total	**29,755**	**36,156**	**38,791**	**50,393**	**32,908**	**23,758**	**29,338**	**<35,000**	**39,553**
Blacktip	215,403	256,277	282,009	229,823	248,470	205,138	125,129	88,655	131,962
Bull	24,504	33,980	32,372	33,737	31,417	23,802	16,707	14,677	17,703
Lemon	21,563	16,791	13,047	18,158	19,205	12,005	8,910	5,096	4,479
Nurse	81	0	0	24	0	0	0	C	0
Silky	29	186	289	1,246	446	702	175	495	223
Spinner	10,643	26,892	25,716	33,002	55,610	62,314	58,347	59,066	71,094
Tiger	23,245	16,561	29,062	28,460	14,896	6,324	4,073	4,685	2,232
Unclassified	53,705	0	0	0	0	0	0	0	90
Aggregated LCS Total	**349,173**	**350,687**	**382,495**	**344,450**	**370,045**	**310,286**	**213,341**	**<175,000**	**227,783**
Sandbar	46,446	46,868	82,308	112,610	114,871	121,074	132,688	150,010	49,989

Table 5. Commercial landings of authorized Atlantic small coastal sharks by species (lbs dw), 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020
Blacknose	37,873	33,382	38,437	45,405	26,842	17,241	11,335	18,910	10,644
Bonnethead	19,907	22,845	13,221	5,885	1,688	6,077	4,240	4,134	1,818
Finetooth	15,922	19,452	19,026	8,712	5,647	19,874	17,071	9,688	7,793
Atl. Sharpnose	345,625	183,524	198,568	293,128	175,890	251,289	268,395	292,694	214,303
SCS Total	**419,819**	**259,203**	**269,252**	**353,130**	**210,067**	**294,481**	**301,041**	**325,426**	**234,557**

Table 6. Commercial landings of authorized pelagic sharks by species off the Atlantic coast of the United States (lbs dw), 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022. Confidential landings denoted with a "C".

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020
Blue	17,200	9,767	17,806	1,114	607	4272	C	0	0
Porbeagle	4,250	54	6414	0	0	C	811	C	0
Shortfin Mako	198,841	199,177	218,295	141,720	160,829	184,993	57,719	53,573	36,029
Unclassified Mako	0	0	0	0	0	0	0	0	0
Oceanic whitetip	258	62	22	0	0	0	0	0	0
Thresher	63,965	48,768	116,012	72,463	78,219	61,990	63,805	51,170	62,485
Unclassified pelagic	28,932	0	0	0	0	0	0	0	0
Pelagic Total	**313,446**	**257,828**	**358,549**	**215,297**	**239,655**	**<255,000**	**<125,000**	**<105,000**	**98,514**

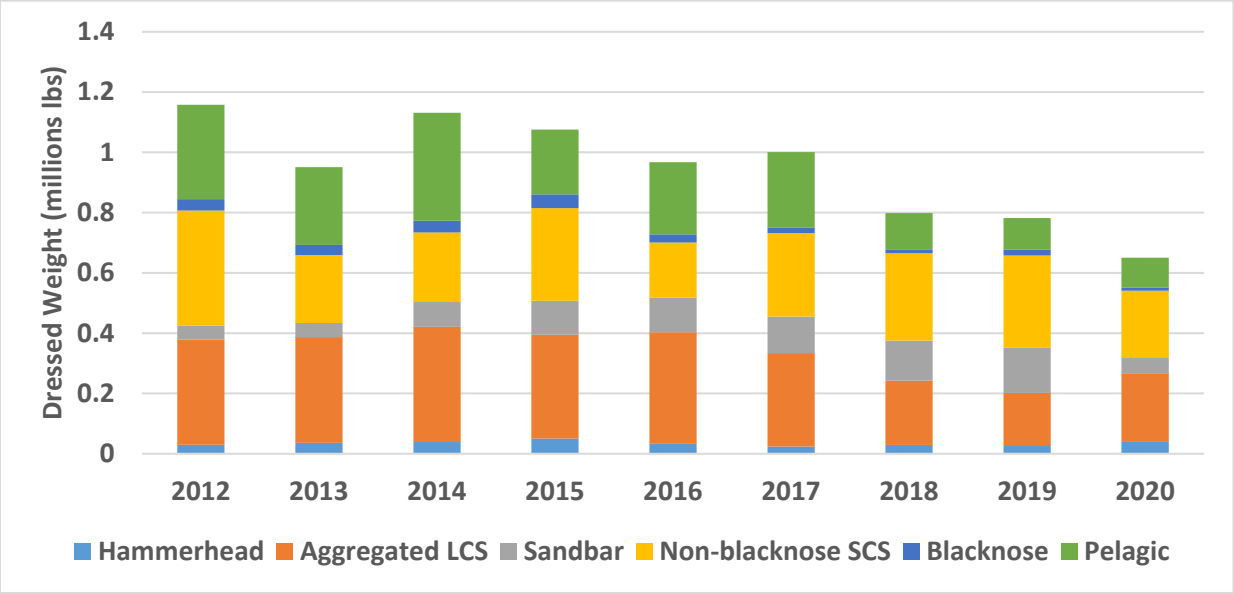


Figure 1: Commercial landings of coastal sharks off the east coast of the United States by species group, 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.

Recreational Landings

By species group, 39,342 LCS, 5 hammerhead, 63,891 SCS, 61,129 smoothhound, and 237 sandbar sharks were harvested during the 2020 recreational fishing season (Table 7; Figure 2). Pelagic shark data for 2016-2020 are reported in metric tons whole weight, and in 2020 91.9 mt of pelagic sharks were harvested. In 2020, recreational harvest of prohibited Atlantic shark species was 58, reaching a 5-year low (Table 8).

Table 7. Estimated recreational harvest of Atlantic shark species by species group in numbers of fish, 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020
Blacktip	1,164	962	1,730	1,718	6,520	1,527	500	224	1,506
Bull	68	77	3	2	26	3,750	32	0	17
Lemon	0	0	0	144	1,207	764	0	4	0
Nurse	706	13	418	298	21	2	5	13	2
Spinner	1,145	390	847	82	761	623	153	66	27
Tiger	2	8	324	417	2,061	0	1	0	0
Unclassified	6,070	97	4,513	153	732	625	7,544	83,129	37,790
LCS Total	**9155**	**1547**	**7835**	**2814**	**11328**	**7291**	**8235**	**83436**	**39342**
Hammerhead Total	**41**	**600**	**900**	**1**	**799**	**0**	**0**	**2**	**5**
Blue shark[1]	0	4,165	3,449	9,421	30.8	21.9	15.2	16.7	8.4
Mako, shortfin[1]	1,314	6,856	16,531	12,835	167.5	192.4	125.1	25.2	24.5
Oceanic whitetip[1]	0	0	0	132	0	0	0	0	0
Porbeagle[1]	0	0	0	0	4.3	7.7	2.8	11.8	4.9
Thresher[1]	0	0	3,164	12,274	74.3	92	96.6	108.8	54.1
Pelagic Total[1]	**1314**	**11021**	**23144**	**34662**	**276.9**	**314**	**239.7**	**162.5**	**91.9**
Blacknose	0	70	4,146	1,211	225	13	13	83	661
Bonnethead	9,798	14,376	28,532	2,870	37,832	18,239	37,168	31,086	28,861
Finetooth	0	0	2,896	326	0	1,219	0	176	113
Atlantic sharpnose	23,207	44,832	56,052	28,869	155,023	38,784	24,468	40,144	34,256
SCS Total	**33005**	**59278**	**91626**	**33276**	**193,080**	**58,255**	**61,649**	**71,489**	**63,891**
Smoothhound	**31,669**	**17,308**	**49,835**	**43,721**	**145,689**	**58,446**	**40,736**	**56,375**	**61,129**
Sandbar[2]	**857**	**399**	**1,873**	**1,252**	**0**	**2,604**	**0**	**792**	**237**

[1]Pelagic shark data for 2012-2015 includes Gulf of Mexico landings in numbers of fish. Pelagic shark data for 2016-2020 is Atlantic only, but reported in metric tons whole weight.

[2]Sandbar shark data for 2016-2020 were pulled from the Marine Recreational Information Program.

Table 8. Estimated recreational harvest of prohibited Atlantic shark species in numbers of fish, 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020
Atlantic angel	0	0	0	0	113	98	31	29	24
Basking	0	0	0	0	8	4	8	3	3
Bigeye sand tiger	0	0	0	0	0	0	0	0	0
Bigeye sixgill	0	0	0	0	0	0	0	0	0
Bigeye thresher	0	0	0	0	28	21	13	24	2
Bignose	0	0	0	0	1	0	0	0	1
Caribbean reef	0	0	0	0	0	0	1	0	0
Caribbean sharpnose	0	0	0	0	0	0	0	0	0
Dusky	15	16	2	0	29	22	121	19	4
Galapagos	0	0	0	0	0	0	0	0	0
Longfin mako	0	0	0	0	15	14	4	14	0
Narrowtooth	0	0	0	0	0	0	0	0	0
Night	0	0	0	0	8	31	74	83	0
Sand tiger	0	0	0	0	26	9	48	20	23
Sevengill	0	0	0	0	0	0	0	0	0
Sixgill	0	0	0	0	0	1	0	0	0
Whale	0	0	0	0	0	0	0	0	0
White	0	0	0	0	0	10	5	3	1
Prohibited Total	**15**	**16**	**2**	**0**	**228**	**210**	**305**	**195**	**58**

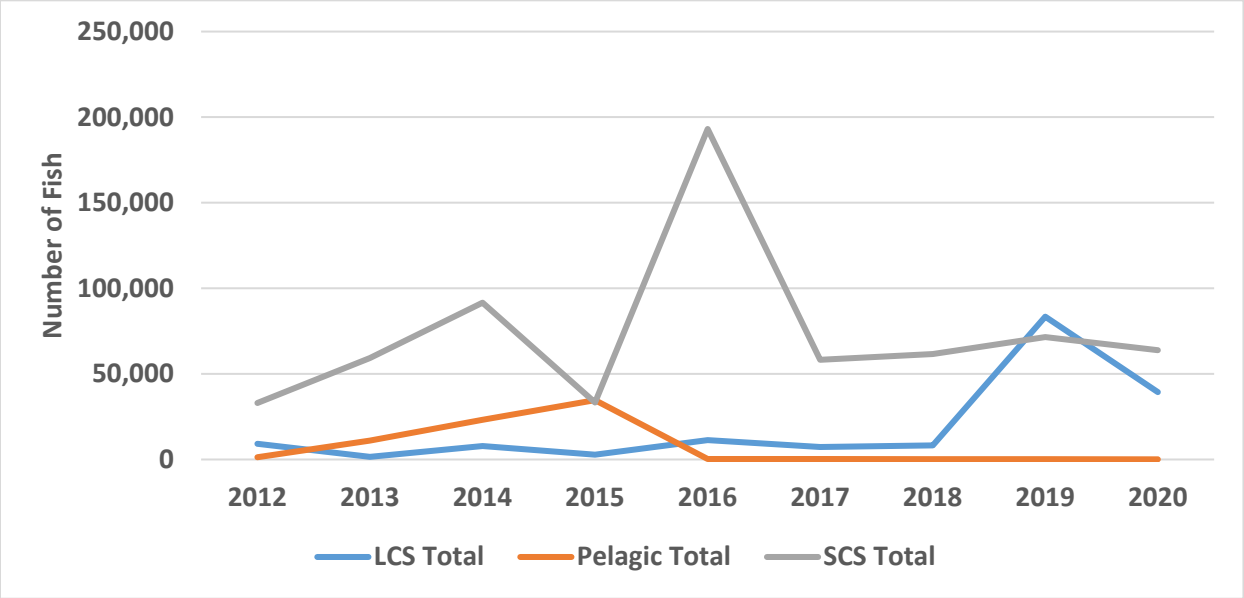


Figure 2: Estimated recreational harvest for LCS, pelagic, and SCS by species group, in numbers of fish, 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.

IV. Status of Research and Monitoring

Under the Interstate Fishery Management for Coastal Sharks, the states are not required to conduct any fishery-dependent or independent studies; however, states are encouraged to submit any information collected while surveying for other species. This section describes the research and monitoring efforts through the 2020 fishing year, where available.

The Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Survey appears in multiple state monitoring efforts. The survey monitors the presence of young-of-year and juvenile sharks along the east coast. It is managed and coordinated by NOAA's Northeast Fisheries Science Center (NEFSC) through the Apex Predators Program based at the NEFSC's Narragansett Laboratory in Rhode Island. Longline and gillnet sampling, along with mark-recapture techniques are used to determine relative abundance, distribution, and migration of sharks utilizing nursery grounds from Massachusetts to Florida. In 2020, COASTSPAN program participants were the Virginia Institute of Marine Science, South Carolina Department of Natural Resources, and University of North Florida (samples Georgia and north Florida state waters). In addition, the survey is conducted in summer months in Narragansett and Delaware Bays. Standardized indices of abundance from COASTPAN surveys are used in the stock assessments for large and small coastal sharks.

Massachusetts

DMF intensified its research on the fine-scale predatory behavior of white sharks off the coast of Massachusetts using a variety of methods. First, the existing acoustic receiver array was expanded to fill gaps around Cape Cod and to include the majority of towns along the Massachusetts coastline. Second, tagging and survey efforts were expanded into Cape Cod Bay. Third, two gridded acoustic arrays were deployed off Head of the Meadow Beach (Truro) and Nauset (Orleans) beaches with the Center for Coastal Studies to examine fine-scale movements of sharks as they relate to the habitat. Fourth, five real-time acoustic receivers were deployed off popular Outer Cape swimming beaches including: Newcomb Hollow and Lecounts (Wellfleet), Head of the Meadow (Truro), Nauset Trail (Orleans), and North Beach (Chatham). The receivers provided beach managers and lifeguards with immediate notifications when acoustically-tagged white sharks were detected close to these beaches. Fifth, acceleration data logging camera tags were deployed on white sharks to record very fine-scale movements at sub-second intervals, including tailbeat frequency, amplitude, body posture, and swimming depth. These data will be used to examine swimming patterns (e.g., traveling, resting, hunting, foraging, mating), bioenergetics, and, ultimately, provide estimates of the intensity of white shark predation on gray seals. Sixth, a fixed aerial camera system was tested in Orleans as a potential tool to observe nearshore white shark behavior.

As a result, 38 white sharks were tagged with acoustic transmitters off the Outer Cape in 2020; eight of these also carried acceleration data logging camera tags for up to two days. This brings the total to 230 individuals tagged since 2009. These efforts were conducted with funding and logistical support from local nonprofits, including the Atlantic White Shark Conservancy. Data

collected in 2020 will be used to enhance our understanding of white shark predatory behavior in these areas of high shark-human overlap to better inform public safety practices.

Rhode Island

Fishery-independent monitoring is limited to coastal shark species taken in the RI Division of Fish & Wildlife, Marine Fisheries Section (RIDEM DMF) monthly and seasonal trawl survey. Smooth dogfish are the only coastal shark species captured in the trawl survey regularly. A summary of fishery-independent monitoring for coastal sharks is summarized in Figure 3 below.

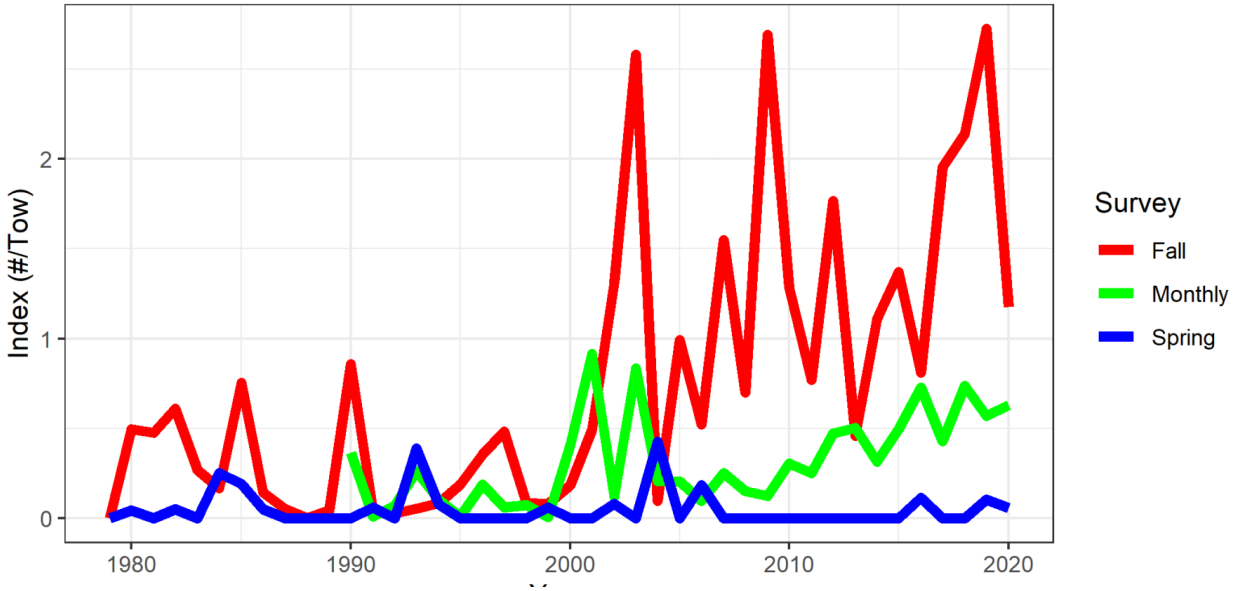


Figure 3. Smooth dogfish (*Mustelus canis*) annual mean number per tow from the RIDEM DMF bottom trawl surveys.

Connecticut

The Connecticut Department of Energy and Environmental Protection (CT DEEP) monitors the abundance of marine resources in nearby coastal waters with the Long Island Sound Trawl Survey. Spring (April, May and June) and fall (September and October) surveys are conducted each year. Other than smooth dogfish, coastal sharks are not encountered by the Long Island Sound Trawl Survey. Smooth dogfish are caught most often in the fall and the fall indices are presented below (Table 9; Figure 4). Due to the COVID-19 pandemic, the Long Island Sound Trawl Survey was not conducted in 2020. More information on the Long Island Sound Trawl Survey report can be found here.

Table 9. Long Island Trawl Survey Fall Smooth Dogfish indices (geometric mean catch/tow)

Year	Kg/tow	Count/tow
1984		2.47
1985		1.92
1986		1.43

1987		0.81
1988		0.91
1989		0.41
1990		0.55
1991		0.46
1992	1.20	0.78
1993	1.75	0.95
1994	0.76	0.49
1995	0.85	0.46
1996	1.16	0.80
1997	1.09	0.59
1998	1.32	0.72
1999	1.27	0.93
2000	2.85	1.88
2001	3.02	1.69
2002	6.09	3.58
2003	6.18	3.10
2004	2.95	1.44
2005	2.70	1.41
2006	2.46	0.94
2007	6.23	2.27
2008	1.25	0.63
2009	2.8	1.13
2010	-	-
2011	3.66	1.43
2012	4.69	2.41
2013	7.93	4.13
2014	11.05	5.78
2015	11.70	7.30
2016	8.30	5.24
2017	14.82	8.29
2018	9.57	7.17
2019	10.66	6.01
2010	-	-

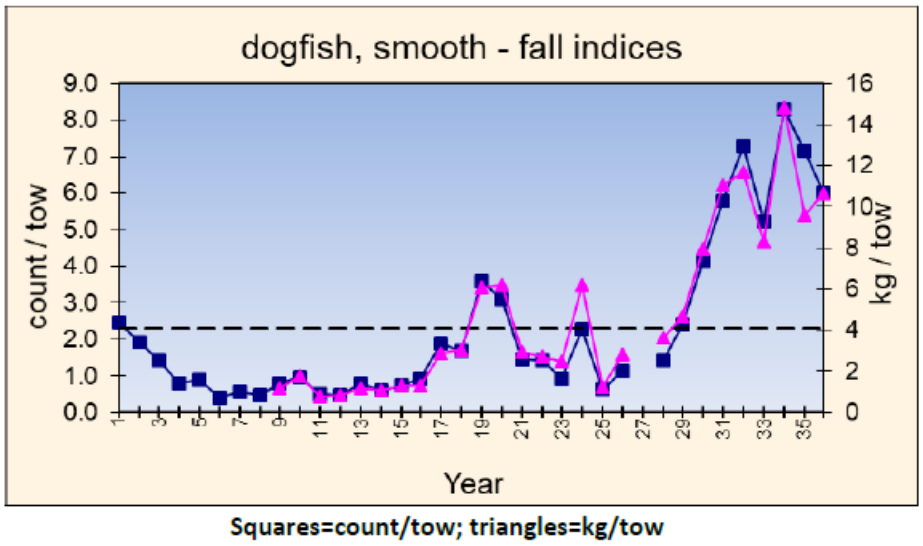


Figure 4. CT DEEP Smooth Dogfish Long Island Sound Trawl Survey

New York

While the New York Department of Environmental Conservation (NY DEC) does not currently conduct fishery-independent monitoring programs for Atlantic coastal sharks, multiple research permits were issued in 2020 for the collection of information on sand tiger sharks, blue sharks, sandbar sharks, shortfin mako sharks, dusky sharks, smooth hammerhead sharks, common thresher sharks, blacktip sharks, and white sharks by the Wildlife Conservation Society (WCS)/New York Aquarium; Stony Brook University; South Fork Natural History Museum; and the O'Seas Conservation Foundation. In 2020, WCS/New York Aquarium caught and released 5 sandbar sharks, 4 dusky sharks, 2 sand tiger sharks; Stony Brook University caught and sampled 8 sandbar sharks, 4 blue sharks, 3 dusky sharks, 2 sand tiger sharks, 1 white shark, 1 shortfin mako shark, 1 smooth hammerhead shark, and 1 blacktip shark; the South Fork Natural History Museum captured, tagged, and released 1 thresher shark, 1 dusky shark, 1 sandbar shark, and 1 white shark; the O'Seas Conservation Foundation collected and tagged 100 smooth dogfish sharks, 2 sandbar sharks, 1 spinner shark, 1 white shark, and 1 blue shark. Information on each shark (morphometrics and sex), as well location, date, biological samples collected, telemetry gear deployed, and final disposition of the animals were recorded.

New Jersey

New Jersey does not currently conduct any fishery-independent monitoring programs specifically for Atlantic coastal sharks, but does encounter sharks from the state's Ocean Stock Assessment Survey. In 2020, the Survey caught less than 1lb. of smooth dogfish only and no other coastal sharks (Figures 5 and 6). This amount is far less than normal as the survey was stalled due to COVID safety restrictions.

Sharks sampled by the New Jersey Ocean Stock Assessment Survey are collected by a 30-meter otter trawl every January, April, June, August, and October since 1989. Tows are approximately

1 nautical mile and are performed via a stratified random sampling design. Latitudinal strata are identical to those used by the National Marine Fisheries Service groundfish survey. Longitudinal boundaries are defined by the 18-30, 30-60, and 60-90-foot isobaths. Smooth Dogfish are cumulatively weighed and measured by total length in centimeters. All other shark species are sorted by gender, weighed individually, and measured by total length in centimeters.

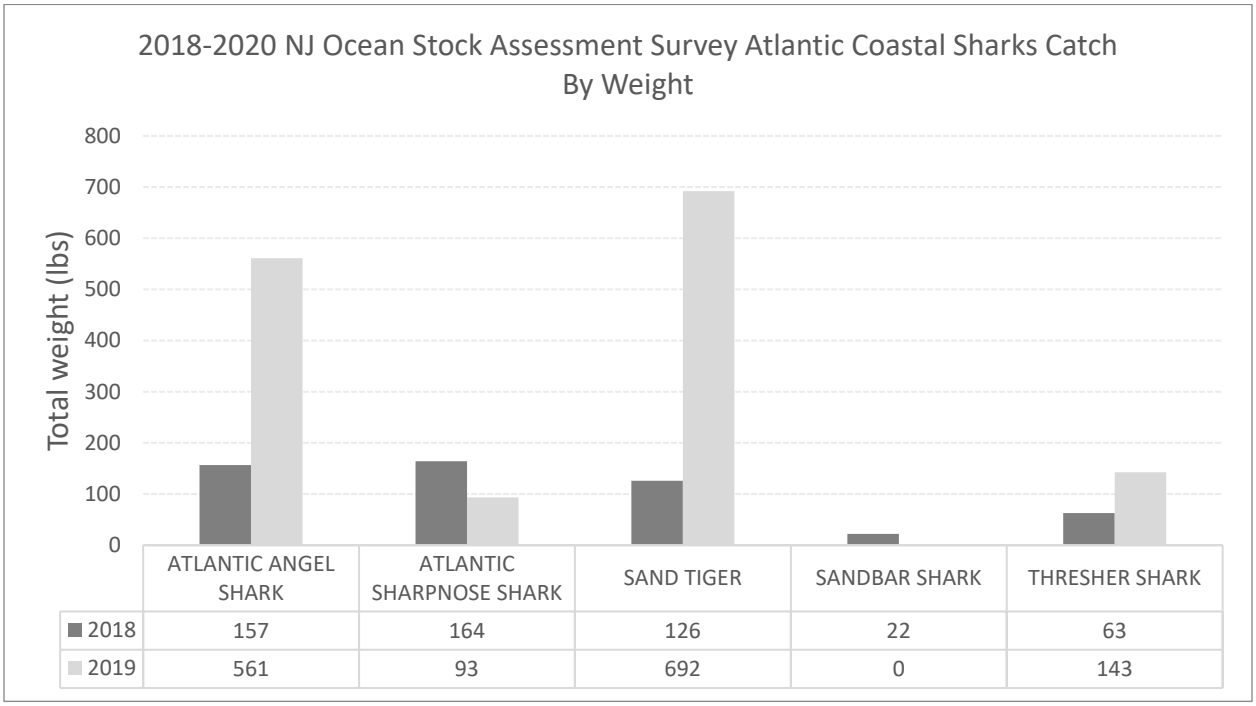


Figure 5. NJ 2018-2020 Ocean Stock Assessment Survey, Atlantic Coastal Sharks excluding Smooth Dogfish

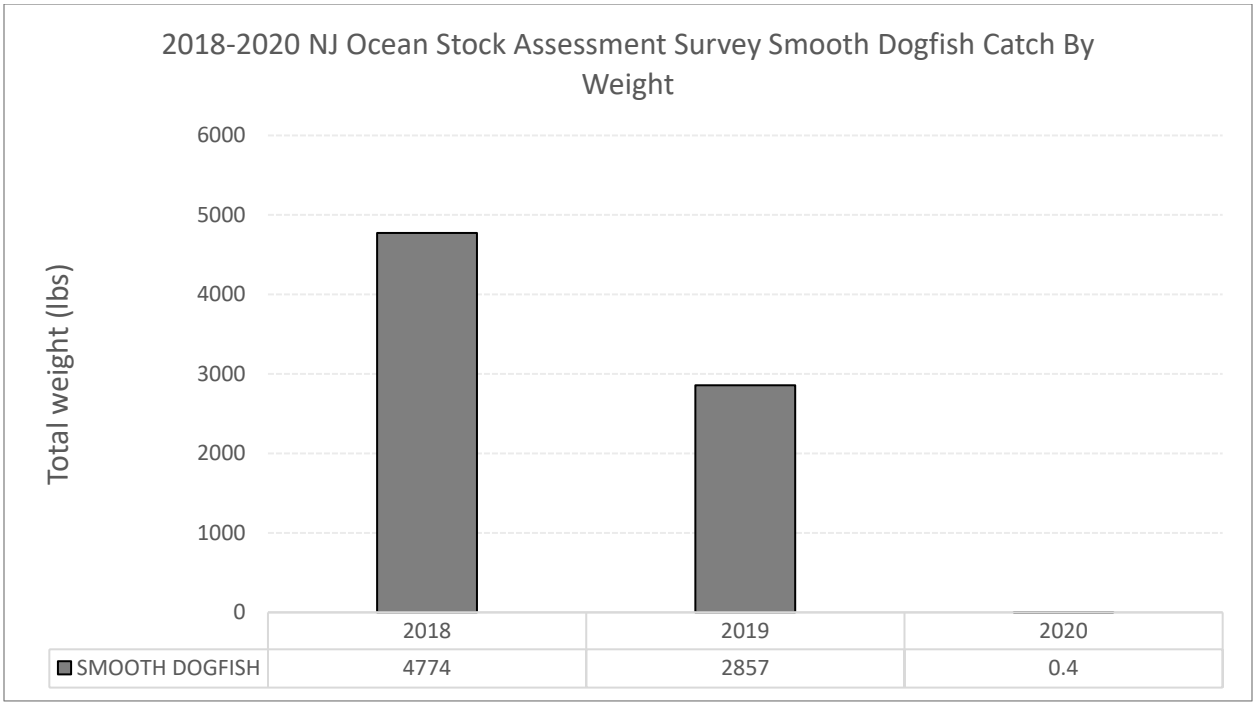


Figure 6. NJ 2018-2020 Ocean Stock Assessment Survey Atlantic, Smooth Dogfish

Delaware

Delaware conducts a 30' adult trawl survey and a 16' juvenile trawl survey in the Delaware Bay. In the adult trawl survey, smooth dogfish are the most common shark species caught (Figure 7), with sand tiger shark (Figure 8) and sandbar sharks (Figure 9) taken in low numbers. Thresher, Atlantic angel, Atlantic sharpnose (Figure 10) and dusky shark were caught in the past, but rarely. Sand tiger shark catch per nautical mile decreased in 2020 from a historical high in 2019. Sandbar shark catch per nautical mile increased in 2020 relative to 2019 and was at the seventh highest level of abundance for the time series. Smooth dogfish catch per nautical mile decreased in 2020 and is still relatively low compared to the early 2000's. In the juvenile trawl, the species caught include sand tiger shark (Figure 11), sandbar sharks (Figure 12) and smooth dogfish (Figure 13). Apart from smooth dogfish, the capture of coastal sharks in the juvenile trawl is a rare occurrence.

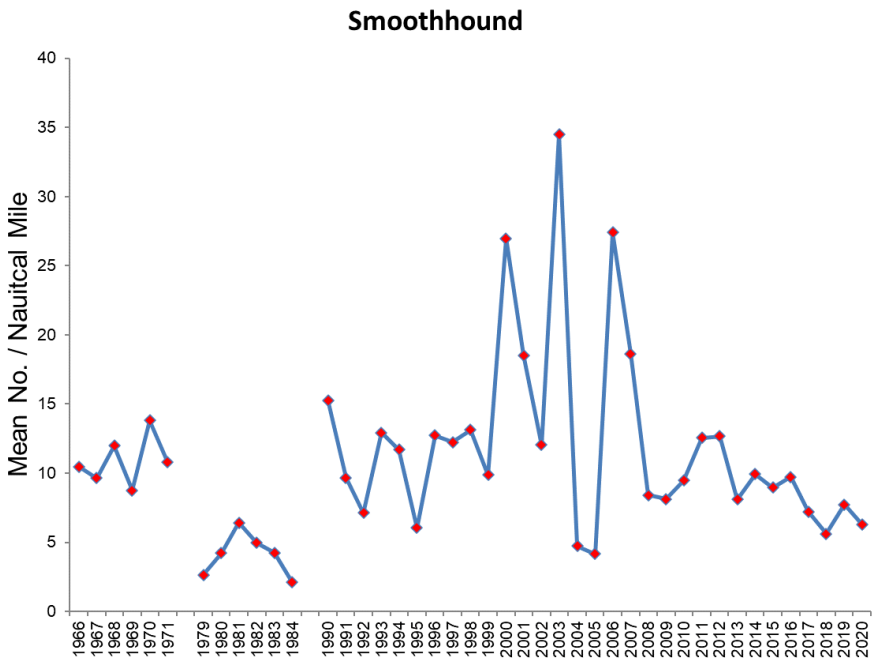


Figure 7. Smooth dogfish relative abundance (mean number per nautical mile), time series (1966 – 2020) as measured in 30-foot trawl sampling in the Delaware Bay.

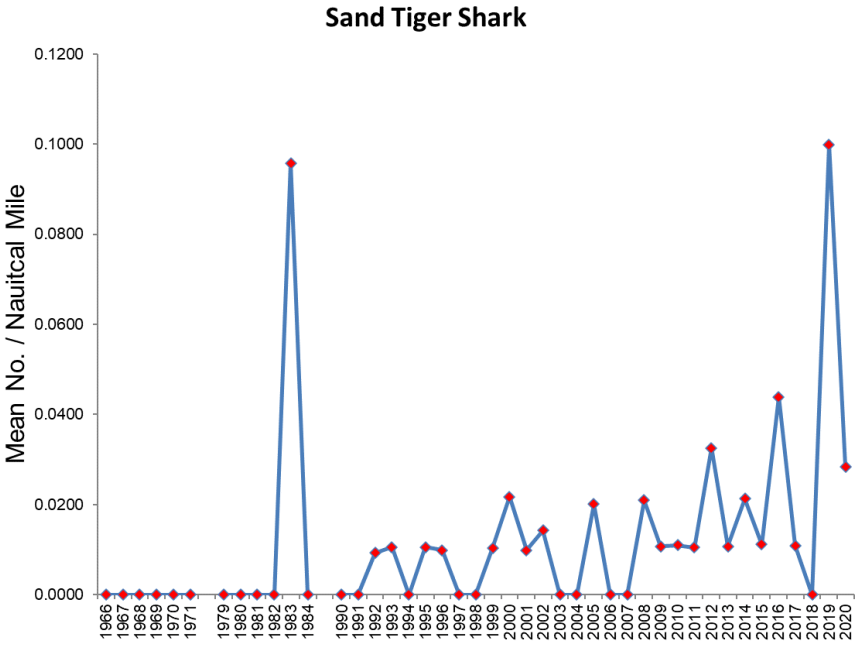


Figure 8. Sand tiger shark relative abundance (mean number per nautical mile), time series (1966 – 2020) as measured in 30-foot trawl sampling in the Delaware Bay.

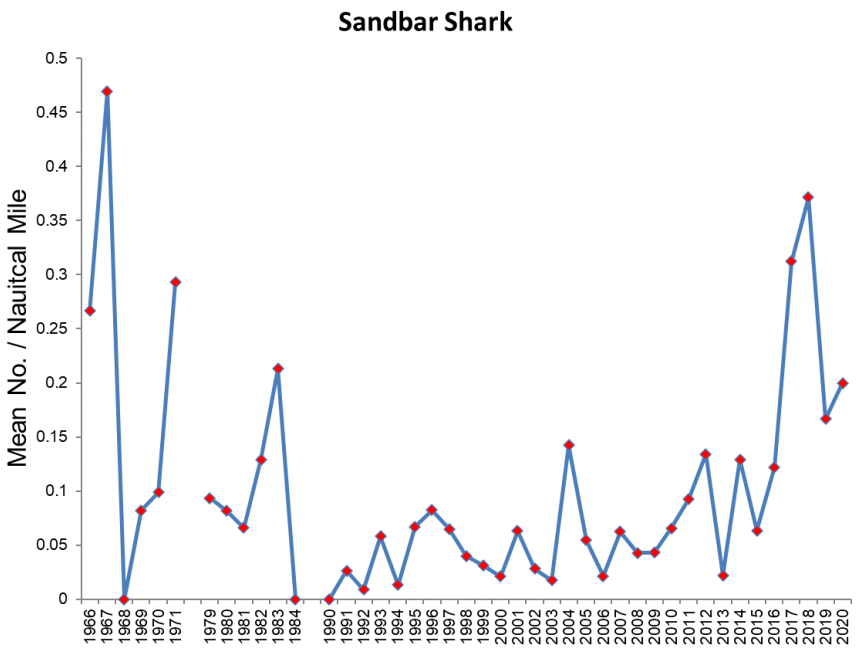


Figure 9. Sandbar shark relative abundance (mean number per nautical mile), time series (1966 – 2020) as measured in 30-foot trawl sampling in the Delaware Bay.

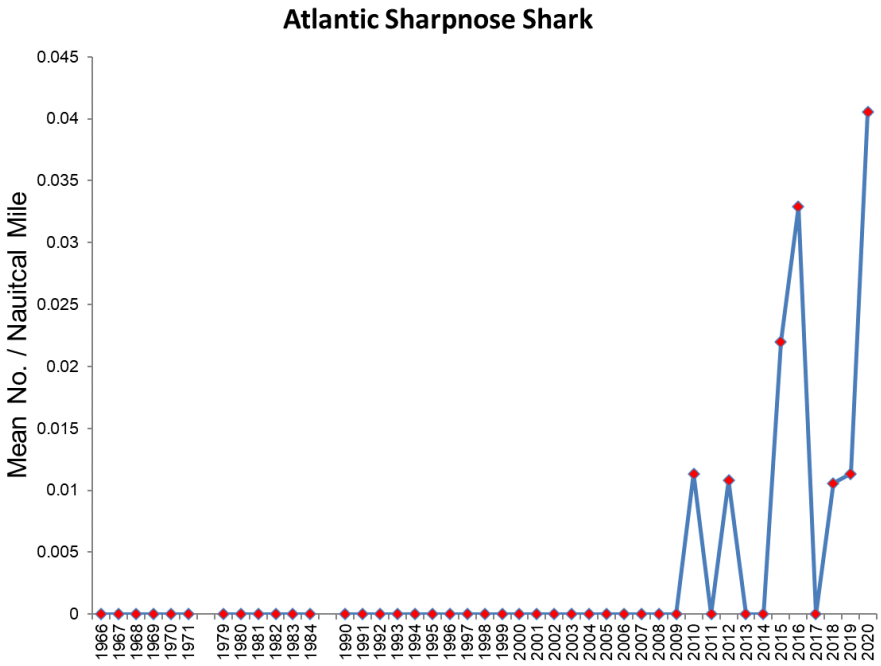


Figure 10. Atlantic sharpnose shark relative abundance (mean number per nautical mile), time series (1966 – 2020) as measured in 30-foot trawl sampling in the Delaware Bay.

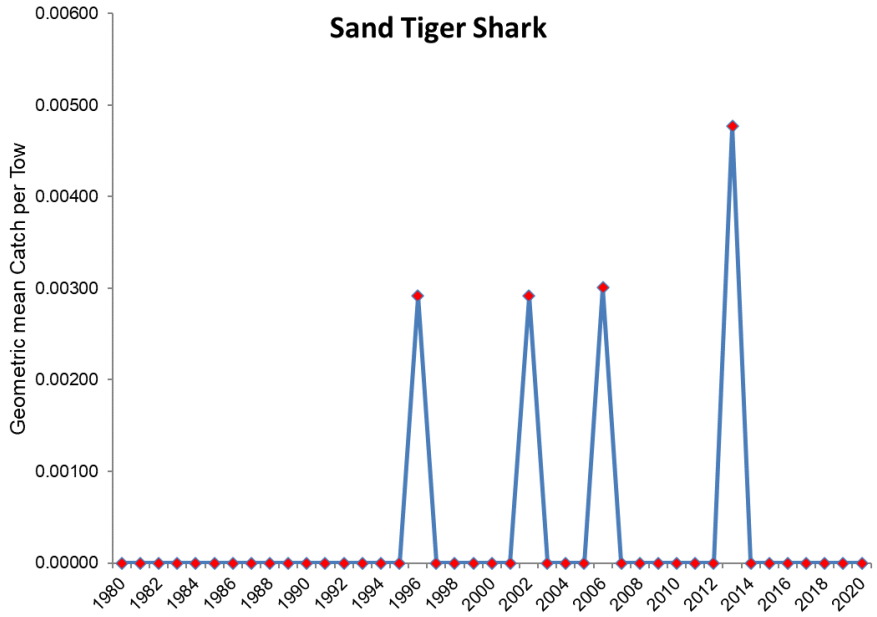


Figure 11. Index of sand tiger shark, time series (1980 – 2020) as measured by 16-foot trawl sampling in the Delaware Estuary.

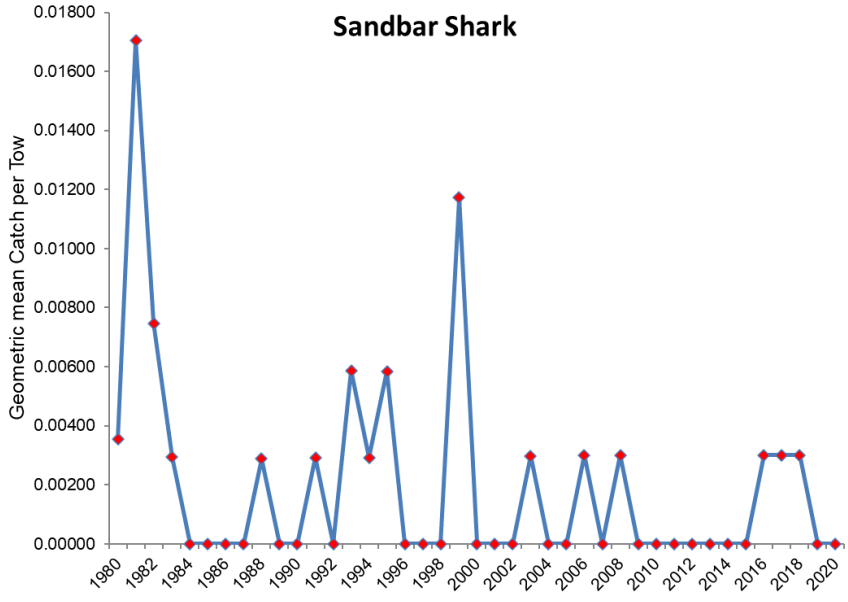


Figure 12. Index of sandbar shark, time series (1980 – 2020) as measured by 16-foot trawl sampling in the Delaware Estuary.

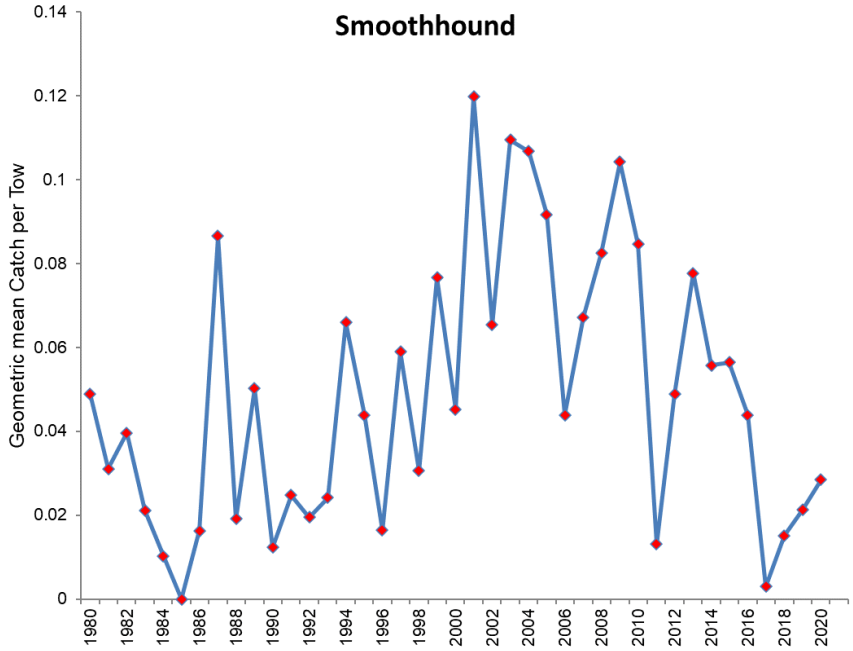


Figure 13. Index of young-of-year smooth dogfish abundance, time series (1980 – 2020) as measured by 16-foot trawl sampling in the Delaware Estuary.

Maryland

No fishery-independent monitoring for Atlantic coastal sharks was conducted in Maryland state waters.

Virginia

The Virginia Institute of Marine Science Shark Research Program began in 1973 and is one of the longest running longline surveys in the world. The program has provided data on habitat utilization, age, growth, reproduction, trophic interactions, basic demographics, and relative abundance for dominant shark species. Cruise times have been variable over the time series, but generally sampling has occurred monthly from May through October. The survey utilizes a fixed station design with nine core sampling locations, although additional auxiliary locations have been sampled frequently over the years.

Beginning in 2012, a separate longline survey conducted by the Virginia Institute of Marine Science designed specifically to target young-of-year sandbar sharks in the lower Chesapeake Bay and Eastern Shore was initiated. The new survey follows a stratified random sampling design, rather than a fixed survey design, and falls under the broader COASTSPAN umbrella survey.

In 2020, Atlantic sharpnose shark was the most commonly encountered species by the offshore survey followed by sandbar shark, blacktip shark, spinner shark, blacknose shark, sand tiger shark, tiger shark, bull shark, dusky shark, scalloped hammerhead, and silky shark (Table 1).

Seasonal patterns in survey catches were also evident with June and July showing higher overall catches of sharks when compared to August and September.

COASTSPAN catches of neonate sandbar shark (<= 71 cm total length) were highest in magnitude during August in the lower Chesapeake Bay, followed by equal catch in June and July. In the coastal lagoons of the Eastern Shore, peak neonate catch occurred in August followed by July and June (Table 12). For 2020, neonate total catch was notably higher in the coastal lagoons of the Eastern Shore when compared to that of the lower Chesapeake Bay.

Table 11. Monthly catch summaries for key shark species encountered during offshore longline cruise conducted by VASMAP, 2020 pooled across the standard six sampling sites. Effort is expressed as total longline soak time of 100 hooks

Month	Effort (hrs)	Sand Tiger	Sandbar	Tiger	Atlantic Sharpnose	Spinner	Dusky	Blacknose	Blacktip	Scalloped Hammerhead	Bull	Silky
Jun	31.1	2	16	2	27	3	0	4	23	0	0	0
Jul	28.1	0	6	2	55	0	0	1	14	0	1	0
Aug	32.2	1	4	0	19	0	0	2	12	0	0	0
Sep	29.0	3	29	0	1	5	1	0	0	1	0	1
Total		6	55	4	102	8	1	7	49	1	1	1

	Blacktip	Scalloped Hammerhead	Bull	Silky
	23	0	0	0
	14	0	1	0
	12	0	0	0
	0	1	0	1
Total	49	1	1	1

Table 12. Neonate catch summaries for each monthly COASTSPAN cruise, 2020, pooled across the sampling sites with the lower Chesapeake Bay and coastal lagoons of the Eastern Shore. Effort is expressed as total longline soak time of 50 hooks.

Lower Chesapeake Bay

Month	Effort (hrs)	Neonate
Jun	10.0	35
Jul	10.0	35
Aug	10.0	44
Total		

Lagoons, Eastern Shore

Month	Effort (hrs)	Neonate
Jun	4.5	76
Jul	7.5	93
Aug	7.5	117
Total		

North Carolina

Fishery-Dependent

Fishery-dependent sampling of North Carolina commercial fisheries has been ongoing since 1982 (conducted under Title III of the Interjurisdictional Fisheries Act and funded in part by the U.S. Department of Commerce, National Marine Fisheries Service). Predominate fisheries sampled includes the ocean gill net, estuarine gill net, ocean trawl, long haul seine/swipe net, beach seine, and pound net fisheries. Fishery-dependent sampling did not occur from April to May 2020 due to COVID-19 concerns but resumed in June 2020. Shark species were sampled

from 57 commercial trips in 2020 with February having the highest number of sampled trips (Table 13). Seventy-one sharks comprised of six species were sampled (Table 14).

Table 13. North Carolina 2020 fishery-dependent shark sampling summary by month.

Month	Total Trips Sampled
January	7
February	15
March	7
April	0
May	0
June	12
July	4
August	1
September	1
October	6
November	2
December	2
Total	57

Table 14. North Carolina 2020 fishery-dependent shark sampling summary by species for total number of individuals and total sampled weight.

Shark Species	#Total Individuals	Weight (kg)
Atlantic Sharpnose	32	51
Blacktip	10	63
Bonnethead	1	3
Hammerhead	2	138
Smoothhound	28	35
Spinner	8	168

Total	71	458

Fishery-Independent

The NCDMF has two fishery-independent surveys that collect coastal sharks: A gill net survey (Program 915) and a red drum long line survey (Program 365). Program 915 was initiated in 2001. The objective of this project is to provide annual relative abundance indices for key estuarine species in the near shore, Pamlico Sound, Pamlico, Pungo, Neuse, New, and Cape Fear rivers. The survey employs a stratified random sampling design and utilizes multiple mesh gill nets (3.0 inch to 6.5 inch stretched mesh, by 0.5 inch increments). Program 365 was initiated in 2007 for developing an index of abundance for adult red drum. This project also allows for capture and tagging of Atlantic coastal sharks in collaboration with the NOAA Fisheries Cooperative Shark Tagging Program.

For the 2020 sampling year, the red drum long line survey and the gill net survey did not occur due to the COVID pandemic. Executive Order (EO) 116, issued on March 10, 2020, declared North Carolina under a State of Emergency and was soon followed by EO 120 which implemented a statewide Stay at Home Order for all non-essential State employees.

South Carolina

Data related to the presence and movement of sharks in South Carolina's coastal waters will continue to be collected as encountered within the context of existing fishery dependent or fishery independent programs conducted by the SCDNR. Currently, data are collected from estuarine waters by the SCDNR Cooperative Atlantic States Shark Pupping and Nursery Habitat survey (COASTSPAN) and the SCDNR trammel net survey. The COASTSPAN survey monitors the presence and abundance of young-of-year and juvenile sharks in the estuaries and bays of South Carolina. The survey operates from April-September using gillnets, longlines and drumlines to sample index stations. Species captured are measured, sexed, tagged and released, and physical and water quality parameters are recorded (Table 15).

The SCDNR trammel net survey is designed to sample recreationally important species in shallow estuarine waters. Sharks are not a target species, but their abundance as well as length and sex data are recorded (Table 15). Stations selected based on suitable habitats are randomly sampled using a multi-panel net to encircle a section of marsh. Species captured are measured, sexed if possible, and released. In addition, physical and water quality data are recorded for each sample location.

The presence and abundance of juvenile and adult coastal sharks in the bays, sounds and coastal waters of South Carolina are documented by the Coastal Longline Survey. This survey uses a stratified-random approach to sample for adult red drum and coastal sharks. The survey operates annually from August to December using longlines to sample suitable habitat for targeted species. Species captured are measured, sexed, tagged, and released, and physical and

water quality parameters are recorded. Species encountered and tagged for all surveys are reported in Table 15. The data gathered from these programs are shared with the NMFS Apex Predators Program and are utilized in stock assessments and management decisions in South Carolina.

Table 15. Number of sharks captured and tagged by South Carolina Department of Natural Resources' Cooperative Atlantic States Shark Pupping and Nursery Habitat Survey (COASTSPAN), Trammel Net Survey, and Coastal Longline survey in 2020.

	COASTSPAN		Trammel Net		Coastal Longline Survey	
Shark Species	Captured	Tagged	Captured	Tagged	Captured	Tagged
Atlantic Sharpnose	65	0	6	0	1007	0
Blacknose	0	0	0	0	130	125
Blacktip	249	93	11	0	54	42
Bonnethead	189	126	97	0	65	65
Bull	7	6	0	0	3	3
Dusky	0	0	0	0	0	0
Finetooth	351	47	18	0	78	72
Great Hammerhead	0	0	0	0	2	1
Lemon	13	9	7	0	5	1
Nurse	0	0	0	0	1	1
Sandbar	215	196	4	0	195	166
Sand Tiger	0	0	0	0	0	0
Scalloped/Carolina Hammerhead	201	17	0	0	6	3
Smooth Dogfish	0	0	0	0	0	0
Spinner	0	0	0	0	33	28
Tiger	0	0	0	0	1	0

Georgia

Fishery-Dependent

Although a directed fishery for sharks does not exist in Georgia waters, there is a fishery-dependent sampling project conducted by the Coastal Resources Division (CRD) that can result in the incidental capture of coastal sharks. The Marine Sportfish Carcass Recovery Project, a partnership with recreational anglers along the Georgia coast, is used to collect biological data from finfish such as Red Drum, Spotted Seatrout, Southern Flounder, Sheepshead, and Southern Kingfish. Participating anglers deposit fish carcasses in chest freezers located at public access points along the Georgia coast. In 2020, a total of 5,037 fish carcasses were donated through this program. No coastal shark species were included.

Fishery-Independent

Georgia has several fishery-independent surveys that sample in areas where coastal shark species are encountered and one survey specifically designed to sample sub-adult sharks in Georgia's inshore waters.

Coastal Longline Survey (SEAMAP)

The Coastal Longline Survey is designed to sample adult Red Drum and coastal sharks. Sampling occurs in inshore and nearshore waters of southeast Georgia from mid-June through mid-December. Sampling gear consists of a bottom set 926 m, 600 lb. test monofilament mainline configured with 60, 0.5 m gangions made of 200 lb. test monofilament. Each gangion consists of a longline snap and a 15/0 circle hook. Thirty hooks were baited with squid, and thirty were baited with mullet. Soak time for each set is 30 minutes. During 2020, CRD staff deployed 54 sets consisting of 3,236 hooks and 27 hours of soak time. A total of 253 sharks were captured, representing ten species (Table 16).

Shark Nursery Survey (COASTSPAN)

The University of North Florida assumed field operations for this survey in 2016. Data for the complete time series are maintained by the NMFS Apex Predators Program in Narragansett, RI (contact: Cami McCandless).

Ecological Monitoring Trawl Survey (EMTS)

The EMTS is designed to sample penaeid shrimp, blue crab, and other marine organisms typically encountered in the trawl for management and monitoring purposes. Each month, a 40 ft flat otter trawl with neither a turtle excluder device nor bycatch reduction device is deployed at 36 stations across six estuaries. At each station, a standard 15-minute tow is made. During this report period, 336 tows/observations were conducted, totaling 84.29 hours of tow time. A total of 85 sharks, representing 5 species, were captured during 2020 (Table 16).

Marine Sportfish Population Health Survey (MSPHS)

The MSPFIS is a multi-faceted ongoing survey used to collect information on the biology and population dynamics of recreationally important finfish. The Altamaha River System and the Wassaw Estuary has been sampled since 2003 using entanglement gear. The St. Andrew Estuary was added in 2019.

During the June to August period, young-of-the-year Red Drum in the Altamaha River System and Wassaw and St. Andrew estuaries are collected using gillnets to gather data on relative abundance and location of occurrence. During the September to November period, fish populations in the Altamaha River System and Wassaw Estuary are monitored using monofilament trammel nets to gather data on relative abundance and size composition. In 2020, a total of 320 gillnet and 225 trammel net sets were made, resulting in the capture of 415 individuals representing 6 species of coastal sharks (Table 16).

Table 16. Numbers of coastal sharks captured in Georgia fishery-independent surveys in 2020 by species and by survey.

	SEAMAP	EMTS	MSPHS
SHARK, ATLANTIC SHARPNOSE	131	29	122
SHARK, BLACKNOSE	55	---	---
SHARK, BLACKTIP	22	2	16
SHARK, BONNETHEAD	23	49	245
SHARK, BULL	---	---	---
SHARK, FINETOOTH	6	---	5
SHARK, LEMON	---	---	4
SHARK, SANDBAR	11	2	---
SHARK, SCALLOPED HAMMERHEAD	2	3	---
SHARK, SPINNER	2	---	23
SHARK, TIGER	1	---	---
ALL SPECIES COMBINED	253	85	415

Florida

Florida Fish and Wildlife Conservation Commission had no fisheries-independent monitoring programs for coastal sharks during the 2020 calendar year.

V. Status of Management Measures and Issues

Fishery Management Plan

Coastal Sharks are managed under the Interstate FMP for Coastal Sharks, which was adopted in August 2008 and effective in January 1, 2009, Addendum I (2009), Addendum II (2013), Addendum III (2013), Addendum IV (2016), and Addendum V (2018). The FMP addresses the management of 41 species and establishes a suite of management measures for recreational and commercial shark fisheries in state waters (0 – 3 miles from shore). Addendum V provided the Board the ability to respond to changes in the stock status of coastal shark populations and adjust regulations through Board action rather than an addendum, ensuring greater consistency between state and federal shark regulations.

In April 2019, the Board approved changes to the recreational size limit for Atlantic shortfin mako sharks in state waters, specifically, a 71-inch straight line fork length (FL) for males and an 83-inch straight line FL for females. These measures are consistent with those required for federal highly migratory species (HMS) permit holders under HMS Amendment 11, which was implemented in response to the 2017 Atlantic shortfin mako stock assessment that found the resource is overfished and experiencing overfishing.

In October 2019, the Board approved changes to the gear requirements for recreational shark fishing. For recreational shark fishing in state waters, anglers are required to use non-offset, corrodible, non-stainless steel circle hooks, except when fishing with flies or artificial lures. This measure has been in effect since July 1, 2020 and are intended to promote consistency with those approved through HMS Amendment 11.

ASMFC will continue to respond to changes in the Atlantic Highly Migratory Species FMP and make changes as necessary to the interstate FMP.

VI. Implementation of FMP Compliance Requirements for 2020

Addendum III to the Coastal Sharks FMP was implemented in March 2014, which modified the recreational minimum size limits and the commercial species groupings in the FMP. In 2019, the Board also adjusted the recreational minimum size for shortfin mako and approved the requirement for non-offset, corrodible, non-stainless steel circle hooks, except when fishing with flies or artificial lures. All states must demonstrate through the inclusion of regulatory language that the following management measures were implemented.

i. Recreational Minimum Size Limits

This modifies Section 4.2.4 Recreational Minimum Size Limits in the FMP.

Sharks caught in the recreational fishery must have a minimum fork length of 4.5 feet (54 inches) with the exception of smooth hammerhead, scalloped hammerhead, great hammerhead, shortfin mako, smoothhound, Atlantic sharpnose, blacknose, finetooth, and bonnethead sharks.

Smooth hammerhead, scalloped hammerhead and great hammerhead sharks must have a minimum fork length of 6.5 feet (78 inches). Male Shortfin mako sharks must have a minimum fork length of 71 inches and females must have a minimum fork length of 83 inches.

Smoothhound, Atlantic sharpnose, blacknose, finetooth and bonnethead sharks do not have recreational minimum size limits.

Table 17 Recreational minimum size limits, 2020.

No Minimum Size	Minimum Fork Length 54 inches		Minimum Fork Length 71/83 inches	Minimum Fork Length 78 inches
Smoothhound	Tiger	Nurse	Shortfin mako (male/female)	Great hammerhead
Atlantic sharpnose	Blacktip	Porbeagle		Scalloped hammerhead
Finetooth	Spinner	Thresher		Smooth hammerhead
Blacknose	Bull	Oceanic whitetip		
Bonnethead	Lemon	Blue		

ii. Commercial Species Groupings

This modifies Section 4.3.3 Commercial Species Groupings (and the appropriate sub-sections, outlined below). Two new species groups ('Blacknose' and 'Hammerhead') are created.

This FMP establishes eight commercial 'species groups' for management (Table 1): Prohibited, Research, Smoothhound, Non-Blacknose Small Coastal, Blacknose, Aggregated Large Coastal, Hammerhead, and Pelagic. These groupings apply to all commercial shark fisheries in state waters.

VII. PRT Recommendations

State Compliance

- New Jersey's rulemaking process has delayed implementation of the non-offset stainless steel circle hooks until January 2023. The PRT expressed some concern regarding the delay and the potential biological impacts the delayed regulation may have due to increased post-release mortality of sharks. Even after a rule is implemented, education and outreach efforts are needed to increase compliance, which further lengthens the timeline of full implementation.
- Georgia's compliance report doesn't provide any regulations regarding the variable possession limits for the aggregated large coastal and hammerhead management groups. However, Georgia limits commercial fishermen to the same daily creel and size limits that the recreational sector is subject to, and no commercial landings occurred in 2020.
- Georgia's recreational regulations allows for the landing of 1 hammerhead, 1 shortfin mako, and 1 "other" shark, which is in excess of what is allowed under the FMP (1 shark

per person/vessel plus one Atlantic sharpnose and one bonnethead). This issue has been raised with Georgia Department of Natural Resources staff and they have indicated that the regulations will be updated accordingly.
- With the three exceptions noted above, the PRT determined that all states have implemented regulations consistent with the FMP requirements.

General Comments
- It has come to the attention of the PRT that some states have been requiring individuals and organizations request for federal approval for the scientific capture of sharks in state waters. While it is an FMP requirement that the scientific capture of sharks be monitored and permitted by each state, it is not a requirement that federal approval be given if the capture occurs within state waters.

De Minimis Status
This FMP does not establish specific *de minimis* guidelines that would exempt a state from regulatory requirements contained in this plan. *De minimis* shall be determined on a case-by case basis. *De minimis* often exempts states from monitoring requirements in other fisheries but this plan does not contain any monitoring requirements.

De minimis guidelines are established in other fisheries when implementation and enforcement of a regulation is deemed unnecessary for attainment of the fishery management plan's objectives and conservation of the resource. Due to the unique characteristics of the coastal shark fishery, namely the large size of sharks compared to relatively small quotas, the taking of a single shark could contribute to overfishing of a shark species or group. Therefore, exempting a state from any of the regulatory requirements contained in this plan could threaten attainment of this plans' goals and objectives.

Massachusetts is the only state that has been granted *de minimis* status. Massachusetts can continue to have *de minimis* status until their landings patterns change or they request a discontinuation.

In some cases, it is unnecessary for states with *de minimis* status to implement all regulatory requirements in the FMP.

A. Massachusetts has implemented all regulations with two exceptions: it is exempt from the possession limit and closures of the aggregated large coastal and hammerhead shark fisheries.

VIII. Research Recommendations

Research recommendations were identified in 2018 in the Commission's Fisheries Research Priorities document (p. 42).

References

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APPENDIX 1. OVERVIEW OF COASTAL SHARK REGULATIONS

Coastal Sharks FMP Regulatory Requirements

1. Recreational seasonal closure (Section 4.2.1)

    a. Recreational anglers are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15—regardless of where the shark was caught.

    b. Recreational fishermen who catch any of these species in federal waters may not transport them through the state waters of VA, MD, DE, and NJ during the seasonal closure.

2. Recreationally permitted species (Section 4.2.2)

    a. Recreational anglers are allowed to possess aggregated large coastal sharks, hammerheads, tiger sharks, SCS, and pelagic sharks. Authorized shark species include: aggregated LCS (blacktip, bull, spinner, lemon, and nurse); hammerhead (great hammerhead, smooth hammerhead, scalloped hammerhead); tiger sharks; SCS (blacknose, finetooth, Atlantic sharpnose, and bonnethead sharks); and, pelagic sharks (blue, shortfin mako, common thresher, oceanic whitetip, and porbeagle). Sandbar sharks and silky sharks (and all prohibited species of sharks) are not authorized for harvest by recreational anglers.

3. Landings Requirements (Section 4.2.3)

    a. All sharks (with exception) caught by recreational fishermen must have heads, tails, and fins attached naturally to the carcass. Anglers may still gut and bleed the carcass by making an incision at the base of the caudal peduncle as long as the tail is not removed. Filleting sharks at sea is prohibited.

    b. All sharks (with exception) harvested by commercial fishermen within state boundaries must have the tails and fins attached naturally to the carcass through landing. Fins may be cut as long as they remain attached to the carcass (by natural means) with at least a small portion of uncut skin. Sharks may be eviscerated and have the heads removed. Sharks may not be filleted or cut into pieces at sea.

    c. Exception: Fishermen holding a valid state commercial permit may process smooth dogfish sharks at sea out to 50 miles from shore, as long as the total weight of smooth dogfish shark fins landed or found on board a vessel does not exceed 12 percent of the total weight of smooth dogfish shark carcasses landed or found on board.

4. Recreational Minimum Size Limits (Section 4.2.4)

    a. Sharks caught in the recreational fishery must have a fork length of at least 4.5 feet (54 inches) with the exception of Atlantic sharpnose, blacknose, finetooth,

bonnethead and smoothhound which have no minimum size. Hammerhead species must have a fork length (FL) of 6.5 feet (78 inches).

b. Recreational size limit for Atlantic shortfin mako sharks in state waters is 71-inch straight line FL for males and 83-inch straight light FL for females.

5. Authorized Recreational Gear (Section 4.2.5)

    a. Recreational anglers may catch sharks only using a handline or rod & reel. Handlines are defined as a mainline to which no more than two gangions or hooks are attached. A handline must be retrieved by hand, not by mechanical means.

    b. Non-offset, corrodible, non-stainless steel circle hooks are required when fishing for sharks recreationally, in state waters. The only exception is when fishing with flies or artificial lures

6. Possession limits in one twenty-four hour period (Section 4.2.7 and 4.3.6)

    a. Recreational and commercial possession limits as specified in Table 9.
    b. Smooth dogfish harvest is not limited in state waters and recreational shore-anglers may harvest an unlimited amount of smooth dogfish.

7. Commercial Seasonal Closure (Section 4.3.2)

    a. All commercial fishermen are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15. Fishermen who catch any of the above species in a legal manner in federal waters may transit through the state waters listed above if all gear is stowed.

8. Quota Specification (Section 4.3.4)

    a. When NOAA Fisheries closes the fishery for any species, the commercial landing, harvest, and possession of that species will be prohibited in state waters until NOAA Fisheries reopens the fishery.

9. Permit requirements (Section 4.3.8)

    a. State: Commercial shark fishermen must hold a state commercial license or permit in order to commercially catch and sell sharks in state waters.
    b. Federal: A federal Commercial Shark Dealer Permit is required to buy and sell any shark caught in state waters.
    c. Display and research permit is required to be exempt from seasonal closure, quota, possession limit, size limit, gear, and prohibited species restrictions. States are required to include annual information for all sharks taken for display throughout the life of the shark.

10. Authorized commercial gear (Section 4.3.8.3)

a. Commercial fishermen can only use one of the following gear types (and are prohibited from using any gear type not listed below) to catch sharks in state waters.

   i. **Rod & reel.**
   ii. **Handlines.** Handlines are defined as a mainline to which no more than two gangions or hooks are attached. A handline is retrieved by hand, not by mechanical means, and must be attached to, or in contact with, a vessel.
   iii. **Small Mesh Gillnets.** Defined as having a stretch mesh size smaller than 5 inches.
   iv. **Large Mesh Gillnets.** Defined as having a stretch mesh size equal to or greater than 5 inches.
   v. **Trawl nets.**
   vi. **Shortlines.** Shortlines are defined as fishing lines containing 50 or fewer hooks and measuring less than 500 yards in length. A maximum of 2 shortlines are allowed per vessel.
   vii. **Pounds nets/fish traps.**
   viii. **Weirs.**

11. Bycatch Reduction Measures (Section 4.3.10)

    a. Any vessel using a shortline must use corrodible circle hooks. All shortline vessels must practice the protocols and possess the recently updated federally required release equipment for pelagic and bottom longlines for the safe handling, release, and disentanglement of sea turtles and other non-target species, all captains and vessel owners must be certified in using handling and release equipment.

12. Smooth Dogfish
    a. Each state must identify their percentage of the overall quota (Addendum II, 3.1)
    b. Smooth dogfish must make up at least 25%, by weight, of total catch on board at time of landing. Trips that do not meet the 25% catch composition requirement can land smooth dogfish, but fins must remain naturally attached to the carcass (Addendum IV, 3.0; modifies Addendum II Section 3.5).

Table 18. Possession/retention limits for shark species in state waters

Recreational	*Shore-angler*	1 shark (of any species except prohibited) per person per day; plus one Atlantic sharpnose, and one bonnethead. No limit on smoothhound
	Vessel-fishing	1 shark (of any species except prohibited) per vessel per trip; plus one Atlantic sharpnose, and one bonnethead per person per vessel. No limit on smoothhound

Commercial	*Directed permit*	Variable possession limit for aggregated large coastal sharks and hammerhead shark management groups. The Commission will follow NMFS for in-season changes to the possession limit. The possession limit range is 0-55, the default is 45 sharks per trip. No limit for SCS or pelagic sharks.
	Incidental permit	3 aggregated LCS per vessel per trip and 16 pelagic or SCS (combined) per vessel per trip