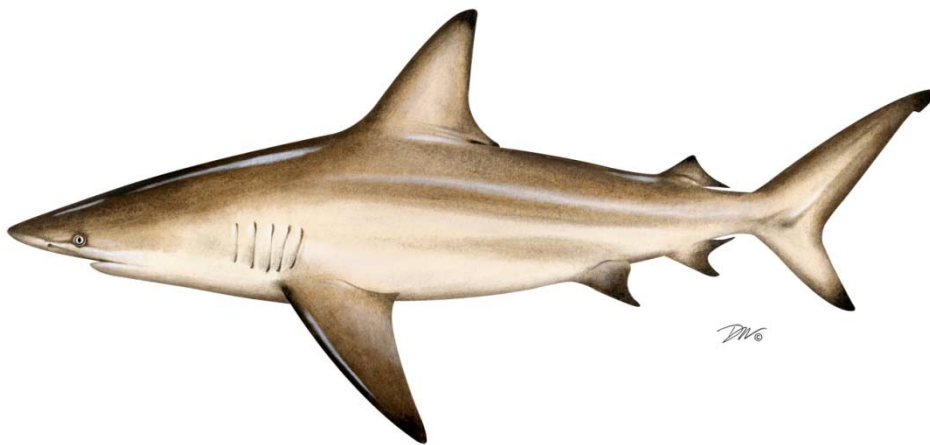


**2019 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

COASTAL SHARKS

2018 FISHING YEAR**



Coastal Sharks Plan Review Team

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I. Status of the Fishery Management Plan

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

a) Goals and Objectives

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 proposed 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.

b) Fisheries Management Plan Summary

The Atlantic States Marine Fisheries Commission (Commission) adopted its first fishery management plan (FMP) for coastal sharks in 2008. Coastal sharks are 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.

The FMP has been adapted through the following addenda:

Addendum I (2009) modified the FMP to allow limited smoothhound processing at sea (removal of fins from the carcass), as long as the total wet weight of the shark fins does not exceed 5 percent of the total dressed weight. In addition, smoothhound recreational possession limits and gill net check requirements for smoothhound fishermen were removed. These restrictions were removed because they were intended for large coastal sharks. The removal allowed smoothhound fishermen to continue operations while upholding the conservation measures of the FMP.

Addendum II (2013) modified the FMP to allow year-round smoothhound processing at sea. If fins are removed the total wet weight of the shark fins may not exceed 12 percent of the total dressed weight. State-shares of the smoothhound coastwide quota were allocated. The goal of Addendum II was to implement an accurate fin-to-carcass ratio and prevent any one state from harvesting the entire smoothhound quota.

Addendum III (2013) modified the species groups in the FMP to ensure consistency with NOAA Fisheries (Table 1). The recreational size limit for the hammerhead species group was increased to 78" fork length.

Addendum IV (2016) was added to reflect measures outlined in the Shark Conservation Act into state regulations. It amends the Coastal Sharks FMP to allow smoothhound 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. Fishermen can retain smoothhound in an amount less than 25 percent of the total catch provided the smoothhound fins remain naturally attached to the carcass.

Addendum V (2018) provides 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. Moving forward 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.

In 2019, in response to measures implement 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 will implement the changes to the recreational minimum size limit for Atlantic shortfin mako by January 1, 2020.

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
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

II. Status of the Stocks

Stock status is assessed by species or by species complex if there is not enough data for an individual assessment. Fourteen 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 several shark species along with references for the stock assessment.

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

The 2017 Southeast Data and Assessment Review (SEDAR 54) stock assessment for sandbar sharks 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 2016 stock assessment update (SEDAR 21) for Atlantic dusky sharks 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).

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

The North Atlantic blue shark (*Prionace glauca*) stock was assessed by ICCAT's Standing Committee on Research and Statistics (SCRS) in 2015. Similar to results of the 2008 stock assessment, ICCAT's 2015 analysis, 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 was 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 dusky (*Carcharhinus obscurus*), sandbar (*Carcharhinus plumbeus*), and blacknose (*Carcharhinus acronotus*) sharks indicates that dusky and blacknose sharks are overfished and experiencing overfishing. Sandbar sharks continued to be overfished (SEDAR 54). As described in the Magnuson-Stevens Act, NOAA Fisheries must establish a rebuilding plan for an overfished stock. As such, the rebuilding date for dusky sharks is 2108, sandbar sharks is 2070, and blacknose sharks is 2043.

Porbeagle sharks (*Lamna nasus*) were assessed by the ICCAT's SCRS in 2009. The assessment found the Northwest Atlantic stock is increasing in biomass, however the stock is considered to

be overfished with overfishing not occurring. NOAA Fisheries established a 100-year rebuilding plan for porbeagle sharks; the expected rebuilding date is 2108.

A 2009 stock assessment for the Northwest Atlantic and Gulf of Mexico populations of scalloped hammerhead sharks (*Sphyrna lewini*) indicated the stock is overfished and experiencing overfishing. This assessment was reviewed by NOAA Fisheries and deemed appropriate to serve as the basis for U.S. management decision. 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 US Atlantic a portion of animals considered scalloped hammerheads are actually a cryptic species, recently named the Carolina hammerhead (*Sphyrna gilberti*). 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.

SEDAR 11 (2006) assessed the Large Coastal Sharks (LCS) complex and blacktip sharks (*Carcharhinus limbatus*). The LCS assessment suggested that it is inappropriate to assess the LCS complex as a whole due to the variation in life history parameters, different intrinsic rates of increase, and different catch and abundance data for all species included in the LCS complex. Based on these results, NMFS changed the status of the LCS complex from overfished to unknown. As part of SEDAR 11, blacktip sharks were assessed for the first time as two separate populations: Gulf of Mexico and Atlantic. The results indicated that the Gulf of Mexico stock is not overfished and overfishing is not occurring, while the current status of blacktip sharks in the Atlantic region is unknown.

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

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. The opening dates, closures dates and quotas are detailed in Table 3. All non-prohibited coastal shark management groups, except aggregated large coastal and hammerheads shark groupings, opened on January 1, 2018. NOAA Fisheries closes commercial shark fisheries when 80% of the available quota is reached. Commercial shark dealer reports indicate the following commercial fisheries exceeded 80% of the available quota and had an early closure: blacknose, non-blacknose small coastals, aggregated large coastal and hammerhead fisheries. When the fishery closes in federal waters, the Interstate FMP dictates that the fishery also closes in state waters.

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 (2009); 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	Unknown	Unknown	SEDAR 11 (2006)
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)
Prohibited			
Dusky	Yes	Yes	SEDAR 21 (2016); Rebuilding ends in 2108 (HMS Am. 2)
All other prohibited sharks	Unknown	Unknown	

Table 3. Commercial quotas and opening dates for 2018 shark fishing season

Species Group	Region	2018 Annual Quota (mt dw)	Season Opening Dates	Closing Date
Aggregated Large Coastal Sharks (LCS)	Atlantic	168.9	June 1, 2018	
Hammerhead Sharks	Atlantic	27.1	June 1, 2018	
Non-Blacknose Small Coastal Sharks (SCS)	Atlantic	264.1	January 1, 2018	
Blacknose Sharks	Atlantic	17.2	January 1, 2018	
Blue Sharks	No regional quotas	273.0	January 1, 2018	
Porbeagle Sharks	No regional quotas	1.7	January 1, 2018	
Pelagic Sharks other than Porbeagle or Blue	No regional quotas	488.0	January 1, 2018	
Shark Research Quota (Aggregated LCS)	No regional quotas	50.0	January 1, 2018	
Sandbar Research Quota	No regional quotas	90.7	January 1, 2018	

Commercial Landings

Commercial landings of Atlantic large coastal sharks species in 2018 were 434,653 pounds (lbs) dressed weight (dw), a 14% increase from 2017 landings (Table 4). Commercial landings of small coastal shark species in 2018 were 403,706 lbs dw, a 37% increase from 2017 landings (Table 5). 2016 Landings were the lowest for the time series over the last 9 years and a result of the early closure of both blacknose and non-blacknose sharks south of 34°00' N. latitude on May 29, 2016. Commercial landings of Atlantic pelagic sharks was 167,159 lbs dw, which represents an approximate 33% increase from 2017 landings (Table 6).).

Table 4. Commercial landings of authorized Atlantic large coastal sharks by species (pounds dw), 2009-2018. Source: ACCSP Data Warehouse, August 2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Great hammerhead	0	0	371	7,406	13,538	36,892	20,454	17,646	31,876
Scalloped hammerhead	0	0	15,800	27,229	24,652	13,197	12,329	4,919	8,238
Smooth hammerhead	7,802	110	3,967	1,521	601	304	125	1,193	737
Unclassified	43,345	35,618	9,617	0	0	0	0	0	
Hammerhead Total	51,147	35,728	29,755	36,156	38,791	50,393	32,908	23,758	40,851
Blacktip	246,617	176,136	215,403	256,277	282,009	229,823	248,470	205,138	170,969
Bull	56,901	49,927	24,504	33,980	32,372	33,737	31,417	23,802	23,163
Lemon	25,316	45,448	21,563	16,791	13,047	18,158	19,205	12,005	12,293
Nurse	71	0	81	0	0	24	0	0	
Silky	1,049	992	29	186	289	1,246	446	702	239
Spinner	13,544	4,113	10,643	26,892	25,716	33,002	55,610	62,314	83,006
Tiger	43,145	36,425	23,245	16,561	29,062	28,460	14,896	6,324	5,657
Unclassified	2,229	50,711	53,705	0	0	0	0		
Aggregated LCS Total	388,872	363,752	349,173	350,687	382,495	344,450	370,044	310,286	295,326
Sandbar	84,339	94,295	46,446	46,868	82,308	112,610	62,984	47,023	98,476
Hammerhead, Aggregated LCS, Sandbar Total	524,358	493,775	425,374	433,711	503,594	507,453	465,936	381,067	434,653

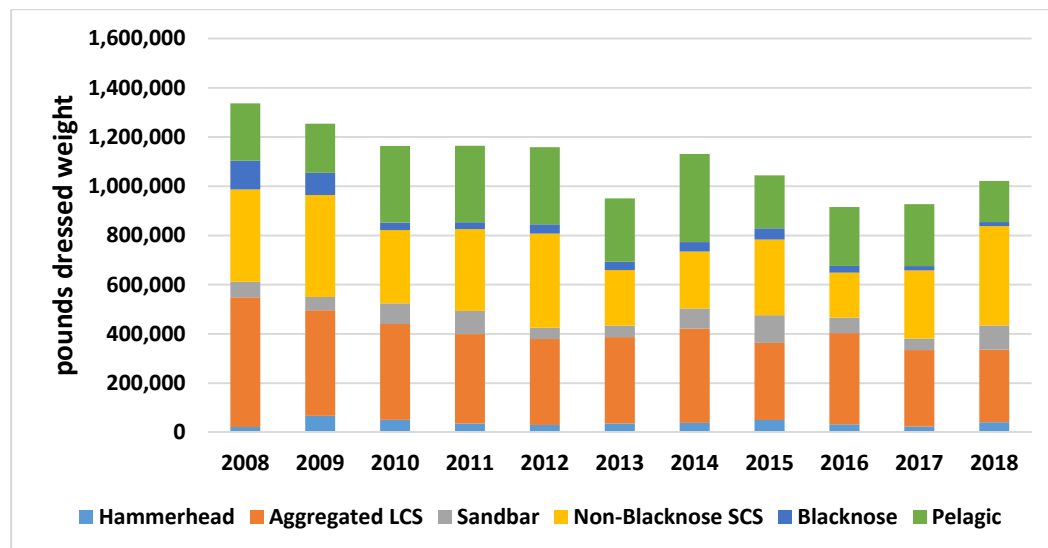
Table 5. Commercial landings of authorized Atlantic small coastal sharks by species (lbs dw), 2009-2018. Source: ACCSP Data Warehouse, August 2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blacknose	30,287	28,373	37,873	33,382	38,437	45,405	26,842	17,241	15,711
Bonnethead	9,069	28,284	19,907	22,845	13,221	5,885	1,688	6,077	6,059
Finetooth	76,438	52,318	15,922	19,452	19,026	8,712	5,647	19,874	23,356
Atl. Sharpnose	211,190	214,382	345,625	183,524	198,568	293,128	175,890	251,289	374,291
Unclassified assigned to SCS	851	36,639	492	0	0	0	0	19,874	0
SCS Total	327,835	359,996	419,819	259,203	269,252	353,130	210,067	294,481	419,417

Table 6. Commercial landings of authorized pelagic sharks by species off the Atlantic coast of the United States (lbs dw), 2010-2018. Source: ACCSP Data Warehouse, August 2019.

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blue	9,135	13,370	17,200	9,767	17,806	1,114	607	4,272	
Porbeagle	4,097	5,933	4,250	54	6,414	0	0	C	1,092
Shortfin Mako	220,400	207,630	198,841	199,177	218,295	141,720	160,829	184,993	77,988
Unclassified Mako	0	0	0	0	0	0	0	0	0
Oceanic whitetip	796	2,435	258	62	22	0	0	0	0
Thresher	61,290	47,462	63,965	48,768	116,012	72,463	78,219	61,990	88,079
Unclassified pelagic	16,160	33,884	28,932	0	0	0	0	0	0
Pelagic Total	311,878	310,714	313,446	257,828	358,549	215,297	239,655	251,375	167,159

Figure 1: Commercial landings of coastal sharks off the east coast of the United States by species complex, 2008-2018. Source: ACCSP Data Warehouse, August 2019



Recreational Landings

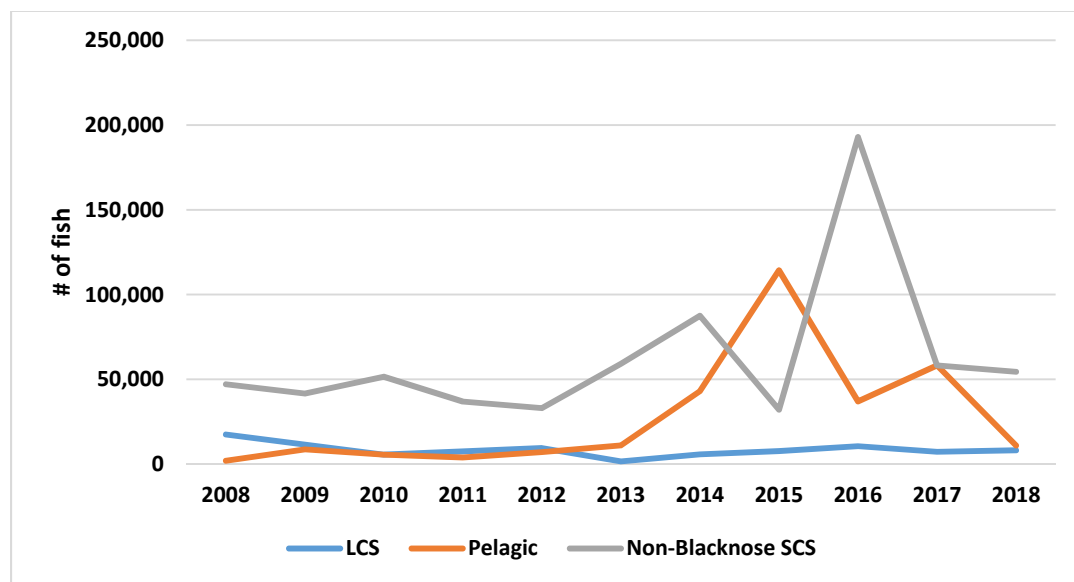
Approximately 114,212 sharks were harvested during the 2018 recreational fishing season, a decrease from 2016 landings by approximately 38% (Table 7). The non-blacknose small coastal shark group and pelagic shark group both comprised 35% of the overall recreational harvest.

Table 7. Estimated recreational harvest of all Atlantic shark species by species group in numbers of fish, 2010-2018. Source: ACCSP Data Warehouse, August 2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aggregated LCS	5,540	7,397	9,386	1,547	5,704	7,622	10,596	7,215	8,128
Hammerhead	13	178	41	600	900	1	799	0	0
Pelagic*	5,529	3,806	7,034	11,057	43,047	114,282	37,009	58,259	10,943
Blacknose	0	573	0	70	4,146	1,211	225	13	0
Non-Blacknose SCS	51,529	36,851	33,005	59,208	87,480	32,065	192,855	58,239	54,416
Sandbar	2,193	1,125	857	399	1,873	1,252	5	2,604	0
Prohibited	4	23	15	16	2	0	0	6	
Smoothhound				46,115	55,792	88,316	145,689	58,446	40,725
Total	64,808	49,952	50,338	72,895	143,152	156,433	241,489	126,419	114,212

*Pelagic sharks include Gulf of Mexico landings.

Figure 2: Estimated recreational harvest for LCS, SCS and pelagic species by species group, in numbers of fish, 2009-2019. Source: ACCSP Data Warehouse, August 2019.



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 2018 fishing year, where available.

The Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) 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 2018, COASTSPAN program participants were the University of North Florida (samples Georgia and North Florida state waters) and the South Carolina Department of Natural Resources. In addition, the survey is conducted in summer months in Narragansett and Delaware Bays, and in Massachusetts waters. Standardized indices of abundance from COASTSPAN surveys are used in the stock assessments for large and small coastal sharks.

Massachusetts

Movement and Habitat Studies:

White Shark: Massachusetts Division of Marine Fisheries' efforts to study the movement ecology of white sharks continued with an additional 19 sharks being tagged in 2018, bringing the total to 151 individuals since 2009. These sharks were tagged with one or more of the following technologies: pop-up satellite tag, real-time satellite tags, coded acoustic transmitters, active acoustic transmitters, and NMFS conventional tags. Work also continued on a five-year study (initiated in 2014) to quantify the regional population size and relative abundance of white sharks in Massachusetts waters; aerial and vessel surveys were conducted from mid-June through October off the eastern coast of Cape Cod.

Rhode Island

Fishery independent monitoring is limited to coastal shark species taken in the RI Division of Fish & Wildlife, Marine Fisheries Section monthly and seasonal trawl survey. During the 2018 calendar year the only coastal shark species captured in the trawl survey was smooth dogfish (*Mustelus canis*). A summary of fishery independent monitoring for coastal sharks is summarized in Figure 3 below.

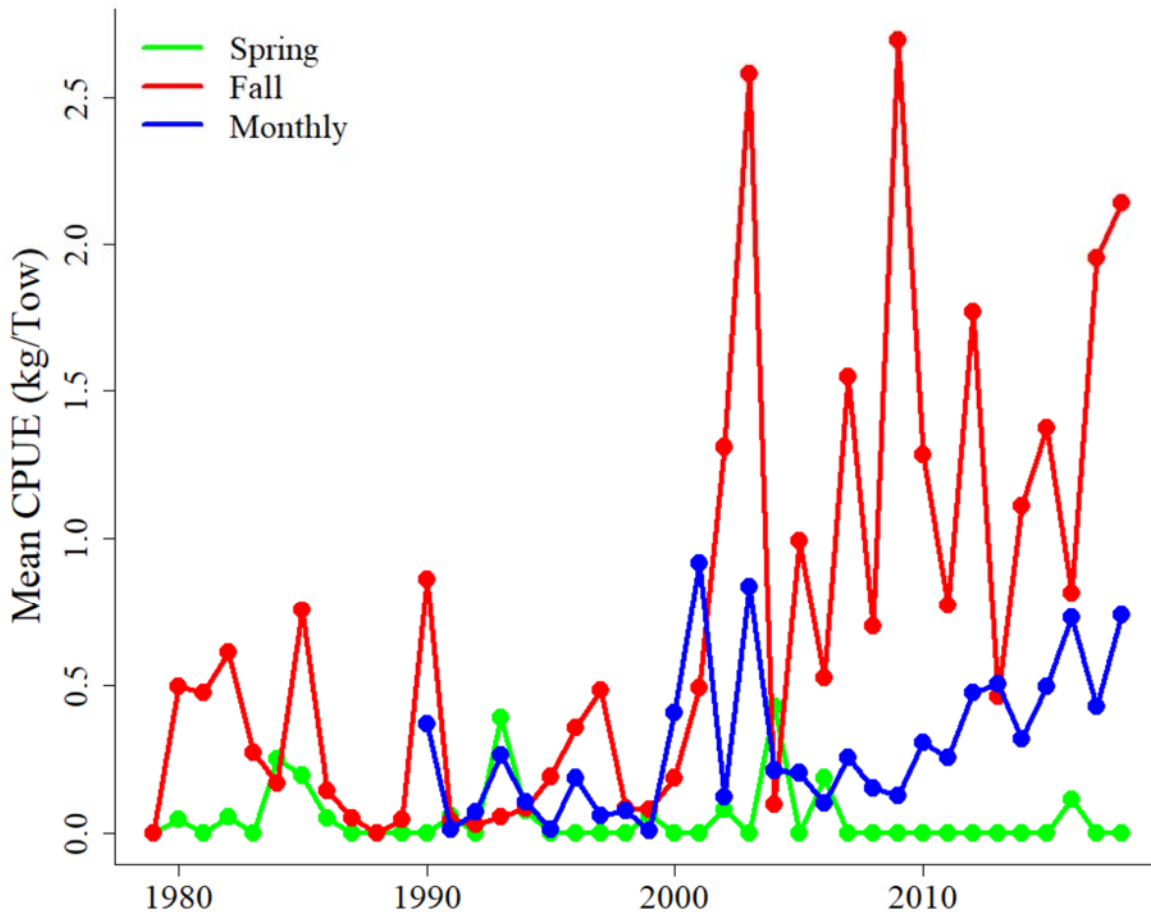


Figure 3. Smooth dogfish catch per unit effort (CPUE) from the RIDEM DMF bottom trawl through 2018.

Connecticut

The Connecticut Department of Energy and Environmental Protection 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. See the link below for the latest Long Island Sound Trawl Survey report.

Table 10. Long Island Trawl Survey Fall Smooth Dogfish indices (geometric mean catch/tow)

Year	Kg/tow	Count/tow
------	--------	-----------

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

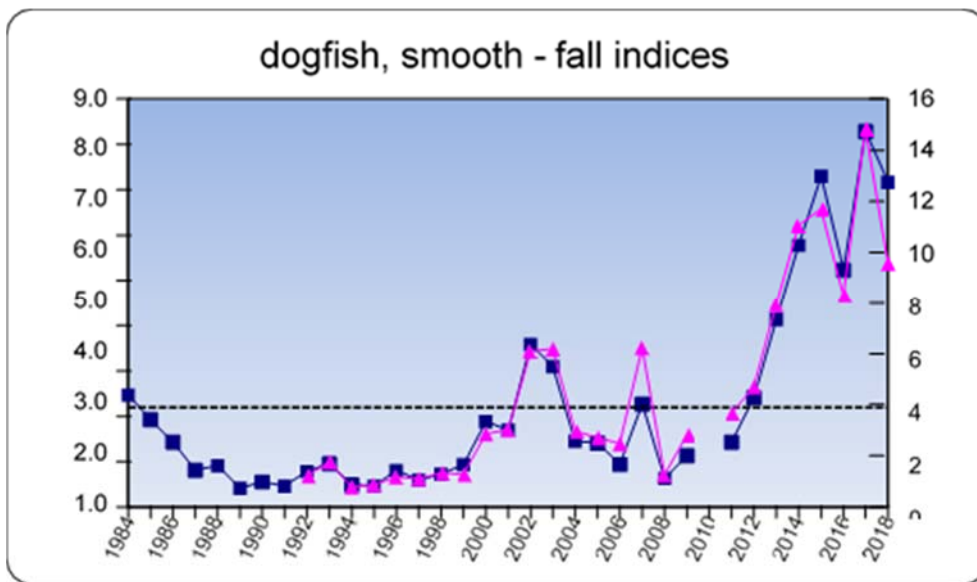


Figure 4. CT DEEP Smooth Dogfish Long Island Sound Trawl Survey

While NY DEC does not currently conduct fishery-independent monitoring programs for Atlantic Coastal Sharks, multiple research permits was issued in 2018 for the collection of information on sand tiger sharks (*Carcharias taurus*), blue sharks (*Prionace glauca*), sandbar sharks (*Carcharhinus plumbeus*), shortfin mako sharks (*Isurus oxyrinchus*), and white sharks (*Carcharodon carcharias*). In 2018, two sand tiger sharks, two blue sharks, two sandbar sharks, four shortfin mako sharks, and two white shark were caught and released. Information on each (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 2018, the Survey caught approximately 157 lbs of Atlantic Angel Sharks, 165 lbs of Atlantic Sharpnose Shark, 126 lbs of Sand Tiger Sharks, 22 lbs of Sandbar Sharks, 4,784 lbs of Smooth Dogfish, and 63 lbs of Thresher Sharks (see figure below). Sharks from the New Jersey Ocean Stock Assessment Survey were 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.

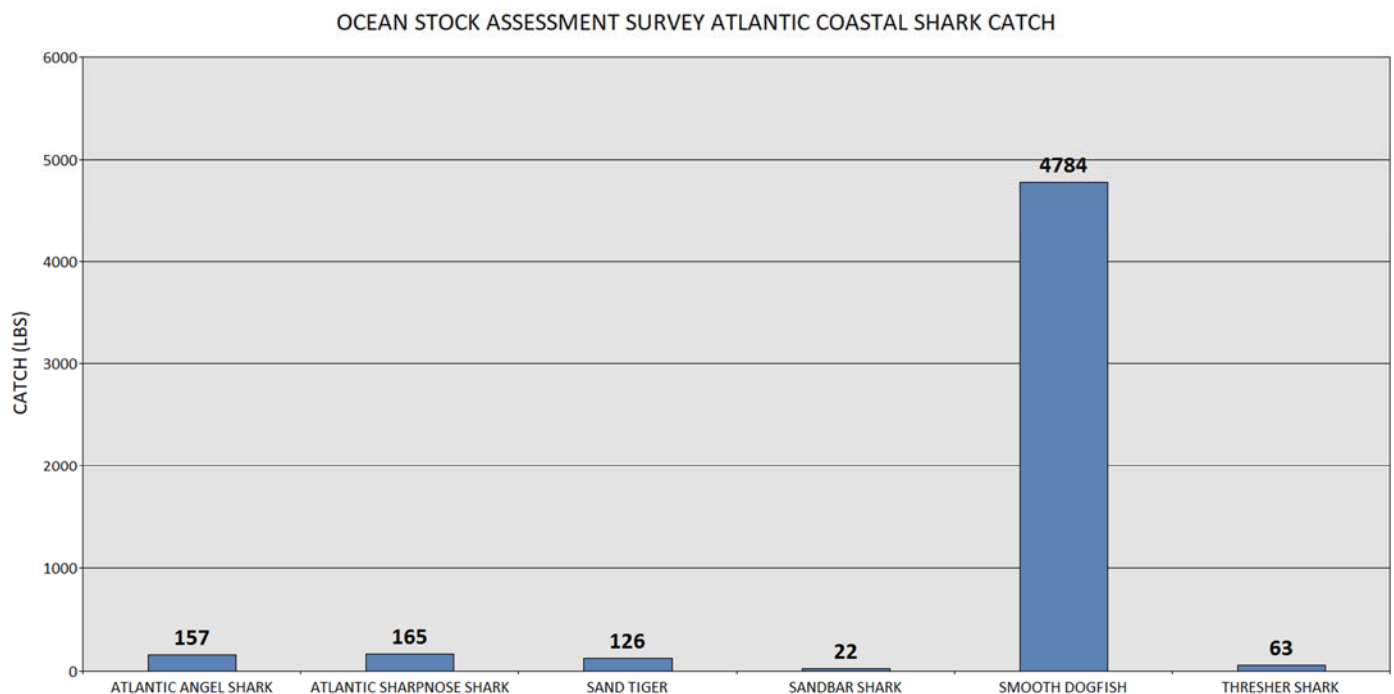


Figure 5. NJ 2018 Ocean Stock Assessment Survey- Atlantic Coastal Sharks

Delaware

Delaware conducts a 30' adult trawl survey and a 16' juvenile trawl survey in the Delaware Bay. In the adult trawl survey, Smoothhound are the most common shark species caught (Figure 6), with Sand Tiger Shark (Figure 7) and Sandbar Sharks (Figure 8) taken in low numbers. Thresher, Atlantic Angel, Atlantic Sharpnose (Figure 9) and Dusky shark were caught in the past, but rarely. There were no Sand Tiger Shark caught in the 2018 survey. Sandbar Shark catch per nautical mile increased in 2018 to its highest point since 1967. Smoothhound catch per nautical mile decreased slightly in 2018. In the juvenile trawl, the species caught were sand tiger shark (Figure 10), Sandbar Sharks (Figure 11) and Smoothhound (Figure 12). With the exception of Smoothhound, the capture of coastal sharks in the juvenile trawl is a rare occurrence.

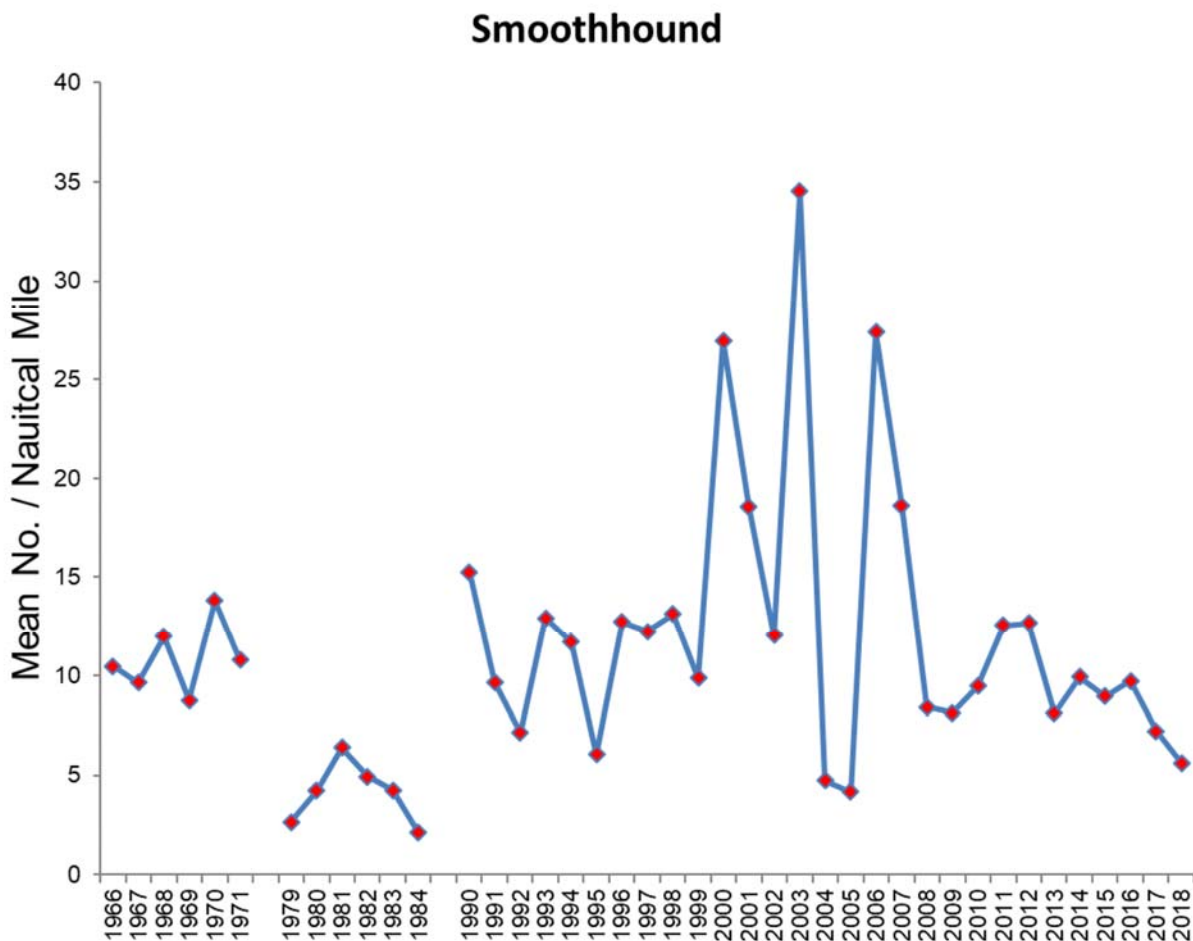


Figure 6. Smoothhound relative abundance (mean number per nautical mile), time series (1966 – 2018) as measured in 30-foot trawl sampling in the Delaware Bay.

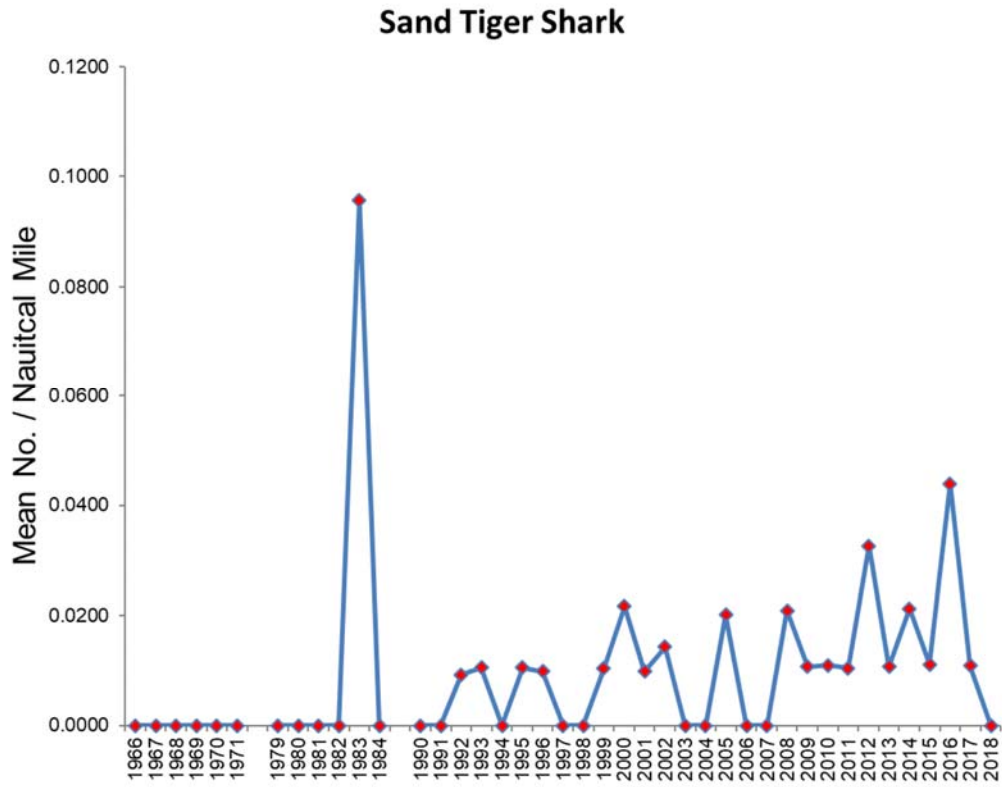


Figure 7. Sand Tiger Shark relative abundance (mean number per nautical mile), time series (1966 – 2018) as measured in 30-foot trawl sampling in the Delaware Bay.

Sandbar Shark

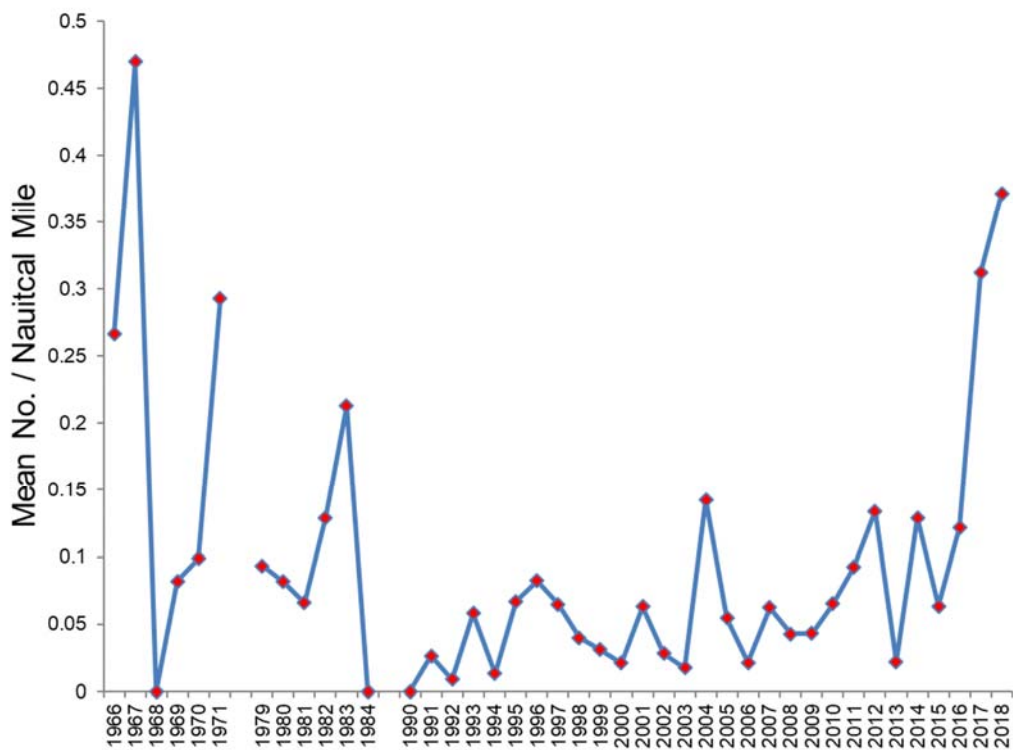


Figure 8. Sandbar Shark relative abundance (mean number per nautical mile), time series (1966 – 2018) as measured in 30-foot trawl sampling in the Delaware Bay.

Atlantic Sharpnose Shark

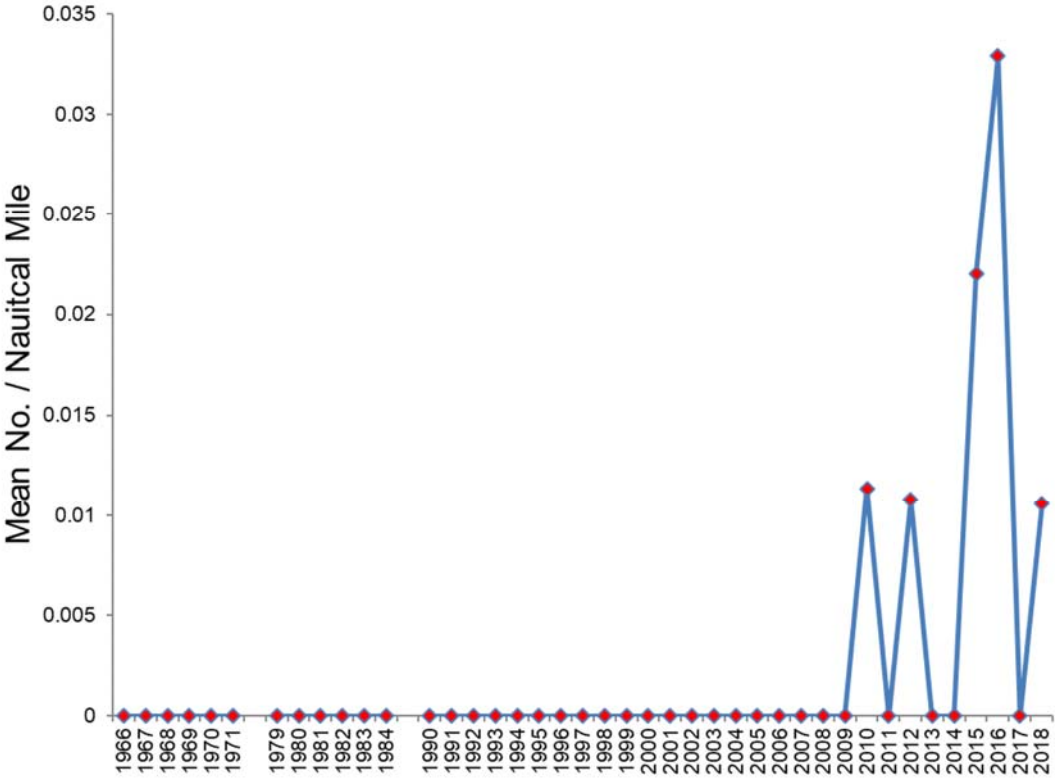


Figure 9. Atlantic Sharpnose Shark relative abundance (mean number per nautical mile), time series (1966 – 2018) as measured in 30-foot trawl sampling in the Delaware Bay.

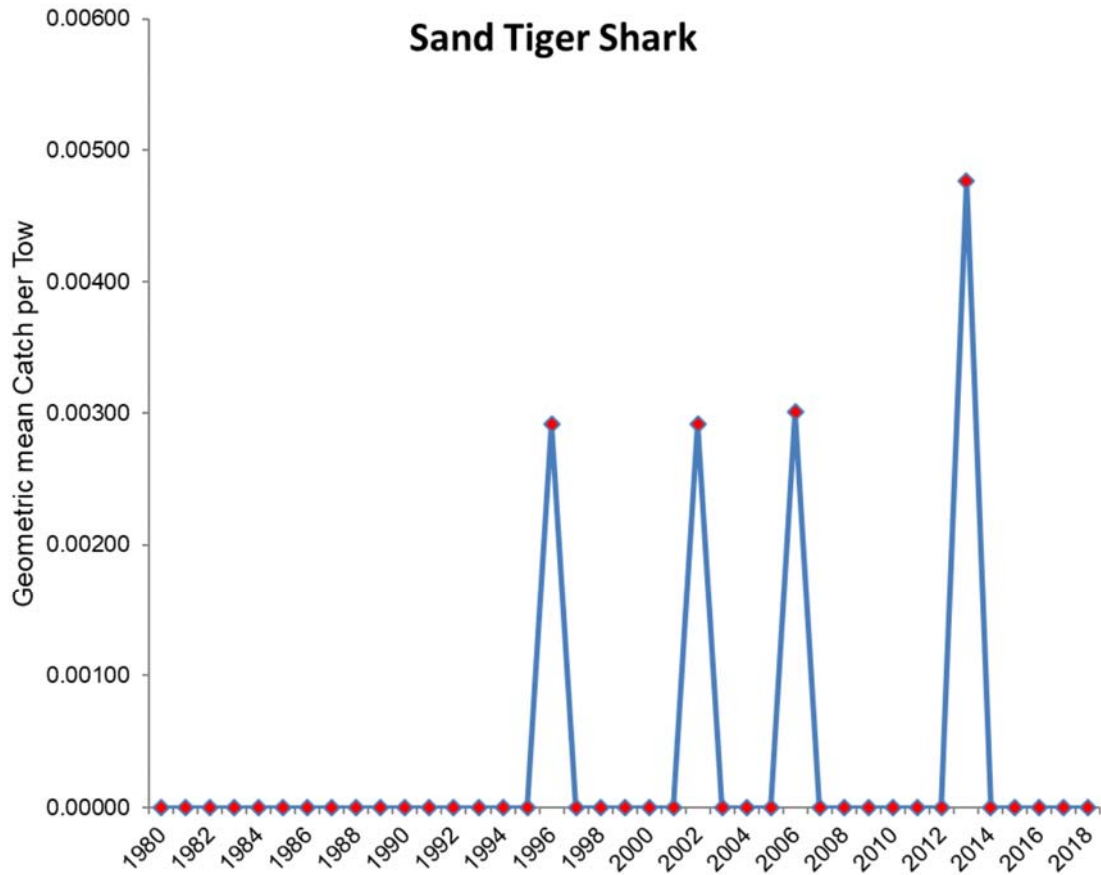


Figure 10. Index of Sand Tiger Shark, time series (1980 – 2018) as measured by 16-foot trawl sampling in the Delaware estuary.

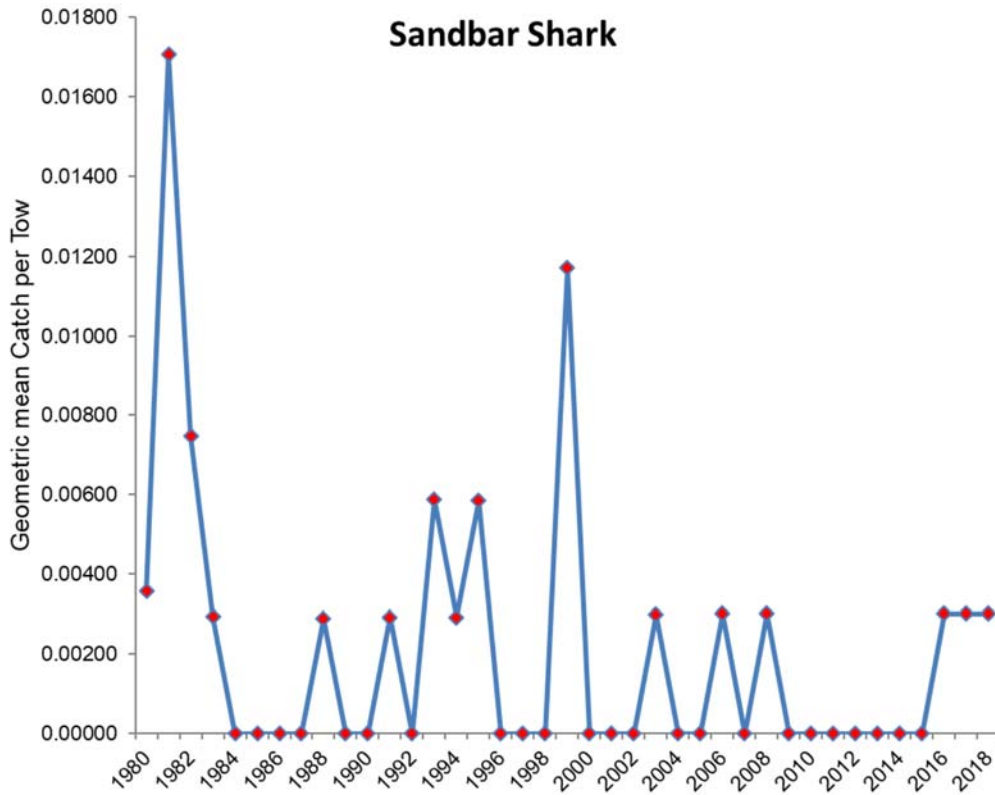


Figure 11. Index of Sandbar Shark, time series (1980 – 2018) as measured by 16-foot trawl sampling in the Delaware estuary.

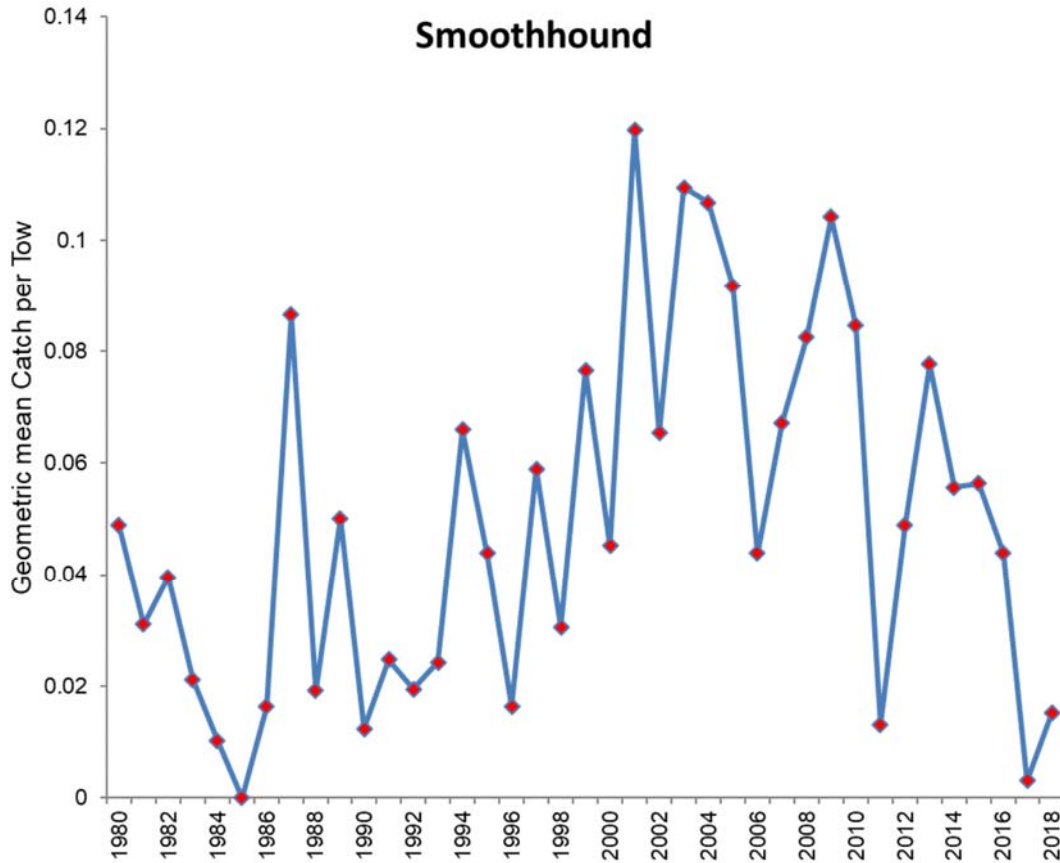


Figure 12. Index of young-of-the-year Smoothhound abundance, time series (1980 – 2018) as measured by 16-foot trawl sampling in the Delaware estuary.

Maryland

There was no specific at sea sampling program for coastal sharks in Maryland. Limited biological sampling of catch onboard a commercial offshore trawler targeting horseshoe crabs occurred at night in June, July, August, and October. While sharks were encountered through a scientific permit, information regarding species and number encountered are confidential.

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.

Beginning in 2012 a separate longline survey, conducted by the Virginia Institute of Marine Science designed specifically to target YOY 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 2018, sandbar shark (*Carcharhinus plumbeus*) was the most commonly encountered species by the offshore survey, followed by Atlantic sharpnose shark (*Rhizoprionodon terraenovae*), spinner (*Carcharhinus brevipinna*), and blacktip (*Carcharhinus limbatus*) shark (Table 11). Seasonal patterns in survey catches were also evident with the June and September showing higher overall catches of sharks, respectively, followed by July and August.

COASTSPAN catches of neonate sandbar shark (<= 71 cm total length) were highest in magnitude during July in the lower Chesapeake Bay followed by August and June. In the coastal lagoons of the Eastern Shore, peak neonate catch occurred in June followed by July and August (Table 12). For 2018, neonate total catch was slightly 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, 2018 pooled across the standard six sampling sites. Effort is expressed as total longline soak time.

Month	Effort (hrs)	Sand Tiger	Sandbar	Tiger	Atlantic sharpnose	Spinner	Dusky	Blacktip	Great White
Jun	31.7	12	105	1	3	9	12	9	1
Jul	28.7	1	4	4	44	1	0	2	0
Aug	28.1	1	0	1	11	0	0	2	0
Sep	30.7	0	64	1	15	21	9	2	0
Total		14	173	7	73	31	21	15	1

Table 12. Neonate catch summaries for each monthly COASTSPAN cruise, 2018, 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	10.2	51
Jul	10.0	139
Aug	10.0	54
Total		244

Lagoons, Eastern Shore

Month	Effort (hrs)	Neonate
Jun	7.50	116
Jul	7.52	99
Aug	7.50	39
Total		254

North Carolina

The North Carolina Division of Marine Fisheries (NCDMF) conducts both fishery-dependent and independent sampling within state waters. 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). Predominant fisheries sampled included the ocean gill net, estuarine gill net, ocean trawl, long haul seine/swipe net, beach seine and pound net fisheries.

A total of 37 fishery-dependent samples containing sharks were collected from the ocean gill net, ocean trawl and estuarine gill net fisheries in 2018 (Table 11). This sample number is down compared to the 50 samples obtained in 2017. Whole weights and lengths for sharks other than spiny dogfish are rarely obtained during sampling. Sharks are typically dressed or processed when sampling occurs therefore the number of processed individuals and aggregate weights are obtained during sampling. Atlantic sharpnose and smoothhound sharks were the most abundant species in dependent sampling by numbers and weight (Table 12).

Table 12. North Carolina fishery-dependent shark sampling summary by month for the 2018 fishing year.

Month	# of Samples
January	4
February	5
March	0

Month	# of Samples
April	3
May	7
June	4
July	1
August	0
September	6
October	4
November	0
December	3
Total	37

Table 13. North Carolina fishery-dependent shark sampling summary by species, number of individuals, and sum of sample weight (lbs) for the 2018 fishing year.

Species	# Indv.	Sum of Sample Wgt. (kg)
Atlantic Sharpnose Shark (<i>R. terraenovae</i>)	42	69
Blacktip (<i>C. limbatus</i>)	4	56
Bonnethead (<i>S. tiburo</i>)	12	27
Common thresher (<i>A. vulpinus</i>)	37	223
Smoothhound Shark (<i>M. canis</i>)	99	165
Hammerhead	5	24

Fishery-Independent

The NCDMF initiated a fishery-independent red drum longline survey in 2007 for developing an index of abundance for adult red drum (*S. ocellatus*); this project also allows for capture and tagging of Atlantic coastal sharks in cooperation with the (NEFSC) Cooperative Shark Tagging Program. The red drum longline survey in the Pamlico Sound resulted in a catch of 1 bull shark in 2018. No measurements were taken.

The NCDMF initiated a fishery-independent gill net survey in 2001 and expanded its coverage in 2008 to include the Cape Fear and New Rivers and the near shore (0-3 miles) Atlantic Ocean from New River Inlet south to the South Carolina state line. The Atlantic Ocean portion of the survey was discontinued in June of 2015 due to low catches of target species, none of which were sharks. The objective of this project is to provide annual, independent, relative abundance indices for key estuarine species in the 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 ½ inch increments). In 2018, 8 species of shark were encountered in the gill net survey, with Atlantic sharpnose (n=257) representing the highest abundance (Table 15).

Table 15. Species, number of individuals, minimum, maximum, and average total length [TL (mm)] of sharks caught in the 2018 North Carolina Pamlico Sound and Cape Fear, Pamlico, Pungo Neuse and New rivers gill net survey.

Shark Species	Number Measured	Min of TL (mm)	Max of TL (mm)	Average of TL (mm)
Atlantic Sharpnose	257	262	1,019	463
Blacknose	4	410	488	445
Blacktip	21	830	1,347	1,081
Bonnethead	129	245	1,080	598
Bull	10	640	827	718
Dusky	5	750	1,300	1,001
Finetooth	4	683	1,344	1,034
Sandbar	45	570	813	685

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, released, and physical and water quality parameters are recorded (Table 16).

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 16). Stations selected based on suitable habitats are randomly sampled using a multi-panel gillnet to encircle a section of marsh. Species captured are measured, sexed if possible, select species (no sharks) are tagged and released and physical and water quality data are recorded.

The presence and abundance of juvenile and adult coastal sharks in the bays, sounds and coastal waters of South Carolina are documented by the Adult Red Drum and Coastal Shark 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 16. 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 16. Number of sharks captured by South Carolina Department of Natural Resources' Cooperative Atlantic States Shark Pupping and Nursery Habitat Survey (COASTSPAN), the Trammel Net Survey, and Adult Red Drum and Coastal Sharks Longline survey in 2018

Shark Species	COASTSPAN		Trammel Net		Adult Red Drum and Coastal Sharks	
	Captured	Tagged	Captured	Tagged	Captured	Tagged
Atlantic Sharpnose	158	0	51	0	735	0
Blacknose	7	3	0	0	77	72
Blacktip	167	98	15	0	77	64
Bonnethead	273	182	157	0	57	54
Bull	9	8	0	0	7	5
Finetooth	403	154	88	0	63	60
Great Hammerhead	0	0	0	0	1	1
Lemon	5	3	5	0	6	3
Nurse	0	0	0	0	1	0
Sandbar	195	179	0	0	157	140
Sand Tiger	1	1	0	0	0	0
Scalloped/Carolina Hammerhead	206	2	0	0	5	3
Smooth Dogfish	1	1	0	0	0	0
Spinner	5	0	0	0	21	5
Tiger	0	0	0	0	3	1

Georgia

Although a directed fishery for sharks does not exist in Georgia waters, there are several fishery dependent sampling surveys conducted by the Coastal Resources Division that could result in the incidental capture of coastal sharks. In 2016, coastal sharks were found in the following fishery independent surveys.

Sampling for the *Adult Red Drum Survey (via SEAMAP)*: Sampling occurs in inshore and nearshore waters of southeast Georgia and in offshore waters of northeast Florida. Sampling occurs from mid-May through the end of December. Sampling gear consists of a bottom set 926m, 600lb test monofilament mainline configured with 60, 0.5 m gangions made of 200lb test monofilament. Each gangion consists of a longline snap and a 15/0 circle hook. Thirty hooks of each size are deployed during each set. All hooks are baited with squid or mullet. Soak time for each set is 30 minutes. During 2017, CRD staff deployed 179 sets consisting of 10,662 hooks and 89.5 hours of soak time. A total of 500 sharks, representing nine species were captured (Table 16).

Sampling for the *Shark Nursery Survey (via COASTSPAN)*: The University of North Florida assumed field operations for this survey in 2016. Data for the complete time series are maintained by the National Marine Fisheries Service's Apex Predator Program in Narragansett, RI (contact: Cami McCandless).

Each month the *Ecological Monitoring Trawl Survey (EMTS)*, a 40-foot flat otter trawl with neither a turtle excluder device nor bycatch reduction device is deployed at up to 42 stations across six estuaries. At each station, a standard 15 minute tow is made. During this report period, 482 tows/observations were conducted, totaling 120.41 hours of tow time. A total of 120 sharks, representing five species, were captured during 2017 (Table 16).

Monitoring of estuarine finfish and crustaceans in the lower salinity, upriver sectors of selected estuaries is done monthly as part of the *Juvenile Trawl Survey* conducted onboard the research vessel *Navigator*. A 20-foot, semi-balloon otter trawl is towed for 5 minutes at up to 18 stations within three Georgia estuaries. In 2017, 99 tows (observations) were conducted, totaling 8.25 hours of tow time. No sharks were observed during the 2017 season.

The Marine Sportfish Population Health Survey (MSPHS) is a multi-faceted ongoing survey used to collect information on the biology and population dynamics of recreationally important finfish. Currently two Georgia estuaries are sampled on a seasonal basis using entanglement gear. During the June to August period, young-of-the-year red drum in the Altamaha/Hampton River and Wassaw estuaries are collected using gill nets to gather data on relative abundance and location of occurrence. During the September to November period, fish populations in the Altamaha/Hampton River and Wassaw estuaries are monitored using monofilament trammel nets to gather data on relative abundance and size composition. In 2018, a total of 216 gillnet and 150 trammel net sets were made, resulting in the capture of 134 individuals representing five species of coastal sharks (Table 17).

Table 17. Numbers of coastal sharks captured in Georgia fishery independent surveys in 2018 by species and by survey.

	SEAMAP	EMTS	MSPHS
SHARK, ATLANTIC SHARPNOSE	283	67	19
SHARK, BLACKNOSE	70	---	---
SHARK, BLACKTIP	25	---	2
SHARK, BONNETHEAD	66	63	120
SHARK, BULL	1	---	---
SHARK, FINETOOTH	11	1	10
SHARK, LEMON	---	---	2
SHARK, SANDBAR	42	1	---
SHARK, SCALLOPED HAMMERHEAD	2	1	---
SHARK, SPINNER	2	---	---
SHARK, TIGER	5	---	---
ALL SPECIES COMBINED	507	133	154

V. Status of Management Measures and Issues

Fishery Management Plan

Coastal Sharks are managed under the Interstate FMP for Coastal Sharks, which was implemented in August 2008, Addendum I (2009), Addendum II (2013), and Addendum III (2013). The FMP addresses the management of 40 species and establishes a suite of management measures for recreational and commercial shark fisheries in state waters (0 – 3 miles from shore). In 2016, Smooth dogfish was added to NOAA Fisheries’ Atlantic Highly Migratory Species FMP through Amendment 9; as part of the Amendment, a new requirement that smooth dogfish harvest need to make up at least 25% of the retained catch in order for fishermen to be able to remove their fins at sea. The Commission later in the year approved Addendum IV (2016) to maintain consistency between state and federal FMP.

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 2018

Addendum III to the Coastal Sharks FMP was implemented in March 2014. 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, smoothhound, Atlantic sharpnose, blacknose, finetooth, and bonnethead.

Smooth hammerhead, scalloped hammerhead and great hammerhead must have a minimum fork length of 6.5 feet (78 inches).

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

Table 4.4. Recreational minimum size limits, 2018.

No Minimum Size	Minimum Fork Length of 4.5 Feet		Minimum Fork Length of 6.5 Feet
Smoothhound	Tiger	Shortfin mako*	Scalloped hammerhead Smooth hammerhead Great hammerhead
Atlantic sharpnose	Blacktip	Porbeagle	
Finetooth	Spinner	Thresher	
Blacknose	Bull	Oceanic whitetip	
Bonnethead	Lemon	Blue	
	Nurse		

***Per emergency rule measures implemented in March 2018 in response to the 2017 Assessment, minimum size limit (fork length) for Shortfin makos is now 83 inches or 6.9 feet**

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

All states with a declared interest in the management of sharks have submitted compliance reports and have regulations in place that meet or exceed the requirements of the Interstate Fisheries Management Plan for Coastal Sharks and associated addenda.

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 have been granted *de minimis* status. Maine and New Hampshire have renounced management interest and therefore are no longer members of the coastal shark Management Board. These states do not land sharks in any significant quantity and very few of the species managed by this plan are ever encountered in their state waters. 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 minimus* 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.

Research Priorities

Species-Specific Priorities

- Investigate the appropriateness of using vertebrae for ageing adult sandbar sharks. If appropriate, implement a systematic sampling program that gathers vertebral samples from entire size range for annual ageing to allow tracking the age distribution of the catch as well as updating of age-length keys.¹
- Determine what is missing in terms of experimental design or/and data analysis to arrive at incontrovertible conclusions on the reproductive periodicity of sandbar sharks
- Continue work on reconstruction of historical catches of sandbar sharks, especially catches outside of the US EEZ

¹ Recent bomb radiocarbon research has indicated that past age estimates based on tagging data for sandbar sharks may be correct and that vertebral ageing may not be the most reliable method for mature individuals. See Andrews *et al.* 2011.

- Investigate the length composition of the F3 Recreational and Mexican fisheries for sandbar sharks more in depth as this fishery is estimated to have a large impact on the stock mainly due to selecting age-0 fish.
- Research to estimate the degree of connectivity between the portions of the sandbar stock within the US and outside of the US EEZ.
- Study the distribution and movements of the sandbar stock relative to sampling coverage. It is possible that none of the indices alone track stock-wide abundance trends.
- Develop and conduct tagging studies on dusky and blacknose stock structure with increased international collaboration (e.g., Mexico) to ensure wider distribution and returns of tags. Expand research efforts directed towards tagging of individuals in south Florida and Texas/Mexico border to get better data discerning potential stock mixing.

General Priorities

- Update age and growth and reproductive studies for all species currently assessed, especially for studies with low sample sizes or over 20 years old.
- Determine gear-specific post-release mortality estimates for all species currently assessed
- Determine life history information for data-poor species that are currently not assessed
- Examine female sharks during the pupping periods to determine the proportion of reproductive females. Efforts should be made to develop non-lethal methods of determining pregnancy status
- Expand or develop monitoring programs to collect appropriate length and age samples from the catches in the commercial sector by gear type, from catches in the recreational sector, and from catches taken in research surveys to provide reliable length and age compositions for stock assessment
- Continue investigations into stock structure of coastal sharks using genetic, conventional and electronic tags to determine appropriate management units
- Evaluate to what extent the different CPUE indices track population abundance (e.g., through power analysis)
- Explore modeling approaches that do not require an assumption that the population is at virgin level at some point in time.
- Increase funding to allow hiring of additional HMS stock assessment scientists. There are currently inadequate staff to conduct stock assessments on more than one or two stocks/species per year.

References

Andrews et al. 2011. Bomb radiocarbon and tag-recapture dating of sandbar shark (*Carcharhinus plumbeus*). Fisheries Bulletin. 109: 454-465.

Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. 2018. NOAA Fisheries, April 9, 2019.

< <https://www.fisheries.noaa.gov/resource/document/2018-stock-assessment-and-fishery-evaluation-report-atlantic-highly-migratory> >

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 with the exception of Atlantic sharpnose, blacknose, finetooth, bonnethead

and smoothhound which have no minimum size. Hammerhead species must have a fork length of 6.5 feet.

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.
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 is allowed 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 restrictions, 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 10. Possession/retention limits for shark species in state waters

Recreational	<i>Shore-angler</i>	1 shark (of any species except prohibited) per person per day; plus one Atlantic sharpnose, bonnethead and smoothhound
	<i>Vessel-fishing</i>	1 shark (of any species except prohibited) per vessel per trip; plus one Atlantic sharpnose, bonnethead and smoothhound per person, per vessel
Commercial	<i>Directed permit</i>	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.
	<i>Incidental permit</i>	3 aggregated LCS per vessel per trip, 16 pelagic or SCS (combined) per vessel per trip