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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Approved October 2019
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I. Status of the Fishery Management Plan

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

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 can 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

<table>
<thead>
<tr>
<th>Species Group</th>
<th>Species within Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prohibited</td>
<td>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, blunt nose sixgill and bigeye sixgill sharks</td>
</tr>
<tr>
<td>Research</td>
<td>Sandbar sharks</td>
</tr>
<tr>
<td>Non-Blacknose Small Coastal</td>
<td>Atlantic sharpnose, finetooth, and bonnethead sharks</td>
</tr>
<tr>
<td>Blacknose</td>
<td>Blacknose sharks</td>
</tr>
<tr>
<td>Aggregated Large Coastal</td>
<td>Silky, tiger, blacktip, spinner, bull, lemon, and nurse</td>
</tr>
<tr>
<td>Hammerhead</td>
<td>Scalloped hammerhead, great hammerhead and smooth hammerhead</td>
</tr>
<tr>
<td>Pelagic</td>
<td>Shortfin mako, porbeagle, common thresher, oceanic whitetip and blue sharks</td>
</tr>
<tr>
<td>Smoothhound</td>
<td>Smooth dogfish and Florida smoothhound</td>
</tr>
</tbody>
</table>

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 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 obscures), sandbar (Carcharhinus plumbeus), and blacknose (Carcharhinus acrontus) 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

<table>
<thead>
<tr>
<th>Species or Complex Name</th>
<th>Stock Status</th>
<th>References/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pelagic</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Overfished</strong></td>
</tr>
<tr>
<td>Pelagic</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Porbeagle Blue</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Shortfin mako All other pelagic sharks</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>Unknown</td>
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<tr>
<td>Aggregated Large Coastal Sharks (LCS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlantic Blacktip</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Aggregated Large Coastal Sharks - Atlantic Region</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Non-Blacknose Small Coastal Sharks (SCS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlantic Sharpnose</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bonnethead</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Finetooth</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Hammerhead</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scalloped</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Blacknose</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Smoothhound</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandbar</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Prohibited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dusky</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>All other prohibited sharks</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
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</table>

### 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 coastal, 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.

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

<table>
<thead>
<tr>
<th>Species Group</th>
<th>Region</th>
<th>2018 Annual Quota (mt dw)</th>
<th>Season Opening Dates</th>
<th>Closing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated Large Coastal Sharks (LCS)</td>
<td>Atlantic</td>
<td>168.9</td>
<td>June 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Hammerhead Sharks</td>
<td>Atlantic</td>
<td>27.1</td>
<td>June 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Non-Blacknose Small Coastal Sharks (SCS)</td>
<td>Atlantic</td>
<td>264.1</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Blacknose Sharks</td>
<td>Atlantic</td>
<td>17.2</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Blue Sharks</td>
<td>No regional quotas</td>
<td>273.0</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Porbeagle Sharks</td>
<td>No regional quotas</td>
<td>1.7</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Pelagic Sharks other than Porbeagle or Blue</td>
<td>No regional quotas</td>
<td>488.0</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Shark Research Quota (Aggregated LCS)</td>
<td>No regional quotas</td>
<td>50.0</td>
<td>January 1, 2018</td>
<td></td>
</tr>
<tr>
<td>Sandbar Research Quota</td>
<td>No regional quotas</td>
<td>90.7</td>
<td>January 1, 2018</td>
<td></td>
</tr>
</tbody>
</table>
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 434,653 lbs dw, a 14% 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.

Commercial landings of Atlantic pelagic sharks was 167,159 lbs dw, which represents an approximate 33% decrease from 2017 landings (Table 6).


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</thead>
<tbody>
<tr>
<td>Great hammerhead</td>
<td>0</td>
<td>0</td>
<td>371</td>
<td>7,406</td>
<td>13,538</td>
<td>36,892</td>
<td>20,454</td>
<td>17,646</td>
<td>31,876</td>
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<tr>
<td>Scalloped hammerhead</td>
<td>0</td>
<td>0</td>
<td>15,800</td>
<td>27,229</td>
<td>24,652</td>
<td>13,197</td>
<td>12,329</td>
<td>4,919</td>
<td>8,238</td>
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<tr>
<td>Smooth hammerhead</td>
<td>7,802</td>
<td>110</td>
<td>3,967</td>
<td>1,521</td>
<td>601</td>
<td>304</td>
<td>125</td>
<td>1,193</td>
<td>737</td>
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<td>35,618</td>
<td>9,617</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Hammerhead Total</td>
<td>51,147</td>
<td>35,728</td>
<td>29,755</td>
<td>36,156</td>
<td>38,791</td>
<td>50,393</td>
<td>32,908</td>
<td>23,758</td>
<td>40,851</td>
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<tr>
<td>Blacktip</td>
<td>246,617</td>
<td>176,136</td>
<td>215,403</td>
<td>256,277</td>
<td>282,009</td>
<td>229,823</td>
<td>248,470</td>
<td>205,138</td>
<td>170,969</td>
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<tr>
<td>Bull</td>
<td>56,901</td>
<td>49,927</td>
<td>24,504</td>
<td>33,980</td>
<td>32,372</td>
<td>33,737</td>
<td>31,417</td>
<td>23,802</td>
<td>23,163</td>
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<tr>
<td>Lemon</td>
<td>25,316</td>
<td>45,448</td>
<td>21,563</td>
<td>16,791</td>
<td>13,047</td>
<td>18,158</td>
<td>19,205</td>
<td>12,005</td>
<td>12,293</td>
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<tr>
<td>Nurse</td>
<td>71</td>
<td>0</td>
<td>81</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>0</td>
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<tr>
<td>Silky</td>
<td>1,049</td>
<td>992</td>
<td>29</td>
<td>186</td>
<td>289</td>
<td>1,246</td>
<td>446</td>
<td>702</td>
<td>239</td>
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<tr>
<td>Spinner</td>
<td>13,544</td>
<td>4,113</td>
<td>10,643</td>
<td>26,892</td>
<td>25,716</td>
<td>33,002</td>
<td>55,610</td>
<td>62,314</td>
<td>83,006</td>
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<tr>
<td>Tiger</td>
<td>43,145</td>
<td>36,425</td>
<td>23,245</td>
<td>16,561</td>
<td>29,062</td>
<td>28,460</td>
<td>14,896</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Aggregated LCS Total</td>
<td>388,872</td>
<td>363,752</td>
<td>349,173</td>
<td>350,687</td>
<td>382,495</td>
<td>344,450</td>
<td>370,044</td>
<td>310,286</td>
<td>295,326</td>
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<td>Sandbar</td>
<td>84,339</td>
<td>94,295</td>
<td>46,446</td>
<td>46,868</td>
<td>82,308</td>
<td>112,610</td>
<td>62,984</td>
<td>47,023</td>
<td>98,476</td>
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<td>Hammerhead, Aggregated LCS, Sandbar Total</td>
<td>524,358</td>
<td>493,775</td>
<td>425,374</td>
<td>433,711</td>
<td>503,594</td>
<td>507,453</td>
<td>465,936</td>
<td>381,067</td>
<td>434,653</td>
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<tr>
<td>Blacknose</td>
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<td>28,373</td>
<td>37,873</td>
<td>33,382</td>
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<td>45,405</td>
<td>26,842</td>
<td>17,241</td>
<td>15,711</td>
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<td>Finetooth</td>
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<td>19,026</td>
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<td>Atl. Sharpnose</td>
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<td>345,625</td>
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<td>175,890</td>
<td>251,289</td>
<td>374,291</td>
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<tr>
<td>Unclassified assigned to SCS</td>
<td>851</td>
<td>36,639</td>
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<td>0</td>
<td>0</td>
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<td>SCS Total</td>
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<td>259,203</td>
<td>269,252</td>
<td>353,130</td>
<td>210,067</td>
<td>294,481</td>
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<tbody>
<tr>
<td>Blue</td>
<td>9,135</td>
<td>13,370</td>
<td>17,200</td>
<td>9,767</td>
<td>17,806</td>
<td>1,114</td>
<td>607</td>
<td>4,272</td>
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<td>Porbeagle</td>
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<td>5,933</td>
<td>4,250</td>
<td>54</td>
<td>6,414</td>
<td>0</td>
<td>0</td>
<td>C</td>
<td>1,092</td>
</tr>
<tr>
<td>Shortfin Mako</td>
<td>220,400</td>
<td>207,630</td>
<td>198,841</td>
<td>199,177</td>
<td>218,295</td>
<td>141,720</td>
<td>160,829</td>
<td>184,993</td>
<td>77,988</td>
</tr>
<tr>
<td>Unclassified Mako</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Oceanic whitetip</td>
<td>796</td>
<td>2,435</td>
<td>258</td>
<td>62</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Thresher</td>
<td>61,290</td>
<td>47,462</td>
<td>63,965</td>
<td>48,768</td>
<td>116,012</td>
<td>72,463</td>
<td>78,219</td>
<td>61,990</td>
<td>88,079</td>
</tr>
<tr>
<td>Unclassified pelagic</td>
<td>16,160</td>
<td>33,884</td>
<td>28,932</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pelagic Total</td>
<td>311,878</td>
<td>310,714</td>
<td>313,446</td>
<td>257,828</td>
<td>358,549</td>
<td>215,297</td>
<td>239,655</td>
<td>251,375</td>
<td>167,159</td>
</tr>
</tbody>
</table>

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 2017 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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated LCS</td>
<td>5,540</td>
<td>7,397</td>
<td>9,386</td>
<td>1,547</td>
<td>5,704</td>
<td>7,622</td>
<td>10,596</td>
<td>7,215</td>
<td>8,128</td>
</tr>
<tr>
<td>Hammerhead</td>
<td>13</td>
<td>178</td>
<td>41</td>
<td>600</td>
<td>900</td>
<td>1</td>
<td>799</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pelagic*</td>
<td>5,529</td>
<td>3,806</td>
<td>7,034</td>
<td>11,057</td>
<td>43,047</td>
<td>114,282</td>
<td>37,009</td>
<td>58,259</td>
<td>10,943</td>
</tr>
<tr>
<td>Blacknose</td>
<td>0</td>
<td>573</td>
<td>0</td>
<td>70</td>
<td>4,146</td>
<td>1,211</td>
<td>225</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Non-Blacknose SCS</td>
<td>51,529</td>
<td>36,851</td>
<td>33,005</td>
<td>59,208</td>
<td>87,480</td>
<td>32,065</td>
<td>192,855</td>
<td>58,239</td>
<td>54,416</td>
</tr>
<tr>
<td>Sandbar</td>
<td>2,193</td>
<td>1,125</td>
<td>857</td>
<td>399</td>
<td>1,873</td>
<td>1,252</td>
<td>5</td>
<td>2,604</td>
<td>0</td>
</tr>
<tr>
<td>Prohibited</td>
<td>4</td>
<td>23</td>
<td>15</td>
<td>16</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Smoothhound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46,115</td>
<td>55,792</td>
<td>88,316</td>
<td>145,689</td>
<td>58,446</td>
</tr>
<tr>
<td>Total</td>
<td>64,808</td>
<td>49,952</td>
<td>50,338</td>
<td>72,895</td>
<td>143,152</td>
<td>156,433</td>
<td>244,749</td>
<td>184,782</td>
<td>114,212</td>
</tr>
</tbody>
</table>

*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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Kg/tow</th>
<th>Count/tow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>1.16</td>
<td>0.80</td>
</tr>
<tr>
<td>1997</td>
<td>1.09</td>
<td>0.59</td>
</tr>
<tr>
<td>1998</td>
<td>1.32</td>
<td>0.72</td>
</tr>
<tr>
<td>1999</td>
<td>1.27</td>
<td>0.93</td>
</tr>
<tr>
<td>2000</td>
<td>2.85</td>
<td>1.88</td>
</tr>
<tr>
<td>2001</td>
<td>3.02</td>
<td>1.69</td>
</tr>
<tr>
<td>2002</td>
<td>6.09</td>
<td>3.58</td>
</tr>
<tr>
<td>2003</td>
<td>6.18</td>
<td>3.10</td>
</tr>
<tr>
<td>2004</td>
<td>2.95</td>
<td>1.44</td>
</tr>
<tr>
<td>2005</td>
<td>2.70</td>
<td>1.41</td>
</tr>
<tr>
<td>2006</td>
<td>2.46</td>
<td>0.94</td>
</tr>
<tr>
<td>2007</td>
<td>6.23</td>
<td>2.27</td>
</tr>
<tr>
<td>2008</td>
<td>1.25</td>
<td>0.63</td>
</tr>
<tr>
<td>2009</td>
<td>2.8</td>
<td>1.13</td>
</tr>
<tr>
<td>2010</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2011</td>
<td>3.66</td>
<td>1.43</td>
</tr>
<tr>
<td>2012</td>
<td>4.69</td>
<td>2.41</td>
</tr>
<tr>
<td>2013</td>
<td>7.93</td>
<td>4.13</td>
</tr>
<tr>
<td>2014</td>
<td>11.05</td>
<td>5.78</td>
</tr>
<tr>
<td>2015</td>
<td>11.70</td>
<td>7.30</td>
</tr>
<tr>
<td>2016</td>
<td>8.30</td>
<td>5.24</td>
</tr>
<tr>
<td>2017</td>
<td>14.82</td>
<td>8.29</td>
</tr>
<tr>
<td>2018</td>
<td>9.57</td>
<td>7.17</td>
</tr>
</tbody>
</table>

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

While NY DEC does not currently conduct fishery-independent monitoring programs for Atlantic Coastal Sharks, multiple research permits were 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](image)
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.

Smoothhound

*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.
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.
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.

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

<table>
<thead>
<tr>
<th>Month</th>
<th>Effort (hrs)</th>
<th>Neonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun</td>
<td>10.2</td>
<td>51</td>
</tr>
<tr>
<td>Jul</td>
<td>10.0</td>
<td>139</td>
</tr>
<tr>
<td>Aug</td>
<td>10.0</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>244</td>
</tr>
</tbody>
</table>

### Lagoons, Eastern Shore

<table>
<thead>
<tr>
<th>Month</th>
<th>Effort (hrs)</th>
<th>Neonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun</td>
<td>7.50</td>
<td>116</td>
</tr>
<tr>
<td>Jul</td>
<td>7.52</td>
<td>99</td>
</tr>
<tr>
<td>Aug</td>
<td>7.50</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>254</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Month</th>
<th># of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>4</td>
</tr>
<tr>
<td>February</td>
<td>5</td>
</tr>
<tr>
<td>March</td>
<td>0</td>
</tr>
<tr>
<td>April</td>
<td>3</td>
</tr>
<tr>
<td>May</td>
<td>7</td>
</tr>
<tr>
<td>June</td>
<td>4</td>
</tr>
<tr>
<td>July</td>
<td>1</td>
</tr>
<tr>
<td>August</td>
<td>0</td>
</tr>
<tr>
<td>September</td>
<td>6</td>
</tr>
<tr>
<td>October</td>
<td>4</td>
</tr>
<tr>
<td>November</td>
<td>0</td>
</tr>
<tr>
<td>December</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Species</th>
<th># Indv.</th>
<th>Sum of Sample Wgt. (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Sharpnose Shark (<em>R. terraenovae</em>)</td>
<td>42</td>
<td>69</td>
</tr>
<tr>
<td>Blacktip (<em>C. limbatus</em>)</td>
<td>4</td>
<td>56</td>
</tr>
<tr>
<td>Bonnethead (<em>S. tiburo</em>)</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Common thresher (<em>A. vulpinus</em>)</td>
<td>37</td>
<td>223</td>
</tr>
<tr>
<td>Smoothhound Shark (<em>M. canis</em>)</td>
<td>99</td>
<td>165</td>
</tr>
<tr>
<td>Hammerhead</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Shark Species</th>
<th>Number Measured</th>
<th>Min of TL (mm)</th>
<th>Max of TL (mm)</th>
<th>Average of TL (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Sharpnose</td>
<td>257</td>
<td>262</td>
<td>1,019</td>
<td>463</td>
</tr>
<tr>
<td>Blacknose</td>
<td>4</td>
<td>410</td>
<td>488</td>
<td>445</td>
</tr>
<tr>
<td>Blacktip</td>
<td>21</td>
<td>830</td>
<td>1,347</td>
<td>1,081</td>
</tr>
<tr>
<td>Bonnethead</td>
<td>129</td>
<td>245</td>
<td>1,080</td>
<td>598</td>
</tr>
<tr>
<td>Bull</td>
<td>10</td>
<td>640</td>
<td>827</td>
<td>718</td>
</tr>
<tr>
<td>Dusky</td>
<td>5</td>
<td>750</td>
<td>1,300</td>
<td>1,001</td>
</tr>
<tr>
<td>Finetooth</td>
<td>4</td>
<td>683</td>
<td>1,344</td>
<td>1,034</td>
</tr>
<tr>
<td>Sandbar</td>
<td>45</td>
<td>570</td>
<td>813</td>
<td>685</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Shark Species</th>
<th>COASTSPAN</th>
<th>Trammel Net</th>
<th>Adult Red Drum and Coastal Sharks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Captured</td>
<td>Tagged</td>
<td>Captured</td>
</tr>
<tr>
<td>Atlantic Sharpnose</td>
<td>158</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td>Blacknose</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Blacktip</td>
<td>167</td>
<td>98</td>
<td>15</td>
</tr>
<tr>
<td>Bonnethead</td>
<td>273</td>
<td>182</td>
<td>157</td>
</tr>
<tr>
<td>Bull</td>
<td>9</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Finetooth</td>
<td>403</td>
<td>154</td>
<td>88</td>
</tr>
<tr>
<td>Great Hammerhead</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lemon</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Nurse</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sandbar</td>
<td>195</td>
<td>179</td>
<td>0</td>
</tr>
<tr>
<td>Sand Tiger</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Scalloped/Carolina</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hammerhead</td>
<td>206</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Smooth Dogfish</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Spinner</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tiger</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Species</th>
<th>SEAMAP</th>
<th>EMTS</th>
<th>MSPHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARK, ATLANTIC SHARPNOSE</td>
<td>283</td>
<td>67</td>
<td>19</td>
</tr>
<tr>
<td>SHARK, BLACKNOSE</td>
<td>70</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>SHARK, BLACKTIP</td>
<td>25</td>
<td>---</td>
<td>2</td>
</tr>
<tr>
<td>SHARK, BONNETHEAD</td>
<td>66</td>
<td>63</td>
<td>120</td>
</tr>
<tr>
<td>SHARK, BULL</td>
<td>1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>SHARK, FINETOOTH</td>
<td>11</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>SHARK, LEMON</td>
<td>---</td>
<td>---</td>
<td>2</td>
</tr>
<tr>
<td>SHARK, SANDBAR</td>
<td>42</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>SHARK, SCALLOPED HAMMERHEAD</td>
<td>2</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>SHARK, SPINNER</td>
<td>2</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>SHARK, TIGER</td>
<td>5</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>ALL SPECIES COMBINED</td>
<td>507</td>
<td>133</td>
<td>154</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>No Minimum Size</th>
<th>Minimum Fork Length of 4.5 Feet</th>
<th>Minimum Fork Length of 6.5 Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoothhound</td>
<td>Tiger</td>
<td>Shortfin mako*</td>
</tr>
<tr>
<td>Atlantic sharpnose</td>
<td>Blacktip</td>
<td>Porbeagle</td>
</tr>
<tr>
<td>Finetooth</td>
<td>Spinner</td>
<td>Thresher</td>
</tr>
<tr>
<td>Blacknose</td>
<td>Bull</td>
<td>Oceanic whitetip</td>
</tr>
<tr>
<td>Bonnethead</td>
<td>Lemon</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>Nurse</td>
<td>Scalloped hammerhead</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smooth hammerhead</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Great hammerhead</td>
</tr>
</tbody>
</table>

*Per Amendment 11 (2019) in response to the 2017 Assessment, minimum size limit (fork length) for Shortfin makos is now a 71-inch straight line fork length (FL) for males and an 83-inch straight line FL for females 83 inches or 6.9 feet. States will implement these measures for states waters by January 1, 2020.

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 plan’s 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 the 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 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


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.

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

<table>
<thead>
<tr>
<th></th>
<th><strong>Recreational</strong></th>
<th><strong>Commercial</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Shore-angler</strong></td>
<td><strong>Directed permit</strong></td>
</tr>
<tr>
<td><strong>Vessel-fishing</strong></td>
<td>1 shark (of any species except prohibited) per person per day; plus one Atlantic sharpnose, bonnethead and smoothhound</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>1 shark (of any species except prohibited) per vessel per trip; plus one Atlantic sharpnose, bonnethead and smoothhound per person, per vessel</td>
<td></td>
</tr>
</tbody>
</table>