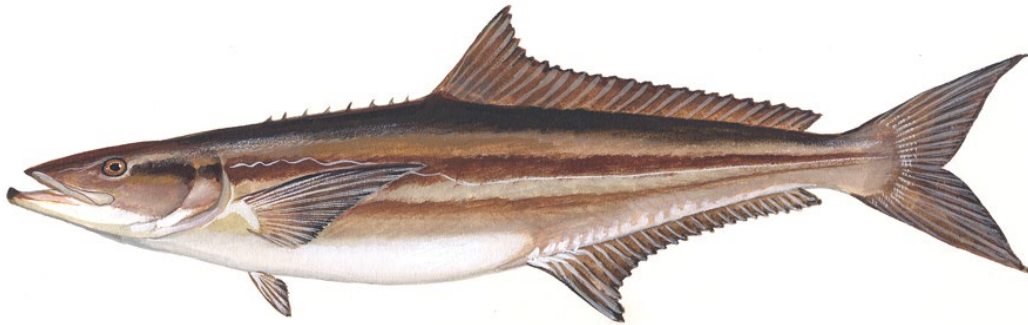


**ATLANTIC STATES MARINE FISHERIES COMMISSION**  
**REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN**

**FOR ATLANTIC COBIA**  
**(*Rachycentron canadum*)**

**2021 FISHING YEAR**



Prepared by the Plan Review Team

Approved November 8, 2022



*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

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## I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	Original FMP – November 2017
<u>Amendments &amp; Addenda:</u>	Amendment 1 – August 2019 Addendum 1 – October 2020
<u>Management Areas:</u>	The distribution of the Atlantic stock of cobia from Georgia through Rhode Island
<u>Active Boards/Committees:</u>	Coastal Pelagics Management Board; Cobia Technical Committee, Plan Development Team, and Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an [Interstate Fishery Management Plan \(FMP\)](#) for the Atlantic Migratory Group of cobia (Atlantic cobia) in 2017 (ASMFC, 2017). Prior to the FMP, federal management was through the South Atlantic Fishery Management Council's (SAFMC) Fishery Management Plan for Coastal Migratory Pelagic Resources (CMP FMP), while New York, New Jersey, Delaware, Virginia, North Carolina and South Carolina had regulations for their respective state waters.

The FMP established a complementary management approach between the ASMFC and SAFMC. Under the ASMFC, Atlantic cobia are managed as part of the Coastal Pelagics Board (Board). Through the FMP, regulations for states with a declared interest were required to reflect several measures established federally through the CMP FMP.

In March, 2019, [Regulatory Amendment 31](#) to the CMP FMP became effective (SAFMC, 2018). This removed Atlantic cobia from the CMP FMP, resulting in management solely through the ASMFC.

In August, 2019, the Board approved [Amendment 1](#) to reflect removal of Atlantic cobia from the CMP FMP, assume management responsibilities previously accomplished through the SAFMC and CMP FMP, and establish recommendations for measures in federal waters. Amendment 1 stated requirements were to be implemented by July, 2020.

Amendment 1 maintains many regulations of the original Commission FMP and previous CMP FMP. These include a 36-inch fork length (or 40-inch total length) recreational minimum size limit, 1 fish per person recreational bag limit, a recreational daily vessel limit not to exceed 6 fish per vessel, a 33-inch fork length (or 37-inch total length) commercial minimum size limit, and a commercial possession limit of 2 cobia per person not to exceed 6 cobia per vessel.

There are four plan objectives:

- 1) Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or areas.

- 2) Promote cooperative collection of biological, economic, and social data required to effectively monitor and assess the status of the cobia resource and evaluate management efforts.
- 3) Manage the cobia fishery to protect both young individuals and established breeding stock.
- 4) Develop research priorities that will further refine the cobia management program to maximize the biological, social, and economic benefits derived from the cobia population.

In February, 2020, the Board approved an annual total harvest quota of 80,112 fish for 2020-2022, based on results from the Southeast Data, Assessment, and Review (SEDAR) 58 stock assessment for Atlantic cobia, allocated to the recreational and commercial sectors based on the Amendment 1 allocation of 92% recreational and 8% commercial. However, states with commercial harvest had an agreement to harvest a smaller portion of that amount in 2020. SEDAR 58 used updated recreational catch estimates from the Marine Recreational Information Program's (MRIP) 2018 transition and calibration to the mail-based Fishing Effort Survey effort estimates, which replaced those of the Coastal Household Telephone Survey.

Given the increased recreational catch estimates used in the SEDAR 58 assessment, the total annual quota approved by the Board also increased, resulting in increases to both the recreational and commercial quotas. As this increase in recreational harvest did not truly reflect a change in previous effort, only the estimate of that effort, [Addendum I to Amendment 1](#) was approved by the Board in October 2020 to reconsider the percent allocations to the commercial and recreational sectors to better reflect the observed harvest. The Addendum changed the allocation of the resource between the recreational and commercial fisheries from 92% and 8%, respectively, to 96% and 4%, respectively. The calculation of the commercial trigger, which determines when an in season coastwide commercial closure occurs, was also revised. The Addendum established a commercial *de minimis* set aside of 4% of the commercial quota with a maximum cap of 5,000 pounds to account for potential landings in *de minimis* states not tracked in-season against the quota. The Addendum also allowed states that are *de minimis* for their recreational fisheries to choose to match the recreational management measures implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or limit their recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or an equivalent total length of 37 inches). Based on maturity data from the SEDAR 58 assessment, this latter regulatory option was updated from 29 inches fork length to 33 inches fork length in Addendum I to allow a greater number of females to spawn before being susceptible to harvest. Addendum I measures were effective January 1, 2021.

In May 2022, the Board changed the cobia quota timeframe from 2020-2022 to 2021-2023, thereby, maintaining the total harvest quota of 80,112 fish for the 2023 fishing season. Per the Addendum I allocation of 96% for the recreational sector, the coastwide recreational harvest target for 2021-2023 fishing seasons is 76,908 fish and results in the following state-specific soft targets:

Georgia - 7,229 fish  
South Carolina - 9,306 fish  
North Carolina - 29,302 fish

Virginia - 30,302 fish  
*De minimis* - 769 fish

Per the Addendum I allocation of 4% to the commercial sector, the commercial fishery has a coastwide commercial quota of 73,116 pounds (3,204 fish) annually for the 2021-2023 fishing seasons. The current management measures for the commercial fishery include a 33" FL minimum size limit and 2 fish limit per person, with a 6 fish maximum vessel limit. The commercial Atlantic cobia fishery will close once the commercial quota is projected to be reached.

The Board will meet in 2023 to consider setting new specifications for the 2024-2026 fishing seasons.

## II. Status of the Stock

### SEDAR 58

In 2020, the Board approved the SEDAR 58 Atlantic Cobia benchmark assessment for management use which continued to use the Beaufort Assessment Model (BAM), a forward-projecting statistical catch-at-age model used in the prior assessment, SEDAR 28 (SEDAR 2013). SEDAR 58 provided new reference points and determined that the stock is not overfished and overfishing is not occurring (Figures 1 and 2). This assessment had a terminal year of 2017, and used the recalibrated recreational catch data from MRIP, which yielded much higher biomass and spawning stock biomass estimates as compared to SEDAR 28 (Figure 3). Even with the large changes in biomass estimates, the trends of abundance, recruitment, and relative status were very similar between the two assessments. Stock structure also remained unchanged from the SEDAR 28 assessment which established the stock boundary between Atlantic and Gulf of Mexico cobia at the FL/GA border with the Atlantic stock extending northward to Rhode Island.

### Updated Reference Points

The assessment proposed updated reference points of  $F_{40\%}$  and 75% of  $SSB_{F_{40\%}}$  as the threshold reference points (Figures 4 and 5). The reference points were selected as the fishing rate and SSB that allows the population to reach 40% of the maximum spawning potential the stock would have obtained in the absence of harvest. These reference points serve as proxies for maximum sustainable yield-derived relationships due to insufficient data for cobia.

### Status of the Stock and Fishery

Spawning stock biomass showed little overall trend throughout the estimated time series, but the terminal year is the lowest in the time series. Age structure estimated by the base run indicated a slight decline in the number of younger fish in the last decade, but the rest of the age structure was above the expected values in 2017. The estimated fishing mortality rates have generally increased through the assessment time frame, peaking in 1996, with the recreational fleet as the largest contributor to total F ( $F_{2015-2017}/F_{40\%} = 0.29$ ).

### **III. Status of the Fishery**

Regulations, by state, for the 2021 fishing year are presented in Table 1. Total Atlantic cobia landings are estimated at about 2.7 million pounds in 2021, which is a 13% increase from 2020 (Figure 6, Tables 2 and 3). The commercial and recreational fisheries harvested 2.5% and 97.5% of the 2021 total, respectively.

Commercial landings of Atlantic cobia in 2021 span from Rhode Island through Georgia (Table 2). Coastwide commercial landings show an increasing trend since low harvests in the 1970s and early 1980s but comprise a small portion of the total harvest due, in part, to the current 4% allocation of the total annual harvest quota (Figure 6); the commercial allocation was 8% in 2019 and 2020. Coastwide cobia commercial landings in 2021 were estimated at 66,499 pounds. North Carolina (44%) and Virginia (44%) harvested the majority of the commercial landings (Table 2). The total *de minimis* commercial landings did not reach the commercial trigger level for fishery closure, so the commercial fishery in state waters remained open through the end of 2021.

Recreational harvests have fluctuated widely throughout the time series, often through rapid increases and declines. Average recreational harvest for the time series is 1 million pounds (Figure 6, Table 3) and about 38,000 fish (Figure 7, Table 4). This fishery has grown noticeably over the time series, with average harvests over the last 10 years of 2.1 million pounds and about 74,000 fish. The 2021 recreational harvest was 2.6 million pounds (90,807 fish). Virginia (66% of pounds, 63% of fish) and North Carolina (13% of pounds, 12% of fish) harvested the majority of recreational landings by pounds and number of fish. Average weight (recreational harvest in pounds divided by recreational harvest in numbers) in 2021 was 28.7 pounds per fish—a decrease by an average 1 pound per fish from 2020.

Per Addendum I, each state’s recreational landings will be evaluated against state recreational harvest targets at the same time as the specification process, which will likely occur in 2023 when specifications are considered for 2024-2026.

Recreational releases of live fish have generally increased throughout the time series (Figure 7, Table 5). In 2021, 300,468 recreationally-caught fish were released, a 22% increase from 2020. Over the last five years 2017-2021, an average 79% of cobia caught recreationally were released alive each year. This is higher than the average 61% released alive during the previous five-year period of 2012-2016.

### **IV. Status of Assessment Advice**

Current stock status information comes from SEDAR 58 (SEDAR, 2020), which determined the stock is not overfished and overfishing is not occurring. Results of this assessment were approved for management use by the Board at their February 2020 meeting, and, as such, have been incorporated into ASMFC’s FMP.

The stock assessment could be improved by developing a fishery-independent sampling program for abundance of cobia and other coastal migratory pelagic species. The currently used fishery-

dependent index causes notable uncertainty in part due to the lack of an effective sampling methodology. In addition, while the terminal year of the assessment was 2017, due to federal water closures, the index could only be calculated through 2015. The assessment could also benefit from improved characterization of age, reproductive, genetic, and migratory characteristics, tag-based information on natural mortality, and more precise recreational catch estimates.

The next SEDAR stock assessment for the Atlantic cobia stock would be an operational (i.e., update) assessment tentatively scheduled for 2025. The terminal year would likely be 2023 or 2024 and the assessment would likely be available to inform 2026 management.

## **V. Status of Research and Monitoring**

There are no monitoring or research programs required annually of the states except for the submission of a compliance report. Fishery-dependent data collections (other than catch and effort data) are conducted in Maryland, Virginia, North Carolina, South Carolina, and Georgia. Data collected includes length, age, and sex data. Fishery-independent monitoring programs conducted by states that may encounter cobia are conducted in New Jersey, Delaware, Maryland, South Carolina, and Georgia.

## **VI. Status of Management Measures and Issues**

### *Fishery Management Plan*

Some states implemented new recreational cobia measures in 2021 based on Addendum I. As approved by the Board, Virginia and North Carolina changed their measures after evaluation of previous landings against their new Addendum I recreational harvest targets. Virginia's 2021 measures were designed to reduce recreational harvest by 42% by lowering the vessel limit from 3 fish to 2 fish, and shortening the season by 30 days (changed to June 15-September 15).

North Carolina liberalized their measures in 2021 based on their harvest target, and the vessel limit was increased for private anglers only to allow 2 cobia per vessel per day in June (previously only allowed in May).

Some *de minimis* states also adjusted their 2021 recreational measures based on the updated *de minimis* requirement in Addendum I. Maryland and the Potomac River Fisheries Commission (PRFC) adjusted their vessel limit and season to maintain consistency with Virginia's, the nearest non-*de minimis* state to them.

New Jersey, Delaware, and Rhode Island have implemented the standard *de minimis* measures (1 fish per vessel/minimum size of 37 inches total length/no seasonal restrictions) rather than using the nearest non-*de minimis* state regulations. Rhode Island's measures were effective January 1, 2022 after joining the Board and declaring an interest in the cobia fishery in 2021.

In 2020, the South Carolina legislature codified the federal regulations for Cobia into the South Carolina Code of Laws. Prior to this, Cobia regulations (outside of the SCMZ) were covered by legal adherence to federal regulations for any species that did not have specific regulations in South Carolina law.

### De Minimis

For the recreational sector, the FMP requires adherence to state harvest targets, allocated to non-*de minimis* states from the total harvest quota allocated to the recreational sector. One percent of the quota is designated to account for harvest in *de minimis* states.

The FMP allows states to request recreational *de minimis* status if their recreational harvests (in pounds) in two of the previous three years are less than 1% of annual coastwide recreational landings during that time period. If a state qualifies for *de minimis*, the state may choose to match all FMP-related recreational management measures (including seasons and vessel limits) implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or the state may choose to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or 37 inches total length) with no seasonal restrictions. Rhode Island, New Jersey, Delaware, Maryland, and Florida requested recreational *de minimis* status through the annual reporting process. All of these states except Maryland meet the recreational *de minimis* qualifications.

Maryland in their compliance report acknowledged their recreational harvest was over the 1% recreational *de minimis* threshold in 2020 (1.7%) and 2021 (5.0%) after having zero landings in 2019. Given variability in landings year to year and that 2020 landings were close to the 1% threshold, Maryland requested to continue under recreational *de minimis* status for another year until 2022 recreational harvest can be evaluated.

*De minimis* status for commercial fisheries may be granted to states if their commercial landings for 2 of the previous 3 years were less than 2% of the coastwide commercial landings for the same time period. Commercial regulations in *de minimis* states are also limited to a minimum size of 33 inches FL with 2 fish per person for a total of 6 fish per vessel (the same requirements as non-*de minimis* states). Commercial *de minimis* states are not required to monitor their in-season harvests. Rhode Island, New Jersey, Delaware, Maryland, Georgia, and Florida requested *de minimis* status for commercial fisheries through the annual reporting process. All of these states except New Jersey meet the commercial *de minimis* qualifications.

New Jersey in their compliance report acknowledged their commercial harvest was over the 2% commercial *de minimis* threshold in 2019 (confidential) and 2021 (3.4%). New Jersey noted the landings in 2019 and 2021 are considered to be anomalously high compared to the past decade of landings which have previously qualified New Jersey for commercial *de minimis* status. New Jersey also noted their preliminary 2022 landings data are less than 20% of the landings during the same time in 2019 and 2021, and the 2% *de minimis* threshold is not anticipated to be exceeded in 2022. For these reasons, New Jersey requests to continue under commercial *de minimis* status for another year until 2022 commercial harvest can be evaluated. Additionally, New Jersey notes they will continue to work towards implementing mandatory in-season reporting of commercial cobia



landings so that, should New Jersey's commercial cobia landings continue to consistently exceed the 2% threshold, the mechanism will be in place to maintain compliance with the FMP requirements.

## **VII. Implementation of FMP Compliance Requirements for 2021**

The PRT finds no inconsistencies among states in regards to the Fishery Management Plan.

## **VIII. Recommendations of the Plan Review Team**

### Management

The PRT recommends that the Board approve the 2022 FMP Review, state compliance, and all *de minimis* requests from Rhode Island, New Jersey, Delaware, Maryland, Georgia, and Florida.

The PRT agrees with the rationale provided by Maryland for their recreational fishery and New Jersey for their commercial fishery to continue under *de minimis* status until 2022 harvest can be evaluated next year. The PRT supports New Jersey's efforts to work toward building the mechanism for in-season commercial cobia monitoring given the potential for future landings to increase beyond the *de minimis* threshold.

The PRT emphasizes that multiple states could exceed *de minimis* thresholds over the next few years if cobia landings continue to increase in Mid-Atlantic states due to cobia potentially becoming more available in those areas. The PRT notes the management implications of this, including requiring commercial in-season monitoring in more states and adding new states to the calculation of state-specific recreational harvest targets. The PRT also notes the current allocation of recreational quota to each state is based on landings data through only 2015, which may need to be updated to reflect more recent years.

As the Board considers potential management action with the next set of specifications and with the next stock assessment, the PRT recommends the Board discuss whether updates to the state-by-state recreational harvest allocations are warranted.

Finally, the PRT noted New York's recent cobia commercial landings, which were 6.9% of coastwide commercial landings in 2020 and 2.4% in 2021. Considering these landings, the PRT recommends New York declare an interest in Atlantic cobia and update their cobia regulations for 2023 to at least meet requirements for *de minimis*. The PRT notes that in-season monitoring of New York's cobia landings may need to be implemented in the following years.

### Research

The following are important research recommendations from the PRT:

Continue to collect and analyze current life history data from fishery independent and dependent programs, including full size, age, maturity, histology workups and information on spawning season timing and duration. Increase spatial and temporal coverage of age samples collected regularly in

fishery dependent and independent sources. Continue collection of genetic material to continue to assess the stock identification and any Distinct Population Segments that may exist within the management unit relative to recommendations made by the SEDAR 58 Stock ID Process.

Define, develop, and monitor adult and juvenile abundance estimates through the expansion of current or development of new fishery independent surveys.

Expand existing fishery independent surveys in time and space to better define and cover cobia habitats, including conducting otolith microchemistry studies to identify regional recruitment contributions and new and ongoing satellite tagging programs to help identify spawning and juvenile habitat use and regional recruitment sources. Additional work to better understand the impacts of climate change on cobia habitat and range expansion.

Additional research recommendations can be found in Section 2.8 of the [SEDAR 58 stock assessment](#).

## **IX. References**

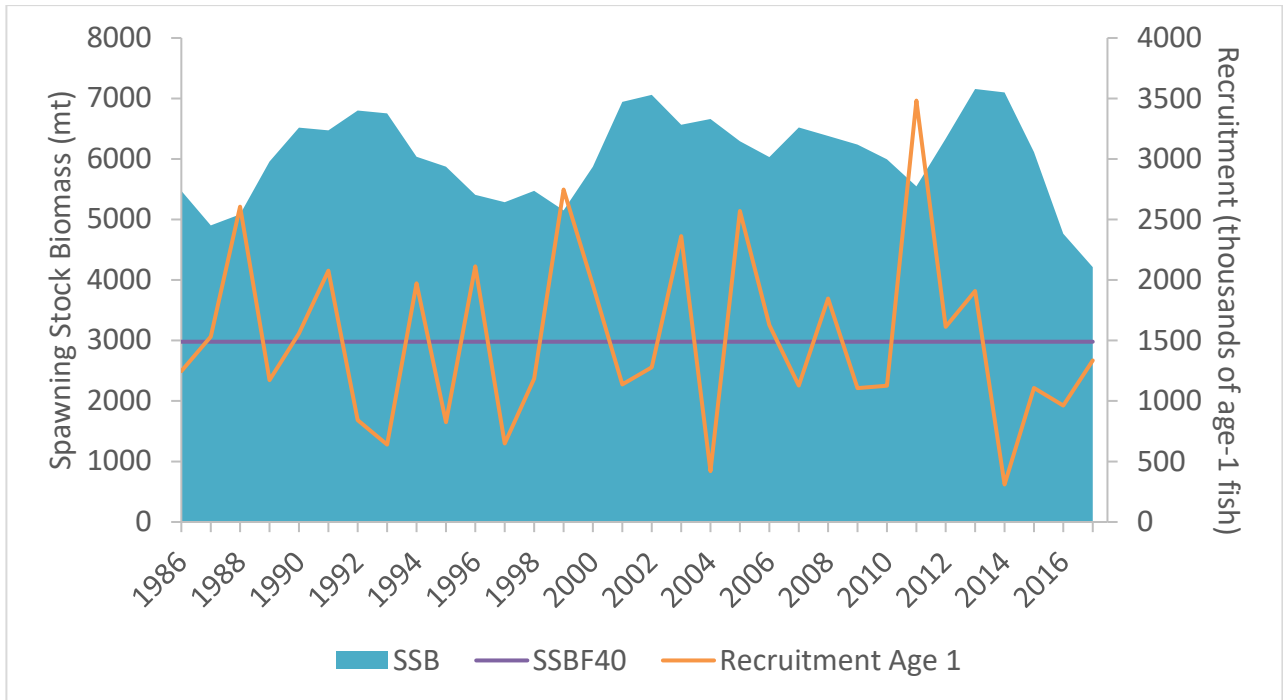
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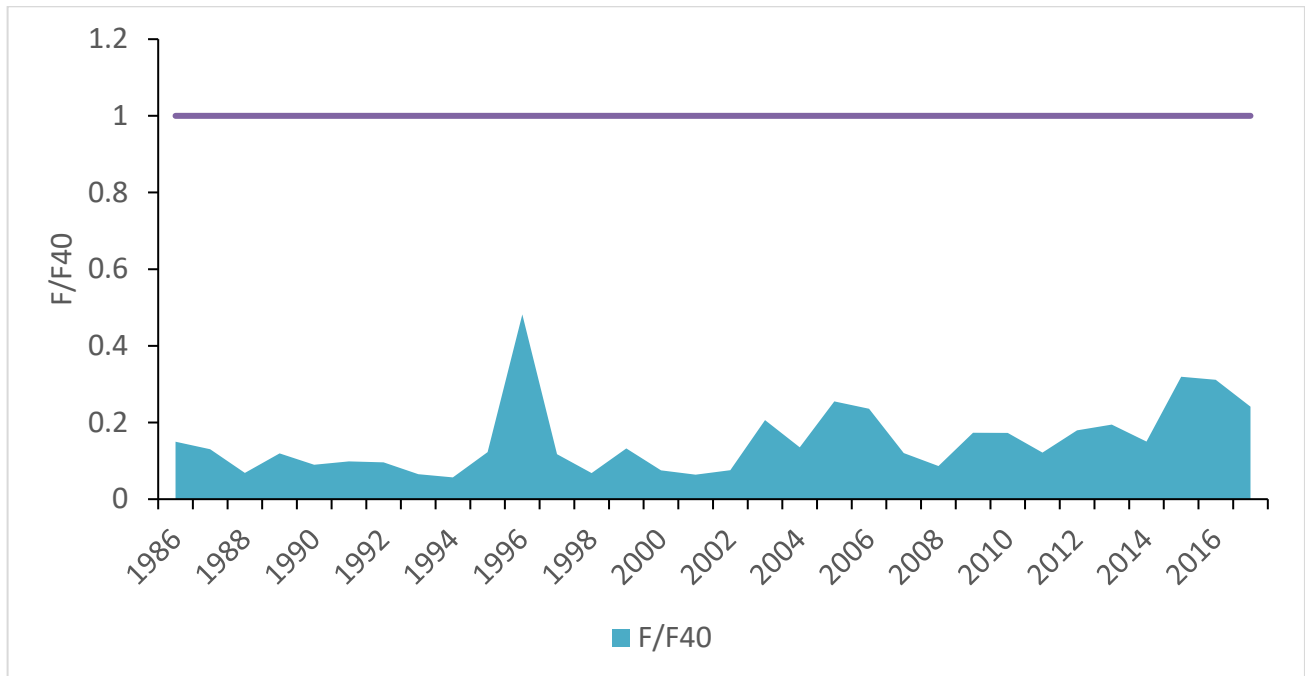
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[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=28](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28)

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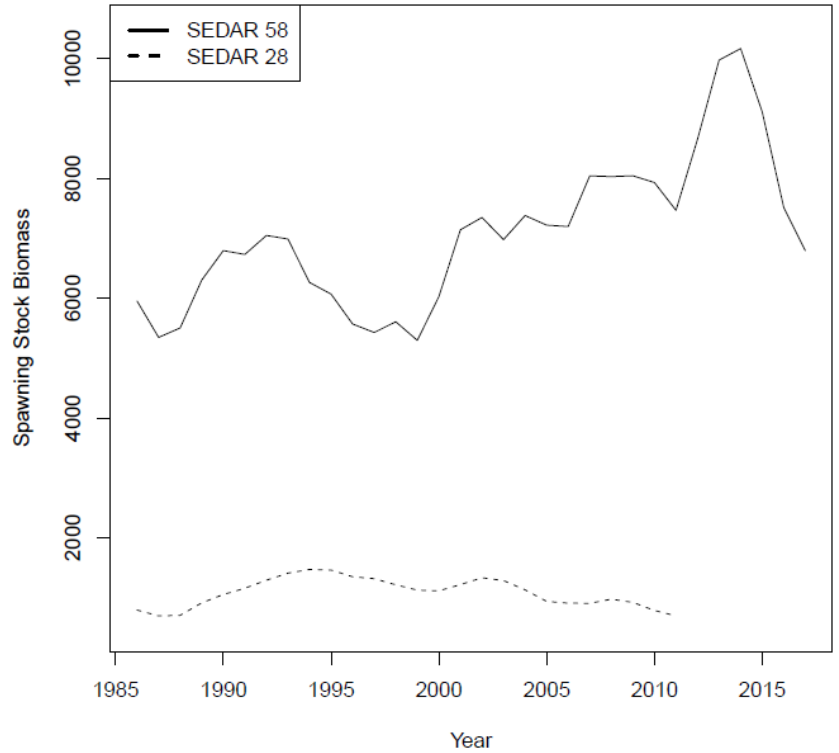
**X. Figures**



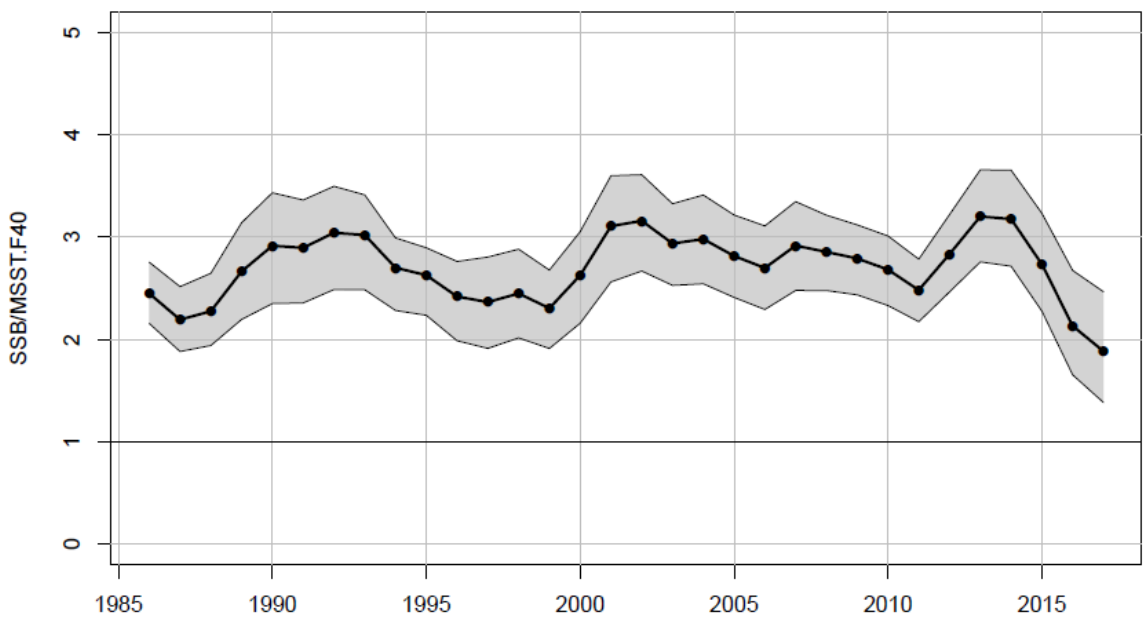
**Figure 1. Atlantic Cobia spawning stock biomass (SSB) and recruitment of year 1 fish. (SEDAR, 2020)**



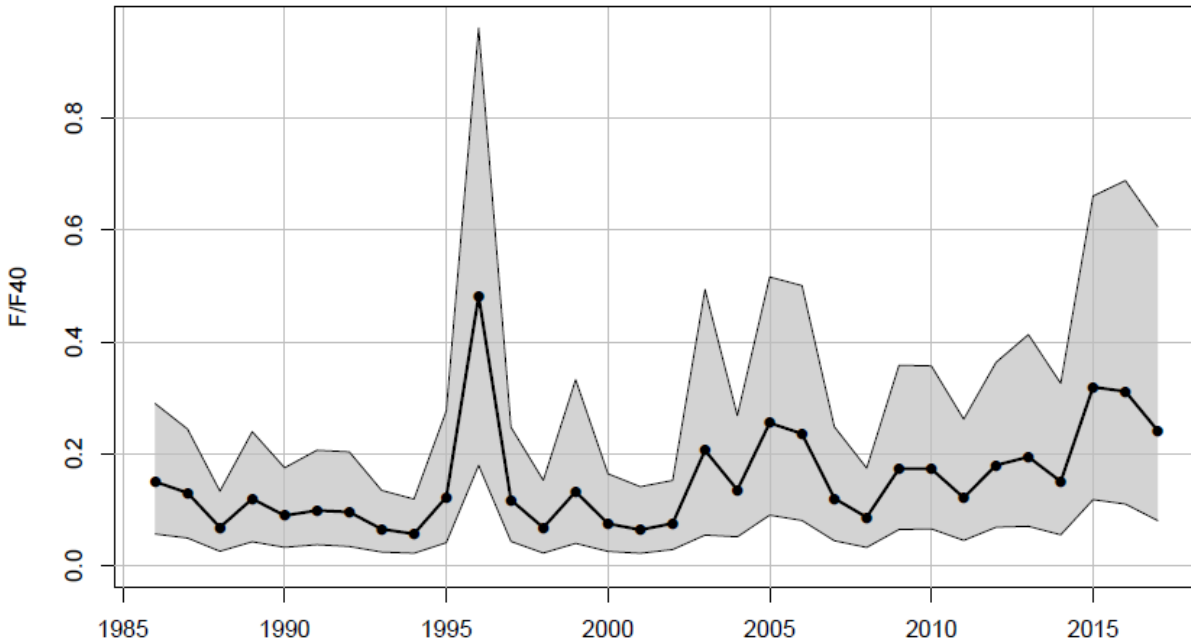
**Figure 2. Atlantic Cobia fishing mortality (F) relative to the F40 reference point from 1986-2017. (SEDAR, 2020)**



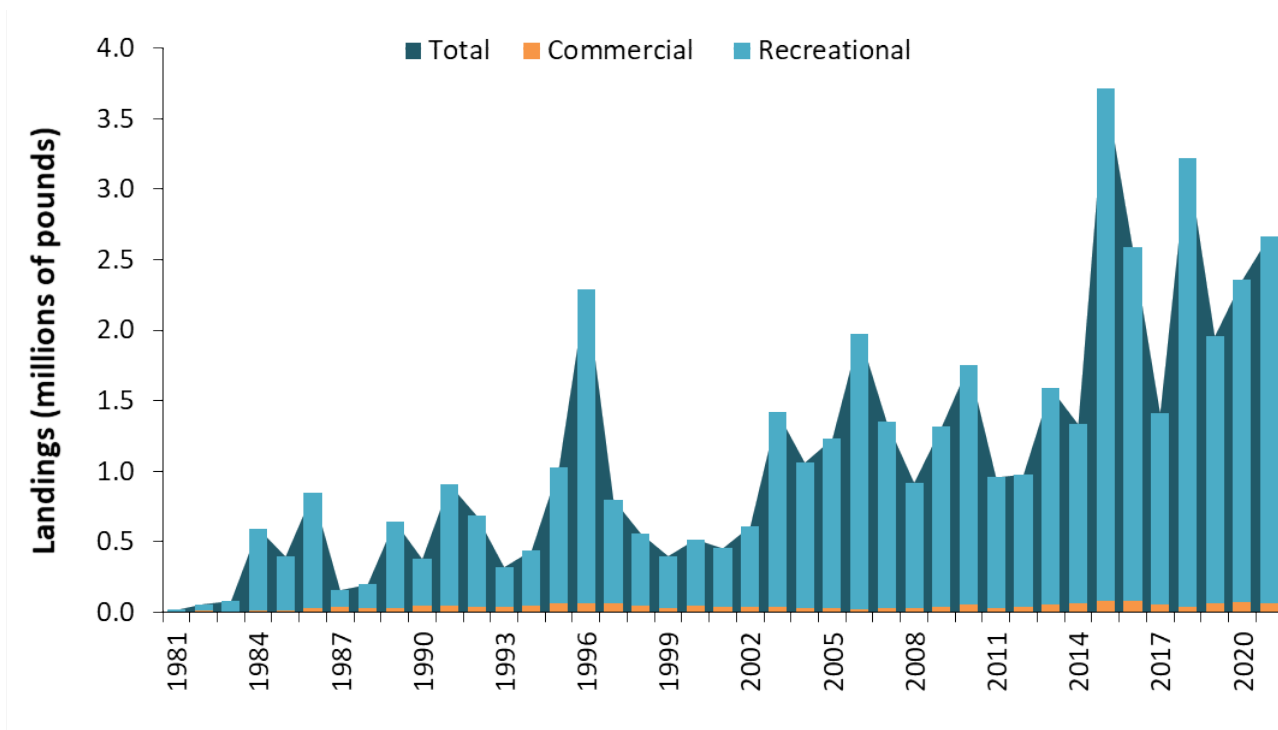
**Figure 3. Comparing spawning stock biomass from the current assessment (SEDAR 58) to the last assessment (SEDAR 28). (SEDAR, 2020)**



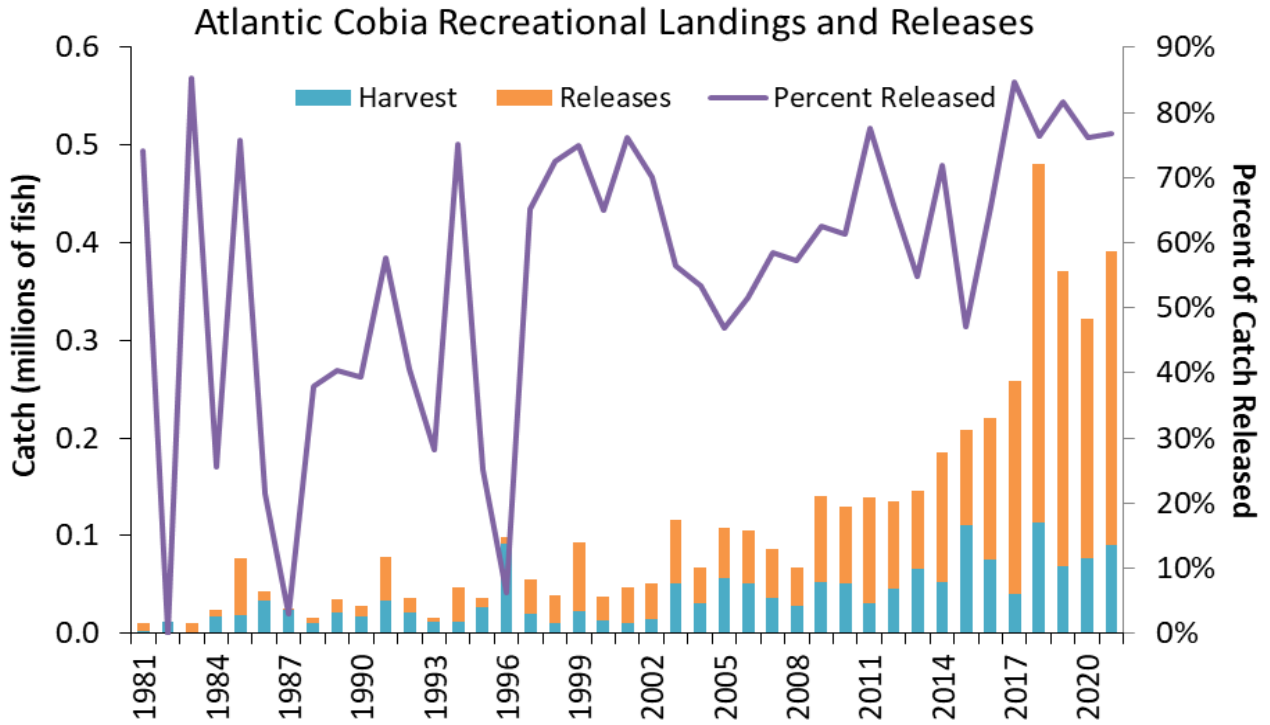
**Figure 4. Estimated time series of Spawning Stock Biomass (SSB) relative to the Minimum Stock Size Threshold (MSST) (SEDAR, 2020).**



**Figure 5. Estimated time series of Fishing Mortality (F) relative to F at Maximum Sustainable Yield (F<sub>40%</sub>) (SEDAR, 2020).**



**Figure 6. Commercial and recreational landings (pounds) of Atlantic cobia.** Recreational data not available prior to 1981. See Tables 2 and 3 for data sources and values from the last ten years.



**Figure 7. Recreational catch (harvest and live releases) of Atlantic cobia (numbers) and the proportion of catch that is released.** See Tables 4 and 5 for data sources and values from the last ten years.

**XI. Tables**

**Table 1. Atlantic cobia regulations for 2021.**

State	Recreational Measures	Commercial Measures
RI	<i>De minimis</i> Minimum Size: 37 in total length Vessel Limit: 1 fish per vessel Season: year-round	<u>Coastwide</u> Possession Limit: 2 fish per person Minimum Size: 33 in fork length or 37 in total length Vessel Limit: 6 fish
NJ	<i>De minimis</i> Minimum Size: 37 in total length Vessel Limit: 1 fish per vessel Season: year-round	If commercial fishing in state waters is closed, commercial fishing in federal waters will be recommended to mirror state closures
DE	<i>De minimis</i> <u>1/1/2021 through 9/10/2021</u> Minimum Size: 40 in total length Bag limit: 1 fish per person Vessel Limit: 3 fish per vessel Season: June 1-September 15  <u>New regulations effective 9/11/2021</u> Minimum Size: 37 in total length Bag Limit: 1 fish per vessel Vessel Limit: 1 fish per vessel	<u>Deviations</u> -Rhode Island possession limit is 2 fish per vessel -Virginia possession limit is per licensee rather than per person -North Carolina has 36 minimum fork length -No commercial harvest in South Carolina state waters -Georgia possession limit is 1 fish per person (not to exceed 6 per vessel) and minimum size is 36 in fork length
MD	<i>De minimis</i> Minimum Size: 40 in total length Bag Limit: 1 fish per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	
PRFC	Minimum Size: 40 in total length (only 1 fish over 50" per vessel) Bag limit: 1 per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	
VA	Minimum Size: 40 in total length (only 1 fish over 50" per vessel) Bag Limit: 1 fish per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	



NC	<p>Minimum Size: 36 in fork length          Bag Limit: 1 fish per person          Season: May 1-December 31  <u>Private Vessel Limit</u>          May 1- June 30: 2 fish          July 1-Dec 31: 1 fish</p> <p><u>For-Hire Vessel Limit</u>          May 1-Dec 31: 4 fish</p>	
SC	<p>Bag Limit: 1 fish per person          Minimum Size: 36 in fork length          Vessel Limit: 6 fish          Season: Open year-round</p> <p><u>Southern Cobia Management Zone:</u>          Minimum Size: 36 in FL          Season: June 1-April 30 (closed in May)          Bag Limit: 1 fish per person          Vessel Limit: 3 fish</p> <p>-If recreational fishing in federal waters is closed, recreational fishing in all SC state waters is also closed.</p>	
GA	<p>Bag Limit: 1 fish per person          Minimum Size: 36 in fork length          Vessel Limit: 6 fish          Season: March 1-October 31</p>	
<p><b>*Florida has a declared interest in the Atlantic Coastal Migratory Group, but their cobia fisheries are managed as part of the Gulf of Mexico Migratory Group due to cobia stock boundaries.</b></p>		

**Table 2. Commercial landings (pounds) of Atlantic cobia by state, 2012-2021.** (Sources: 2022 state compliance reports for 2021 fishing year; for years prior to 2021, personal communication with Atlantic Coastal Cooperative Statistics Program [ACCSP], Arlington, VA)

Year	CT*	RI	NY*	NJ	DE	MD	PRFC	VA	NC	SC	GA	Total
2012		217	152	699		C		5,382	31,972	3,359	C	C
2013		476	840	885	C	C		10,900	35,456	3,829	C	53,177
2014		C	311	359		C		21,255	41,798	3,492	C	68,076
2015		C	235	C		C		25,352	52,684	2,487	C	82,117
2016		183	114	282	C	C		29,459	48,244	4,064	C	83,583
2017		115	80	C	C	C		26,748	16,890	4,261	C	52,376
2018	C	290	388	707		C		21,355	16,578	2,723	C	42,711
2019		352	1,191	C	C	C	2,375	33,496	21,553	2,673	C	63,467
2020	C	844	5,183	851	C	C	378	27,768	38,344	1,588	C	75,303
2021	C	797	1,581	2,273		C	816	29,425	29,301	2,067	C	66,499

C: confidential landings.

\*CT and NY do not have a declared interest in Atlantic migratory cobia.

**Table 3. Recreational harvest (pounds) of Atlantic cobia by state, 2012-2021. Values shown are the new MRIP numbers.** (Sources: 2022 state compliance reports for 2021 fishing year; for years prior to 2021, personal communication with MRIP queried June 2022)

<b>Year</b>	<b>RI</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>Total</b>
<b>2012</b>			60,473			47,547	102,077	214,512	512,499	937,108
<b>2013</b>						488,181	980,541	24,005	43,915	1,536,642
<b>2014</b>						499,218	645,427	79,171	42,481	1,266,297
<b>2015</b>						1,166,000	1,925,762	434,899	102,917	3,629,578
<b>2016</b>					307	1,505,528	838,363	159,345		2,503,543
<b>2017</b>						488,287	872,861		390	1,361,538
<b>2018</b>				15,053	4,647	2,259,661	685,962	205,647	6,081	3,177,051
<b>2019</b>						1,573,485	254,963	64,937	1,632	1,895,017
<b>2020</b>					38,991	1,541,393	407,883	247,250	44,976	2,280,493
<b>2021</b>			6,060		131,129	1,722,619	356,340	217,129	170,356	2,603,633
<b>% Imputed Data 2020</b>					4%	78%	88%	7%	1%	

**Table 4. Recreational harvest (numbers of fish) of Atlantic cobia by state, 2012-2021. Values shown are the new MRIP numbers. (Sources: 2022 state compliance reports for 2021 fishing year; for years prior to 2021, personal communication with MRIP queried August 2022)**

Year	RI	NY	NJ	DE	MD	VA	NC	SC	GA	Total
2012			18,287			1,429	3,805	7,626	15,104	46,251
2013						24,145	37,617	1,580	2,638	65,980
2014						21,585	24,601	3,883	2,168	52,237
2015						38,672	47,110	15,575	8,934	110,291
2016					56	43,780	26,421	5,437		75,694
2017						14,613	25,025		19	39,657
2018				581	206	80,679	25,331	6,340	233	113,939
2019						55,770	10,090	2,381	72	68,313
2020					1,360	50,287	15,067	7,650	2,203	76,786
2021			250		5,084	57,135	10,970	8,858	8,510	90,807
<b>% Imputed Data 2020</b>										
					6%	76%	88%	8%	1%	

**Table 5. Recreational live releases (numbers of fish) of Atlantic cobia by state, 2012-2021.**  
**Values shown are the new MRIP numbers.** (Sources: 2022 state compliance reports for 2021 fishing year; for years prior to 2021, personal communication with MRIP queried August 2022)

<b>Year</b>	<b>RI</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>Total</b>
<b>2012</b>			178			17,184	66,567	4,404	383	88,716
<b>2013</b>						35,731	35,398	7,438	1,577	80,144
<b>2014</b>						58,092	32,184	42,811		133,087
<b>2015</b>			416			40,689	44,254	12,369	283	98,011
<b>2016</b>					1,075	81,482	39,237	20,255	2,917	144,966
<b>2017</b>						77,184	125,251	11,359	4,830	218,624
<b>2018</b>			2,879		12,090	194,865	68,219	71,020	18,056	367,129
<b>2019</b>			10,166	30	251	184,716	38,285	59,724	9,080	302,252
<b>2020</b>		2,979		564	8,233	146,913	51,158	23,384	15,091	245,343
<b>2021</b>				197	12,344	187,872	40,136	39,341	20,578	300,468
<b>% Imputed Data 2020</b>				0%	2%	74%	62%	1%	17%	