

NC Marine Fisheries Commission

# **False Albacore Information Paper Overview**

February 2023 Business Meeting

## **01** False Albacore Information Paper

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## False Albacore Information Paper Update

February 2, 2023

### I. ISSUE

Characterize life history, landings, prior management and regulations of false albacore.

### II. ORIGINATION

At its August 2022 business meeting the North Carolina Marine Fisheries Commission (NCMFC) requested staff update an information paper on false albacore to frame potential management options for future consideration.

### III. BACKGROUND

False albacore (*Euthynnus alletteratus*), also known as “little tunny”, is one of the most common members of the mackerel/tuna family Scombridae. It is a tuna-shaped fish that is steel blue on top and silver below with wavy stripes along the posterior portion of the dorsal side of the body and scattered dark spots below the pectoral fin. Anglers often confuse false albacore with Atlantic bonito (*Sarda sarda*) due to similarity in size and coloration. False albacore is typically found in tropical to temperate waters of the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea; it is also found in the Mediterranean and Black seas. False albacore is a schooling species that migrate north in the spring and south in the fall and winter (Collette and Nuan 1983). Both sexes are fast-growing, with males attaining larger sizes than females (Kerstetter and Adams 2014). There is variability in the life history of false albacore throughout their range and little work has been done in the western Atlantic. In the Gulf of Mexico, the length at 50 percent maturity ( $L_{50}$ ) for females and males is 13.6 inches fork length (FL) (Cruz-Castan et al. 2019) and off the Brazilian coast, fish as young as one year old are capable of spawning (Vieira et al. 2021). False albacore spawn April through November in the Atlantic Ocean (Collette and Nuan 1983). Most studies estimate the maximum age of false albacore at five years (Kersetter and Adams 2014; Vieira et al. 2021); however, Kahraman and Oray (2001) estimate maximum age up to nine years in Turkish waters.

False albacore has become a more popular and targeted fishery in recent years, especially for the recreational sector. Participants associated with the fishery have expressed concern over perceived increases in harvest and targeted trips of the species to both the state and federal level managers. Coastwide, there are no known commercial or recreational regulations currently in place to directly manage false albacore fisheries at the state or federal level. The information in this paper provides

background on North Carolina’s fishery relative to the coastwide stock should the NCMFC wish to continue discussions on managing the false albacore fishery in North Carolina.

### Description of the Fisheries

Though landings of false albacore have historically been low, over the last decade in North Carolina, and coastwide, false albacore landings have increased (Table 1; Figures 1–3). Trends in the North Carolina recreational and commercial fisheries are discussed below, as well as how North Carolina’s fisheries fit into the bigger coast-wide picture.

#### *Recreational Fishery*

Recreational catch of false albacore has been trending upward over the last decade (Table 1; Figures 1–2), as false albacore is a popular targeted species because of its strength and speed. The predominant gear for the recreational fishery is hook-and-line, and the most popular methods are either sight casting or trolling. While most fish are released alive, some recreational anglers use false albacore as bait (strip or live) for other fisheries such as shark, billfish, and wahoo; it is unknown how prevalent this practice is.

False albacore is caught year-round in state and federal (>3 miles) waters of North Carolina by recreational anglers. Most fish are caught in the fall and early winter, with landings and trips peaking in September and October (Figure 4). This trend is the same in both state and federal waters.

Since 1997, recreational catch (landings and releases) has primarily occurred on private vessels, whether anglers are fishing in state or federal waters. Private vessels still contribute to the majority of the total catch (on average 81% the last ten years), though catch from for-hire vessels has been increasing, especially since 2016 (Figure 5). While the catch of false albacore from shore-based modes (i.e., piers) has tended to be low and variable, catch from this mode has increased 462% over the last five years. Catch from the shore-based mode has been equal or surpassed that of the for-hire fleet six of the last ten years.

Trips targeting false albacore in North Carolina have been variable since 1997, with most trips occurring in state waters (Figure 6). After a low in 2012, total targeted trips have steadily increased. Over the last ten years, trips targeting false albacore have ranged from 3,500 in 2012 to 68,736 in 2020. In 2021, trips targeting false albacore declined sharply; while the reason for this is unknown, one possibility is that COVID-19 changed people’s behavior in 2020, and the number of trips is more of an outlier than a reflection of normal behavior.

Catch rates were calculated for North Carolina anglers from 2012 to 2021 (Table 2; Figure 7). Recreational anglers on average landed 0.4 fish per trip in state waters and 0.5 fish per trip in federal ocean waters. Anglers released 0.7 fish per trip state waters, and 0.3 fish per trip in federal ocean waters (Figure 7). Recreational landings per trip ranged from 0 to 12 fish and recreational releases ranged from 0 to 30 fish per trip (Table 2).

Even though targeted trips made in state waters far outweigh those in federal waters, a higher average percent of the recreational catch has historically occurred in federal waters in North Carolina (Figure 8). However, catch within state waters were similar in the early 2000s, and in the last ten years there has been a marked shift of more catch occurring in state waters. This shift has been driven primarily by an increase in recreational releases since 2012 (Table 1; Figure 9).

Recreational landings in North Carolina have been low but variable since 1997, though they have started to trend upwards since 2012 (Table 1; Figure 1). Landings have ranged from 3,098 fish (29,494 pounds) in 2007 to 92,899 fish (594,793 pounds) in 2020. In the last ten years, an average of 36,292 fish (264,229 pounds) have been landed in North Carolina. Landings from state waters have averaged 33% of the total false albacore harvest since 1997 compared to federal waters. Over the last ten years, landings from state waters have ranged from 9% in 2013 to 64% in 2020.

North Carolina's recreational landings of false albacore have accounted for approximately 6% of the coastwide recreational landings annually from 1997 to 2021 (Figure 2), though this percentage has been higher in recent years. From 2012 to 2021, recreational anglers in North Carolina harvested 10% of the coastwide recreational landings (Table 3; Figure 2) and 13% of the recreational landings in the South Atlantic (Figure 10). There have been two notable exceptions in the last ten years; in 2020, North Carolina's landings accounted for approximately 25% of coastwide recreational landings and less than 1% in 2021 (Table 3; Figure 2).

Recreational landings average 87% of the total false albacore coast-wide landings (recreational and commercial). Along the Atlantic coast (Massachusetts through the east coast of Florida), recreational landings of false albacore have increased since 2013, ranging from 1,573,975 pounds in 2008 to 5,513,333 pounds in 2015 (Figure 2). Since 2017, most recreationally harvested false albacore are landed in Florida, New Jersey, and North Carolina (Table 3). From 2012 to 2021, the South Atlantic region has accounted for most of the total coastwide harvest (Figure 11), with Florida accounting for the majority of the harvest in the South Atlantic region (Figure 10).

Since 1997, most of the fish caught by the recreational fishery in North Carolina have been released, ranging from a low of 60% in 1997 to a high of 97% in 2007 (Figure 9). Since 2012, recreational releases have accounted for approximately 76% of the catch in North Carolina. The number of fish released has ranged from 24,662 fish in 2003 to 273,165 fish in 2014. Since 1997, the average number of released false albacore has been approximately equal between state and federal waters, though slightly skewed towards more releases in federal waters. Since 2012, 59% of North Carolina's false albacore catch was released in state waters.

Like North Carolina, most of the coast-wide recreational catch has been live releases (Table 3). Over the last 25 years, North Carolina recreational releases have averaged 7% of the total number of fish released coastwide, though have accounted for up to 17% (Figure 12). While there are no release mortality estimates for false albacore, similar pelagic species have release mortalities ranging from 0 to 39%; but values are dependent on hook type, hooking location, angling/handling time, and water temperature (Bartholomew and Bohnsack 2005; Marcek and Graves 2014).

Lengths from the Marine Recreational Information Program (MRIP) show the observed mean length of false albacore landed has been variable over the last 25 years (Table 4). There is no evidence of size truncation in recent years, the size of fish landed is most likely indicative of what's available to the fishery. In 2021, average FL was 23 inches for the recreational fishery, and lengths ranged from 12–34 inches (Table 4; Figures 13). North Carolina has no data on the age of false albacore landed.

## *Commercial Fishery*

False albacore tend to have low commercial value in the United States; however, it is a commercially important species in many other countries and is sold fresh, dried, canned, smoked, and frozen. Along the Atlantic coast, false albacore is commercially landed with multiple gears, including longlines, gill nets, hook-and-line, and trolling. In North Carolina, false albacore is incidentally caught by commercial fishers pursuing other species and is mainly harvested by gill net and hook-and-line gear. Other gears including pound nets, longlines, seines, and trawls make up a small percentage of the total commercial landings. Much of the commercially caught fish in North Carolina are shipped out of state.

Like the recreational fishery, false albacore is caught year-round in state and federal waters by the North Carolina commercial fishery. However, most fish are caught in the late fall and winter with commercial landings peaking from November through February (Figure 14). This same trend is seen in both state and federal waters, for all gears that harvest false albacore.

Prior to 2015, commercial harvest in North Carolina primarily occurred in federal waters, averaging 55% of the total landings from 1997–2014 (Figure 15). Since 2015, harvest has shifted towards state waters, accounting for 61% of the total landings from 2015–2021 (Figure 15). This shift in landings from federal to state waters can be seen across all gears in North Carolina but is especially noticeable in the gill net and hook-and-line fisheries.

In North Carolina, commercial landings of false albacore averaged 158,303 pounds during 1997–2021, ranging from 77,798 in 2002 to 370,814 pounds in 1997 (Table 1; Figure 15). During 2012–2021, the average landings equaled 196,906 pounds, with several years during this time period over 210,000 pounds. Statewide, landings by gear have varied annually over the last 25 years (Table 5). Landings from gill nets averaged 94,128 pounds, hook-and-line averaged 58,920 pounds, and other gears averaged 4,952 pounds annually from 1997 to 2021. Landings from gill nets and hook-and-line have increased over the past 10 years with gill nets landing on average 110,228 pounds and hook-and-line landing 81,557 pounds of false albacore annually. Average landings from other gears declined to 4,301 pounds annually over this same time period.

Landings per trip of false albacore in North Carolina have been low but variable over the last 25-years, ranging from 55 to 132 pounds per trip. North Carolina commercial fishers averaged 102 pounds of false albacore per trip from 2012–2021, with most trips landing under 200 pounds (Table 6). Over the past 10 years, 60% of all commercial trips (state and federal waters) landing false albacore landed less than 50 pounds per trip. However, other gears (i.e., trawls, seines, longline etc.) can far exceed this trip average at times due to how the gears operate, but these account for less than 1% of trips. Overall, in North Carolina, the price per pound of false albacore has varied from \$0.16 in 1999 to \$1.01 in 2021 (Table 5).

Coastwide, commercial landings of false albacore have ranged from 435,198 pounds in 2021 to 626,361 pounds in 1997. From 2012 to 2021, 89% of commercial landings occurred in the South Atlantic region (North Carolina–east coast of Florida), 7% in the North Atlantic region (Massachusetts–Connecticut), and 4% in the Mid-Atlantic (New York–Virginia) (Figure 16). In the South Atlantic region from 2012 to 2021, Florida and North Carolina accounted for 56% and 43% of the commercial landings, respectively. Landings from South Carolina and Georgia only

make up one percent of the total landings in the South Atlantic (Figure 17). Coastwide, North Carolina has averaged approximately 35% of the total commercial catch over the last 25 years; though, its contribution has ranged from 18% in 2002 to 59% in 1997 (Figures 3 and 17). While there are no estimates of discards currently available for the commercial fishery, in recent years, discards are likely low due to the increase in the market value of this species.

The mean length of false albacore landed by the North Carolina commercial fishery has remained fairly consistent over the last 25 years and is similar to the mean length observed in the recreational fishery, which is further evidence of no size truncation (Table 4). Over this time period, lengths have ranged from 8 to 35 inches FL. In 2021, the average length was 23 inches FL for the commercial fishery and lengths ranged from 18 to 34 inches FL (Table 4; Figure 18). North Carolina has no data on the age of false albacore landed.

#### Stock Status and Current Management

A 2002 stock assessment of false albacore in the Gulf of Mexico found the stock was not overfished nor undergoing overfishing (Brooks 2002). However, little information exists on the status of the species in the South Atlantic, and as a result their status is considered unknown. Until 2011, false albacore was part of the South Atlantic Fishery Management Council's (SAFMC) Coastal Migratory Pelagics Fishery Management Plan (FMP). Although there were no management measures under the plan, data collection was an important component. Amendment 18 to the plan removed false albacore from the management unit since data would still be collected through current sampling regimes (SAFMC 2011). Based on data available at the time, false albacore did not appear to meet the federal national standard guidance for stocks in need of conservation and management. In North Carolina, false albacore was managed through NCMFC Rule 15A NCAC 03M .0512 (although no limits were put in place); however, authority to manage under this rule ended when the species was removed from SAFMC's Coastal Migratory Pelagics FMP and subsequently the NC Interjurisdictional FMP. At this time, there are no rules for management in place for false albacore in North Carolina. Additionally, the Mid-Atlantic Fishery Management Council (MAFMC) did not include false albacore in their Unmanaged Forage [fish] Amendment in 2016 because of their large size and higher trophic level (MAFMC 2017). At the August 2016 MAFMC meeting, council staff recommended the Council consider developing management actions for the species in the future (including a potential small tuna fishery management plan), due to high public concern for the species, particularly from the recreational sector. Management of false albacore through a small tunas FMP has not been pursued yet by a federal management body.

#### **IV. AUTHORITY**

North Carolina General Statutes

G.S. 113-134 RULES

G.S. 113-182 REGULATION OF FISHING AND FISHERIES

G.S. 143B-289.52 MARINE FISHERIES COMMISSION – POWERS AND DUTIES

#### **V. DISCUSSION**

Landings from both sectors have increased in state waters over the last 10 years; however, North Carolina accounts for a relatively small proportion of the overall coastwide landings. Additionally,



trends in the number of recreationally harvested and released fish have remained low and stable over this time period. Currently, there is not a targeted commercial fishery for false albacore in North Carolina. Due to the opportunistic nature of the fishery, commercial trips typically land less than 50 pounds per trip, with trips exceeding 500 pounds making up less than 5% of the total number of trips in state and federal waters. Additionally, there is no evidence of size truncation in the commercial and recreational fisheries and the vast majority of fish caught are well above the  $L_{50}$  (13.6 inches FL). While these trends do not indicate the need for immediate management, it would be prudent to continue to monitor landings and collect additional biological information for this species.

It may also be beneficial for the NCMFC to wait for guidance from the SAFMC before pursuing any state specific management action, since the majority of landings from the South Atlantic region occur outside North Carolina. In December 2022, a white paper was presented at the SAFMC business meeting that examined if false albacore meets the Magnuson Stevens Fishery Management and Conservation Act (Magnuson Stevens Act) criteria for a stock in need of conservation and management (50 C.F.R §600.305(c)(1)). The Magnuson Stevens Act criteria for a stock in need of conservation and management includes:

1. The stock is an important component of the marine environment.
2. The stock is caught by the fishery.
3. Whether an FMP can improve or maintain the condition of the stock.
4. The stock is a target of a fishery.
5. The stock is important to commercial, recreational, or subsistence users.
6. The fishery is important to the Nation or to the regional economy.
7. The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
8. The economic condition of a fishery and whether an FMP can produce more efficient utilization.
9. The needs of a developing fishery, and whether an FMP can foster orderly growth.
10. The extent to which the fishery is already adequately managed by states, by state/Federal programs, or by Federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law.

Following the presentation of the white paper, the Mackerel Cobia Committee directed Council staff to have the Mackerel Cobia Advisory Panel develop a fishery performance report for false albacore every three years. The report will include international landings as well as landings along the Atlantic coast in federal vs. state waters, catch per unit effort, and length distribution.

Currently there is no rule for false albacore, therefore implementation of any regulations would be dependent on rulemaking specific to this species, which would not be able to begin until the 2024-2025 rule-making cycle. It may be the most prudent management strategy available to the NCMFC, should they wish to pursue it, is to apply management measures to limit expansion of new and existing fisheries. Such management measures would be best applied to both the recreational and commercial sectors. These measures could potentially include trip, bag, and size limits. Due to the lack of a stock assessment, it is unknown what, if any, affect management may have on the growth

of the stock or on decreasing fishing effort. Since North Carolina is a small component of the overall landings, any savings to the stock may be minor.

As was discussed above, there is a lack of the life history data for this species in the western Atlantic which would be beneficial for informing any management decisions. Age and growth, sex and maturity, and tagging studies would help fill data gaps for false albacore in the western Atlantic. However, lack of funding at the state level makes these studies difficult to pursue. Currently, the American Saltwater Guides Association, in collaboration with Cornell University, the New England Aquarium and NOAA Fisheries, has started several studies with the aim of addressing some of the coast-wide data gaps, including stock structure and migration. It may be more beneficial at this time to focus on to addressing the data needs in North Carolina and coastwide to better inform future management. It may also be beneficial for the NCMFC to write a letter to the ASMFC expressing its concern for the species and request that a coastwide management plan be developed.

## VI. LITERATURE CITED

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## Tables

**Table 1.** Recreational harvest (number of fish landed and weight in pounds) and releases (number of fish) and commercial harvest (weight in pounds) of false albacore from North Carolina for the period 1997–2021. (Source: Marine Recreational Information Program and North Carolina Trip Ticket Program)

| Year    | Recreational |            | Landed  | Commercial  | Total       |
|---------|--------------|------------|---------|-------------|-------------|
|         | Numbers      |            |         | Weight (lb) | Weight (lb) |
|         | Landed       | # Released |         | Weight (lb) |             |
| 1997    | 31,787       | 48,106     | 222,310 | 370,814     | 593,124     |
| 1998    | 25,206       | 75,617     | 200,843 | 153,797     | 354,640     |
| 1999    | 15,895       | 77,885     | 90,008  | 143,359     | 233,367     |
| 2000    | 13,931       | 41,591     | 85,778  | 106,777     | 192,555     |
| 2001    | 8,702        | 78,516     | 53,955  | 98,352      | 152,307     |
| 2002    | 13,717       | 89,706     | 61,385  | 77,798      | 139,183     |
| 2003    | 12,294       | 24,662     | 79,071  | 86,568      | 165,639     |
| 2004    | 7,955        | 62,965     | 95,088  | 92,319      | 187,407     |
| 2005    | 6,937        | 68,636     | 69,868  | 88,741      | 158,609     |
| 2006    | 3,318        | 39,902     | 29,943  | 106,617     | 136,560     |
| 2007    | 3,098        | 115,324    | 29,494  | 134,666     | 164,160     |
| 2008    | 12,377       | 33,205     | 76,228  | 103,743     | 179,971     |
| 2009    | 17,018       | 83,454     | 139,432 | 146,088     | 285,520     |
| 2010    | 7,374        | 66,458     | 49,290  | 147,337     | 196,627     |
| 2011    | 7,807        | 30,347     | 55,290  | 131,549     | 186,839     |
| 2012    | 18,393       | 59,160     | 140,026 | 157,849     | 297,875     |
| 2013    | 28,669       | 108,149    | 218,471 | 189,746     | 408,217     |
| 2014    | 27,469       | 273,165    | 189,270 | 225,797     | 415,067     |
| 2015    | 22,854       | 87,239     | 207,889 | 164,853     | 372,742     |
| 2016    | 41,077       | 145,699    | 337,841 | 241,208     | 579,049     |
| 2017    | 39,214       | 119,647    | 334,363 | 216,557     | 550,920     |
| 2018    | 47,891       | 110,716    | 315,758 | 204,177     | 519,935     |
| 2019    | 27,359       | 80,204     | 185,093 | 232,879     | 417,972     |
| 2020    | 92,899       | 171,562    | 594,793 | 230,685     | 825,478     |
| 2021    | 17,095       | 52,787     | 118,784 | 105,306     | 224,090     |
| Average | 22,013       | 85,788     | 159,211 | 158,303     | 317,514     |

Table 2. Maximum, minimum, and average, recreational landings and release rates (numbers per trip) in North Carolina by area, 2012-2021. (Source: Marine Recreational Information Program)

| Year | Area    | Landings |         |         | Releases |         |         |
|------|---------|----------|---------|---------|----------|---------|---------|
|      |         | Average  | Minimum | Maximum | Average  | Minimum | Maximum |
| 2012 | State   | 0.1      | 0.0     | 1.0     | 0.7      | 0.5     | 6.3     |
|      | Federal | 0.7      | 0.0     | 12.0    | 0.6      | 0.0     | 18.0    |
| 2013 | State   | 0.1      | 0.0     | 0.5     | 1.0      | 0.0     | 5.0     |
|      | Federal | 0.4      | 0.0     | 3.0     | 0.4      | 0.0     | 11.5    |
| 2014 | State   | 0.3      | 0.0     | 2.0     | 0.6      | 0.0     | 10.0    |
|      | Federal | 0.5      | 0.0     | 6.0     | 0.2      | 0.0     | 12.5    |
| 2015 | State   | 0.6      | 0.0     | 4.3     | 0.6      | 0.0     | 15.0    |
|      | Federal | 0.4      | 0.0     | 3.7     | 0.3      | 0.0     | 4.0     |
| 2016 | State   | 0.4      | 0.0     | 9.0     | 0.6      | 0.0     | 6.0     |
|      | Federal | 0.4      | 0.0     | 4.8     | 0.1      | 0.0     | 7.5     |
| 2017 | State   | 0.3      | 0.0     | 5.0     | 0.9      | 0.0     | 15.0    |
|      | Federal | 0.4      | 0.0     | 6.0     | 0.5      | 0.0     | 25.0    |
| 2018 | State   | 0.5      | 0.0     | 4.0     | 0.7      | 0.0     | 8.0     |
|      | Federal | 0.7      | 0.0     | 8.3     | 0.2      | 0.0     | 10.0    |
| 2019 | State   | 0.8      | 0.0     | 10.5    | 0.5      | 0.0     | 10.0    |
|      | Federal | 0.5      | 0.0     | 5.5     | 0.3      | 0.0     | 13.3    |
| 2020 | State   | 0.8      | 0.0     | 7.0     | 0.4      | 0.0     | 5.0     |
|      | Federal | 0.8      | 0.0     | 9.0     | 0.3      | 0.0     | 30.0    |
| 2021 | State   | 0.5      | 0.0     | 6.0     | 0.8      | 0.0     | 12.0    |
|      | Federal | 0.5      | 0.0     | 7.0     | 0.1      | 0.0     | 2.0     |

Table 3. Coastwide recreational landings and releases (numbers of fish) by state, 2012-2021. (Source: Marine Recreational Information Program)

**Landings**

| State                 | 2012           | 2013           | 2014           | 2015           | 2016           | 2017           | 2018           | 2019           | 2020           | 2021           |
|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Massachusetts         | 3,124          | 2,758          | 13,398         | 34,207         | 66,738         | 0              | 4,397          | 38,224         | 1,318          | 2,364          |
| Rhode Island          | 14,361         | 0              | 149            | 19,366         | 2,520          | 13,442         | 8,003          | 1,383          | 17,518         | 9,107          |
| Connecticut           | 987            | 0              | 1,809          | 0              | 382            | 14,078         | 3,335          | 968            | 5              | 1,090          |
| New York              | 0              | 0              | 1,198          | 220            | 1,103          | 13,046         | 5,918          | 25,454         | 2,346          | 97             |
| New Jersey            | 17,447         | 53,110         | 15,262         | 101            | 12,536         | 76,576         | 127,696        | 9,576          | 3,110          | 25,714         |
| Delaware              | 7              | 0              | 0              | 0              | 0              | 0              | 7              | 192            | 36             | 1,971          |
| Maryland              | 101            | 0              | 352            | 0              | 51             | 1,490          | 34             | 678            | 6,356          | 1,723          |
| Virginia              | 18,053         | 0              | 0              | 3,075          | 558            | 2,369          | 1,128          | 3,014          | 3,245          | 1,234          |
| <b>North Carolina</b> | <b>18,393</b>  | <b>28,669</b>  | <b>27,468</b>  | <b>22,854</b>  | <b>41,076</b>  | <b>39,213</b>  | <b>47,891</b>  | <b>27,359</b>  | <b>92,899</b>  | <b>17,096</b>  |
| South Carolina        | 195            | 0              | 0              | 1,330          | 0              | 3,941          | 2,941          | 6,083          | 4,424          | 10,154         |
| Georgia               | 16             | 2,592          | 18             | 0              | 0              | 2,624          | 398            | 22             | 7              | 988            |
| Florida               | 274,300        | 501,991        | 445,608        | 515,654        | 392,845        | 338,322        | 382,789        | 178,805        | 239,692        | 383,010        |
| <b>Grand Total</b>    | <b>346,984</b> | <b>589,120</b> | <b>505,262</b> | <b>596,807</b> | <b>517,809</b> | <b>505,101</b> | <b>584,537</b> | <b>291,758</b> | <b>370,956</b> | <b>454,548</b> |

**Releases**

| State                 | 2012             | 2013             | 2014             | 2015             | 2016             | 2017             | 2018             | 2019           | 2020           | 2021             |
|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|------------------|
| Massachusetts         | 24,074           | 26,143           | 981,784          | 88,853           | 733,492          | 137,285          | 61,491           | 89,111         | 97,230         | 77,848           |
| Rhode Island          | 73,202           | 0                | 35,561           | 67,002           | 32,822           | 97,836           | 121,158          | 43,402         | 72,320         | 27,147           |
| Connecticut           | 104,921          | 0                | 16,845           | 2,709            | 44,515           | 49,874           | 157,862          | 20,331         | 12,018         | 140,874          |
| New York              | 9,519            | 147,757          | 134,427          | 23,351           | 61,152           | 121,670          | 177,470          | 230,128        | 88,742         | 24,826           |
| New Jersey            | 221,554          | 32,630           | 77,169           | 32,487           | 30,453           | 164,268          | 390,112          | 64,988         | 205,650        | 169,576          |
| Delaware              | 7                | 164              | 1,933            | 0                | 0                | 0                | 499              | 0              | 0              | 1,750            |
| Maryland              | 0                | 0                | 821              | 0                | 524              | 0                | 140              | 185            | 14,040         | 0                |
| Virginia              | 0                | 13,593           | 0                | 0                | 16               | 0                | 2,544            | 1,764          | 1,679          | 789              |
| <b>North Carolina</b> | <b>59,160</b>    | <b>108,149</b>   | <b>273,165</b>   | <b>87,239</b>    | <b>145,700</b>   | <b>119,648</b>   | <b>110,716</b>   | <b>80,205</b>  | <b>171,564</b> | <b>52,788</b>    |
| South Carolina        | 0                | 0                | 0                | 0                | 25,161           | 13,557           | 19,157           | 3,720          | 986            | 1,582            |
| Georgia               | 3,061            | 6,084            | 0                | 0                | 0                | 0                | 0                | 3,421          | 0              | 0                |
| Florida               | 905,062          | 1,036,042        | 822,970          | 995,996          | 719,427          | 803,117          | 763,865          | 441,820        | 334,635        | 674,718          |
| <b>Grand Total</b>    | <b>1,400,560</b> | <b>1,370,562</b> | <b>2,344,675</b> | <b>1,297,637</b> | <b>1,793,262</b> | <b>1,507,255</b> | <b>1,805,014</b> | <b>979,075</b> | <b>998,864</b> | <b>1,171,898</b> |

Table 4. Mean, minimum, and maximum fork length (inches) of fish caught in North Carolina’s recreational and commercial fisheries, 1997-2021. (Source: Marine Recreational Information Program and division fish house sampling data)

| Year | Recreational            |                               |                               | Commercial              |                               |                               |
|------|-------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------------|-------------------------------|
|      | Mean Length<br>(inches) | Minimum<br>Length<br>(inches) | Maximum<br>Length<br>(inches) | Mean Length<br>(inches) | Minimum<br>Length<br>(inches) | Maximum<br>Length<br>(inches) |
| 1997 | 22.4                    | 12.0                          | 35.0                          | 25.1                    | 22.4                          | 29.8                          |
| 1998 | 24.1                    | 9.0                           | 29.0                          | 24.5                    | 22.4                          | 26.5                          |
| 1999 | 21.6                    | 12.0                          | 29.0                          | 24.8                    | 20.5                          | 31.2                          |
| 2000 | 22.9                    | 13.0                          | 29.0                          | 23.8                    | 16.5                          | 28.7                          |
| 2001 | 24.0                    | 16.0                          | 30.0                          | 24.2                    | 12.2                          | 31.2                          |
| 2002 | 19.9                    | 12.0                          | 29.0                          | 25.0                    | 20.8                          | 28.9                          |
| 2003 | 23.5                    | 12.0                          | 29.0                          | 24.0                    | 18.9                          | 29.4                          |
| 2004 | 27.3                    | 21.0                          | 30.0                          | 25.3                    | 21.4                          | 29.9                          |
| 2005 | 28.0                    | 22.0                          | 33.0                          | 24.3                    | 14.1                          | 30.1                          |
| 2006 | 25.0                    | 20.0                          | 32.0                          | 25.1                    | 14.7                          | 30.3                          |
| 2007 | 25.7                    | 20.0                          | 31.0                          | 24.5                    | 7.8                           | 30.7                          |
| 2008 | 21.3                    | 14.0                          | 32.0                          | 23.4                    | 16.5                          | 32.2                          |
| 2009 | 23.3                    | 18.0                          | 33.0                          | 23.6                    | 13.0                          | 33.3                          |
| 2010 | 21.8                    | 13.0                          | 35.0                          | 22.7                    | 15.4                          | 31.7                          |
| 2011 | 21.8                    | 10.0                          | 34.0                          | 25.1                    | 13.6                          | 34.1                          |
| 2012 | 23.2                    | 13.0                          | 33.0                          | 21.6                    | 12.6                          | 31.6                          |
| 2013 | 23.4                    | 13.0                          | 32.0                          | 24.2                    | 14.2                          | 32.3                          |
| 2014 | 22.2                    | 12.0                          | 36.0                          | 23.9                    | 12.0                          | 32.5                          |
| 2015 | 24.3                    | 16.0                          | 34.0                          | 24.1                    | 17.2                          | 32.8                          |
| 2016 | 23.7                    | 11.0                          | 33.0                          | 23.2                    | 16.2                          | 34.6                          |
| 2017 | 24.0                    | 14.0                          | 33.0                          | 22.8                    | 10.6                          | 33.7                          |
| 2018 | 21.8                    | 8.0                           | 34.0                          | 24.2                    | 19.0                          | 32.6                          |
| 2019 | 22.3                    | 12.0                          | 34.0                          | 23.7                    | 16.0                          | 34.1                          |
| 2020 | 22.4                    | 13.0                          | 35.0                          | 22.8                    | 18.8                          | 34.3                          |
| 2021 | 22.9                    | 12.0                          | 34.0                          | 22.5                    | 18.3                          | 34.2                          |

Table 5. North Carolina commercial landings in pounds by gear and value, 1997-2021. (Source: North Carolina Trip Ticket Program)

| Year | Gear      |             |        | Total   | Value     | Price/Pound |
|------|-----------|-------------|--------|---------|-----------|-------------|
|      | Gill Nets | Hook & Line | Other* |         |           |             |
| 1997 | 338,260   | 23,981      | 8,574  | 370,814 | \$80,901  | \$0.22      |
| 1998 | 122,849   | 26,273      | 4,676  | 153,797 | \$42,981  | \$0.28      |
| 1999 | 111,193   | 30,973      | 1,193  | 143,359 | \$23,318  | \$0.16      |
| 2000 | 81,908    | 20,415      | 4,455  | 106,777 | \$18,590  | \$0.17      |
| 2001 | 65,787    | 26,422      | 6,144  | 98,352  | \$18,154  | \$0.18      |
| 2002 | 54,457    | 18,709      | 4,632  | 77,798  | \$15,685  | \$0.20      |
| 2003 | 50,419    | 22,372      | 13,777 | 86,568  | \$16,172  | \$0.19      |
| 2004 | 58,294    | 27,580      | 6,444  | 92,319  | \$15,496  | \$0.17      |
| 2005 | 55,284    | 29,682      | 3,775  | 88,741  | \$24,183  | \$0.27      |
| 2006 | 60,062    | 44,887      | 1,668  | 106,617 | \$35,703  | \$0.33      |
| 2007 | 63,996    | 69,110      | 1,560  | 134,666 | \$48,745  | \$0.36      |
| 2008 | 35,346    | 66,794      | 1,603  | 103,743 | \$40,280  | \$0.39      |
| 2009 | 56,584    | 84,496      | 5,008  | 146,088 | \$61,559  | \$0.42      |
| 2010 | 54,129    | 88,131      | 5,077  | 147,337 | \$76,491  | \$0.52      |
| 2011 | 41,755    | 77,602      | 12,193 | 131,549 | \$66,986  | \$0.51      |
| 2012 | 85,009    | 71,003      | 1,837  | 157,849 | \$89,798  | \$0.57      |
| 2013 | 81,426    | 100,885     | 7,435  | 189,746 | \$114,416 | \$0.60      |
| 2014 | 101,489   | 123,707     | 601    | 225,797 | \$107,605 | \$0.48      |
| 2015 | 91,795    | 71,473      | 1,696  | 164,964 | \$85,493  | \$0.52      |
| 2016 | 130,824   | 76,301      | 26,376 | 233,501 | \$110,271 | \$0.47      |
| 2017 | 124,697   | 89,529      | 2,331  | 216,557 | \$112,474 | \$0.52      |
| 2018 | 97,303    | 106,212     | 662    | 204,177 | \$127,204 | \$0.62      |
| 2019 | 153,176   | 78,848      | 854    | 232,879 | \$132,982 | \$0.57      |
| 2020 | 171,089   | 58,691      | 905    | 230,685 | \$193,782 | \$0.84      |
| 2021 | 66,075    | 38,919      | 312    | 105,306 | \$106,813 | \$1.01      |

\*Other gear includes pound nets, longlines, trawls, and seines



Table 6. North Carolina commercial false albacore percent harvest (pounds per trip), based on daily landings and gear, 2012–2021. Note: Longline and other gears not shown due to data confidentiality. (Source: North Carolina Trip Ticket Program)

| Pounds per trip | State    |             |           | Federal  |             |           | Overall  |             |           |
|-----------------|----------|-------------|-----------|----------|-------------|-----------|----------|-------------|-----------|
|                 | Gill Net | Hook & Line | All Gears | Gill Net | Hook & Line | All Gears | Gill Net | Hook & Line | All Gears |
| <50             | 62%      | 48%         | 59%       | 65%      | 58%         | 60%       | 63%      | 56%         | 60%       |
| 51-100          | 17%      | 27%         | 18%       | 16%      | 20%         | 18%       | 16%      | 21%         | 18%       |
| 101-150         | 7%       | 9%          | 7%        | 6%       | 9%          | 8%        | 7%       | 9%          | 8%        |
| 151-200         | 3%       | 6%          | 4%        | 3%       | 5%          | 5%        | 3%       | 5%          | 4%        |
| 201-300         | 4%       | 4%          | 4%        | 4%       | 5%          | 5%        | 4%       | 5%          | 5%        |
| 301-400         | 1%       | 2%          | 2%        | 2%       | 2%          | 2%        | 1%       | 2%          | 2%        |
| 400-500         | 1%       | 1%          | 1%        | 2%       | 1%          | 1%        | 1%       | 1%          | 1%        |
| 500-1,000       | 2%       | 2%          | 2%        | 2%       | 1%          | 1%        | 2%       | 1%          | 2%        |
| >1,000          | 1%       | 1%          | 1%        | 1%       | 0%          | 1%        | 1%       | 0%          | 1%        |

## Figures

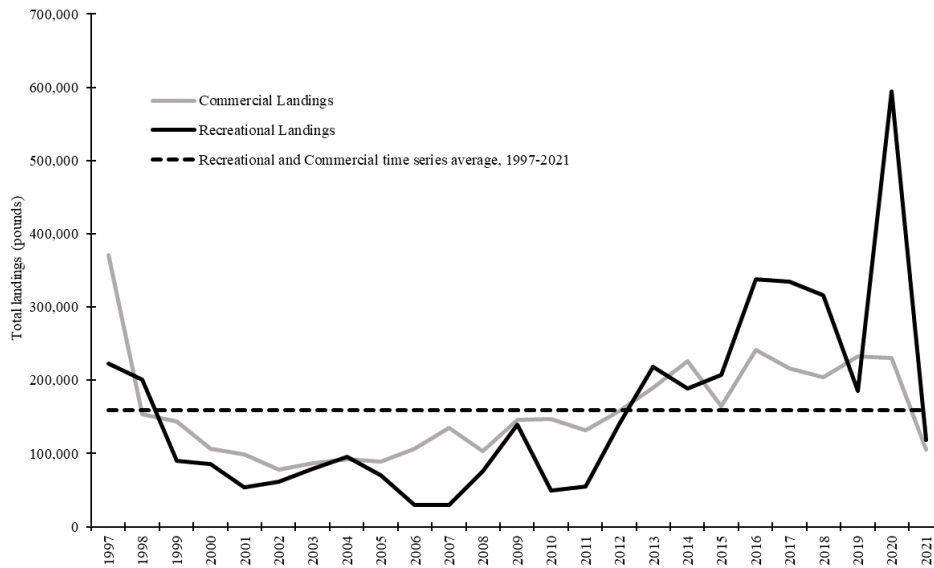


Figure 1. North Carolina commercial and recreational false albacore landings (pounds), 1997-2021. Note: The time series average for both sectors is similar and therefore presented as one line on the figure (Recreational average: 159,211 pounds; Commercial average: 158,303 pounds). (Source: North Carolina Trip Ticket Program and Marine Recreational Information Program)

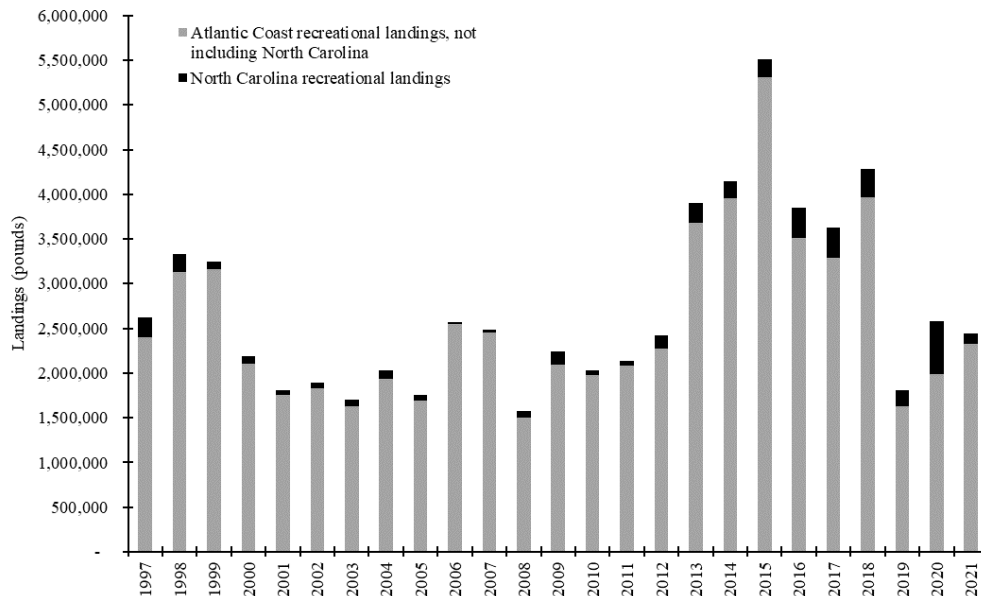


Figure 2. Coastwide and North Carolina recreational false albacore landings (pounds), 1997-2021. (Source: Marine Recreational Information Program)

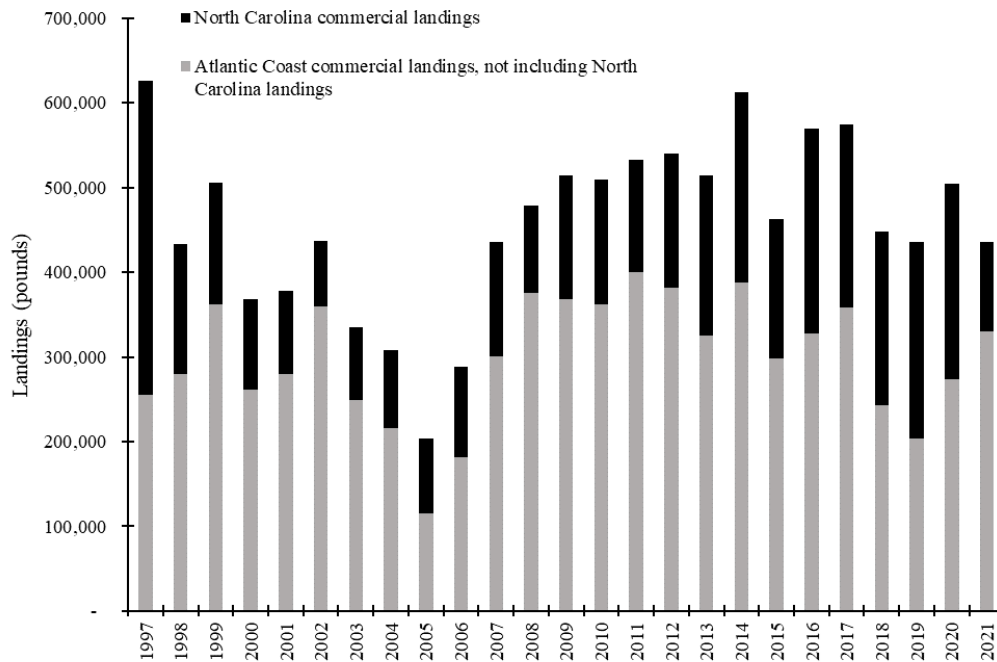


Figure 3. Coastwide and North Carolina commercial false albacore landings (pounds), 1997-2021. (Source: Atlantic Coastal Cooperative Statistics Program and North Carolina Trip Ticket Program)

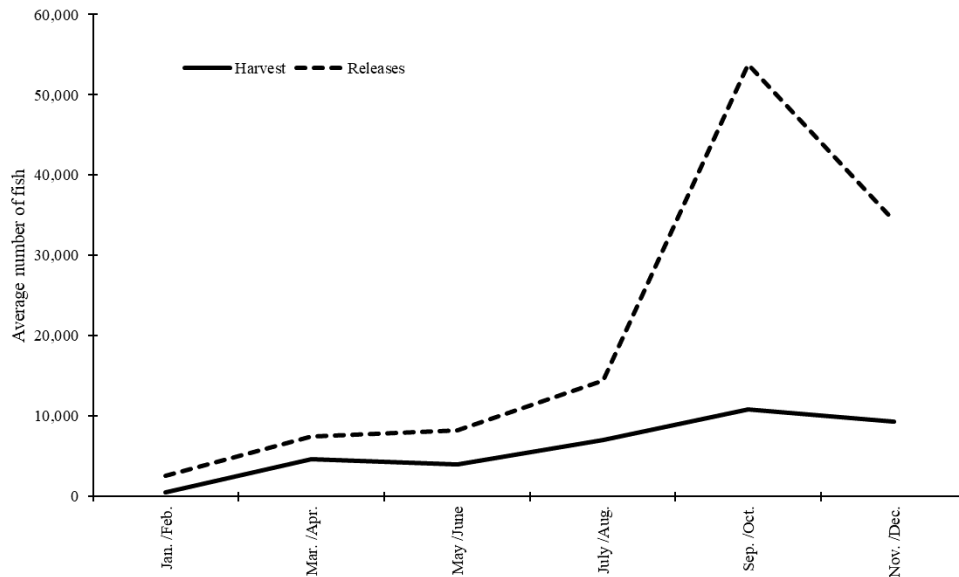


Figure 4. Average North Carolina recreational false albacore landings (numbers) by sampling period (wave), 2012-2021. (Source: Marine Recreational Information Program)

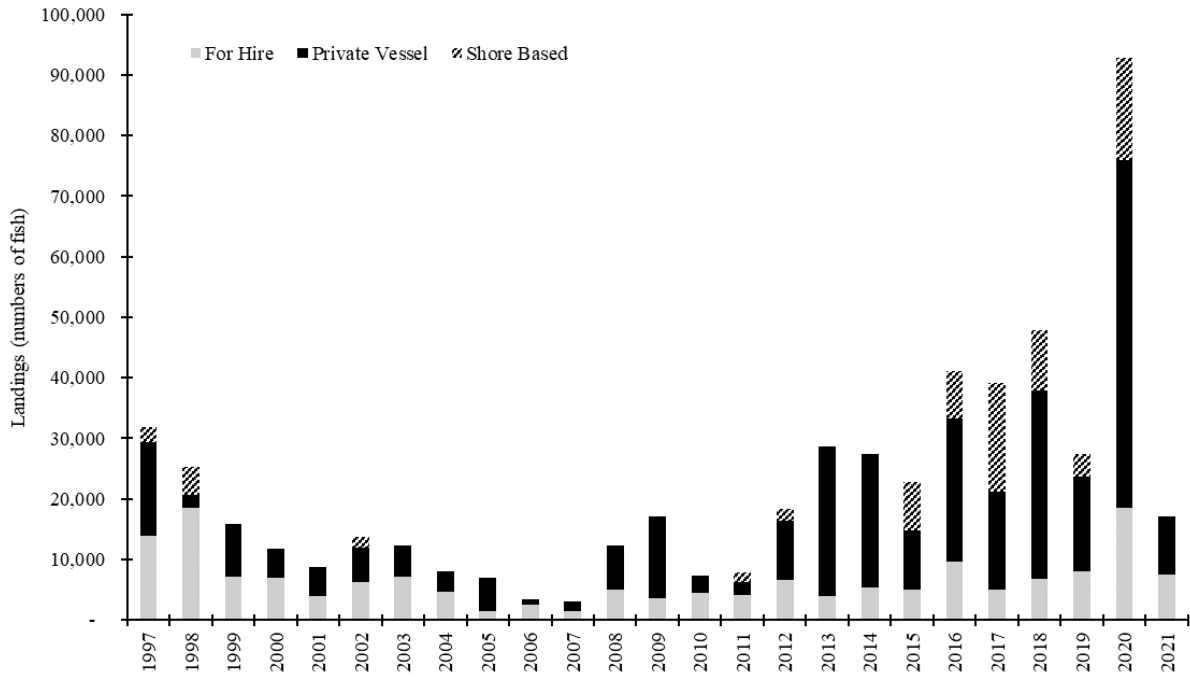


Figure 5. North Carolina recreational harvest (numbers) by fishing mode, 1997-2021. (Source: Marine Recreational Information Program).

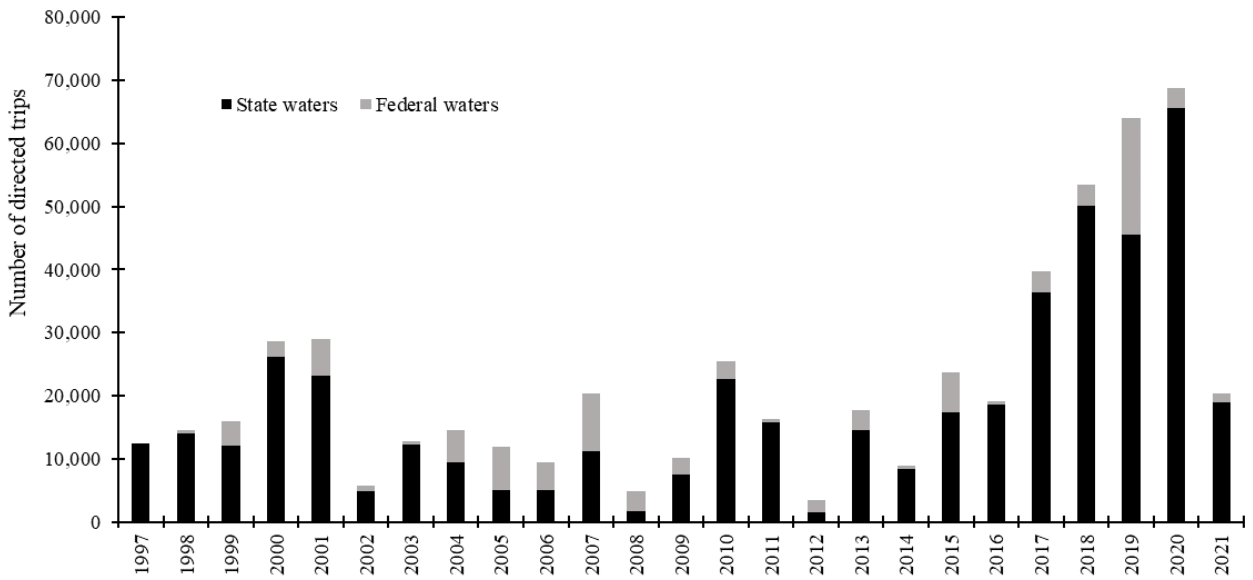


Figure 6. Directed recreational trips in North Carolina in state (0-3 miles) and federal waters (>3 miles), 1997-2021. (Source: Marine Recreational Information Program)

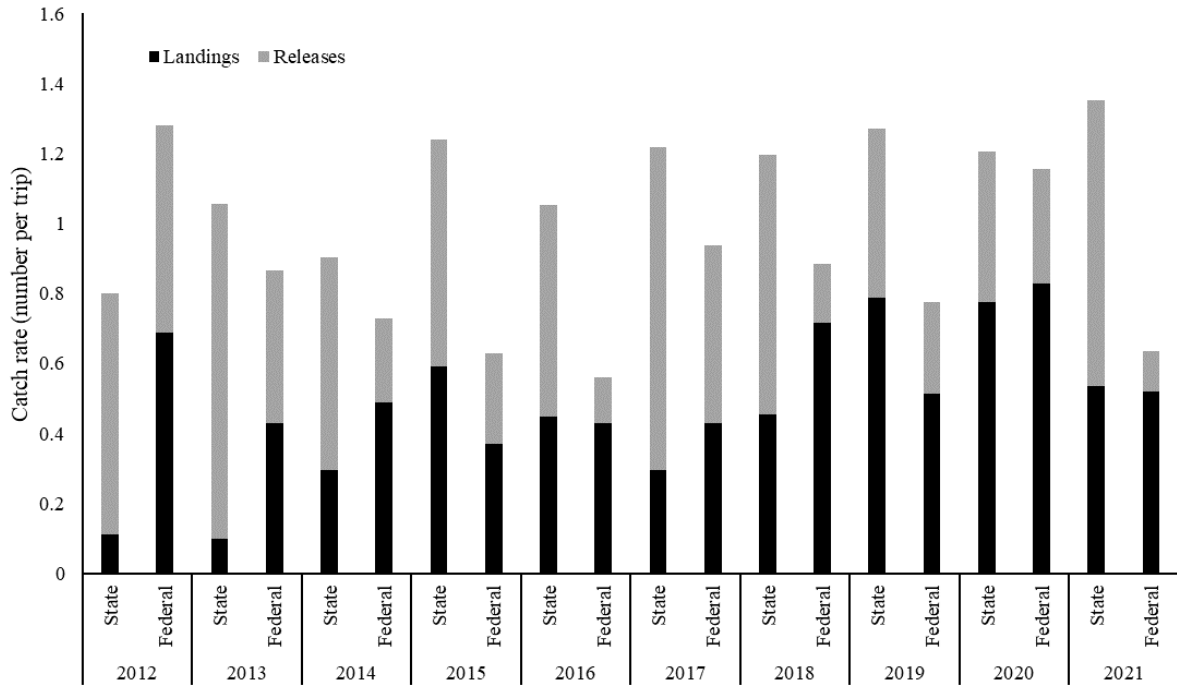
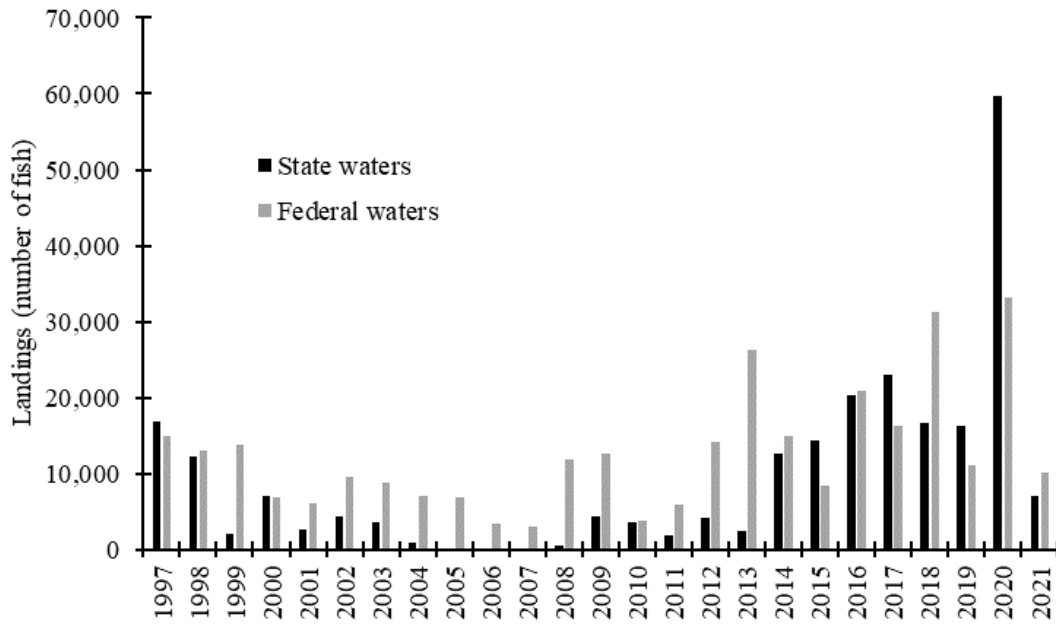
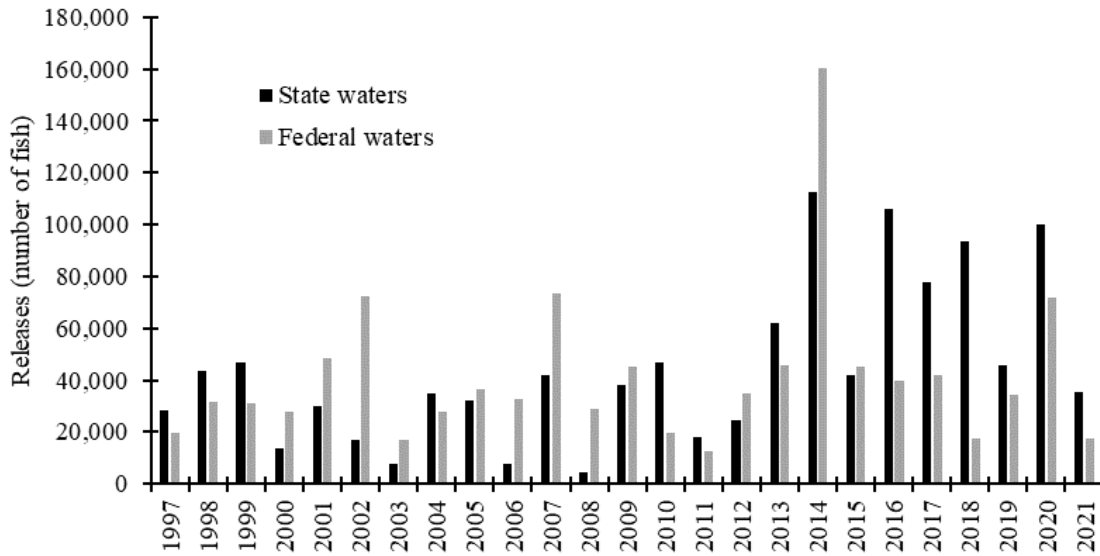


Figure 7. North Carolina recreational catch and release rate (numbers per trip) by area as defined by MRIP, 2012-2021. (Source: Marine Recreational Information Program)



A



B

Figure 8. North Carolina recreational false albacore harvest (A, numbers) and releases (B, numbers) by water classification, 1997-2021. (Source: Marine Recreational Information Program)



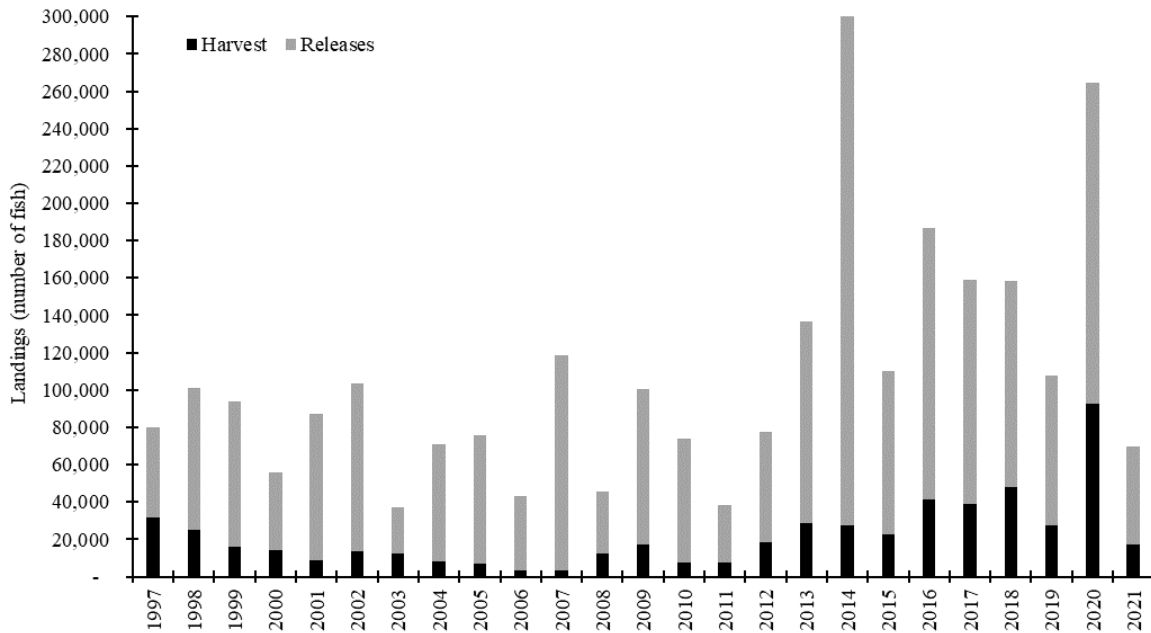


Figure 9. North Carolina recreational false albacore landings (numbers, MRIP), 1997-2021. (Source: Marine Recreational Information Program)

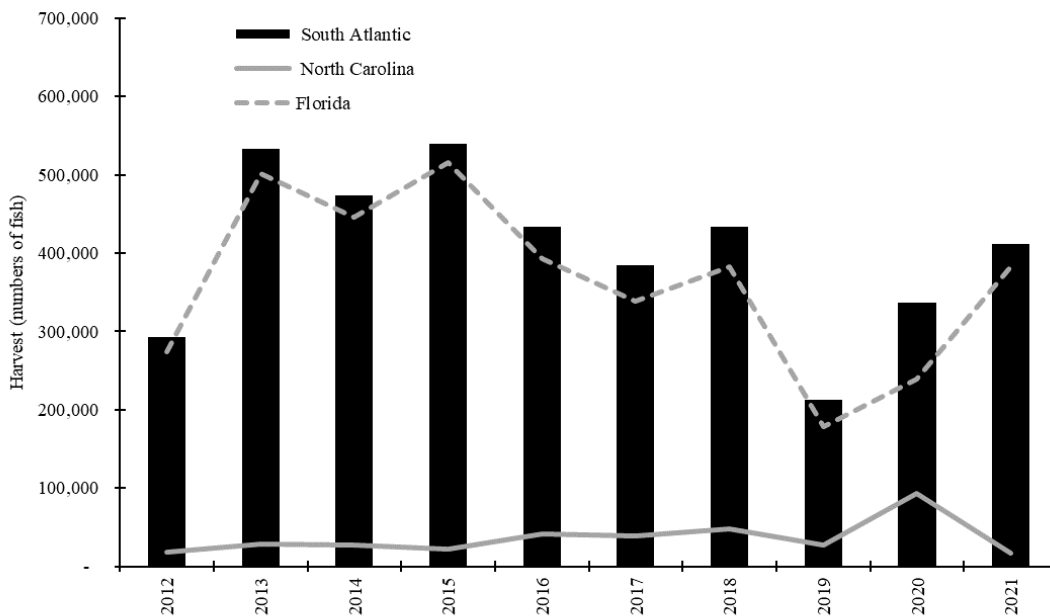


Figure 10. South Atlantic recreational harvest (numbers) by state, 2012-2021. (Source: Marine Recreational Information Program)

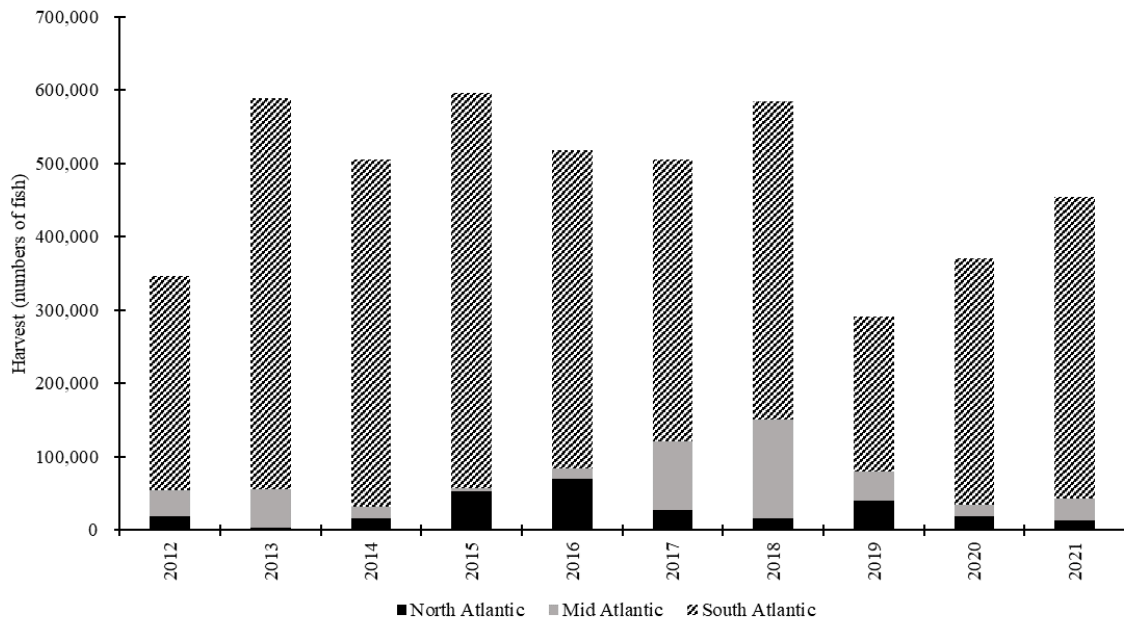


Figure 11. Coastwide recreational harvest (MRIP) numbers by region, 2012-2021. (Source: Marine Recreational Information Program)

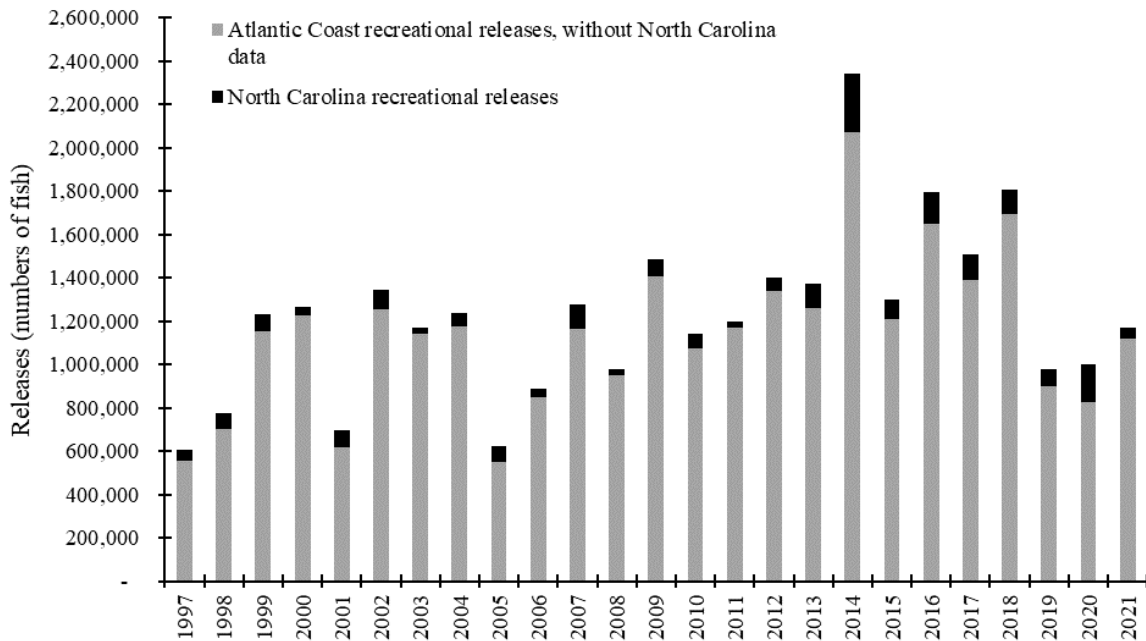


Figure 12. Coastwide and North Carolina recreational false albacore releases (numbers of fish), 1997-2021. (Source: Marine Recreational Information Program)

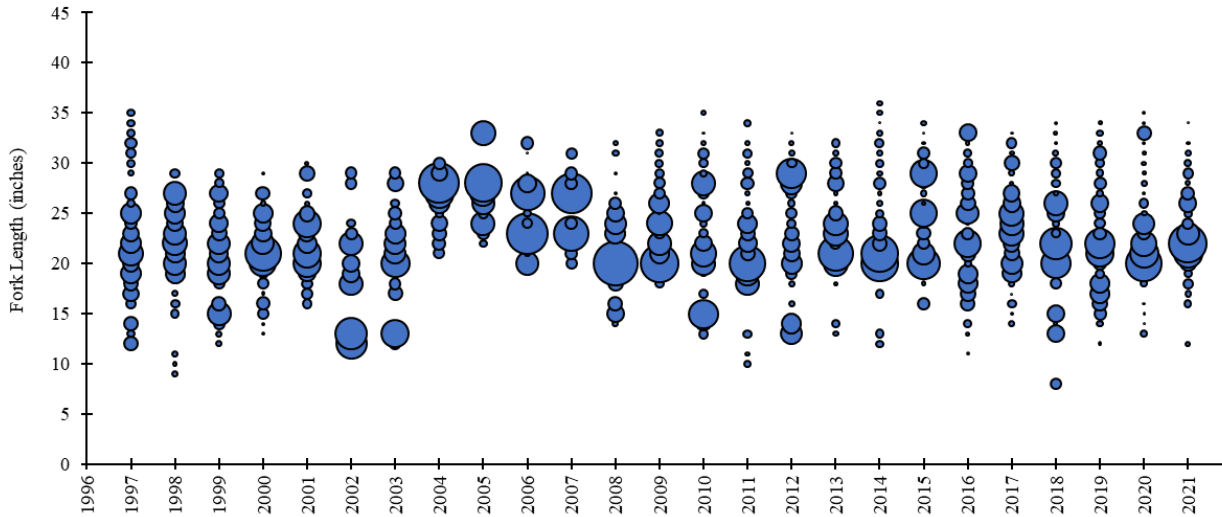


Figure 13. Recreational length frequency (fork length, inches) of harvested false albacore harvested, 1997-2021. Bubbles represent fish harvested at length and the size of the bubble is equal to the proportion of fish at that length.

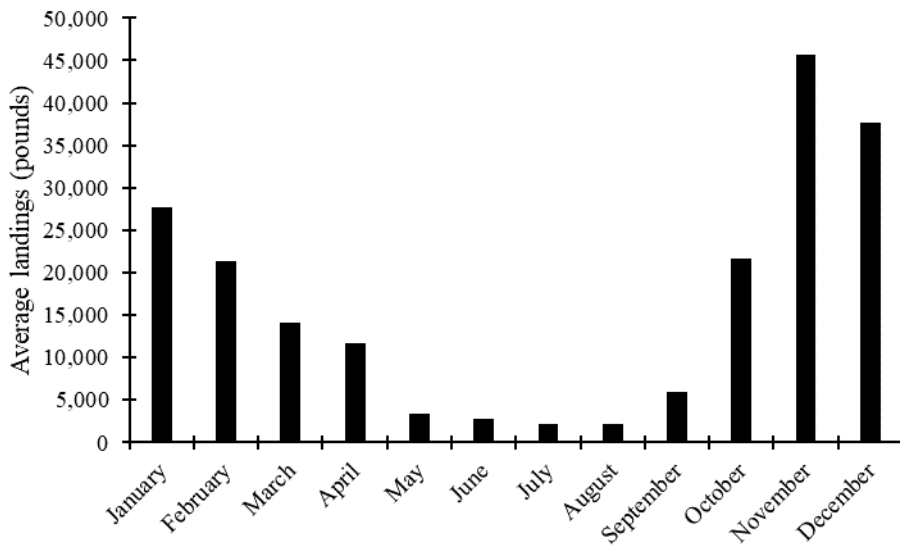


Figure 14. Average North Carolina commercial landings by month, 2012-2021. (Source: North Carolina Trip Ticket Program)

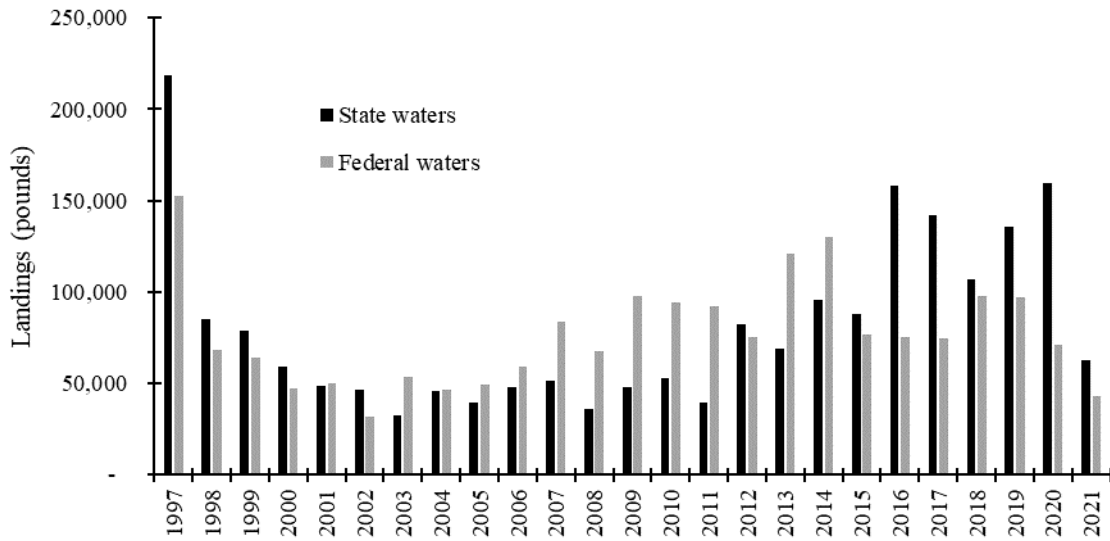


Figure 15. North Carolina commercial false albacore landings (pounds) by state (0-3 miles) and federal waters (>3 miles), 1997-2021. (Source: North Carolina Trip Ticket Program)

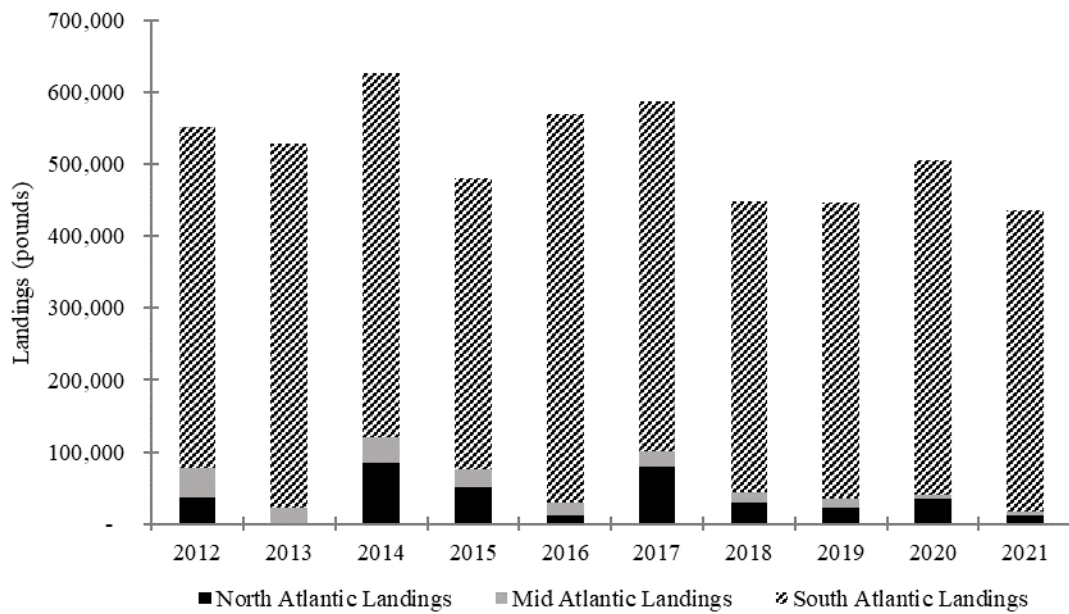


Figure 16. Coastwide commercial landings (pounds) by subregion, 2011-2021. (Source: Atlantic Coastal Cooperative Statistics Program)

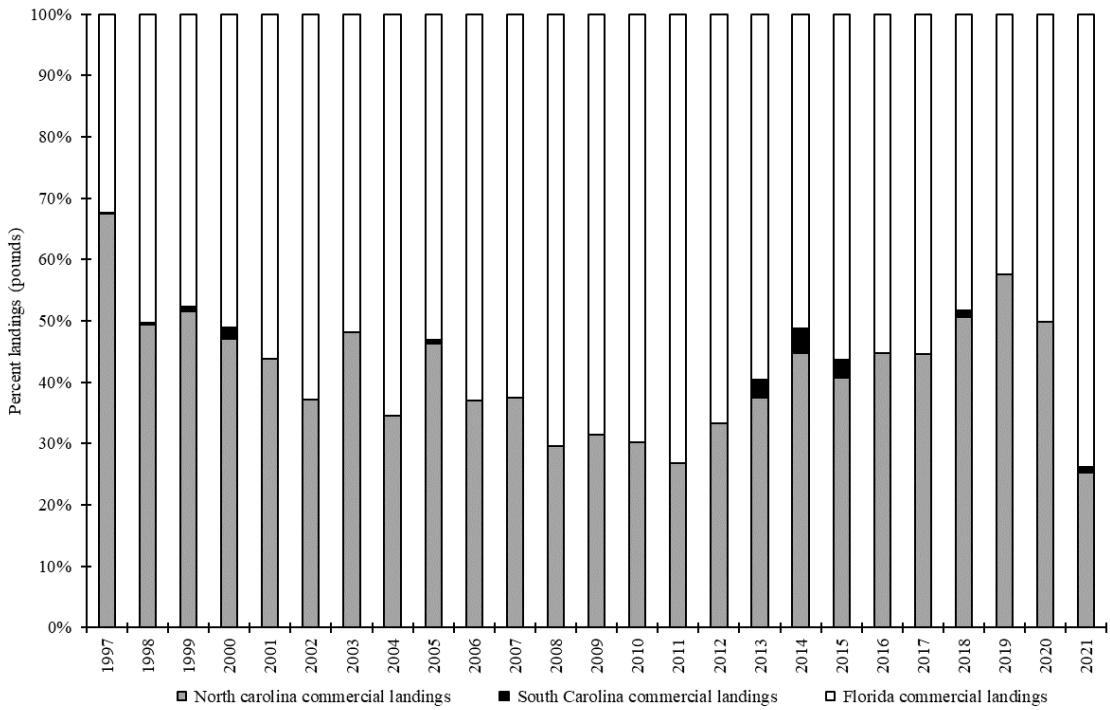


Figure 17. South Atlantic commercial landings (percent of total pounds) by state, 1997-2021. Georgia landings are extremely low and confidential so not included. (Source: Atlantic Coastal Cooperative Statistics Program)

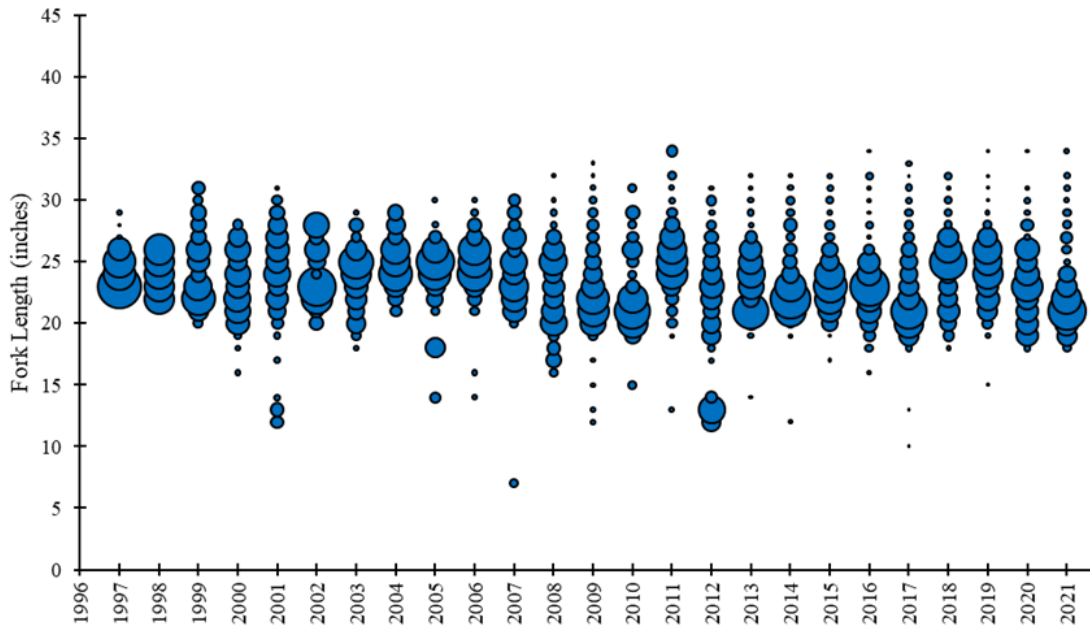


Figure 18. Commercial length frequency (fork length, inches) of harvested false albacore harvested, 1997-2021. Bubbles represent fish harvested at length and the size of the bubble is equal to the proportion of fish at that length.