



## **Mackerel Fishery Information Document**

**April 2019**

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for Atlantic Mackerel (mackerel hereafter) with an emphasis on 2018. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/msb>.

### **Key Facts**

- 2018 commercial landings were 25% greater than 2017 and were somewhat limited by the RH/S cap (the fishery closed at 88% versus the standard closure at 95%). 2019 landings are likely more severely limited by the RH/S Cap.
- When last assessed the stock was overfished and experiencing overfishing (2016 data), but overfishing should have ended in 2018. The stock is projected to rebuild by June 2023 based on the assessment methodology, and a proposed rule is expected soon for the rebuilding timeline and updated specifications.

### **Basic Biology**

Mackerel is a semi-pelagic/semi-demersal (may be found near the bottom or higher in the water column) schooling species primarily distributed between Labrador (Newfoundland, Canada) and North Carolina. The stock is considered to comprise two spawning contingents: a northern contingent spawning primarily in the southern Gulf of St. Lawrence and a southern contingent spawning in the Mid-Atlantic Bight, Southern New England and the western Gulf of Maine. The two contingents mix during winter months on the Northeast U.S. shelf. However, the degree of mixing and natal homing is unknown. The Canadian fishery likely primarily catches the northern contingent while the U.S. fishery likely catches both contingents.

Mackerel spawning occurs during spring and summer and progresses from south to north as the surface waters warm. Atlantic mackerel are serial, or batch spawners. Eggs are pelagic. Post-larvae gradually transform from planktonic to swimming and schooling behavior at about 30-50 mm. Approximately 50% of fish are mature at age 2 and about 99% were mature at age 3 (for 2007-2016 fish) according to the recent benchmark assessment. Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of organisms or by passive filter feeding. See <https://www.nefsc.noaa.gov/nefsc/habitat/efh/> for more life history information.

## Status of the Stock

Based on a recent benchmark assessment (NEFSC 2018, available at <http://www.mafmc.org/ssc-meetings/2018/may-8-9>), the mackerel stock was declared overfished, with overfishing occurring in 2016 (the last year of data in the assessment). Rebuilding projections (i.e. projections using the methods from the recent benchmark assessment) indicate that overfishing should have ended by 2018. The biomass target is the SSB associated with the FMSY proxy and is estimated to be 196,894 MT. The 2016 spawning stock biomass (SSB) was estimated to be 43,519 metric tons (MT), or 22% of the target so mackerel is “overfished” (below 50% of the target). Past assessments (which used different methods and data) appear to have been overly optimistic about the stock’s productivity, and too many fish were caught relative to the stock’s productivity. Once rebuilt, the MSYproxy (i.e. the proxy for maximum sustainable annual yield) is currently estimated to be only 41,334 MT (total catch, U.S. plus Canada).

## Management System and Fishery Performance

### *Management*

The Mid-Atlantic Fishery Management Council (the Council or MAFMC) established management of mackerel in 1978 and the management unit includes all federal East Coast waters. Expected Canadian landings are deducted from the total Acceptable Biological Catch (ABC) that is recommended by the Council’s Scientific and Statistical Committee (SSC).

Access is limited with several tiers having different trip limits. Stricter trip limits are triggered when the quota is approached. Incidental permits are limited to 20,000 pounds per trip at all times, though an upcoming proposed rule is expected to lower the incidental trip limit when the quota is approached to 5,000 pounds. Additional summary regulatory information is available at <https://www.greateratlantic.fisheries.noaa.gov/sustainable/species/msb/index.html#el111022>.

The current quota is 9,177 MT. While not yet implemented, the quota recommended for 2019 by the Council is 17,371 MT, increasing to 20,557 MT in 2020 and 21,517 MT (these should facilitate rebuilding the stock by June of 2023 according to the recent benchmark assessment methodology). However, there is also an incidental catch cap on river herrings and shads (RH/S), currently set at 82 MT. The 82 MT cap is based on historical incidental catch ratios (2005-2012) such that the fishery has to operate at a relatively low encounter rate or the cap will close the fishery early. The cap did not close the fishery from 2014-2017. In 2018 the RH/S cap closed the fishery when approximately 88% of the 9,177 MT quota was landed. In early 2019 the RH/S cap closed the mackerel fishery when approximately 45% of the 9,177 MT quota was landed, which equals 24% of the recommended 2019 17,371 MT quota, which should be out as a proposed rule in April 2019.

To ensure the incentive for the mackerel fishery to avoid RH/S remains strong even if mackerel catches are low, the Council previously used, and recommended for 2019 with the new mackerel specifications, for the RH/S cap to be set at 89 MT initially, but if mackerel landings surpass 10,000 MT then the cap would increase to 129 MT, as long as the initial cap had not been surpassed (i.e. once the cap closes the fishery it will stay closed for the remainder of the year). 89 MT was the median of extrapolated catch by the mackerel fishery over the 2005-2012 base years. Given the 2019 RH/S cap estimate is currently at 88.5 MT, it appears unlikely that mackerel will reopen even if the higher recommended 2019 17,371 MT mackerel quota is implemented.

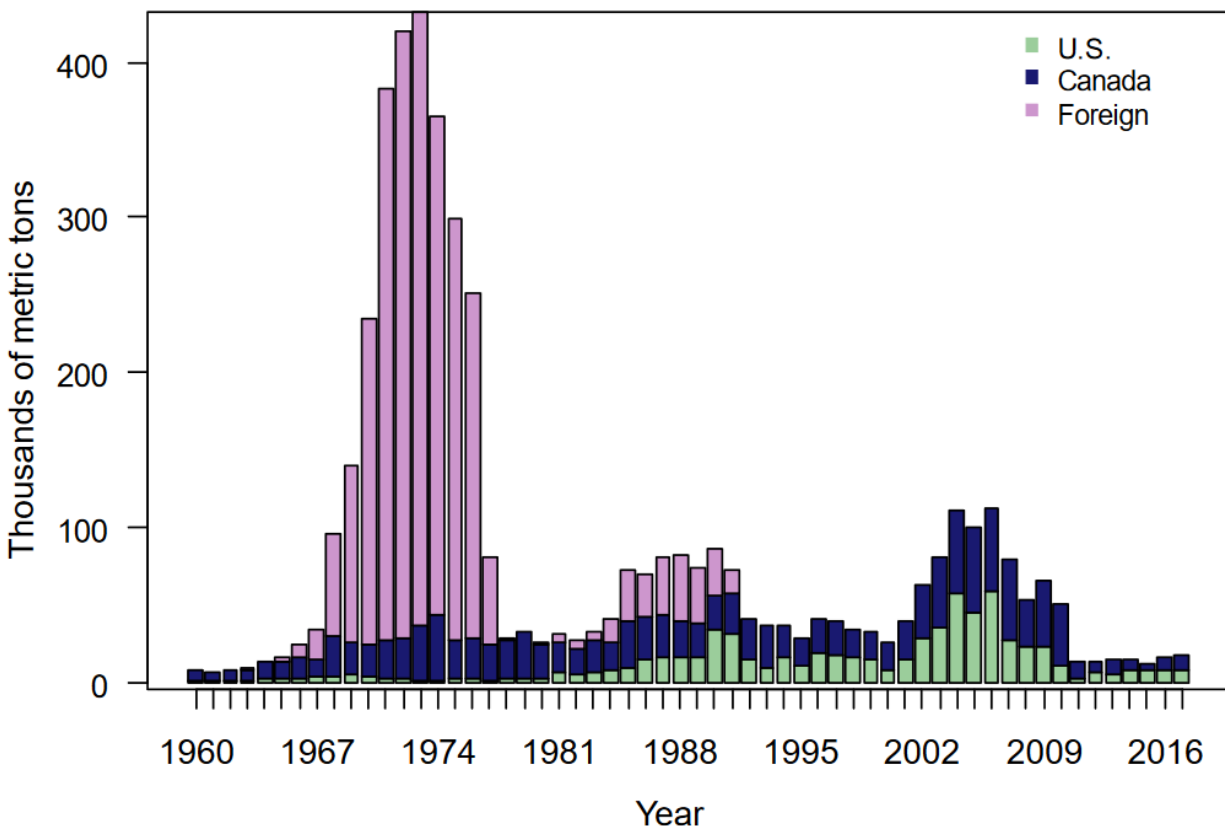
There are no recreational regulations except for party/charter vessel permits and reporting.

### *Commercial Fishery*

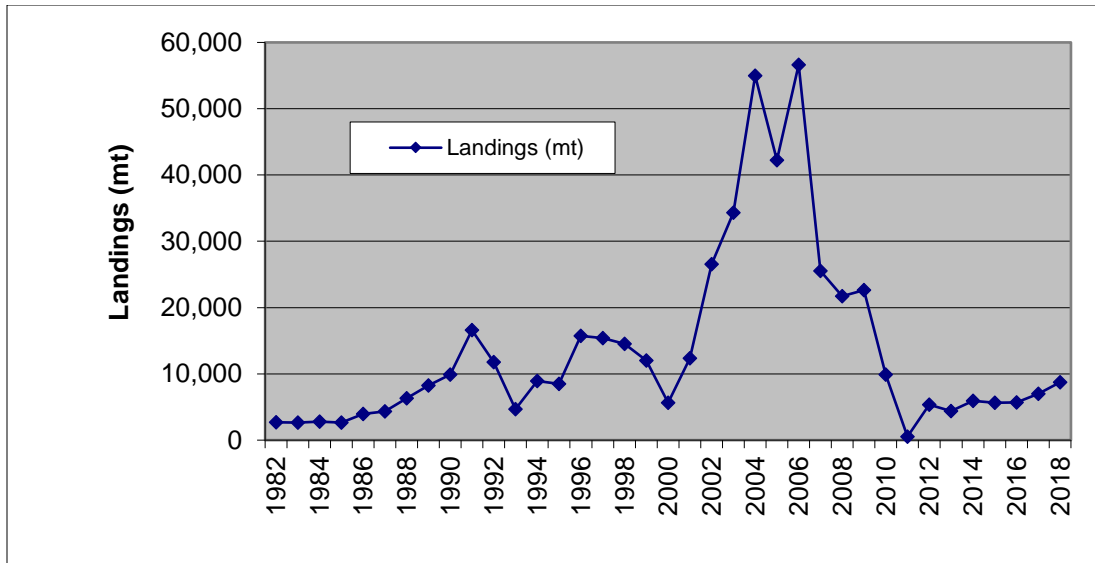
Figure 1 describes mackerel catch 1960-2017 and highlights the early foreign fishery landings before foreign fishing was phased out, as well as the roughly 50-50 mix of US and Canadian landings in most recent years. Figures 2-4 describe domestic landings, revenues, and prices since 1982. Figure 5 illustrates preliminary 2018 and early 2019 landings through the year.

Table 1 describes 2018 Mackerel landings by state, and Table 2 describes 2018 Mackerel landings by gear type.

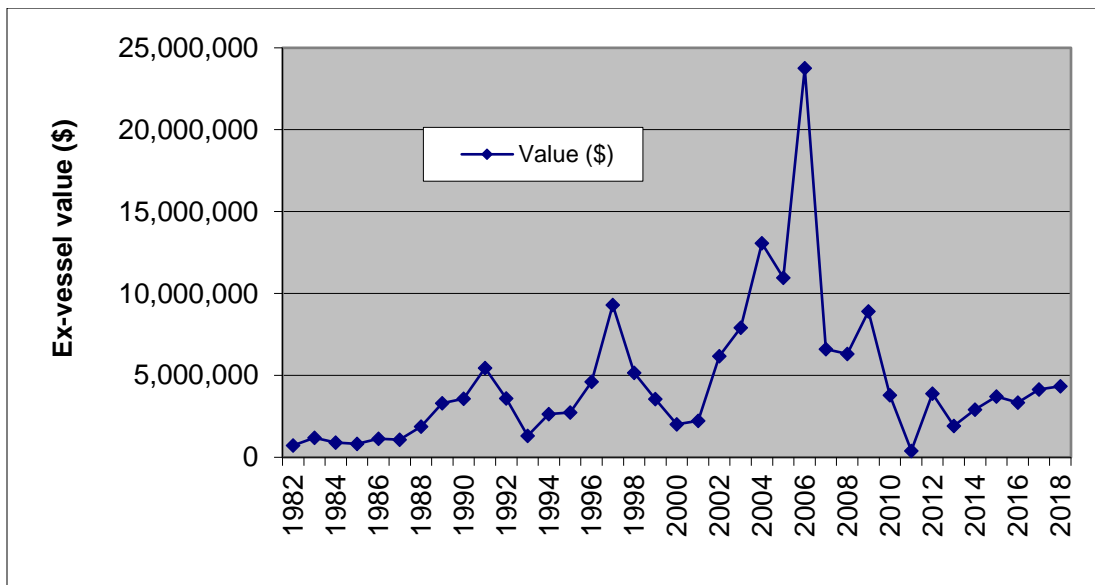
Figures 6 and 7 describe the location of recent Mackerel landings 2012-2017. Table 3 provides preliminary information on Mackerel landings by statistical area for 2018.



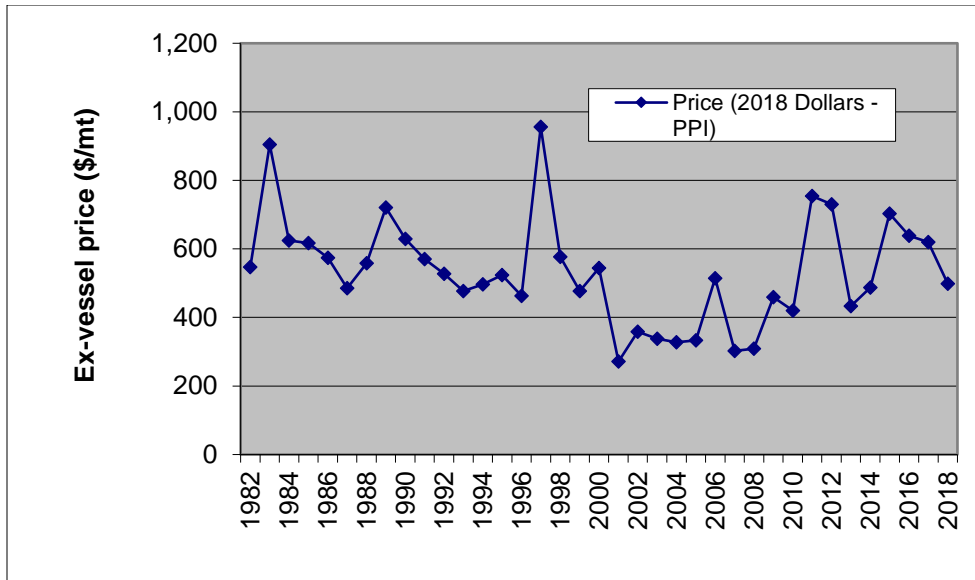
**Figure 1.** Total annual mackerel catch (mt) by the U.S., Canada and other countries for 1960-2017. Source: NEFSC Mackerel Data update, available at <http://www.mafmc.org/ssc-meetings/2018/may-8-9>.



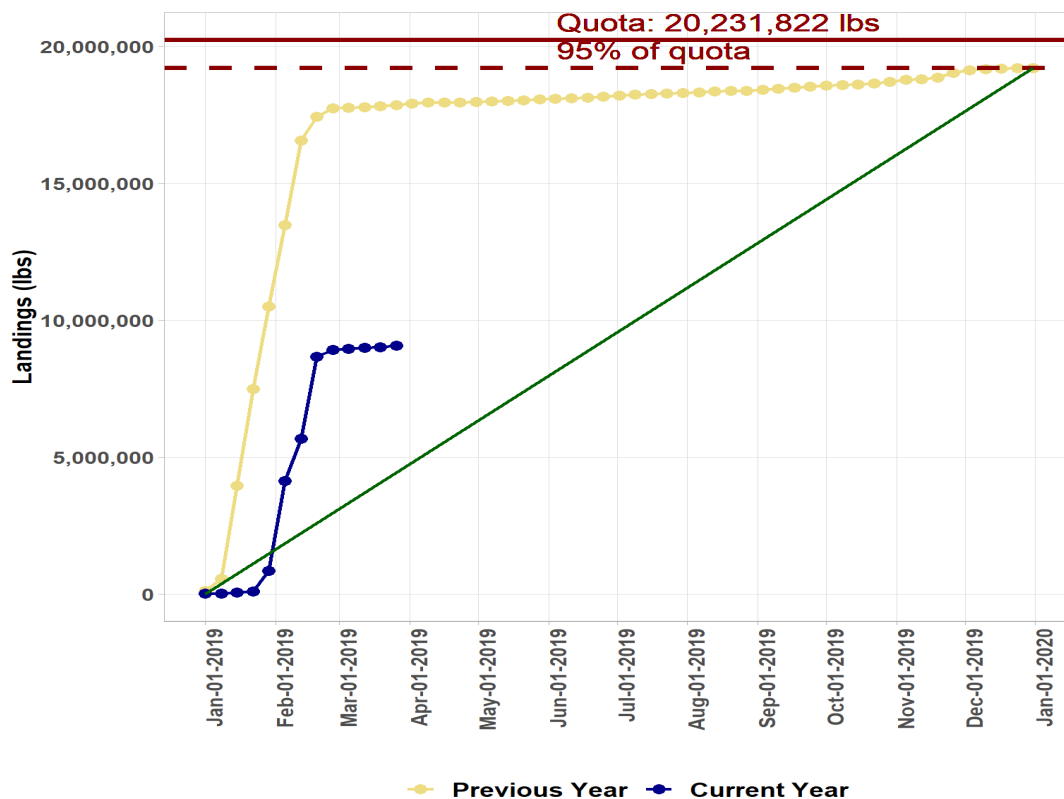
**Figure 2.** US Mackerel landings 1982-2018. Source: NMFS unpublished dealer data.



**Figure 3.** US Mackerel landings nominal ex-vessel revenues 1982-2018. Source: NMFS unpublished dealer data.



**Figure 4.** US Mackerel landings ex-vessel prices 1982-2018 (adjusted to 2018 “real” dollars using the producer price index (PPI), Federal Reserve data). Source: NMFS unpublished dealer data.



**Figure 5.** US Preliminary mackerel landings 2019 in blue, 2018 in yellow. For data reported through April 3, 2019. Fishery was closed March 12, 2019 due to RH/S Cap. Source: <https://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/atlanticmackerel.html>.

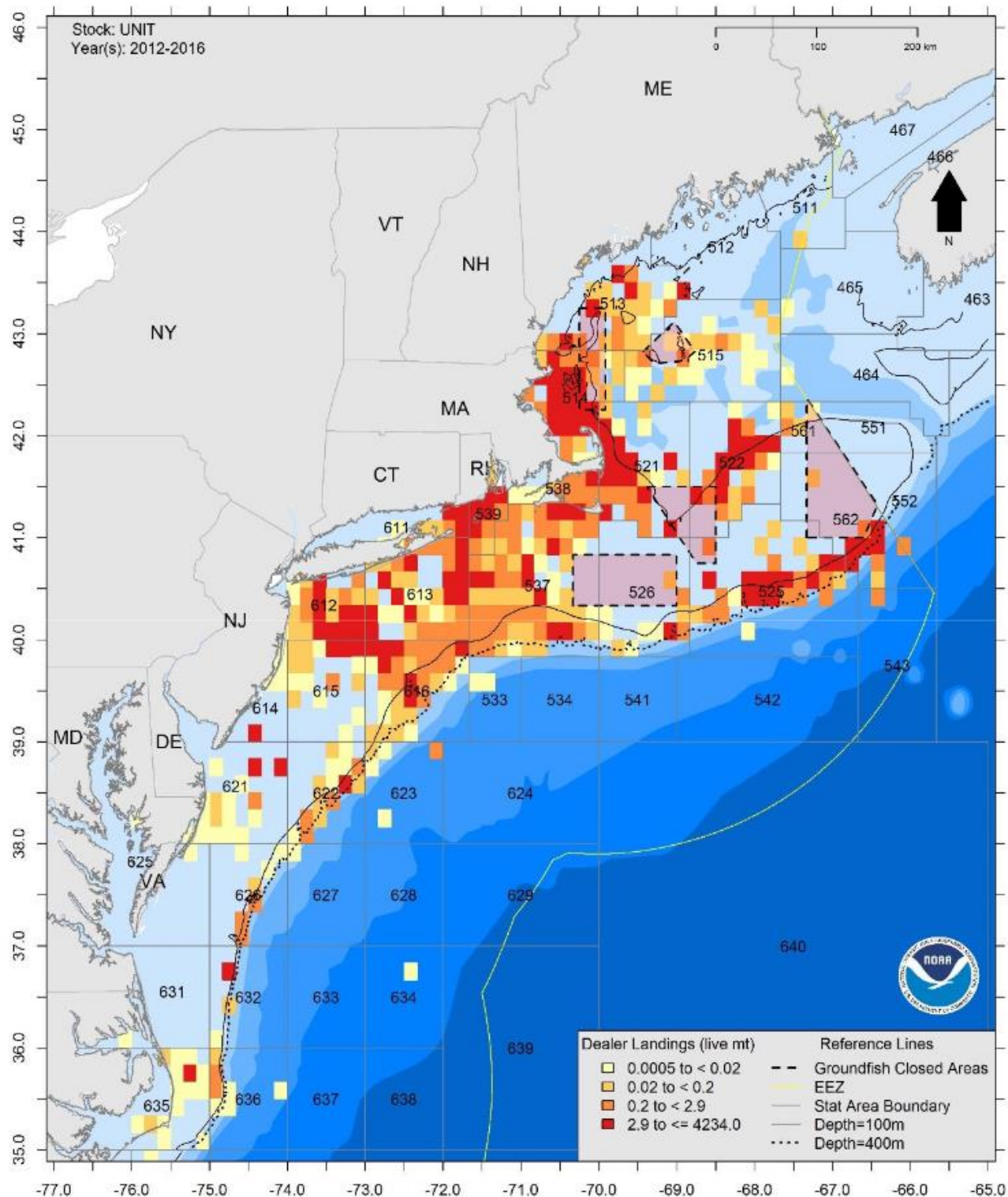
**Table 1.** Commercial Mackerel landings (live weight) by state in 2018. Source: NMFS unpublished dealer data.

State	Metric_Tons	Percent
MA	3,414	39%
NJ	3,224	37%
RI	1,812	21%
ME	175	2%
NY	56	1%
Other	35	0%

**Table 2.** Commercial Mackerel landings (live weight) by gear in 2018. Source: NMFS unpublished dealer data.

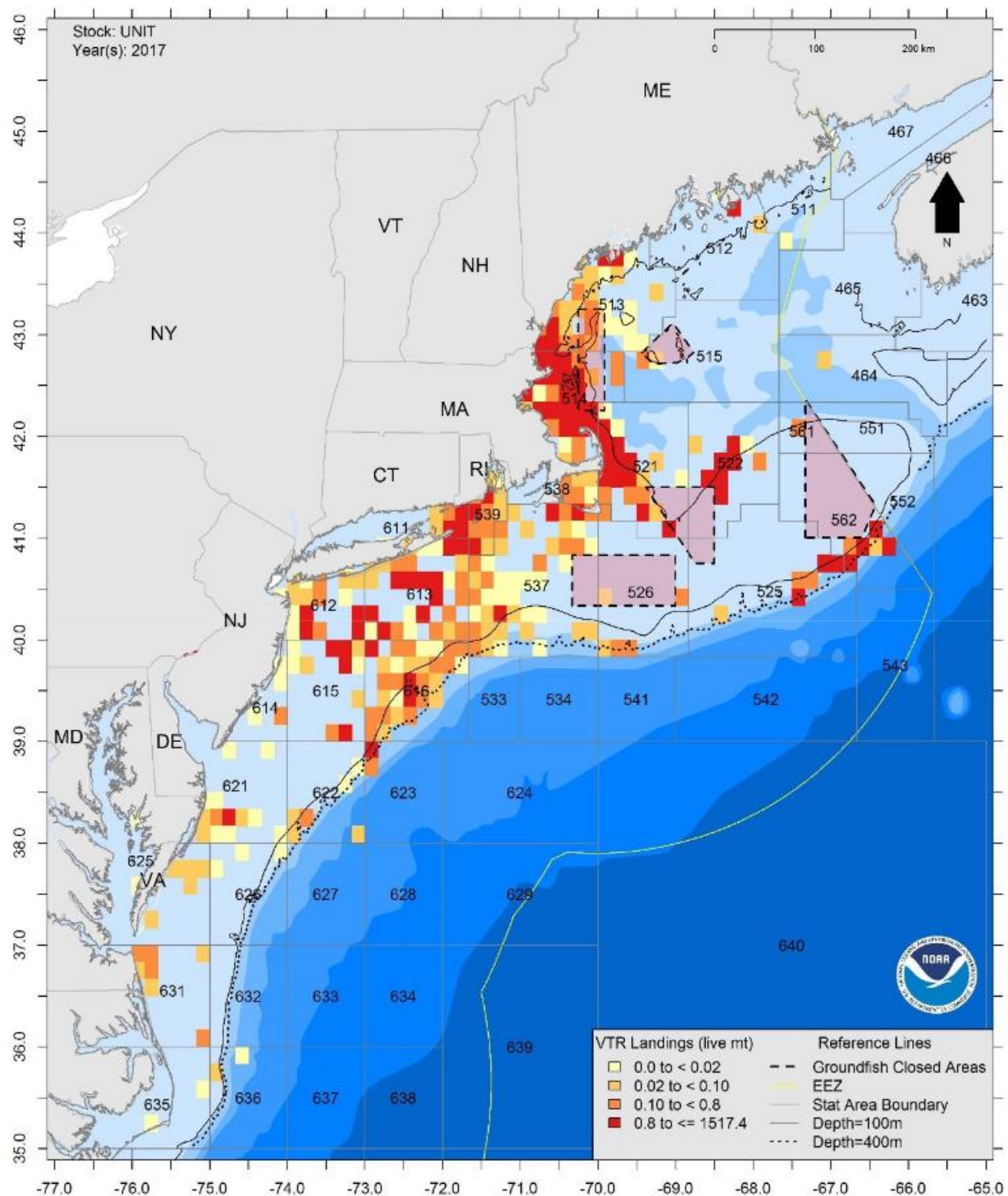
GEAR	Metric Tons 2018	Percent
TRAWL,OTTER,BOTTOM,FISH	4,600	53%
TRAWL,OTTER,MIDWATER PAIRED	2,203	25%
UNKNOWN	1,182	14%
TRAWL,OTTER,MIDWATER	442	5%
LONGLINE, BOTTOM	160	2%
HAND LINE, OTHER	79	1%
HANDLINE,AUTO JIG	24	0%
Other	25	0%

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**Figure 6.** Atlantic mackerel commercial landings (mt) from 2012-2016. Landings for all gears other than paired midwater trawl were reported via dealer reports matched to a vessel trip report (VTR). Landings for paired midwater trawl vessels were reported via VTRs. Source: NEFSC Mackerel Data update, available at <http://www.mafmc.org/ssc-meetings/2018/may-8-9>.





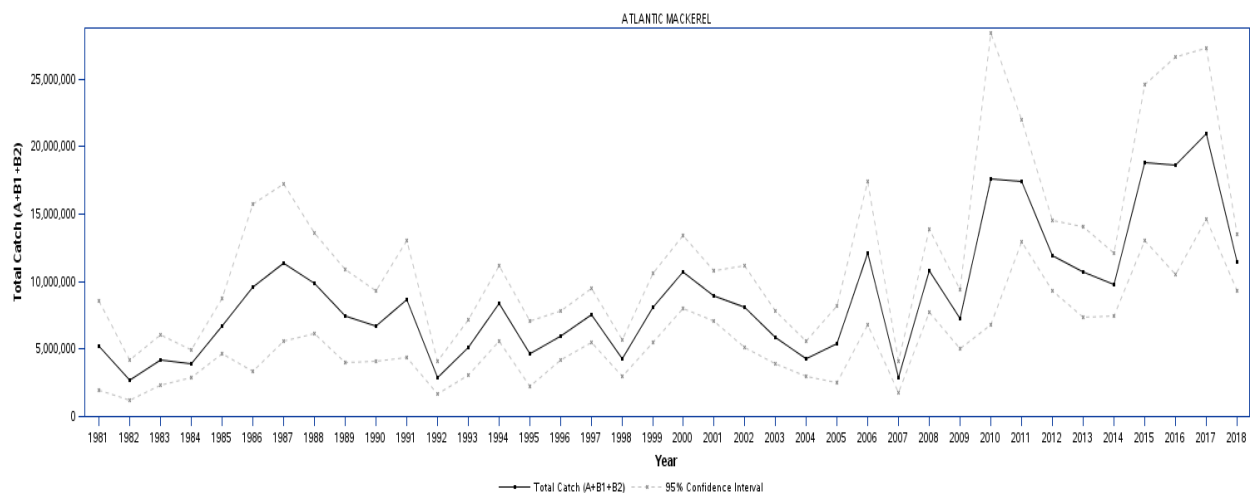
**Figure 7.** VTR landings for Mackerel, 2017. Source: NEFSC Mackerel Data update, available at <http://www.mafmc.org/ssc-meetings/2018/may-8-9>.



**Table 3.** Commercial Mackerel landings by statistical area in 2018. Source: NMFS unpublished VTR data.

Stat Area	Metric Tons 2018	Percent
612	4,340	51%
615	1,540	18%
521	1,423	17%
514	406	5%
622	259	3%
616	177	2%
537	91	1%
613	82	1%
539	79	1%
611	73	1%
Other	58	1%

### *Recreational Fishery*



**Figure 8.** Recreational mackerel catch (harvest + discards) (numbers of fish) 1981-2018, updated MRIP time series, with 95% confidence intervals. Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division April 6, 2019.

For 2016-2018, most recreational mackerel caught were harvested, and most were harvested in Massachusetts, then Maine and New Hampshire, with other states contributing relatively small amounts. Private/rental boats dominated harvest, with the shore mode also making a substantial contribution. Seasonally, harvest occurred mostly in May-August, tapering off later in the year.