



Atlantic Mackerel Fishery Information Document

July 2021

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 2020. Data sources for Fishery Information Documents include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and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

- Mackerel began a rebuilding program on November 29, 2019, which was designed to rebuild the stock by 2023.
- Compared to the previous assessment, the Spawning Stock Biomass (SSB) in 2016 (the terminal year from that previous assessment), was revised downward by 29% in the new (still draft) 2021 Management Track Assessment (MTA).
- The new MTA indicated that SSB increased 39% from 2016 to 2019. The SSB in 2019 is estimated to be 24% of the updated biomass target. Overfishing was still occurring through 2019 and was 108% greater than the overfishing proxy. Rebuilding by 2023 appears very unlikely.
- SSB is estimated to have increased 180% from 2014 (the time series minimum) to 2019.
- The 2017 recruitment estimate was the lowest in the time series and recruitment has been below the long term median since 2008 except for one year (the 2015 year class).
- In the new MTA, the estimated proxy for Maximum Sustainable Yield declined by 17% (to 34,103 metric tons (MT) annually) compared to the previous assessment.
- The new MTA’s conclusions are consistent with the 2021 Canadian assessment.
- The SSB estimates from the range-wide egg survey, a key index in the assessment, reached a minimum in 2010 and have been below the median since 2005.
- The fishery was not constrained by the river herring and shad (RH/S) cap in 2020, and ended the year at about 46% of the commercial quota.
- 2019 and 2020 catches were below even the most conservative rebuilding option (with the lowest 2019-2020 catch limits), so regardless of which rebuilding plan the Council had selected, the current findings would have persisted.

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. 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 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. Almost all fish are mature by age 3 in most years. Age 2 maturity appears to vary between around 50% to nearly 100%. Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of prey 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 the 2018 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). A 2021 management track assessment (MTA) indicates that while trends since 2014 are positive, the stock is only 24% of the biomass rebuilding target. The productivity of the stock appears to have declined. In the recent MTA, the estimated proxy for Maximum Sustainable Yield declined by 17% to 34,103 metric tons (MT) compared to the previous assessment. Past assessments (which used different methods and data) appear to have been overly optimistic about the stock's productivity.¹

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. Additional summary regulatory information is available at <https://www.fisheries.noaa.gov/region/new-england-mid-atlantic>.

¹ Referencing 1997 Federal Register publications, the 1997 mackerel allowable biological **catch** was specified about **ten times higher than** what we now think the **total SSB** was in that year.

At its May 2019 meeting, the SSC considered preliminary results from the 2019 Canadian Atlantic mackerel assessment, which indicated lower than expected recruitment in 2016-2018. The SSC determined that it would not be appropriate to recommend the original higher 2020 rebuilding ABC level based on recruitment levels in 2016-2018 that may be lower than those anticipated in the rebuilding plan. Instead, the SSC recommended maintaining the ABC for 2020 at the level established for 2019 (ABC = 29,184 mt). In 2020 the SSC endorsed maintenance of the existing ABC for 2021-2022 (2022 interim), pending the findings of the above-referenced MTA.

Fisheries

Figure 1 describes mackerel catches (all known sources) 1960-2019. Figures 2-3 describe domestic landings, ex-vessel revenues (nominal), and prices (inflation adjusted) since 1996. Figures 4-5 illustrate preliminary landings throughout the year for 2019-2021.

Table 1 describes 2020 Mackerel landings by state, and Table 2 describes 2020 Mackerel landings by gear type. Figures 6/7 describe the location of 2018/2019 mackerel landings.

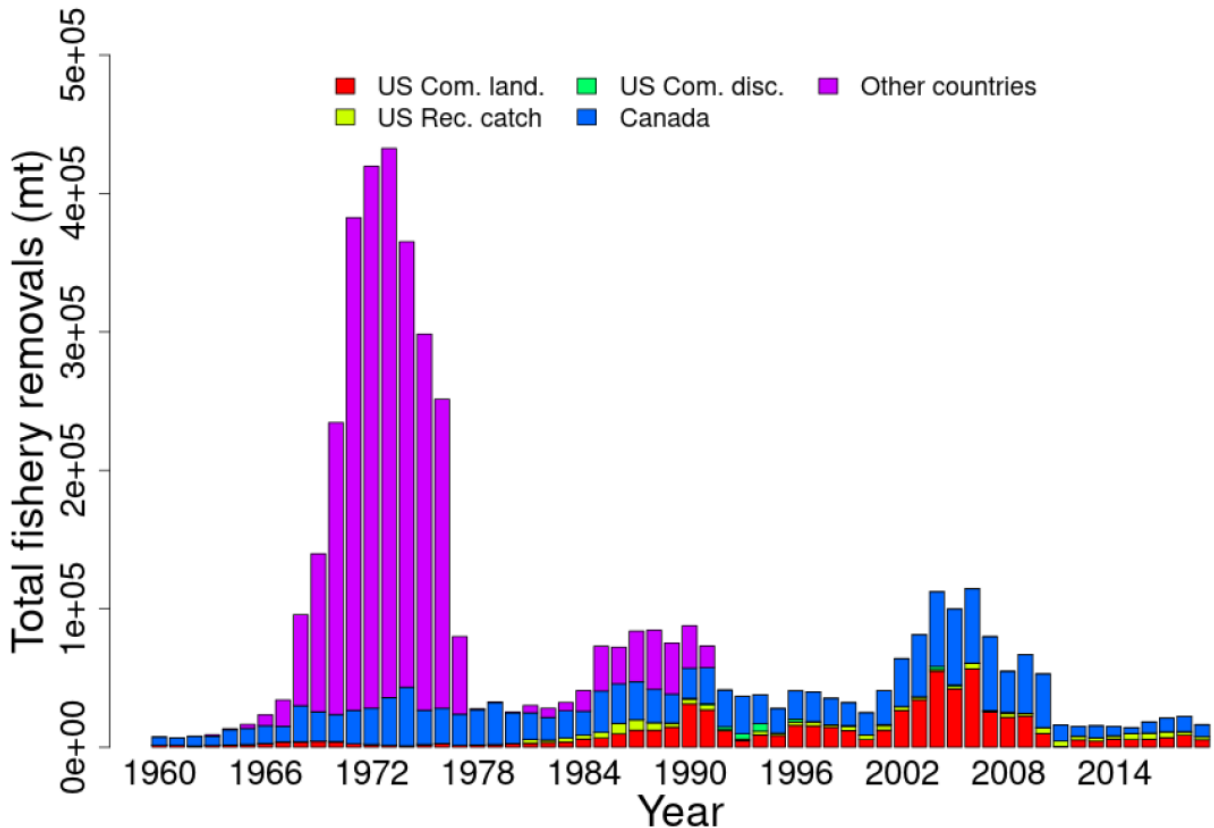


Figure 1. Total catch of northwest Atlantic mackerel between 1960 and 2019 by all known sources. U.S. recreational catch represents recreational landings plus discards, Canada represents Canadian landings (discards are not available), and other countries represents landings by all other countries.

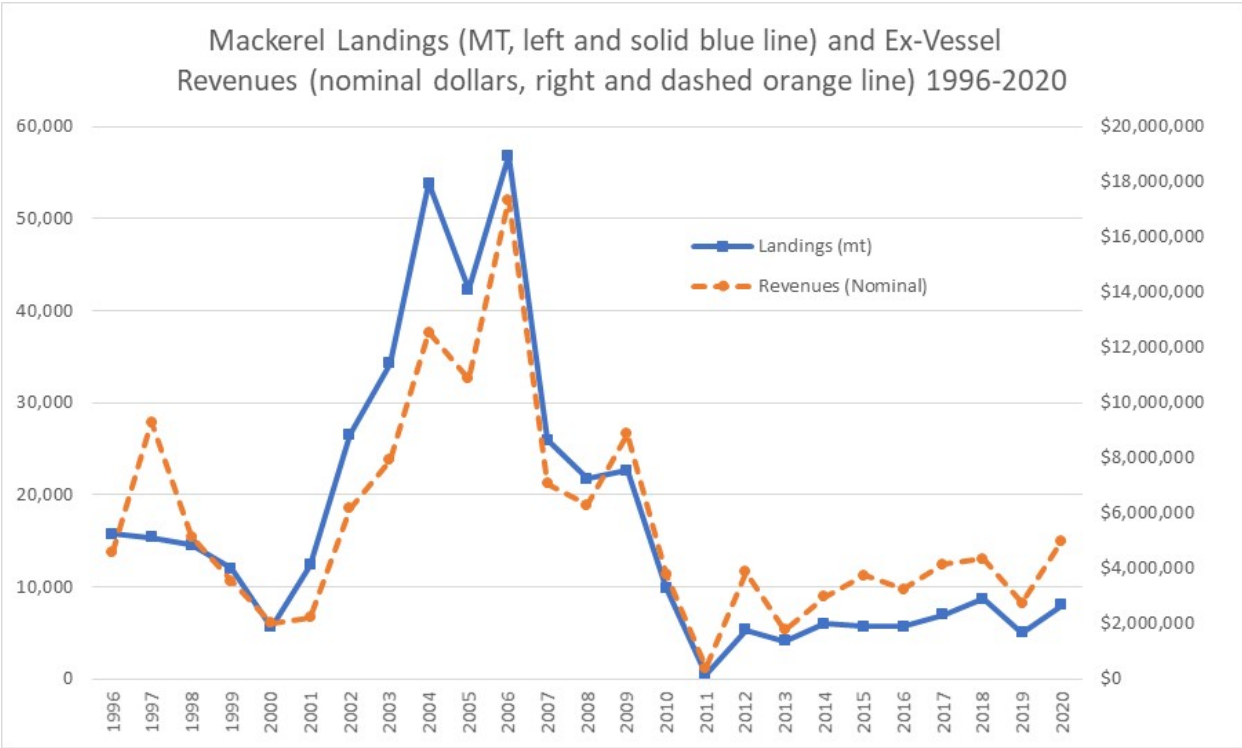


Figure 2. U.S. Mackerel Landings and Nominal Mackerel Ex-Vessel Values 1996-2020. Source: NMFS unpublished dealer data.

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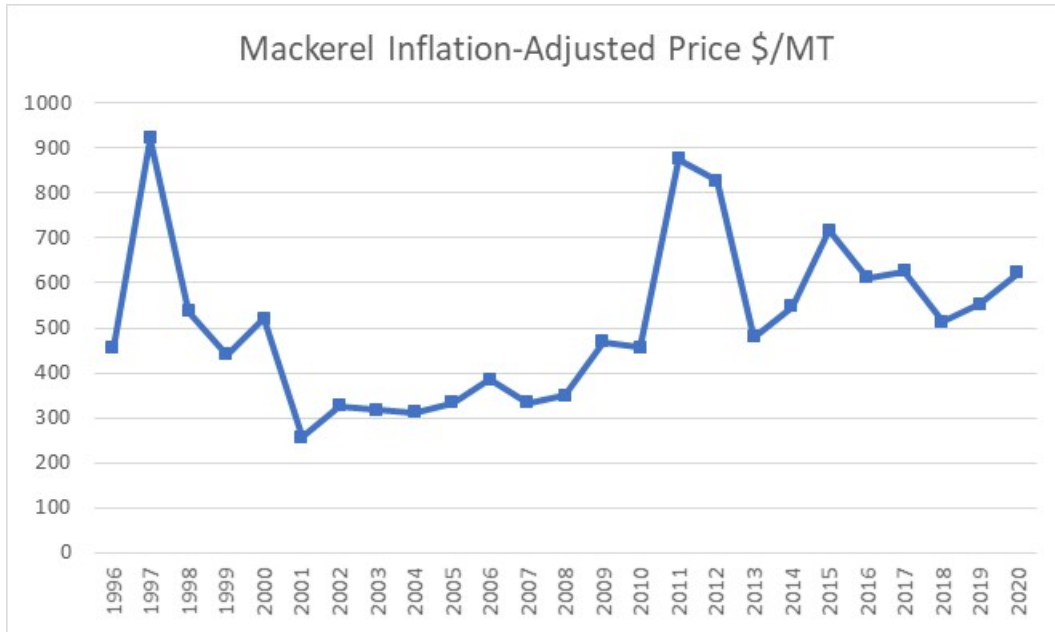


Figure 3. Ex-Vessel Mackerel Prices 1996-2020 Adjusted to 2020 Dollars Source: NMFS unpublished dealer data.

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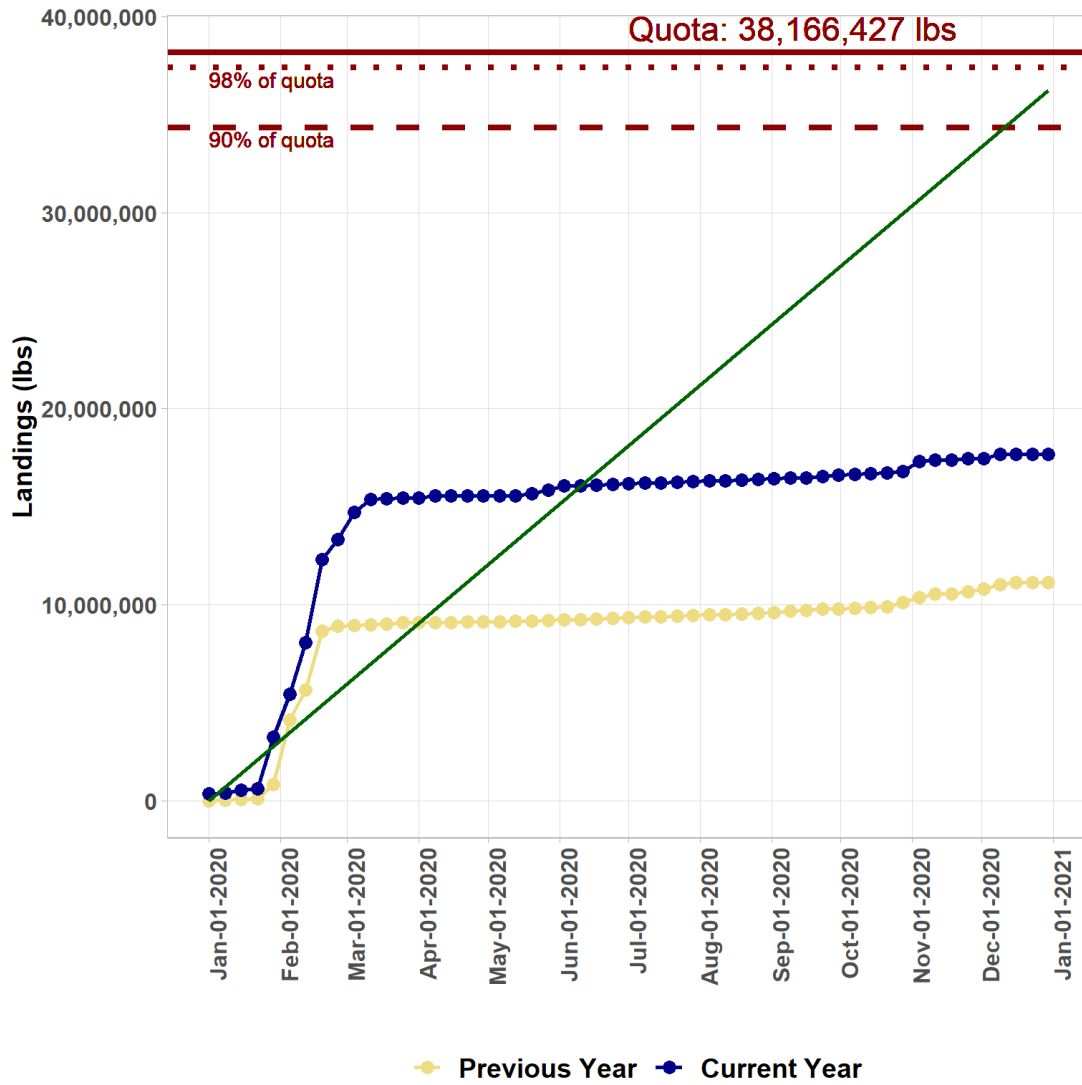


Figure 4. U.S. Preliminary Mackerel landings; 2020 in blue, 2019 in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

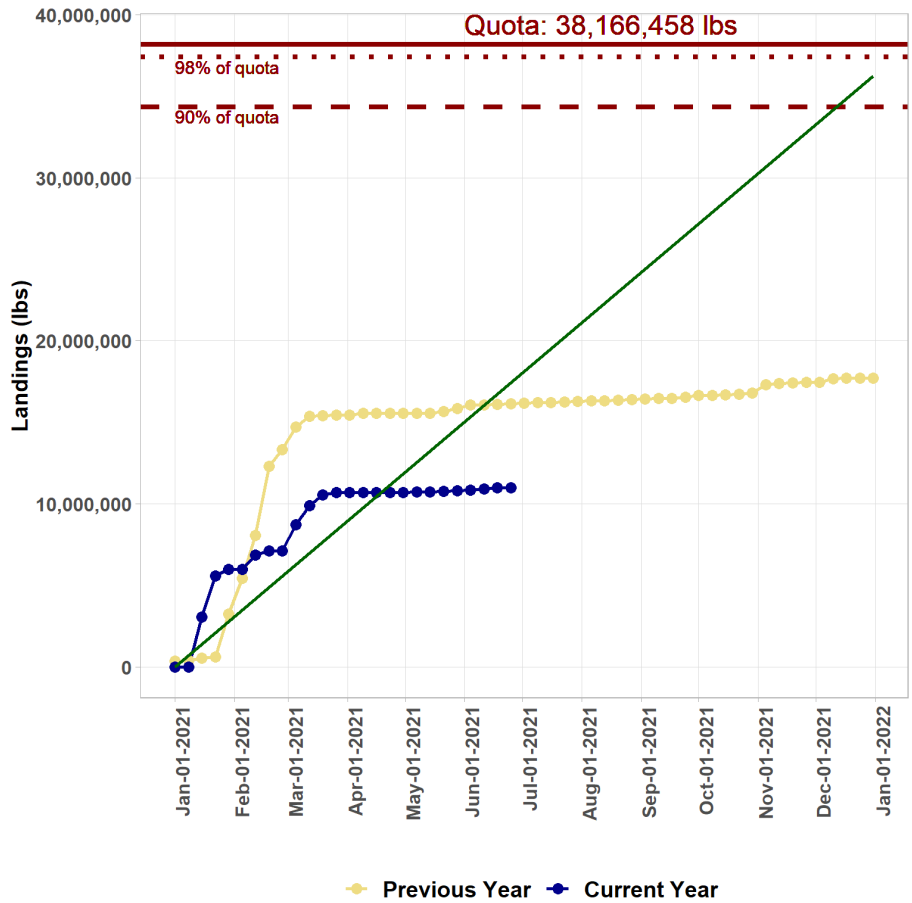


Figure 5. U.S. Preliminary Mackerel landings; 2021 in blue, 2020 in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>.

Table 1. Commercial Mackerel landings (live weight) by state in 2020. Source: NMFS unpublished dealer data.

State	Metric_Tons
MA	3,991
NJ	2,412
RI	1,171
ME	436
Other	29
Total	8,039

Table 2. Commercial Mackerel landings (live weight) by gear in 2020. Source: NMFS unpublished dealer data.

GEAR	gmt
TRAWL, OTTER, BOTTOM, FISH	3,151
TRAWL, OTTER, MIDWATER	2,440
TRAWL, OTTER, MIDWATER PAIRED	1,369
PURSE SEINE, OTHER	408
LOONGLINE, BOTTOM	251
Other	420
Total	8,039

Atlantic Mackerel

Scomber scombrus

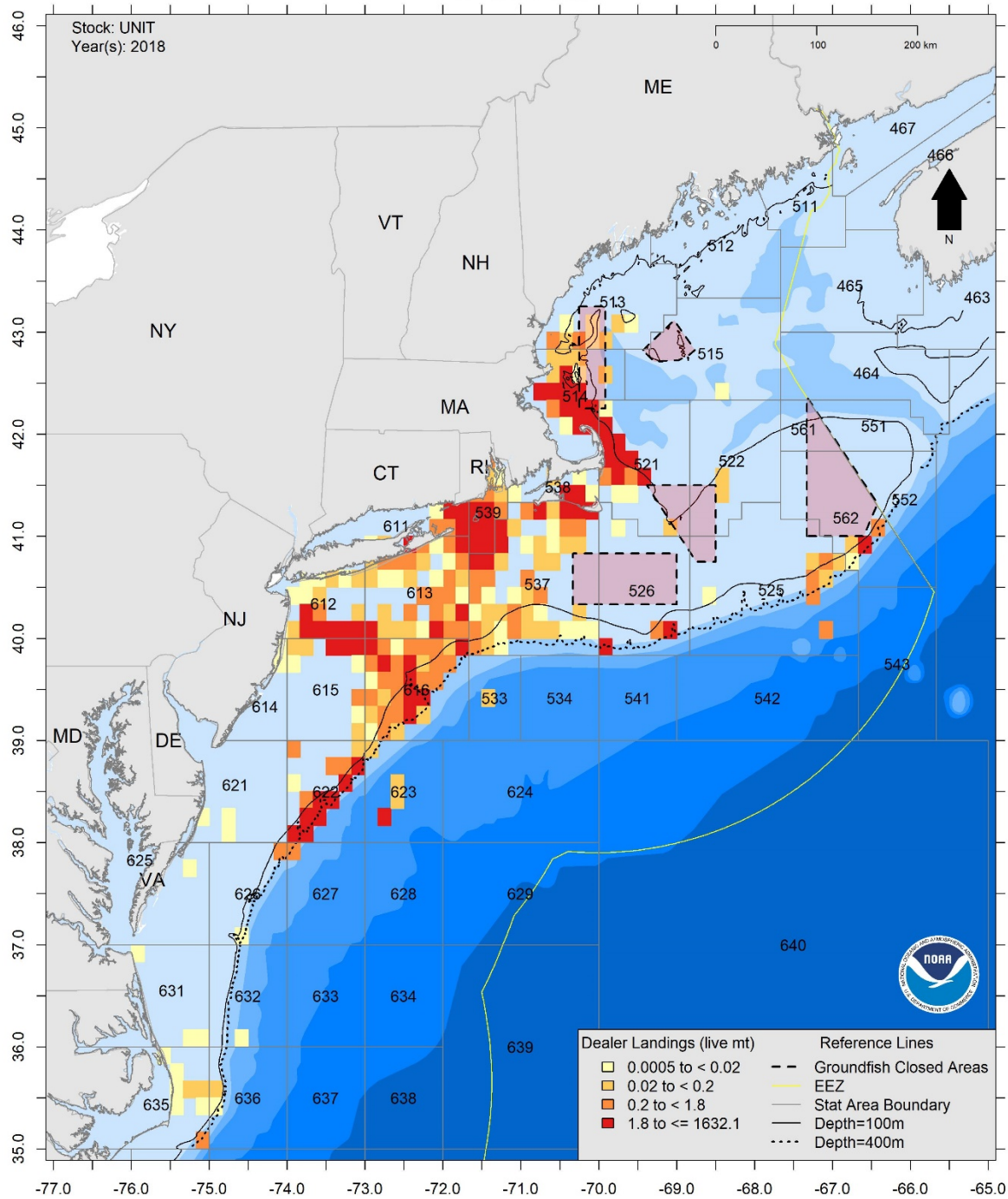


Figure 6. Approximate Primary 2018 Mackerel Catch Locations (from dealer and VTR data)

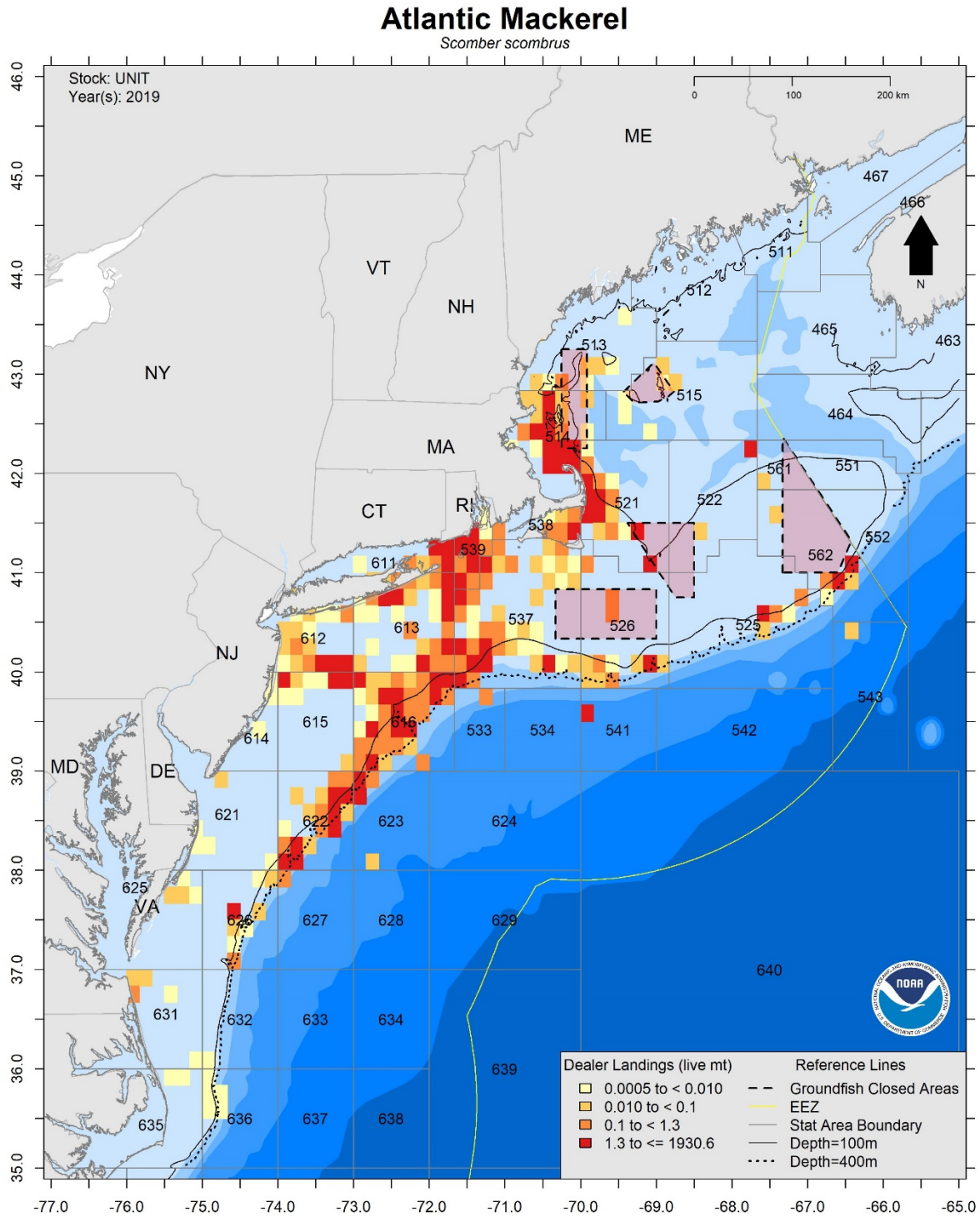


Figure 7. Approximate Primary 2019 Mackerel Catch Locations (from dealer and VTR data)

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