



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: American Lobster Management Board
FROM: Jonah Crab Technical Committee
DATE: January 21, 2025
SUBJECT: Initial Jonah Crab Indicator Update

Background

The 2023 Jonah Crab Benchmark Stock Assessment determined that the abundance of three of four Jonah crab stocks (Offshore Southern New England or OSNE, Inshore Gulf of Maine or IGOM, and Offshore Gulf of Maine or OGOM) has not been depleted to historical lows observed in the 1980s and 1990s. Data were insufficient to make determinations about abundance for the Inshore Southern New England stock (ISNE) or fishing mortality rates for any of the four stocks. The Peer Review of the assessment noted substantial uncertainty about stock status and expressed concern due to similarities between some trends in data for the US stocks and a Canadian stock assessed in the late 2000s that appeared sensitive to fishing pressure and experienced a rapid decline in abundance.

Following review and acceptance of the assessment in October 2023, the American Lobster Management Board tasked the Jonah Crab Technical Committee (TC) to “recommend possible management measures or other options to correct what appear to be deficiencies in the stock”. A TC recommendation at the 2024 ASMFC Winter Meeting in response to this tasking was to conduct annual updates of indicators selected during the stock assessment for the OSNE stock, the stock supporting the majority of coastwide landings, to identify any concerning trends between assessments. The TC also recommended monitoring several additional indicators to understand important contextual information from the fishery. The TC did not believe management action was necessary at the time.

This memo provides results of the first annual indicator update. Indicators include the number and proportion of pot/trap trips landing Jonah crab, the number and proportion of lobster/crab permits landing Jonah crab, landings, the number of trips landing Jonah crab in Massachusetts alone, catch per trip (CPUE) in Rhode Island, and price per pound of Jonah crab and American lobster. Indicators have been updated with 2022 and 2023 data. Data through 2023 were not available for fishery-independent trawl indicators and will be updated during the next update as part of a biannual update schedule recommended in the TC’s January 8, 2024 memo to the Board.

The annual update does not include a process or decision rules to trigger management action, but rather provides the TC an opportunity to review updated indicators and provide recommendations to the Board for action in response to concerning trends. Several indicators

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were selected as measures of fishery performance, and time series percentiles are used as a qualitative characterization of the indicator status. The indicators are categorized as positive if above their 75th percentile, neutral if between their 75th and 25th percentiles, and negative if below their 25th percentile. Three-year averages of these indicators to smooth out interannual variability are provided from the final three years of the assessment time series (2019-2021; black asterisk) and the updated time series (2021-2023; red asterisks) for comparison.

Results

Trip Indicators

The number of trips landing Jonah crab has declined continuously since 2014 to the lowest point of the time series in 2023. The three-year average remained negative. The proportion of trips in the lobster/Jonah crab fishery landing Jonah crab showed an increasing trend until 2020 but has steadily declined since, moving from positive to negative conditions since the stock assessment. These indicators show a general reduction in trips by the fishery through time.

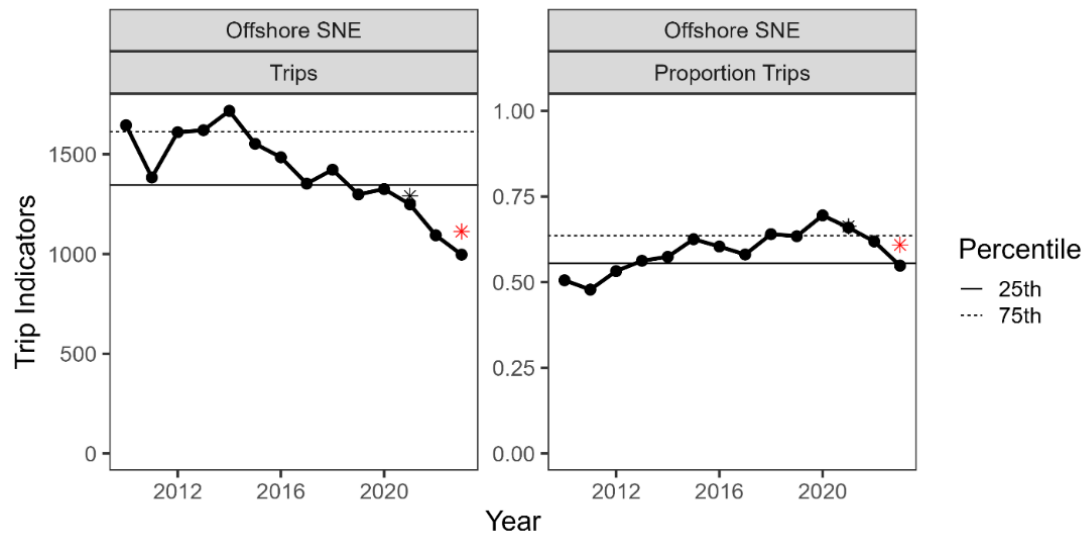


Figure 1. Number (left) and proportion (right) of lobster/crab pot/trap trips landing Jonah crab from the Offshore Southern New England stock.

An additional trip indicator recommended by the TC following the stock assessment, trips landing Jonah crab from Massachusetts alone, shows similar conditions to the stockwide indicator in recent years with declines to the lowest levels in 2023. CPUE data from Massachusetts similar to the Rhode Island time series was not recommended because vessel participation in the fishery has been more inconsistent, complicating selection of a “high liner” fleet.

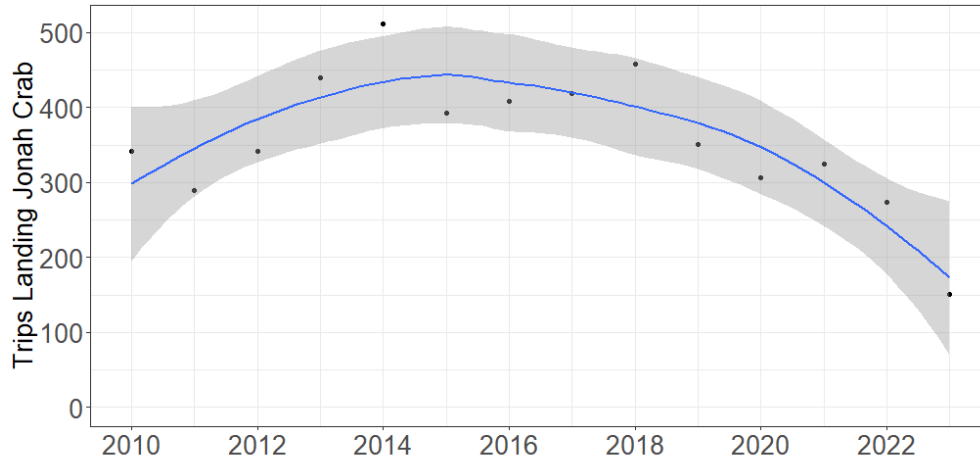


Figure 2. Number of trips landing Jonah crab from the Offshore Southern New England stock in Massachusetts. The blue line and shaded area represent a loess smoother and confidence intervals fitted to the data.

Permit Indicators

Permit indicators show similar trends and conditions to trip indicators. The number of permits reporting Jonah crab landings has slowly declined to the lowest values in 2022 and 2023. This decline has dropped the three-year average from neutral to negative conditions. The proportion of permits landing Jonah crabs has been more stable, but did show a declining trend during the final three years dropping from positive to neutral conditions.

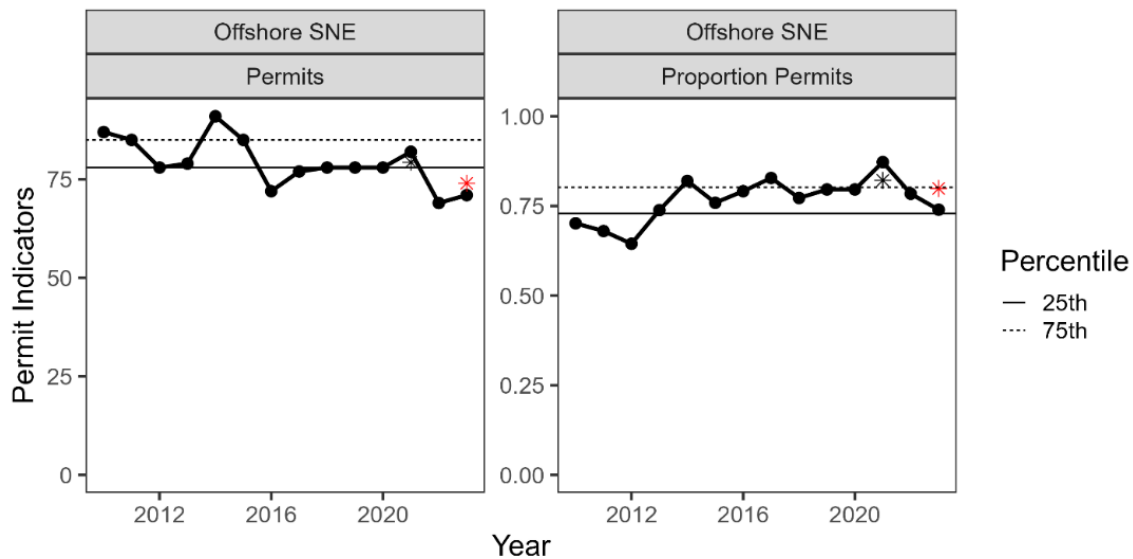


Figure 3. Number (left) and proportion (right) of lobster/crab permits contributing to Jonah crab landings from the Offshore Southern New England stock.

Landings Indicator

Landings are presented at the state and coastwide level because stock-specific landings are only available during the stock assessment cycle. However, the majority of landings from the two largest contributing states, MA and RI, are primarily from the OSNE stock. Landings from both these states increased in 2022, reversing a concerning declining trend at the end of the stock assessment. However, this reversal was short lived with declines in 2023 to near time series lows. NJ has become a relatively larger contributor to coastwide landings in recent years with an opposite pattern in the two update years (decline in 2022 and increase in 2023). Coastwide landings show similar trends to MA landings, with the exception of 2023 which declined at a lesser rate due to an uptick in landings from ME from GOM stocks.

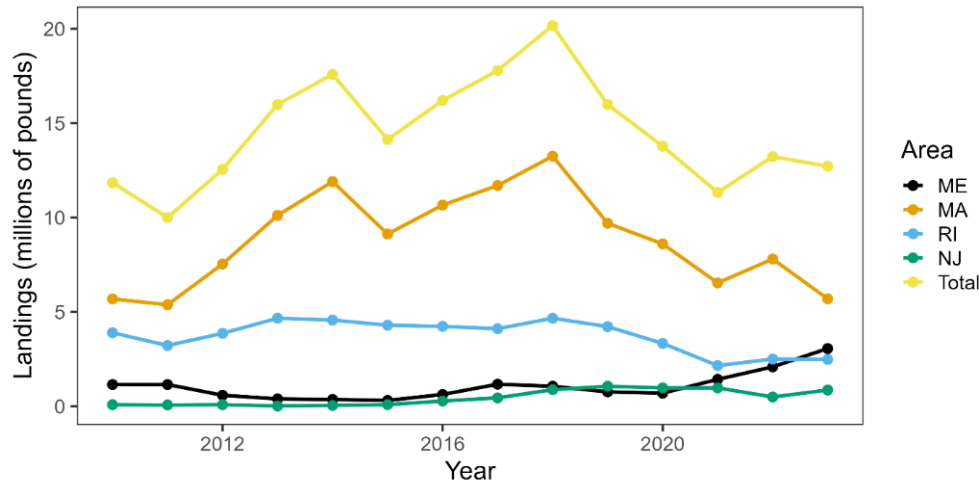


Figure 4. Landings of Jonah crab. Total landings include all Atlantic coast states.

CPUE Indicator

Trip-level CPUE from RI had been declining since the mid-2010s to the lowest point of the time series at the end of the stock assessment in 2021. Low CPUE continued in 2022, but then increased significantly in 2023 to the fourth highest value of the time series. It's important to note that selection of "high liner" vessels changed since the stock assessment due to some vessels exiting the Jonah crab fishery. Supplementary data also indicates catch per day has declined while vessels have been conducting fewer, longer trips so CPUE data may be confounded by other drivers like market conditions and harvester behavior.

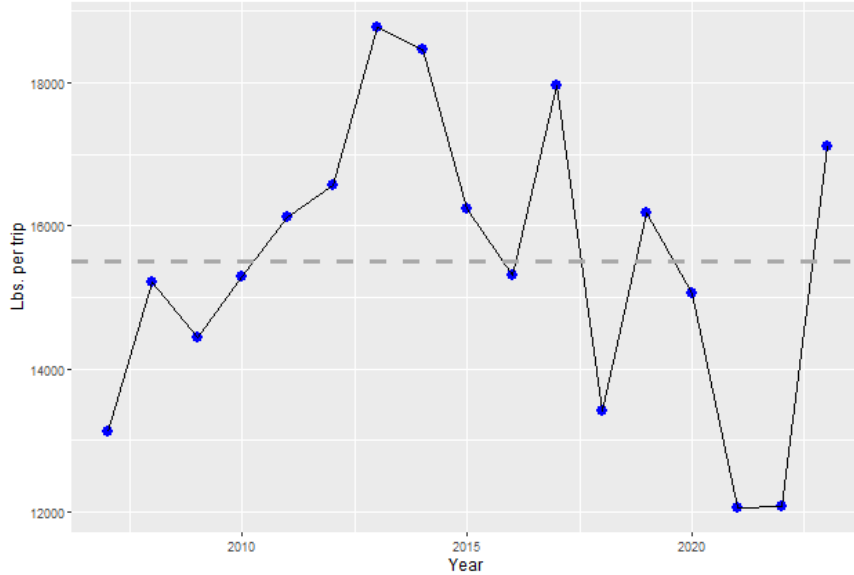


Figure 5. Pounds of Jonah crab landed per trip by the Rhode Island highliner fleet (n vessels=4). The dashed line is the time series mean.

Price per Pound Indicators

Price per pound of both American lobster and Jonah crab has continued increasing throughout the time series. Notably, lobster prices increased sharply in 2021, the year of the lowest RI Jonah crab landings and second lowest MA Jonah crab landings since 2011. Jonah crab prices then increased sharply in 2022 when landings in RI and MA increased, albeit to levels lower than in the 2010s. Jonah crab prices decreased in 2023 but remained high relative to years when landings were highest.

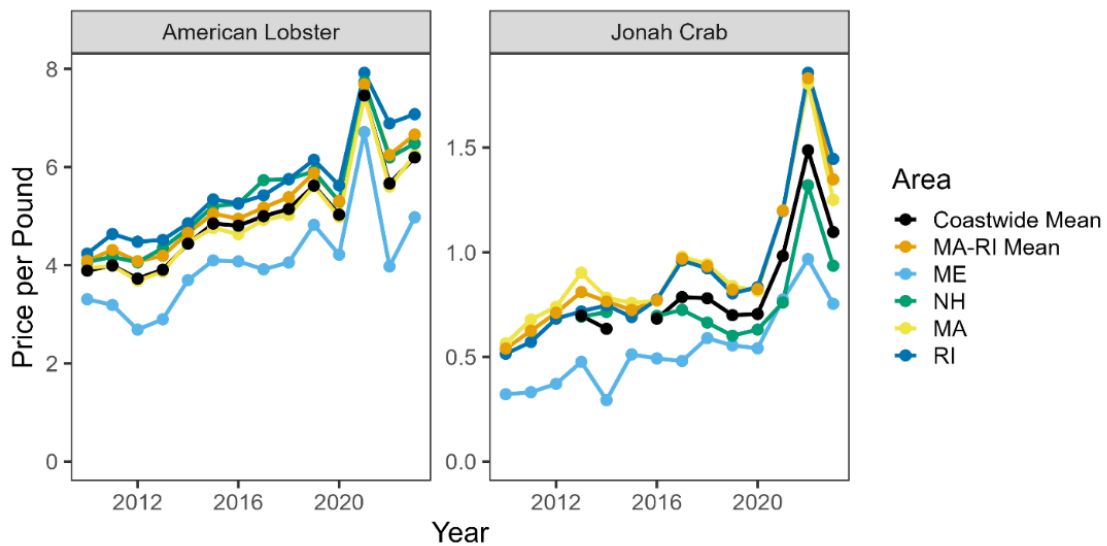


Figure 6. Price per pound of American lobster and Jonah crab.

Conclusions and Recommendations

After reviewing the updated indicators, the TC discussed conclusions, recommendations, and some anecdotal information from the fishery. The general TC consensus is that stock conditions are similar to what they were at the end of the assessment and data limitations preclude a recommendation for management intervention at this time. There are indications that market factors, as indicated by poor fishery performance indicators, continue to be a dominant factor influencing effort to target and land Jonah crabs. There remains a lack of data to understand short-term changes in abundance and stock status.

The RI CPUE and MA effort time series added as indicators were affected by changes in the fleet. Some vessels considered “high liners” in the Jonah crab fishery have changed their trap configurations and shifted their effort to target lobsters or exit the fishery altogether. There are also continued anecdotal reports of dealers imposing trip limits, causing artifacts in effort and price per pound data. While it does not affect the OSNE stock indicators, the TC also notes ME harvesters have reported relatively high catches of Jonah crabs recently that are primarily being discarded due to unfavorable market conditions. Market factors continue to impede interpretation of available fishery-dependent indicators for inference on Jonah crab availability and abundance. The TC recommends identifying a process to track dealer/processor-imposed trip limits, such as state-conducted dealer interviews that might provide context for changes in Jonah crab fishing effort or landings.

The TC believes collaboration with the commercial fishery remains one of the more viable pathways to obtain data necessary to understand abundance changes, as recommended by the stock assessment peer review. Commercial Fisheries Research Foundation (CFRF) ventless trap sampling by the Lobster and Jonah Crab Research Fleet provides a model for collecting these data. However, sampling intensity and some design considerations are necessary to improve the data, which were available for the stock assessment but not recommended for use as indicators. During the indicator review for this data update, the TC recommended revisiting CFRF data to determine if there is any utility in including these data in indicators, despite their limited utility during the stock assessment. Commission staff and the TC Chair communicated with CFRF Research Fleet leads following the call and were informed of several developments that may improve the data collected. An increased stipend was offered to fleet participants for fishing ventless traps starting in the fall of 2022, increasing sample size, and collection of target species information for the commercial research fleet began in 2021 that could be linked to some ventless traps sampled. CFRF staff also noted several additional years of trap data from wind farm surveys (Revolution Wind Farm and South Fork Wind Farm Surveys) that could be evaluated for trends against the Research Fleet data. Although these data streams are temporally and spatially limited and come with caveats, the TC recommends Research Fleet and wind farm trap data be evaluated as potential indicators for the next annual indicator update.