

Research Priorities and Recommendations to Support Interjurisdictional Fisheries Management

JONAH CRAB

STOCK ASSESSMENT AND POPULATION DYNAMICS

A coastwide stock assessment has yet to be completed for Jonah crab but is considered a high priority need. An assessment was initiated in 2021 and is anticipated to be completed in 2023. The assessment will provide much needed data on the status of the Jonah crab resource as well as contribute to recommendations for additional management needs, if any. The following recommendations are from a report on pre-assessment data workshops conducted in 2020 and 2021.

(Full Citation: Atlantic States Marine Fisheries Commission. 2021. Jonah Crab Pre-Assessment Data Workshop Report. Arlington, VA.)

High Priority

- Information should be collected to help delineate stock boundaries (e.g. genetics). Identification of stock boundaries is an essential step in stock assessment that will inform many subsequent steps including development of input data and identification of methods applicable to the stock(s). Note: Some genetic research is currently being conducted by the Gloucester Marine Genomics Institute that may address this recommendation.
- Female migration pathways/seasonality and larval duration and dispersal need to be researched. Anecdotal information suggests seasonal aggregations in inshore areas, but research would help to understand these mechanisms and inform stock boundaries.
- Inter-molt duration of adult crabs is currently unknown and growth increment data for mature crabs is limited. These data will be necessary to transition to size- or age-based assessment methods.
- Develop fisheries-independent surveys (e.g. trap survey) to index post-settlement Jonah crab abundance from offshore areas where most of the fishery is executed.
- Increase fisheries-dependent monitoring of the offshore fleet. Sampling intensity by statistical area should be based on landings.
- Reproductive studies pertaining to male-female spawning size ratios, the possibility of successful spawning by physiologically mature but morphometrically immature male crabs, and potential for sperm limitations should be conducted.
- The amount of directed commercial effort on Jonah crabs vs. lobster should be quantified on a per trip basis.

Moderate Priority

- Cohort tracking analyses with existing data should be conducted across and within surveys to better understand if surveys are tracking true abundance signals and provide information on growth, mortality, and other demographic factors.
- Investigate the efficacy of existing lobster ventless trap surveys, including interaction between lobster and Jonah crab, to determine utility for indexing Jonah crab abundance. Research has shown that as lobster trap catch increases; crab catch within the same trap decreases (Miller and Addison 1995, Richards et al. 1983). This suggests abundance trends for Jonah crab will be heavily influenced by lobster density.

Low Priority

- Additional sampling to expand upon the University of Maine Settlement Collector Sampling should be conducted to provide a more comprehensive understanding and tracking of temporal and spatial settlement dynamics.
- The development of aging methods or determination of the mechanism responsible for the suspected annuli formation found in the gastric mill should be explored.
- Food habits data should be analyzed from offshore areas to better understand predation of Jonah crab.