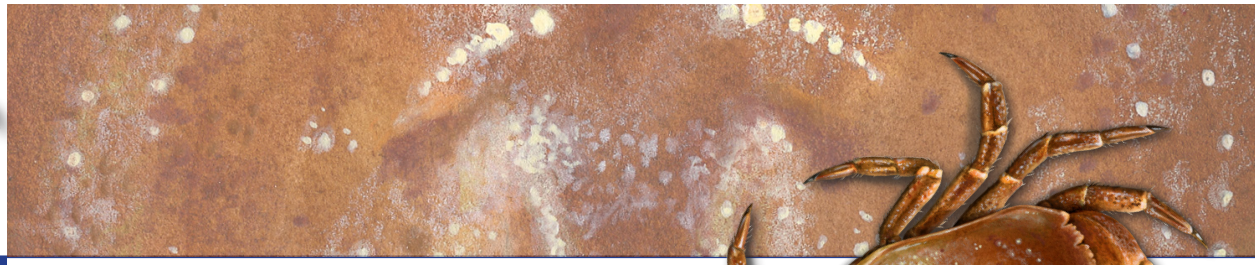
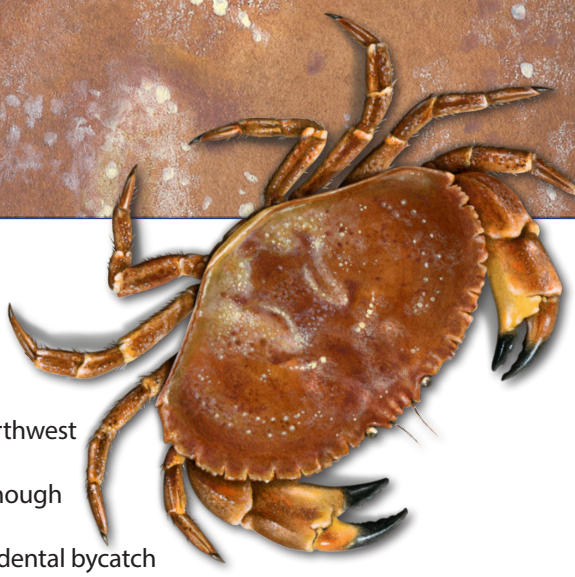
JONAH CRAB

Cancer borealis





Life History and Habitat Needs

Geographic Range

Jonah crabs are distributed in the waters of the northwest Atlantic Ocean from the intertidal zone to 800 m, primarily from Newfoundland, Canada to Florida though a few specimens have been reported as far east as Bermuda. Jonah crabs have been harvested as incidental bycatch in the lobster industry for at least 80 years. Landings fluctuated between approximately 2 and 3 million pounds throughout the 1990's. By 2005, landings increased to over 7 million pounds and then to over 17 million pounds in 2014. Landings in 2014 predominately came from Massachusetts (70%), followed by Rhode Island (24%), and New Hampshire and Maine (4%). Connecticut, New Jersey, and Maryland accounted for a combined 1.4% of landings.

Movement/Migration

The life cycle of Jonah crab is poorly described, and what is known is largely compiled from a patchwork of studies that have both targeted and incidentally documented the species. Female crab (and likely some males) are documented moving into the nearshore and even subtidal habitats during the late spring and summer. Motivations for this inshore migration are unknown, but maturation, spawning, and molting have all been postulated. It is also widely accepted that these migrating crab move back offshore in the fall and winter, though this phenomenon has not been quantified. Tagging studies are currently underway to further investigate movement patterns of this species.

Mating and Reproduction

Typically, crustaceans mate shortly after the female molts. In some crabs, such as blue crabs and Jonah crabs, males will pick up females and carry and protect them until molting occurs, and then they will mate. It is thought that mature female crabs typically produce one egg clutch/year and up to five broods/lifetime and that spawning occurs in late winter and early spring. Other species of brachyuran crabs bury themselves in soft substrate to ensure the success of egg extrusion and attachment to the pleopods and it has been surmised that Jonah crabs do the same. Female Jonah crabs are thought to attain sexual maturity near 89 mm carapace width and males at 128 mm, although these maturity indices are currently being reassessed by MA DMF in both New England inshore and offshore Jonah crab.

Habitat Use

Jonah crabs likely have spatial and temporal variability in habitat use; some of this seasonality has been hinted at in the current literature, but the overall description of habitat use remains severely lacking in specifics. Large adult Jonah crabs are caught in both hard and soft sediment habitats. It is widely thought that during spring in northern latitudes Jonah crab migrate to shallower waters where they remain until returning to deeper water in the fall and winter. Most studies that report optimal temperature for Jonah crab are consistent in reporting a range of roughly 8 – 12°C.

Threats to Habitat

As stated above, the information on the use of specific habitats by Jonah crabs is still lacking, however, the following are likely current threats to this species' habitat.

- Pollutants such as heavy metals, pesticides, and petroleum products
- Open water dumping of sewage sludge, and sewage treatment (chlorine), especially in areas susceptible to hypoxia
- Dredging and spoil placement, especially sediment high in organics (ammonia, sulfides)
- Offshore oil exploration and mining

ASMFC Fish Habitats of Concern

While overall habitat descriptions are incomplete, spawning locations in particular are not known, which might be of particular importance or concern toward biology and management.

Recommendations to Improve Habitat Quality

- Support water quality programs that reduce the severity and duration of hypoxia and pollutant concentrations in nearshore waters.
- Regulate environmentally destructive fishing gear and practices, and develop gears that minimize impacts to lobster and other crustacean habitat.

Habitat Research Needs

- Determine habitat requirements of newly settled and juvenile crabs.
- Determine habitat use for mature male and female crabs, with specific emphasis on habitat requirements for ovigerous females.
- Map, characterize, and quantify both juvenile and adult crab habitat throughout the species range.
- Larval transport and advection processes.

Additional Information

Jonah crabs are currently managed by the ASMFC under the Interstate Fishery Management Plan (FMP) implemented in 2015, and its two addenda. The FMP contains habitat considerations as well as other more specific information on this species. This FMP and other related documents are available on the ASMFC website at *www.asmfc.org* or by contacting the ASMFC Habitat Program Coordinator at 703.842.0740.

Atlantic States Marine Fisheries Commission www.asmfc.org