

Salve Regina University

Digital Commons @ Salve Regina

Narragansett Bay Species Accounts

Student Work

2024

Northern Pink Shrimp (*Pandalus borealis*)

Kaydin L. Pinto

Follow this and additional works at: <https://digitalcommons.salve.edu/nbsa>

Northern Pink Shrimp (*Pandalus borealis*)

Kaydin L. Pinto

Salve Regina University

February 24, 2024

The northern pink shrimp is a small crustacean found at the bottom of Narragansett Bay.

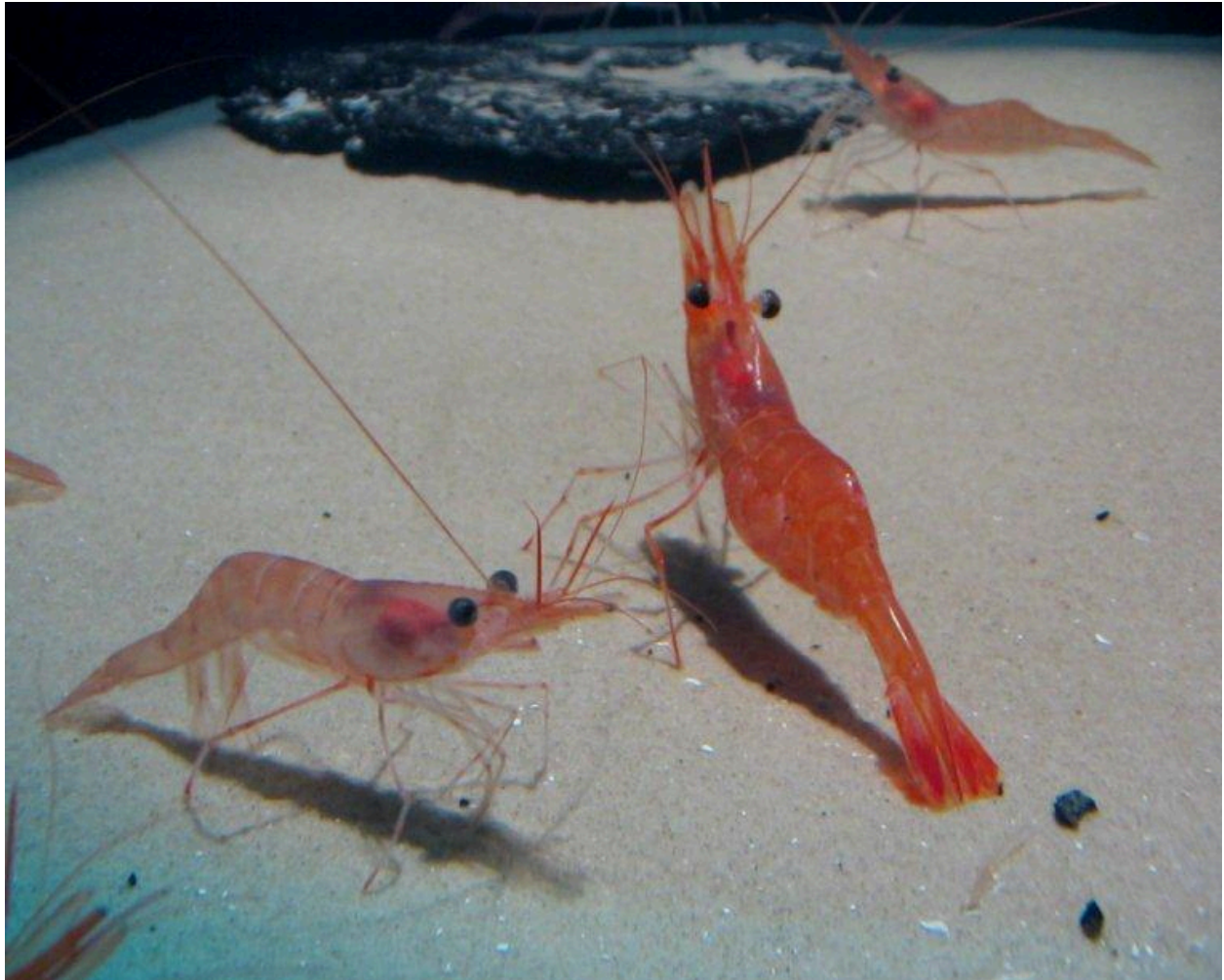


Figure 1: Two shrimp on the sea floor (Sienicki 2004)

Identification:

Northern Pink Shrimp are small crustaceans found in muddy areas. They are fast-growing organisms and can size from around 5- 10 cm (Fisheries, 2023). are called the northern pink shrimp due to their tails and bodies being a reddish pink color. They have 16 legs, six in the front and ten in the back. They have a beak-like growth in the center of their head called the rostrum that can be used to help keep upright while swimming backward, or like a sword to attack or

defend. Due to their small size and vulnerability, they are an easy target and are preyed on by several organisms. Some from the Narragansett Bay includes various fish, birds, and seals. They are usually found around rocky or sandy areas of the bay and feed on other small invertebrates and organic debris in the sediment. (Gaeng)

Similar Species:

There is another shrimp in the Narragansett Bay called the mantis shrimp (Stomatopoda) that may get confused with the northern pink shrimp only because they are the only other shrimp found in the Narragansett Bay. The Mantis shrimps look similar to a lobster-like crustacean. They are a dark grey color while the Northern Pink Shrimp is a lighter red color. These shrimps are bigger than the northern pink shrimp and are about 20 cm in length. They are an invasive species and were found in the bay recently.

Classification:

Northern pink shrimp:
 Phylum: arthropod
 Class: Malacostraca
 Order: Decapoda
 Family: Pandalidae
 Genus: *Pandalus*

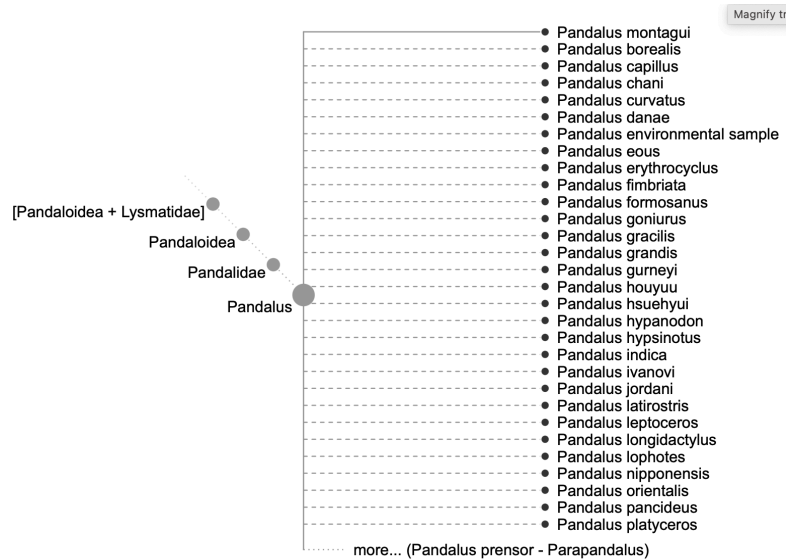


Figure 2: *Pandalus* (Open Tree of Life)

Geographic Variation:

The northern pink shrimp is closely related to the dock shrimp (*Pandalus danae*) aka coonstripe shrimp. These shrimp are similar in size to the northern pink shrimp and can get up to 14 cm (WDW, *Coonstripe shrimp* 2023). They are brown shrimp with brown stripes similar to a racoon

in contrast to the northern pink shrimp's pink color. These shrimp are found in the San Juan Islands and Northern Puget Sound.

Fossil History:

Limited fossil history.

Summary:

The northern pink shrimp is commonly found in Narragansett Bay but is also found in other places around the world. They are particularly unique in Narragansett Bay because they are the only native shrimp species to inhabit it. Northern pink shrimp can be confused in the Narragansett Bay with the invasive Mantis Shrimp but can be easily told apart from their vastly different size and color.

Distribution in Rhode Island:

The northern pink shrimp can be found in the waters of Maine, New Hampshire, and Massachusetts. Pink shrimp are not just bound to the north, they can be found in Chesapeake Bay, the Florida Keys, the Gulf of Mexico, and Cabo Catoche. Southwestern Florida and the Gulf of Campeche are where they are most abundant though.

They are found in soft-bottom habitats that are rocky or sandy areas. They inhabit deeper waters around a year after birth and can live from about 9 to 300 meters (30 to 1000 feet) below sea level. They stay nearer to the bottom during the day until they need to feed.

Behavior:

Northern pink shrimp of the Narragansett Bay feed mainly at night. These shrimp will spend the majority of their short life of about 5 years on the surface until night time when they feed.

Northern pink shrimp feed on small invertebrates and organic debris. This includes zooplankton, diatoms, sponges, polychaetes, amphipods, and isopods.

Northern pink shrimp are "protandrous hermaphrodites", meaning they change sex. They start as males until they are around three years old, they change to female and can produce eggs. They breed once annually, July through September. Females do not lay eggs until between March and May, however. Before breeding, males release pheromones to notify the female that they are ready to mate before the male mounts the female. ("Synopsis of biological data on the pink shrimp, *Pandalus borealis*", 1985; Tricarico and Aquiloni, 2015). Females can carry sperm for eight months before fertilizing their eggs. They carry, on average, about 2,000 eggs, but the number depends on the size of the female. She carries her eggs between her legs until they are hatched. Northern pink shrimp do not care for their young, the newborn shrimp are immediately independent.

Behavior Summary:

The northern pink shrimp can be found in other muddy northern waters besides the Narragansett Bay. These organisms are one of few that change sex as part of their development. They are all born male and develop into female later in their lives. They do not breed more than once annually, but can lay over 2,000 eggs at a time. As soon as these shrimp are born, they are on their own and fend for themselves.

Conservation and Management:

Though there is not a said number of northern pink shrimp found in Narragansett Bay, one could hypothesize that there is enough to help sustain the population due to them being sustainably managed under the United States regulations for harvesting shrimp. Though they have these regulations they may still be at risk of habitat loss, predation, and overfishing.

Priorities for Future Research:

There is not a number for how many northern pink shrimp there are in the seas. These shrimp are responsibly fished and there is no reason for populations to be declining in that way. Although that aspect of shrimp is protected for the most part, they are still at risk of habitat loss due to the invasive species, the mantis shrimp. Researchers and biologists should start conducting research on how to manage and help the northern pink shrimp when this invasive species takes over.

References

Alaska Department of Fish and Game (n.d.). Northern shrimp species profile, Alaska Department of Fish and Game. Northern Shrimp Species Profile, Alaska Department of Fish and Game.

<https://www.adfg.alaska.gov/index.cfm?adfg=northernshrimp.main>

Coonstripe shrimp. Washington Department of Fish & Wildlife. (n.d.).

[https://wdfw.wa.gov/species-habitats/species/pandalus-danae-pandalus-hypsinotus-pandalus-goniurus#:~:text=Dock%20\(coonstripe\)%20shrimp%3A%20A,c](https://wdfw.wa.gov/species-habitats/species/pandalus-danae-pandalus-hypsinotus-pandalus-goniurus#:~:text=Dock%20(coonstripe)%20shrimp%3A%20A,c)
m)%2C%20excluding%20the%20antennae .

Dealteris, J., & Lazar, N. (2011). Abundance, distribution, and life history characteristics of

mantis ... https://www.researchgate.net/publication/267876929_Abundance_Distribution_and_Life_History_Characteristics_of_Mantis_Shrimp_Squilla_Empusa_in_Narragansett_Bay_RI

Fisheries, N. (2023, October 13). Atlantic northern shrimp.

<https://www.fisheries.noaa.gov/species/atlantic-northern-shrimp>

Gaeng, J. (2023a, July 9). What lives at the bottom of the Narragansett Bay?. A.

<https://a-z-animals.com/blog/what-lives-at-the-bottom-of-the-narragansett-bay/>

Gambor shrimp. VASOVIC11. (n.d.).

https://www.vasovic.com/plodovi_mora_gambori_en.html#:~:text=The%20rostrum%2C%20from%20the%20Latin,shrimp%20when%20it%20swims%20backward

Mantis shrimp. Welcome to BugGuide.Net! - BugGuide.Net. (n.d.).

<https://bugguide.net/node/view/719303>

Sienicki, T (2004) *Pandalus borealis* [Photo]. Wikipedia

https://commons.wikimedia.org/wiki/File:Woda-6_ubt.jpeg

Sturniolo, D. (n.d.). *Pandalus borealis* (northern shrimp). Animal Diversity Web.

https://animaldiversity.org/accounts/Pandalus_borealis/