

Petrolisthes armatus - an introduced species in the South Atlantic Bight?

Classification.

Kingdom: Animalia
Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Anomura
Superfamily: Galattheoidea
Family: Porcellanidae
Genus: *Petrolisthes*
Species: *armatus*



Common Name. green porcelain crab

Authority. (Gibbes, 1850).

Type Locality. Florida.

Larval Development. Eggs hatch and metamorphose through two zoeal stages and one megalopal stage before becoming juveniles.

Zoea I



Zoea II



Megalops



Adult Size. A maximum body width of 12 to 14 mm. Mature females have been found between 3 and 4 mm body width.

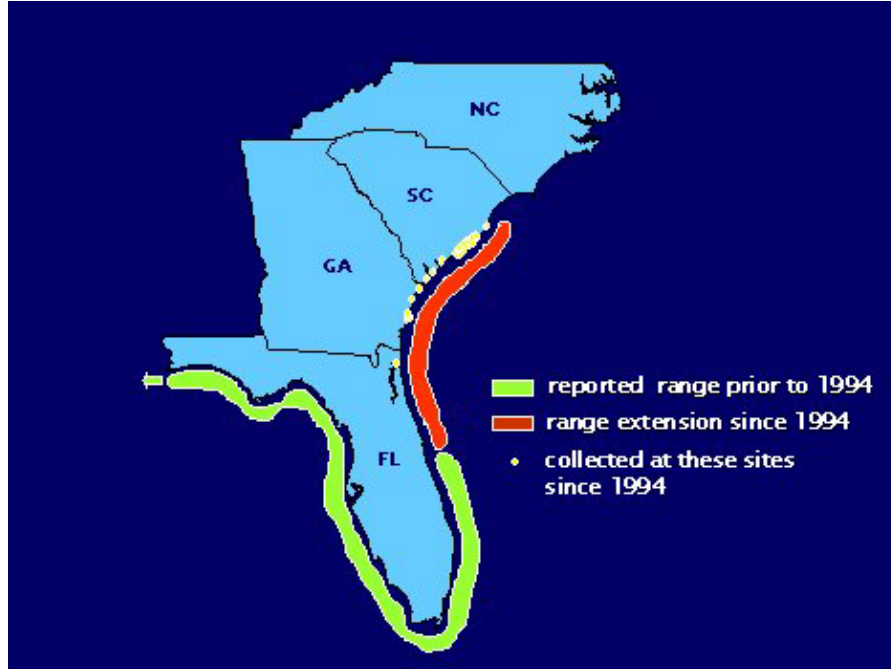
Color. Juveniles, speckled brown. Adults, orange-brown to dark brown. Mature specimens of both sexes may show varying amounts of brilliant blue pigmentation on some portion of the mouthparts.



Habitat. Rocky rubble, oyster reefs and other shallow sub-tidal and inter-tidal habitats.



Distribution. *South Atlantic Bight Region:* Recently well established along the Atlantic coasts of northeast Florida, Georgia and South Carolina (as far north as Murrells Inlet, SC).



Outside the SAB region: Widely distributed in the eastern Pacific, from the Gulf of California to Peru. In the Atlantic, it is found in tropical western Africa, Ascension Island, Bermuda, the Bahamas, throughout the Gulf of Mexico, the West Indies and Caribbean, and South America to southern Brazil.

An introduced species in the South Atlantic Bight?

As early as the 1930s, this species was collected from the Florida Atlantic coast at Biscayne Bay and Miami Beach, but was still rare in the Indian River area as late as 1977. Although it has become well established in the Indian River system since that time, it was not reported north of Cape Canaveral, FL until the fall of 1994, when faunal surveys at St. Catherines Island, GA revealed its presence there.

After its initial discovery on St. Catherines Island, the species increased dramatically in abundance there, becoming the dominant decapod crustacean on rocky substrates and tidal creek oyster bars by the following spring. In South Carolina, it was first observed in low densities in the spring of 1995 at various locations, becoming quite abundant by the fall. By the summer of 1997, densities at certain localities were as great as 44 individuals in a 1 m² tray. Densities greater than 20,000 individuals per m² have since been observed on collectors deployed for one month in its preferred habitat, and larval stages have been collected from the plankton of coastal inlets in Georgia.

There are many potential pathways for the introduction of this species into the South Atlantic Bight, both natural and from human activity. Although we have no data to suggest which of these is the principal pathway, several possibilities have been considered, including

transport in ballast water from foreign and domestic ports and among cultured mollusks transported from localities within its previously established range.

The introduction of *P. armatus* may be a case where unusual meteorological conditions have favored the establishment of a species that has been provided increased transport opportunities as a result of human activities like shipping and shellfish transport. From 1995 to 1998, winter-time surface temperatures in Charleston Harbor were substantially higher than normal; as much as 3-4°C above the 27-year average.

Nothing is presently known about the ecological impact of this recently established filter-feeding crustacean in its newly exploited habitat; however, studies are underway to examine its recruitment and to evaluate its interactions with co-occurring species.

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