

Evidence of multidecadal recruitment in the ocean quahog, *Arctica islandica* in the western Atlantic Ocean

Sara M. Pace, Eric N. Powell, and Roger Mann

Ocean quahogs (*Arctica islandica*) are the longest-lived, non-colonial animal known today, with maximum life span estimates exceeding 500 years. Ocean quahogs are a commercially important bivalve, inhabiting the continental shelf of the North Atlantic basin. Although considerable information exists on the growth and physiology of *A. islandica*, limited information is available regarding recruitment; accordingly how the stock will respond to declines in population biomass due to fishing is uncertain. A consequence is uncertainty in the biological reference points used to manage the fishery. We examined the age structure of ocean quahogs that were fully recruited to the commercial fishery (>80 mm shell length) from 4 sites covering the range of the stock within the US exclusive economic zone (EEZ) through analysis of annual growth lines in the hinge plate. Population age frequencies from each of the 4 sites have been used to develop an age-length key for each site enabling reconstruction of population age frequencies. All 4 sites experienced an increase in recruitment beginning between approximately 1855 and 1905, depending upon site. Few quahogs were present in prior years. Thereafter, at each site, the populations reached carrying capacity through more or less continuous recruitment. Strong year classes were only evident at 1 site and only prior to the population expansion to carrying capacity. This information will be used to develop a long-term recruitment index that will reduce uncertainty in the status of the stock and fishery by establishing a basis for improved biological reference points.

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Contact author:

Sara Pace

The University of Southern Mississippi's Gulf Coast Research Laboratory
sara.pace@eagles.usm.edu