



SCIENCE BY THE SEA®

INSPIRING A SENSE OF WONDER IN THE WORLD AROUND US

My Bonnet Comes from the Ocean

Scotch Bonnet (*Semicassis granulata*)



Photo Credit: Roberto Pillon

Image - Gastropods have existed since the early Cambrian (about 541 million years ago). Scotch bonnets first appeared in the Late Pliocene 2.6 million years ago.^{4,5} [Photo Credit: [Roberto Pillon](#)]

I discovered my first scotch bonnet in the late 1990s, while strolling the sands of South Core Banks east of Atlantic, North Carolina. The rare find on that cold winter's day has led to dozens more of the 2 – 4 inch shell deposits being collected over the last three decades. The intricate pattern of this delicate gastropod always leaves me mesmerized. There are 62,000 different species of gastropods that comprise 80% of their Mollusk group. Many gastropods, including the scotch bonnet, have a single spiraled shell with an *operculum* that seals the gastropod's opening and protects its fleshy body when predators such as fish and crabs attack.^{1, 2, 3, 4} Scotch bonnets are also in the same family as helmets (*Cassis madagascariensis*), which is another rare find along our shores.

Scotch bonnets take their common name from the scotch plaid pattern of orange, tan, or brown rectangles found on their outer shells. This characteristic, with its ties to the Scottish ancestors who founded North Carolina, played a key role in the designation of the Scotch bonnet as the state

shell in 1965.² Scotch bonnets are found along rocky and sandy sediments offshore of the U.S. East Coast in water depths between 50-150 feet are predators and feed on sea biscuits, sand dollars, sea urchins and echinoderms and. After covering prey with their snail-like bodies, they secrete sulfuric acid to weaken the prey's outer skeleton (exoskeleton) and expose the flesh for consumption.³

Spring mating season begins when mature female bonnets (1 – 6 years in age) generate an egg-tower*, 4 – 5 inches in height, containing hundreds of egg capsules and thousands of eggs.⁶ Males fertilize the eggs, which eventually hatch into free-swimming larvae. This plankton phase ends after 14 weeks when the beautiful shell begins to develop and the bonnets sink to their new life on the ocean floor.^{2,3}

Wonder More About Scotch Bonnets From These References:

¹ DiveSMART Gozo. Scotch Bonnet – *Semicassis granulata undulata*. DiveSMART Gozo, Dwejra. January 28, 2018. <https://www.divesmartgozo.com/scotch-bonnet-semicassis-granulata-undulata/>.

² iNaturalist. Scotch Bonnet Snail. September 13, 2019. <https://www.inaturalist.org/taxa/292430-Semicassis-granulata>.

³ Linert, Bethany. *Semicassis granulata*. Ashland University. Ashland, Ohio. May 19, 2016. http://ashlandscience.shoutwiki.com/wiki/Semicassis_granulata.

⁴ The Gastropoda: Snails and slugs, limpets, and sea hares. (Literature Cited: Holthuis, B.V. Evolution between marine and freshwater habitats: a case study of the gastropod suborder Neritopsina. Ph.D. thesis, University of Washington. 1995.) <https://ucmp.berkeley.edu/taxa/inverts/mollusca/gastropoda.php>.

⁵ Neogene Atlas of Ancient Life: Southeastern United States. *Semicassis granulata*. Paleontological Research Institution: Digital Atlas of Ancient Life. Ithaca, New York. March 14, 2020. <https://neogeneatlas.net/species/semicassis-granulata/>.

⁶ *Semicassis granulata granulata*. Selected Images of Western Atlantic: Gastropods, Cephalopods and Scaphopods. Jacksonville Shells. Florida. [*Egg Tower Images by: ElaineBlum and Anne DuPont (2012)]. <https://www.jaxshells.org/72312.htm>.

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