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INSPIRING A SENSE OF WONDER IN THE WORLD AROUND US

Sea-ing Stars….

Sea Star (*Asterias forbesii*): AKA Forbes Sea Star, Starfish

It's no secret that winter storms bring great shelling opportunities after the wind and sea have subsided. In addition to the plethora of seashells deposited in the aftermath, sea stars are often found along the storm debris line as well. There are 2,000 species of sea stars, including *Asterias forbesii*, featured here.[5] Sea stars are invertebrates, not fish, and belong to the group of animals known as echinoderms, meaning "spiny skin," and include brittle stars, sand dollars, sea urchins, and sea cucumbers.[1]

Image - Sea stars first appear in the fossil record of the Ordovician time period (490 – 443 million years ago).[4] [Photo Credit: Miriam Sutton, *Science by the Sea*®]

Plates of ossicles and connective tissue form their skeleton and allow them flexibility to crawl about on rocks and shellfish beds.[2,3] Sea stars have no brain or blood. Nutrients from seawater are transported throughout the sea star's vascular system through the orange dot, called a *madreporite*, found in the sea star's center. They reproduce sexually and externally. Females release 2.5 million eggs into the water column. This stimulates males to release their milt, containing sperm, and fertilization occurs externally in the surrounding seawater. The sea star's larval stage lasts about 3 weeks before they metamorphose from their free-floating plankton life to adulthood.[3,5] Eyespots are found at the end of each arm and assist the sea star in detecting light.[3] Sea stars are carnivores and use hundreds of miniature suction cups under their arms to pry open shellfish before exuding their stomach inside the opened shell. The sea star's stomach surrounds and digests their prey outside the sea star's body. Once the meal is ingested, the sea star pulls its stomach back into its body.[5] As odd as this digestive process appears, the sea star's true magical power is regeneration. The sea star can regenerate a detached arm or the complete organism if only one arm and at least one fifth of their central disk remain intact.[3] Sea stars can live up to 35 years and, although the most common species have 5 arms, other species have 10, 20, or 40 arms.[5]

Wonder More About Sea Stars From These References:

[1] NOAA. Are starfish really fish? National Ocean Service website, https://oceanservice.noaa.gov/facts/starfish.html, 2/12/20.
[2] University of Rhode Island. Adapted from *The Uncommon Guide to Common Life on Narragansett Bay*. Save The Bay, https://www.edc.uri.edu/restoration/html/gallery/invert/sea.htm. 1998.
[3] Chau, K. 2000. "Asterias forbesi" (On-line), Animal Diversity Web. https://animaldiversity.org/accounts/Asterias_forbesi/.
[4] UCMP Berkeley. Echinodermata: Fossil Record. Introduction to the Echinodermata. https://ucmp.berkeley.edu/echinodermata/echinofr.html. 09/15/95.
[5] National Geographic Partners, LLC. Starfish. https://www.nationalgeographic.com/animals/invertebrates/group/starfish/. 2020.

Pronunciations: Asterias forbesii (Ass-steer'-ee-us, for-beez'-zee); Madreporite (Mah-drap'-or-rite)

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