

## *Leptogorgia virgulata* (sea whip), *L. hebes* (regal sea fan), and their associates

### Classification:

Kingdom Animalia  
Phylum Cnidaria  
Class Anthozoa  
Subclass Alcyonaria (= Octocorallia)  
Order Gorgonacea  
Suborder Holaxonia  
Family Gorgoniidae  
Genus *Leptogorgia*  
Species *virgulata*  
*hebes*

### *What are they?*

The two species of *Leptogorgia* commonly found in South Carolina marine habitats, *Leptogorgia virgulata* and *Leptogorgia hebes*, are colonial animals belonging to a group of cnidarians referred to as octocorals. These sessile organisms generally have a flexible, internal horny axial skeleton, and an external tissue layer, called coenenchyme, which includes the animal polyps. Alcyonarians (octocorals), such as *Leptogorgia* species, have polyps with eight tentacles. In the Holaxonia, generally the coenenchyme contains sclerites or spicules, small calcareous skeletal elements which serve to support the colony structure and are also responsible for the color of the colony in some species. Often microscopic examination of these spicules is necessary to determine the identification of a specimen. Being cnidarians, octocorals have cnidae (stinging cells also known as nematocysts) for prey capture, defense, adhesion, etc. In most octocorals the cnidae are not potent enough to cause a stinging sensation in humans.

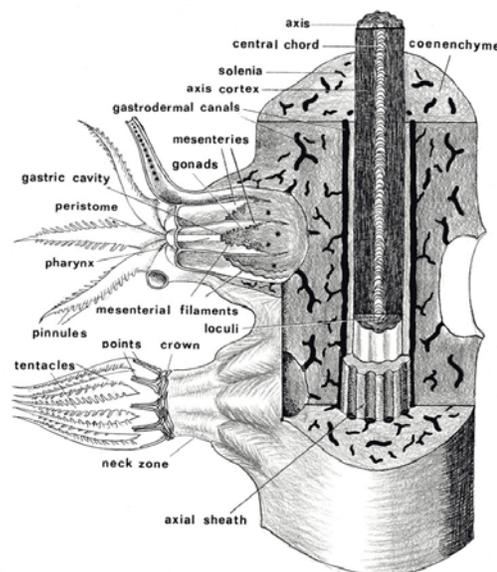


Figure 1. General diagram of gorgonian anatomy (modified from Bayer *et al.* 1983)

### *Habitat and distribution*

*Leptogorgia virgulata* and *L. hebes* are among the most common octocorals in the South Atlantic Bight. *L. virgulata* is often present in tidal creeks and estuaries, as well as on nearshore hardbottom areas where *L. hebes* can be found. The polyps are often expanded for suspension feeding in currents and surges. *Leptogorgia virgulata* colonies vary from yellow, red, orange, and violet. *Leptogorgia hebes* can be orange or red. Both species have translucent white polyps. *L. virgulata* is common from Chesapeake Bay to Georgia and the west coast of Florida to Brazil. *L. hebes* is found from North Carolina to Brazil and the west coast of Florida.



Figure 2. *Leptogorgia virgulata* (left) and *Leptogorgia hebes* (right), whole colonies.



Figure 3. *Leptogorgia virgulata* (left, with partially expanded polyps); *Leptogorgia hebes* (right) with polyps retracted.



Figure 4. Close up of *Leptogorgia virgulata* polyps. A yellow colony (left) and a red colony (right) showing spicules in coenchyme.

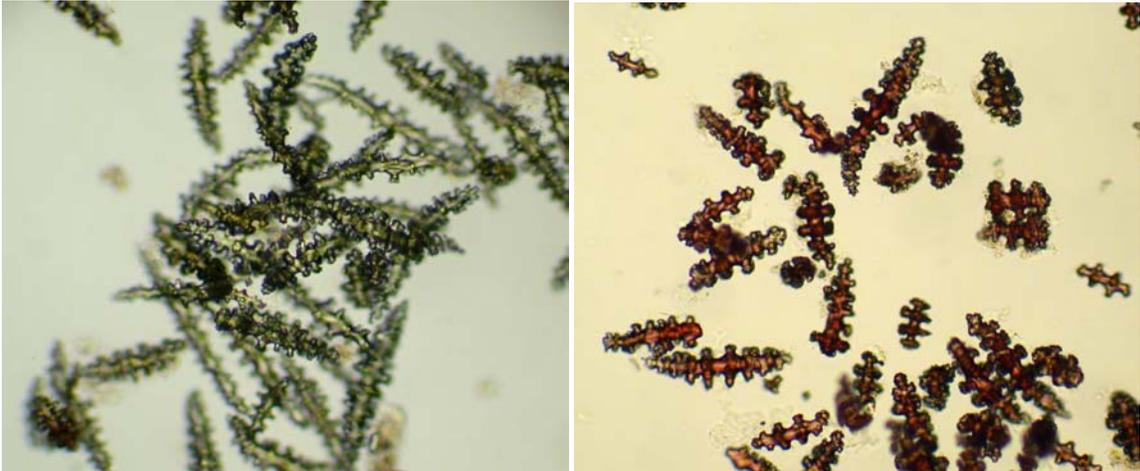


Figure 5. Spicules removed from *Leptogorgia virgulata* yellow colony (left) and red colony (right). The spindle shape of these spicules is typical of *Leptogorgia* species. The largest spicule is approximately 0.15 mm in length.

### Associates of *Leptogorgia virgulata* and *hebes*

Because these octocorals provide a complex structure on the reef, they have associated small invertebrates that are commonly found on their branches. Although *Leptogorgia virgulata* produces chemicals that inhibit barnacles and other fouling organisms from attaching, it also commonly is found with an attached sea whip barnacle, *Conopea galeata*, an obligate commensal that is covered by the coenchyme of the octocoral. This provides a safe place for the barnacle to settle. The benefits the barnacle provides for the *Leptogorgia* colony are unknown. The Atlantic pearl oyster, *Pteria colymbus*, is another sessile commensal organism that is often found attached to colonies of *Leptogorgia virgulata*.

Amphipods are usually attached to *Leptogorgia* colonies since the height of the colonies allow the crustaceans to feed higher in the water column than they would if they were restricted to the sea floor. One specialized amphipod, *Caprella equilibra* (skeleton shrimp) has grasping appendages that allow it to hold onto the colony with its posterior end and sway in the water in a cryptic fashion, much like a bit of seaweed. Other amphipods, such as *Erichthonius brasiliensis*, and isopods may also be found grasping the branches.

Two bryozoans (moss animals), *Alcyonidium hauffi* and *Membranipora arborescens*, are sometimes found encrusting the skeletons of *Leptogorgia virgulata* colonies. These animals are colonial and use the octocoral colonies for attachment. *A. hauffi* has a light gray, rubbery rind; *M. arborescens* forms white crusts and usually attaches to dead areas of the octocoral skeleton.

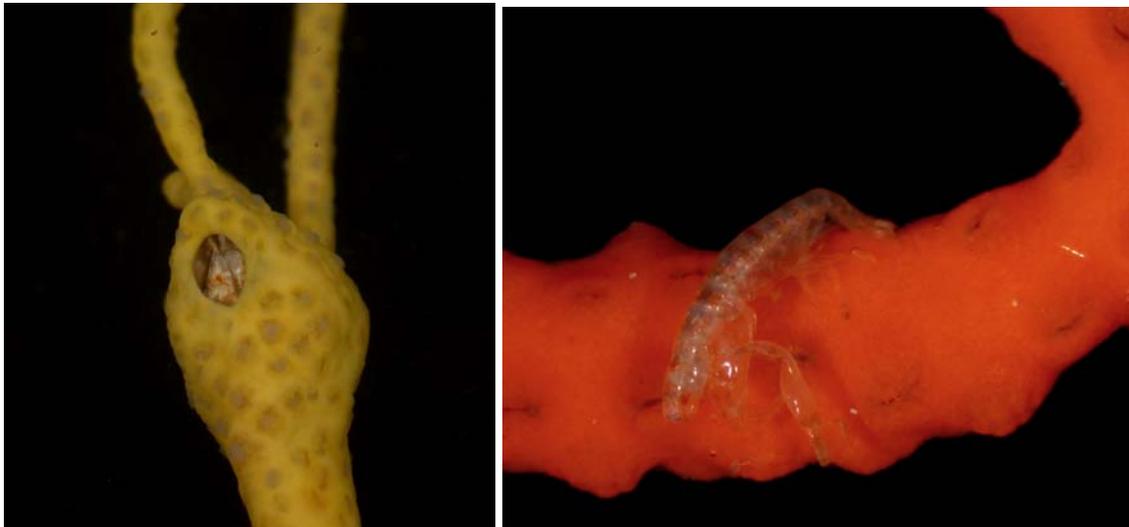


Figure 6. (Left) *Conopea galeata* (seawhip barnacle). The living tissue of the *Leptogorgia virgulata* colony overgrows the barnacle, leaving the opening for the feeding and mating appendages. (Right) An amphipod (*Erichthonius brasiliensis*) clinging to *Leptogorgia hebes*.



Figure 7. The bryozoan *Alcyonidium hauffi* growing on a branch of *Leptogorgia virgulata*.

There are three common predators of *Leptogorgia* that are often found living on the live colonies. Frequently these animals match the color of the colony where they reside. This obviously helps to camouflage them and may be the result of ingestion of host tissue. The one-tooth simnia, *Simnialena uniplacata*, feeds on *Leptogorgia virgulata* tissue and has shell coloration that matches the colony. Another mollusk, the sea slug *Tritonidoxa wellsi*, is also a common predator on *Leptogorgia* tissue, with cerata that resemble expanded octocoral polyps for mimicry. The seawhip shrimp, *Neopontonides beaufortensis* is also well disguised as it feeds on *Leptogorgia*.



Figure 8. The one-tooth simnia *Simnialena uniplacata* on a *Leptogorgia virgulata* branch

Perhaps as a result of the community living on *Leptogorgia* colonies, many other small invertebrates, such as small crabs, sea spiders, brittle stars, and gastropods, and fish may visit to prey on the octocoral associates. *Leptogorgia virgulata* and *Leptogorgia hebes* provide valuable complexity and habitat space to the southeast shallow hardbottom communities.

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