

## Is it a worm? A snail? ...No, it's a nudibranch!

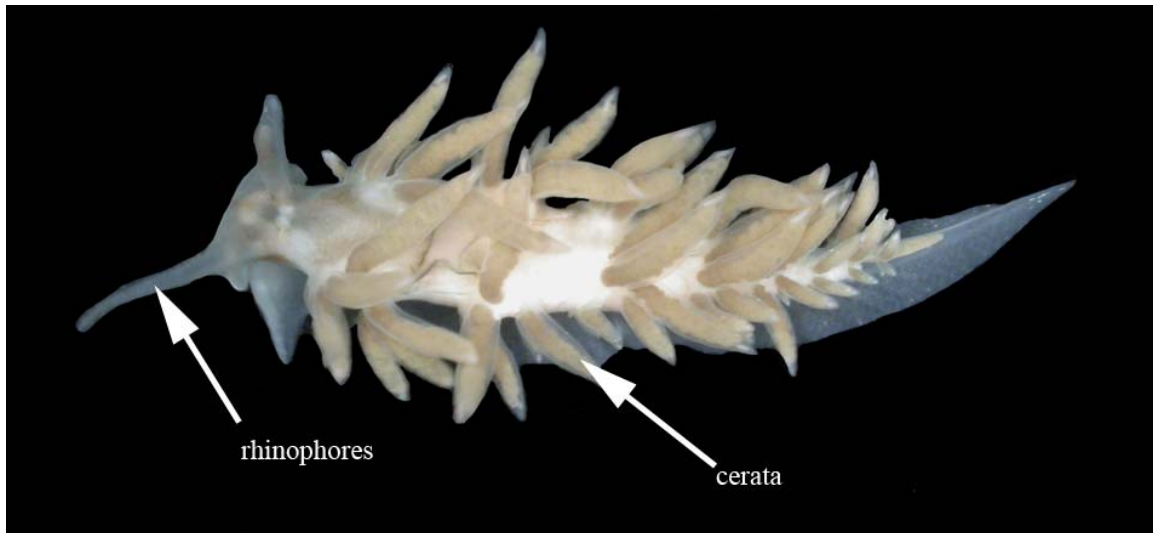
Kingdom Animalia  
Phylum Mollusca  
Class Gastropoda  
Order Opisthobranchia  
Suborder Nudibranchia

Unlike many of their slimy land counterparts, sea slugs (more formally known as “nudibranchs” – **new-duh-branks**) are amazingly beautiful creatures! If you've ever been lucky enough to spot one crawling around on seaweed or perhaps swimming around in an aquarium tank, then you will understand why many scientists are fascinated with these delicately graceful creatures.



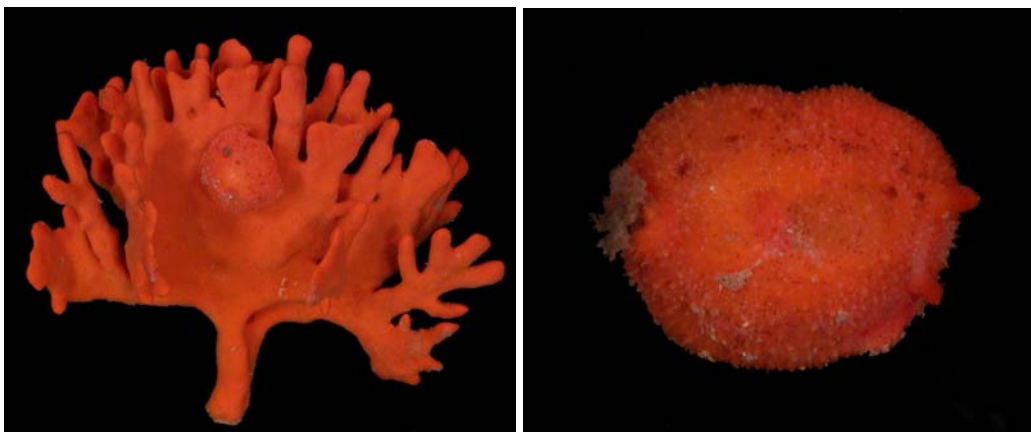
*Cratena pilata* (Gould, 1870)

Nudibranchs are gastropod mollusks. They belong to the same phylum that includes the whelks and many other shells that you find along the beach. Nudibranchs have just evolved a different type of body for a very different lifestyle – one that doesn't require them to surround themselves with a protective shell. Their body is soft and fleshy, they move around on a long muscular foot (similarly to land snails) and they have specialized tentacles (rhinophores) on their head that scientists believe they use to touch and sense their immediate environment. Some nudibranchs have a bushy cluster of gills toward the back of their body that they use for respiration, while others have tentacle-like structures (cerata) all over their body that are used for both respiration and defense. There are more than 3000 different species of nudibranchs currently known.



### Where do they live?

They are found on seafloors all over the world at depths below the intertidal zone (usually 10+ meters below the surface). They constantly glide along, using their muscular foot, over sediment, seaweed, rocks, sponges corals and other substrates, often taking on the colors and patterns of those substrates, which make for a very effective camouflage. Sometimes they will also swim from place to place, undulating through the water by flapping their body and cerata to and fro.



A nudibranch (*Doris verrucosa*) feeding on a sponge (left, in center), and a close-up of the same specimen (right).

### What do they eat?

Nudibranchs are carnivorous, meaning that they eat other small animals. As they glide around, they feed on all sorts of creatures (hydroids, tunicates, sponges, anemones, barnacles...to name a few) and sometimes they will even eat other nudibranchs. They have a hard, toothed feeding structure called a radula inside their mouth that helps them crunch up food items. Often they take on the color of their preferred prey, such as brightly colored sponges.

### Are they dangerous?

Well, not to humans! Since nudibranchs have no protective shell, they need other sorts of protection from potential predators. One form of protection is to blend in with the background (which many species do), but another type is to send some sort of signal to would-be predators – some species do this by exhibiting bright “warning” colors to signify that they may be toxic (see *Hypselodoris* below). Others emit chemical odors to deter predators. Yet another system of protection has been developed by nudibranchs that feed on anemones. The stinging cells in the anemones are swallowed intact by the nudibranch and then stored in the nudibranch’s cerata to be used in defense.



The Florida regal doris (*Hypselodoris webbi*) (left); *Tritonia bayeri* (right).

### Fun facts...

- The word nudibranch comes from the latin *nudus* (meaning naked) and the Greek *brankhia* (meaning gills) – this is because most of them breathe (take oxygen from the water) using tufts of “gills” – appendages that stick up into the water from their backs.
- Nudibranchs possess both female and male reproductive organs, but they don’t often self-fertilize. Having both sexual organs means that there is always a chance for reproduction if two adults of the same species cross paths. This is smart, considering their solitary, wandering lifestyles. Egg masses are generally laid on whatever surface the animal is feeding on (as on hydroids in the picture below) and are usually spiral shaped or coiled. The eggs develop into planktonic (free swimming) larvae, which drift on ocean currents until they settle out as adults.



nudibranch egg masses on hydroids

- One of the largest nudibranchs ever recorded, at 52 cm in length (~20 inches), was *Hexabranhus sanguineus* (also called the Spanish dancer) from the Red Sea. The smallest can be just a few millimeters long.

### Some related websites...

The Sea slug forum: <http://www.seaslugforum.net/>

*Hexabranhus sanguineus*: <http://www.seaslugforum.net/showall.cfm?base=hexasang>

Slugsite: A website with images and information of opisthobranchs from the east Pacific coast of North America and Central America, Caribbean and Western Pacific (Hawaii, Philippines). <http://slugsite.tierranet.com/>

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