THE IMPORTANCE OF SPONGES, CNIDARIA AND WORMS TO MARINE ECOLOGY

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Every sea organism is not separate and independent, but is interconnected with other organisms, water, with its physical and chemical parameters, etc. This diversity of interconnections forms a marine ecosystem. The most important function of the marine ecosystem is to transfer substances and energy. Sponges, cnidarians, and worms have a special role in this transfer. Thus, this descriptive essay explores the different species of sponges, cnidarians and worms, and their importance to marine ecology.

Sponges

These are multicellular organisms which are characterized by the presence of pores all over their bodies, and consist of a jelly-like mesophyll held between two layers of cells. The pores allow water to pass through the sponges, bringing in food and taking away wastes from the sponge's body. Examples of species within this category include the *Aplysina insularis,* (yellow tube sponge), *Niphates digitalis,* (pink vase sponge), and *Spirastrella coccinea* (Pink and red encrusting sponge).

The yellow tube sponge is typically found on the outer reef slopes and vertical walls of areas such as Bermuda, northern Brazil, Florida, the Bahamas and the Virgin Islands, just to mention a few. This species is predominantly found in subtropic climatic regions and is ecologically important since several animals live inside its protective lumen. Some of these animals include the sponge cardinal fish and certain species of neon goby.

Pink vase sponges are usually found in the Florida Keys, the Bahamas, the Caribbean and the Netherlands Antilles. Their climatic range is usually between the tropics. Similar to the yellow tube sponge, this sponge acts as a host for certain organisms such as *Parazoanthus parasiticus.*

The pink and red encrusting sponge inhabits the western Atlantic region including the Caribbean, Belize, Brazil, and USA. Similar to most sponges, the pink and red encrusting sponge flourishes in the sub-tropic regions at a water depth of 1 to 1.5 meters. They can also

be found in marine ponds, and mostly comprise the food of various aquatic animals such as turtles.

Cnidarians

Cnidarians are a group of about 10,000 species of comparatively simple invertebrate animals that exclusively inhabit the aquatic, mostly marine environments. Cnidarians consist of animals such as coral, jellyfish, sea anemones, and sea pansies among others. They are characterized by cnidocytes which are cells that carry stinging organelles.

Chrysaora fuscescens is a species of jellyfish also known as the sea nettle. Normally, sea nettles are found along the coasts of Oregon and California, although some may be found north to the Gulf of Alaska. However, more populations of *Chrysaora fuscescens* have been found off the coast of Oregon, probably due to climate change or influence of human activities. They can act as hosts to certain small fish and crabs which reside inside its bell and may feed on it. It also preys on several marine birds and large fish.

Epiactis prolifera, commonly known as the brooding anemone, is a species of sea anemone found in shallow waters of the northeast Pacific Ocean. They usually flourish in climatic regions closer to the poles. This species of anemones is ecologically important due to the symbiosis with certain sea animals. For instance, it attaches itself to the hermit crab or decorator crab, providing protection for the host while feeding on the food fragments discarded by the crab. The copepod is an example of an ectoparasite of the brooding anemone.

Another example of a cnidarian is the tall sea pen (*Funiculina quadrangularis*). Generally, sea pens are found in the tropical and temperate waters globally and inhabit soft mud in the deep waters. The tall sea pen is ecologically significant because it acts as a host to the curious deep water brittlestar *Astronyx loveni*, which attaches itself to the tall sea pen and catches food with its other arms (Scottish Natural Heritage, 2015, para 5).

Worms

Marine worms consist of those worms that live in the sea. These worms are found in different phyla including Platyhelminthes, Annelida, Nematoda, and Phoronida among others. They are normally found in the deep waters, reaching up to 4,000 meters. Examples of marine worms include the giant Antarctic worm (*Parborlasia corrugatus*), giant tube worm (*Riftia pachyptila*) and bootlace worm *(Lineus longissimus).*

P. corrugatus is a large proboscis worm that is normally found in the Antarctic marine waters. It can also be found in some tropical regions such as Southern Argentina, Peru, and Chile. This marine worm can be found in depths of up to 3,590 meters and is mainly a scavenger and predator. Its scavenging behavior makes it ecologically important as it helps to decompose dead animal material present in its habitat.

The giant tube worm is another example of a marine worm that inhabits the deep waters of the Pacific Ocean, reaching several miles deep. It is characterized by its tolerance of high hydrogen sulfide levels in the ocean. Due to the lack of sunlight in these depths, the worm utilizes bacteria to oxidize the hydrogen sulfide using dissolved oxygen as an electron acceptor (Gibson, Atkinson & Gordon, 2010, p. 213). The reaction provides the energy it requires for chemosynthesis.

The bootlace worm is another marine worm that is found on shallow coasts of temperate regions, mostly sandy shores, muddy shores and tide pools in Britain. *L. longissimus* is mainly a predator that uses its proboscis to immobilize prey, typically smaller crustaceans, crabs, and fish. The burrowing and tunneling of these worms help to irrigate and oxygenate the tide pools, facilitating the growth of marine plants and algae.

Conclusion

In conclusion, sponges, cnidarians, and worms are important to the marine ecology. Sponges can be found in marine ponds, and mostly comprise the food of various aquatic

animals such as turtles. Cnidarians can act as hosts to certain small fish and crabs which reside inside its bell and may feed on it. It also preys on several marine birds and large fish. Lastly, worms are ecologically important as they help to decompose dead animal material present in their habitat.

References

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