

Corals off Nova Scotia

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Capnella florida
© Pål B. Mortensen

Soft corals (Alcyonacea) and horny corals (Gorgonacea) are classified within the Octocorallia because the individual polyps have eight tentacles. They are closely related to the stone corals (Scleractinia) but lack the rigid, calcified skeleton. If you look closely at the coral you may see the tiny feathered tentacles of the individual polyps. These tentacles are used to capture organisms or particles from the water passing the colony which is why the corals are commonly found in benthic habitats with persistent currents. They are most commonly found attached to bedrock or gravel. To sieve enough food in a given time, filter-feeding animals require a large volume of water to pass through their tentacles. The polyps are able to contract and expand, which changes their appearance enormously. When the polyps are expanded, the colony appears soft and fuzzy. Contracted they look more like barren tree branches in winter.

Alcyonacea

The soft corals consist of a firm mass, throughout which calcareous spicules are dispersed. The surface is studded with polyps with tentacles. Some of the soft corals have an internal skeleton made of fused or individual spicules. Others have few, widely distributed spicules, clearly visible in the body wall and are soft, flexible, and bends in currents. Their collagen and spicular arrangement allow feeding by different species under different current regimes. Depending on the species, other minerals and proteinaceous material is often incorporated into the calcium carbonate matrix. In addition to an endoskeleton, most soft corals have a complicated apparatus of internal plumbing which serves to distribute food and nutrients throughout the colony. All of the polyps' guts connect to this conductive system, and so food can get distributed throughout the entire colony. Obviously, as well, wastes will also be dispersed either out of the colony with excess water, or near enough to the tissue surface so that the material will diffuse out. Three common soft corals on the Nova Scotia coast are the **strawberry coral** (*Gersemia rubiformis*), the **broccoli coral** (*Capnella florida*) and *Anthomastus grandiflorus*.

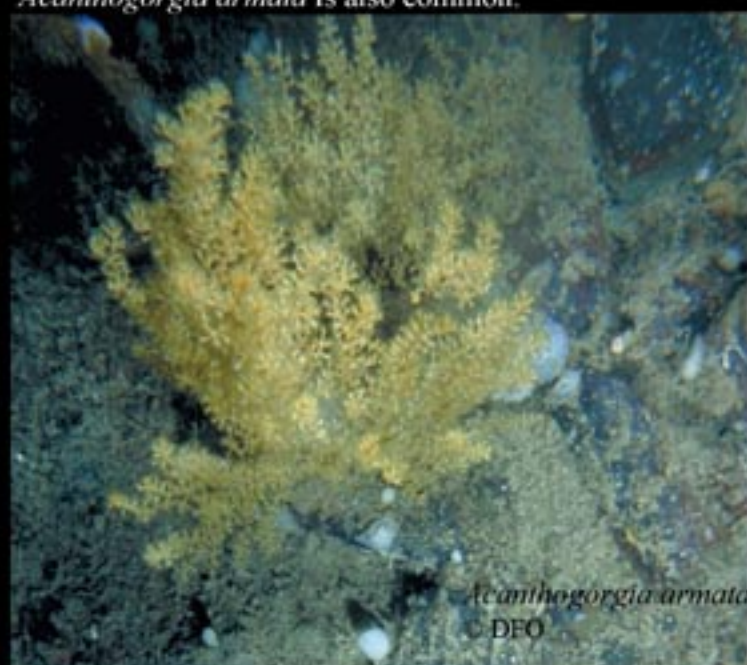


Anthomastus grandiflorus
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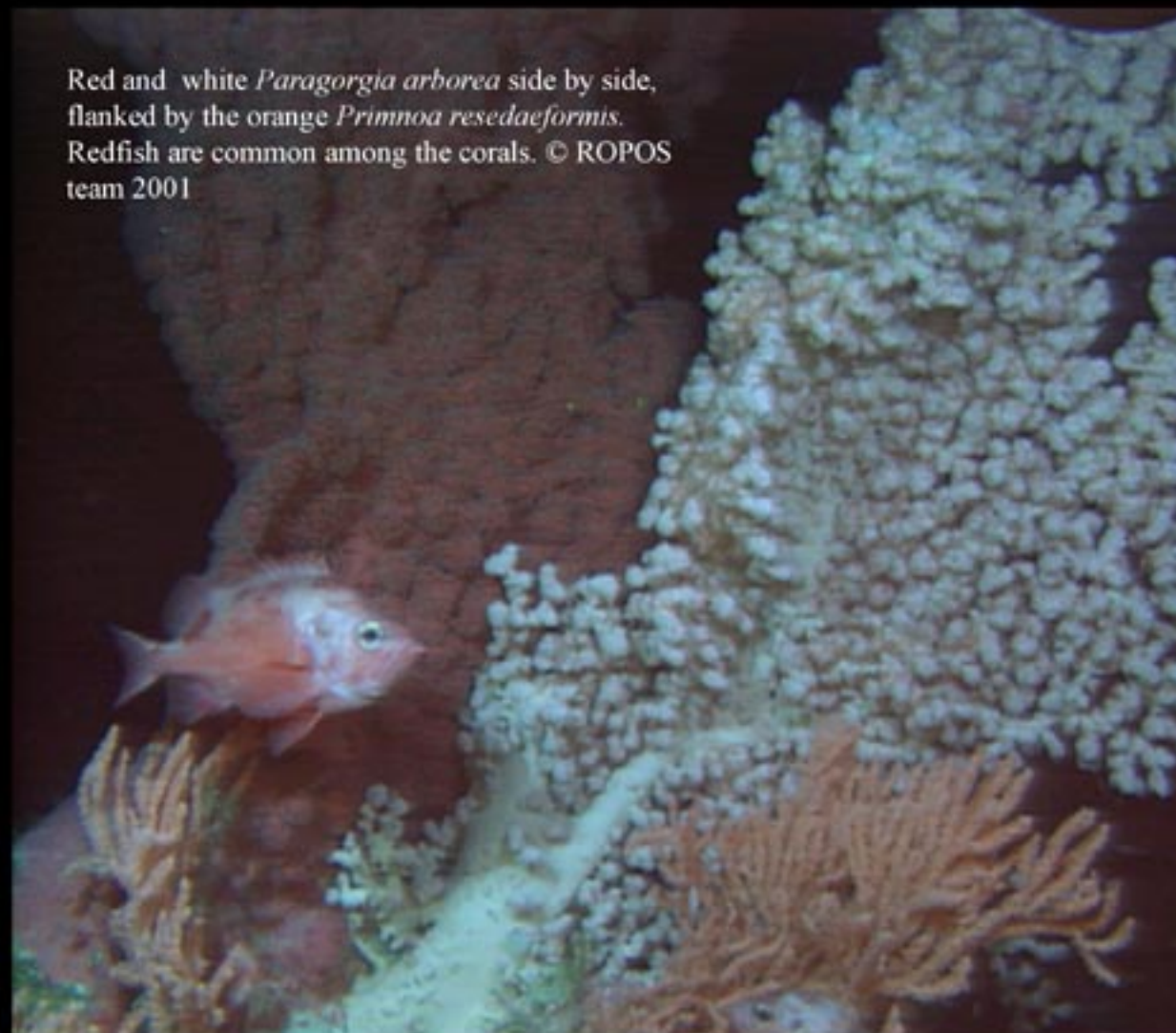
There are 6 species of Alcyonacea known from the Scotian shelf.

Gorgonacea

Horny corals or gorgonians are abundant at many tropical reefs as well as forming virtual forests on hardbottom in deep-waters (200-500m) off Nova Scotia. They are anchored to the bottom by a holdfast, out of which grows a central flexible trunk that branches up into the water column. These corals are made up of colonies of polyps, as are stony corals, but the gorgonians produce a protein skeleton. This skeleton is frequently a combination of sclerite pieces and a horny but flexible core of protein called gorgonin. The skeleton is covered by a soft layer called the rind. Coral polyps are embedded in this rind and extend their bodies through openings in order to feed. Two "forest" forming corals on the Scotia coast are the **rice coral**, *Primnoa resedaeformis* and the **bubblegum coral**, *Paragorgia arborea*. The latter species can form tree-like colonies more than 2 metres high. The small gorgonian *Acanthogorgia armata* is also common.



Acanthogorgia armata
© DFO



Red and white *Paragorgia arborea* side by side, flanked by the orange *Primnoa resedaeformis*. Redfish are common among the corals. © ROPOS team 2001

There are 10 species of Gorgonacea in deep water (>200 m) off Nova Scotia.

Scleractinia

The stony corals belong to the order Scleractinia. Stone corals can be distinguished from other types of corals by their hard calcium skeleton. They are basically six-rayed and for this reason, they are sometimes referred to as hexacorals. Colonial scleractinians in tropical seas are the world's primary reef-formers. They consist of large numbers of polyps, cemented together by the calcium carbonate that they secrete. Although various types of corals can be found from the surface to depths of 6,000 m most reef-building corals are found at depths of less than 50 m where sunlight penetrates. Because tropical reef-building corals have a symbiotic relationship with *zooxanthellae*, a type of microscopic algae, sunlight is necessary for them to thrive and grow. The deep-water corals, on the other hand, have no



Flabellum alabastrum
© Pål B. Mortensen

There are 10 species of Scleractinia known from deep-water (>200 m) off Nova Scotia.

symbiotic algae. Many scleractinians do not form colonies and some reef forming and solitary scleractinians live in temperate waters or below the photic zone. Off Nova Scotia at 300-500 m the solitary **cupcoral** (*Flabellum*) is common and the reef forming **spider hazard** coral *Lophelia pertusa* has been observed at a few places.