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IDENTIFICATION SHEETS FOR THE COMMON DEEP-SEA CORALS OFF THE NORTHEAST AND MID-ATLANTIC U.S.

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The deep-sea corals listed here may not be the only ones that occur at depths 0 – 500 m in this region, but are judged to be the most likely to be encountered by bottom tending fishing gear on the continental shelf and at the shelf edge and slope. Although a number of the corals described here have been known to occur at depths < 200 m, many of them are often most likely to be found at deeper depths.

Deep-sea coral taxonomy and nomenclature is in a constant state of flux, so the coral classification scheme and names presented here may be different in other literature, or could change at any time. This helps to make precise identifications for some coral species notoriously difficult.

Many of the photographs and species descriptions, especially for the soft corals, were compiled from Canadian field guides, literature, and online sources – for a complete list, see sources and references.

Soft Corals – Alyconaceans

Source: Bourbonnais et al. 2003

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Source: Kenchington et al. 2009

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Paragorgia arborea

(Bubble Gum Coral)

Tree-like. Large colonies commonly fan-shaped. Thick main stem with branches, tips usually > 5 mm. Brittle, broken pieces typically collected. Spongy skeleton. Polyps white to tan, orange, pink and red, dark purple. Height up to at least 3 m. Attached to hard substrates, usually at depths > 200-300 m.

Soft Corals – Alyconaceans

Source: Bourbonnais et al. 2003

Primnoa resedaeformis
(Sea Corn Coral)

Bush or tree-like with densely branched colonies. Stiff but flexible skeleton, hard and rigid at base. Polyps surrounded with small scales. Polyps pink to orange, dead colonies without polyps usually have a pale gray skeleton although sometimes gold, brown, or black. Height up to 120 cm. Attached to hard substrates at depths > 150-200 m.

Source: Bourbonnais et al. 2003

Source: Kenchington et al. 2009

Source: Kenchington et al. 2009

Soft Corals – Alyconaceans

Source: Kenchington et al. 2009

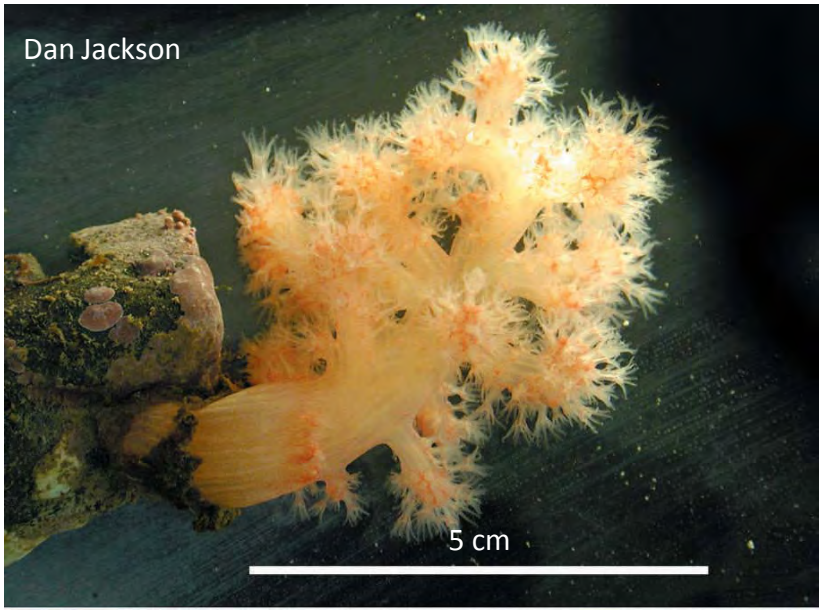
Paramuricea spp.

Fan-like with curving branches arranged in loose and irregular pattern in one plane. Flexible skeleton, rough to touch. Polyps yellow, orange, or pink; skeleton green to brown, gray, or black. Height up to 80 cm. Attached to hard substrates at depths > 150 m but more common deeper.

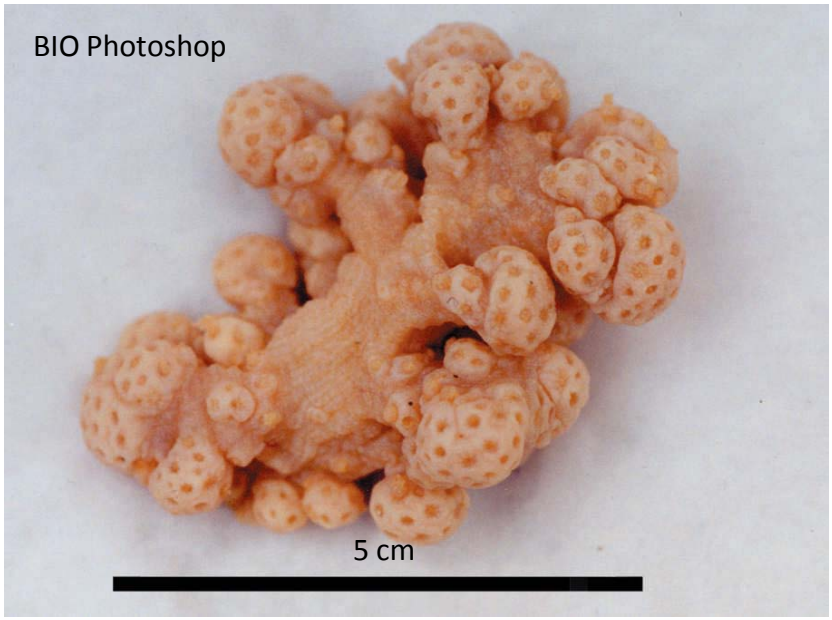
Source: Kenchington et al. 2009

Source: Bourbonnais et al. 2003

Soft Corals – Alyconaceans



Source: Bourbonnais et al. 2003



Source: Bourbonnais et al. 2003

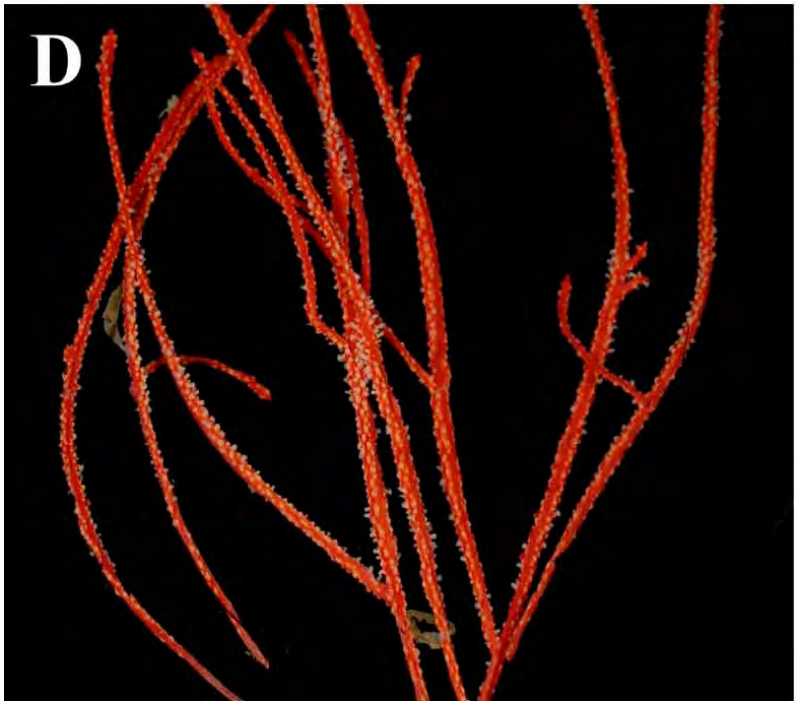
Source: http://www.arcodiv.org/seabottom/cnidaria/Gersemia_rubiformis.html

Gersemia rubiformis

(Sea Cauliflower, Sea Strawberry, Red Soft Coral)

Soft but firm, branching with polyps in tight clusters, soft tissue with no skeleton. Shaped like broccoli when open, cauliflower shape when retracted. Color red, pink, orange, yellow, tan. Height usually < 15 cm but typically < 5 cm. Attached to both hard substrates and suitable hard substrates (e.g., shells, gravel) on soft (e.g., sandy) bottoms. Sublittoral to depths > 200 m; in Canada can be found in shallow water on fishing banks.

Soft Corals – Alyconaceans



Source: DeVictor and Morton. 2010

Source: NC Parks;
http://arlohemphill.com/2012/12/05/marylands-coral-gardens/

Leptogorgia virgulata

(Sea Whip, Colorful Sea Whip)

Distinctive colony form with whip-like branches, moderately branched close to attached base. Branches 2–5 mm dia. with multiple rows of polyp mounds all around, sometimes with a bare strip. Colonies may be uniform orange, yellow, purple, white, or various shades in-between; polyps translucent to white. Typical size from 15-60 cm; up to 1 m. Occurs from New York south at depths of 3-20 m; very common/abundant in the South Atlantic Bight. Found on hard substrate including shallow hardbottom reefs, shell bottoms, wrecks, artificial reefs, bays, tidal creeks.

Stony Corals – Scleractinians

Dasmosmilia lymani

Hard, small, tissue pale-orange, mostly solitary cup coral, skeleton has many blade-like plates (septa) at top. Small accessory lobes or axial structures called pali (singular: palus) present on the inner edges of the septa in the middle of the oral surface (see illustration in the Appendix). Found on soft substrates from ~50 m depth. Common on shelf; e.g., head of Hudson Canyon). Always attached to a fragment (sector) of a parent coral skeleton from which it asexually fragmented, or has broken base.

Source: Cairns and Kitahara (2012)

Source: Cairns and Kitahara (2012)

Stony Corals – Scleractinians

Source: Cairns and Kitahara (2012)

Desmophyllum dianthus

Large pale pink, yellow, or orange solitary coral, light brown, grey, or white skeleton with many blade-like plates (septa) at top. Top is circular, elliptical, or scalloped, no pali present (see Appendix). Often occurs in clusters, but unlike *Dasmosmilia*, is attached to the substrate. Restricted to hard substrates from ~80 m depth.

Source: Cairns and Kitahara (2012)

Source: CaRMS Photogallery / Fisheries and Oceans Canada, Vonda Wareham (2011)

Source: Nizinski et al. NOAA/NMFS/NEFSC, WHOI 2012

Stony Corals – Scleractinians

Source: CaRMS Photogallery / Nozères, Claude, 2010

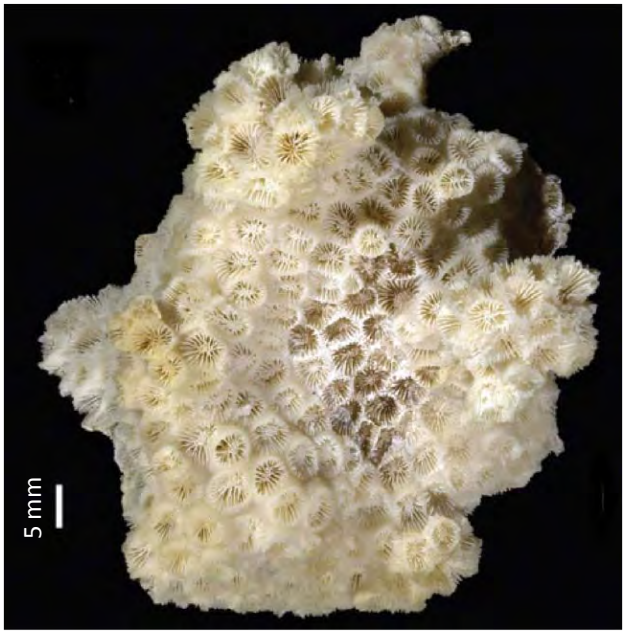
Flabellum alabastrum

Solitary, conical or cup-like, no stalk, with blade-like plates (septa) at top. Cup "pinched in center. Height usually < 7-8 cm. Tissue is transparent to yellow, orange, pink, or red; skeleton is white. Unattached on muddy or sandy mud substrates at depths > 200-300 m along continental slope.

Source: CaRMS Photogallery / Fisheries and Oceans Canada, Vonda Wareham (2011)

Source: CaRMS Photogallery / Fisheries and Oceans Canada, Vonda Wareham (2011)

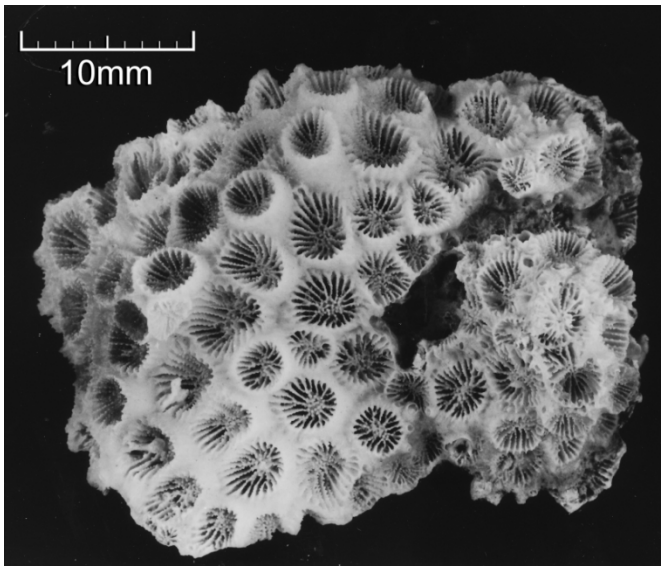
Stony Corals – Scleractinians



Colony. Source: Cairns and Kitahara (2012)

Astrangia poculata (Northern star coral)

Colonies are small and encrusting, mounding, or branching. The individual coral skeletons (corallites) are tightly compacted, mostly circular, and up to 10 mm in diameter. Polyps can be brown if they contain symbiotic algae (zooxanthellae) or white/translucent if they do not. Common from very shallow waters to depths of about 263 m on a wide variety of hard substrates: rocky bottoms, ledges, jetty pilings, shells, shipwrecks.



Source: http://coral.aims.gov.au/speciesPages/species_metadata/0774/image#

Source: http://www.dpr.ncparks.gov/photos/fromNRID.php?sciName=Astrangia%20poculata&pid=4076&source=pub&page=1

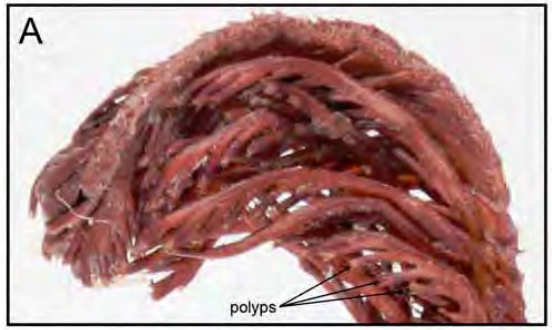
Source: http://www.dpr.ncparks.gov/photos/fromNRID.php?sciName=Astrangia%20poculata&pid=2073&source=pub&page=1

Sea Pens – Pennatulaceans

Pennatula aculeata (Common Sea Pen)

Elongated fleshy stalk supported by a calcium carbonate rod. Upper part feather like with polyps; lower part is an enlarged fleshy peduncle without polyps. Deep red/purplish, becoming lighter and more orange on stalk and yellowish-white at the base. Up to 40 cm in length. Most common and abundant in Gulf of Maine in soft sediments (mud) though often seen farther south; depth range ~80 m to beyond 500 m.

Source: Kenchington et al. 2009

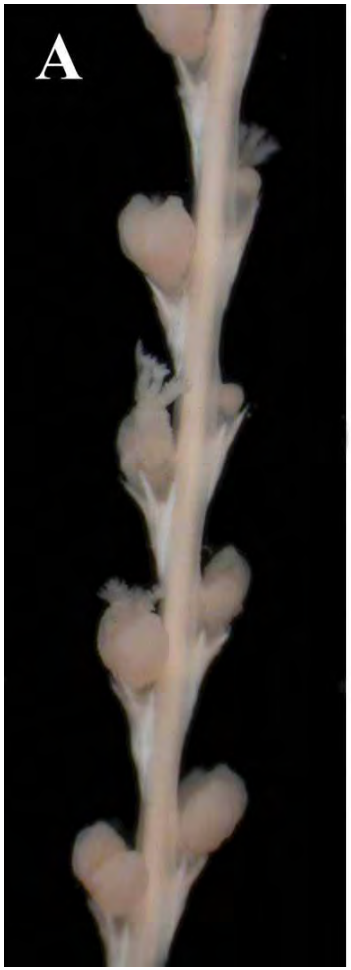


Source: Kenchington et al. 2009

Source: http://www.marinespecies.org/photogallery.php?album=708&pic=31988

Source: CaRMS Photogallery / Fisheries and Oceans Canada, Claude Nozères, 2011; http://www.marinespecies.org/carms/photogallery.php?album=2224&pic=41361

Sea Pens – Pennatulaceans

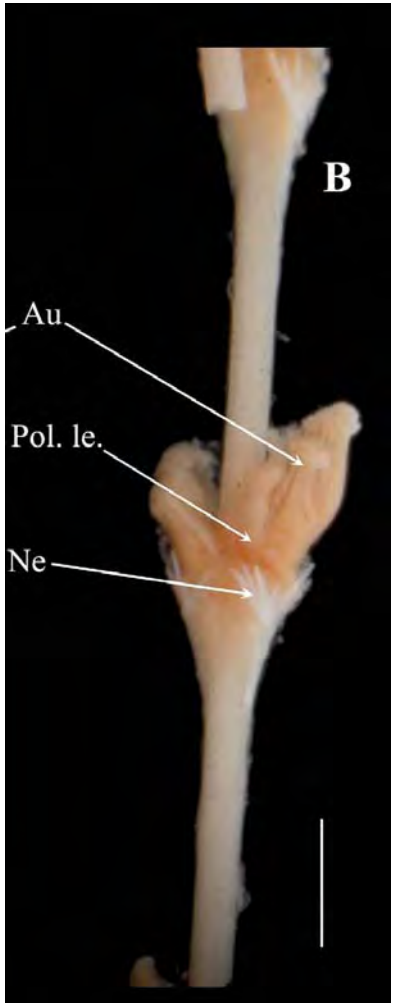


Source: Devictor and Morton 2010

Stylatula elegans (White Sea Pen)

Corals with a distinct white axis and light brown polyps arranged in leaves, giving the colonies a bilaterally symmetrical form. Colony slender and flexible, polyp leaves arranged in offset pairs distinctly separated along the axis. Sclerites (calcareous structures) in form of large needles, forming fan-like structures beneath leaves, which contain up to six polyps. Approximately 10 large needles in each fan, reaching 1 mm in length, with smaller needles interspersed. Most common and abundant from New Jersey south in soft sediments; depth range ~50 m to beyond 500 m.

White sea pens on muddy sand near Hudson Canyon, 119 m. Source: P.C. Valentine, USGS.



Au = polyps; Pol. Le = polyp leaves; Ne = needles (scale bar = 1 mm).
Source: Devictor and Morton 2010

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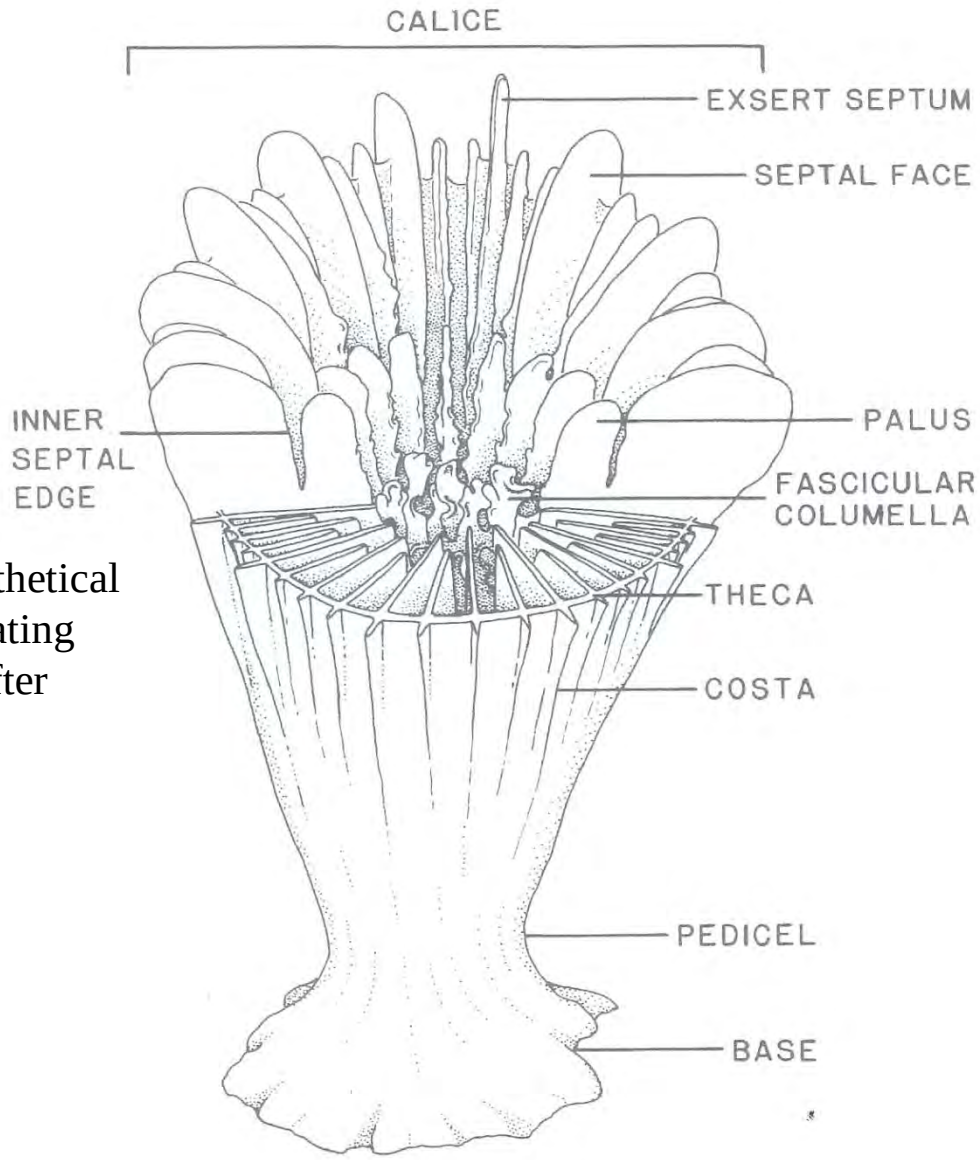
APPENDIX



Cutaway drawing of hypothetical solitary stony coral illustrating morphological features (after Cairns 1981).