

Photographic Identification Guide to Some Common Marine Invertebrates of Bocas Del Toro, Panama

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This identification guide is the result of intensive sampling of shallow-water habitats in Bocas del Toro during 2003 and 2004. The guide is designed to aid in identification of a selection of common macroscopic marine invertebrates in the field and includes 95 species of sponges, 43 corals, 35 gorgonians, 16 nemerteans, 12 sipunculeans, 19 opisthobranchs, 23 echinoderms, and 32 tunicates. Species are included here on the basis on local abundance and the availability of adequate photographs. Taxonomic coverage of some groups such as tunicates and sponges is greater than 70% of species reported from the area, while coverage for some other groups is significantly less and many microscopic phyla are not included. Since this guide does not include microscopic structures such as spicule morphology in sponges and gorgonians, or internal soft anatomy which is often necessary for accurate identification of marine invertebrates, certain identification of many species will require subsequent detailed examination in the laboratory. We expect that the photographs and descriptions provided here will significantly increase the ease with which preliminary field identifications can be made.

PHYLUM PORIFERA

Clathrina primordialis (Haeckel, 1872)

Identification—Flat cushions (0.5-3 cm in diameter) comprised of a tightly knit trelliswork of tubes about 1 mm wide. Bright, lemon-yellow to pale yellow. Compressible, fragile. The surface is smooth. Few oscules (1-2 mm wide).

Distribution—Common, on peat banks and occasionally grow on other sponges.

Notes—Scale = 1 cm. Photo by M. C. Díaz



Plakortis angulospiculatus (Carter, 1882)

Identification—Thick encrusting (1-5 cm thick). Brown to greenish-gray, or yellowish externally, lighter brown to tan internally. Smooth surface, but it may have papillae or slits. Oscules (<1 cm wide), with a collar-membrane. Dense (like cheese) and compressible.

Distribution—Rare, found on mangrove roots, peat banks, and open reef environments (0.5-50 m deep). Wide Caribbean.

Notes—Close species are *P. halichondroides* (Wilson, 1902) a dark-chocolate species, with a dark exudate, and *P. zygompha* (De Laubenfels, 1934) a thin species (3-6 mm in thickness). Scale = 3 cm. Photo by M. C. Díaz.





***Plakinastrella onkodes* Ulizka, 1929**

Identification—Thick encrusting to massive-lobate (up to 15 cm high). Brown to gray-black externally, tan internally. Some specimens show darker spots. Oscules with a membrane (1-2 cm wide). Smooth, but slightly rough surface to the touch. Compressible and dense.

Distribution—Rare, found on reefs open habitats (>10 m deep). Belize, Colombia, Panama, West Indies.

Notes—Contracts when touched. Scale = 1 cm. Photo by M. C. Díaz.



***Aiolochoiria crassa* Hyatt, 1875**

Identification—Massive to lobate. Bright yellow, brown, or purple externally, yellow internally. Surface has knob-shaped conules (3-4 mm high, and up to 1 cm apart). Dense like cheese. Oscules with membranes (1-2 cm wide) on top of lobes.

Distribution—Open reef and seagrass (3-30 m deep). Caribbean, Bermuda, and Brazil.

Notes—Out of the water the specimens turn dark purple to black. Scale = 5 cm. Photo by M. C. Díaz.



***Aplysina cauliformis* Carter, 1882**

Identification—Ramoses, with erect or repent branches (0.5-3 cm wide and 20-60 cm long). Brownish-pink to purple externally, tan internally. Microconulose surface (0.1-0.2 mm high, <0.5 mm wide). Skeletal mesh with mean area of 0.4 mm².

Distribution—Common on reefs, 2-20 m deep. Caribbean, Bermuda, Brazil.

Notes—Similar to *A. fulva*, but oscules usually in rows and much tighter mesh system. Scale = 8 cm. Photo by M. C. Díaz.



Aplysina aff. insularis

Identification—Massive with digitate projections (1-3 cm long and 0.5-3 mm wide). Yellow with reddish spots externally, and yellow internally. Compressible. Microconulose surface with membrane-bearing oscula (3-6 mm wide).

Distribution—Panama.

Notes—*A. insularis* has single or aggregated tubes >10 cm high and longer fistulose projections. Further study is required to evaluate this species. Scale = 2 cm. Photo by M. C. Díaz.



***Aplysina fulva* (Pallas, 1776)**

Identification—Ramoses, with erect branches mostly (up to 2 cm wide, and 20-60 cm long). Bright yellow to ochre externally, and bright yellow internally. Surface conulose (0.5 mm high, 1 mm wide). Fiber network with meshes of 1 mm² in mean area.

Distribution—Open reefs, 2-15 m deep. Caribbean, Bermuda, Brazil.

Notes—Hard to distinguish from *A. cauliformis*. Oscules tend to be spread all around the branches. Turn black when out of the water. Scale = 4 cm. Photo by M. C. Díaz.



***Aplysina lacunosa* (Lamarck, 1815)**

Identification—Hollow cylinders (up to 1 m high). Surface with deep grooves (0.5-1 cm deep), and finely conulose (0.5 mm high and 0.5-1 m apart). Yellow, green, ochre, or reddish-brown, externally, tan-yellowish internally. Oscules with membrane on top of the tube (2-8 cm in diameter). Compressible but tough.

Distribution—Deeper parts of reefs (> 5 m deep). Caribbean, Brazil.

Notes—In Bocas the species occurs shallower than in other Caribbean localities reported. Scale = 5 cm. Photo by M. C. Díaz.



***Verongula rigida* (Esper, 1794)**

Identification—Massive-lobate, with membrane-bearing oscula (up to 3 cm wide). Yellow, to reddish-brown externally, and bright yellow internally. Surface with ridges (up to 5 mm high), that run straight, or sinuously, forming angular to honeycomb patterns.

Distribution—Common on open reef habitats more than 3 m deep. Caribbean, Florida, Brazil.

Notes—The sponge turns black when taken out of the water. Scale = 10 cm. Photo by M. C. Díaz.



***Verongula reiswigi* (Alcolado, 1984)**

Identification—Tubes almost as wide as tall (10-15 cm high). Green with yellow, and bluish spots externally, yellow internally. Surface with ridges (2-4 mm high) that run parallel, or sinuously. Soft in consistency. Turns black when taken out of the water.

Distribution—Open reef, rare. Cuba, Panama, Belize.

Notes—Scale = 10 cm. Photo by M. C. Díaz.



***Spongia tubulifera* Hyatt, 1877**

Identification—Massive sponge with oscular tubes (5 mm wide, 5-10 mm high). Brown to black in color externally, tan internally. Conulose surface, some tubercle-like projections (few mm high, 2-3 mm wide). Compressible.

Distribution—Common to rare on mangrove roots. Wide Caribbean, Florida, Mexico, North and South Carolina.

Notes—This species is similar to *Spongia pertusa* but is easily differentiated by its oscular tubes and tubercle like prominences found on the surface. Scale = 2 cm. Photo by M. C. Díaz.



***Spongia pertusa* Hyatt, 1877**

Identification—Massive-amorphous to globular. Black externally and tan internally. Surface smooth to the eye, but microconulose under the microscope (conules 0.2 mm high, 1 mm apart). Membrane-bearing oscula (0.5-1 cm) dispersed irregularly over the sponge body. Compressible, easy to cut.

Distribution—Common on mangrove roots. Caribbean, Florida, Brazil.

Notes—Scale = 2 cm. Photo by K. Rützler.



***Hyrtios proteus* (Duchassaing & Michelotti, 1864)**

Identification—Massive-amorphous to globular. Black externally, tan internally. Surface with conules 2-3 mm high, 1-4 mm apart. Membrane-bearing oscules (1-5 mm wide) scattered or on mound-like elevations. Compressible, tough to tear. Overgrown by other organisms.

Distribution—Common on mangrove, seagrass, and shallow reefs (0.5-5 m deep). Caribbean, Florida, Gulf of Mexico.

Notes—Similar to *Spongia* species but tougher. Scale = 10 cm. Photo by M. C. Díaz.



***Ircinia campana* (Lamarck, 1816)**

Identification—Vase shaped. Reddish brown externally, tan internally. Oscules (1-5 mm wide) on the inner side. Surface conulose (1-5 mm high, 2-9 m apart). Compressible in consistency, tough to cut.

Distribution—Rare on mangroves, and reefs (5-15 m deep). Wide Caribbean, Florida, Gulf of Mexico, North Carolina.

Notes—All *Ircinia* spp. have a characteristic foul odor. Scale = 8 cm. Photo by M. C. Díaz.



***Ircinia felix* ((Duchassaing & Michelotti, 1864))**

Identification—Massive-amorphous, globular, encrusting, flabellate or ramose. Reddish-brown to grey externally and tan internally. Conulose surface (1-2 mm high, 2-3 mm apart). Membrane-bearing oscules (1-8 mm wide), with white or dark rims, scattered. Compressible but extremely tough to be cut.

Distribution—Common on mangroves, and shallow reefs. Caribbean, Bermuda, Florida, Gulf of Mexico, Brazil, North Carolina.

Notes—Scale = 12 cm. Photo by M. C. Díaz.



***Ircinia strobilina* (Lamarck, 1816)**

Identification—Massive-globular with large sharp conules (up to 5 mm high) regularly spaced (up to 13 mm apart). Membrane-bearing oscules (2-15 mm wide) usually grouped onto a depression on top of the sponge. Dark gray to black externally, tan internally. Tough very hard to cut.

Distribution—Common on shallow reefs and seagrass beds. Caribbean, Bermuda, Florida, Gulf of Mexico, Brazil.

Notes—Scale = 15 cm. Photo by M. C. Díaz.



***Dysidea etheria* De Laub., 1936**

Identification—Encrusting, to massive amorphous, or ramose. Grayish, bright blue externally, light blue to tan internally. Conulose surface (comules 1mm high, 2-3 mm apart). Membrane-bearing oscules scattered (1-5 mm wide). Soft and easily torn.

Distribution—Common on mangrove roots. Caribbean, Gulf of Mexico, Bermuda.

Notes—Scale = 2 mm. Photo by M. C. Díaz.



***Halisarca caerulea* Vacelet & Donadey, 1989**

Identification—Thin encrusting sponge (1-2 mm in thickness), with a bright intense distinct cobalt blue, externally and internally. Smooth, and slippery surface, with regularly dispersed oscula (2-3 mm in diameter). A conspicuous star-shaped canal system surrounds each oscula.

Distribution—On dead coral in reef environments (2-15 m deep). Guadeloupe, Martinique, Belize, Panama.

Notes—No spicular skeleton. Scale = 1 cm. Photo by S. Duran and M. Becerro.

**?*Halisarca* sp.**

Identification—Thin encrusting (1-2 mm thick), smooth surface and leathery in consistency. Color tan externally and internally. Oscules not visible.

Distribution—Common on mangrove roots of internal lagoons and canals. Seem to overgrow many organisms.

Notes—A histological study of choanocyte chambers morphology will clarify its assignation of this aspicular to the family Halisarcidae. Scale = 3 cm. Photo by M. C. Díaz.

***Chelonaplysilla erecta* (Row, 1911)**

Identification—Thinly encrusting (1-10 mm thick), dark brown, to black in color. Surface with low conules (1 mm high, few mm apart), and oscules bearing a collar-like membrane (1-4 mm wide). Very soft in consistency.

Distribution—Rare to common, on mangrove roots. Panama, Colombia, Venezuela, Curaçao, Puerto Rico, Mediterranean and Red Sea.

Notes—Conspecificity of amphi-Atlantic populations must be evaluated. Scale = 2 cm. Photo by M. C. Díaz.

***Haliclona (Rhizoniera.) curacaoensis* (van Soest, 1980)**

Identification—Thick crust with or without oscular mounds (1-4 cm thick, 2-4 cm high). Gray to bluish-purple externally, lighter color internally. Oscula 0.5-1 cm wide. Smooth, strongly punctate surface, almost hispid looking. Soft, sticky to the touch.

Distribution—Common on mangrove roots, and corals. Caribbean, Florida, South Carolina.

Notes—Scale = 1.5 cm. Photo by K. Rützler.

***Haliclona (Reniera) implexiformis* (Hechtel, 1965)**

Identification—Mounds or cushions (2-4 cm thick), pinkish to violet externally, lighter internally. Smooth, punctate surface, sometimes with small tubercles (1-2 mm high, 1 mm wide). Compressible, but soft. Oscules scattered (5-10 mm wide).

Distribution—Caribbean, Bermuda.

Notes—Scale = 4 cm. Photo by M. C. Díaz.



***Haliclona (Reniera) manglaris* Alcolado, 1984**

Identification—Thinly encrusting to small mounds (<1-3 mm thick) with volcano-like oscular elevations (1-2 mm high, 0.4-1.2 cm wide). Oscules small (1-3 mm). Commonly stolons branch off main body. Bright to drab turquoise green. Surface smooth and punctuate. Soft.

Distribution—Common on mangrove roots and other sponges. Caribbean, Florida.

Notes—One of the most frequent mangrove species. Scale = 2 cm. Photo by M. C. Díaz.



***Haliclona (Reniera) mucifibrosa* de Weerd et al., 1991**

Identification—Massive to lobate sponge, typically 10-15 cm in diameter, from which thick-walled oscular chimneys (3-5 cm high) arise. Oscules 0.5-2 cm in diameter. Surface smooth. Consistency elastic compressible but easily torn; pronounced mucus strands appear when fragments are torn apart.

Distribution—In Bocas found only on the top of the peat bank. Caribbean and Florida.

Notes—Scale = 3 cm. Photo by M. C. Díaz.



***Haliclona (Reniera) tubifera* (George & Wilson, 1919)**

Identification—Cushion-like base (< 5 mm thick) with oscular chimneys (0.5-5 cm long). Thin long proliferations branching off the main body (1-2 mm wide, several cm long). Highly variable color from pink, to violet, or purple externally and internally. Oscules 0.5-1 mm wide. Soft. Smooth and slightly punctuated.

Distribution—Caribbean, Carolinas, Florida, Bermuda.

Notes—Very variable color and shape. Scale = 2 cm. Photo by M. C. Díaz.



***Haliclona (Halichoclona) vansoesti* de Weerd, Kluijver, & Gomez, 1999**

Identification—Massive to thick cushions, 2-8 cm thick. Circular to elliptical oscula, 0.5-1 cm wide, with raised whitish to transparent rims. The sponge is white to transparent externally and light-blue internally. Crisp, hard, and fragile in consistency.

Distribution—Occasional on reef environments, Jamaica, St. Vincent, Martinique, Bocas del Toro.

Notes—First record for Panama. The color pattern is very characteristic. Scale = 1.5 cm. Photo by M. C. Díaz.



***Haliclona (S.) twincayensis* de Weerd et al., 1991**

Identification—Thin erect branches (2-12 mm wide, 5-10 cm long). Oscula inconspicuous, 1mm wide along branches. Smooth surface. Compressible but fragile in consistency. Whitish gray to purplish externally, tan internally.

Distribution—Rare on mangroves roots and peat. Caribbean, Florida.

Notes—Delicate appearance. Scale = 4 cm. Photo by M. C. Díaz.



***Haliclona (S.) piscaderaensis* van Soest, 1980**

Identification—Thick to thin encrusting (1-5 mm thick). Oscules (2-4 mm wide), volcano shaped, with transparent membranes. Whitish to yellowish or light purple in color. Soft and fragile, almost crunchy to the touch. C-shaped sigmas abundant.

Distribution—In Bocas, common on mangroves roots, while in other localities it is reported from cryptic reef habitats and seagrass beds as well. Colombia, Curaçao, Panama, Venezuela.

Notes—Scale = 4 cm. Photo by M. C. Díaz.



***Haliclona (S.) vermeuleni* de Weerd et al., 2000**

Identification—Thick encrusting with oscular chimneys, hollow fistules, digitate projections, and lobes (1.5 cm high, 1-5 mm wide). Oscules (1-2 mm wide) at end of chimneys or spread on projections. Blue internally and externally.

Distribution—Rare on mangrove roots. Caribbean, North Carolina, Bermuda.

Notes—Blue specimens of *H. tubifera* and *H. caerulea* can be confused with *H. vermeuleni*. The sigmas in the later allow its distinction. Scale = 5 cm. Photo by M. C. Díaz.



***Haliclona* n. sp. 1**

Identification—Thin (1-2 mm thick) crusts on the rubble (up to 100 cm²). Dark brown-red to purple externally, tan internally. Smooth surface. Oscules (1-2 mm wide), with transparent membranes and short radiating canals. Soft, easy to peel from substrate.

Distribution—Reefs on rubble, commonly overgrowing other species. Bocas del Toro, Panama.

Notes—This species is distinct from the other two other dark purple *H. melana*, and *H. luciencis*, by its thin habit, and its oscular morphology. Scale = 4 cm. Photo by M. C. Díaz.



***Chalinula molitba* de Laubenfels., 1949**

Identification—Clusters of hollow tubes, ramose solid branches (5-20 mm thickness, and up to 15 cm high), or cushions (1-3 cm thick). Oscula on side of branches or on top of hollow tubes (2-5 mm wide). Bright pink to brownish externally, lighter to tan internally. Soft and limp in consistency. Surface microhispid.

Distribution—On mangrove habitats, and under coral rubble. Caribbean, Florida, North Carolina, Georgia, Canary Islands.

Notes—Scale = 10 cm. Photo by M. C. Díaz.



***Amphimedon compressa* Duchassaing & Michelotti, 1864**

Identification—Ramoses to flabelliform. Branches cylindrical or slightly flattened (>2 cm in diameter). Oscules (3-4 mm wide) along branches rims. Surface smooth, except on the rims where it might be tuberculate or ridged. Tough but compressible in consistency.

Distribution—Common on shallow reefs, rare on mangrove roots. Caribbean wide.

Notes—Scale = 10 cm. Photo by M. C. Díaz.



***Amphimedon erina* de Laubenfels, 1936**

Identification—Massive lobate to ramose. Color dark green externally, lighter internally. Surface smooth with oscular chimneys (0.5-1 cm in diameter). The species is compressible but crumbly in consistency.

Distribution—Common on shallow reefs, seagrass beds, and mangroves. Caribbean.

Notes—Hard to distinguish from *A. viridis*. *A. erina* is darker, tougher, has much less sponging, and larger spicule dimensions. Scale = 2.5 cm. Photo by M. C. Díaz.



***Amphimedon viridis* Duchassaing & Michelotti, 1864**

Identification—massive to repent branches (1-3 cm in diameter). Volcano-shaped Oscules (2-5 mm). Light green externally and internally. Soft and compressible in consistency.

Distribution—Rare species, found on shallow reefs and seagrass beds. Caribbean, Carolina del Norte, Bermuda, Indian Ocean, West central Pacific.

Notes—Easily distinguished from *A. erina* when observed side by side. However the true specific nature of these species must be proved genetically. Scale = 1.5 cm. Photo by M. C. Díaz.



***Niphates erecta* Duchassaing & Michelotti, 1864**

Identification—Ramoses to massive-encrusting. Branches 1-2 cm wide. Light grayish, pink, or purple, externally, lighter internally. Surface from smooth to extremely spiny, with or without zooanthids. Oscules (2-7 mm in diameter). Spongy but tough in consistency.

Distribution—At Bocas common both in the reef and in the mangroves. Common Caribbean wide.

Notes—Mangrove specimens are lighter in color and with a more punctuated surface. Photo by M. C. Díaz.



***Niphates caycedoci* Zea & van Soest, 1986**

Identification—Thick crusts (2-6 cm in thickness), with compound oscules (3-6 mm in diameter) on top of low mounds. Grayish-blue externally, lighter to tan internally. Surface punctuated similar to *Niphates erecta*, with or without white zooanthids (*Parazoanthus* sp). Hard-compressible in consistency.

Distribution—Colombia, and Bocas del Toro, Panama.

Notes—Originally described as a *Xestospongia* species. Scale = 5 cm. Photo by M. C. Díaz.



***Aka coralliphagum* (Rützler, 1971)**

Identification—Yellow tubes bearing oscula (1-6 cm high, 0.9-3 cm wide) coming out of dead coral, with or without tissue covered by inhalant papilla. Excavating sponges, bright yellow sometimes with reddish tinges externally, and lighter yellow internally. Surface microhispid, and sinous. High quantities of mucus released when broken.

Distribution—On coral reefs, usually under 5 m in depth. Caribbean wide.

Notes—Scale = 2 cm. Photo by S. Nichols.



***Oceanapia nodosa* (George & Wilson, 1919)**

Identification—Thin to thick crusts (0.5-3 cm) with a large number of fistules and oscular tubes (5 mm in diameter, 3-5 cm long) departing from it. Tubular walls paper thin, semitransparent. White, or tan externally and internally.

Distribution—Mangrove roots. Caribbean, Gulf Coast, and North Carolina.

Notes—Scale = 9 cm. Photo by M. C. Díaz.



Oceanapia peltata (Schmidt, 1870)

Identification—Massive globular buried under the sand with projecting cylindrical fistules that have smooth ends, or pagoda-shaped projections (2-4 cm wide, 1 mm thick). Dirty-white to cream in color.

Distribution—In Bocas del Toro the species is on seagrass beds (1-3 m deep). The species is reported from 50-100 m deep. Colombia, Florida, Cuba, and Bocas del Toro, Panama.

Notes—Water goes in through fistules, and is expelled through the buried mass. Scale = 2 cm. Photo by M. C. Díaz.



? *Xestospongia* n. sp. 1

Identification—Thin encrusting (.2-4 mm thick, <100 cm² wide). Dark red-purple externally and internally. Smooth surface with oscules (1-2 mm wide) on low volcano mounds. Crumbly in consistency. Endosymbiotic filamentous cyanobacteria.

Distribution—Rare; on mangrove roots, empty shells, and coral rubble. Bocas del Toro, Panama.

Notes—This species is thicker, and brittle compared to *Haliclona* sp. 1. Scale = 2 cm. Photo by M. C. Díaz.



Xestospongia muta (Schmidt, 1870)

Identification—Barrel shaped, with thick walls. Purple to red-brown externally, tan internally. Surface with protuberances with round or blade-like outlines. Brittle and crumbly in consistency. Oscules on the inner side of vase (2-3 mm wide).

Distribution—Common on reef environments, in Bocas del Toro under 5 m deep. Wide Caribbean.

Notes—Scale = 8 cm. Photo by M. C. Díaz.



Xestospongia proxima (Duchassaing & Michelotti, 1864)

Identification—Thick crusts (1-4 cm in thickness), or sprawling masses with lobes. Color red-brown to pink externally, and tan to yellowish internally. Oscules (3-10 mm in diameter). Smooth surface, sometimes with zoanthids. Hard and fragile in consistency.

Distribution—Common on reef environments, coral rubble, seagrass beds. Colombia, Brazil, Puerto Rico, Virgin Islands, Bocas del Toro (Panama).

Notes—Highly variable in shape. Scale = 10 cm. Photo by M. C. Díaz.



***Xestospongia rosariensis* Zea & Rutzler, 1983**

Identification—Cylindrical tubes (4-78 cm high, 2-13 cm wide) emerge from basal mass. Dark reddish-brown externally, tan internally. Hard and dense. Smooth to the touch, with rugose and uneven parts, sometimes covered by zooanthids. Oscules on the inner wall of tubes (0.6-3.4 mm wide).

Distribution—On coral outcrops, and reef environments (2-30 m deep). Nuestra Señora del Rosario Archipelago, Colombia, Bocas del Toro, Panama.

Notes—Highly variable in shape. It harbors social shrimp in their canal system. Scale = 8 cm. Photo by M. C. Díaz.



***Xestospongia subtriangularis* (Duchassaing, 1850)**

Identification—Ramoses, branching species similar in growth pattern to the hard coral *Acropora cervicornis*. Branches 1-2 cm in diameter, and more than 20 cm high. Hard and fragile in consistency. Smooth surface, with oscules (2-5 mm) regularly distributed.

Distribution—On reef, seagrass beds, and sandflats habitats (>3 m deep). Caribbean wide.

Notes—Large patches (>2 m in diameter) may be found in Bocas (>4 m deep). Scale = 10 cm. Photo by M. C. Díaz.



***Xestospongia carbonaria* (Lamark, 1814)**

Identification—Massive, lobate to repent branches with fistules that break off easily. Black externally and internally. Smooth surface with scattered membrane bearing oscules (3-5 mm in diameter), located on top of volcano-shaped elevations. Brittle to pulpy in consistency.

Distribution—Very common between coral rubble, in shallow reefs, seagrass beds, and mangroves. Caribbean wide, and Pacific ocean.

Notes—Scale = 4 cm. Photo by M. C. Díaz.



***Calyx podatypa* (de Laubenfels, 1934)**

Identification—Ramoses to lobate repent masses, mostly hollow, with tubular deformed projections. Round oscules (1-5 mm in diameter). Brown-yellowish to greenish externally and tan internally. Firm but fragile and brittle in consistency.

Distribution—Common between coral rubble in shallow reefs, seagrass beds, and between sponges on mangrove roots. Colombia, Puerto Rico, Belize.

Notes—Scale 4 cm. Photo by M. C. Díaz.



***Callyspongia vaginalis* Duchassaing & Michelotti, 1864**

Identification—Cylindrical, to funnel shaped tubes (5-30 cm high, 1-10 cm in diameter, 1-10 mm thick). Gray in color, with golden, pink or greenish tinges. Surface smooth or with thorn-like conules (up to 10 mm high, 3-10 mm apart). Compressible and elastic.

Distribution—Common on reefs. Caribbean, Bermuda, Brazil.

Notes—Scale = 6 cm. Photo by M. C. Díaz.



***Agelas dispar* (Duchassaing & Michelotti, 1864)**

Identification—Massive, roundish, occasionally lobate (up to 30 cm wide). *A. dispar* has been reported in two distinct color forms: bright orange, and reddish to walnut-brown externally, lighter orange or tan internally. The surface is smooth. There are three intergrading kinds of oscules: (1) meandering invaginations, 1-3 mm wide, up to 5 cm long, (2) circular oscules, 2-7 mm in diameter, (3) smaller, circular to elongate, 1-2 mm wide, flush.

Distribution—Coral reefs, usually below 10 m in depth. Caribbean wide.

Notes—Scale = 4 cm. Photo by S. Duran and M. Becerro.



***Agelas clathrodes* (Schmidt, 1870)**

Identification—Massive, flabellate, rising from a narrow base (1.5 to 10 cm thick). Bright red-orange externally, lighter internally. The margin is rounded, or indented. Compressible, resilient. The surface is rough to the touch to verrucose, with abundant membrane-bearing oscula (2-5 mm diameter).

Distribution—Coral reefs, usually below 10 m in depth. Caribbean wide.

Notes—Scale = 5 cm. Photo by S. Duran and M. Becerro.



***Agelas conifera* (Schmidt, 1870)**

Identification—Clusters or single tubes (up to 0.5 m long and 10-20 cm in diameter). Light to purplish brown externally, yellow to tan internally. The surface is smooth, with meandering grooves occasionally. Oscules on the inner walls of the tubes few millimeters in diameter.

Distribution—Coral reefs, usually below 10 m in depth. Caribbean wide.

Notes—Scale = 5 cm. Photo by S. Duran and M. Becerro.



***Lissodendoryx issodictyalis* (Carter, 1882)**

Identification—Amorphous to lobate. Yellow, green or blue externally, tan internally. Conulose and rugose surface with oscules on top of lobes with dermal canals. Compressible.

Distribution—Mangroves roots, among seagrass blades, or *Halimeda*. North Carolina, Caribbean, Pacific coast of Mexico, Mediterranean and Indian ocean.

Notes—Scale = 4 cm. Photo by M. C. Díaz.



***Lissodendoryx colombiensis* Zea & van Soest, 1986**

Identification—Massive amorphous (10-30 cm thick). Yellow to orange externally, and internally. Surface smooth to slightly rugose. Large oscules with membranes (0.5-3 cm in diameter), and smaller ones (1-3 mm). Compressible, easy to break apart.

Distribution—Reefs, and mangrove roots. Colombia, Panama, Belize.

Notes—Scale = 8 cm. Photo by M. C. Díaz.



***Monanchora arbuscula* (Duchassaing & Michelotti, 1864)**

Identification—Encrusting, massive (0.2-4 cm) or ramose (50-80 cm high). Dark red externally and internally. Surface has a transparent-whitish membrane, with radial canals that converge in oscula (0.3-2 cm in diameter).

Distribution—Common species in shallow reefs. In cryptic habitats it grows as thin crust. Caribbean wide.

Notes—*M. barbadensis*, and *M. ungifera* are junior synonyms of this species. Scale = 8 cm. Ramose form (scale = 8 cm) and thick encrusting form (Scale = 2 cm) shown. Photo by M. C. Díaz.



***Tedania ignis* (Duchassaing & Michelotti, 1864)**

Identification—Massive amorphous to lobate, with smooth, to tuberculate surface. Bright red or orange red. Oscules (1-2 cm wide) on top of lobes. Soft, compressible, easily torn.

Distribution—Shallow reefs, mangroves, and seagrass beds. Very common in the Caribbean.

Notes—*Tedania ignis* (Duchassaing & Michelotti, 1864) is well known as the "Fire sponge". A lighter orange "chimera" between *Tedania ignis* and a *Mycale* (*Paresperella*) sp. is found on Bocas del Toro mangroves. Scale = 4 cm. Photo by M. C. Díaz.



***Iotrochota birotulata* (Higgin, 1877)**

Identification—Sprawling ramose branches, with spiky surface (up to 60 cm long, 1-5 cm wide). Black with green patches internally and externally. Tough, compressible in consistency. Membrane bearing oscula 1-3 mm in diameter, on side of branches.

Distribution—Reef, mangrove and seagrass environments. Caribbean wide, Florida, and apparently on the Indopacific.

Notes—Many specimens with yellow zoanthids. Scale = 4 cm. Photo by M. C. Díaz.



***Desmapsamma anchorata* (Carter, 1882)**

Identification—Upright, somewhat ramose masses with oscules (1-5 mm in diameter) on elevations or sprawling clumps of volcano-shaped oscular tubes. Variably pale purplish pink to salmon colored. Consistency compressible, rather soft and slimy.

Distribution—Shallow reef habitats and lagoons. Caribbean wide, and tropical Atlantic.

Notes—Scale = 2 cm. Photo by M. C. Díaz.



***Biemna caribaea* Pullitzer-Finalli, 1986**

Identification—Encrusting (3-6 mm) to branching ramose sponge. Light soft yellow to orange externally and internally. Very soft to the touch, porous surface. Oscules dispersed, with slightly elevated transparent membranes (1-4 mm wide). Compressible easy to break.

Distribution—Exclusively found on mangrove roots. Colombia, Belize, Panama, Florida, Puerto Rico, Bonaire.

Notes—Scale= 1.5 cm. Photo by M. C. Díaz.



***Neofibularia notilangere* (Duchassaing & Michelotti, 1864)**

Identification—Thick encrusting (0.4-3 cm), or massive to large vases (up to 80 cm wide and high). Brown-red in color externally, tan internally. Surface varies from smooth and porous, to corrugated and microhispid, somewhat velvety. Oscules dispersed (3-6 mm wide). Firm but very fragile.

Distribution—On reef environments, usually under 5 m deep. Caribbean wide.

Notes—A very toxic species. Do not touch it with the bare skin! In Bocas it overgrows other reef species aggressively. Scale = 4 cm. Photo by M. C. Díaz.



***Mycale laevis* (Carter, 1882)**

Identification—Thick cushions (5 cm) sometimes with branches (1-10 cm wide, up to 50 cm tall). Orange-yellow externally, lighter internally. Rough surface with oscula with white strands on membranes (up to 4 cm wide). Compressible.

Distribution—In reefs throughout the Caribbean encrusting the undersides of corals. Occasionally in mangroves where it can grow to record size.

Notes—White-“albino” specimen shown. Scale = 10 cm. Photo by M. C. Díaz.



***Mycale laxissima* (Duchassaing & Michelotti, 1864)**

Identification—Tubular to globular, solitary or in clusters, thin-walled (1-2 cm), up to 50 cm tall. Large pseudosculum with transparent membrane (3-6 cm wide). Dark wine red to black. The surface is spiny. Tough but compressible. Releases sticky mucus released when squeezed.

Distribution—Reefs, mangrove peat banks, occasionally on roots.

Notes—An association with two algae (*Ostreobium* cf. *constrictum* Lucas a Chlorophyta, and *Acrochetum spongicolum* Weber-van Bosse, Rhodophyta) living within the sponging fibers of *M. laxissima* was found among Belizean specimens. Scale = 4 cm. Photo by M. C. Díaz.



***Mycale microsigmatosa* Arndt, 1927**

Identification—Encrusting (0.2-5 cm thick), soft and fragile. Color variable, from reddish orange to gray. Distinctive bright orange specks scattered throughout the surface.

Distribution—Very common species, encrusting mangrove roots, also found on pipes or piles. Bahamas, Belize, Bonaire, Cuba, Curaçao, Margarita, Florida, Jamaica.

Notes—Scale = 2 cm. Photo by M. C. Díaz.



***Mycale magniraphidiphora* van Soest, 1984**

Identification—Encrusting, up to 5 mm thick, very soft and fragile. Raised dermal canals converge to oscula with transparent membranes (1-3 mm in diameter). Bluish, pinkish or creamy yellowish in shaded zones.

Distribution—Rare, encrusting mangrove roots. North Carolina, Curaçao, Belize, Panama.

Notes—Tends to colonize the tip of young mangrove roots. Scale = 5 cm. Photo by M. C. Díaz.

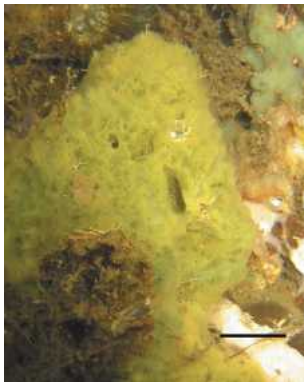


***Mycale carmigropila* Hadju & Rützler, 1998**

Identification—Thin-encrusting (2-3 mm thick). Color cobalt blue, light green, or cream-yellowish. Dermal canals visible, converging to the oscula in a star-like pattern. Surface smooth, and slimy. Some specimens have a tangential ectosomal reticulation, that can be “peeled-off”. Soft and fragile.

Distribution—Rare, on mangrove roots or intermingled with the algae *Halimeda*. Belize, Panama.

Notes—Scale = 5 cm. Photo by M. C. Díaz.



***Mycale citrina* Hajdu & Rützler, 1998**

Identification—Thin-encrusting (3-6 mm in thick). Lemon yellow to orange. Numerous pronounced dermal channels converge towards collared-transparent oscula (1-3 mm wide). Very soft and fragile, releases copious amounts of mucus upon handling.

Distribution—Common on mangrove overhangs and, peat banks protected from direct sunlight. Belize, Panama, and Venezuela.

Notes—Scale = 2 cm. Photo by M. C. Díaz.



***Mycale (Paresperella)* sp.**

Identification—Massive crusts (1-3 cm thick) with irregularly shaped branches or lobes (3-10 cm high, 1-3 cm thick). Bright red-orange externally, lighter internally. Smooth and leathery surface. Oscules (1-1.5 cm) in diameter, with transparent membranes that display white strands. Compressible and soft.

Distribution—Only known from Bocas del Toro, Panama.

Notes—Similar appearance with *Tedania ignis*. Sometimes yellow zooanthids (*Parazoanthus* sp) infest the sponge surface. The species is being described by Díaz. Scale = 4 cm. Photo by M. C. Díaz.



***Clathria (Thalysias) venosa* (Alcolado, 1984)**

Identification—Thin crust (1-2 mm in thickness). Gray to cream externally and internally. Oscules with transparent membranes (3-4 mm in diameter), from which thin canals (1 mm) depart radially. Smooth and slippery surface.

Distribution—Common to rare on mangrove roots. Cuba, Belize, Panama.

Notes—Scale = 1 cm. Photo by K. Smith.



Clathria (T.) microchela

Description—Thin encrusting (1-2 mm thick) with conspicuous vein-pattern of the canal system and oscules with membranes (1-2 mm wide). Grayish blue color throughout. Consistency soft, slimy to touch.

Distribution—Rare, on mangrove roots and peat banks. Curaçao, Bonaire, Belize, Panama.

Notes—Scale = 1 cm. Photo by Kate Smith.



***Clathria (Thalysias) shoenus* (de Laubenfels, 1936)**

Identification—Thinly encrusting (2-4 mm in thickness) to lobate, ramose, palmate or flabellate, with thin branches reaching 10-15 cm in height. Very characteristically colored externally orange to red with yellowish tinges. Very smooth, somewhat slippery surface. Soft and compressible in consistency.

Distribution—Curaçao, Bonaire, Puerto Rico, Jamaica, Florida, Belize, Panama.

Notes—Highly variable in shape and color. Scale = 4 cm. Photo by M. C. Díaz.



***Clathria echinata* (Alcolado, 1984)**

Identification—Clusters or single vase-like tubes (5-15 cm high). Bright red to orange externally, and internally. Very spiky surface. Compressible but resilient to the touch.

Distribution—In Bocas del Toro on deeper edges of reefs (14-18 m deep) covered by mud. Elsewhere found on reefs under 10 m deep. Cuba, Panama, Belize.

Notes—Scale = 1.5 cm. Photo by M. C. Díaz.



Ectyoplasia ferox

Description—Massive, encrusting, to lobate (2-10 cm thick). Brown-yellowish to orange externally, lighter internally. Surface smooth or punctuated, sometimes rugose. Oscules with light membranes (0.2-1 cm in diameter), sometimes on chimney-like projections (1-2 cm high). Dense and compressible.

Distribution—Rare on seagrass beds, common on reefs (>4 m deep). Caribbean wide.

Notes—Scale = 2 cm. Photo by S. Nichols.



***Dragmacidon reticulata* (Ridley & Dendy, 1886)**

Identification—Massive-amorphous, lobate, or mound-shape. Bright red externally and internally. Short conules (0.5 mm high) evenly distributed, or tall conules (1-2 mm high) irregularly distributed. Oscules abundant (3-6 mm in diameter), with a thin membrane. Slimy when cut.

Distribution—Reefs (0.5-70 m deep), and occasionally on mangrove roots. Caribbean wide. Very similar species occur in the South and Eastern Pacific.

Notes—Many specimens with yellow zoanthids. Scale = 4 cm. Photo by M. C. Díaz.

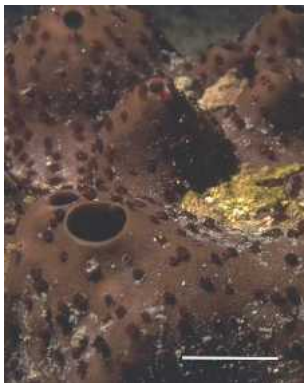


***Scopalina ruetzleri* (Wiedenmeyer, 1977)**

Identification—Thin to thick encrusting (0.5-2 cm thick). Bright orange to yellowish orange, externally and internally. The surface is conulose. The consistency is very soft and limp.

Distribution—It is common on mangrove roots, and occasionally on peat banks, and on shallow reefs habitats. Caribbean wide.

Notes—Scale = 2 cm. Photo by K. Rützler.



Svenzea zeai

Identification—Massive lobate, to ramose (4-10 cm thick). Reddish brown externally, tan internally. Chimney-like oscule 1-2 cm wide. Smooth, punctuate surface. Soft, compressible.

Distribution—On reefs (>10 m deep). Colombia, Panama, Belize, Bahamas, Jamaica, Curaçao.

Notes—Sometimes with brown zoanthids. Scale = 2 cm. Photo by M. C. Díaz.



***Halichondria lutea* Alcolado, 1984**

Identification—Massive encrusting body usually burrowing in the sand from which sharp and corrugated projections arise. (Up to 2 cm high and 0.5 cm wide). Orange to yellow externally, slightly lighter internally. Compressible but fragile.

Distribution—Growing on deeper areas of the reef over sandy and/or muddy bottoms, and is usually found covered by sediments. Cuba, Venezuela, Panama.

Notes—Scale = 1 cm. Photo by M. C. Díaz.



***Halichondria magniconulosa* Hechtel, 1965**

Identification—Massive-amorphous to lobate, and fleshy. The surface varies from smooth, wrinkled, to having fistules-like projections (0.5 cm wide, and 0.5-1 cm long). It can be confused with *Lissodendoryx* (yellow form) or *Biemna* spp. but is easily distinguished in the field by touch. This species consistency is compressible and a clear detachable skin is present.

Distribution—Common on mangrove roots, on the bottom of mangrove creeks, and growing on peat banks. Caribbean wide.

Notes—Scale = 2 cm. Photo by M. C. Díaz.



***Halichondria melanadocia* de Laubenfels, 1936**

Identification—Massive-amorphous to ramose, black to dark green externally, black with yellow tinges internally. Surface varies from smooth, to tuberculate to conulose. Oscules raised above the body (3-10 mm wide). Compressible to the touch. Smooth surface, with detachable skin.

Distribution—Shallow coastal environments, mangroves and seagrass beds. Caribbean wide. Photo by M. C. Díaz.

Notes—Highly variable in shape. Scale = 3 cm. Photo by M. C. Díaz.



***Cinachyrella alloclada* (Uliczka, 1929)**

Identification—Globular sponge up to 10 cm wide, with blind concave depressions (porocalices), 3-15 mm wide; oscules (1-5 mm wide) sometimes visible on the top of the sponge. Orange to yellow externally, lighter internally.

Distribution—Florida, Bahamas North Carolina, Venezuela.

Notes—Scale = 1 cm. Photo by K. Rützler.



***Cinachyrella apion* (Uliczka, 1929)**

Identification—Spherical to sub-spherical (up to 10 cm in diameter), yellow to gray externally, lighter internally. Surface strongly hispid or furry. Porocalices abundant (up to 3 mm wide). Oscules rare, 2-3 mm wide. Soft and compressible.

Distribution—On mangrove roots and peat (>0.3 m deep). North and South Carolina to Bermuda, southwestern Florida, Bahamas, Virgin Islands, Belize, Panama.

Notes—Scale = 2 cm. Photo by K. Rützler.



***Geodia papyracea* Hechtel, 1965**

Identification—Massive (10-20 cm in diameter). Cream or light gray to dark brown externally (the color is from the cyanobacteria), tan internally. Consistency is pulpy and easily crumbled. Surface rough, and it may be wrinkled. Oscules (2-5 mm wide) aggregated.

Distribution—Rare. Found on mangrove roots and mangrove peat banks. Belize, Jamaica, Panama.

Notes—"Sick" mushy specimens due to extreme growth of cyanobacteria reported from Belize. Scale = 3 cm. Photo by M. C. Díaz.



***Erylus formosus* Sollas, 1886**

Identification—Massive amorphous to lobate. Color black to purplish gray externally, tan internally. Very smooth skin that wrinkles when lifted out of the water. Consistency compressible and dense, easily torn.

Distribution—Rare species, exclusive of reef habitats, under 5 m deep. Bahamas, Belize, Venezuela.

Notes—A sister species *E. gofflieri* (Wiedenmayer, 1977) has a surface pierced by holes. Scale = 3 cm. Photo by M. C. Díaz.



***Placospongia intermedia* Sollas, 1888**

Identification—Thick crust to branching. Brown to tan externally, lighter internally. Surface armored with cortical plates and a pattern of grooves with the inhalant surface. Hard and tough.

Distribution—Rare, shallow reef and seagrass beds habitats. Jamaica, Bahamas, Belize, Panama.

Notes—Scale = 1.5 cm. Photo by S. Duran and M. Becerro.



***Spirastrella coccinea* Schmidt, 1868**

Identification—Thin encrusting (1-5 mm) bright red sponge. Internally the color grades from red to brown or orange. Smooth surface, leathery to the touch. Small oscules (0.5-2 mm in diameter) often on small mounds, with star shaped transparent canals departing from the oscula.

Distribution—Rare species in between coral rubble, usually cryptic (1-15 m deep). Caribbean wide.

Notes—Vermillion bright red color allows clear distinction with other *Spirastrella* species. Scale = 2 cm. Photo by M. C. Díaz.



***Spirastrella hartmani* Boury-Esnault et al., 1999**

Identification—Thick encrusting (up to 4 cm thick). Dull reddish to brown externally, lighter color internally. Smooth surface, leathery to the touch. Compressible in consistency.

Distribution—Common between and under coral rubble, in shallow reefs and seagrass environments (1-10 m deep). Caribbean.

Notes—This species represents what was referred in the literature as *S. cunctatrix* or *S. cf. mollis* from Panama and elsewhere in the Caribbean. *S. cunctatrix* is very similar, but is a north Atlantic species with distinct genetic and skeletal identities. Scale = 1.5 cm. Photo by M. C. Díaz.



***Spirastrella mollis* Verill, 1907**

Identification—Encrusting (3-5 mm thick), with meandering dermal canals that depart from large collared-oscule (0.5-2 cm). Milky-orange, yellowish to brownish red externally, lighter to yellowish internally. Consistency soft, surface smooth.

Distribution—Rare to common encrusting red mangrove roots, peat banks, and oyster shells.

Notes—Scale = 5 cm. Photo by M. C. Díaz.



***Terpios manglaris* Rützler y Smith, 1993**

Identification—Thin encrusting (<1 mm). Star-shaped pattern of dermal canals depart from small oscula (1 mm wide). Vivid cobalt blue in color.

Distribution—Common on mangrove roots. Belize, Venezuela, Panama.

Notes—It is symbiotic with a filamentous blue-pigmented bacteria. Scale = 4 cm. Photo by M. C. Díaz.



***Prosuberites laughlini* (Diaz et al., 1987)**

Identification—Encrusting (0.3-4 cm thick), dull orange to yellow externally, lighter internally. Surface visually smooth in thin specimens, rugose on thicker ones. Oscules with transparent membranes (1-6 mm in diameter) with thin (1-2 mm) canals departing radially. Soft and compressible, easy to tear.

Distribution—Common on reef's cryptic habitats, growing as thin crusts; rare on mangrove roots, where it grows thick. Belize, Panama, Venezuela.

Notes—Scale = 2 cm. Photo by M. C. Díaz.



Suberites auriantaca

Description—Massive lobate (4-10 cm thick) to ramose. Color variable, from red and orange to yellow-green externally, orange-yellow internally. Smooth, highly contractile. Oscules 0.3-1 cm wide. Dense, and compressible.

Distribution—Common, on mangrove roots. Tropical Atlantic, tropical Pacific, Antilles.

Notes—Scale = 2 cm. Photo by M. C. Díaz.

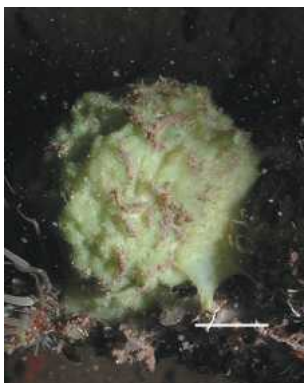


Tethya* aff. *seychellensis

Identification—Purplish-red spheres, in clusters or solitary (2-5 cm wide). Reproductive buds (1-2 mm in diameter) on top of hair-like projections common. Verrucose surface and volcano shaped oscules with transparent membranes (2-5 mm in diameter). Internal color orange-red.

Distribution—Rare; found on mangrove roots or between sea-grass blades. Venezuela, Panama.

Notes—This species was identified by Dr. M. Sara as *T. seychellensis* (Cipriani et al. 1994) a species from the Indian Ocean. Its conspecificity with the Caribbean species is highly dubious. Scale = 2 cm. Photo by M. C. Díaz.



***Tethya actinea* de Laubenfels, 1950**

Identification—Globular, up to about 7 cm in diameter. Emerald to drab green, occasionally orange externally, lighter to orange internally. Tough, somewhat compressible. Verrucose surface. Volcano shaped oscules with transparent membranes (< 5 mm wide). Some specimens are covered with thin processes, and occasionally with buds.

Distribution—Common in mangrove and sea grass beds.

Notes—Scale = 1 cm. Photo by K. Rützler.



***Spheciospongia vesparium* (Lamarck, 1815)**

Identification—Massive amorphous to cake shaped. Black externally, and internally. Surface with round low elevations. Large oscules (8-15 mm wide) and small oscules (1-2 mm wide) aggregated. Compressible but dense in consistency.

Distribution—Rare species, found on soft bottoms on reefs and seagrass habitats. North Carolina, Florida, Caribbean wide.

Notes—Scale = 9 cm. Photo by S. Duran and M. Becerro.



***Cliona caribbaea* Carter 1882 (= *C. langae* Pang, 1973)**

Identification—Thin encrusting (2 mm thick) continuously covering the substratum. Brown to gray in color. Oscula (2-3 mm wide) with a cream colored rim. Papillae may be distinguished on small specimens or growing on rims.

Distribution—Mostly deeper than 6 m, sometimes in shallow rubble. Jamaica, Belize, Colombia, Panama.

Notes—Sponge excavates 0.7-1.3 cm into the coral skeleton. Occasionally colonized by yellow zoanthids. Scale = 2 cm. Photo by S. Duran and M. Becerro.



***Cliona delitrix* Pang, 1973**

Identification—Encrusting with round to oval shaped papillae (2-5 mm wide, 1-2 mm high) excavates several cm (up to 10 cm) into the coral rubble. Orange reddish in color. Surface smooth, and velvety on papillae. Oscules with volcano-shaped membranes (1-3 cm in diameter, and 0.5-1 cm high).

Distribution—Very common species on shallow to deeper reefs (> 4 m deep). Caribbean wide.

Notes—Usually covered by white zoanthids. Scale = 6 cm.



***Cliona tenuis* Zea & Weil, 2003**

Identification—Transparent brown, very thin tissue on coral rubble (up to several m. in diameter). Smooth surface with small and inconspicuous oscules (0.4-1.4 mm in diameter). Color light to dark brown with yellowish, reddish or greenish tinges.

Distribution—Common on shallow, wave exposed reef habitats at low (1-6 m deep) or mid depths (15-20 m), especially on *Acropora palmata* dead colonies.

Notes—Sponge excavates up to 2 cm into the coral skeleton. Scale = 1 cm. Photo by K. Rützler.



***Cliona varians* (Duchassaing & Michelotti, 1864)**

Identification—Thin to thick encrusting (0.2-5 cm in thickness), or massive lobate. Smooth, velvety surface with oscules (0.2-3 cm in diameter) bearing cream colored membranes that are either flushed to the surface or elevated few mm from it. Firm and rubbery.

Distribution—Common species on reef and seagrass environments. Wide depth range (2-30 m). Large specimens on areas exposed to high currents. Caribbean wide.

Notes—Scale = 6 cm. Photo by M. C. Díaz.



***Chondrilla nucula* Schmidt, 1862**

Identification—Thin to thick encrusting (0.2-4 cm) to massive amorphous. The surface is smooth, shiny, with oscules regularly distributed (0.2-1 cm wide). Dark brown to walnut brown or beige, externally, and tan internally. The consistency is soft, elastic, and tough.

Distribution—Thick on mangroves, and thin on coral reefs (5-20 m deep). Caribbean wide.

Notes—Asterose spicules present. Scale = 2 cm. Photo by S. Duran and M. Becerro.



***Chondrosia collectrix* Schmidt, 1862**

Identification—Thick encrusting (1-5 cm) to massive amorphous. Black to dark brown or tan externally on parts unexposed to light, tan internally. Tough, firm, and cartilaginous. Surface smooth, and slimy. Oscules 0.2-1 cm wide.

Distribution—Occasionally found on mangrove roots and peat banks. Common on reefs and lagoons. Caribbean wide.

Notes—Very similar in appearance to *C. nucula*, but *C. collectrix* lacks spicules, is darker in color, and much tougher, and cartilaginous in consistency. Scale = 5 cm Photo by S. Duran and M. Becerro.

PHYLUM CNIDARIA



***Millepora alcicornis* Linnaeus, 1758**

Identification—Multiple branches in a single plane with small pores from which the tiny polyps protrude. Tan or mustard with white tips and edges.

Distribution—Common throughout the Caribbean, in reefs and seagrass beds and occasionally on mangrove roots. Very common in shallow protected areas in Bocas del Toro where there can be solid beds of this species.

Notes—Painful stings that can develop into a painful rash or welts.



***Millepora complanata* Linnaeus, 1758**

Identification—Color and texture similar to *A. alcicornis*, but colonies for thin, upright blades or plates that are somewhat branched.

Distribution—Common throughout the Caribbean in shallow reef habitats with surge or more flow than *A. alcicornis* habitats.

Notes—Painful stings that can develop into a painful rash or welts.