

## CLASS HYDROZOA

## Blue Buttons

*Porpita porpita*DIAMETER  
3/4 in (2 cm)DEPTH  
SurfaceHABITAT  
Surface waters

DISTRIBUTION Worldwide in warm waters

At first sight, blue buttons could be mistaken for a small jellyfish or even a piece of blue plastic. In fact, it is a hydrozoan colony that is modified for a free-floating existence. Swarms of these unusual creatures can be seen drifting on the water's surface or can sometimes be found washed up on the shore. The animal is kept afloat by a buoyant circular disk. Around the edge hang protective stinging polyps modified as knobbed tentacles. In the center underneath hangs a large feeding polyp that acts as the mouth for the whole colony. In between this and the tentacles are circlelets of reproductive polyps. Unlike the Portuguese man-of-war (see p.214) to which it is related, blue buttons do not have a powerful sting.

## CLASS HYDROZOA

## Stinging Hydroid

*Aglaophenia cupressina*HEIGHT Up to 16 in  
(40 cm)DEPTH 10–100 ft  
(3–30 m)

HABITAT Coral reefs

DISTRIBUTION Tropical reefs in Indian Ocean and southwestern Pacific

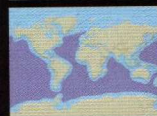
While most hydroids are harmless to touch, the stinging hydroid has a powerful sting. The colonies look like clumps of feathers or ferns dotted

around among the corals on a reef. Individual polyps are arranged along one side of the smallest branches and extend their stinging tentacles to catch small planktonic animals. The sting is not usually dangerous to humans, but it results in an itchy rash that can irritate for up to a week.



## CLASS SCYPHOZOA

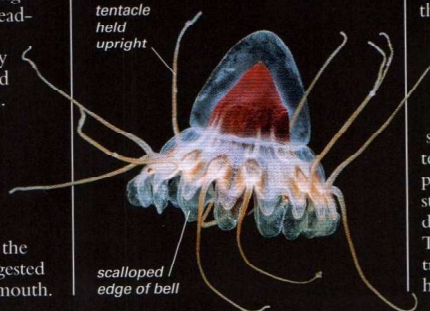
## Deep-sea Jellyfish

*Periphylla periphylla*HEIGHT 8–14 in  
(20–35 cm)DEPTH 3,000–23,000 ft  
(900–7,000 m)

HABITAT Open water

DISTRIBUTION Deep water worldwide, except Arctic Ocean

This jellyfish belongs to a group called coronate jellyfish, which are shaped like a ballet tutu. The upper part of the bell is a tall, stiff cone and the lower part a wider, soft, crown-shaped base with a scalloped edge. The 12 thin tentacles are often held in an upright position. The insides of the deep-sea jellyfish are a deep red color, and this may hide the bioluminescent light given out by its ingested prey. The jellyfish itself can squirt out a bioluminescent secretion that may help to confuse any predators. Unlike many jellyfish, the deep-sea jellyfish does not develop from a fixed bottom-living stage.

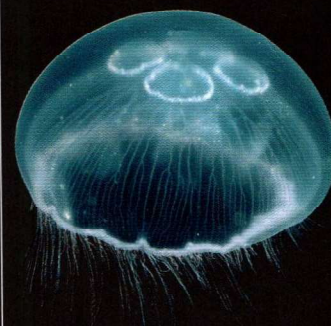
tentacle  
held  
uprightscalloped  
edge of bell

## CLASS SCYPHOZOA

## Moon Jellyfish

*Aurelia aurita*DIAMETER  
Up to 12 in (30 cm)DEPTH  
Near surfaceHABITAT  
Open water

DISTRIBUTION Worldwide; polar distribution unknown



The moon jellyfish is possibly the most widespread of all jellyfish and can be found in almost every part of the ocean except for very cold waters.

It exists mainly in coastal waters and is sometimes cast ashore in large numbers because it is not a strong swimmer and lives near the surface. The body is shaped like a saucer with a fringe of fine, short tentacles, which it uses to catch plankton. It can also trap plankton in sticky mucus on its bell and slide this down into its mouth on the underside. The gonads show through the translucent bell as four opaque horseshoe shapes.

## CLASS SCYPHOZOA

## Stalked Jellyfish

*Halictystus auricula*HEIGHT  
Up to 2 in (5 cm)

DEPTH 0–50 ft (0–15 m)

HABITAT On seaweed or seagrass

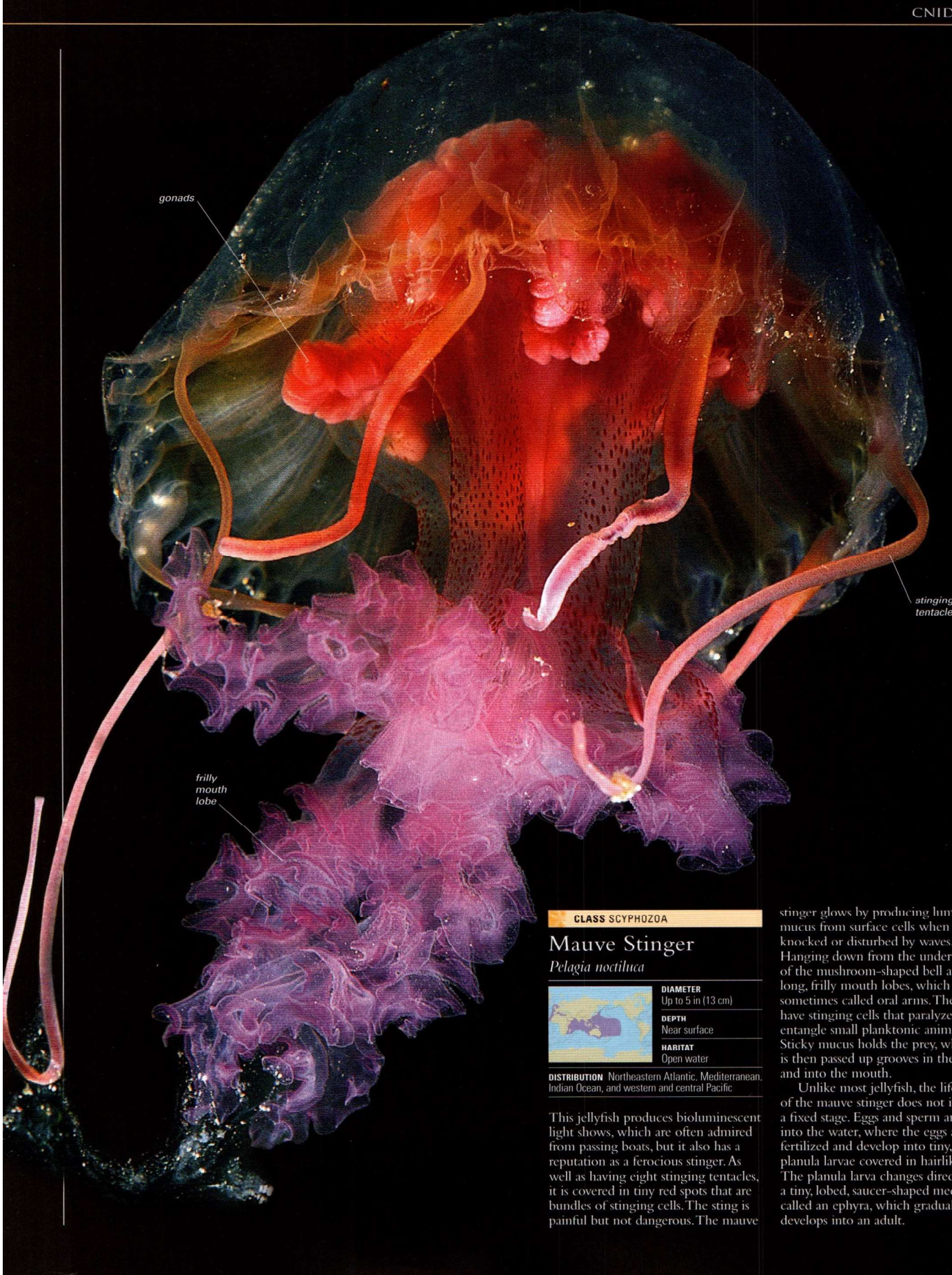
DISTRIBUTION Coastal waters of north Atlantic and north Pacific

Most jellyfish drift and swim freely in the water, but stalked jellyfish spend their lives attached by a stalk to vegetation. The body of the jellyfish is shaped like a tiny funnel made up of eight equally spaced arms joined together by a membrane. Each arm ends in a cluster of tentacles on the funnel rim, and between each of these clusters is an extra anchor-shaped tentacle. This animal cannot swim, but it can move by bending over on its stalk and turning "head-over-heels," using the anchor tentacles to fix itself temporarily to the sea bed as it flips over and then reattaches its adhesive disk.

Stalked jellyfish can be found attached to seaweed or seagrass in the intertidal zone and shallow water, where they feed by catching prey, such as small shrimp and fish fry, with their tentacles and passing it to the mouth inside the funnel. Undigested remains are expelled from the mouth.







gonads

stinging  
tentaclefrilly  
mouth  
lobe

## CLASS SCYPHOZOA

## Mauve Stinger

*Pelagia noctiluca*DIAMETER  
Up to 5 in (13 cm)DEPTH  
Near surfaceHABITAT  
Open water

DISTRIBUTION Northeastern Atlantic, Mediterranean, Indian Ocean, and western and central Pacific

This jellyfish produces bioluminescent light shows, which are often admired from passing boats, but it also has a reputation as a ferocious stinger. As well as having eight stinging tentacles, it is covered in tiny red spots that are bundles of stinging cells. The sting is painful but not dangerous. The mauve

stinger glows by producing luminous mucus from surface cells when it is knocked or disturbed by waves. Hanging down from the underside of the mushroom-shaped bell are four long, frilly mouth lobes, which are sometimes called oral arms. These also have stinging cells that paralyze and entangle small planktonic animals. Sticky mucus holds the prey, which is then passed up grooves in the arms and into the mouth.

Unlike most jellyfish, the life cycle of the mauve stinger does not involve a fixed stage. Eggs and sperm are shed into the water, where the eggs are fertilized and develop into tiny, oval planula larvae covered in hairlike cilia. The planula larva changes directly into a tiny, lobed, saucer-shaped medusa called an ephyra, which gradually develops into an adult.



## CLASS SCYPHOZOA

## Upside-down Jellyfish

*Cassiopeia xamachana*

**DIAMETER** Up to 12 in (30 cm)

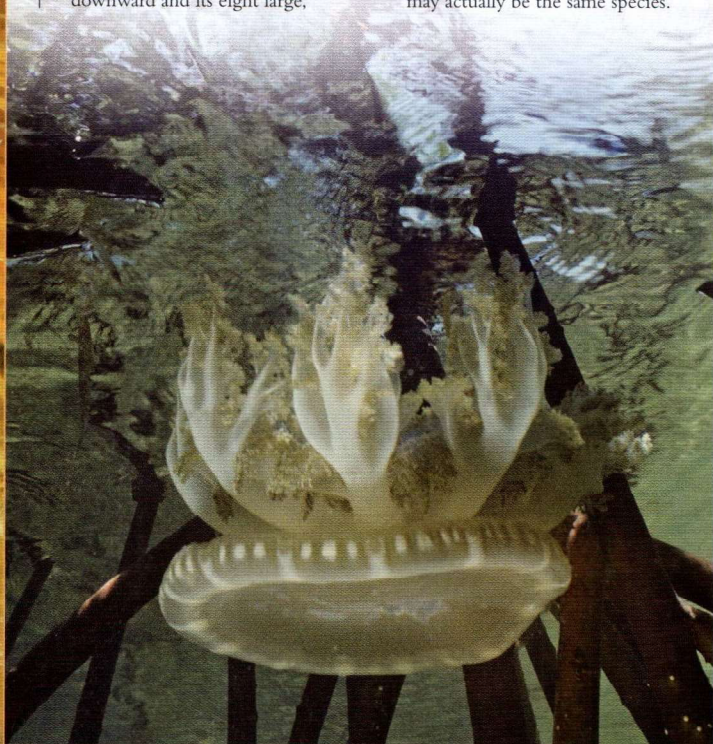
**DEPTH** 0–33 ft (0–10 m)

**HABITAT** Coastal mangroves

**DISTRIBUTION** Tropical waters of Gulf of Mexico and Caribbean

Divers who find this jellyfish upside-down on the seabed often think they have found a dying specimen. However, the upside-down jellyfish lives like this, floating with its bell pointing downward and its eight large,

branching mouth arms held upward. The mouth arms have elaborate fringes consisting of tiny bladders filled with minute single-celled algae called zooxanthellae. The algae need light to photosynthesize, and the jellyfish behaves as it does in order to ensure its passengers can thrive. Excess food manufactured by the algae is used by the jellyfish, but it can also catch planktonic animals with stinging cells on the mouth arms. Its bell pulsates to create water currents that bring food and oxygen. When it wants to move, the upside-down jellyfish turns the right way up with the bell uppermost. A very similar jellyfish, *Cassiopeia andromeda*, is found in the tropical Indian and Pacific Oceans and may actually be the same species.



## CLASS CUBOZOA

## Box Jellyfish

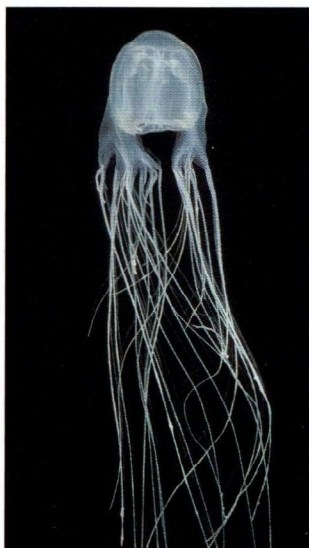
*Chironex fleckeri*

**DIAMETER** Up to 10 in (25 cm)

**DEPTH** Near surface

**HABITAT** Open water

**DISTRIBUTION** Tropical waters of southwest Pacific and eastern Indian Ocean



A sting from the box jellyfish can kill a person in only a few minutes, and this small animal is considered one of the most venomous in the ocean. At each corner of its box-shaped, transparent body is a bunch of 15 tentacles. When it is hunting prey such as shrimp and small fish in shallow water, the tentacles extend up to 10 ft (3 m), and swimmers can be stung without ever seeing the jellyfish. In the middle of each flattened side is a collection of sense organs including some remarkably complex eyes. The exact range of this jellyfish in the Indo-Pacific region north of Australia is not known, but other smaller, less dangerous box jellyfish also occur in the Indian and Pacific oceans. Some sea turtles can eat the box jellyfish without being affected by its sting.

## HUMAN IMPACT

## LETHAL VENOM

The sting of a box jellyfish causes excruciating pain and skin damage and can leave permanent scars. In severe cases, death may occur from heart failure or drowning following loss of consciousness. A box jellyfish antivenin is available in Australia. In northern parts of the country, some beaches are closed to the public for periods between November and April when the jellyfish are most abundant.

## CLASS ANTHOZOA

## Organ Pipe Coral

*Tubipora musica*

**DIAMETER** Up to 20 in (50 cm)

**DEPTH** 15–65 ft (5–20 m)

**HABITAT** Tropical reefs

**DISTRIBUTION** Tropical reefs of Indian Ocean and western Pacific

Although the organ pipe coral has a hard skeleton, it is not a true stony coral. Instead, it belongs in the group of cnidarians that includes soft corals and sea fans. Its beautiful red skeleton is made up of parallel tubes joined by horizontal links, and bits of this animal's skeleton are often found washed up on tropical shores. A single polyp extends from the end of each tube, and when the polyps expand their eight branched tentacles to feed, the skeleton cannot be seen.

## CLASS ANTHOZOA

## Mushroom Leather Coral

*Sarcophyton* species

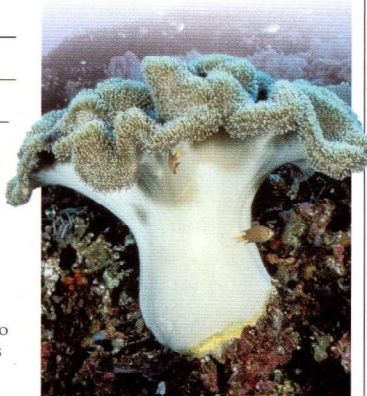
**DIAMETER** Up to 5 ft (1.5 m)

**DEPTH** 0–165 ft (0–50 m)

**HABITAT** Rocks and reefs

**DISTRIBUTION** Tropical waters of Red Sea, Indian Ocean, and western and central Pacific

This distinctive soft coral has a conspicuous bare stalk topped by a wide, fleshy cap covered in polyps. When the colony is touched or is resting, the polyps are withdrawn into the fleshy body, and it looks and feels like leather. Within this genus there are many similar species.



## CLASS ANTHOZOA

## Dead Man's Fingers

*Alcyonium digitatum*

**HEIGHT** Up to 8 in (20 cm)

**DEPTH** 0–165 ft (0–50 m)

**HABITAT** Rocks and wrecks

**DISTRIBUTION** Temperate and cold waters of northeastern Atlantic

This soft coral's strange name comes from its appearance when thrown ashore by storms. It is shaped like a thick lump with stubby fingers, which can, with a little imagination, resemble a corpse's hand. When alive, it grows attached to rocks in shallow water and often covers large areas, especially where strong currents bring plenty of planktonic

food. With the polyps extended, the colonies have a soft, furry look. Most dead man's fingers colonies are white but some, like those shown below, are orange with white polyps. Over the fall and winter, the colony retracts its polyps and becomes dormant. In the spring, the outer skin is shed, along with any algae and other organisms that have settled on it.







CLASS ANTHOZOA

### Carnation Coral

*Dendronephthya* species



**HEIGHT**  
Up to 12 in (30 cm)

**DEPTH**  
33–165 ft (10–50 m)

**HABITAT**  
Coral reefs

**DISTRIBUTION** Tropical reefs of Red Sea, Indian Ocean, and western Pacific

Carnation corals are among the most colorful of all reef animals. They grow as branched and bushy colonies and often cover steep reef walls with pink, red, orange, yellow, and white patches. They prefer to live where there are fast currents. When the current is running, they expand to full size and the polyps, which are on the branch ends, extend out to feed. With little or no current, they often hang down as flaccid lumps. In some species, such as the one shown here, small slivers of colored calcium carbonate show through the body tissue. These are called sclerites and help to give the soft branches some strength. Individual species of *Dendronephthya* are difficult to identify visually and many species have not yet been described.

CLASS ANTHOZOA

### Pulse Coral

*Xenia* species



**HEIGHT**  
Up to 2 in (5 cm)

**DEPTH**  
15–165 ft (5–50 m)

**HABITAT**  
Coral reefs

**DISTRIBUTION** Tropical reefs of the Red Sea, Indian Ocean, and western Pacific



The most notable feature of this soft coral is the way the feathery tentacles of the polyps rapidly and continually open and close. A reef covered in fast-pulse coral is alive with movement. The colonies have a stout trunk with a dome-shaped top covered with long polyps. Unlike mushroom leather coral (see opposite), pulse coral polyps cannot retract and disappear. The pulsating movements of the polyps may help to oxygenate the colony as well as bring food within range of their tentacles.

CLASS ANTHOZOA

### Common Sea Fan

*Gorgonia ventalina*



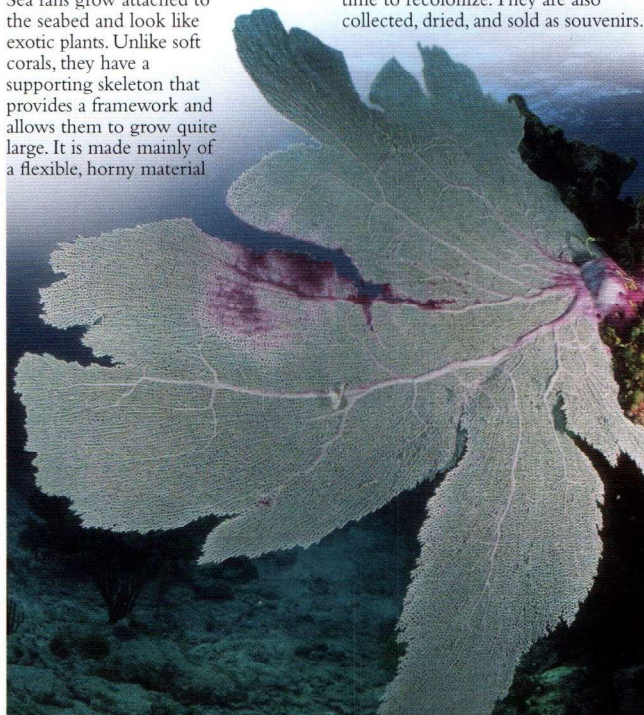
**HEIGHT**  
Up to 6 ft (2 m)

**DEPTH**  
15–65 ft (5–20 m)

**HABITAT**  
Coral reefs

**DISTRIBUTION** Caribbean Sea

Sea fans grow attached to the seabed and look like exotic plants. Unlike soft corals, they have a supporting skeleton that provides a framework and allows them to grow quite large. It is made mainly of a flexible, horny material



called gorgonin and consists of a rod that extends down the inside of all except the smallest branches. In the common sea fan, the branches are mostly in one plane and form a mesh that is aligned at right angles to the prevailing current. This increases the amount of planktonic food brought within reach of the polyps, which are arranged all around the branches. Fishing nets dragged over the reef can damage common sea fans and, as they grow quite slowly, they take a long time to recolonize. They are also collected, dried, and sold as souvenirs.

CLASS ANTHOZOA

### White Sea Whip

*Junceella fragilis*



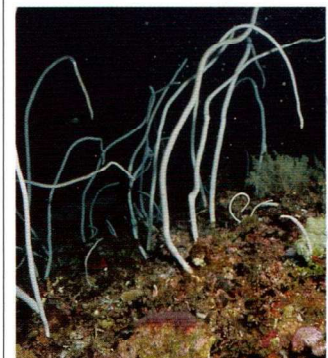
**HEIGHT**  
Up to 6 ft (2 m)

**DEPTH**  
15–165 ft (5–50 m)

**HABITAT**  
Coral reefs

**DISTRIBUTION** Southwestern Pacific

Sea whips have a very similar structure to sea fans but grow up as a single tall stem. They have a very strong central supporting rod containing a lot of calcareous material as well as a flexible, horny material called gorgonin. The small polyps have eight tentacles and are placed all around the stem. White sea whips are often found in groups because they can reproduce asexually. As the whip enlarges, the fragile tip breaks off and drops onto the seabed, where it attaches and grows.





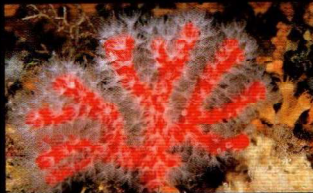
## CLASS ANTHOZOA

## Mediterranean Red Coral

*Corallium rubrum***HEIGHT** Up to 20 in (50 cm)**DEPTH** 165–650 ft (50–200 m)**HABITAT** Shaded rocks and caves**DISTRIBUTION** Mediterranean and warm waters of eastern Atlantic

Often called precious coral, Mediterranean red coral has been collected and its skeleton made into jewelry for centuries. In spite of

its name, it is not a true stony coral but instead is in the same group as sea fans (see p.267). Like them, its branches are covered in small polyps, each of which has eight branched tentacles. However, the supporting skeleton is made mainly from hard calcium carbonate colored a deep red or pink. This coral is now scarce in places that are easily accessible to collectors.



## CLASS ANTHOZOA

## Orange Sea Pen

*Ptilosarcus gurneyi***HEIGHT** Up to 20 in (50 cm)**DEPTH** 33–1,000 ft (10–300 m)**HABITAT** Sediment**DISTRIBUTION** Temperate waters of northeastern Pacific

Unlike the majority of anthozoans, sea pens live in areas of sand and mud. They get their name from their resemblance

to an old-fashioned quill pen. The orange sea pen consists of a central stem with branches on either side. The basal part of the stem is bulbous and anchors the colony in the sediment. Single rows of polyps extend their eight tentacles into the water from each leaflike branch, giving the front of the sea pen a downy appearance. The colony faces toward the prevailing current to maximize the flow of plankton over the feeding polyps. When no current is flowing, the colony can retract down into the sediment. Although they tend to stay in one place, colonies can relocate and re-anchor themselves if necessary. Predators of sea pens include sea slugs and starfish.

## CLASS ANTHOZOA

## Slender Sea Pen

*Virgularia mirabilis***HEIGHT** Up to 24 in (60 cm)**DEPTH** 33–1,300 ft (10–400 m)**HABITAT** Sediment**DISTRIBUTION** Temperate waters of northeastern Atlantic and Mediterranean

The muddy bottoms of sheltered sea lochs in Scotland and Norway are often carpeted in dense beds of slender sea pens. This species has a structure similar to the orange sea pen (see below, left) but has a much thinner central stalk and thin branches. Almost half the stalk is buried in the sediment and the colony can withdraw into the sediment if disturbed.



## CLASS ANTHOZOA

## Giant Anemone

*Condylactis gigantea***DIAMETER** Up to 12 in (30 cm)**DEPTH** 10–165 ft (3–50 m)**HABITAT** Coral reefs and rocks**DISTRIBUTION** Tropical waters of Caribbean Sea and western Atlantic

The long, purple-tipped tentacles of this large anemone bring a splash of color to Caribbean reefs. Its columnar body is usually tucked away between rocks or corals, leaving only the stinging tentacles exposed. Several small reef fish (mainly blennies) can live unharmed among the tentacles, where they gain protection from predators. The giant anemone can move slowly along on its basal disk if it wants to find a better position on the reef.

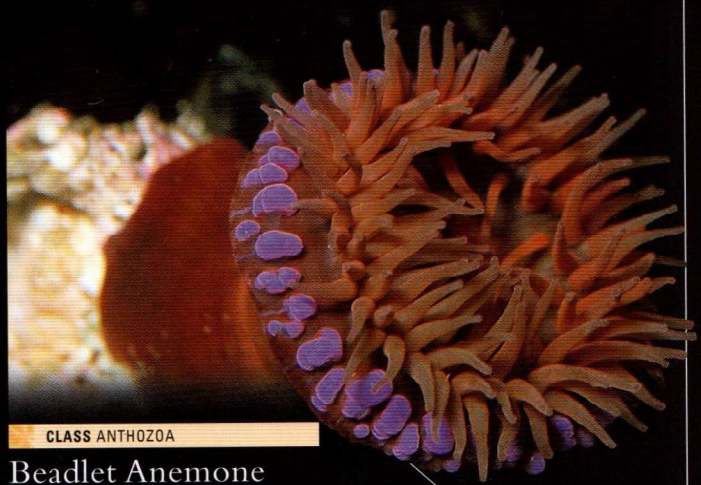


## CLASS ANTHOZOA

## Beadlet Anemone

*Actinia equina***DIAMETER** Up to 2 1/4 in (7 cm)**DEPTH** 0–65 ft (0–20 m)**HABITAT** Hard surfaces**DISTRIBUTION** Coastal waters of Mediterranean, northeastern and eastern Atlantic

Most anemones cannot survive out of water, but the beadlet anemone can do so provided it stays damp. At low tide, this anemone can be found on rocky shores with its tentacles



acrorhagi containing stinging cells

retracted, looking like a blob of red or green jelly. The top of the anemone's body is ringed with blue beads called acrorhagi. These contain numerous stinging cells, which the anemone uses to repel any close neighbors. Leaning over, it will sting any anemone within reach, and the defeated anemone will move slowly out of the victor's territory. The beadlet anemone broods its eggs and young inside the body and ejects them through its mouth.



## CLASS ANTHOZOA

## Plumose Anemone

*Metridium senile*

**HEIGHT** Up to 12 in (30 cm)  
**DEPTH** 0–330 ft (0–100 m)  
**HABITAT** Any hard surface

**DISTRIBUTION** Temperate waters of north Atlantic and north Pacific

This tall anemone resembles an ornate piece of architecture. It has a long column, topped by a collarlike ring and a wavy disk with thousands of fine tentacles. The most common colors are white or orange, but it can also be brown, gray, red, or yellow. Fragments from the base of large anemones can grow into tiny new anemones. The plumose anemone is often found on pier pilings and wrecks projecting out into the current.



## CLASS ANTHOZOA

## Cloak Anemone

*Adamsia carciniopados*

**DIAMETER** 2 in (5 cm)  
**DEPTH** 0–650 ft (0–200 m)  
**HABITAT** Hermit crab shells

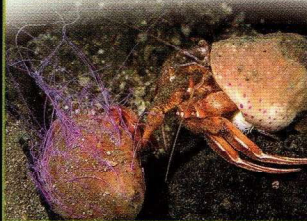
**DISTRIBUTION** Temperate waters of northeastern Atlantic and Mediterranean

The cloak anemone lives with its wide base wrapped around the shell of a hermit crab and its tentacles trailing beneath the crab's head. In this position, the tentacles are ideally placed to pick up food scraps. The enveloping column of the anemone is off-white with distinct pink spots. Neither partner thrives without the other, though young cloak anemones can be found on rocks and shells between the tidemarks waiting to find a host.



## ARMORED VEHICLE

The hermit crab *Pagurus prideaux* is always seen with its protective anemone cloak. It does not have to find a bigger shell as it grows because the cloak anemone secretes a horny extension. The anemone on the crab on the left has thrown out pink stinging threads, called acontia, to repel another hermit crab.



## CLASS ANTHOZOA

## Antarctic Anemone

*Urticinopsis antarctica*

**SIZE** Not recorded  
**DEPTH** 15–740 ft (5–225 m)  
**HABITAT** Rocky sea beds

**DISTRIBUTION** Southern Ocean around Antarctica and South Shetland Islands

Like many other Antarctic marine animals, the Antarctic anemone grows to a large size, but rather slowly. It has long tentacles with powerful stinging cells and is capable of catching and eating starfish, sea urchins, and jellyfish much larger than itself. As there are often many anemones living close together, two or more may hold a large jellyfish. As in most anemones, stinging cells on the tentacles fire barbed threads into the prey to hold it and to paralyze or kill it.



## CLASS ANTHOZOA

## Jewel Anemone

*Corynactis viridis*

**DIAMETER** 1/2 in (1 cm)  
**DEPTH** 0–260 ft (0–80 m)  
**HABITAT** Steep rocky areas

**DISTRIBUTION** Temperate waters of northeastern Atlantic and Mediterranean

Jewel anemones often cover large areas of underwater cliff faces, creating a spectacular display. Individuals can be almost any color, and they reproduce by splitting in half, making two new identical anemones. This results in dense patches of different-colored anemones. Each anemone has a small saucer-shaped disk circled by stubby translucent tentacles. The tentacles have knobbed tips that are often a contrasting color to the tentacle shafts, disk, and column of the anemone. The color combination shown here is one of the most common. Jewel anemones are not true anemones but belong to a group of anthozoans called coralliiforms. These closely resemble the polyps of hard corals but have no skeleton. Coralliiforms are found in all oceans but are most common in the tropics.





## CLASS ANTHOZOA

## Table Coral

*Acropora hyacinthus*

<b>DIAMETER</b>	Up to 10 ft (3 m)
<b>DEPTH</b>	0–33 ft (0–10 m)
<b>HABITAT</b>	Coral reefs

**DISTRIBUTION** Tropical waters of Red Sea, Indian Ocean, and western and central Pacific

The magnificent flat plates of table coral are ideally shaped to expose as much of their surface as possible to sunlight. Like most hard corals, the cells of table coral contain zooxanthellae that need light to photosynthesize and manufacture food for themselves and their host. Table coral is supported on a short, stout stem that is attached to the seabed by a spreading base. The horizontal plates have numerous branches that mostly project upward from the surface, so each plate,

or table, resembles a bed of nails. Each of these branches is lined by cup-shaped extensions of the skeleton called corallites, from which the polyps extend their tentacles in order to feed, mainly at night.

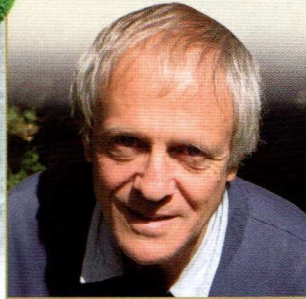
The usual color of table coral is a dull brown or green, but it is brightened up by the numerous reef fish that shelter under and around its plates. However, the shade the plates cast means that few other corals can live underneath a table coral. There are many other similar species that are also called table coral, but *Acropora hyacinthus* is one of the most abundant and widespread.



## PEOPLE

## CHARLIE VERON

Born in Sydney, Australia, in 1945, Charlie Veron has been dubbed the “King of Coral” for his lifelong work on coral reefs. He has formally named and described over 100 new coral species, including many from the genus *Acropora*. His three-volume book *Corals of the World* is a classic text.



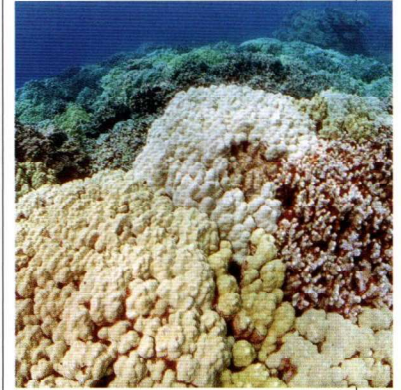
## CLASS ANTHOZOA

## Hump Coral

*Porites lobata*

<b>DIAMETER</b>	Up to 20 ft (6 m)
<b>DEPTH</b>	0–165 ft (0–50 m)
<b>HABITAT</b>	Coral reefs

**DISTRIBUTION** Tropical waters of Red Sea, Persian Gulf, and Indian and Pacific oceans



It can be difficult to tell that hump coral is a living coral colony because it looks just like a large, lumpy rock. Closer inspection will show that the coral grows as a series of large lobes formed into a dome. The living polyps are tiny, with tentacles that are only about  $\frac{1}{32}$  in (1 mm) long, and during the day, they are hidden in their shallow skeleton cups. At night, they extend their tentacles to feed and the colony takes on a softer appearance. Hump coral is an important reef-building species.

## CLASS ANTHOZOA

## Daisy Coral

*Goniopora djiboutiensis*

<b>DIAMETER</b>	Up to 3 ft (1 m)
<b>DEPTH</b>	15–100 ft (5–30 m)
<b>HABITAT</b>	Turbid reef waters

**DISTRIBUTION** Tropical waters of Indian Ocean and western Pacific

In most corals it is difficult to see the tiny polyps, but the daisy coral has polyps that are a few inches long. The head of each polyp is dome-shaped with the mouth in the middle, surrounded by a ring of about 24 tentacles. These are arranged rather like the petals of a daisy. Unlike the majority of corals, the polyps extend to feed during the day, though they will quickly withdraw if touched. Daisy coral grows as a rounded lump, but the shape is difficult to see when the polyps are extended. While most corals need clear water to survive, this species often covers large areas where the water is made turbid by disturbed sediment.





## CLASS ANTHOZOA

## Mushroom Coral

*Fungia scruposa*

**DIAMETER**  
Up to 1 in (2.5 cm)

**DEPTH**  
0–80 ft (0–25 m)

**HABITAT**  
Sediment and rubble

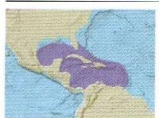
**DISTRIBUTION** Tropical waters of Red Sea, Indian Ocean, and western Pacific

Mushroom coral is unusual in that it lives as a single individual rather than a colony. Juveniles start life as a small disk attached to dead coral or rock. By the time they reach about 1½ in (4 cm) in diameter, they become detached. The animal feeds at night and the tentacles are withdrawn during the day, leaving the skeleton clearly visible, with the mouth at the center of the disk. The skeleton resembles the gills of a mushroom. Mushroom coral uses its tentacles to turn itself the right way up if it is overturned by waves.



## CLASS ANTHOZOA

## Giant Brain Coral

*Colpophyllia natans*

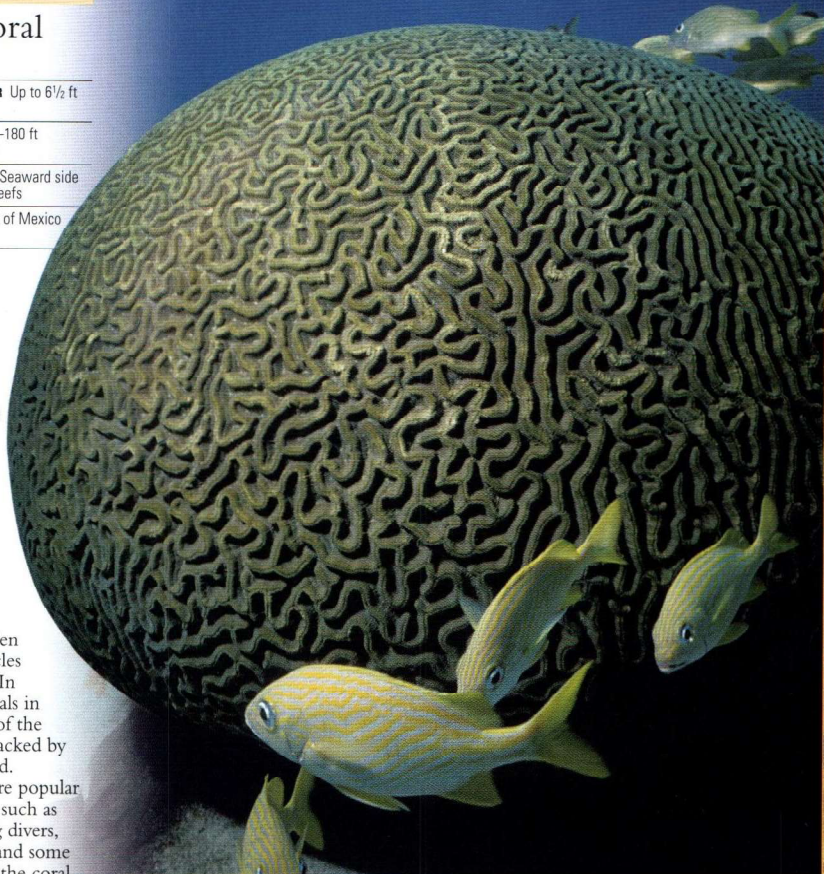
**DIAMETER** Up to 6½ ft (2 m)

**DEPTH** 3–180 ft (1–55 m)

**HABITAT** Seaward side of coral reefs

**DISTRIBUTION** Tropical waters of Gulf of Mexico and Caribbean

This huge coral grows as giant domes or extensive thick crusts and can live for more than 100 years. The surface of the colony is a convoluted series of ridges and long valleys, as in other species of brain coral, and this is what gives it its name. The valleys and ridges are often differently colored and the ridges have a distinct groove running along the top. Typically, the valleys are green or brown and the ridges are brown. The polyp mouths are hidden in the valleys and the tentacles are only extended at night. In recent years, giant brain corals in the Tortugas Islands (south of the Florida Keys) have been attacked by a disease and some have died. Particularly large colonies are popular tourist attractions in islands such as Tobago. As well as attracting divers, the coral heads attract fish, and some gobies live permanently on the coral.



## CLASS ANTHOZOA

## Dendrophyllid Coral

*Dendrophyllia* species

**HEIGHT**  
Up to 2 in (5 cm)

**DEPTH**  
10–165 ft (3–50 m)

**HABITAT**  
Steep rock faces

**DISTRIBUTION** Tropical waters in Indian Ocean and from western Pacific to Polynesia

With their large, flamboyant polyps, corals of the genus *Dendrophyllia* look more like an anemone than a coral. Dendrophyllids belong to a group



called cup corals. They grow as a low-branching colony with each tubular individual distinct, and they do not develop the massive skeleton of reef-building corals. They have no zooxanthellae and grow in shaded parts of reefs such as below overhangs and especially on steep cliff faces. During the day, the polyps are entirely withdrawn and the coral looks like a dull reddish lump. As darkness falls, the polyps expand their orange tentacles to feed on plankton and make a spectacular display that often covers large areas. This genus of coral is very difficult to identify to species level and can also be confused with cup corals belonging to the genus *Tubastrea*.

## CLASS ANTHOZOA

## Devonshire Cup Coral

*Caryophyllia smithii*

**DIAMETER**  
1¼ in (3 cm)

**DEPTH**  
0–330 ft (0–100 m)

**HABITAT**  
Rocks and wrecks

**DISTRIBUTION** Northeastern Atlantic and Mediterranean

While most corals grow as colonies in tropical waters, the Devonshire cup coral is solitary and lives in temperate parts of the ocean. It grows with its

cup-shaped skeleton attached to a rock or even a shipwreck. When the tentacles are expanded, these tiny corals look just like anemones, with each tapering, transparent tentacle ending in a small knob. Devonshire cup coral occurs in a variety of colors from white to orange.



## CLASS ANTHOZOA

## Lophelia Coral

*Lophelia pertusa*

**DIAMETER**  
At least 33 ft (10 m)

**DEPTH**  
165–10,000 ft (50–3,000 m)

**HABITAT**  
Deep-sea reefs

**DISTRIBUTION** Atlantic, eastern Pacific, and western Indian Ocean; distribution not fully known

Lophelia reefs more than 8 miles (13 km) long and 100 ft (30 m) high have been recorded off the coast of Norway. Because it lives in deep, dark water, this cold-water coral has no zooxanthellae to help build its white, branching skeleton. It therefore grows very slowly, and such large reefs are many hundreds of years old. Each polyp has 16 tentacles, which it uses to capture prey such as zooplankton and even krill from the passing current. Stinging cells render the prey immobile and it is then transferred to the mouth.

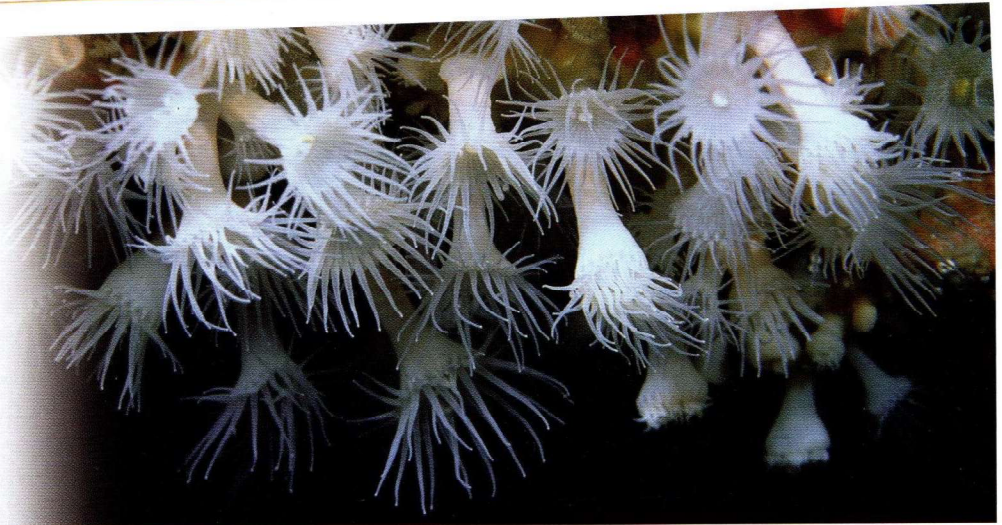


## CLASS ANTHOZOA

## White Zoanthid

*Parazoanthus anguicomus***HEIGHT** 1 in (2.5 cm)**DEPTH** 65–1,300 ft (20–400 m)**HABITAT** Shaded rocks, wrecks, and shells**DISTRIBUTION** Temperate waters of northeastern Atlantic

Most zoanthids are found in tropical waters, but the white zoanthid is common in the north Atlantic. Its white polyps arise from an encrusting base and it has two circles of tentacles around the mouth. One circle is usually held upward while the other lies flat. As well as covering rocks and wrecks, this species also encrusts worm tubes and *Lophelia* reefs (see p.179).



## CLASS ANTHOZOA

## Whip Coral

*Cirrhipathes* species**LENGTH** Up to 3 ft (1 m)**DEPTH** 10–165 ft (3–50 m)**HABITAT** Coral reefs**DISTRIBUTION** Tropical waters of eastern Indian Ocean and western Pacific

Whip corals, or wire corals, belong to a group of anthozoans called antipatharians to which the black corals (see right) also belong. Whip coral grows as a single unbranched colony that can be either straight



or coiled as in the species belonging to the genus *Cirrhipathes* shown here (whip corals are difficult to identify and many species remain undescribed). The feeding polyps of whip corals and black corals can be seen easily because, unlike sea fans, they cannot retract their short, pointed tentacles. Gobies live among the tentacles, hanging onto the coral with suckerlike pelvic fins.

## CLASS ANTHOZOA

## Bushy Black Coral

*Antipathes pennacea***HEIGHT** Up to 5 ft (1.5 m)**DEPTH** 15–1,100 ft (5–330 m)**HABITAT** Coral reefs**DISTRIBUTION** Tropical waters of Gulf of Mexico, Caribbean Sea, and western Atlantic

Bushy black coral grows as a plantlike colony with branches shaped like large bird feathers. There are many different species of black corals, and they get their name from the strong black skeleton that strengthens their

branches. Made of a tough, horny material, the skeleton is valuable as it can be cut and polished to make jewelry, although this species is not widely used for this purpose.



## CLASS ANTHOZOA

## Tube Anemone

*Cerianthus membranaceus***HEIGHT** 14 in (35 cm)**DEPTH** 33–330 ft (10–100 m)**HABITAT** Muddy sand**DISTRIBUTION** Mediterranean and northeast Atlantic

The long, pale tentacles of the tube anemone make a spectacular display but at the slightest disturbance, the animal will disappear down its tube in an instant. Tube anemones look superficially like true anemones but are more closely related to black corals (see above). They live in tubes made of sediment-encrusted mucus that can be up to 3 ft (1 m) long even though the animals are only about a third of this length. The slippery lining of the tube allows the animal to retreat rapidly. As well as about 100 long, slender outer tentacles, the animal has an inner ring of very short tentacles surrounding the mouth. The outer tentacles may look dangerous, but the tube anemone feeds only on plankton and suspended organic debris.

