SOFT CORALS

HEDGEROWS OF THE SEA

Soft corals belonging to the genus Dendronephthya *are some of the reef's most colorful benthic organisms. This vibrant underwater landscape was shot nearby Kri Island in Raja Ampat, West Papua.*

Taking a close look at the fascinating underwater micro-habitat created by these colorful and all-important denizens of the tropical coral reef

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Pink, red, orange, purple, yellow – soft corals come in all candy colors. And shapes too: from big fleshy cauliflowers (*Dendronephthya*) to three-meter wide sea fans (*Muricella*, *Echinogorgia* and many other genera), from slender seawhips (*Juncella*) to corkscrewing wires (*Cirrhipathes*). Soft corals proper, bushy thickets of black corals, horny gorgonians or sea fans and deep-dwelling sea whips share however one common trait: they all are *ahermatypic* corals (meaning they are not reef builders like hard corals) and make wonderful photo subjects for wide-angle and fisheye aficionados. However, there's more to soft corals than it meets the eye...especially if one takes the trouble to get very, very close, and start scrutinizing their surface.

If we - correctly - consider a coral reef as a submerged rainforest, then soft, black and whip corals and gorgonians or sea fans can be thought of as standing isolated bushes or thorny thickets, often giving rise to habitats akin to those found in countryside hedges. Shrubs and hedgerows offer refuge to a multitude of creatures on land - from nesting birds to fledglings, from adult bugs to their larvae, from butterflies and caterpillars to lizards and small snakes: their role in a

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Another underwater shot from Raja Ampat, West Papua, as Antonella hovers above a very large sea fan at The Passage. Also known as gorgonians, sea fans feature a hard, horny, very flexible structure of many delicate hues. They always grow facing the main current, so to offer a broader feeding surface to the polyps which constitute the colony.

Soft corals belong to many different species and come in many different shapes, colors and textures. The many organisms living among them are equally diverse: clockwise, from top left, a Pygmy Seahorse Hippocampus denise, *a well-camouflaged Soft Coral Partner Shrimp* Dasycaris ceratops, *a tiny Papuan Cuttlefish* Sepia papuensis *and a large Lionfish* Pterois volitans. *Notice the measure of camouflage shown by all.*

The coral reefs of the Central Indo-Pacific - the epicentre of marine biodiversity - can be dizzingly alive and colorful. These two wide-angle images - both prominently featuring soft corals and gorgonians among a multitude of sponges, ascidians and hydroids - illustrate the extraordinary richness of the underwater landscape of Raja Ampat, in West Papua.

In the nutrient-rich waters of the Raja Ampat area in West Papua, sea fans - elsewhere usually restricted to deep water - can grow at very shallow depth. Antonella is seen here at Mike's Point, one of the area's most scenic underwater seascapes.

A serene, shallow underwater garden of exquisite natural beauty

healthy natural habitat is invaluable. Think of black coral colonies, of large gorgonians, of thickets of fleshy soft corals in the same terms: all-important microhabitats in which an enormous number of small and often defenceless tiny creatures find a home and food, hidden and well-protected from the roving predators which inhabit the reef. Divers who will take the trouble to closely and carefully examine these shrubs of the deep will be regaled with a plethora of amazing sights and fascinating encounters.

A COMMUNITY OF CREATURES

Among the countless inhabitants of soft coral colonies, fish are the most easily observed. Most divers are in fact quite familiar with Pixy and Long-nosed Hawkfish, Pygmy seahorses and small Cardinals, the latter often hiding among black coral colonies in thick schools. Less easy to observe are several very small, semi-transparent gobies which can be seen on wire corals (look out! They'll always jump in a flash to the other side of the colony when you approach them) and soft corals proper, often taking the same color of the fleshy host they live on. Wire corals are also the habitat of choice of several small crabs belonging to the genus *Xenocarcinus*, many colorful Squat lobsters (*Galathea*) and shrimp belonging to the genus *Hamodactylus* or *Dasycaris*, often

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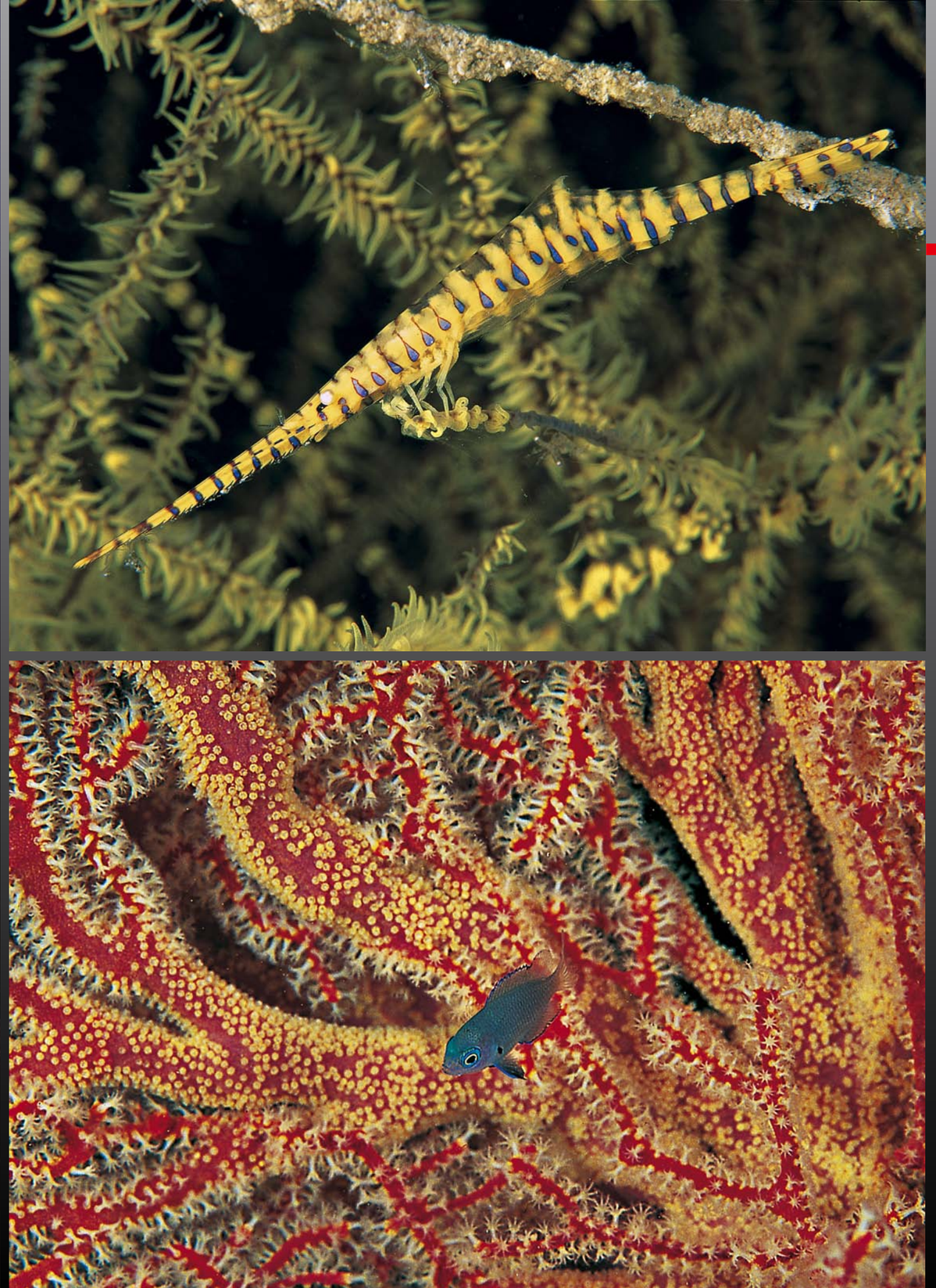
Cauliflower soft corals such as this Dendronephthya *colony can be outrageously colorful. Further left, two more common members of the soft coral biotope - a semitransparent Whip coral Goby* Bryaninops *sp. (top) and a partially transparent commensal shrimp* Periclemenes brevicarpalis *(bottom). Total or partial transparency is often adopted by soft corals symbionts as a defensive strategy.*



Thickly branched and often almost impenetrable, soft corals and sea fans offer refuge from the threat of roving predators to a multitude of small species. Far left, a Whitetip Reef Shark Triaenodon obesus *passes by a deep-water soft coral colony; left top, the amazingly camouflaged Sawblade shrimp* Tozeuma armatum*; left below, juveniles and fry of countless species often hide among soft corals.*

Another atmospheric shot of Antonella hovering above two large gorgonians clearly illustrates the flat, almost bidimensional structure shown by these colonial organisms.

amazingly camouflaged to blend with their perch (some will even sport growths which cleverly mimic the expanded polyps of the coral colony). The most amazing of these however is the spectacular Sawblade shrimp *Tozeuma armatum*, a colorful long and thin shrimp which looks like a miniature samurai sword and which exclusively inhabits black coral colonies. Always remember to delicately and carefully check large thick colonies of cauliflower soft corals *Dendronephthya* – it is not uncommon to discover the beautiful Soft coral or Candy crab *Hoplophrys oatesii* contentedly perching among their inflated branches or on their fleshy terminal "blossoms".

Another wonderful master of camouflage is the bizarre Gorgonian horned shrimp *Miropandalus hardingii* - so good at its job, in fact, that most divers never see one in their life. Even more difficult to spot and great fun for the specialized photographer are the so-called allied and spindle cowries, several species of which are more or less commonly found on gorgonians and soft corals. These are incredibly well camouflaged and very small seashells which live symbiotically on soft coral colonies, feeding and mating on their hosts: they will often develop warts and papillae on their mantles, mimicking with amazing accuracy expanded coral polyps, literally disappearing on the colorful background they are found on.

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A deadly game of hide-and-seek among the soft corals ramifications

Black Coral colonies belonging to the genus Anthipates *truly look like underwater bushes - here a Coral Grouper* Cephalopholis miniata *hides in one on a reef in the Maldives. Far left, two more species commonly found in the soft corals biotope - a tiny Xeno crab* Xenocarcinus conicus *(top) and a Whip coral partner shrimp* Dasycaris zanzibarica *(bottom). Both species feature stunningly effective camouflage.*

More examples from the soft coral biotope - clockwise, from top left, Long-nosed Hawkfish Oxycirrhites typus, *Spider Crab* Chirostylus dolichopus, *Porcelain crab* Lissocarcinus laevis *and Pygmy Seahorse* Hippocampus bargibanti. *All show extensive use of mimicry and /or disruptive camouflage to perfectly blend in the soft coral colony environment.*

Far left, Antonella hovers above a gigantic sea fan growing at a depth of 60 meters on the reef wall of Layang Layang atoll, in the South China Sea - notice orientation of the colony to face the strong, nutrient-rich currents prevalent on reef walls. Left, a cauliflower soft coral is filled with water and fully expanded in the shallow, warm waters of The Channel in Raja Ampat, West Papua.

Delicate, lace-like textures which belie a strong but flexible structure

Escorted by a pair of Tallfin Batfish Platax teira, *Antonella explores the shallow, warm waters of Five Rocks in Raja Ampat, West Papua. Strong surface currents carrying with them a great quantity of nutrients allow sea fans here to commonly grow at very shallow depth.*

Lit from behind - taking advantage of the semi-transparent quality of their colonial host - they make wonderful subjects for the discriminating macro photographer.

THE SECRET IS IN THE LIGHT

Lighting in fact is extremely important when portraying these minute but colorful critters, as their camouflage is so unbelievably good it's almost impossible to spot them in a flatly-lit photo. For those who like abstract shots, several common and very small brittlestars also offer unique chances to compose arty photographs, taking advantage of their colorful snake-like arms sinously draping themselves around the branches of the soft corals. As with all macrolife subjects, it is all-important to stress once again not to damage the microhabitat on which these tiny and beautiful creatures are commonly found.

Sadly, many over-enthusiastic dive guides will roughly handle and occasionally even damage the corals in their eagerness to show these little inhabitants of the sea to their clients. Restrained and delicate manipulation, preferably using a blunt, thin tool like a pointer, is instead occasionally acceptable, as long as the subjects are not forcibly removed from their host - remember, these are habitat-specific species which are incapable of surviving if separated from their host.

Red Juncella *Whip Corals - usually restricted to deep waters and here photographed near Walea Island in Central Sulawesi, Indonesia - offer another variation on soft corals colonies structure and development. Far left, two more inhabitants of the soft coral biotope - a Xeno crab* Xenocarcinus tuberculatus *(top) and a tiny Allied Cowry (bottom). In the lower photo the calcareous spicules which stiffen the soft coral colony are also quite evident.*

Far left and hovering in the distance, Antonella is dwarfed by a gigantic Dendronephthya *colony spanning over two meters at Barracuda Point, Pulau Sipadan, Sulawesi Sea. Left, another soft coral biotope in the same location, one of the world's underwater biodiversity hotspots.*

Blindingly colorful plant-like colonies made of millions of polyps