

Contributors' Picks

Bold & Beautiful

Critters from Around the World



Text and photos by John A. Ares, Sheryl Checkman, Larry Cohen, Anita George-Ares, Matthew Meier, Brandi Mueller, Gary Rose, Michael Rothschild and Olga Torrey

Many intriguing creatures underwater have defensive mechanisms—they may sting, have venom, sharp spines, warning colors, or bite. We asked our contributors what their favorite underwater photos of these bold and beautiful critters were, and they came back with a variety of subjects including brightly colored nudibranchs, cnidarians that sting, scorpionfish with sharp spines, sharks and even crocodiles sporting sharp teeth. With a healthy respect for nature, *X-Ray Mag* contributors share their favorite images from the tropical waters of Fiji, Micronesia, Philippines, Indonesia, Malaysia, Mozambique, Egypt, Cuba, Mexico and Honduras to the temperate waters of the US East Coast.

Okinawan *Halgerda* nudibranch moving across the sandy bottom, Lembah Strait, Indonesia (right). Gear: Nikon D810 camera, Nikon 105mm macro lens, Subal housing, two Sea&Sea YS-250 strobes with snoots. Exposure: ISO 200, f/25, 1/125s



Risbecia tryoni nudibranch moving over a pink sponge, Puerto Galera, Philippines (above). Gear: Nikon D810 camera, Nikon 105mm macro lens, Subal housing, two Sea&Sea YS-250 strobes with snoots. Exposure: ISO 200, f/18, 1/250s; *Chromodoris* sp. nudibranch on top of coral rubble on the sea floor, Anilao, Philippines (previous page). Gear: Nikon D3 camera, Nikon 105mm macro lens, Subal housing, two Sea&Sea YS-250 strobes. Exposure: ISO 200, f/25, 1/125s

Emperor shrimp riding on the back of a many-lobed *Ceratosoma* nudibranch, Lembah Strait, Indonesia (top right). Gear: Nikon D810 camera, Nikon 105mm macro lens, Subal housing, two Sea&Sea YS-250 strobes with snoots. Exposure: ISO 200, f/22, 1/125s; *Chromodoris kuniei* nudibranch on coral reef, Taveuni, Fiji (right). Gear: Nikon D3 camera, Nikon 105mm macro lens, Subal housing, two Sea&Sea YS-250 strobes. Exposure: ISO 200, f/25, 1/125s

Bright Nudibranchs

Text and photos by Matthew Meier

Nudibranchs were an easy choice for this contributors' picks feature on defense mechanisms. With over 3,000 species, these soft-bodied marine gastropods use a seemingly infinite combination of colors and patterns to warn off prey or blend into their environment. The name "nudibranch" translates to "naked gills," and these animals literally breathe through bronchial plumes on their backs. They are benthic creatures, found crawling on the sea floor the world over, existing nearly entirely in saltwater from the intertidal zone to depths beyond 2,300ft (700m).

All nudibranchs are carnivorous, with

some feeding on sponges, others feed on hydroids or bryozoans, some eat other sea slugs, and in rare instances, they can cannibalize their own species. Nudibranchs that feed on hydroids can also store and use the nematocyst stinging cells for protection.

Others use the chemical defenses of the sponges they consume to render themselves distasteful.

In an effort to increase their chances to procreate, all nudibranchs are hermaphroditic and have reproductive organs of both sexes on the right side of their bodies. When they meet another of their species, nudibranchs fertilize each other, before eventu-



ally laying eggs in a ribbon-like spiral. Once hatched, the identical but tiny newborns will have a lifespan of a few weeks to a year, depending on the species. The largest concentration of nudibranchs is found in warm, tropical shallow reefs, such as the examples shown here from the Philippines, Fiji and Indonesia. Visit: MatthewMeierphoto.com





Photo 1. Sea krait portrait, Fiji (left). Gear: Nikonos V camera, 35mm f/2.5 lens with 1:2 extension tube, Ikelite DS-125 strobe. Exposure: ISO 100, f/11, 1/60s; Photo 2. Turtle-headed sea snake in Dumaguete, Philippines (top left). Gear: Canon EOS Rebel T1i camera, Canon 100mm f/2.8 USM macro lens, Ikelite housing, twin Ikelite DS-161 strobes. Exposure: ISO 400, f/16, 1/160s; Photo 3. Diver and sea krait in Puerto Galera, Philippines (above). Gear: Canon 10D camera, Canon EF-S 10-18mm f/4.5-5.6 IS STM lens at 10mm, Ikelite housing, twin Ikelite DS-161 strobes. Exposure: ISO 400, f/16, 1/100s

Sea Snakes

Text and photos by John Ares

The good news is that sea snakes and sea kraits, while both venomous, are not aggressive toward divers. As with any sea creature, it is prudent not to touch or harass sea snakes and sea kraits. While these creatures can be bold, “beauty” is in the eye of the beholder. I think they are gorgeous.

Sea kraits are not true sea snakes as they are semiaquatic. They need to come to land to digest their prey and to lay eggs. The portrait of a sea krait in Photo 1 was shot from inches away in Fiji. Luck had it that this individual was not at all intimidated by my presence. This image was scanned from a slide.

Superficially, the snake in Photo 2 resembles a sea krait, but the lighter bands contain

black spots. This animal was shot in Dumaguete, Philippines. A true sea snake, the young hatch inside the female and are delivered underwater.

Sea kraits can be very curious, as illustrated by this specimen in Photo 3 swimming alongside the diver and looking into the camera dome in Puerto Galera, Philippines. No doubt it was more fascinated by its reflection than by the diver. Visit: JohnAres.com

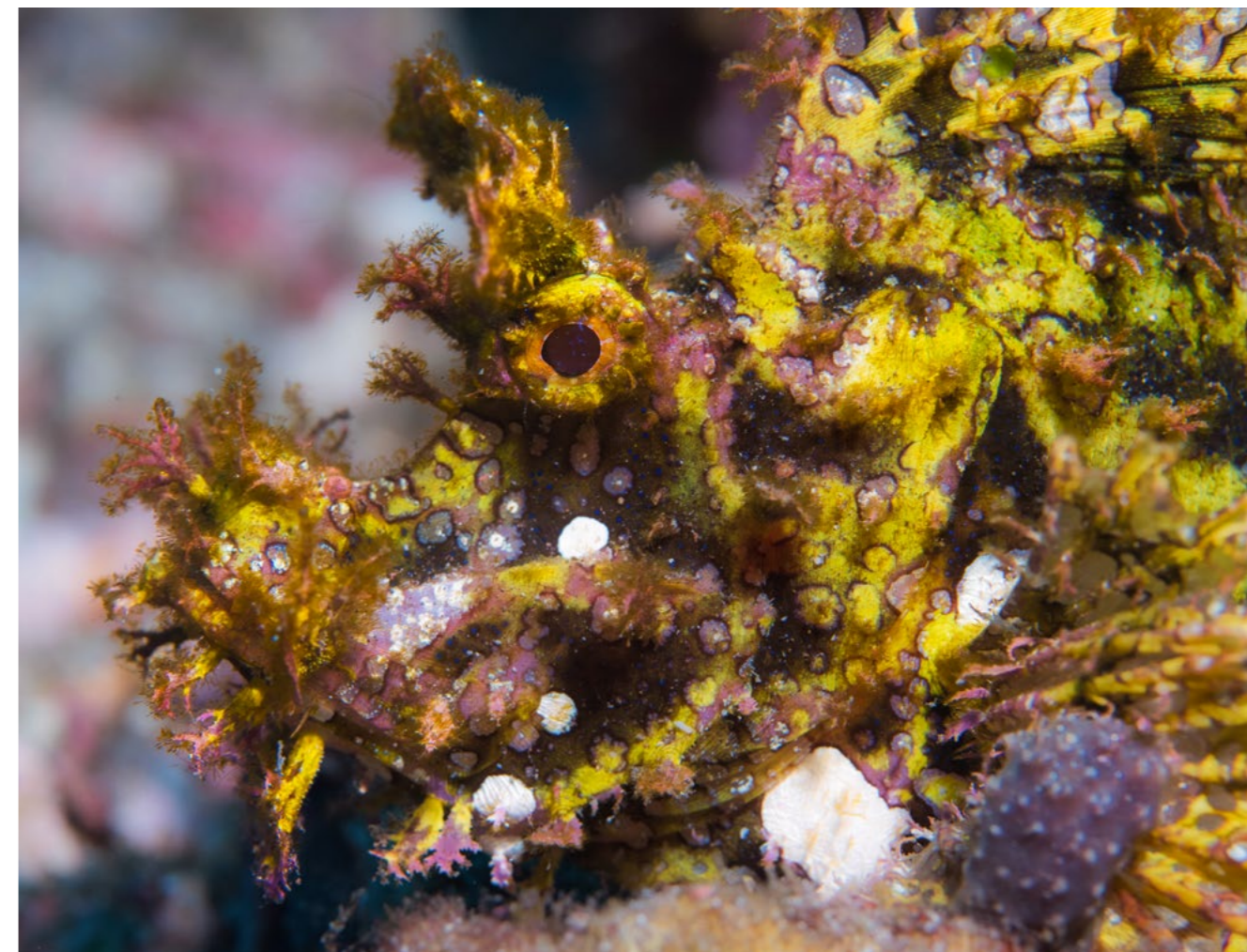


Bold & Beautiful

Scorpionfish at Sponges Wall in Roatan, Honduras (left). Gear: Olympus OMD EM5 Mark II camera, Olympus M.60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobes. Exposure: ISO 200, f/11, 1/125s

Rhinopias at Pasir Hitam (Black Sand) in Alor, Indonesia (below). Gear: Olympus OMD EM5 Mark II camera, Olympus M.60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/5.6, 1/125s

Rhinopias at Pasir Hitam (Black Sand) in Alor, Indonesia (left). Gear: Olympus OMD EM5 Mark II camera, Olympus M.60mm f/2.8 lens at 60mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/5.6, 1/125s



Scorpionfishes

Text and photos by Sheryl Checkman

It is a dangerous world under the sea for many of its inhabitants. Evolution has created ways for many of them to beat the odds through various defense mechanisms. Scorpionfishes (Scorpaenidae) is one such family of fishes. They are mainly found in the Indo-Pacific, but some species are also found in the Atlantic.

Rhinopias are in this family and are found in the Indian and Pacific oceans. In Alor, Indonesia, on a dive at Pasir Hitam (Black Sand), I encountered a variety of these fish in all different colors and patterns, camouflaging themselves to blend into their surroundings. If our dive

guide did not point them out, I would never have seen them! Rhinopias, like all scorpionfish, are venomous, using their sharp spines, coated with a venomous mucus to defend themselves from predators.

I have also encountered this species in the Atlantic as well. In Roatan, at Sponges Wall, this scorpionfish was very well camouflaged against the sand, the only thing giving it away was its blue eyes staring up at me.

Another fish in the Scorpaenidae family is the lionfish. My first encounter with lionfish was in the Caribbean, where they do not belong and, having no natural predators, have become an invasive species that

needs to be controlled. However, in Mozambique, at the Manta Bay dive site, I photographed one in its native environment, with its color-

ful orange and white stripes and venom-coated fins fanned out like a lion's mane. Visit: [Instagram.com/sherylcheckman](https://www.instagram.com/sherylcheckman)

Lionfish at Manta Bay, Mozambique. Gear: Olympus OMD EM5 Mark II camera, Olympus M.9-18mm f/4.0-5.6 lens at 10mm, Olympus PT-EP13 housing, Sea&Sea YS D-1 strobe. Exposure: ISO 200, f/8, 1/160s





Lionfish feeding at night in Sharm El-Sheikh, Egypt (left). Gear: Olympus E-520 camera, Olympus 50mm f/2 Zuiko Digital macro lens, Olympus housing, Sea&Sea YS-01 strobes. Exposure: ISO 200, f/9, 1/200s; Since the mid-2000s, lionfish have invaded the Caribbean, including Cuba (above). Gear: Olympus OM-D E-M1 camera, Olympus 60mm macro, Aquatica housing, Sea&Sea YS-D1 strobes. Exposure: ISO 400, f/11, 1/100s; Lionfish are now in North Carolina (top right). Gear: Olympus OM-D E-M1 camera, Olympus 9-18mm fisheye, Aquatica housing, Sea&Sea YS-D1 strobes. Exposure: ISO 200, f/10, 1/250s

Lionfish

Text and photos by Larry Cohen

Lionfish are the perfect example of bold and beautiful marine life. Their appearance is stunning, but they are poisonous. Lionfish have fan-like fins that look like feathers. However, hidden within this beauty are spines that can release venom. While they are predatory by nature, they also use their poison for protection. When the spine penetrates the skin of the lionfish's victim, a neuromuscular toxin similar to cobra venom

enters the target's body. Lionfish are not aggressive to divers, so stings are usually accidental.¹

In the past, underwater photographers had to travel to the Indo-Pacific region to see these decorative fish. When diving on the house reef at Pom Pom Island Resort in Malaysia, I was excited to photograph a lionfish.

On a night dive in Sharm El-Sheikh in Egypt, my dive light attracted a swarm of tiny fish. The small fish was the perfect opportunity for a lionfish to have a late-night snack.

¹ HEALTHLINE.COM

Since the mid-2000s, lionfish started being seen in significant numbers in the southern and eastern Atlantic region. It is believed they were released or escaped from marine aquariums. Unfortunately, they are an invasive species in this part of the world.² For this reason, dive resorts encourage spearfishing lionfish.

Spearfishing is prohibited in the Garden of the Queen marine park in Cuba. However, dive guides have been allowed to hunt lionfish and have been

² OCEANSERVICE.NOAA.GOV

feeding them to the shark population, hoping the sharks will develop a taste for lionfish. I was still happy to capture an image of a lionfish under a ledge when diving in Cuba.

In the United States, lionfish have been spotted as far north as Rhode Island. Many have made the shipwrecks off North Carolina their home. Of course, this is a problem for the environment, but photographing a lionfish on the wreck of the Papoose still makes an intriguing image.

Visit: liquidimagesuw.com

Lionfish photographed at Pom Pom Island, Malaysia house reef. Gear: Olympus OM-D E-M1 camera, Olympus 60mm macro, Aquatica housing, Sea&Sea YS-D1 strobes. Exposure: ISO 200, f/8, 1/125s





ANITA GEORGE-ARES

Photo 1. Great white shark, Guadalupe Island, Mexico (above). Gear: Canon EOS Digital Rebel XTi camera, Canon EF-S10-22mm f/3.5-4.5 USM lens, Ikelite housing. Exposure: Available light, ISO 400, f/8, 1/80s

Photo 2. Two great white sharks, Guadalupe Island, Mexico (top right). Gear: Canon EOS Digital Rebel XTi camera, Canon EF-S10-22mm f/3.5-4.5 USM lens, Ikelite housing. Exposure: Available light, ISO 400, f/8, 1/80s

Great White, Silvertip & Bull Sharks

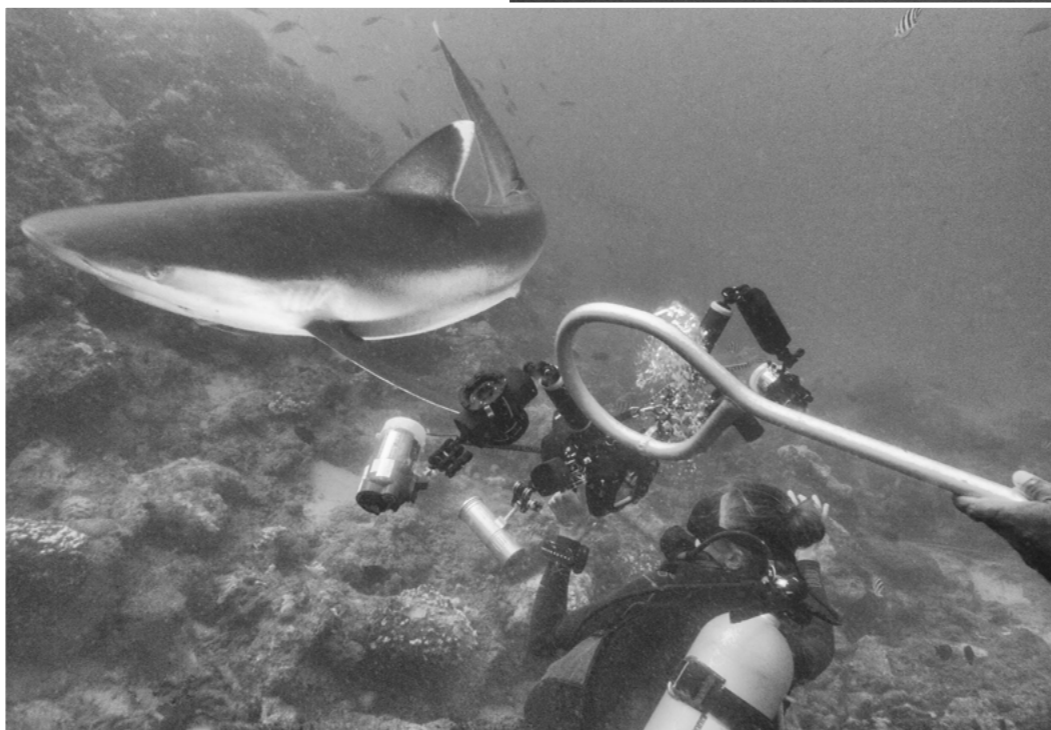
Text and photos by Anita George-Ares

Cage diving with great white sharks is a not-to-be-missed encounter off Guadalupe Island, Mexico. Photo 1 conveys the sleek beauty and purposeful movement of a great white shark and her escorts. Photo 2 captures two great white sharks on their approach to the cage.

I had another exciting shark encounter at the Bistro dive site in Fiji's Shark Reef National Marine Park. We descended to 70ft and knelt behind a low wall made of coral rubble. Bull, sicklefin lemon, blacktip reef, silvertip and tawny nurse sharks converged upon the bait-filled, large plastic bin

that was suspended in the water column. A bull shark swam near the rubble wall (Photo 3).

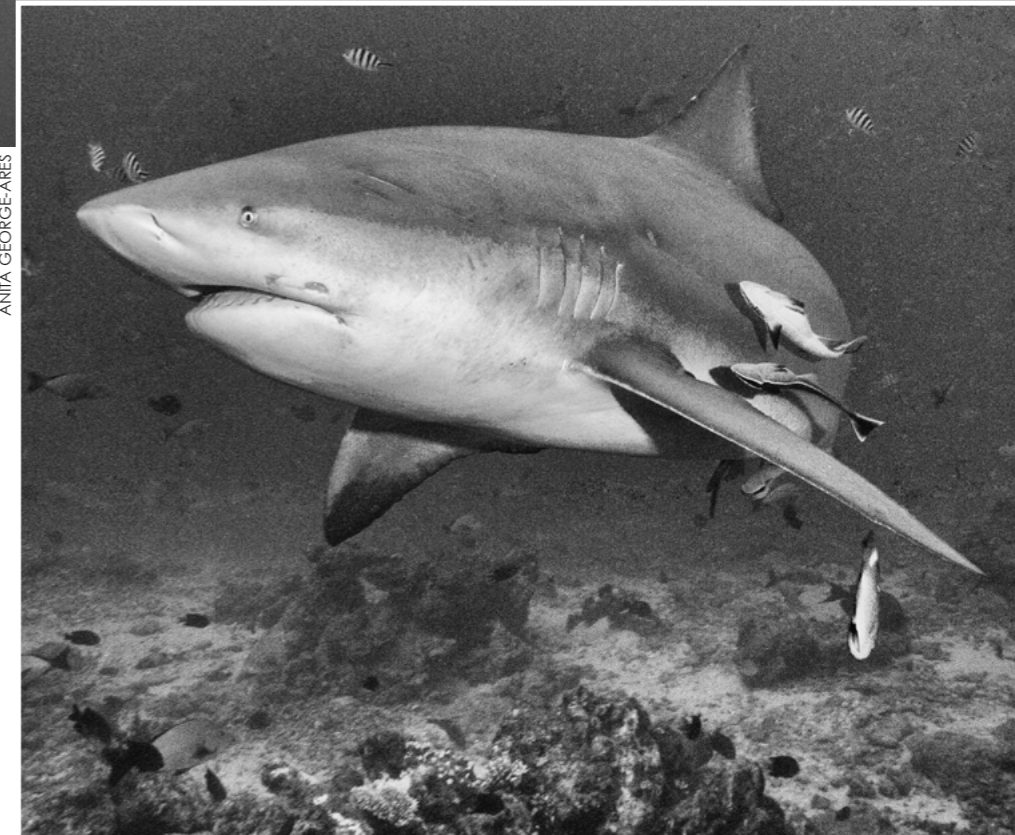
The silvertips sometimes sneaked up behind us. My dive guide explained that the silvertip sharks could not compete with the numerous bull sharks so the silvertips resorted to other tactics in their search for food. Aqua-Trek's guides maintained the safety of the divers and used long, stainless steel poles to push away overly inquisitive sharks, as seen in Photo 4.



ANITA GEORGE-ARES

Images were converted to black and white using Nik Silver Efex Pro 2 and Adobe Photoshop CC 2018 software. Please visit: [facebook.com/profile.php?id=100016947967639](https://www.facebook.com/profile.php?id=100016947967639)

ANITA GEORGE-ARES



ANITA GEORGE-ARES

Photo 3. Bull shark, Beqa Passage, Fiji (above). Gear: Canon EOS Rebel SL1 camera, Canon EF-S10-18 mm f4.5-5.6 IS STM, Ikelite housing, two Ikelite DS 161 strobes. Exposure: ISO 400, f/11, 1/160s

Photo 4. Silvertip shark, Beqa Passage, Fiji (center). Gear: Canon EOS Rebel SL1 camera, Canon EF-S10-18 mm f4.5-5.6 IS STM, Ikelite housing, two Ikelite DS 161 strobes. Exposure: ISO 400, f/11, 1/160s





Jorunna parva nudibranch, Lembah Strait, Indonesia (top left). Exposure: ISO 200, 105mm, f/18, 1/200s; *Goniobranchus fidelis* nudibranch and—if you look closely—a skeleton shrimp on the left rhinophore, Lembah Strait, Indonesia (center left). Exposure: ISO 200, f/22, 1/200s; *Chromodoris* sp. nudibranch with extra rhinophores, Lembah Strait, Indonesia (bottom left). Exposure: ISO 200, f/13, 1/200s



Bold & Beautiful

Gear for all images: Nikon D850 camera, Ikelite housing, dual Ikelite DS161 strobes. Mating *Goniobranchus* sp. nudibranch, Lembah Strait, Indonesia (above). Exposure: ISO 200, f/18, 1/200s; *Cuthona* sp. nudibranch, Lembah Strait, Indonesia (top center). Exposure: ISO 200, f/32, 1/200s; *Flabellina* sp. *exoptata* nudibranch, Lembah Strait, Indonesia (left). Exposure: ISO 200, f/18, 1/200s; *Flabellina* sp. nudibranch, Lembah Strait, Indonesia (center). Exposure: ISO 200, f/25, 1/200s.

Nudibranch Chemistry

Text and photos by Brandi Mueller

The prettier an animal is, the more likely it is to be deadly. Similar to the rainforest and jungle, oceanic organisms that display bright colors are giv-

ing a warning sign to predators that they taste very, very bad. One of my favorite underwater photography subjects is nudibranchs because of their beautiful and bright patterns and, as expected, many are toxic.

Some nudibranchs produce their own chemicals in defense, but others

are even more creative. They have adapted to be able to feed on other toxic organisms like hydrozoas, fire corals, sponges and anemones. Not only are they not poisoned by the stinging cells in the tissues that these toxic animals use for defense, but they are able to store the nematocysts from their

food in their bodies and use them for their own protection.

It gets even more exciting when some marine slugs that are not poisonous pretend to be so by mimicking the brightly colored patterns of noxious neighbors. They hope the predator going after them will think twice about

eating them because they display the toxic warning signs. They fool predators into thinking they are poisonous when they are not.

So, the next time you think about tasting a nudibranch, don't! As with all things in the ocean, look and do not touch. Visit: brandiunderwater.com

feature

Photo 1. Lionfish on reef (top right).

Gear: Nikon D500 camera, Nikon Macro 85mm lens, Nauticam housing, Inon Z330 strobes. Exposure: ISO 200, 85mm, f/8, 1/125s

Photo 3. Spiny lobster on reef (right).

Gear: Nikon D500 camera, Nikon Macro 85mm lens at 85mm, Nauticam housing, Inon Z330 strobes. Exposure: ISO 200, f/11, 1/125s

Photo 4. Smiling lemon shark (far right).

Gear: Nikon D500 camera, Tokina 10-17mm lens at 13mm, Nauticam housing, Inon Z330 strobes. Exposure: ISO 200, f/8, 1/125s



Photo 2. Scorpionfish on wreck.

Gear: Nikon D500 camera, Tokina 10-17mm lens at 17mm, Nauticam housing, Inon Z330 strobes. Exposure: ISO 200, f/11, 1/100s



Look, But Do Not Touch

Text & photos by Gary Rose, MD

It all begins in our childhood. We are told, so many times, that we can look but we cannot touch. Most of the time, it was an adult who would admonish us. Later in life, when we could read, there were signs and placards. Of course, this warning usually increased our desire to touch, and we did. Most of the time, this warning was to protect the object from damage by our human fingers and hands.

Throughout our scuba instruction, and in every pre-dive briefing, we are told, "Do Not Touch." Most of the time, this is to protect the fragile sea life and delicate marine environment. I am now going to share

with you when the advice of "Do Not Touch" is for our safety. There are numerous sea creatures that have spines, projections, stingers and teeth that serve them well as survival tools.

The lionfish in Photo 1 is a very beautiful creature that has spread throughout most of the Western Atlantic as an invasive species. They are very popular with photographers, because of their exotic beauty and they do hold very still while suspended in the water column or on the reef. I chose this photograph because it clearly demonstrates the location and severity of the venomous spines. Each lionfish has 18 spines—13 dorsal, two pelvic, and three anal. Each is coated with venom that is toxic to many species of fish. For humans, it is extremely painful and, in rare cases, can lead to

death. Do not let its beauty lure you in too close.

The cousin to the lionfish is the scorpionfish (Photo 2). They are both in the same family, although their behavior is quite different. Unlike the lionfish, the scorpionfish always blends into its surroundings—reef, wreck, boulders—and, to the casual eye, is invisible. It is covered with multiple short venomous spines. However, the venom is stronger, more painful and more toxic than that of a lion-

fish. Divers get in trouble when they inadvertently settle on them during dives on shipwrecks and reefs, particularly when they are holding on in a strong current.

Spiny lobsters have lots of pointy barbs and spines (Photo 3). Fortunately, they are not venomous. Whenever handling a spiny lobster, it is imperative to wear gloves, or you will suffer many small punctures and lacerations, with each having the potential of becoming

infected. Many a diver, trying to be macho by not wearing gloves during handling, have found themselves with marine microorganism infections.

One of my favorite photo subjects is the lemon shark (Photo 4). I am very lucky to have them in my backyard in Jupiter, Florida, all year long. During their yearly aggregation, which occurs from January to February, they become particularly frolicsome.

It is common to find oneself, literally, in a "sharknado." Although lemon sharks like to play, cavort, bump and nuzzle, all divers still need to pay attention to the many rows of long, triangular, pointy, sharp teeth.

At my Update in Diving Medicine Courses, I go into much more detail, including management of the above-mentioned injuries. Please visit: garyrosephotos.com





Bold & Beautiful

Photo 1. Pink Anemonefish over an anemone, wreck of the *Fujikawa Maru*, Truk Lagoon (above). Gear: Canon EOS 7D Mark II, Tamron 60mm macro lens, Nauticam housing, dual Inon Z-240 strobes. Exposure: ISO 200, f/11, 1/250s; Photo 2. Lionfish over the wreck of the *Yamagiri Maru*, Truk Lagoon (left). Gear: Canon EOS 7D Mark II, Tokina 10-17mm fisheye lens (at 11 mm), Nauticam housing, dual Inon Z-240 strobes. Exposure: ISO 500, f/22, 1/250s

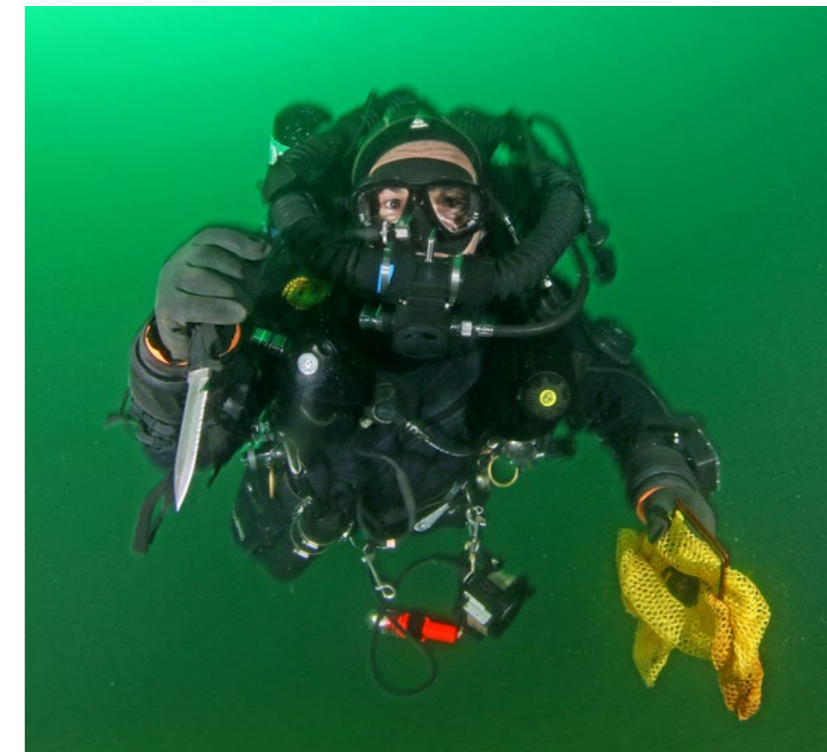


Photo 4. Diver on the wreck of the *Tolten*, New Jersey, USA (above). Gear: Canon EOS 7D Mark II, Nauticam housing, Tokina 10-17mm fisheye lens (at 10 mm), dual Inon Z-330 strobe. Exposure: ISO 800, f/11, 1/40s; Photo 3. Mauve stinger jellyfish over the wreck of the *Tolten*, New Jersey, USA (bottom left). Gear: Canon EOS 7D Mark II, Nauticam housing, Tokina 10-17mm fisheye lens (at 17mm), dual Inon Z-330 strobes. Exposure: ISO 200, f/8, 1/200s



Bold and Beautiful

Text and photos by Michael Rothschild, MD

To paraphrase George Washington, the best defense is a good offense. While many marine creatures protect themselves with camouflage or armor, others take an active stance, employing fangs and venom not as predators, but as reluctant prey.

Stinging anemones use nematocysts for defense and offense, but as in most societies, some individuals have special privileges. The anemonefish in Photo 1 enjoys immunity to this poison, keeping his friend clean of parasites in return.

Photo 2 shows a lionfish in the South Pacific where it is supposed to be, and not as an invasive species in the western

hemisphere. These are great photographic subjects—dramatically beautiful and calm enough to pose as they drift by.

In Photo 3, we see the long tentacles of the mauve stinger. Fortunately, this one was in an area where divers tend to cover up thoroughly, so injuries are rare.

Finally, we have the most dangerous animal in the sea in Photo 4. His rebreather allows him to sneak up on prey in silence, making quick work of the slowest flatfish of the New Jersey shore. In this shot, however, he is using his weapon defensively, warding off a photographer who came too close for comfort. Visit: dive.rothschilddesign.com



American Crocodiles

Text and Photos by Olga Torrey

One of the most exciting experiences on a dive trip to the Gardens of the Queen in Cuba was being in one meter of water with two American crocodiles. We took one of the small skiffs from our liveaboard ship into the mangroves. The crew took hunks of chicken and hung them in the water. Within a few minutes, two American crocodiles showed up for a meal. As they enjoyed the meal, I looked at my dive buddy Larry Cohen and said: "Is getting in the water a good idea?" He shrugged his shoulders and said, "Well, you only live once!"

We got into our wetsuits, grabbed our cameras, and entered the water with our guide. We planned to let the crocodiles come to us, and we would capture the images when they moved in close. Having a housing with dual strobes could be used to push the crocodiles away if they got too close. Our guide Noel Lopez

Fernandez also had a long stick with a GoPro attached.

American crocodiles are not as aggressive as other species of crocodiles, but they are opportunistic. I asked my buddy to put down his camera so I could get a photo of him with the crocodile. One of the reptiles immediately took the opportunity and got up close and personal with Larry; luckily, Noel pushed the animal away with his stick.

We spent four hours in the water with these bold and beautiful creatures. Unfortunately, towards the end, the battery on my camera lost power. So, I handed my primary camera to the captain and asked him to give me my small Canon PowerShot ELPH point-and-shoot cam-



American crocodile with impressive teeth and powerful jaw, Cuba. Exposure: ISO 100, f/5.0, 1/320s (above); This American crocodile was happy to see me. Exposure: ISO 100, f/5, 1/320s (top left); American crocodile, showing off its impressive defensive weapons. Exposure: ISO 100, f/5, 1/320s (top right). Gear for all images: Olympus XZ-1 camera, wide-angle conversion lens, Olympus PT-050 housing, dual Sea&Sea YS-01 strobes.

era in an Ikelite housing. I continued to capture video, but this small housing did not offer any protection. So, I proceeded with caution, captured my images, and still had all my limbs. Visit: filimage.nyc

This American crocodile was curious about me. Exposure: ISO 100, f/5, 1/320s