

THE LURKING HORROR OF THE DEEP

# MANTIS SHRIMPS

Fast, flexible, fearless - scurrying and scooting among the coral rubble or suddenly exploding from their burrows in the muck. To impale and smash their hapless prey

*The Peacock Mantis Shrimp *Odontodactylus scyllarus* is - as its common name implies - the most colorful species among these widespread crustacean predators.*

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Wreathed in a cloud of volcanic sand, a large *Lysiosquillina* sp. literally explodes from its burrow in a three-millisecond attack. This is a "spearer" species - notice its sharply toothed raptorial claws.



Many newcomers to scuba diving are scared of sharks. Others are afraid of morays. Some again are intimidated by barracudas... Little they know that some of the scariest, most fearsome and probably most monstrous creatures of the deep lurk a few feet below the surface, silently waiting, coldly staring at their surroundings, waiting for the opportunity to strike with a lightning-fast motion and to cruelly impale their prey or smash it to smithereens! Luckily, most of these terrifying critters are just a few inches long – otherwise diving on coral reefs might be a risky proposition indeed for every human being... But stop for a moment, and consider those cunning predators of the seafloor, the mantis shrimps: an elongated, segmented and armored body, capable of great flexibility and yet strong enough to resist the bite of all but the fiercest triggerfish; a series of short, parallel, jointed legs positioned under the thorax to swiftly propel it among the reefs rubble bottom; a pair of incredibly large, multifaceted dragonfly-like eyes, mounted on sophisticated swiveling joints, capable of giving the animal an absolutely unbeatable 3-D vision on a 360° field of vision, immensely better than our own and enabling it to strike with implacable accuracy at its chosen target. And above all, consider those

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*A crustacean mother  
no one really wants  
to mess with*

A female **Odontodactylus scyllarus** lovingly aerates its clutch of wine-red eggs, safely kept between its front claws. Females of this species are less colorful than the many-hued males.





Mantis shrimps come in many colors and sizes, depending on their habitat. Far left, top, a small *Gonodactylus chiragra*; bottom, a tiny *Pseudosquilla ciliata*. Both species are found in clumps of algal growth and display a high degree of camouflage. Left, male Peacock Mantis Shrimp *Odontodactylus scyllarus*, found in coral reef environments.

■ *The Pink-tail Mantis Shrimp* *Odontodactylus latirostris* is a very active, inquisitive and fearless species. Luckily for divers, it's only 10cm long.

incredible front raptorial claws, articulated exactly like a switchblade or like those of the terrestrial predatory insect, the so-called Praying mantis, from which these fascinating marine crustaceans take their common name in divers' circles: able to shoot out and grab their prey, impaling it alive and writhing on sharp spikes or smashing its shell to a pulp, with a three-millisecond strike which is almost invisible to the eye. Behold, my friends, the true alien of the reef, the beautiful monster of the

muck, the implacable raider of the rubble – the mantis shrimp!

**OF SPEARERS AND SMASHERS**

Mantis shrimps can be roughly separated in two groups – the "spearers" and the "smashers". Those belonging to the first group are generally sedentary ambushers, preferring to patiently lurk in wait at the entrance of their vertical mucus-lined burrow dug in the sand or silt of the

bottom, attentively peeking out of the hole with only their stalked eyes and their folded raptorial spiked claws showing. Should an unwary fish or squid pass directly above (or quite often just close enough to be within grasping distance) the alert crustacean shoots out and grabs it with a lightning-fast strike, flicking out its three-segment articulated spiked claws around it. Those who have witnessed this act – as we have in several occasions – cannot avoid being but amazed (and a bit

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Far left, a close-up of a Giant Mantis Shrimp *Lysiosquilla lisa*, a species which can be 40cm long - notice the fearsome array of its serrated raptorial claws. Left, a dorsal view of a male *Odontodactylus scyllarus* shows to advantage its long, flexible, armored body.



Emerging from its burrow, an unidentified, small sized Mantis Shrimp feeds on a Cardinalfish it has grabbed. Fast and aggressive, these bottom predators will however scavenge dead fish if the opportunity arises, taking it to their lair.

Mounted on swiveling joints, the eyes of a Pink-tailed Mantis Shrimp *Odontodactylus latirostris* are testimony to its exceptionally good eyesight. This is a "smasher" species with clubbed front claws.

*Ceaselessly scanning the underwater horizon for a possible meal*





Right, top, Orange Mantis Shrimp *Lysiosquilloides mapia*; right, bottom, Giant Mantis Shrimp *Lysiosquillina lisa*; far right, a possible color phase of *Pseudosquilla ciliata*. Field identification of the smaller, nondescript species is often rather difficult.



scared) by the speed, efficiency and unfailing accuracy shown by the mantis shrimp - and by the raw strength of its grip, with the fish prey being often broken in two by the violence with which the predator drags its down its burrow to consume it. Given their habits, "spearers" are generally able to reach a greater size, with the quite large Giant Mantis Shrimp *Lysiosquillina lisa* - commonly found on South East Asian coral reefs - reaching a total length of about 35-40 centimeters. "Smashers" are usually smaller and much more active, being often observed while rapidly scooting among coral heads and under overhangs, hunting for crabs in the open but always within reach of their more or less horizontal U-shaped tunnel,

half-built and half-excavated among the coral rubble but always featuring two entrance holes - so that in the case of an emergency the mantis shrimp will be able to bolt out from one while danger looms at the other. Well adapted to hunting and consuming hard-shelled crustacean prey like large reef crabs, "smashers" are armed with modified front raptorial claws which show no spikes on their edges but feature a blunt, rounded, bludgeon-like tip at their extremity instead. Flicking these clubs with great speed and violence at fleeing crabs - just like a boxer on a ring would do at his adversary - the prey is rapidly disorientated, stunned and crushed, its shell soon giving way to the armored fists of its tormenter. The best known of the "smashers" found on Indo-Pacific

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Emerging in ambush from its vertical burrow, a Giant Mantis Shrimp *Lysiosquilla lisa* lets itself be cleaned and tended by two *Stenopus* sp. Boxer shrimps. This is a commonly observed form of commensalism among coral reef species.





The dorsal view of a colorful Pink-tailed Mantis Shrimp *Odontodactylus latirostris* shows to good effect its segmented, armored body, ending in a sharp, spiked telson - when defensively rolled into a ball, Mantis Shrimps are almost impregnable.

reefs is the spectacularly beautiful and very showy Peacock Mantis Shrimp *Odontodactylus scyllarus*, commonly observed in shallow, well-lit waters while it fearlessly runs about like a little runaway mechanical wind-up toy. While "speakers" simply disappear down their burrow when they feel threatened, "smashers" cornered in the open will instead roll on their backs, instantly turning into an almost impregnable ball and offering their thick armored telson (the fan-shaped "tail" at the posterior end of their body)

to the attacker. Several other species can be observed on coral reefs and muck bottoms with a little patience – several of them quite beautiful and all equally interesting, as small bright green ones often inhabit algal or seagrass mats – but those mentioned above are quite probably the two most common ones. Interestingly, despite being fearful and implacable

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A male *Odontodactylus scyllarus* on the prowl. This is a "smasher" species - notice red-tipped, mace-like front raptorial claws, which are capable of cracking a large crab's armored carapace. "Smasher" species are more active than "speakers", which rely more on ambushing their preys.



Having detected  some movement in the vicinity, a Pink-tailed Mantis Shrimp *Odontodactylus latirostris* emerges rapidly from its burrow, ready to charge its prey and stun it to death with a lightning-fast series of smashing blows.

*Sitting in ambush  
but ready to strike at  
the first opportunity*



Top (right and left), a pair of Pink-tailed Mantis Shrimp *Odontodactylus latirostris* (the male is at left) show a noticeable sexual dimorphism; bottom right, a stunningly colorful but unidentified and possibly undescribed species.



predators, large “speakers” often host commensal shrimps at the entrance of their burrow – we have observed impressive specimens of *Lysiosquilla lisa* being attended by several different species including Blue boxer shrimp *Stenopus tenuirostris* and Squat shrimp *Thor amboinensis*, the cleaners quite clearly not afraid of being grabbed and consumed by their much larger and rather horrifying host.

### STUNNING BUT CHALLENGING PHOTO SUBJECTS

Mantis shrimps can be observed almost anywhere in temperate and tropical waters. They are usually encountered on coastal, shallow (1-20 meters) and well-lit bottoms, “speakers” being more

common on muck, sand and silt while “smashers” are more easily observed on coral rubble. Tropical species are – as it commonly happens – much more colorful than those found in temperate waters: they are all diurnal, territorial and occasionally inquisitive, but in general rather shy. Great attention and care are needed to shoot good portraits of mantis shrimp. Peacocks make gorgeous camera subjects with their bright blue-green bodies and their orange, blue and dark red decorations, being also much easier to observe and approach in the open: look carefully at olive-tan females, much lighter than males, as with a bit of luck these can be occasionally observed carrying a precious, wine-red mass of tiny eggs under their belly, cradling it in their

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A male Peacock Mantis Shrimp *Odontodactylus scyllarus* perched on a mushroom coral displays the dazzling coloration which has earned this Indo-Pacific species its common name. The genus designation means "toothed fingers" in Latin.





The complex, highly evolved, exceptionally efficient eyes of the Orange Mantis Shrimp *Lysiosquilla mapia* are stalked and definitely more oblong than those of most other species.

thoracic arms and constantly fanning it to circulate oxygen-rich water around it. Beware of hounding “smashers” too close with your camera – the much-circulated story of their strike being equal in power to that of a 22-caliber bullet might be a bit far-fetched, but a good blow from their blunt-tipped claws might very well smash or crack a polycarbonate or glass lens dome. They’re known as “thumb-splitters” with good reason, after all. “Spearers” need a stealthier approach, as they will disappear in a flash down their burrow if they feel threatened. Most feature a strongly banded lower body, but that is generally well-hidden in the burrow; especially showy is the quite uncommon and all-over bright fluorescent orange *Lysiosquilla mapia*. Some experienced dive guides have learnt to bait “spearers” out of their burrows offering chunks of fish or prawn, but do not try to do this by yourself if you care about your fingers! Look for the “spearers” tell-tale round, rubble-rimmed holes in the sand while floating above, and, when you see one, quietly drop on the bottom a few meters away. Approach it skimming as close as you can to the bottom – then lie down on the substrate and slowly inch your way forward. If you’re slow and patient enough you can get real close and be able to shoot show-stopping close-ups as we have often done. ●





A baited Giant Mantis Shrimp *Lysiosquilla lisa* shoots from its burrow, extends its switchblade-like toothed claws and grabs a chunk of squid flesh from a metal stick - in less than three milliseconds. The force of the attack is such that fish prey is often broken in two when grabbed.

■ A female *Odontodactylus scyllarus* shows its swiveling independent eyes, a wine-red clutch of eggs and the blunt, rounded, thickened end of its front raptorial claws. Mantis Shrimps can inflict painful damage if carelessly handled.



■ The compound eyes of *Lysiosquillina lisa* are made by over 10,000 separate elements and like all other Mantis Shrimps' eyes allow a tridimensional view of the prey, permitting a faultless estimate of the victim's distance. Strikes are virtually always successful.



*A complex, radar-like array of multifaceted eyes*