

: LOUISE MURRAY

> I'VE JUST SPENT A COUPLE OF WEEKS ON THAT OLD TROJAN OF THE ANDAMAN SEA SIMILAN ISLAND CIRCUIT, MV SCUBA CAT, OPERATED BY SCUBA CAT DIVING ON PHUKET ISLAND IN THE SOUTH OF THAILAND. THE NINE ISLANDS OF THE SIMILAN MARINE NATIONAL PARK LIE 90 KMS NORTH WEST OF PHUKET AND APART FROM TWO RANGER HUTS, ARE UNINHABITED EXCEPT FOR RAINFOREST DWELLING SQUIRRELS, MONKEYS, BATS AND BIRDS. EASTERN COASTS ARE DOMINATED BY GENTLE REEF SLOPES, WHILE IN THE WEST, GIGANTIC GRANITIC BOULDERS OFFER DRAMATIC UNDERWATER TOPOGRAPHY WITH LOTS OF SWIMTHROUGHS.

# CATCHING THE COLOURS OF NIGHT

The venerable liveaboard may seem like an unusual choice for a professional photographer, but it is one of the most perfect and stable platforms for underwater work that I know. Having spent almost a month aboard during the late nineties, I was keen to see both how she was doing and revisit the immensely varied life of the marine protected area.

Little had changed, there is still tons of back deck space and the vast saloon is a perfect area for downloading, and working on pictures and housings. A new crew includes Deng, the pony tailed and ever helpful engineer (who helped to fix various bits of kit); Chay, chief of the back deck crew, and Captain Pip, all of whom are great in accommodating delicate cameras, weird requests and endless dives.

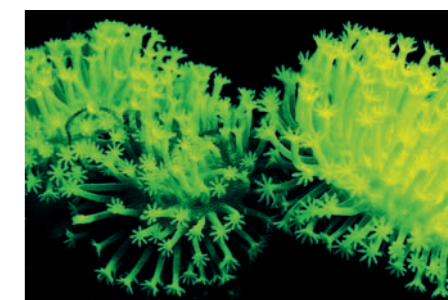
Mercifully for my digestive system, tested close to destruction on my last visit, there was a huge improvement in the food. I will never forget eating one plate of spaghetti bolognese Thai style, served up ten years ago containing 22 raw

cloves of garlic. Now, prawns, fish and plenty of chicken dishes are served up in enormous quantities in a mix of both western and Thai cuisine by cooks Guy and Nui.

Accommodation on board is basic with 12 fan cooled, bunk bedded cabins and shared showers and toilets, but given the amount of time I was spending in the water (over five hours a day), I certainly found it perfectly adequate as I got into a dive, sleep, eat, dive routine.

The Similans is a guaranteed place to see and photograph pairs of cryptically gorgeous ghost pipefish hanging in the branches of gorgonian fans and is a macro photographer's delight. Numerous cleaning stations are staffed by multiple species of cleaner shrimp plying their trade. Green and hawksbill turtles are a common sight, as are schooling barracuda, mantis shrimp and octopus in the western sites.

In March and April, Thailand's hottest period before the monsoon breaks, a plankton bloom brings in whale sharks





and manta rays. But the abundant marine life of this protected area was not why I had joined Scuba Cat. I was out in the Similans to photograph fluorescence in corals and fish at night.

The muted brown and yellow colouration of a coral reef hides a spectacular secret, jewel-like fluorescent colours in psychedelic greens, oranges, yellows and reds only visible when viewed under ultraviolet light. The sources of the day-

produced by pigments responding to a particular wavelength of light, which causes the pigment to emit its own light, producing the spectacular effects.

Scientists are only just beginning to understand the purpose of these photo proteins in biology, and it is clear that there is more than one explanation for their presence underwater. But at least some of these colours act like fluorescent proteins in other parts of

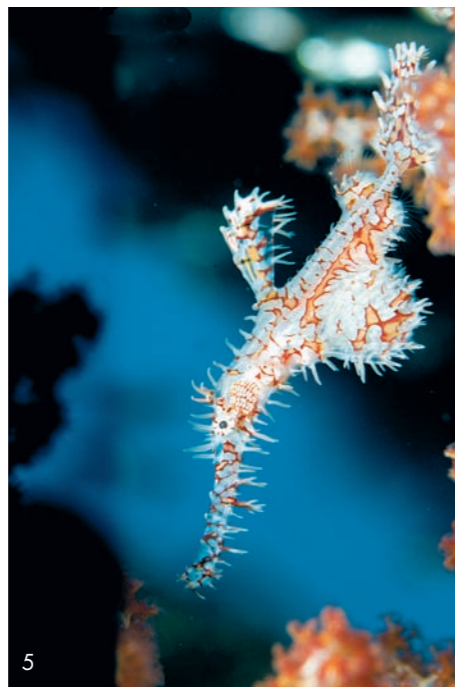
**Fluorescent colour is produced by pigments responding to a particular wavelength of light, which causes the pigment to emit its own light, producing the spectacular effects**

glow colours are fluorescent pigments embedded in the tissues of the corals and some fish.

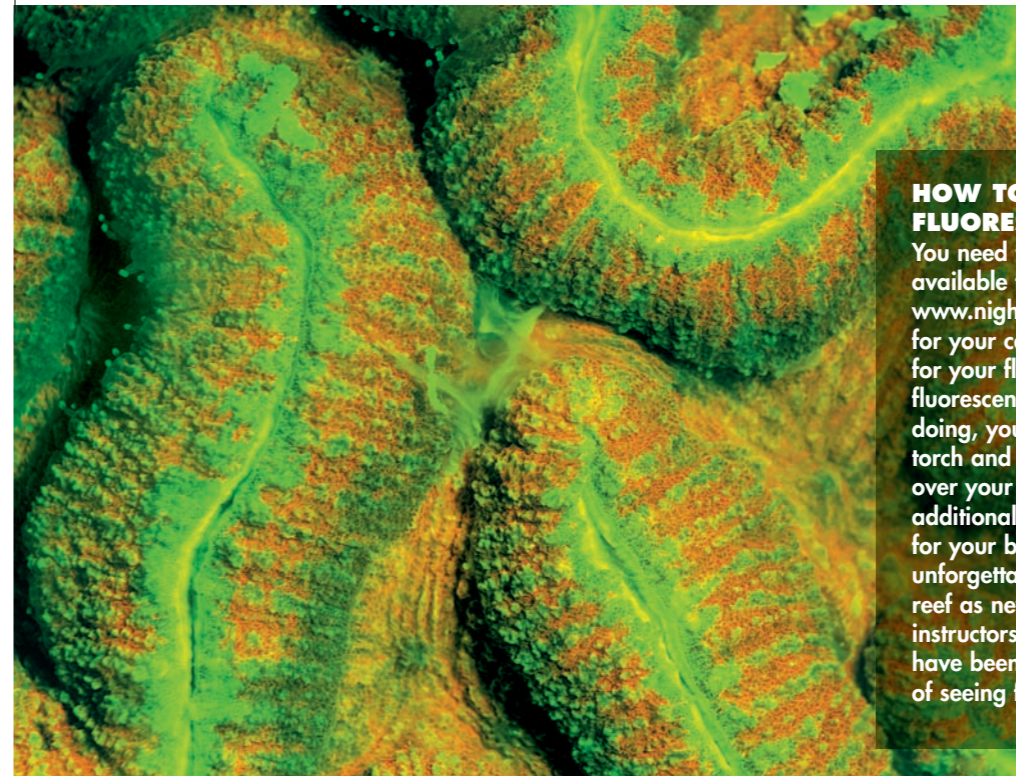
Ordinary colour, for example green, is produced when all the rest of the light spectrum is absorbed except the green wavelengths. Fluorescent colour is

the animal kingdom, signalling sexual attraction to potential mates.

German evolutionary ecologist and diver, Nico Michiels, from the University of Tübingen discovered recently that many fish fluoresce orange and red. 'Red light does not travel very far through the water so one theory is that fish are using the pigments to signal to each other, and members of the opposite sex, without giving away their position to predators in the neighbourhood', he explains. Many land animals from birds to spiders use fluorescent proteins to boost their natural colours and sex appeal so Michiels thinks that it is possible that some fish are doing the same thing.

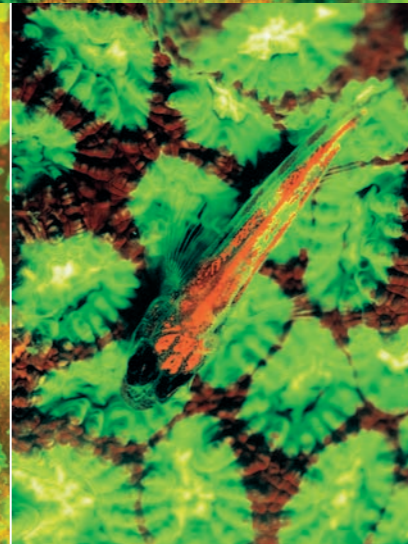
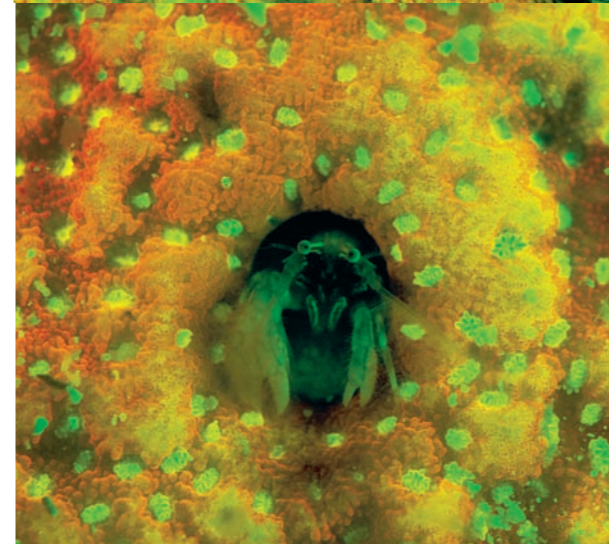


1 Exploring the reef.  
 2 Blue parrotfish, *Scarus coeruleus*.  
 3 Spotted coral crab, *Trapezia rufopunctata*.  
 4 Diver on the wreck of the Atlantis.  
 5 Harlequin or Ornate ghost pipefish, *Solenostomus paradoxus*.  
 6 Similan Islands National Park, Andaman Sea, Thailand.



**HOW TO PHOTOGRAPH FLUORESCENCE IN CORALS**

You need four items of kit – all available from specialist [www.nightsea.com](http://www.nightsea.com). A barrier filter for your camera, and an exciter filter for your flash will allow you to shoot fluorescence, but to see what you are doing, you will also need a bluelight torch and a yellow filter that goes over your mask. Having an additional UV torch and mask filter for your buddy makes for unforgettable night diving, seeing the reef as never before. Even seasoned instructors with thousands of dives have been amazed at this new way of seeing familiar reefs.



Other fish seem to use the colouration as a way of hiding themselves, by breaking up their outline - at least five species of the normally cryptically camouflaged scorpionfish family fluoresce red and orange, with some juveniles shining out a strongly coloured red. These fish are ambush predators, lying hidden until unsuspecting prey swims by, when they open their large jaws rapidly and suck them in.

> Please note that fluorescent images cannot be reproduced as vividly in print. To see original images visit [www.divetheblue.net](http://www.divetheblue.net)

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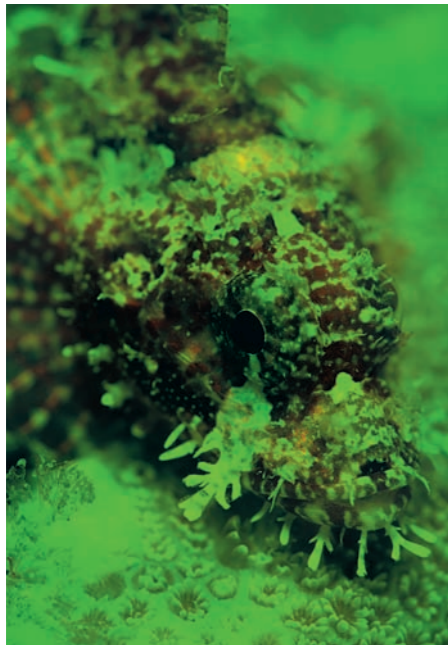
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In corals, some pigments seem to protect shallow water corals from damage by strong ultraviolet radiation in the tropical sunlight, acting as a kind of sunscreen. But there is more to it than that.

Australian scientists report that corals that fluoresce, and not all do, are less susceptible to losing their photosynthetic algal partners in bleaching events caused by high sea temperatures. The more intense the fluorescent pigment the higher the level of protection. The photo proteins act on a molecular scale as light filtering umbrellas, reflecting harmful wavelengths of light that could cause damage to the algal DNA. Fluorescent pigments could become more important to corals as global warming increasingly affects the ocean.

Thailand was a real treat for me – my first time in a wetsuit (as opposed to a drysuit) for ages, a spot of tropical diving was wonderful and has whetted my appetite to return to photograph the incredible biodiversity of the tropics once again.



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