

# THE LIGHT BEYOND

'Fluo-diving' is the revealing of coral reefs and their inhabitants in an extraordinary new light, thanks to the pioneering work of Guy & Anita Chaumette (below). **STEVE WEINMAN** reports

**YOU MAY KNOW UNDERWATER** film-makers Guy and Anita Chaumette better under their professional name, Liquid Motion Film. Their work has been seen at UK Dive Shows and has won international awards – most recently, their three-part series *Water Colours* for National Geographic Television, has already collected 35 accolades. The series has yet to be aired in the UK.



Late last year, the couple took up residence as managers of Wakatobi Dive Resort, Wakatobi being the diving island that lies off the south-eastern tip of Sulawesi in Indonesia.

This enviable assignment has given them the chance to return repeatedly to the same dive-sites to study night-time animal behaviour in their unique way – through what they call "fluo-diving".

Fluorescence is the absorption of one wavelength of light (or, as we call it, colour) and the re-emission of a different wavelength.

A fluorescent object under white light reveals its true colour, but under near-ultra violet light, as applied by the Chaumettes, it absorbs the blue and transforms it into a different, brightly

glowing colour. The couple use fluorescent light to gain new insights into how creatures see and communicate under water. And it's far more than a colourful gimmick.

"We have already discovered the world's first ever brightly fluorescent pygmy seahorse, and a fluorescent sea snake!" says Anita Chaumette, who hails from Yorkshire, while her husband Guy is French. "Scientists have confirmed that, on any one dive, you have over a 90% chance of discovering something no-one has ever seen, because so few people have ever done this!"

And when she says "you", she means it, because the new Wakatobi managers are giving guests the chance to share in and learn about this phenomenon.

To make *Water Colours*, the Chaumettes spent long months night-diving in Bonaire in the Caribbean, followed by four years in the South Pacific studying and documenting fluorescence under water and working alongside leading research scientists, in a bid to find out how fish see colours and each other.

Their work has exposed the numerous "colours" that we humans can't even see, along the lines of polarisation and UV.

And their conclusion is that colour is the "prime cryptic language of the fish, used for attracting mates, avoiding predation and fooling potential prey".

Only Liquid Motion has documented this process on film, and the producers

claim that the result is "really taking the world by storm".

"In the marine world, we humans are virtually blind," says Anita. "Marine animals not only communicate in colour and change colour to change message, but actually use fluorescence as part of their colour-communication channels.

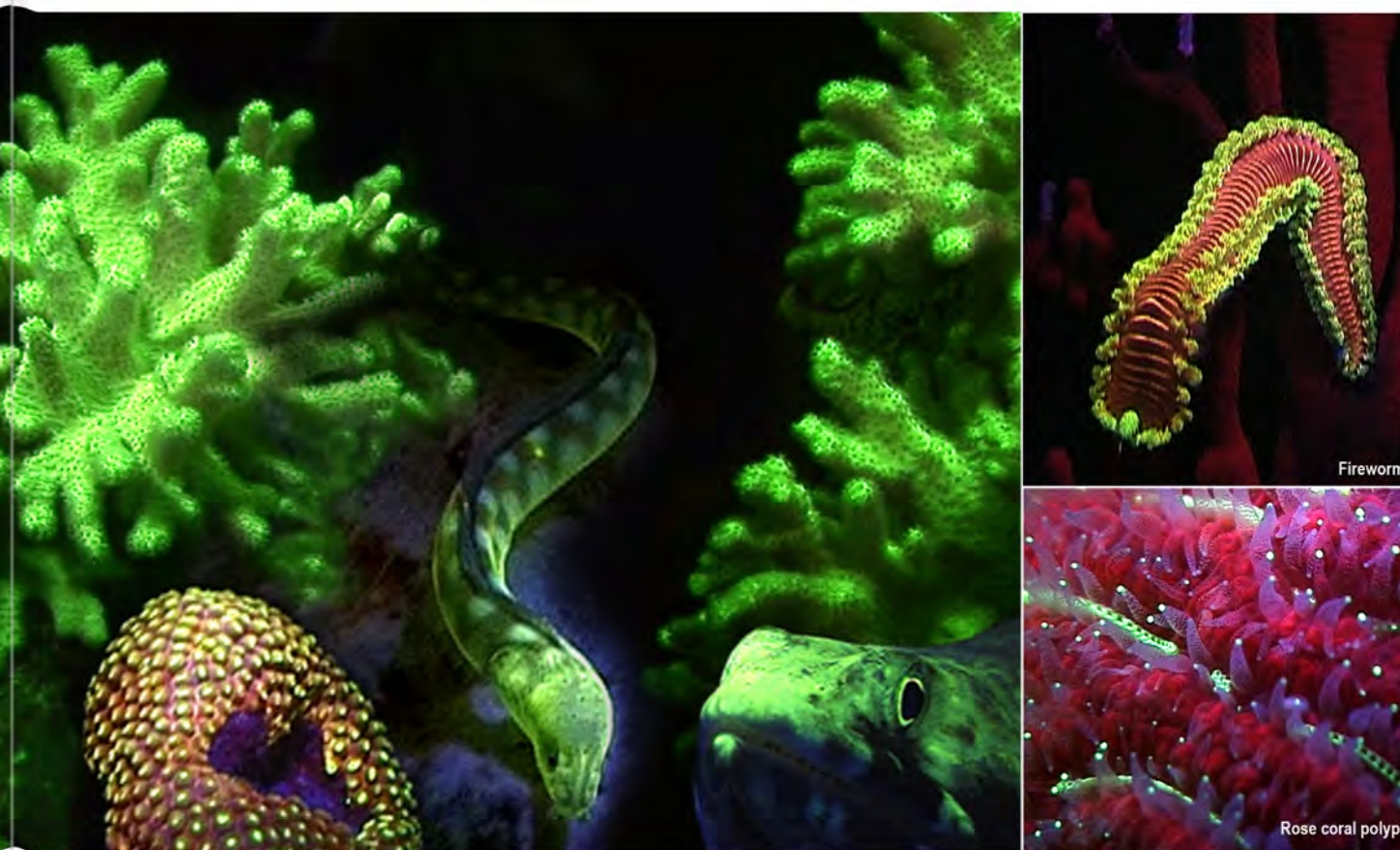
"They manipulate colours to transform the way they look, switching colours and patterns to express emotion and mood and altering position and behaviour, depending on what they want to say.

"From transparent blennies becoming bright fluorescent pink, to lizardfish becoming lime-green, the animals are using the underwater blue colour to alter nature and change colour itself!"

**LIQUID MOTION HAS FILMED** a goatfish altering its fluorescent colours and markings, in the same way as it would its "day colours". What it describes as this "perhaps controlled" use of fluorescence is a phenomenon that has yet to be scientifically explained.

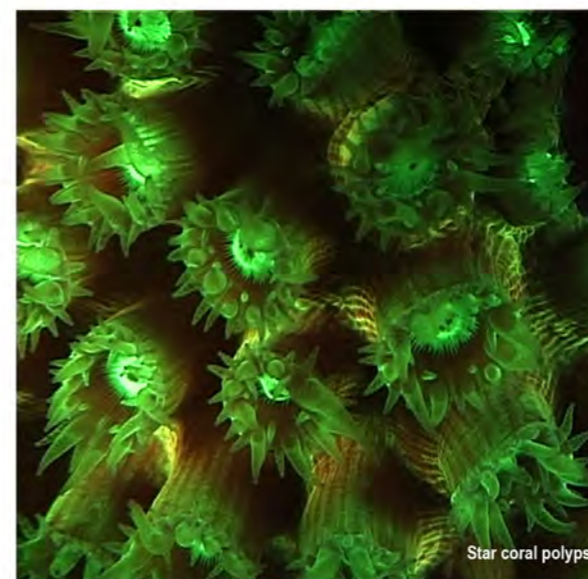
The images you see here include coral polyps, blennies, fireworms and a still from a video of a fluorescent cat shark, taken at 2000m in a submarine by a NOAA scientist.

"This is the first fluorescent shark ever seen," says Anita, "and at 2000m, why on earth would a shark use fluorescent colours?" The theory is that because the cat shark is known to ascend to 60m, it is



Fireworm

Rose coral polyps



Star coral polyps



Chain catshark at 1800ft



Blenny over flower coral

perhaps taking on and emitting such colours to communicate and attract a mate.

Why did the Chaumettes decide on Wakatobi as a base? "Due to its unique conservation programme, Wakatobi is probably the richest and most biodiverse spot in the world, and perhaps the only spot where the reefs are not declining, but actually flourishing," says Guy Chaumette.

"It stands to reason that more creatures would be found here that fluoresce than anywhere else, and every dive we do, we discover more and more creatures fluorescing. But what is incredible is that within creatures of the exact same species, sometimes some fluoresce and others don't.

"Why would one lizardfish fluoresce brightly, yet another in the same area, the exact same species, not be fluorescent?"

"Why would one star coral fluoresce yellow and pink, yet another of the exact same species fluoresce lime-green?"

"This just heightens the intrigue, and still raises more questions than answers.

"The whole phenomenon is so mind-blowing that we decided to introduce it to Wakatobi guests," says Guy. "The idea is to keep the 'fluo experience' as something really unique, special and valuable – a VIP personal experience."

It begins with a presentation and film about fluorescence, followed by a thorough dive briefing covering the

technical equipment used and what the divers may see.

"Then, using their own personal near-UV underwater lights and special visor and filters, they are taken on a private guided dive, on a ratio of 1:1 or 1:2 maximum," says Guy.

This unusual night-dive costs US \$220 one to one, or \$320 for a couple.

**WOULD THE IDEA CATCH ON** elsewhere?, I wondered. "There is one person right now who is able to make the equipment – the filters of the precise density, lights of the right wavelength etc, and this is one of the leading fluo-scientists, Dr Charles Mazel," says Anita.

"We worked with him on location and he provided us with our prototype, unreplicated lights which allowed us to get the incredible fluo footage, so we know him well.

"Other operations could purchase the equipment that can allow people to 'see' fluorescence, but not the experience, the science, the background, the media show, the film, the reasoning, the behavioural implications and the meaning behind the creatures' use of it.

"There could be no better spot than Wakatobi to discover something that no-one in the universe has ever seen before – in fluo!"

• *Liquid Motion Film*, [www.liquidmotionfilm.com](http://www.liquidmotionfilm.com). *Wakatobi Dive Resort*, [www.wakatobi.com](http://www.wakatobi.com)