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NEW
REEF ESSENTIALS



Fabulous Fairy Wrasses

In a special, extended **"Reef Icons"** edition, we meet the jaw-dropping *Cirrhilabrus* genus



Celebrating World Manta Day

Sapphire Littler flies 5000 miles to meet mantas and the people protecting them, face-to-face



Taking A Break In Sharm-el-Sheikh

John Clipperton samples the delights of the Red Sea both above and below the waves

SHOP VISIT AND EVENT REPORT

We get busy and head to Lancashire to visit marine specialist store REEF FREAKS in the middle of a buzzing REEFERS COLLECTIVE get-together!



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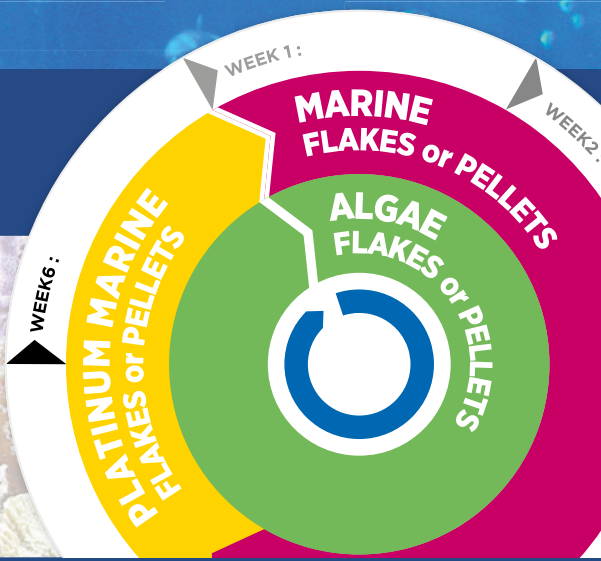

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Welcome

to UltraMarine



Greetings to you, UltraMarine reader!

The eagle-eyed among you may notice a few changes this issue as I've been streamlining things a little again. As I mentioned last time, the new digital edition is now up and running (and ties into these changes), so please investigate if you haven't already!

On this, I've recently launched a new YouTube channel for the magazine which will also tie into the digital edition. Look out for more content on there soon! I'll be honest, I've long resisted the lure of AI (for written material), but for our new Reef Essentials feature this issue, I have used a paid service to help research and produce this first instalment. While I personally think it's pretty good, I am calling this a test at this stage… and I'd love to hear what you think of it (email address is below). Everything has been carefully checked before print of course, and please rest assured that our usual human contributors will not be replaced any time soon.

Elsewhere, this issue sees writers (including myself) gather content from far flung destinations such as the Red Sea and the Maldives, and closer to home I report back from Reef Freaks in Lancashire on a recent hobby meeting.

So, whether you're new to the hobby or have been keeping reefs for decades, I hope there's something here to inspire you as the magazine continues to evolve. As ever, thank you for your continued support… and enjoy the issue!

John

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Cover: *Odontanthias borbonius* - image by J Clipperton











Contents

Issue 120 October 2026

05 ***Marine News/Product News***

10 ***Shop and Event Report***
Step out with John Clipperton on a day trip to lovely Lancashire as we visit specialist marine store Reef-Freaks and get an eyeful of the stunning stock they have on offer. PLUS we check-out a buzzing "Reefers Collective" hobbyist taking place while we were there!

18 ***Reef Icons - No. 46***
In this special extended instalment of our long-running feature, we sit back and appreciate the fabulous Fairy Wrasses of the *Cirrhilabrus* genus, investigating the intriguing intricacies of the various species "complexes" as we go.

28 ***Is Clean Water Killing Your Corals?***
In the first of our new "Reef Essentials" practical guides to reef aquarium husbandry, we explore why thinking on nutrients has changed, what corals really need from their water, and how to strike the right balance for healthier, more colourful corals.

36 ***Celebrating World Manta Day***
Sapphire Littler flies 5,000 miles (via three flights and a lot of coffee) to celebrate World Manta Day in the Maldives. Between cleaning-station tears and conservation talks, we find out how The Manta Trust is collaborating to protect these majestic rays.

44 ***Something to Chew On!***
Campbell Robertson says "ahhh" as he takes us on a close look into reef fish mouths, from tweezer-snouted butterflyfishes to beach-pooping parrotfishes, and explains why paying attention to a fish's "laughing gear" could help it to thrive in your reef tank.

56 ***Taking A Break In Sharm-el-Sheikh***
John Clipperton enjoys a week snorkelling in the warm waters of the Red Sea and tries not to inadvertently inhale too much seawater as he comes face-to-face with a procession of jaw-dropping species, many of which will be familiar to reef-keepers.

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Marine News

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Science & Conservation

Hidden Bacteria in Fish Gills Open New Scientific Frontier

Chemosynthetic bacteria have long been known to thrive in diverse marine environments, often partnering with invertebrates like molluscs and annelid worms. However, their presence in fish represents a groundbreaking discovery.

A recent study reveals that fish gills host a complex, specialised microbiome that could play a vital role in metabolism, immunity, and overall health.

An international team of scientists from ZMT and ICBM investigated microorganisms in the gills of tropical coral reef fish called hamlets (*Hypoplectrus spp.*). Using genomic data from hundreds of Caribbean gill samples, the team published their findings in PLOS Genetics.

Originally, the team sequenced the tissue samples to study fish evolution, planning to discard the microbial data. However, they decided to change perspective. "In the past, we focused solely on fish DNA for our work and considered microbial DNA a contaminant," recalls Oscar Puebla, a fish ecologist at ZMT and professor at the University of Oldenburg. "One day we thought, why don't we take the opposite view, look at the gill microbiome and neglect the fish DNA?"

This shift led to a collaborative effort including the HIFMB, the University of Hong Kong, and the University of Chicago. Even though microbial DNA accounted for less than 5% of the data, the researchers successfully reconstructed 70 bacterial genomes across 17 distinct groups, finding that the vast majority are entirely new to science. This community was completely distinct from the surrounding seawater, proving these bacteria are specialised residents.

Remarkably, the most widespread bacteria identified possess the genetic tools for chemosynthesis—fixing carbon dioxide using chemical energy from inorganic compounds rather than sunlight. "We detected the DNA of proteobacteria of the Burkholderiaceae family with chemosynthetic potential," says lead author Sabrin Abdelghany. "Bacteria with such chemosynthetic abilities have been found in a variety of marine environments such as deep-sea vents or in association with invertebrates like annelid worms and mollusks, but to the best of our knowledge they have not been documented in fish."

The authors conclude that we are still in an exploration phase. Understanding the gill microbiome remains a critical frontier, with major implications for both aquaculture and natural populations facing rapid environmental changes.



Surgeonfishes like this *A. maculiceps* have highly sensitive gills. Their thin mucus layer makes them vulnerable to parasites, and they require highly oxygenated water - image J Clipperton

Publication details

Sabrin Abdelghany et al, "Proteobacteria with chemosynthetic potential are highly prevalent in the gills of Hypoplectrus reef fishes,"

PLOS Genetics (2026). DOI: 10.1371/journal.pgen.1012266

Journal information: PLoS Genetics

Coral Freaks Goes "Unplugged" For 2026

Advanced Aquarium Consultancy (AAC) is bringing back its Coral Freaks event on Saturday 17 October 2026. This year it has a new "Unplugged" twist.

Rather than a full-scale show, organisers have scaled things back to a smaller, interactive day of talks and discussion. The theme is coral health and what the reef aquarium of the future might look like.

The event will be hosted by Love2Reef's Paul Longhurst and presented by Paul Hughes. Three panellists will bring very different perspectives to the stage.

Shaun Russell, billed as "The Coral Gardener" and known to many as AcroMan, brings decades of hands-on experience with demanding stony coral systems.

Laura Carlin, "The Industry Voice", of Ecomarines, is a long-standing supporter of the trade through OATA. She was among the first to bring captive-bred marine fish into the UK hobby and runs a successful aquaculture facility.

Nicole Yeomans, "The Scientist", is a PhD researcher at the University of Derby working alongside Professor Michael Sweet. Her research explores coral microbiomes and the use of AI to identify coral stress before it becomes visible to the eye.

Joining them as a special guest is Dr Jamie Craggs, whose background spans professional aquarium work, coral spawning and scientific research. Expect him to be drawn into the conversation.



An image taken at Love2Reef 2024 - by J Clipperton

The event takes place at Latton Bush Business Centre, Harlow CM18 7BL. Doors open at 10am, with talks running from 10.30am to 3pm. Tickets cost just £10 and are limited, available now from aac-online.co.uk. E-tickets will be emailed two weeks before the event. There will also be a raffle on the day, with proceeds going to mental health charity Mind, Love2Reef's chosen charity.

* We are aware this event happens very close to the release date of this issue. To receive the magazine the day it is released (and avoid postal delay), subscribe to our digital edition!

Small Fish, Big News: Three New Dwarfgobies Described

Three new *Eviota* species of "dwarfgoby" have been described in recent months, proving there's still plenty left to find on the reef.



Eviota kathyae, fresh holotype, Tufi, Papua New Guinea (M.V. Erdmann)

Dwarfgobies of the genus *Eviota* are so small that reef surveys have long overlooked them, yet they are often abundant. Targeted searches are now uncovering new species at a remarkable rate, and David Greenfield, Mark Erdmann and colleagues have described three more in the open-access Journal of the Ocean Science Foundation.

Eviota kathyae comes from the sheltered volcanic fjords of Tufi, Papua New Guinea, where it lives at 32–40m. Adults measure just 11.4–15.2mm. It is named after Kathryn (Kathy) Uhrig Kimball, partner of co-author William Brooks. It is the second *Eviota* described from Tufi after *E. vader* in 2025, and the authors hint that more may follow.

Eviota niedenthali, the Bikini Colon Dwarfgoby, was found at only one of 14 sites sampled at Bikini Atoll in the Marshall Islands. It rests on *Halimeda* algae at 10–12m and dives into it when disturbed. Its common name refers to the two colon-like black spots on its pectoral-fin base. The species name honours Jack Niedenthal, a long-time champion of the Bikini people.

Eviota stella, from Cenderawasih Bay, West Papua, was described in June. It is set apart from its closest relatives by a single dark band along the base of the first dorsal fin. In life it has fine white spots over the upper iris and blue-speckled fins.

Live photography was key to all three descriptions, as eye colour patterns help separate species in this genus. These additions take *Eviota* beyond 139 species, and with discoveries coming this quickly, many more are surely waiting to be found.

The Battle for Bonaire's Reefs: Media Reports vs. Diver Reality

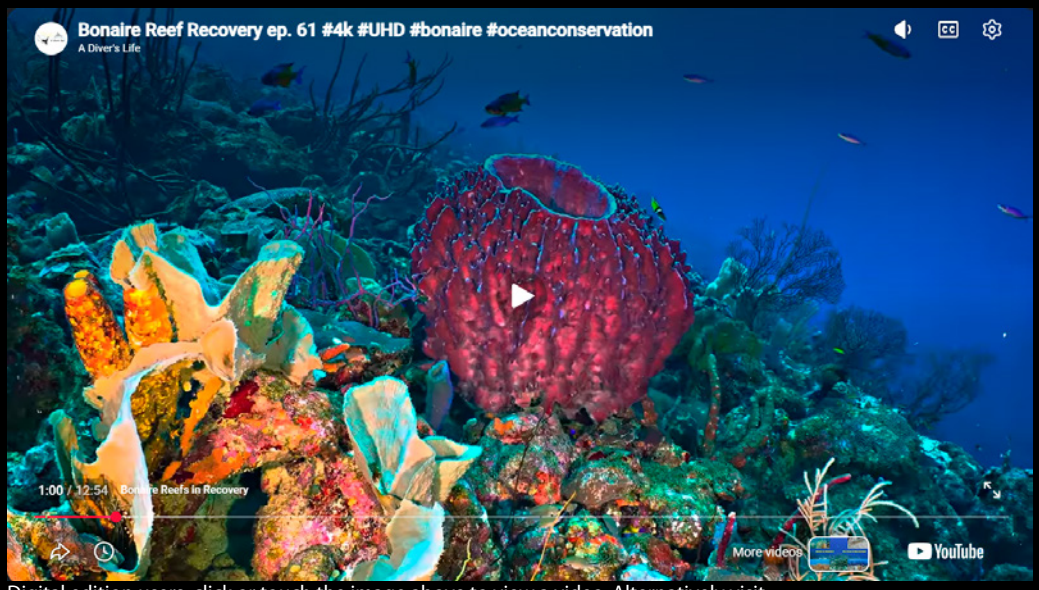
Recent scientific surveys have painted a bleak picture of Bonaire's coral reefs, with reports from institutions like Wageningen University suggesting aggregate coral cover has dropped to alarming lows. However, a parallel narrative is unfolding across YouTube and social media, where local dive operators and citizen scientists are offering a powerful, visually driven counterargument. Through raw, unedited underwater footage, these creators are proving that stretches of Bonaire's legendary marine park remain vibrant, diverse, and highly resilient.



Bonaire is located in the southern Caribbean Sea, around 50 miles off the coast of Venezuela.

The debate highlights a gap between aggregate scientific statistics and localised ecological reality. While thermal stress from recent climate events undoubtedly impacted shallow areas, YouTube videos uploaded by groups like Citizen Scientists of the Ocean document thriving deep-water ecosystems, massive ancient coral heads, and an abundance of marine life. Local operators have even launched media campaigns to show the public what numbers miss: a reef that is actively fighting back. This continuous stream of daily dive logs serves as an essential form of ground-truthing, reminding the global dive community that broad-brush scientific methodologies often overlook highly localised pockets of environmental resistance.

Bonaire's unique environmental policies give its corals a massive advantage in this recovery. The island's strict ban on harvesting parrotfish ensures that these natural grazers continuously clear away the macroalgae that would otherwise suffocate recovering corals. Furthermore, organisations like Reef Renewal Bonaire have successfully outplanted thousands of genetically diverse, resilient staghorn and elkhorn corals, which creators regularly document growing rapidly in underwater nurseries. These intensive, community-led restoration projects act as critical ecological incubators, accelerating the natural repopulation of degraded zones and providing crucial structural habitats for reef fish. Additionally, the transition to cooler La Niña waters throughout late 2025 and 2026 has provided the thermal relief needed for bleached corals to heal. This influx of lower temperatures, combined with increased seasonal wind and rain, effectively halted the bleaching cycle, allowing many corals to reabsorb their vital symbiotic algae. While systemic global threats remain a major concern, the boots-on-the-ground—or rather, fins-in-the-water—perspective shared online reminds the world that Bonaire's reef is far from lost. It remains a dynamic, recovering ecosystem well worth protecting. Ultimately, the visual evidence broadcasted online bridges the gap between environmental anxiety and cautious optimism, proving that proactive management paired with ocean resilience can withstand global climate pressures.



Digital edition users, click or touch the image above to view a video. Alternatively visit: https://ultramarinemagazine.co.uk/videos/video-the-battle-for-bonaires-reefs/

Reefing Round-Up - Aug / Sept 2026

Prognathodes thanatos, a new deepwater butterflyfish named after the Greek personification of death, has been described from a single specimen collected off Mozambique. Silvery white with three broad dark brown bands and black pelvic fins, it appears most closely related to the poorly known *P. guyotensis*.



Lythrypnus dalli - image by J Clipperton

Reef Factory may be returning. Italian entrepreneur and long-time Reef Factory user Gian Luca Ciotti told DaniReef he now owns 100% of the bankrupt Polish brand and personally funded its cloud servers since the collapse. UltraMarine has not independently confirmed these claims, and there is no official word on products, distribution or timescales.

De Jong Aquaculture has successfully bred the Catalina goby, *Lythrypnus dalli*, a cool-water eastern Pacific species prized for its vivid red body and electric-blue bands. Encouragingly, the tank-bred fish reportedly tolerate typical reef temperatures, potentially making this stunning goby far more suitable for tropical aquariums.

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Introducing Reefers Collective – Where Community Comes First

Reefers Collective was founded on one guiding principle: to unite the reef-keeping community without ever placing a price tag on participation.



The project was originally launched by its founder, Tommy Maloney, to address a growing gap in the hobby. For many enthusiasts, reef-keeping can occasionally feel isolated, heavily dependent on online forums, and overly transactional or commercial. Tommy envisioned a refreshing alternative—free, family-friendly gatherings where marine hobbyists could connect face-to-face. These interactive events provide a welcoming space for attendees to discuss reef systems, engage directly with major brands and local aquatic shops, win premium raffle prizes, and rediscover the pure enjoyment of being part of a shared passion.

The initiative immediately struck a chord with the community. The inaugural Reefers Collective event, hosted by Finest Aquatics, proved the immense demand for this kind of grassroots gathering by drawing an impressive 241 attendees. Building on that early success, the second event at Reef Freaks in Barnoldswick (which is reported on in this issue) expanded Tommy's movement even further, welcoming an incredible 303 people through the doors.

A defining feature of these gatherings is their absolute accessibility; they remain completely free of charge for anyone wishing to attend. The various raffles, generous giveaways, and product samples are intentionally designed to give back to the very hobbyists who actively support local retailers, manufacturers, and the wider aquatic trade. Rather than being driven by financial gain or commercial profit, Tommy runs Reefers Collective out of a genuine lifelong love for marine life and a firm belief in the immense social value of human connection. Witnessing veteran reefkeepers share insights with complete beginners, seeing families discover the hobby together, and watching new friendships form in real time is precisely what Tommy set out to achieve.

The response from the marine industry has been nothing short of overwhelming. Retail shops, equipment manufacturers, product distributors, specialist coral sellers, and everyday hobbyists have rallied behind the concept. Due to this surging interest, Reefers Collective is rapidly evolving past its origins as a one-man passion project, with a dedicated team now coming together to help steer its future growth.

With the third event already in active development, Tommy's core mission remains entirely unchanged: to keep the gatherings free, to ensure everyone feels welcome, to champion the UK reefing trade, and to deliver unforgettable experiences for the people who make this vibrant community what it is. For Reefers Collective, the community will always come first—everything else comes after.

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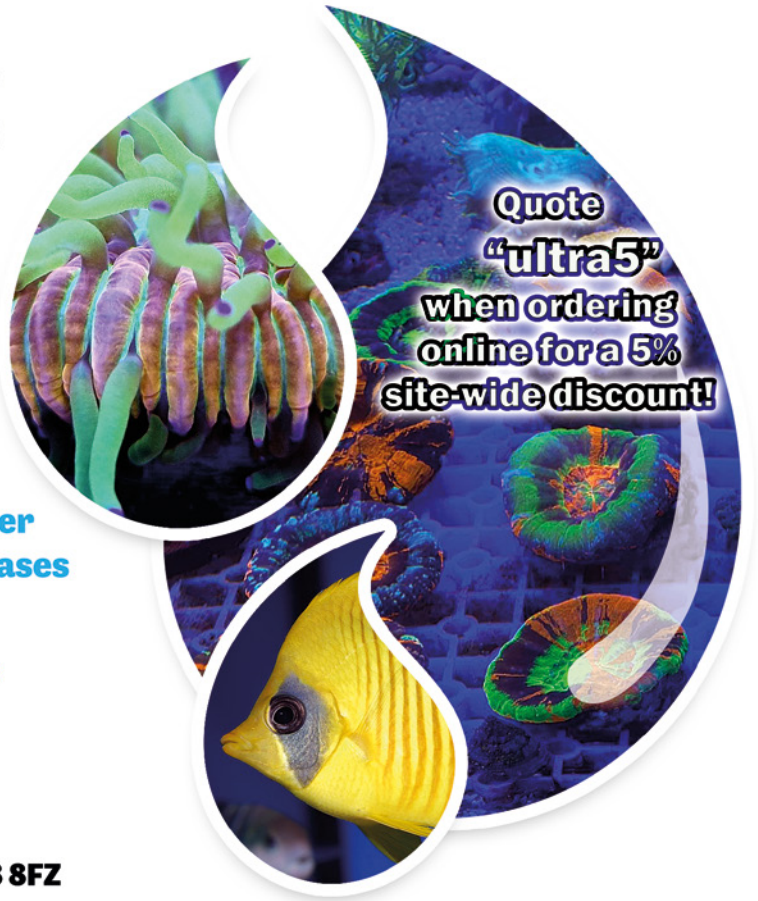

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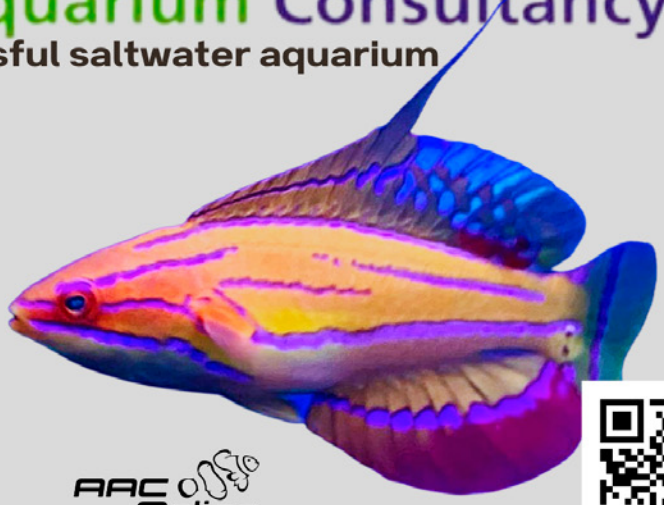

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Shop Visit and Event Report:
Reefer's Collective at Reef-Freaks



There's a particular kind of nervousness that comes with visiting a marine aquarium shop for the first time, especially one you've heard plenty about but never actually stepped inside. You build up an idea in your head of what it's going to look like, how the stock is going to be presented, whether the hype matches the reality. After finally making the trip to Reef-Freaks, I can say with confidence: the reality outstripped the hype.

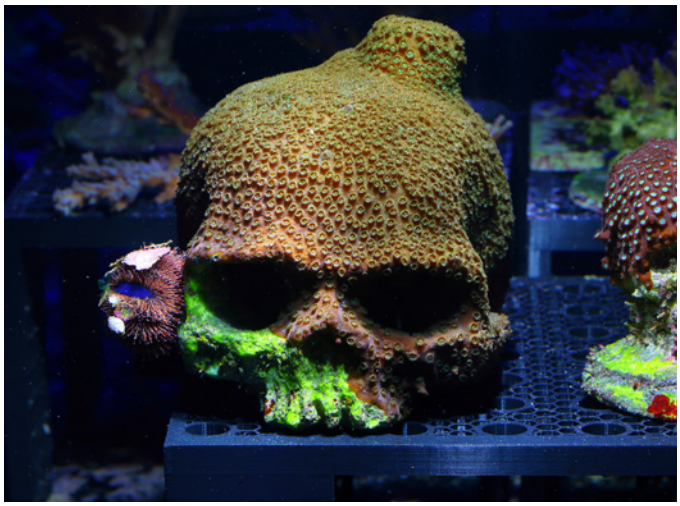
Reef-Freaks is located in Barnoldswick, in the West Craven corner of Lancashire, right on the Yorkshire border and within easy reach of Skipton and Colne. For anyone making the trip for the first time, it's worth knowing that parking is great… there's a gravel car park right next to the shop, which appears to be shared with a few neighbouring businesses, so you're only a few steps from the door. For a magazine that covers stores the length and breadth of the country, accessibility matters as much as what's on the shelves, and it's well worth the drive. Barnoldswick may not be the first place that springs to mind when you think of reefing destinations, but on the evidence of this visit, it should be.

Reef-Freaks is a young shop… the doors opened for the first time in September 2024, but it doesn't show in the way the place is run or stocked. It started, as so many of the best shops do, from a spare room rather than a retail unit: co-owners Luke Woods and Chris Hale were both keeping reef tanks at home (up to four tanks at a time!) and began buying and trading corals between themselves and a small circle of fellow hobbyists. What began as home-based coral sales and









Reef Freaks is a young shop… the doors opened for the first time in September 2024, but it doesn't show in the way the place is run or stocked.

trading gradually snowballed into the proper bricks-and-mortar operation it is today. Neither came into the trade by the conventional route: both have backgrounds in car sales, while Luke's day-to-day trade is as a welder and fabricator — a handy skill set for anyone building and running a shop full of large aquarium systems. It's a refreshingly different path into shop ownership compared to the usual "staff member buys the business" story, and it shows in how hands-on and personally invested both of them clearly are.

Indeed, barely 2 years in, the shop is already expanding, with work currently underway to bring a side room into use as additional retail space, a clear sign of a business outgrowing its own success rather than standing still.

The team is completed by Sam Slater, the shop's only other staff member and very much a key part of the operation. Small as the team is, all three were knowledgeable and happy to talk livestock, equipment and everything in between. I did manage a brief, more detailed chat with Luke and Chris on the day, but with the shop as busy as it was, there was never a moment to sit down for a proper interview this time, let alone a quote for these pages. It's a little bit of a shame, but it says plenty about how busy the event was. At the end of the day, what's clear is this business isn't resting on its laurels: it's still building, quite literally, with the expansion already underway.

Walking through the door, the first thing that hits you is the view. The entrance sits on a raised level along one side of the shop, with a short set of steps leading down into the main room, so you get a proper vista of the whole floor before you've even set foot on it. Facing you on the back wall is a huge graffiti-style Reef Freaks mural, which sets the

tone perfectly: this is a shop with personality. I'll admit my expectations were reasonably high going in, but Reef Freaks exceeded them within about thirty seconds of stepping inside.

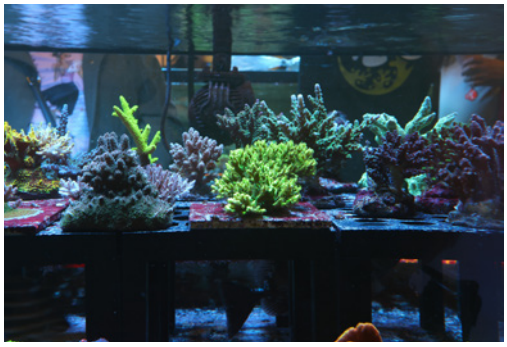
Everything is laid out in one main room, which keeps the shop easy to take in and easy to browse. A side room off the main floor, which played host to several trade exhibitors on the day of my visit, is the space currently being developed as part of the expansion. The coral side of the shop is built around five dedicated coral bays: four 8ft x 4ft systems and a fifth at 7ft x 2ft, each running at up to 1,200 litres. That's a serious volume of water for a shop that's barely a year old, and it shows in the stability of the systems and the condition of the stock sitting in them.

On this subject, water chemistry is handled with Tropic Marin All-For-Reef supplemented by kalkwasser, a proven, no-nonsense combination for keeping calcium, alkalinity and trace elements topped up across systems carrying this many stony corals. Overhead, the bays are lit by Reef Factory Reef Flare Pro and Pro Blue LED fixtures, giving an even spread across the trays and showing the stock off well from the shop floor.

Just as importantly, every coral is dipped on arrival before it goes anywhere near the main systems, and the bays are on a biweekly maintenance schedule. Neither is glamorous, but both are exactly the sort of unseen routine that separates a shop you can buy from with confidence from one you buy from with your fingers crossed. Stock is drawn from a broad spread of suppliers, which goes a long way to explaining the variety on display. Alongside TMC (Tropical Marine Centre), the long-established UK wholesaler that will be a familiar name to most readers,







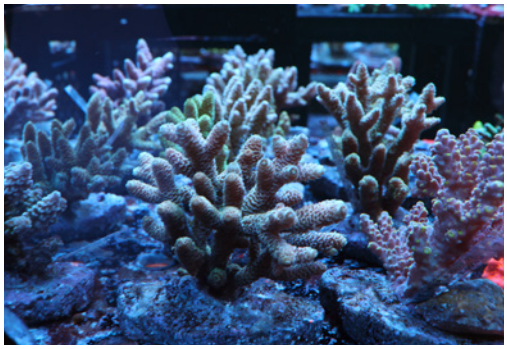
Reef Freaks buys in from BBA Atlantis, Aquaology, World Fauna and Ames Reef Co. Ames Reef Co may be less familiar to some. It's one of the newer names on the UK trade scene: a trade-only coral importer and supplier based in Norfolk, supplying shops rather than hobbyists directly. Its published process, acclimation into dedicated holding systems, individual inspection for condition and pests, then dipping before release, sits neatly alongside Reef Freaks' own approach to quarantine.

The same care extends to the fish. Every new arrival is treated with Copper Power on arrival, followed by a freshwater dip, and the fish systems are run at a reduced salinity of 1.020. Lower salinity eases osmotic









stress on newly shipped fish and makes life harder for many external parasites, and combined with copper treatment it gives stock the best possible start before it heads home with a customer. It's a protocol plenty of experienced hobbyists follow in their own quarantine tanks, and it's reassuring to see a shop doing it as standard.

So what's actually in the tanks? On the coral side, the mix of wild and cultured SPS and LPS was one of the better selections I've seen anywhere in the UK. Deals were easy to find too: a stunning large green bubble coral had been reduced from £170 to £130, and nearby sat some eye-catching Ultra Glitter *Goniopora*. Zoanthid fans are well catered for, with loads of different morphs in sizes ranging from a few polyps right up to large show colonies. The mushroom anemone selection is superb as well, including bounce mushrooms and some unusual *Rhodactis*. And for something a bit different, one of the more memorable sights in the shop was a large artificial skull completely covered in encrusting coral, a real conversation piece!

The fish were every bit as impressive. A large Vlamingi tang cruised one of the coral bays, while the fish system held a lovely, exquisite fairy wrasse and a young Midas blenny. There were plenty of seahorses too. But the fish I'll admit to salivating over was a healthy-looking *Cirrhilabrus isosceles* (turn to my fairy wrasse feature, which follows this review on page 18, and you'll understand why!).

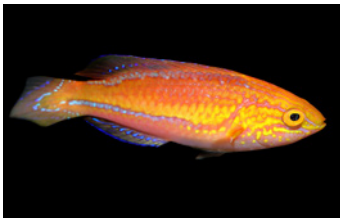
Rounding things off is a great selection of invertebrates: cleaner shrimps, urchins, snails and everything else you need to put together a diverse clean-up crew.

What impressed me most wasn't just the range but the way it was laid out — tanks organised logically, clearly labelled, well-lit, and evidently well cared for. Given that this whole operation grew out of two hobbyists trading corals from their own living rooms, there's something fitting about how much that home-reefer attention to detail still comes through in how the livestock is kept. It's one thing to have an impressive stock list; it's another to present it in a way that actually does the animals justice, and Reef Freaks manages both.

The dry goods side of the shop is every bit as comprehensive as the livestock. Put simply, if it's a name you'd expect to see in the saltwater hobby, it's probably on the shelves. The brand list reads like a who's who of the industry: D-D, Red Sea, Deltec, Nyos, Reef Zlements, Tropic Marin, Fritz, Seachem, TMC, Mantis, WaveReef, Easy Reefs, CaribSea, Vitalis, Maxspect, Dr Tim's, PolypLab, Instant Ocean, Fauna Marin, Two Little Fishies, Salifert, Aquaforest, Flipper and Eheim — and that's before you get to the ones even the owners admit they've probably forgotten to mention. From the tank itself through to salt, supplements, test kits, lighting, flow, filtration, food and maintenance kit, the aim is clear: everything you could



















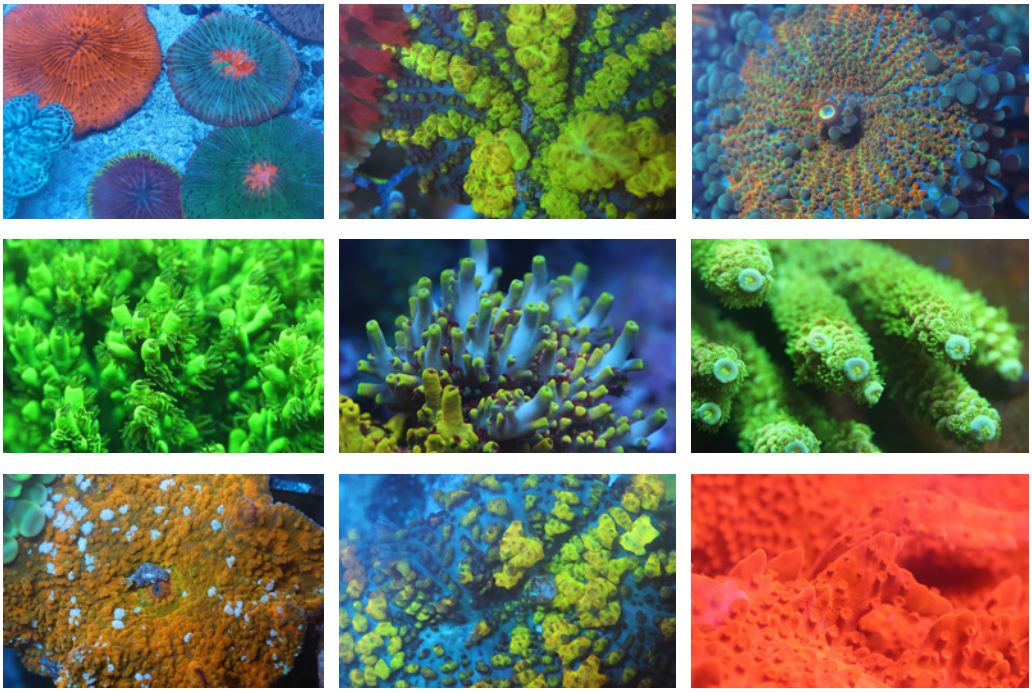
need to set up and support a reef aquarium under one roof, alongside the livestock to fill it. And it isn't just about range. Luke was keen to stress that price matters just as much:

"We always have deals running to make Reef Freaks affordable and accessible for everyone, as we are truly passionate about this hobby. Chris and I came into this as hobbyists ourselves — we had tanks at home long before we ever had a shop — so we know exactly what it's like to be on the other side of the counter, watching every penny that goes into a system. We'd much rather someone walks out with something they love at a price that works for them, and keeps coming back, than squeeze every last pound out of one sale. Whether you're setting up your first tank or you've been reefing for twenty years, we want this to be a place you can afford to enjoy."

Shelving and layout again deserve a mention here — nothing felt cramped or like stock had simply been squeezed in wherever there was space.

Between the two halves of the shop, it's clear a lot of thought has gone into making Reef Freaks a genuine one-stop destination, whether you're picking up a single bag of salt or planning an entire new system from scratch.

I went into this visit with expectations, as most of us do when we've heard good things about a shop before setting foot in it. Those expectations were comfortably exceeded — the layout, the range of stock, and the obvious care that's gone into both left a strong impression, and it's a shop I'd happily recommend to any UltraMarine reader within reach of it.





Reefers Collective: A Shop Floor Turned Community Event

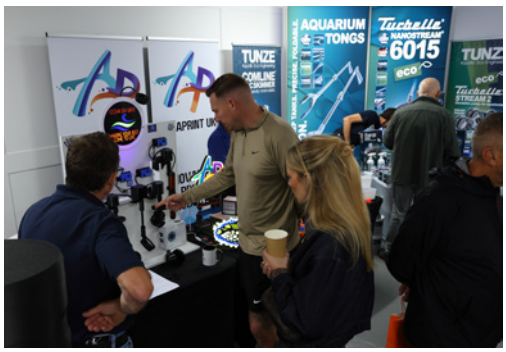
The timing of my visit wasn't accidental as Reef Freaks was hosting the Reefers Collective, a community event that turned the shop floor into something closer to a mini reefing convention for the day.

Reefers Collective is the brainchild of organiser Tommy Maloney, who set it up to run completely free events for the reefing community, open to everyone from the twenty-year veteran to the hobbyist who's just filled their first tank. The idea is simple: bring the wider reef-keeping community together in one place, not just to shop, but to talk, trade knowledge, and put faces to the usernames and forum handles so many of us only interact with online.

I'll be honest: I wasn't quite prepared for how busy it would be. Within about half an hour of the doors opening the shop was packed, and it stayed that way until I left at around 1pm. There was a real buzz about the place from start to finish. For me, that buzz came with a challenge. With photographs to capture for the magazine, I spent much of the morning working my way around the throng with a camera, and I couldn't stop and chat with hobbyists and trade representatives as much as I'd







The idea is simple: bring the wider reef-keeping community together in one place, not just to shop, but to talk, trade knowledge, and put faces to the usernames and forum handles so many of us only interact with online



have liked. It was challenging, but never in a negative way, and I hope I didn't prove too much of a nuisance to anyone trying to get a look at the tanks. It did mean that getting proper one-on-one time with Luke and Chris was out of the question on the day, so a fair chunk of the detail for the shop side of this piece had to be gathered afterwards. It's a nice problem for a shop to have. By the end of the day, 303 people had come through the doors, a remarkable turnout for a free, community-run event at a single shop. What was on offer across the day included:

- **Show-day deals** across a range of livestock and dry goods, with tempting reductions to be found all over the shop
- **A super raffle**, with prizes contributed by the trade exhibitors on the day (UltraMarine chipped in with some magazine issues too)
- **The chance to simply catch up** with old reefing acquaintances, some of whom I hadn't seen for a good while, and to strike up new friendships over shared tank problems; the kind of conversation that just doesn't happen the same way online
- **Trade representatives**, set up in the side room, showing off their latest products and happy to answer questions

The side room had a compact but very pleasant trade show feel, with a well-chosen line-up of exhibitors, plenty of new kit to look at, and more than a few freebies handed out along the way.

Aquaforest were showing off their new protein skimmer, which looked fantastic. Aquaforest's recent skimmer

launch, the All-In Skim 150, combines a skimmer with a carbon air filter, twin CO_2 scrubbers and a biological media chamber in a single unit, which is a smart answer to the battle for sump space. If only my own tank were a little larger to accommodate one.

Wales-based **Ocean Sea Products**, had their new Meg-R controller on display. OceanSeaWave units use a stepper motor that runs on 5 volt DC inside a housing to swing a telescopic pole, with a DC wave pump mounted on the end, slowly back and forth inside the tank (fixed length drive shafts now allow any make of wavemaker that has an internal drive motor to be mounted). The result is a sweeping, ever-changing flow pattern that mimics the surge of a natural reef far more convincingly than a fixed pump can manage, and helps cut down on dead spots in the rockwork. Following recent expansion in the US market, a new commercial unit is due to be launched at Reefapalooza Orlando 2027 and will be made from titanium and marine-grade stainless steel for the monster flow pumps that are available to public aquariums.

Moving on, Jonny and wife Pat at **AquaPrint** had an interesting new trade only range on show. Displaying an array of carefully selected colours across a diverse range of 3D-printed reefing products. The one that caught my eye this time was the ReefPeek coral viewer, a circular viewing tray that allows top-down viewing and photography of corals, with the clever touch that the acrylic can be removed for cleaning. I did suggest to Jonny that an interchangeable amber "lens" for viewing coral fluorescence would be a brilliant addition (maybe an aftermarket add-on) to the standard clear lens... here's hoping.

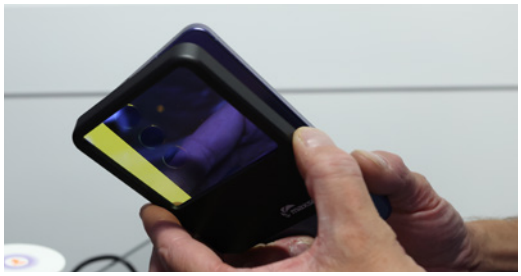






Above: The centrepiece to the AquaForest display was one of their new All-in-Skim skimmers. Right: Ocean Sea were showing of their range including the new Meg-R controller. These unit are even able to mount gyre style pumps for awesome water movement.





Left and below: Nick from BCUK demonstrates the new Maxspect TrueReef filter lens for mobile phones.





Below: AquaPrint had a range of technicolor 3D printed accessories on show, including a new "trade only" range. Jonny also showed me the new "ReefPeak" viewing tray which looks great (see far right). Near right: The Tunze display was impressive as ever.



Tunze brought plenty to look at, but the item drawing the most attention was their highly sought-after carbon tongs (part number 0220.450,. At 86cm long they're built for reaching the bottom of deep tanks, combining carbon fibre-reinforced plastic with 316L stainless steel for corrosion resistance. They'll lift up to 2kg, the gripper rotates through 360° and has rubber slats to stop rock or frags slipping, and the whole thing folds away for storage. Anyone who has watched a cheap pair of tongs rust or bend will see the appeal.They also offer a rust proof and durable anodized aluminium and stainless steel version for those who prefer the more traditional look... part no. 0220.440.

Old pal Nick from **BCUK** was showing the Maxspect and Calanus ranges. Of particular interest was another coral viewing device, Maxspect's TrueReef filter lens, which snaps magnetically over the camera on the back of a phone (iPhone or Android). Rather than simply blocking blue light like a traditional orange or yellow filter, it reflects away a percentage of the high-energy blue while keeping the near-UV wavelengths that make coral fluorescence pop. That means more natural-looking photographs without the washed-out look that filters often give. I also came away with a sample of Reef Sherbet®, a specialised, all-natural nutritional food designed to enhance the growth and colouration of corals in marine aquariums. Nice!





Above: Clownfish4U display. Below: Some of the raffle items plus free cakes and cookies! A snackvan was also on hand with great menu!



Finally, **Clownfish4U** were showing captive-bred *ocellaris* clownfish, with lots of different varieties available. Most striking was a row of three tanks showing the fish at different stages, from tiny fry swimming in a soup of rotifers and phytoplankton, up to super-cute perfect miniature clownfish just a few weeks old. It was brilliant to see captive breeding presented like this, and it's work that deserves a lot of support from the hobby.

I caught up with event organiser Tommy amid the throng, who summed up the day nicely:

"I started Reefers Collective because I wanted to bring the reefing community together and create completely free events that everyone can enjoy, whether they've been in the hobby for 20 years or they're just getting started. To see 303 people come through the doors at Reef Freaks was absolutely incredible, and the support from hobbyists, shops and brands has genuinely blown me away. This is only the beginning, and I'm already looking forward to seeing where we can take Reefers Collective next."

If I'm honest, I came away from the day pleasantly surprised on two separate fronts. The first was the shop itself. It's a store that comfortably lived up to, and then exceeded, everything I'd expected of it, run by two owners who've turned a home coral-trading hobby into a fast-growing business in barely 2 years. The second was the turnout for Reefers Collective, which was a genuinely heartening thing to witness. It's easy, in a hobby that so much of the time plays out through screens and forum threads, to wonder whether people would actually show up in person if given the chance. Reefers Collective answered that question emphatically. When someone puts in the effort to organise something worth turning up for, the reef-keeping community can still turn up in numbers, and with enthusiasm. Add in a well-chosen trade presence and a steady stream of new and innovative products still coming through, and it all left me with a real sense of optimism. It gives me hope, and a fair bit of excitement, that larger events, though still some way off, could be possible in 2027. For now, Reef Freaks and Reefers Collective deserve real credit for showing what can be done, and I'll be keeping a close eye on where both go from here.



Reef-Freaks

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Barnoldswick, BB18 6BJ

Tel: 07949 542692
Website - reef-freaks.co.uk
Facebook - Reef-Freaks
Instagram - reef_freaks

Opening Times (please double check before travelling)
Mon - Fri 9am - 3pm, Sat 10am - 3pm, closed on Sundays

Reef Icons

No.46



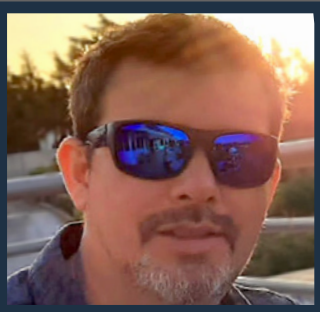
Few fish command a reef tank's centre stage the way a mature male *Cirrhilabrus* does. Peruse the display tanks of any well-stocked UK marine shop and it's invariably the fairy wrasses that draw the crowd, flashing between magenta, cobalt, violet and gold as they twist through the water column, their colours shifting with the angle of the light in a way that photographs rarely capture. For UK hobbyists building a peaceful, colour-driven reef community, *Cirrhilabrus* wrasses occupy a near-unrivalled position; fish that are active and visible throughout the day, rarely aggressive towards tankmates, reef-safe with corals and invertebrates, and critically available across a wide price range that spans entry-level species through to five-figure rarities. That combination of accessibility, activity and stunning beauty explains why fairy wrasses have become one of the most consistently requested groups in the trade, and why nearly every UK livestock importer carries at least a handful of species year-round (although on this latter point there is a caveat, as we'll find out).

Cirrhilabrus is pronounced SIR-ih-LAY-bruhss



A resplendent, terminal phase male *C. rubrimarginatus* in the tank of David Saxby - image J Clipperton

Text and Images by
John Clipperton



An award-winning photographer and lifelong aquarist, John has worked with numerous top marine retailers, publishers and manufacturers on a freelance basis over the last 25 years. He has also collaborated on a range of projects with experts in the field, and supported organisations such as zoos, public aquaria, conservation initiatives and educational establishments. He has been Editor of UltraMarine since October 2015. Read more about John at: **ultramarinemagazine.co.uk/contributors/**

Part of the appeal lies in the sheer variety within the genus. Unlike many "one look" reef fish, *Cirrhilabrus* offers hobbyists a genus-wide collecting hobby of its own: dozens of described species, many with several geographic colour variants, mean that an aquarist can spend years chasing different fairy wrasses without ever repeating a species. Males also undergo dramatic terminal-phase colouration as they mature and establish dominance, so the fish sold as a modest juvenile at a shop can transform, over months, into something dramatically more vivid… a slow-reveal quality that keeps owners invested. Add to this their generally manageable size, their willingness to accept a broad range of prepared foods, and their compatibility with reef-building corals, and it becomes clear why fairy wrasses sit so comfortably at the intersection of accessibility and aspiration in the modern reef hobby.



As well as age and/or sex related differences, many fairy wrasse species, such as this *C. lubbocki*, exhibit regional variations in colouration and pattern. This can make identification a challenge!

Taxonomy and Recent Developments

Cirrhilabrus belongs to the family Labridae (wrasses), within the subfamily Cheilininae, alongside related fairy and flasher wrasse genera such as *Paracheilinus*. The genus was established in the 19th century, but it is really over the last three decades (driven by improved collection access to remote Indo-Pacific reefs and, more recently, by deep-reef and "mesophotic" exploration using rebreathers and submersibles) that species diversity within the genus has been revealed to be far greater than once assumed. Current estimates place the genus at around 60-plus recognised species, with new descriptions continuing to appear regularly in journals such as *Zootaxa* and *Journal of the Ocean Science Foundation*, making *Cirrhilabrus* one of the more taxonomically active genera in the reef fish trade.



C. aurantidorsalis (Orangeback Fairy Wrasse)

A significant driver of recent discovery has been the "twilight zone", mesophotic reef habitat in the 50-150m range that lies beyond the reach of conventional scuba diving. Species such as *Cirrhilabrus wakanda* (the Vibranium fairy wrasse) and *Cirrhilabrus finifenmaa*, described from Rose Atoll in the Solomon Islands region, are recent examples pulled from deep-reef surveys, and both quickly became sought-after, high-value species in the trade upon their formal description. This pattern, a species entering the aquarium trade informally under a "sp." or trade name well before its taxonomic description is formalised, is common throughout the genus and reflects how collector-divers and taxonomists are increasingly working in parallel, with commercial collection sometimes preceding a formal scientific name by several years.

Molecular work has also reshaped our understanding of relationships within the genus. Genetic studies have clarified species complexes that were historically difficult to separate on colouration alone, for instance, distinguishing closely related "solar" and "lubbocki-type" fairy wrasses, or resolving the relationships between geographically isolated populations that show clinal variation in colour but limited genetic divergence. This has practical relevance for hobbyists and retailers alike, since common trade names have not always kept pace with taxonomic revision, and misidentification between similar species remains common at the point of sale. On the subject of availability, while several species are still fairly common in the UK trade, sadly, world events (particularly in recent months) have seen some of the more unusual species disappear, and it isn't certain that they will ever resurface. I reached out to wrasse-expert Paul Hughes from AAC on this and he explained *"With the way the world is at the moment, the supply of fairy wrasses is sadly more fragile than ever. Everything from fuel prices, political unrest, aging suppliers and even El Nino are making it more unlikely that we'll see certainly some of the rarer species back in the UK trade any time soon. It's really worth considering this against rising prices of specimens that are available right now. The old adage that "every fish has a story" is particularly true in the case of these stunning jewels and we really need to appreciate what we've got when it's available!"*

Captive Care Requirements

Fairy wrasses are, on the whole, a forgiving genus for anyone running a mature, well-established marine system, but there are several care requirements that make the difference between a fish that thrives for years and one that fails to settle.

Tank size and aquascape

Most *Cirrhilabrus* species are well suited to tanks from around 100 litres upward for a single specimen, though larger systems (200 litres-plus) are strongly preferable if keeping more than one male, or a male with several females in a harem grouping — the more typical and more rewarding way to keep this genus. A thoughtfully aquascaped tank with plenty of live rock, overhangs and small caves is essential, not for hiding during the day, but because fairy wrasses have a strong instinctive response to perceived threats (a shadow passing overhead, a sudden movement) and will dive for cover instantly. Without adequate structure, this reflex can result in a fish injuring itself against glass or hardscape, so rockwork with multiple close escape routes distributed around the tank is more important than raw volume. Unlike some related wrasse genera, these fish don't bury themselves in the sand at night, rather they retreat into crevices (some even secrete a mucus cocoon at night to mask their scent from predators).

Secure lids and jumping

Cirrhilabrus are notorious jumpers, particularly in the first weeks after introduction, and any open-top tank or gap around plumbing cut-outs should be considered a serious escape risk. This is one of the more common causes of preventable loss in the genus and is worth emphasising to any new keeper.

Water quality and acclimation

As with most wild-caught wrasses, freshly imported specimens benefit from careful, slow acclimation and a period in a quarantine or dedicated holding system before introduction to the main display. Stable water parameters, good but not excessive flow, and mature biological filtration all support long-term health; fairy wrasses are not especially sensitive to reef-typical parameter ranges once settled, but poor water quality during the critical first fortnight is a common contributor to losses.

Feeding

Nearly all *Cirrhilabrus* are planktivorous or micro-invertebrate feeders in the wild, picking continuously at zooplankton in the water column. In captivity they should be offered small, frequent feedings of high-quality frozen foods (mysis, copepods, enriched brine shrimp) and a good-quality pellet or flake, ideally two to three times daily rather than one large feed. Newly imported fish can be reluctant feeders initially, and live copepods or enriched rotifers can help tide a nervous specimen over the first few days.

Compatibility

Cirrhilabrus are reef-safe with essentially all stony and soft corals, clams and other sessile invertebrates, making them an easy recommendation for mixed reef systems. The main compatibility consideration is intraspecific and interspecific aggression between similarly shaped fairy and flasher wrasses: a single male per species per tank is the standard rule, introduced alongside females rather than other males, and ideally all fairy/flasher wrasse additions made simultaneously to avoid an established resident bullying newcomers. They generally ignore unrelated fish entirely and make excellent community members in a peaceful reef stocking list.

Sexing and social structure

Most species are protogynous hermaphrodites — fish are born or mature initially as females, with the dominant female of a group able to transition to a terminal-phase male if the resident male is removed or dies. This makes harem groupings (one male, several females) both natural and generally the most successful long-term social structure. Thus, if purchasing multiple specimens, buy females/initial-phase fish together rather than attempting to keep two terminal males.



C. rubrisquamis



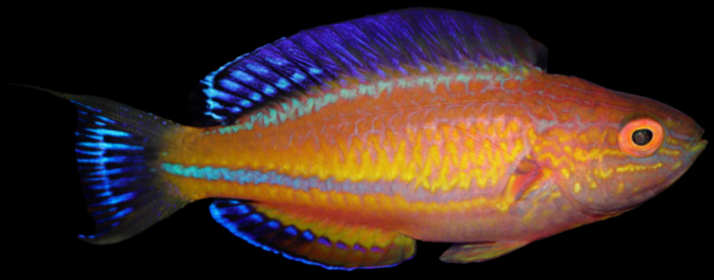
C. brunneus - Dusky fairy wrasse



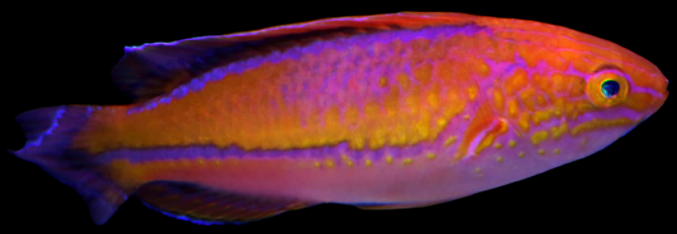
C. ryukyuensis - Yellow flanked fairy wrasse

The *lubbocki* Complex (Peaceful Small Wrasses)

The *lubbocki* group represents the most basal evolutionary branch within the genus. These species are physically compact, smaller than most of their peers, and structurally simple. They entirely lack long fin threads, sail-like fins, or highly modified tail structures, maintaining a simple, weakly rounded or straight-edged caudal fin. Instead of seeking safety in deep twilight zones, these active wrasses thrive over shallow-to-mid-depth rubble beds and sunlit patch reefs, where they gather in massive, highly active feeding schools to pick zooplankton directly out of the passing current. Because they originate in shallow waters, they exhibit notable resilience, adapting quickly to variations in lighting and environment. While structurally modest, their colours are striking, typically featuring high-contrast, dual-tone split bodies that cleanly segment rich reds or pinks against bright canary yellows and solid whites. This lineage includes *Cirrhilabrus adornatus* (Red-fin Fairy Wrasse), *C. flavidorsalis* (Yellowfin Fairy Wrasse), and of course *C. lubbocki* (Lubbock's Fairy Wrasse).

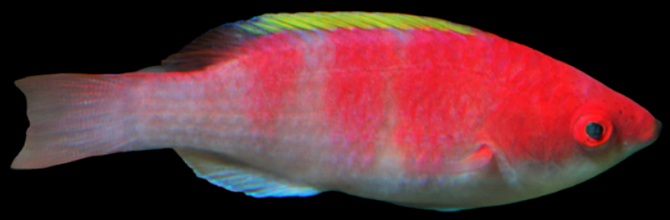


Above: A gorgeous male *C. squirei* imaged "mid-flash" in a display tank at AAC. Below: *C. isosceles*... just stunning, and notable in the group for it's tail shape.

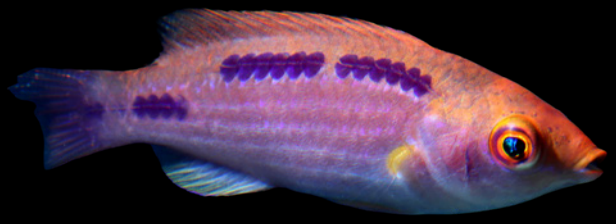


The lanceolatus (Swordtail) Clade

The lanceolatus clade is an exquisite lineage of specialised, deepwater "twilight zone" wrasses instantly recognisable by their long, spear-shaped lanceolate tail profiles. In dominant adult males, the central rays of the caudal fin fuse and project sharply outward into an elongated, tapering sword-like point. This unique silhouette is paired with an elongated, slender body plan built to slice effortlessly through high-current deep-reef environments. Many of these species are exceptionally restricted endemics tied to remote Pacific islands, rarely venturing above depths of 60 to 100 metres, which has historically made them incredibly difficult for biologists to observe. Rather than displaying with erratic movements, these elegant fish drift smoothly through the current, showing off highly clean geometric body patterns, neon facial lines, and brilliant purple or magenta scales. During mating rituals, males flash a bright, reflective white or solid lavender shield across their fins to slice through the surrounding darkness. This group comprises *Cirrhilabrus blatteus* (Purple-boned Fairy Wrasse), *C. claire* (Claire's Fairy Wrasse), *C. earlei* (Earle's Fairy Wrasse), *C. lanceolatus* (Lanceolate Fairy Wrasse), *C. roseafascia* (Pink-banded Fairy Wrasse), and *C. sanguineus* (Blood-stained Fairy Wrasse).



Above: *C. flavidorsalis* showing distinctive yellow dorsal. Below: *C. lubbocki* - highly variable with some individuals showing mixed colours rather than demarked purple sashes. A candidate for taxonomic revision in the future!



The *lunatus* Complex (Lyretail/Crescent-tail Wrasses)

The *lunatus* complex is a highly specialised branch of deepwater residents known for a dramatic physical adaptation: a sweeping, deeply fork-shaped lyretail caudal structure in mature males. The upper and lower edges of the tail fin grow outward into elegant, trailing feathers. This clade also contains a notable exception in *C. isosceles* (Pintail Fairy Wrasse), which features an angular, spade-shaped tail point due to localised evolutionary convergence. Despite the difference in tail shape, genetic data and intense nuptial flashing habits confirm it belongs natively to this group. Operating primarily along deep outer reef walls and current-swept slopes between 30 - 70 metres, these fish have adapted to the dim blue twilight of the deep ocean. When males engage in territorial disputes or courtship displays, their bodies flash with a glowing, high-contrast iridescent lavender and gold overlay that instantly alters their baseline appearance. Species belonging to this clade are *Cirrhilabrus brunneus* (Dusky Fairy Wrasse), *C. isosceles* (Pintail Fairy Wrasse), *C. johnsoni* (Johnson's Fairy Wrasse), *C. lunatus* (Crescent-tail Fairy Wrasse), and *C. squirei* (Squire's Fairy Wrasse).



Above: large male *C. roseafascia* in the tank of David Saxby. Below: *C. earlei* - one of the most desirable of all but sadly very rare in the trade (again, imaged at AAC)





Above: the distinctive *C. aurantidorsalis*
Below: *C. aquamarinus* (separated from *C. solorensis* in 2021... *C. solorensis* is much more range restricted and less likely to be encountered in the trade).



The *filamentosus* & *rubripinnis* (Whiptail) Complex

This dynamic Indo-Pacific group is defined by the development of long, whip-like filamentous extensions growing directly out of the male's dorsal fin. Unlike other clades where threads might grow from the tail or pelvic fins, these fish feature one or more front dorsal spines that stretch significantly outward, sometimes extending past the tail itself. They maintain a slightly elongated body profile with rounded tail fins and are usually found patrolling mid-depth drop-offs and rubble-filled passes where current-driven plankton is abundant. This clade is famous for possessing some of the fastest, most explosive nuptial flashing capabilities in the ocean. When a dominant male enters a courtship sprint, his baseline reds and dark blues vanish in a fraction of a second, replaced by a brilliant, shimmering metallic silver, electric blue, or solid gold blanket that momentarily confuses competitors and catches the eye of surrounding females. The recognised species grouped here are *C. cyanogularis* (Blue-throated Fairy Wrasse), *C. filamentosus* (Whiptail Fairy Wrasse), *C. rubripinnis* (Red-finned Fairy Wrasse), and *C. tonozukai* (Tono's Fairy Wrasse).



Above: *C. rubeus*... very similar to *C. rubriventralis* but more widely distributed and with two dorsal filaments rather than one. Below: *C. naokoae*



The *cyanopleura* Complex (Blue-sided Wrasses)

The *cyanopleura* complex represents one of the most robust, heavily constructed, and taxonomically complex lineages within the entire genus. These are large-bodied, deep-chested fairy wrasses featuring distinct rhombus-shaped or rounded tail structures. Their unifying physical trademark is a dense, dark inky-blue or charcoal-colored margin on each scale, creating a beautiful, clean chain-link pattern across their sides. They are incredibly successful, highly dominant generalists that form immense harems across mid-depth lagoons, reef slopes, and rocky current breaks throughout the Indo-Malayan region. This group is famous among scientists for its intense regional variations and frequent hybridisation zones, where neighbouring island chains host subtly different colour morphs that blur species boundaries. When courting, dominant males undergo an explosive colour shift, turning their standard olive, green, or orange bodies into a canvas where their throats or shoulders flash a brilliant, metallic neon teal. The members representing this group are *C. aquamarinus* (Chinstrap Fairy Wrasse), *C. aurantidorsalis* (Orangeback Fairy Wrasse), *C. chaliasi* (Chalias' Fairy Wrasse), *C. cyanopleura* (Bluesided Fairy Wrasse), *C. heterodon* (Odd-toothed Fairy Wrasse), *C. luteovittatus* (Yellow-banded Fairy Wrasse), *C. melanomarginatus* (Black-margined Fairy Wrasse), *C. randalli* (Randall's Fairy Wrasse), *C. ryukyuensis* (Ryukyu Fairy Wrasse), *C. solorensis* (Red-headed Fairy Wrasse), and *C. xanthozonus* (Yellow-zoned Fairy Wrasse).



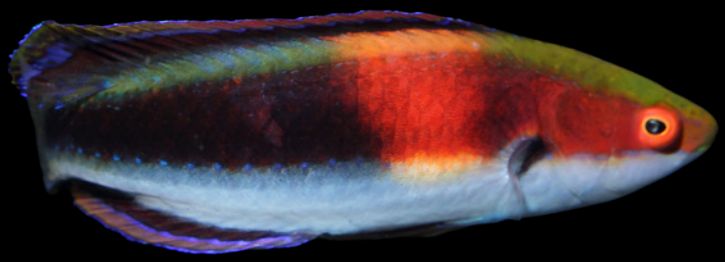
C. cyanogularis. I must admit this isn't the best image. As with many other species in this genus, specimens in shop holding tanks (like this one) often only exhibit a shadow of their potential colouration. The diagnostic blue throat can however *just* be detected on this individual.

The *rubriventralis* Complex (Spike-fin & Long-fin Wrasses)

The *rubriventralis* complex is a highly unique, deeply specialised sister group to the whiptail clade, primarily occupying sheltered, nutrient-rich coastal zones across the Western Pacific and Indian Oceans. These are smaller, compact fairy wrasses that have evolved a truly remarkable anatomical hallmark: hyper-extended, sail-like dorsal spikes and oversized pelvic fins. In mature males, the pelvic fins form sweeping, fan-like oars that trail long beneath the body, while the front of the dorsal fin features sharp, elevated spikes that give them a distinct shark-fin silhouette. They favour shallower, protected habits like silty bays, macroalgae beds, and inner reef walls. Because they operate in sunlit zones, their baseline colours are highly saturated, dominated by fiery crimson reds, rich oranges, and clean white bellies. During territorial standoffs, males lock these oversized fins completely rigid, maximising their profile to appear twice their actual size while flashing reflective yellow borders. Securely slotted in this clade are *C. africanus* (African Multi-colour Fairy Wrasse), *C. humanni* (Humann's Fairy Wrasse), *C. joanallenae* (Joan Allen's Fairy Wrasse), *C. morrisoni* (Morrison's Fairy Wrasse), *C. naokoae* (Naoko's Fairy Wrasse), *C. rubeus* (Ruby Longfin Fairy Wrasse), and of course *C. rubriventralis* (Social Fairy Wrasse).

The *jordani* (Flame Wrasse) Complex

The jordani group contains some of the most iconic, highly saturated, and deeply coveted species within the genus. Characterised by a high-bodied, thick-chested profile and broad, paddle-shaped or perfectly rounded tail fins, these deepwater specialists lack long trailing filaments but make up for it with incredible colour purity. They are found almost exclusively over pristine, deep rubble fields and mesophotic sponge reefs in the Pacific and Indian Oceans. The colour palette of this group is legendary, almost entirely dominated by intense shades of fire-red, hot pink, and golden yellow. The taxonomy of this complex has seen major recent breakthroughs due to modern genetic mapping, which successfully separated long-standing lookalikes to reveal distinct island endemics like the Maldives-native *C. finifenmaa* (Rose-veiled Fairy Wrasse) and the volcanic *C. shutmani* (Magma Fairy Wrasse). When displaying, males flash a metallic white-gold or glowing neon yellow across their backs, cutting sharply against their red flanks. This group encompasses *C. briangreenei* (Latent Fairy Wrasse), *C. finifenmaa* (Rose-veiled Fairy Wrasse), *C. greeni* (Sunset Fairy Wrasse), *C. jordani* (Flame Wrasse), *C. katoi* (Kato's Fairy Wrasse), *C. pylei* (Pyle's Fairy Wrasse), *C. rubrisquamis* (Red Velvet Fairy Wrasse), and *C. shutmani* (Magma Fairy Wrasse).



C. katherinae - with nothing but the most minor colouration differences, this species is practically indistinguishable from *C. balteatus* with the location of their collection being the deciding factor. *C. balteatus* is endemic to the Marshall Islands.

The ***bathyphilus, lineatus & rubrimarginatus* Complexes**

This elite assemblage represents the pinnacle of deepwater complexity within the genus, containing some of the most intricate and structurally magnificent species known to science. These wrasses are characterised by large, robust bodies, rounded or weakly rhomboidal tails, and a stunning array of intricate, parallel horizontal lines and geometric web-like patterns covering their faces and bodies. They are strict deep-reef specialists, found almost exclusively in pristine twilight zones between 40 - 90+ metres. Because of their extreme depth requirements and remote island habitats, they are rare and carry prestigious status. Their colouration is a masterclass in detail, overlaying bright lavender, canary yellow, and deep crimson lines over an orange or pink body. Their courtship behaviour is highly dignified; males erect their large, heavily patterned dorsal fins—which look like stained glass—and flash a bright, solid-white or neon-yellow hood across their heads. True members of this deep-water cluster are *C. bathyphilus* (Deepwater Fairy Wrasse), *C. efatensis* (Hooded Fairy Wrasse), *C. eximius* (Exemplar Fairy Wrasse), *C. laboutei* (Labout's Fairy Wrasse), *C. lineatus* (Lined Fairy Wrasse), *C. nahackyi* (Nahacky's Fairy Wrasse), *C. rhomboidalis* and *C. rubrimarginatus.*



Above: eye-popping Hawaiian *C. jordani* - collection sadly now prohibited
Below: *C. finefenmaa* (previously known as *C. rubrisquamis* which is much more range restricted and not collected for the marine trade).



The *temminckii* Complex

The temminckii group is a wide-ranging, highly successful evolutionary lineage that links a diverse array of species across the entire Indo-Pacific. Anatomically, these wrasses possess a moderately elongated, slender body plan paired with rounded caudal fins. The true unifying signature of this clade is a brilliant, highly reflective lateral stripe or a specialised iridescent patch at the base of the tail fin. This structural colour band acts as an optical mirror, capturing the faint downwelling sunlight of their deep-reef environments to signal other fish. They are commonly found patrolling deep rubble patches and steep outer walls between 30 - 60 metres. Their courtship display is smooth and gliding; rather than using erratic darting movements, males force blood flow to their scales, causing their lateral lines and tail bases to glow with an intense, electric neon-blue luminescence that pierces the dim twilight. This widespread lineage includes *C. balteatus* (Girdled Wrasse), *C. beauperryi* (Beau's Fairy Wrasse), *C. katherinae* (Catherine's Fairy Wrasse), *C. punctatus* (Fine-spotted Fairy Wrasse), *C. temminckii* (Threadfin Fairy Wrasse), *C. terminalis* (Terminal-banded Fairy Wrasse), and *C. wakanda* (Vibranium Fairy Wrasse).



Top: Male C. lineatus
Bottom: Male C. rubrimarginatus

The *condei* & *marjorie* (High-Dorsal) Complex

This unique, specialised sister group represents a localised evolutionary offshoot restricted primarily to the Western Pacific waters around Papua New Guinea, Vanuatu, and Fiji. These species are instantly recognised by their exaggerated, tall, sail-like dorsal fins that lack long whip-like filaments but stand incredibly high, wide, and rigid. They possess a slightly compressed, slender body shape and a truncated or rounded tail fin. They are typically found in localised, deep rubble trenches and current-swept passes where they form tight-knit, highly territorial harems. Their colour patterns are stark and graphic, often utilising high-contrast vertical blocks or bold horizontal bands of deep black, pure white, and blood red rather than complex gradients. When a terminal male displays, he locks his massive dorsal fin completely upright, using the broad surface area like a billboard to flash brilliant white and deep crimson patterns to ward off rivals. The formal taxonomy places *C. cenderawasih* (Cenderawasih Fairy Wrasse), *C. condei* (Conde's Fairy Wrasse), *C. marjorie* (Marjorie's Fairy Wrasse), and *C. walshi* (Walsh's Fairy Wrasse) in this high-backed group.

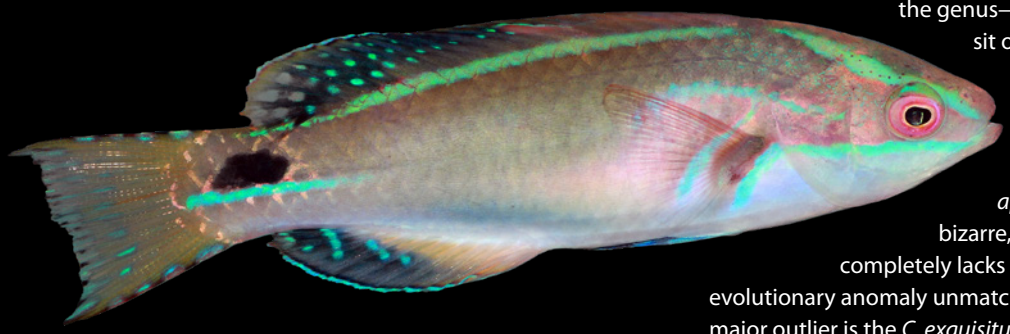


Above: A sub adult *C. marjorie* just beginning to develop the crisp white belly of the terminal male phase.

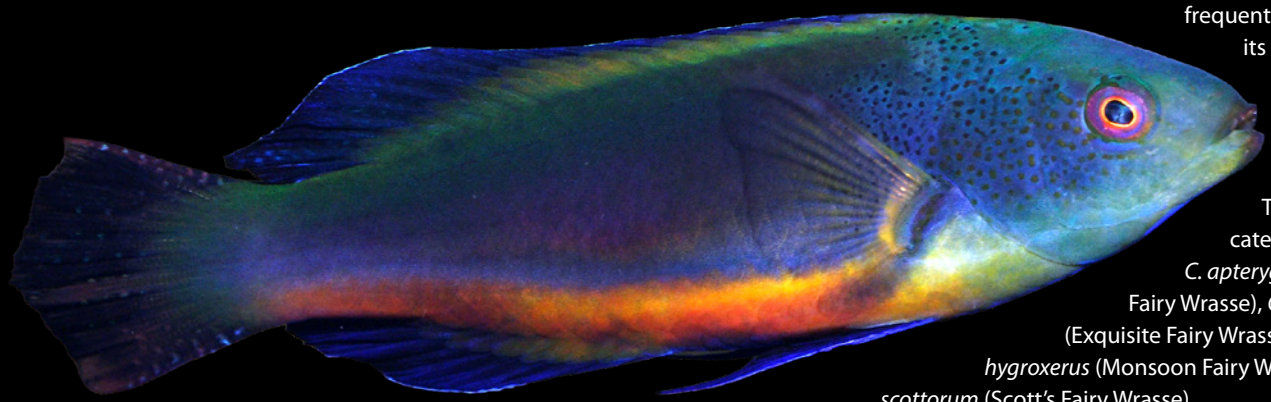
I'd love to expand my library of images of this genus so if you know of, or perhaps even own, a particularly interesting individual, drop me an email and I'll see if I can come and photograph it!

Monotypic Outliers and Unique Complexes

This final category captures the evolutionary mavericks of the genus—highly specialised species that sit on unique, isolated branches of the family tree due to radical physical variations or extreme geographic isolation. The most famous example is *Cirrhilabrus apterygia* (Finless Fairy Wrasse), a bizarre, deepwater Australian resident that completely lacks pelvic fins and a pelvic girdle, an evolutionary anomaly unmatched by any other congener. Another major outlier is the *C. exquisitus* (Exquisite Fairy Wrasse) complex; while treated as a single species, it exhibits an unprecedented, massive geographic range spanning from East Africa to French Polynesia, fracturing into highly distinct, isolated colour morphs that scientists believe represent a cryptic complex of multiple distinct species. These outliers showcase the incredible evolutionary plasticity of the genus, proving that even within a highly defined group of reef fish, nature frequently breaks its own rules to exploit unique ecological niches. This unique category tracks *C. apterygia* (Finless Fairy Wrasse), *C. exquisitus* (Exquisite Fairy Wrasse), *C. hygroxerus* (Monsoon Fairy Wrasse), and *C. scottorum* (Scott's Fairy Wrasse).



Above: *C. exquisitus* - a species that, even among fairy wrasses, exhibits a dizzying variety of colour forms across a vast geogrpahical range.
Below: *C. scottorum* - isolated populations across the South Pacific give rise to many unique colour forms, and that's on top of sexual dischromatism!



Digital edition readers (through the UltraMarine website) - click or touch this banner to view more fairy wrasse species in our extended website gallery! (you must be logged in to view).

REEF ESSENTIALS:

Is Clean Water Killing Your Corals?


Credit: The Ocean Agency / Ocean Image Bank

For years, reefkeepers chased nitrate and phosphate down to zero. Now many of us are adding them back in. **So what changed, and where should your tank sit?**

There was a time when an undetectable phosphate reading was a badge of honour. Post a photo of a test kit showing zero on a forum, and the congratulations would roll in. Nutrients were the enemy: they fed algae, dulled colours and stunted growth, so the goal was to strip them out of the water by any means available.

Walk into a reef shop or scroll through a forum today and you'll hear something very different. Hobbyists are buying bottles of nitrate and phosphate and dosing them deliberately. Advice threads are full of people being told their tank is "too clean". It sounds like a contradiction, but it's one of the most important shifts in reef-keeping of the last decade, and understanding it could be the difference between a tank that merely survives and one that thrives.

How we got here

The drive for clean water made sense. Early reef tanks were plagued by nuisance algae, and the coral that hobbyists most wanted to keep, small-polyp stony (SPS) corals like *Acropora*, came from some of the most nutrient-poor waters on the planet. Tropical reefs grow in what are often described as oceanic deserts. If corals thrived there, the logic went, our tanks should look the same.

The tools to get there arrived quickly. Protein skimmers grew more powerful. Granular ferric oxide (GFO) and other phosphate binders became standard. Carbon dosing with vodka, vinegar or commercial products boosted bacteria that consumed nitrate and phosphate. Ultra-low nutrient systems (ULNS), popularised by methods such as ZEOvit with its zeolites, bacteria and additives, showed what could be achieved: SPS corals in soft, pastel shades that were the envy of the hobby.

The problem was that these systems were designed to be run carefully, with nutrients brought down while corals were fed and supported in other ways. As the tools became cheaper and more widely available, many hobbyists used them without the balance. Skimmers, reactors, refugia, carbon dosing and heavy water changes all worked at once, and nutrients didn't just fall. They disappeared.

Why corals need nutrients

The "oceanic desert" comparison is only half true. Reef water may test low, but it is never static. A wild coral sits in a constant stream of water carrying plankton, dissolved organic matter and fresh nutrients, and much of what lands on a reef is captured and recycled almost immediately. Low concentration doesn't mean low supply. A test kit dipped into the sea measures what is left over, not what is passing through.

Inside a coral's tissue live its symbiotic algae, the zooxanthellae (now classified in the family Symbiodiniaceae). Through photosynthesis, they supply most of the energy many reef-building corals need. Like any plant, though, they need nitrogen and phosphorus to grow, divide and keep photosynthesising. Phosphorus is part of the cell membranes, DNA and energy-carrying molecules that keep the whole system running. Take it away and the partnership begins to break down.

Some of the most useful research on this came from much closer to home. The Coral Reef Laboratory at the University of Southampton, led by Professor Jörg Wiedenmann and Dr Cecilia D'Angelo, used large experimental aquarium systems to study how nutrients affect corals. Their work, including a 2013 paper in Nature Climate Change, found that it isn't simply high nutrients that cause harm. An imbalance, particularly plenty of nitrogen with too little phosphate, can starve the symbionts of phosphorus and make corals more prone to bleaching. Phosphate, the nutrient reefers had spent years trying to eliminate, turned out to be essential.

Not all nutrients are equal

When reefers talk about nutrients, they usually mean the two numbers on their test kits. The reality is more complicated, and understanding it explains why a tank can read zero and still be well fed, or read zero and be starving.

Nitrogen arrives in several forms. Fish excrete ammonia, which bacteria convert first to nitrite and then to nitrate. Corals and their zooxanthellae can use more than one of these, but they generally take up ammonium more readily than nitrate, because it costs them less energy to turn into proteins. In a tank with plenty of fish, much of the nitrogen may be used as ammonium before it ever becomes nitrate. A low nitrate reading in a heavily stocked, well-fed tank therefore means something very different from the same reading in a lightly stocked one.

Phosphorus is similar. Hobby test kits measure inorganic phosphate (orthophosphate), the form most readily used by algae and zooxanthellae. They don't detect organic phosphorus bound up in food, waste and dissolved organic matter, which bacteria gradually break down into phosphate. That's one reason why ICP results, which measure total phosphorus, can disagree with a home test.

The practical lesson is that a test reading is a snapshot of what's left over, not a measure of how much is flowing through the system. A tank where nutrients are being used as fast as they're produced can read zero and still be healthy. The difference is in what the corals look like, so always judge the numbers alongside the livestock.

Signs your tank is too clean

A nutrient-starved tank rarely looks dirty, which is exactly why the problem is so easy to miss. The glass stays clear, there's no hair algae, and the test kits read zero. Yet the corals tell a different story. Watch for:



Pale, pastel coloured corals such as these *Acropora* are a sign that your tank may be nutrient starved.

Pale or washed-out corals. Colours fade to pastel, then towards white, even though temperature and lighting haven't changed. This can look like bleaching, but it develops slowly.

Stalled growth. SPS corals stop encrusting and branching, and new frags sit unchanged for months.

Tissue recession. Tissue may pull back from the base or tips of *Acropora* and *Montipora*, sometimes leading to slow tissue necrosis (STN).

Poor polyp extension. LPS corals and zoanthids stay closed or only partly open.

Cyanobacteria or dinoflagellates. Red slime, or brown, stringy films with bubbles, can appear in a tank with "perfect" water. These organisms can outcompete everything else when nutrients run out.

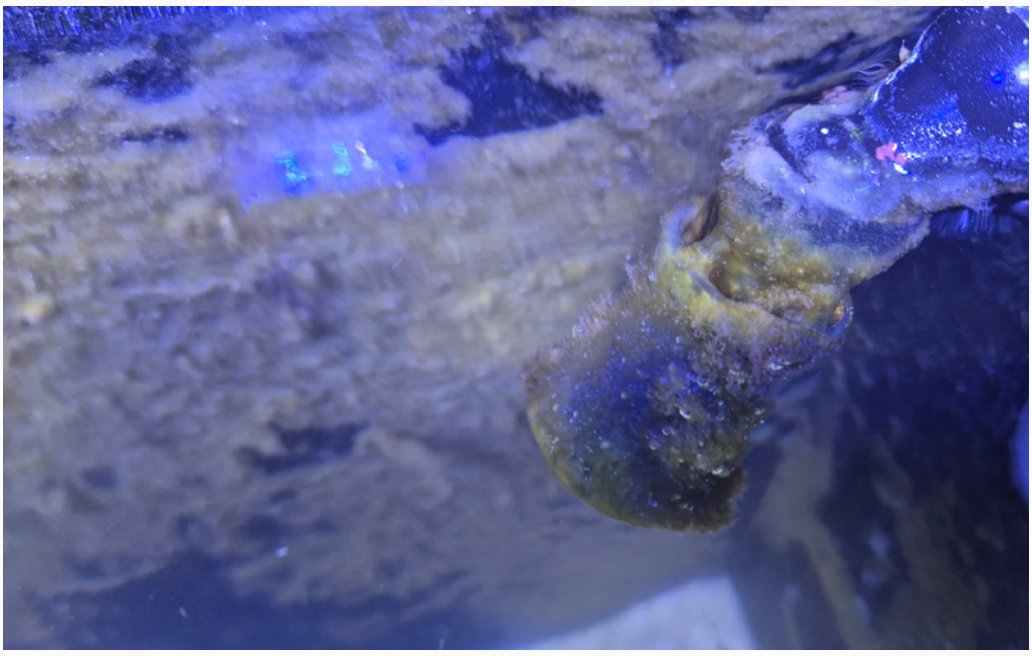
None of these signs proves the cause on its own. Pale corals can also come from too much light, temperature swings or alkalinity problems. But if several appear together and your nitrate and phosphate are undetectable, nutrients should be top of your suspect list.

The dinoflagellate problem

If there is one thing that pushed the hobby to rethink nutrient control, it's dinoflagellates. Ask around any reef club and you'll find someone who has battled them. Dinos form brown, golden or snot-like films over sand, rock and even coral, often trapping air bubbles and returning each day once the lights come on. Some types, including species of *Ostreopsis*, can produce toxins, and snails and other livestock can die in tanks with heavy outbreaks.

Dinos are strongly linked with ultra-low nutrient conditions. When nitrate and phosphate run out, most algae and bacteria struggle, but many dinoflagellates can cope, partly because some can feed on other organisms as well as photosynthesise. With competitors weakened, they take over. Brand new tanks with sterile dry rock are also vulnerable, because the bacterial and algal communities that would normally compete with dinos haven't yet formed.

The traditional reaction, attacking them with even more water changes and nutrient removal, often makes things worse. Many reefers now



Dinos and cyano can make a real mess of a tank, growing on everything, from rockwork to tank walls and return nozzles.



A microscope can be a useful tool, especially with online image analysis tools now widely available.

treat outbreaks by doing the opposite: bringing nitrate and phosphate back up into a measurable range, adding bacteria or phytoplankton to compete, and using UV sterilisation for species that drift in the water column. Correct identification under a microscope helps, as different dinos respond to different treatments.

What to aim for

There is no single magic number, and successful reefers run tanks across a surprisingly wide range. As a general guide, many now aim for something like this:

Tank type - SPS-dominated
Nitrate (NO3) 2–10 ppm
Phosphate (PO4) 0.03–0.08 ppm

Tank type - Mixed reef
Nitrate (NO3) 5–15 ppm
Phosphate (PO4) 0.05–0.10 ppm

Tank type - LPS and soft coral
Nitrate (NO3) 5–20 ppm
Phosphate (PO4) 0.05–0.15 ppm

The most important thing is that both are measurable. A tank at 0 ppm nitrate and 0.00 ppm phosphate is running on empty, even if the corals look fine for now.

Balance matters too. You'll often see the Redfield ratio quoted: the 106:16:1 balance of carbon, nitrogen and phosphorus found in marine plankton. Bear in mind that it's a ratio of molecules, not of test kit readings in ppm, so it doesn't translate neatly into nitrate and phosphate results. Rather than chasing a precise figure, avoid the extremes the Southampton work warned about: high nitrate with zero phosphate, or the reverse.

Stability beats perfection. A tank that sits steadily at 8 ppm nitrate and 0.06 ppm phosphate will usually do better than one that swings between zero and 20. Corals adapt to their conditions, so any change should be made gradually.

Different corals, different needs

The ranges in the table vary by tank type for a reason: corals don't all feed the same way. How much a coral relies on its zooxanthellae, and how much it relies on catching food, shapes how it responds to nutrients.

• SPS corals such as *Acropora, Montipora* and *Stylophora* have small polyps and get most of their energy from their symbionts. That makes them the most sensitive group at both ends of the scale: quick to pale and recede when starved, and quick to suffer slowed calcification when phosphate climbs too high.

• LPS corals such as *Euphyllia, Duncanopsammia, Acanthastrea* and *Blastomussa* have large, fleshy polyps that capture food well. They tolerate higher nutrients and often look their best with regular target feeding.

• Soft corals and zoanthids are generally the most forgiving. Leathers, mushrooms and many zoanthids thrive in water that would trouble an *Acropora*, which is one reason they suit beginners.

• Non-photosynthetic corals such as sun corals (*Tubastraea*) and *Dendronephthya* have no zooxanthellae at all. They depend entirely on feeding, so they need heavy, frequent food input and tanks that can handle the nutrients it brings. In a mixed reef, you can't give every coral its ideal. The practical answer is to aim for the middle of the range, keep it stable, and use placement to fine-tune: SPS corals high in strong flow and light, LPS corals lower down where they're easier to feed. Watch your most sensitive corals closely, as they'll usually be the first to show that something is off.

Testing accurately

You can't manage what you can't measure, and the ranges above are low. Many basic hobby kits simply aren't sensitive enough to distinguish between 0.00 and 0.03 ppm phosphate, which is exactly where the trouble starts. A kit that reads "zero" may mean genuinely zero, or simply below what that kit can detect.

For phosphate, a low-range or ultra-low-range kit or digital photometer is worth the investment. Watch the units carefully. Hanna's

popular HI736 ultra-low-range checker, for example, measures phosphorus (P) in parts per billion, not phosphate (PO4) in ppm. To convert, multiply the reading by 3.066 and divide by 1,000: a reading of 20 ppb phosphorus equals roughly 0.06 ppm phosphate. Mixing the two up is one of the most common sources of confusion on the forums.

For nitrate, choose a kit with good resolution at the low end. Automated testers that measure nitrate and phosphate several times a day are increasingly common, and they reveal daily swings that a weekly test would miss.

Whatever you use, test at the same time of day, follow the instructions exactly and replace reagents before they expire. If a result looks surprising, retest before acting. Sending a sample for ICP analysis can be a useful cross-check, but nitrate and phosphate are best tracked at home with regular, consistent testing.

How to raise nutrients safely

If your tank is running too clean, there are three main approaches to tackle the issue. Most reefers use a combination.

1. Reduce export. Often the simplest fix is to stop removing so much. Remove or reduce GFO and other phosphate binders. Cut back or pause carbon dosing. Turn the skimmer down or run it wetter. Reduce lighting on a refugium, or harvest macroalgae less often. Make one change at a time and give it a week or two before judging the result.

2. Feed more. Fish food brings in nitrogen and phosphorus along with the proteins and fats corals and fish need. Increasing feeding, or adding more fish to the system over time, raises nutrients more naturally than a bottle. Frozen foods, pellets, and coral foods such as plankton and amino acids all contribute. The downside is that feeding is harder to fine-tune, and uneaten food can fuel algae.

3. Dose directly. For precise control, nitrate and phosphate can be added on their own. Commercial products are available, and some reefers make their own solutions from laboratory-grade sodium or potassium nitrate and monosodium phosphate. Dosing lets you raise one nutrient without the other, which is useful when nitrate is fine but phosphate is bottoming out, or the reverse.

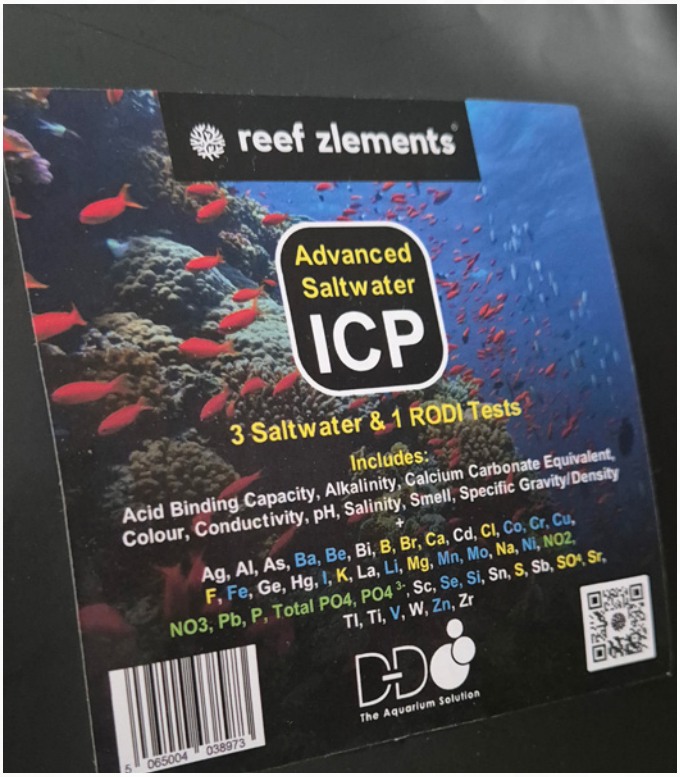
Whichever route you take, go slowly. A practical approach is to calculate the dose needed to raise nitrate by no more than 1–2 ppm per day, or phosphate by about 0.01–0.02 ppm per day, then test and adjust. Corals that have been starved can respond to a sudden rise with stress rather than growth. Once levels are where you want them, the aim is to match what the tank uses, so that daily dosing keeps them steady.

Bringing a starved tank back: a step-by-step plan

If you've recognised your own tank in this article, here's a sensible order of work. It assumes temperature, salinity, alkalinity, calcium and magnesium are already stable. If they aren't, fix those first, as nutrient changes will only add confusion.

1. Establish a baseline. Test nitrate and phosphate with sensitive kits for a week, ideally at the same time each day. Photograph a few key corals under the same lighting so you can compare later.





Before you do anything, test your water parameters starting with phosphate and nitrate. There are many ways to do this, from colour change tests and photometers, to full ICP tests. You LFS may even be able to run tests for you if you prefer. A tank starvation issue may require repeated, regular testing meaning a combined approach may be useful (start with an ICP and use this as a reference for ongoing manual tests).





If you do identify low nutrients, there are several ways to rectify this issue. Carefully increasing feeding, adding new livestock, turning down nutrient exports mechanisms (a skimmer for example) or even dosing nutrient solutions can all be considered. The key thing is to take it slow and monitor carefully!



2. Remove the brakes. Take GFO or phosphate media offline, pause carbon dosing and turn the skimmer down. Do one at a time over a week or two, so you can see which change has the biggest effect.

3. Feed a little more. Increase fish feeding gradually, and consider adding a coral food or phytoplankton. Watch for uneaten food, and for any algae starting to take hold.

4. Dose to fill the gaps. If one nutrient still won't rise into range, dose it directly, starting with a small daily amount and increasing slowly.

5. Hold steady and watch. Once you reach your targets, keep them there. Retest regularly and adjust dosing as the tank's demand changes. Corals often improve over several weeks, with colour and polyp extension returning first and growth following. Expect a short-term increase in film algae on the glass as nutrients rise. That's normal, and it usually settles as the system adjusts. Patience is the key: most problems at this stage come from pushing too hard, too quickly.

Don't swing too far

None of this means nutrients have become harmless. The old warnings were based on real problems, and high levels still cause them. Phosphate well above 0.2 ppm can slow calcification in stony corals, as it interferes with how they build their skeletons. High nitrate fuels hair algae and can contribute to imbalances of its own. And excess nutrients from overfeeding or a crashed system can feed explosive algae and cyanobacteria growth.

The point is not that dirty is the new clean. It's that the best results sit in the middle, where nutrients are present, balanced and stable. That is closer to the conditions corals evolved in than either extreme.

Five nutrient myths

"*If my test reads zero, there's no phosphate in my tank.*" Not necessarily. It may be below what your kit can detect, or being consumed as fast as it's produced. A zero reading tells you nothing is left over, not that nothing is there.

"*Zero nutrients means zero algae.*" Starving the tank often swaps one problem for another. Hair algae may disappear, but cyanobacteria and dinoflagellates are well suited to low-nutrient conditions and can take its place.

"*Dosing nutrients will cause an algae plague.*" Not when it's done gradually and in balance. Algae outbreaks usually follow large, sudden increases, or high levels of one nutrient while another is limiting. Small, steady doses rarely cause trouble in a mature tank.

"*Pale corals need less light.*" Sometimes they do, but turning the lights down on a starved coral can make things worse by reducing the energy it gets from its symbionts. Check nutrients before you change your lighting.

"*The cleaner the water, the better.*" Ultra-low nutrient systems can produce stunning results, but they demand precise control, regular testing and careful feeding. For most home reefs, moderate, stable nutrients are easier to manage and more forgiving of mistakes.

The Bottom Line

The swing from stripping nutrients to dosing them is not a fashion. It's the hobby catching up with what corals actually need. Zooxanthellae need nitrogen and phosphorus to do their job, and a tank without them may look spotless while its corals slowly starve.

If your test kits have read zero for months, your corals are pale and growth has stalled, the fix may be less filtration, not more. Test with kits accurate enough for the job, aim for measurable and balanced levels, and make every change slowly.

Your corals will tell you when you've got it right.

The initial draft of this article was created with AI assistance.



Did you know?

The peacock mantis shrimp (*Odontodactylus scyllarus*) strikes with its club at around 23 metres per second. That's so fast it creates cavitation bubbles, which collapse to deliver a second blow to its prey.

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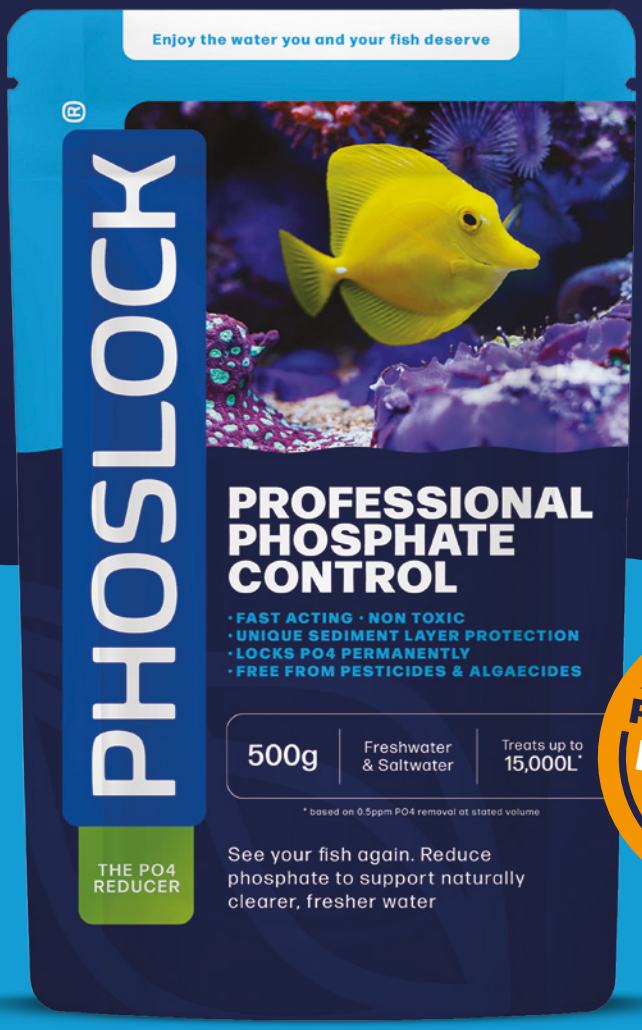

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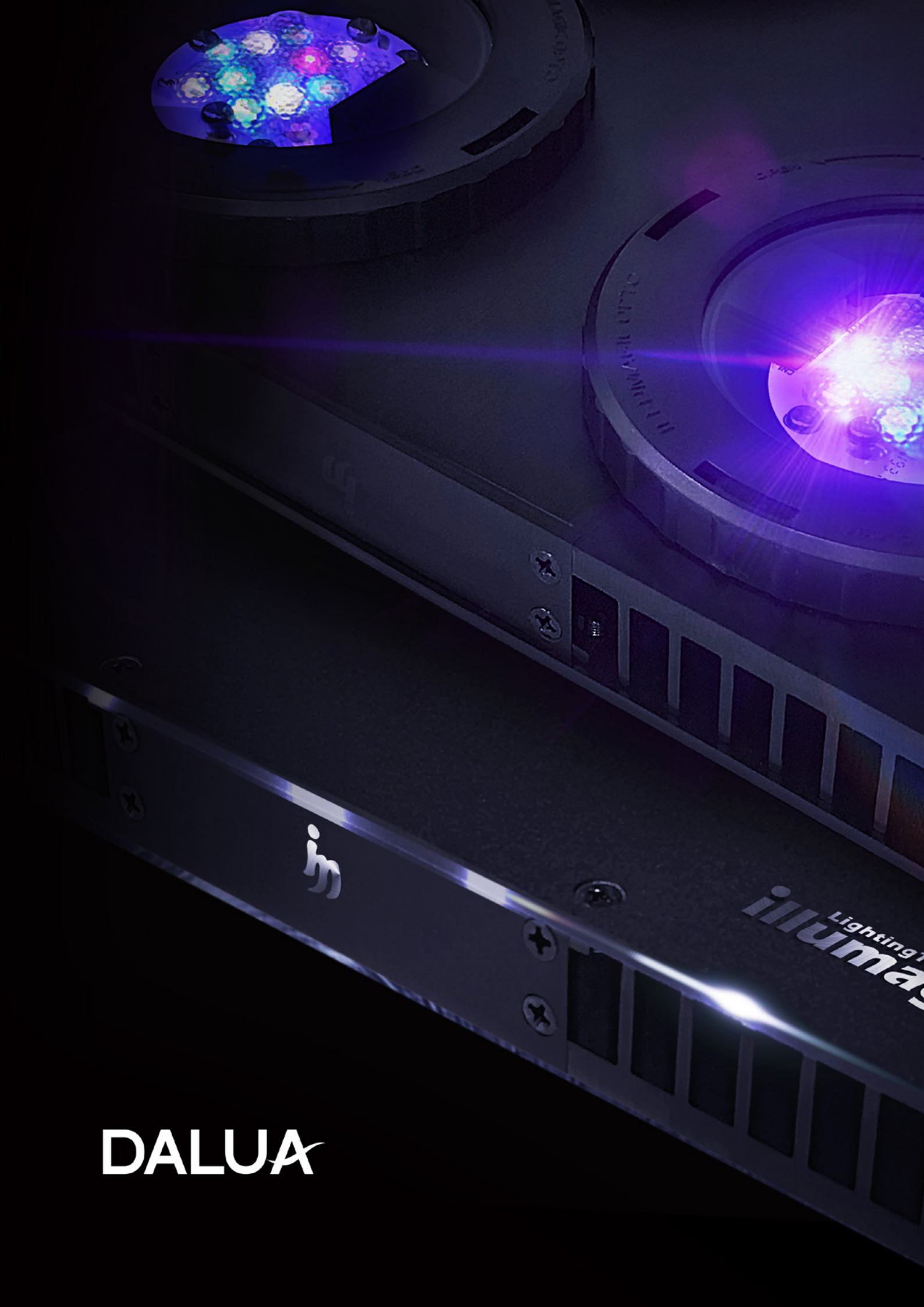

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Manta Ray Swimming in Indonesia

Credit: Anett Szaszi / Ocean Image Bank



Sapphire has been a keen aquarist for twenty years, and has never been without an aquarium since the age of eight. Starting work in the freshwater aquatics industry in 2017, she took the plunge and set up her first reef tank in 2019. Ever since, she's been a true convert and now works at Yorkshire Reefs. Taking inspiration from her background in planted aquaria, she enjoys the creativity behind designing stunning underwater ecosystems, and has been known to spend multiple days creating the perfect rockwork. She spends her days selling fish and corals, fragging, and testing water, but her evenings are spent working on her PhD in classical music.

Celebrating World Manta Day

– A Week of Collaboration in the Maldives

images and text by Sapphire Littler
(unless stated otherwise)

The theme of World Manta Day this year was 'Collaboration' - so it's particularly fitting that I'm writing this after spending a week with divers, scientists, journalists, conservationists, photographers, educators, and countless other people. But this group of around 50, who all came together to spend a week in paradise, are connected by the very thing which takes up 71% of the world's surface: the ocean.



Some of you astute readers may remember my article in December 2024 (issue 109), where I discussed how some innovative technology was beginning to play a role in reef ecology - that being, the underwater ultrasound scanners developed with the Manta Trust, Ray Rochester, a team of researchers from The University of Cambridge, IMV Imaging, and Six Senses Llamu. I had just taken the 200-mile journey down to London to celebrate World Manta Day at the National History Museum. Well, this year, on the 20th anniversary of the Maldives Manta Conservation Programme (MMCP), I took a journey that was a little longer... around 5000 miles longer! On a cloudy Northern morning, I headed out of my house towards an even cloudier Manchester to make my first flight of three, eventually arriving 22 hours later at the Four Seasons Landaa Giraavaru.

Dr. Guy Stevens, the co-founder of the Manta Trust, launched the MMCP twenty years ago before going on to form the Manta Trust, and partnered with the Four Seasons at Landaa from the off. So, for World Manta Day this year, I think the Manta Trust decided it was perhaps time for the people they had been collaborating with to meet on the very island that kick started what is now a global operation. With 29 affiliate projects worldwide and a base in the UK, the Manta Trust cover every continent except Antarctica (there aren't any mantas there).

The Four Seasons at Landaa Giraavaru is situated on a private island in the Maldives, which sits within Baa Atoll - a UNESCO World Biosphere Reserve. On the seaplane over I saw my first manta, hovering in the sea below us in Hanifaru Bay, a prime feeding spot for these giants. The surrounding ocean in Baa is teeming with life: black tip reef sharks, a pair of batfish, and chromis circled the jetty as I hopped off the boat, with the aquatic life I had seen just a small indication of what was yet to come. The island itself was fabulous, comprising of private villas, four restaurants, bars, swimming pools, a dive centre, and the Marine Discovery centre. I could talk for hours about how fabulous the resort was, but ultimately, I spent much of my week in (and under) the water.

Over the seven days I spent at Landaa, I crammed in nine dives and two mornings of snorkelling out on the reefs and manta cleaning stations in Baa Atoll. Waking up at the crack of dawn (6.30-7.00am, I'm not a morning person), I'd force some breakfast and about three coffees into me (I'm not a breakfast person either) and head to a boat waiting at the dive centre. From there, we'd head out with dive guides or Manta Trust experts, sometimes both, and get kitted up to slip into the beautifully warm tropical waters of the Indian Ocean.

On my first full day at Landaa we headed out on a research boat with the full-time Manta Trust staff on the island, as well as founder Guy and other staff at the charity and some other guests. The staff talked us through how they conduct studies and monitor sightings of megafauna (large creatures - we're talking things like mantas, sharks and turtles) when they take their boats out, and how they follow routes to check popular areas such

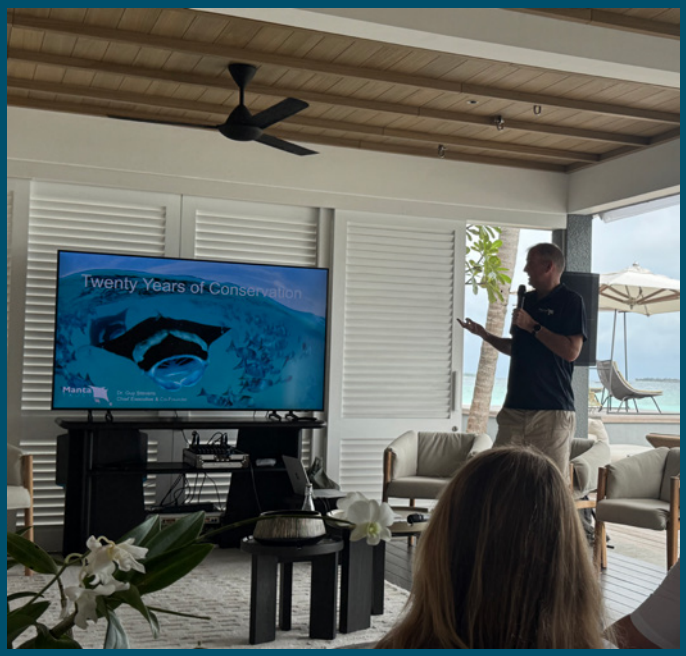


as bays where mantas feed and cleaning stations in the atoll. We got to one of these sites and there were already a couple of other boats there, as well as some people in the water. A good sign, they said. Waving their arms at the staff on another boat in a way which was vaguely reminiscent of a manta ray, we all saw the thumbs up reply that popped up instantly. Scrambling down the ladder from the upper deck to put on our gear, we quietly slipped into the water one-by-one.

I swam a couple of metres away from the boat and ducked my head under: a manta ray. I couldn't believe it. I had been in the sea in the Maldives for all of thirty seconds and I was staring at a reef manta ray feeding below me. If it wasn't for the snorkel in my mouth, it would have been wide open. The manta was a female called Myriam, and she was visibly pregnant. As she barrel rolled underneath me, I stared right at her as she fed on the copepods in the murky water, from her cephalic fins (specialised feeding fins at the front) which were curled inwards to pull more water and food in, down to her bulging belly, and her short, stubby tail. The sea was absolutely flooded with copepods, and I felt like I was swimming in a giant culture. It's the copepods rising to the surface to feed on the phytoplankton brought in with cooler water which bring the mantas in and up. I kicked my fins and floated further in the direction of the snorkelling group, and there were suddenly three mantas. Two smaller males joined Myriam, and the three of them continually barrel rolled underneath us all for the next twenty minutes, feeding on the copepods and completely unbothered by the snorkellers above them. When I got back onto the boat someone told me they had come to the Maldives for five years consecutively before they saw a manta, and I had seen one instantly. They didn't seem bitter at all.

Over the next six days, I saw mantas every day. Sometimes just a singular one passing through, and sometimes multiple feeding or hanging out at the cleaning stations. Every time I saw them was magical. I had a couple of dives at cleaning stations which brought tears to my eyes (which is actually slightly irritating when you're wearing a dive mask). On those occasions, it was just us, the mantas, reef fish, and miles and miles of silent ocean surrounding us. As we lingered at the bottom of the sea, we watched as manta rays came on to the raised area of reef and waited for fish to come and clean them, most commonly something we, as reefers, see a lot of: cleaner wrasse. The wrasse moved in to eat dead skin and parasites, and then, every time, the mantas moved over another creature - us. As we exhaled through our regulators, bubbles rose to the surface, but they didn't break when they hit the top of the water, they shattered when they hit the 4 metre creatures hanging above our heads. It turns out that if you're a manta ray, having your tummy tickled by bubbles is a really lovely experience, and they repeatedly circled back above us for this particular spa treatment.

Even on the dives where we didn't see much of the mantas of Baa Atoll, there was plenty to look at, particularly if you're fond of reef fish as a whole - or as something the other guests started calling 'Saph fish'. There were an abundance of redtooth triggerfish, which were in shoals that I would guess had over a thousand members. I saw hundreds of tangs, beautiful pairs of dart gobies, garden eels, moray eels, little sixline and secretive wrasse darting from coral to coral, mantis shrimp, wonderful pairs of butterflyfish (and a new favourite of mine, Meyer's butterflyfish). I even spotted a little watchman goby and pistol shrimp pair whilst rooting about on the sea floor one day. There were more anthias than you could





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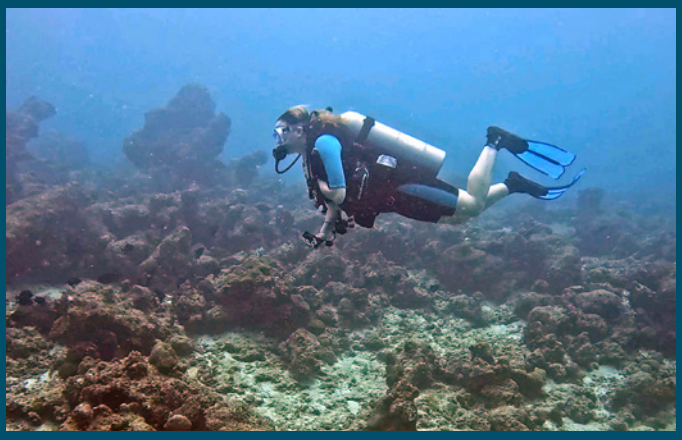
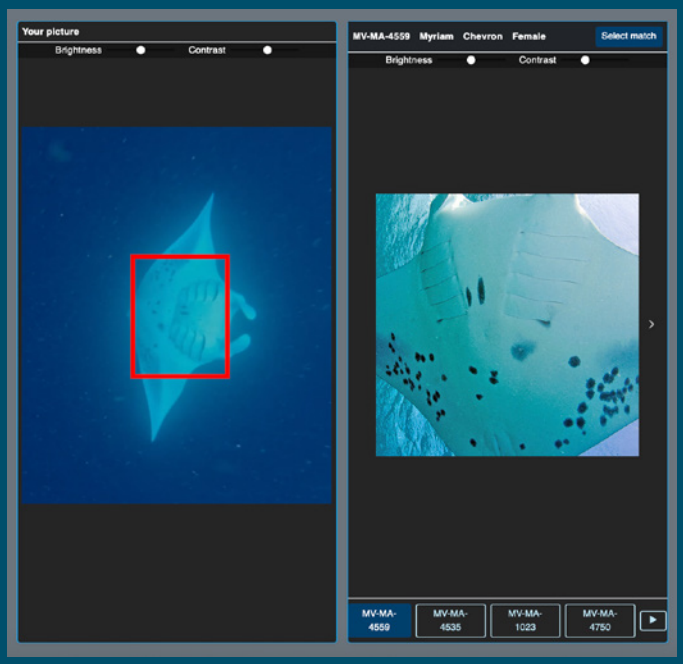
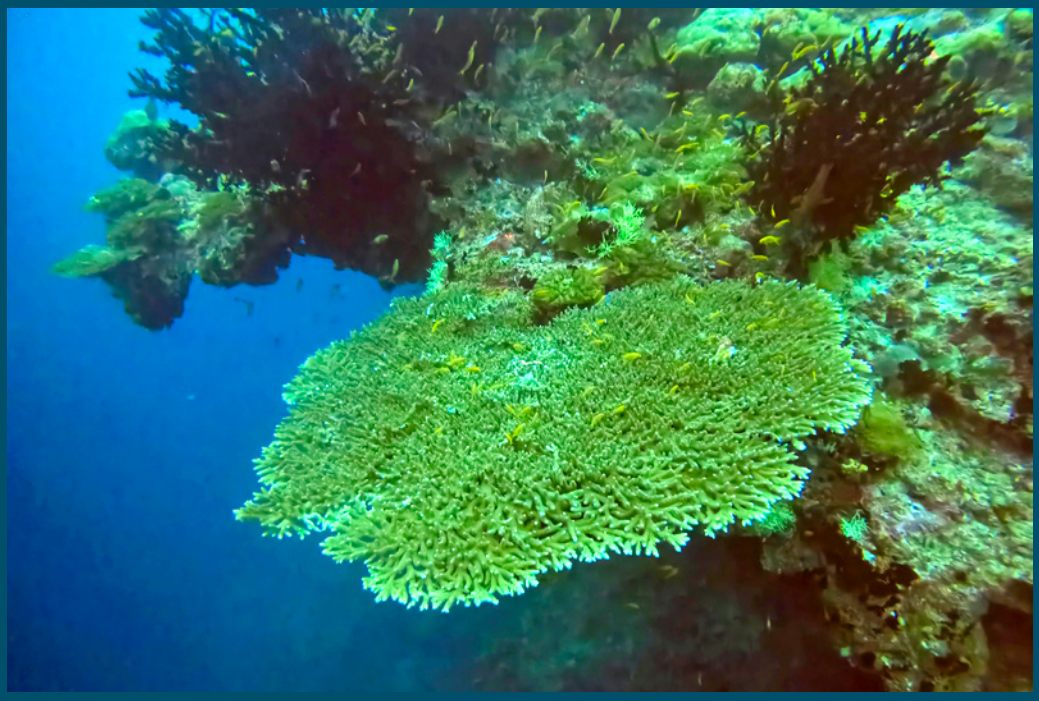




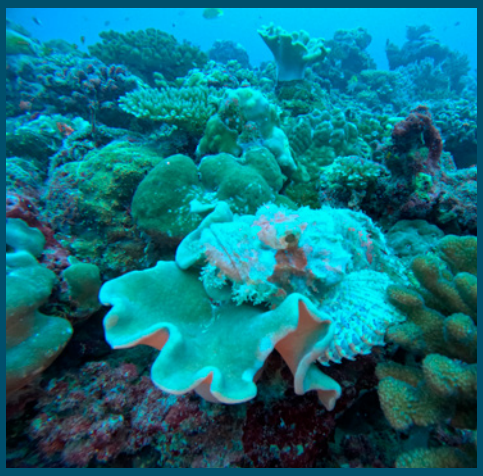
imagine, and on one particular dive there were so many that I could feel them hitting my body and getting caught in my hair as I drifted along the reef. But the megafauna was always there - if it wasn't a manta, there would still be turtles, sharks, octopus, large parrotfish, Napoleon wrasse, or eagle rays. A lot of the time, I really couldn't decide which direction to look in.

There was no way the Manta Trust would organise a week in the Maldives and not make sure there were trips out to see these magnificent giants in their natural habitat. The morning snorkels and dives simply solidified the beauty and importance of these creatures, and of reefs as a whole. Of course, the mantas are acting as a kind of spokes-species for reefs worldwide. Working to protect them involves working to protect their habitats, their food sources, the fish that clean them and their habitats - it's called the food-chain for a reason, and it's all connected. There is, you could say, a lot of collaboration in the ocean. The collaborative efforts of the Manta Trust were evident in the week's celebrations. Most days there was some form of educational talk or activity to introduce us to various members, patrons, and collaborators of the charity. We took a visit one afternoon to a local island, Khendoo, where the Four Seasons had funded the building of a kindergarten, and Manta Trust employees from Landaa had been involved with educating the children about the sea which surrounded them. The residents of the island were clearly delighted to have us visit, with children dressed up in their best outfits, and us plied with fresh coconut water and delightful Maldivian food. But what was clearly evident was how important manta rays were to the community, with classrooms decorated with fantastic underwater scenes and a lovely sculpture and artworks presented to the Manta Trust.

We heard from more people over the course of the week, with some speaking about how manta rays have helped them. With each manta ray worth $2.6 million over its lifetime in tourism value, manta ray tourism accounts for 2.6%









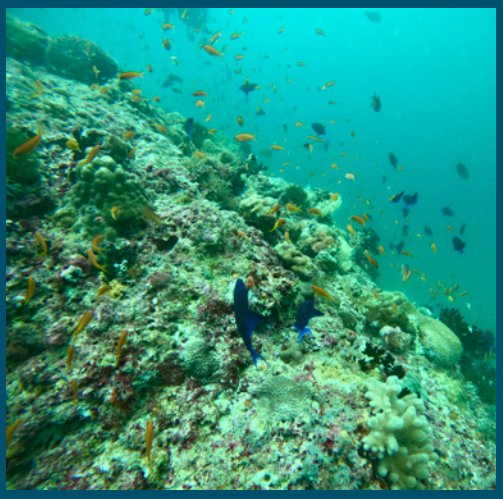
of Maldivian GDP. One of my favourite talks of the week came from a patron of the Manta Trust, Zoona Naseem. Zoona was one of the first female Maldivians to qualify as a PADI SCUBA Instructor in 1996 and went on to become the Maldives first woman to obtain the rank of PADI Course Director. After working at a resort in the Maldives as a dive instructor, she eventually took her savings and opened her own dive shop called Moodhu Bulhaa. Starting with enough equipment to take four people diving, she has now been able to expand enough to have up to 40 guests SCUBA diving at any one time. She spoke with poise about how manta tourism and resorts have allowed her to not only follow her dreams of working in diving and conservation, but also how she has been able to become a successful businesswoman in a country where only 41% of women work.

There was talk of other success stories where it comes to mantas, particularly of the new Manta Base website, where users can submit photos taken of the underside of Manta Rays, and a specially trained AI will examine the spot pattern and identify which individual you saw (in case you were wondering how I knew it was Myriam I saw earlier). This website makes it easy for anyone to submit surveys, and researchers can keep track of movements, pregnancies, and more.

The optimistic chatter also included the success of the Manta Trust at the CoP20 conference last November, where all nations unanimously voted to uplist all manta and devil ray species to Appendix I - making the fishing and commercial trade of mantas completely prohibited worldwide. Despite this, over a quarter of a million rays are killed every year, and over 80%

of these deaths happen due to the practises of smaller fishing boats. Most elasmobranchs (creatures that are made up of cartilage rather than bone, like sharks and rays) need to keep swimming to stay alive, as it is this motion which helps water pass through their gills. If they're caught in a net, they lose the ability to do this and will slowly suffocate, either dying in the net or being thrown back in, but too often weak to recover. There's still plenty of work to be done to attempt to change fishing practices worldwide, with sharks also killed in the *millions* worldwide through bycatch. The Manta Trust have successfully reduced targeted catch of mantas through the uplisting of ray species, so bycatch and entanglement of rays is next on the agenda. A complex issue, the charity has been working directly with fishermen and their families in the Maldives and beyond to find solutions collaboratively.

My week of collaboration taught me more than I expected - I've learned what an array of people from different walks of life it takes to ensure manta and devil rays, and the extraordinary environments they inhabit, have a future. They have continually shared their knowledge, their experiences, and their passion to build connections which will give these fantastical animals their best hope at still being here for generations to come. From Roger Munns talking about his work as one of the principal cameramen on *Blue Planet II*; the teachers at Khendoo Island; the work of Guy and his teams worldwide; and Zoona at her dive shop; they have each been playing their part to protect a group of animals which cannot speak for themselves. But still, twenty metres beneath the surface, in a world I should not be able to inhabit, I found myself staring into the eyes of these remarkable creatures. We may not share a language, but there were moments where I felt that perhaps they know that we mean well, and maybe there is some hope, after all.







All nine species of mobulid ray are currently threatened with extinction. If you'd like to help the Manta Trust, you can! You can adopt a manta ray, fund a project, donate, buy a T-Shirt, fundraise, join an expedition, or browse their affiliate projects to make sure there's a Manta Trust program on your next holiday. One of the largest problems right now is that most grants won't fund salaries, and we want to keep the Manta Trust staff out on the scene conducting research *every day*.

Head to **mantatrust.org** to read more.

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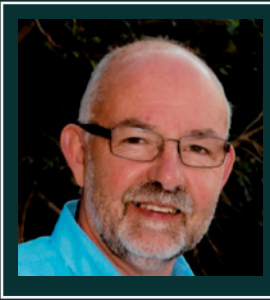
Something to chew on!

When you go into your local fish shop (LFS) and survey the stock tanks with different species of fish, what is it that attracts your attention? It's certainly likely to be the range of vivid and attractive colours and patterning. Or it could be the body shape which appeals? Many species of reef fish are laterally compressed which provides an appearance we find attractive. Being such a common feature amongst reef fish, it must confer an evolutionary advantage by allowing these species to be more manoeuvrable, able to slip between coral branches and too wide for a predator to easily swallow!

by Campbell Robertson



Campbell started keeping both native and tropical marines in 1970 and became editor of the British Marine Aquarist's Association's journal Marinews for several years. Having left the hobby at this point he followed a career as a Physics and Science teacher till retiring in 2012. He continued to be active in education writing various publications and teaching material for Physics courses taught in Scottish schools. Having now returned to the hobby he has enjoyed catching up with the changes and advances which have taken place during his absence from the hobby. Read more at: **ultramarinemagazine.co.uk/contributors/**





If a fish has spots or marks on its body or ragged fins its one to leave with the shop.

Having narrowed down the species that you find attractive, you might start paying attention to other aspects. Is it swimming confidently, is its body free of any damage or abrasions, free of any dubious spots and are its fins clear and undamaged?

One feature on a fish which you will probably pay scant attention to, is its mouth. Yes, that's right, its mouth! Reef fish have evolved to make use of a plethora of environmental niches and their mouths have adapted to facilitate a range of different food supplies. By considering a fishes' mouthparts, we can glean a lot of information about its feeding habits and suitability for our own aquaria. Giving some consideration to how reef fish have adapted their mouths to suit their chosen diet can be more than just informative... it can be a matter of life or death.

Firstly, it's worth considering the position of its mouth. Not surprisingly, the majority of reef fish have their mouth at the tip of their head which we could call a terminal mouth. Wrasse, damselfish, angelfish, butterflies, anthias, clownfish and others, all share this feature.

It is common to a great many omnivores which consume plankton and other food morsels suspended in the water. These are the species which you will see dashing around the aquarium at feeding time as they pick off items such as frozen mysis or dry foods like pellet and flake foods. The position of their mouths also makes it easy for some species, such as angelfishes and wrasses, to pick up food which has fallen to the aquarium floor. Others, like damselfishes and clownfishes, will invariably only take food floating in the water.



Some species happily eat food from the aquarium floor with mouths gently angled downwards, such as surgeonfishes and rabbitfishes. This allows for the efficient grazing from surfaces without having to unduly tilt their body so forward momentum can be maintained.

Finally, we come to fish with upwards pointing mouths. These are few and far between on a coral reef compared to freshwater fish which live in rivers and lakes where food can often be found on the water surface. This is not the case for fish on a coral reef. Indeed, the only common reef fish I can think of with an upward slanting mouth are pipefishes and Banggai cardinalfish, though in the latter case it's probably an adaption to its mouthbrooding practise as they don't feed from the water surface.

It must be said that there are a great many species which have a mouth position which is not truly in any of the categories above—it just depends upon what their food source is and how they have adapted to make best use of it.

Before we move on to look at some of the specialist adaptions to diet, it's worth mentioning the variety of dentition found in reef fish where adaptions have developed to suit the fish's diet. These specialisms range from a complete absence of teeth, the fusing together of teeth or the formation of teeth into sharp points or comb like bristles. Some species even have teeth like structures attached to their gill arches, called pharyngeal teeth (these are used to crush or grind food once it has entered the mouth). Clownfish possess these, and by grinding them together they can even produce sound! If you have a pair of courting clownfish in your tank the sound is quite loud and is easily heard, even a few feet from their tank!

Natural selection has ensured that the mouths of all animals have adapted to maximise their ability to obtain food. So, let's take a look at some of the common species that could be encountered in your LFS and how this can provide pointers to their care in the reef aquarium.

The planktivores

As mentioned above, many species of reef fish take their food from the water column, some exclusively so. Many popular reef fish are top contenders for this feeding approach and are known as planktivores. *Anthias* species are one of the best known and in the wild they form shoals around rocky outcrops and slopes waiting to pick off passing zooplankton.

Other plankton feeders include cardinalfishes like the Banggai cardinal (*Pterapogon kauderni*) and the pyjama cardinal (*Sphaeramia nematoptera*), dartfishes (*Nemateleotris* species) and many of the ever-popular species of damselfishes. You'll often find they face into any prevailing current so they can see food as it approaches. Providing smaller feeds as many times a day as possible replicates their normal feeding pattern and gives the best chance of maintaining them in good health.

Amongst the commonest fish to be found in a reef aquarium are those belonging to the wrasse family (Labridae). With a few exceptions, they are generally happy to eat food



Banded pipefish (*Dunckerocampus dactyliophorus*)



Orangespot surgeonfish (*Acanthurus olivaceus*)



A beautiful shoal of wild Anthias (*Pseudanthias squamipinnis*)



Banggai cardinal (*Pterapogon kauderni*)

wherever they find it, be it mid water or from the aquarium floor. In this respect they are ideal for cleaning up left-over food which other mid-water swimmers have missed.

The rock crevice pickers

One of the most striking of reef fish are the butterflyfishes with long, forceps like mouth-parts such as the copperband butterflyfish (*Chelmon rostratus*) and long-nosed butterflyfishes (*Forcipiger longirostris* & *Forcipiger flavssimus*). This makes them ideally suited to picking small crustaceans and worms from deep within rock crevices. In this way, they can utilise a food source unavailable to other fish. They will happily eat suspended food in an aquarium, but an opened, raw mussel makes for a tasty treat (just be careful it doesn't impact on water quality). Other species such as the birdmouth wrasse (*Gomphosus caeruleus*) and long-nosed hawkfish (*Oxycirrhites typus*) share similar extended mouths, but are much more predatory in their diet.

Most other species of butterfly have small cone shaped mouths which make ideal tools for nipping off individual polyps from SPS corals. One exception to this rule is the pyramid butterflyfish (*Hemitaurichthys polylepis*). In the wild, it specialises in catching small crustaceans and drifting plankton from the water column (making it reef safe), aided by its comb-like gill rakers which help filter out its food.

The small morsel, slow feeders

Pipefishes and seahorses can be considered as specialist feeders. They are so slow moving that their food must also be slow moving. Coupled with the fact that they have no teeth (they suck their food in) and no true stomach to store food, they require frequent small feedings. Even water flow that is too strong will stop them from feeding.



Firefish (*Nemateleotris magnifica*)

A group of fishes which has to be included in this category are the dragonettes including mandarins. The psychedelic patters of species like the green mandarin (*Synchiropus splendidus*) or spotted mandarin (*Synchiropus picturatus*) are immediate attention grabbers. They could be included in other categories such as bottom feeders or rock pickers as they will spend their time hunting on the sand or over rocks.

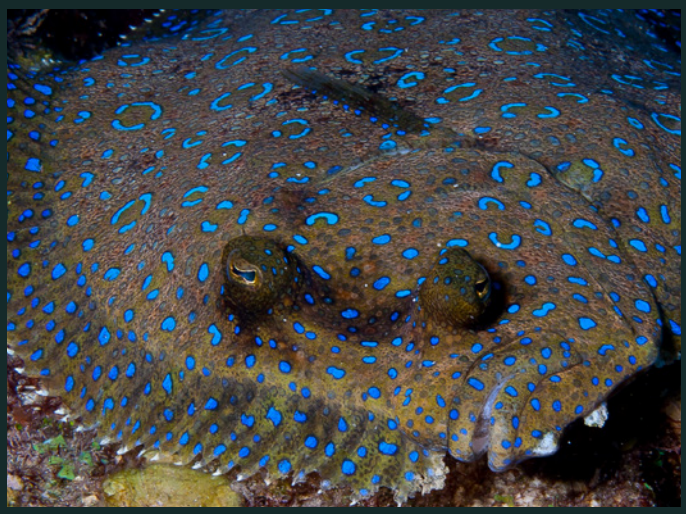


Longnose butterfly (*Forcipiger flavssimus*)





Green mandarin (*Synchiropus splendidus*)



Peacock flounder (*Bothus lunatus*)

They lack a swim bladder so cannot adjust their buoyancy like other fish and invariably rest on solid surfaces so as not to use up valuable energy. Having small mouths, their ideal food is live copepods and small amphipods, but they cannot compete against faster moving fishes. If they can be tempted into eating frozen food, they still need frequent feeds as they also have tiny stomachs. Again, they are best suited to a mature, specialist tanks which can support their food sources for the long term (note: some captive-bred specimens are now known to eat small pellet foods, but again this must be delivered effectively for them to be able to eat enough).

Bottom feeders

There are some other true bottom feeders which might catch the reefers eye. Again, they usually lack swim bladders so active swimming uses energy and so they have evolved to make use of food sources available on the sea, or aquarium, floor. Flatfish and flounders have taken this evolution to the extreme and some species are found on coral reefs such as the peacock flounder (*Bothus lunatus*) but I have never seen one for sale in a LFS.

Very common though, are all manner of gobies and blennies. These often have quite wide mouths giving them a rather comical "grumpy" look when viewed head on. One of my own favourites is the lawnmower or algae eating blenny (*Salarias fasciatus*) which will often rest in the most unusual of places. Don't expect them to keep your front glass clean, though you will often see oval shaped patches on the glass where they have scrapped off a mouthful or two of algae. The combtooth blennies of the *Ecsenius* genus are particularly good at this, with the exception of *E. midas*, which is more of a planktivore.

Sandsifting gobies are a frequent addition to reef tanks with a sand bottom. They can make a good job of keeping the sand clean though some species, especially blue cheek gobies (*Valenciennea strigata*), have a habit of swimming above your precious corals to release the sand from their gills. Very frustrating!

The archetypical bottom feeders are goatfishes, easily recognisable by the pair of barbels under their chins. These contain chemical and touch receptors that it uses to identify food that is hiding under the sand. Fascinating as it is to watch them searching through the sand with their rapidly flicking barbels there is a downside. Suitable only for huge tank over the long term, they can grow to a large size and are unable to differentiate between their normal diet of molluscs and crustaceans and your clean-up crew.

Algae eaters

A group of fish that have a largely herbivorous diet are tangs or surgeonfishes. At one time, almost every reef tank would have a yellow tang (*Zebrasoma flavescens*) amongst its complement of fish. Sadly, export restrictions from Hawaii and the high prices of tank bred specimens have made this a much rarer occurrence.

Surgeonfish have quite petite looking mouths, but they are positioned and adapted to make for the easy removal of seaweed and algae, backed up by appropriately shaped teeth. Some species are adorned with sharp pointed teeth which enable them to nip off algae growth. I had a large regal tang (*Paracanthurus hepatus*) which when viewed head on, had a prominent set of choppers! Others have more spatula shaped teeth which are ideal for scrapping algal growth from rock surfaces. Bristletooth tangs (*Ctenochaetus* species) have teeth with serrated edges with a retention pad behind. This allows them to trap algae between the two and pull it from the substrate.

The crushers and grinders

A number of species of fish enjoy a diet consisting of creatures with hard protective shells such as crustaceans (shrimps and crabs) and molluscs (snails and clams). To cope with such a tough diet, they have developed mouths with strong jaws.

Teeth are often fused together into a prominent 'beak' which is perfect for breaking open the shells of its prey. Parrotfishes will bite off whole chunks of coral using their beak like teeth then grind the coral into small pieces using their pharyngeal teeth (later pooping out particles that go on to form some of the world's finest sandy beaches). Other species with fearsome dentition are triggerfishes and pufferfishes. Their inclusion in a reef aquarium is fraught with problems though. Many species will grow very large, and any clean-up crew is fair game as far as they are concerned. There are smaller puffers such as the Valentini Puffer (*Canthigaster valentini*) which can be a low risk to corals but will still pose a risk to any shrimps etc.

The predators

Our final group to consider are the predators. These can generally grow to a large size and since they will eat their smaller tank-mates, are best suited to a dedicated aquarium. They have a wide variety of adaptions



Blue-cheek gobiy (*Valenciennea strigata*)



Yellow tang (*Zebrasoma flavescens*)



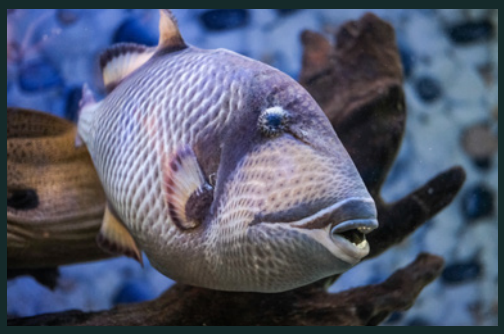
Regal tang (*Paracanthurus hepatus*)



Green Moray Eel (*Gymnothorax funebris*)



Lionfish (*Pterois volitans*)



Titan Triggerfish (*Balistoides viridescens*)



The Slingjaw wrasse possesses the amazing ability to project its mouth forwards increasing its chances of successfully capturing its prey.

to enhance their hunting capabilities and, once caught, prey can rarely escape. Moray eels have large mouths with sharp, backwards pointing teeth which firmly hold a wriggling prey (be it fish, cephalopods or crustaceans). They also have pharyngeal teeth to drag the unfortunate victim further backwards.

Perhaps best known to aquarists are the lionfishes (*Pterois sp.*). The various components of these predators' jaw are held together by flexible ligaments which allow their mouths to open wide enough to engulf surprisingly large prey. Once a lionfish has crept up to its prey, it can open its mouth so far that it creates negative pressure which literally sucks its prey into its mouth.

Although you're unlikely to ever see one for sale, there is a wrasse species called the slingjaw wrasse (*Epibulus insidiator*) which can extend its mouth forwards by several centimetres, so greatly enhancing its chances of successfully catching its prey.

When you next have the opportunity to look at the many species of fish in your dealers tanks, take a closer look at their mouths. Once you realise how they have adapted to their food source you will have a much better chance of providing the appropriate food which will ensure they have a long, healthy life.

One final thought, and I wonder if others have observed this, if I am feeding chopped scallops or similar, the pieces will be of a range of sizes. Yet the fish with the smallest mouths always seem to go after the largest pieces—even though they are too large for them to swallow!



Pure Inspiration for Marine Hobbyists



Raja Ampat, Indonesia Image Credit: YEN-YI LEE www.coralreefimagebank.org



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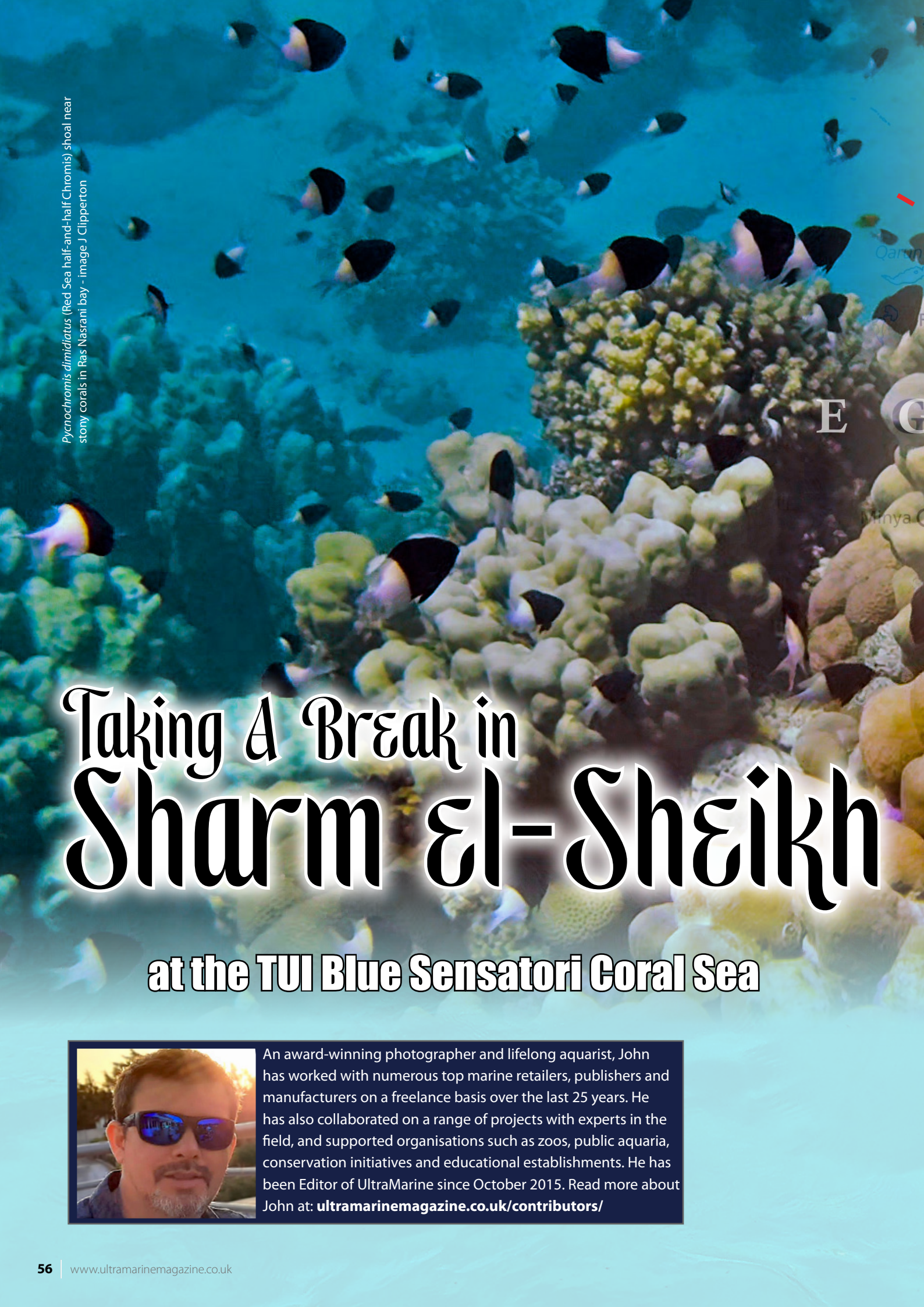


Pycnochromis dimidiatus (Red Sea half-and-half Chromis) shoal near stony corals in Ras Nasrani bay - image J Clipperton

Taking A Break in Sharm El-Sheikh

at the TUI Blue Sensatori Coral Sea

An award-winning photographer and lifelong aquarist, John has worked with numerous top marine retailers, publishers and manufacturers on a freelance basis over the last 25 years. He has also collaborated on a range of projects with experts in the field, and supported organisations such as zoos, public aquaria, conservation initiatives and educational establishments. He has been Editor of UltraMarine since October 2015. Read more about John at: **ultramarinemagazine.co.uk/contributors/**



While I'm sure there are plenty of you that may have already experienced exotic destinations around the World, for various reasons the Med is the only underwater environment I've managed so far. Given this, a trip to the Red Sea in early September had me veritably bubbling with anticipation at finally having a chance of fulfilling my ambition of seeing real *tropical* reef species in their natural environment. Partly on the recommendation of Campbell Roberston (and his similar article back in issue 107), my wife and I chose TUI's Sharm-el-Sheikh based Sensatori Coral Sea resort as our base for the week. I must admit that as well as being excited, I was a bit nervous at the prospect of finally entering this vibrant new world first-hand.



A map on the wall of the dive school shows the many dive sites on the tip of the Sinai peninsula. The Sensatori sits at the top of the main block of sites (see red circle). Some of the nearby sites are also accessible directly from the resort by speedboat.

The Red Sea and Sinai Peninsula

Before we get into the experience, a little background - and take note that Sharm el-Sheikh sits at the southern tip of the Sinai Peninsula, right where the Gulf of Suez and the Gulf of Aqaba meet the main body of the Red Sea. It's this junction of currents that makes the waters here so productive: nutrient-rich flows from both gulfs feeding one of the healthiest and most resilient reef systems on the planet (often referred to by marine biologists as "super-reefs" for their unusual tolerance to warming seas). Unlike many of the world's coral systems, which have suffered badly from repeated bleaching events, the northern Red Sea's corals appear to have an evolutionary resistance to heat stress, indeed recent surveys suggest recovery rates in the high eighties percent following worldwide bleaching in 2024. The sea itself is also unusually calm and sheltered, with gentle currents, almost no tidal range, and consistently warm water — conditions that, combined with high salinity from minimal rainfall and no significant river inflow, create close to ideal circumstances for reefs.

Of course, the marine life is the real headline act. The Red Sea is home to well over 1,000 species of fish, with a remarkably high proportion (commonly cited as somewhere between 10% and 20%) found nowhere else on Earth. More than 200 species of hard and soft coral form the backbone of the reef, decorating everything from shallow coral gardens and terraced slopes to sheer walls, pinnacles and seamounts that plunge hundreds of metres into the deep blue. Snorkellers and divers regularly encounter green and hawksbill turtles, moray eels, lionfish, scorpionfish, Napoleon wrasse, parrotfish, batfish, clouds of anthias, plus multiple species of vividly patterned butterflyfish and angelfish weaving through the coral heads. Venture a little further offshore, particularly around protected sites like Ras Mohammed National Park and the Straits of Tiran, and the cast expands to include barracuda, reef sharks, dogtooth tuna, manta and eagle rays, and — for the lucky few — even whale sharks passing through. The near-total absence of river run-off into the Red Sea also means exceptional water clarity, often stretching to visibility of 20 metres or more, which is part of why this stretch of coastline has been one of the world's premier dive and snorkel destinations for the best part of fifty years.



More than 200 species of hard and soft coral form the backbone of the reef, decorating everything from shallow coral gardens and terraced slopes to sheer walls, pinnacles and seamounts.

The Resort

The TUI Blue Sensatori Coral Sea resort is superbly positioned to make the most of all this. Set on a long stretch of sandy beach along Ras Nasrani Bay, with uninterrupted views out towards Tiran Island, the resort sits directly on a house reef — meaning the marine world is essentially on the doorstep rather than a boat trip away. Access to the water is via a roughly 50m long floating pontoon over the coral and this is flanked on either side by wide, shallow sandy lagoons that are ideal for wading, practice snorkelling, small kids, or just plain lounging around. Just four kilometres from Sharm el-Sheikh International Airport, the transfer is mercifully short too (around 30 mins by coach), so the holiday properly begins almost as soon as you land. The scale of the place matches the ambition. Spread across several buildings, the resort runs to around 470 rooms alongside five swimming pools (including an adults-only pool and dedicated children's pools), six restaurants spanning Italian, American, Asian and Middle Eastern cuisine, and somewhere in the region of ten to twelve bars. There's a proper spa for downtime, a well-equipped fitness centre, a dedicated diving centre making the most of the reef on the doorstep, and separate adult and family zones so the resort never feels like it's trying to be all things to all guests at once. True to the Sensatori concept, the emphasis throughout is on spacious layouts and premium finishes rather than a budget package feel — and that came through in the whole week. The resort thoroughly lived up to its five-star billing: the facilities were excellent throughout, the food and drink offering never felt repetitive, and the whole experience had the polish of a genuinely premium stay rather than a standard package holiday. In short, you'd have to be a pretty demanding customer to find fault here!

We were a little trepidatious about visiting Egypt given the conflict in the middle east and things we'd heard anecdotally about aggressive traders, stomach bugs and shark attacks. Thankfully, other than a slightly chaotic airport on the way home, and getting used to the currency and tipping etiquette, we felt very safe and welcome at the TUI resort.

Image by TUI







The TUI Sensatori Coral Sea is ideally placed to explore right from the resort pontoon, or by a speedboat trip to several renowned sites nearby. The Aquarius Diving Club (above lower right) is on the site and has plenty of information about the reef and what you might see under the waves (as below).





My Trip Diary

Day 1 - With a late night arrival the day before, we didn't settle until around 1am. Once up and about, we attended the TUI Welcome meeting, eventually getting to the beach late morning. Had a negative experience at this point as I immediately witnessed an English guest ripping beachrock from the shoreline and tossing slabs back into the surf (to expose brittle stars that were hiding there?). I reported him to staff near the beach who politely stopped him. After calming down, took my first foray along the pontoon and was immediately captivated. As I walked along, could see large Red Sea Racoon and Threadfin butterflyfishes cruising in the shallow, sparkling water either side. There were also small shoals of sand sifting gobies and goatfishes foraging in the soft sand, plus small, camouflaged algae blennies, sergeant major damsels, large parrotfishes, occasional Arabian picasso triggers, boxfishes, pufferfishes and needlefishes. Already somewhat giddy at what I'd seen, at the end of the pontoon, I gingerly descended a ladder and immersed my face for the first time... OMG, words can't describe the scene! In shimmering, sunlit water, corals of all kinds carpeted as far as I could see amidst huge boulders and canyons that stretched off into an azure haze. The water was almost hot! Fish of all kinds swirled around, and I immediately recognised hobby favourites like Sohal, Purple and sailfin tangs alongside less familiar parrotfishes deep near the substrate, and larger species like grunts and sweetlips hovering in a tight shoal under the pontoon. There were also a dozen large lionfish hugging a large boulder. While larger sergeant majors approached inquisitively, a huge, endangered juvenile Napoleon wrasse cruised underneath me, followed by a bluespotted ray (causing me to whoop through my snorkel tube!). Sadly, my mask leaked incessantly so I was eventually forced to retreat to consider options. In the afternoon, we picked up a cheap mask and flippers from the resort shop. Sadly, the new mask didn't help on my return later that day, and the flippers were frankly just a nuisance in that situation. Disconcerted, I spent the rest of the afternoon on a lounger. Day 2 would have to see something drastic if I wasn't to admit defeat!



The sandy beach has a strip of beachrock just at the surf line. There are lots of hermit crabs and brittlestars hiding in crevices here, plus I found a lovely large chiton. A few feet into the water, it turns sandy again. Further along the beach there's a pure sand section right into the water.



Although not a lifeguard as such, Mohamed manned the end of the pontoon most days during my visit and was always very helpful and friendly. Keeping an eye on swimmers, he also had a mask defogger spray and was happy to help me get my mask ready.





Above: An endangered juvenile *Crassilabrus undulatus* (Napoleon/Humphead wrasse) casually cruises beneath me! Other images: A shoal of Blackspot snapper loiters under the pontoon, while large Sohal tangs graze, sometimes on the ladder steps. Deeper down a huge terminal phase *Chlorurus sordidus* (Bullethead parrotfish) chomps the rockwork, and a *forsteri* hawkfish watches-on keenly.









Not a great pic but I was amazed to see this large Bluefin Trevally dart out from under the pontoon!



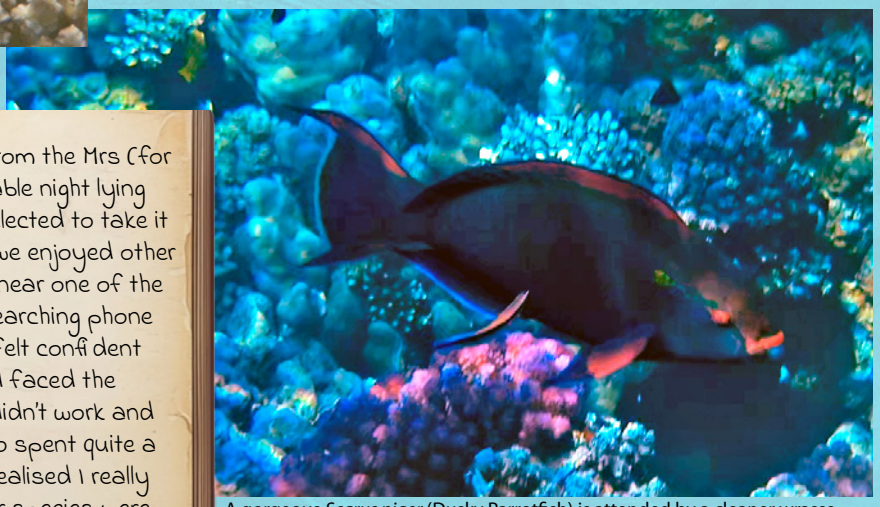
My camera kit... a Shellbox (gen 2) case for my phone, a GoPro 11 on a pole, and a Cuktech CP24 powerbank.



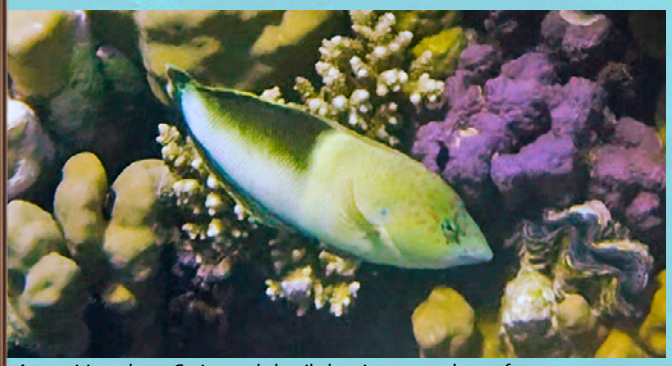
An Arabian butterfly *(Chaetodon melapterus)* cruises past a hot pink *Pocillopora* colony in the shallows.

Day 2 - After much deliberation, Day 2 saw me standing with a razor over the bathroom sink. Don't worry though, it was my moustache that was the target as I had come to the conclusion that it was the patch just under my nose that was breaking the seal on my masks (wearing contact lenses while in the mask meant this was a significant issue). A few minutes later, I had "done the deed", and we headed back to the beach. During that morning, I consigned myself to the shallows off the beach and thankfully, with the addition of a bit of beeswax, my mask issue was solved. Again, I was mesmerised by all the fish in the shallow beach section. Snorkelling adjacent to the pontoon I was briefly shocked as what turned out to be the profile of a huge Bluefin Trevally darted along the underside of the pontoon. It must have been hiding just a few metres from the beach! Now back to the pontoon and what followed was more of the same, but here I made the mistake of removing my 50 factor rash vest. After the two long snorkelling sessions that followed, you guessed it, my back was lobster red! After sorting my mask, I now encountered issues with my camera equipment. First, my Go Pro 11 stopped recognising the memory card (losing footage in the process). Switching to my Samsung S24+ in a shellbox case, I first had issues with the camera overheating. Also, it was no use attached to the extension pole I'd brought as the bolt wasn't strong enough to hold it at an angle. Furthermore, seeing the phone screen underwater was almost impossible, let alone actually operating the thing. Back to the drawing board again! On the walk back along the pontoon to the beach I spotted a greyfaced moray eel hunting in the shallows and, climbing off the pontoon to get closer, managed to get a reasonable image of it.

Day 3 - After a justified scolding from the Mrs (for getting burned), and an uncomfortable night lying on my front slathered in aloe gel, I elected to take it easy on Day 3. Rather than diving, we enjoyed other aspects of the resort from a base near one of the pools. I spent much of the day researching phone settings and got to a point where I felt confident that I could surmount the issues I'd faced the day before. Sadly, the Go Pro still didn't work and now seemed completely dead. I also spent quite a while researching fish species as I realised I really didn't know what some of the bigger species were... parrotfishes in particular. You don't see those in aquaria very often and for good reason... they grow absolutely huge! Note to self - As well as general technical challenges, my eyesight made underwater photography tricky. A prescription mask may help. Despite trying multifocal contact lenses, and then stick-on mask diopters, I had real trouble seeing and manipulating my phone screen underwater. Lots of people are wearing full face masks but from what I read, these can be dangerous? They seem to be getting on fine with them though!



A gorgeous *Scarus niger* (Dusky Parrotfish) is attended by a cleaner wrasse.



A transition phase *Coris aygula* busily hurries across the reef

Day 4 - We booked into the "IVO Beach" part of the resort, gaining access to our own personal casita along with served meals and a waiter service. Leaving my wife in the comfort and relative cool of the casita (with a steady supply of cocktails) I headed back out (yes, this time with my rash vest on, over many layers of reef safe sunscreen). Actually, I explored a little further, venturing along the beach to a second pontoon that looked to belong to a different hotel. I had no issues accessing this and it was again fabulous once in the water. I saw a pair of Addis butterflies, although they seemed timid and kept in the shadows. After 40 minutes, with wrinkly fingers, I emerged and walked along to a third jetty, but this was busy (with what seemed like mainly Russian guests splashing, diving and shouting). With the chaotic scene somewhat resembling the one in Titanic just after the ship fully slips below the waves, I decided not to enter the water here, instead walking half a mile back along to the Sensatori pontoon. As if to reward this decision, I was thrilled to immediately see one of the fish I was hoping for most... a Red Sea Regal Angel, although it was several metres below me foraging (the first angelfish I've seen in the wild!). I also saw a Naso tang which was great, plus blacktail and lined butterflies, coris wrasse and several groupers! Overall I began to notice that the pontoons saw spikes in human activity mid-morning to lunch time, and then again from around 2-4pm. I also noticed that the tide, although only around 50cm difference, seemed to affect my experience. High tide seemed better for water clarity and fish activity (although that could just be anecdotal).



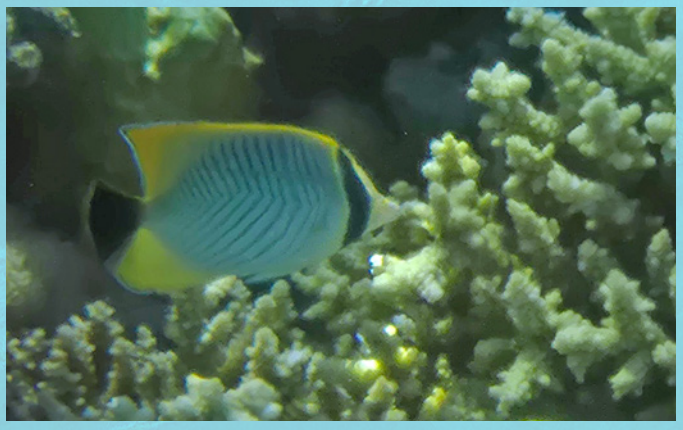
Above: We booked a casita at Ivo beach on Day 4. My wife was comfortable and well-looked after here while I explored a bit more. Below: At the second pontoon, and later at the first, I was thrilled to spot a pair of Red Sea endemic *C. semilarvatus* (Addis butterflyfish), although they kept to shaded areas. Just jaw-dropping!







Above left: The first angelfish I've seen in the wild... a Red Sea Regal! (*Pygoplites diacanthus flavescens*). Above right: A Peacock grouper (*Cephalopholis argus*) poses for me briefly. Below left: Yet another butterflyfish species, this time *C. trifascialis* (Chevron butterfly). Below right: A rare, bright yellow *Chelio inermis* (Cigar wrasse).





Day 5 - After our wonderful day at IVo Beach yesterday we were back to the standard beach experience and we spent a lovely couple of hours "pootling" around in the shallows. Even though she's not majorly interested in marines, my wife was genuinely amazed by the fish here as they seem very tame. She even spotted what we think may have been a dwarf angel right by the start of the pontoon, but I couldn't get an image of it. I spent some time snorkelling along the boundary line that stops you from going further out onto the reef flat and had a great interaction with a large broomtail wrasse that eyed me suspiciously from just a couple of feet away. I lifted a small rock and knocked it against a larger one which seemed to interest this fish as it I carefully inspected the rocks when I put them back down. I must admit that my mind started flying away on plans for a large cube tank at home with Red Sea species in it! The shallows also revealed some lizardfish, a speckled sand perch and a Pearlscale butterfly. I found the pontoon a little too busy for my liking again, but I did spend some time there and was rewarded with the sighting of a wicked-looking large barracuda lurking in the blue haze around 20m off the pontoon. Some SCUBA divers appeared out of the haze and climbed up the ladders excitedly reporting a turtle encounter! Lucky devils!!





Above: Another huge parrotfish, this time a terminal phase *Cetoscarus bicolor*. Left: One of several large Lionfishes (*Pterios volitans*) that lurked under the pontoon. Below: A "metre plus", Great Barracuda (*Sphyraena barracuda*) hovers menacingly in the distance (there are 6 Barracuda species in the Red Sea incidentally!).



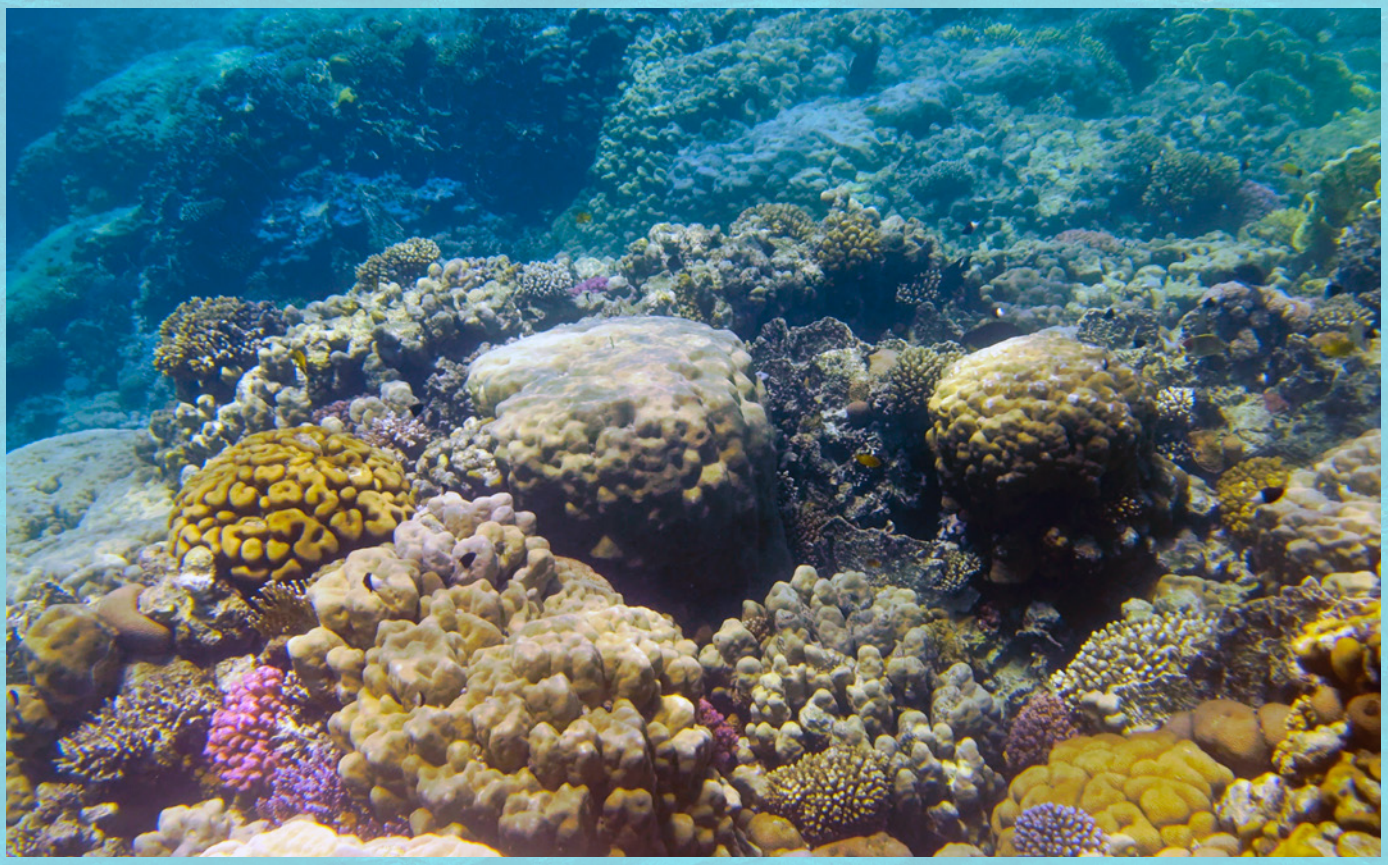


A selection of images from our glass-bottom boat/submarine trip off Hadaba. It was amazing to see some deeper reef habitats and lots more species.





Day 6 - Still sore and looking like a nuclear bomb had gone off somewhere close behind me, we'd booked a glass bottom boat trip for this day and were picked up at 0830. Leaving the resort I spotted a couple of Hoopoes on the grass verge near the main reception (if you aren't a "birder" these are rare early Summer migrants to the UK and always create a stir in the community. I'd never seen one before). The glass bottom boat trip was great although my wife was a little stressed by the possibility of claustrophobic conditions, and aggressive sellers along the trip. In reality, these fears proved largely unfounded however I think we were lucky that the boat wasn't completely full as we were free to move around from seats on one size to another as it passed different formations. The air conditioning below the water line was actually lovely and it was amazing to see deeper reef sections such as vertical walls and overhangs. I noticed many different species on this trip including teeming schools of anthias (another one on my wishlist). Having said that, the depth meant that everything looked very blue... you'd need dive lights to see the orange hues of anthias at these depths. We also saw a massive green moray eel hunting across the reef face which was probably the highlight of the trip for me. In the afternoon the bus dropped us back at the resort and after a late lunch I tried the pontoon again... sadly it was very rowdy and I didn't linger. I was a little conscious of someone jumping in and landing on me a few times while I was at this pontoon I must add.



I haven't talked about corals much so far, but the diversity on show just on the Sensatori's house reef alone was easily as impressive as the reef fish diversity I saw. What struck me most was the range of growth forms and the intense colouration of colonies that I could get close to near the surface. I don't think I've ever seen a reef tank that can hold a candle to this astounding scene. Dominant species included various Acroporids, Poritids, Faviids, Pocilloporids and Stylophorids. I also noted Milleporas (fire corals), plus some soft corals including pulsing *Xenia*. There were many colourful Tridacnid clams embedded in the reef structure too. To my eyes the house reef looked healthy, but wow... that water was surprisingly hot! (around 28-30ºC I believe).

Day 7 - Due to check out at 6pm with an 8pm transfer and long night flight home, we had another relaxing day and I got chance to focus on snorkelling again, this time getting out to the pontoon by around 0930. While I'd managed to get a bit better with my camera, it was a little windier on this day and the water around the pontoon was a bit choppy. This made zoomed shots on fishes pretty tricky! Wearing fins would probably have helped move around here but my water shoes were convenient for getting around on land and in the water, so I stuck with those. I swam right to the buoyed rope that demarks the perimeter of the snorkelling area (an area of about 100m2) and then let the current drift me back across to the pontoon. It seemed a little quieter fishwise but I did enjoy floating just above a large cornetfish that eyed me cautiously. I also saw a large scrawled filefish, yellow slingjaw wrasse, plus male and female bird wrasses and... as if to crown my experience... another of my major wishlist fishes made an appearance... an Emperor angel! Absolutely awesome, and with that I decided it was a perfect time to head back to the ladder for the last time.

Note: If you are planning on entering the water, always make sure you are using reef safe sunscreen and mask defogging/lubricant products. I think TUI could make this advice (plus other rules) more prominent on the pontoon to help safeguard their house-reef!



Above: A juvenile slingjaw wrasse (*Epibulus insidiator*).
Below: Yessss! An Emperor Angel (*Pomacanthus imperator*) albeit again quite a way below me amongst the reef.





Cheers to you! Thanks for reading about our adventure. Honestly, we can't wait to go back... and next time I'll be more prepared (although the dodgy moustache may be necessary again).



Visit the UltraMarine YouTube channel for a short video taken mostly at the resort. Digital users - just touch the image (and don't forget to watch in 4K!)



A pair of *Heniochus intermedius* (Red Sea bannerfish) on my final dive. I hear that this species has now made it to the Mediterranean via the Suez canal.

Parting Thoughts

Looking back, the week was simply amazing, start to finish. I went in with fairly high expectations after everything I'd read about the Red Sea, and even so I saw far more marine life than I anticipated — the reefs genuinely lived up to every bit of their reputation, and then some. Snorkelling straight off the house reef each day, it never stopped surprising me how much was visible in a single session: the colour, the density of fish, the sheer variety, all within easy reach of the beach. The resort facilities matched that ambition step for step. Everything from the pools to the restaurants to the general upkeep of the place felt genuinely five-star throughout, and it made for a week where I never once felt like I was compromising on comfort to be somewhere with such spectacular water on the doorstep.

That said, there are a couple of things I'd do differently next time. I stuck to snorkelling this trip, but having seen what's visible just below the surface from the jetty and house reef alone, I'd really like to add scuba diving into the mix next time — it feels like snorkelling has only shown me a fraction of what's actually down there. Alongside that, I'd want to get further out and explore the wider reef system rather than staying close to the resort; sites like Ras Mohammed National Park and the Straits of Tiran keep coming up in everything I've read since, and they sound like exactly the sort of dive sites worth building a day around. I'd also seriously consider travelling a little later in the year next time, when temperatures are more manageable — the heat during the day made some of the longer stretches out in the sun harder going than they needed to be, and I think a shoulder-season trip would let me enjoy both the water and the resort itself that bit more comfortably. Kit is something I'd also reconsider, and I think taking advantage of a premium service at the airport on the way home would be good.

All in all, a trip I'd repeat in a heartbeat — just with better equipment, a wider itinerary, and slightly cooler skies next time (oh, and I'll be keeping my rash vest on too!).

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