

# MARINEWS



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## Welcome to issue 16 of Marinews, the bulletin of York Reefers.

We've got a bumper edition of Marinews for you this month. If you're currently lazing on a tropical beach somewhere then it will provide some reading material for you. Then again, you might be worrying about the hot weather that's currently being experienced in the UK. "Not before time!" I can hear people say as we've had a pretty cool and damp summer so far this year. Remember that a big fan aimed at your tank is always the best way of cooling it down. Small, hang-on fan assemblies are great for nanos but large tanks need something more powerful. That said, a larger volume of water is likely to be more temperature stable. Coupled to a temperature controller like the DD or Reef Factory one, you don't have to worry about switching it on as the temperature rises.

Talking of larger tanks, we have a preview into the large tank that member Paul Samson is planning. This should be something special and we look forward to seeing his project once completed.

We also have a look at what the reef hobby might be like in 50 years time from Rob Cookson. He's let his imagination run wild but things might not be so far fetched as you might think. Look at how the hobby has changed over the last 5 years let alone the last 10 or 20. Rob predicted the increasing restrictions on the hobby. If you follow the Reef Dork on YouTube you may have caught some news he shared about the possible banning of importing some clam species into the USA. It was even suggested that it might be made illegal to even own a clam in some states. This could pose a problem for someone who has had a clam in their reef tank for several years and are then told that they could be prosecuted for having it. So what are they to do with it. Chop it up for fish food would seem the only solution which points out the lunacy of legislation being applied without fully thinking out the consequences.

Make no mistake, there are organisations out there who would like to see the aquarium hobby killed off totally.

## Competition Results

The competition in issue 15 produced a tie between Rob and Paul (wonder if that's why they both felt compelled to write articles!). To make it fair, Georgia, from Ocean Corals and Reptiles, decided on the winner by the toss of a coin with Rob being the lucky person. He wins a Hanna ULR Phosphate Checker plus a set of reference solutions for checking the accuracy of the unit. Well done Rob.



# My Dream Aquarium by Paul Samson

Many years ago I thought how cool it would be to own a large marine aquarium. I knew I wanted something a bit different. I knew early on it would be fish only. I just haven't got the time or patience to do a full reef tank. The group knows I have "dabbled" with corals in the past but without success. Although clearly possible the amount of time and devotion needed is beyond me. Better left to the experts.

Space and finances were the walls blocking my dream from becoming reality. However, after several years fighting for planning permission I finally fought for and won, a single storey extension to my house which is a conversion from farm house buildings. The extension work started in April 2024 and is due for completion around September 2024. It will incorporate a dining room, large open plan lounge and office/bedroom with en-suite. (Planning for the future!)

My dream is a full walk around tank with central weir, with underfloor pipework going to a quite small "fish room" where the sump etc will be located. I have planned for a 8ft x 4ft x 30 inches high aquarium. I have calculated that this will weigh approx 2.5 metric tonnes and the builders have built a special foundation pad to support this weight (See photo).

The floor is block and beam. I have located my dream aquarium between the lounge and office/bedroom. So from the bedroom/office in the mornings the first view I have will be one side of the aquarium, the other longer 8ft side will face into the open plan lounge.

I was inspired by fellow York Reefer Tom's tank and his crystal clear water. This will be a priority for me. Tom was very helpful and recommended a company called "Aquariums4life" who I have contacted. Ozone will be a priority for the crystal clear water that I am aiming for.

The aquarium will be 96" x 48" x 30" (H), all panes Opto-White glass, 19mm thick glass, machine polished edges, steel bracing, double glass base, black silicone, armoured joints and sliding glass top. The black central weir will have 4x40mm drains, 2x32mm returns and a 4 section marine sump tank (74" x 18" x 24").

I have also asked for an "Extra High Steel Framed Cabinet." One of my real "pet hates" is having to "stoop" when viewing. Us old folk understand what this does to our backs! So hopefully no more bending to view the aquarium. The cabinet height is 1000mm to the base of the aquarium. The cabinet will be sand blasted, powder coated, rubber lined, film-face ply interior base with removeable brace for installation/maintenance. It will also have adjustable feet for 100% levelling, soft close hinges, push-catch opening, film-faced ply top with supertherm polystyrene base and PUR edging to all panels. I am also investigating a frame above the aquarium to support the lights etc.

The extension builders will also be incorporating emergency floor drains both under the aquarium and in the floor of the fish room. I am still considering the benefits of going for a closed loop system or not. I do not want large bulky wavemaker parts on the outside panes and having a closed loop system may solve this problem? Alternatively I may go for multiple internal gyres and wave makers.

(Any thoughts people?)

I have been quoted 14K for all this so were going to be a few years away yet! I will write another article/update for Marinews once the extension is completed. At this stage I am only getting the structure watertight. Once finances allow I will get the underfloor heating and tile work done. Once this is completed I should be in a position to look at having my dream tank installed.

In the meantime if anyone has any thoughts on what I have missed or should be thinking about at this early stage I would be extremely grateful. Thanks Paul





# Feedback Forum



Thanks to Paul Samson, Campbell Robertson, Rob Cookson for putting their thoughts to paper with guest contributions from Sapphire Littler and Duncan Lister.

## **Q1. Have you ever had to deal with animal pests (like Aiptasia or Asterina starfish) and how did you deal with them?**

Rob replies

*"Aiptasia. So I initially tried to remove them manually, which resulted in an explosion in their population. Then I tried kalk before buying but never using Aiptasia X. Strangely after I gave up on trying to kill them, they slowly disappeared (well the majority did) overtime, I guess I was lucky."*



Paul has been quite lucky regarding pests - perhaps because he has a fish only tank.

*"I have had my tank for six years now. Never faced Aiptasia or Asterina. I do have a few bristleworms but not many and small. Not sure if they are classified as pests, they stay hidden in the sand."*

Campbell has had some issues but not causing problems.

*"I have never had Aiptasia, thankfully, as in a tank with loads of rockwork I think they would be a nightmare to eradicate. I have had experience of Aiptasia treatments however as I have used them to control the spread of some Palythoas."*



*They are a not very attractive variety and are a rather drab olive colour. I've used Aiptasia X plus a couple of other brands but they all seem to be the same thickish white liquid. Although supplied with needles etc the instructions are to get the offending animal to ingest the liquid but they invariably close up so the liquid remains sitting on top. This does seem to have an effect though and at least keeps them under some control*

*I have had, and still have, Asterina. They are the non-coral eating variety but they munch on coralline algae. Initially I speared them with a pin and took them out and then tried a harlequin shrimp. That reduced the numbers but they always came back. Several years ago I just gave up and their numbers stabilised so I don't bother now.*



*The only other problem I've had is with flatworms. These didn't seem to be bothering the corals too much but I then discovered a side effect of dosing lanthanum chloride for phosphate control. You have to use this very carefully but I've used it for 18 months with no ill effects other than clearing the flatworms."*

Sapphire provides us with a professional opinion.

*"Working in aquatics, I've seen pretty much every pest under the sun. Luckily we dip all our corals on arrival with Polyplab's Reef Primer, which is an excellent dip. An extra dip a week later will take care of any eggs that have hatched."*

*I always prefer to try and deal with pests naturally at first. I've used Harlequin Shrimp for Asterinas (although these will have to come out once the starfish are gone to stop the shrimp starving). Flatworms can be controlled really well by wrasses such as Sixline, Timor, Melanarus, and Cosmos are as well as Springer's Damsels.*

*Aiptasia are a pain, and in my opinion, are pretty much inevitable in a mature tank. It only takes one cell to turn into an aiptasia, and these can't be killed by coral dips. My preferred treatment for these is regular use of Aiptasia-X. Some fish such as Copperbands, Aiptasia Eating Filefish, and Klein's Butterflies, as well as various species of Peppermint Shrimp will eat Aiptasia, but anything that enjoys the taste of Aiptasia is likely to enjoy the taste of corals too!"*



**Q2. If you had a large, fish only tank (say 500 gallons/2300 litres) what fish would you choose to stock it with?**

Paul is going to be in the lucky position of having to stock such a tank at some time in the future so we'll hear what he has to say first.

*"For my dream tank I will be restricting the large fish to my existing Moorish Idol, Majestic Angel and Regal Tang. The only other large fish which I plan is a Regal Angel. My existing Emperor Angel will remain in my existing tank as it can be aggressive. The other fish will be:*

*blue/green Chromis,  
Anthias,  
Lemon Peel Angels,  
Edlib Angels,  
Flame Angels,  
Coral Beauties,  
Bicolour Angels,  
a long nose butterfly,  
a copperband butterfly,  
Diamond back gobies,  
Royal Gramma,  
Yellow Tangs,  
Gem Tangs,  
Purple Tangs,  
Black/Orange Storm Clowns.*

*I would love to own a Clown Trigger and Niger Trigger but they will have to go with my Emperor Angel as I do want invertebrates in my dream tank."*

*My own preference would be to have shoals of the same species such as green chromis, Anthias etc. Some of the shoaling species of tangs such as yellow tangs or purple tangs would be nice. If possible I'd also try and get sexed pairs of fish such as butterflies. It's such a common sight to see these in pairs on a reef but so rarely in a home aquarium.*



Campbell replies

*"I suppose every one dreams of a large reef tank but I think a lot of thought has to go into its design right from the start, especially if it is to be a mixed reef tank.*





Rob is also a yellow tang fan.

*"I would go with a bunch of yellow tangs (6-8) and a school of smaller fish, maybe (if I knew I could keep them alive) a school of Bartlett Anthias."*



*"For me, big fish in a big tank make the tank look small and they dominate the whole tank, which IMHO defeats the whole object. I want to see variety. A load of small fish will make the tank look even bigger and given that you hardly get yellow corals, I would go with a yellow fish, or a splash of yellow at least (as you get with the Bartlett's)."*



Last word on this question goes to Duncan who you'll remember set up the big tank in Ocean Corals and Reptiles some years ago.



*"I'd put in a Hawaiian Golden Puffer, I absolutely love them but have never had a tank where I've been able to keep one long term. Getting one would be hard though as they are obviously from Hawaii!"*

*"For the rest of the tank I'd go for a huge number of Angelfish - definitely including the Queen Angel, French Angel and Blueface Angel."*



*"If I could get my hands on a smaller Port Jackson Shark (males typically only grow to about 75cm), I'd add one of those too."*



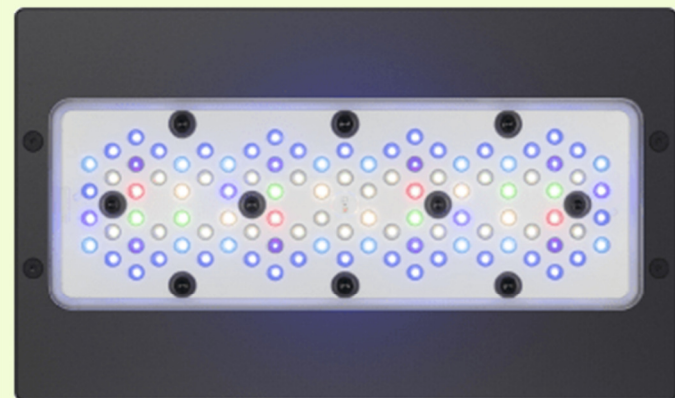
**Q3. What time period do you have your lights on for and do you prefer the blue end or less blue spectrum?**

Rob replies

*"I run my lights from 11 am until 10 pm. I have generally tended to prefer blue and UV on my smaller systems, but during the day I add in some 'white time'. I love UV in evenings as you get a massive pop of colour, however, on any big system it can be too much glare, so I tone it down a little. Plus on bigger systems the fish play another role in adding colour and get washed out with too much blue or UV."*

Sapphire says

*"I run my lights for 12 hours a day, and I've always used Radions at 100% intensity (ramped up slowly). Their AB+ schedule seems to be perfect for me - it has really intense blues at the end of the day which I love. The only change I make to it is something which Duncan calls the 'power hour'. It's an hour long period in the middle of the schedule where all the channels are on 100%. It seems to have a really good effect on colouration. The most important thing to remember if you're running really intense lighting is to stay on top of ICP's, as if various trace elements bottom out or get low (such as Fluorine or Iodine) corals can burn quite easily."*



Paul doesn't have to worry about corals.

*"Having fish only I prefer white light. My dream tank is going under a roof lantern so I guess I will be having a few problems with lighting to begin with. Currently my lights run 7am to 7pm."*

Last word to Campbell.

*"When I set up my 1200 mm tank six years ago I bought G4 Radion XR15s on the recommendation of the fish shop. Two years ago I replaced them with G6 XR15s and put the old lights in the garage. About a year ago I decided that my light levels were too low and I brought out the old G4s and now have all four Radions lighting the tank using a hanging bar arrangement rather than the brackets I used to use. It's much, much better."*

*All four lights come on at 11.30 am with a 2 hour ramp up. They then start to ramp down at 8.30 and are off at 10 pm. I don't like the lights to be too blue as I like to see the colours of the fish. I've chosen settings that are most pleasing to my eye by having blues at 100% but red, green and whites on at a level which gives a natural looking spectrum."*

*The Radions have proved themselves to be excellent lights and are very adjustable and still going strong after all these years of service."*



That's all for this month.

If you would like to ask a question of our York Reefers then please send to [marinews@btinternet.com](mailto:marinews@btinternet.com)

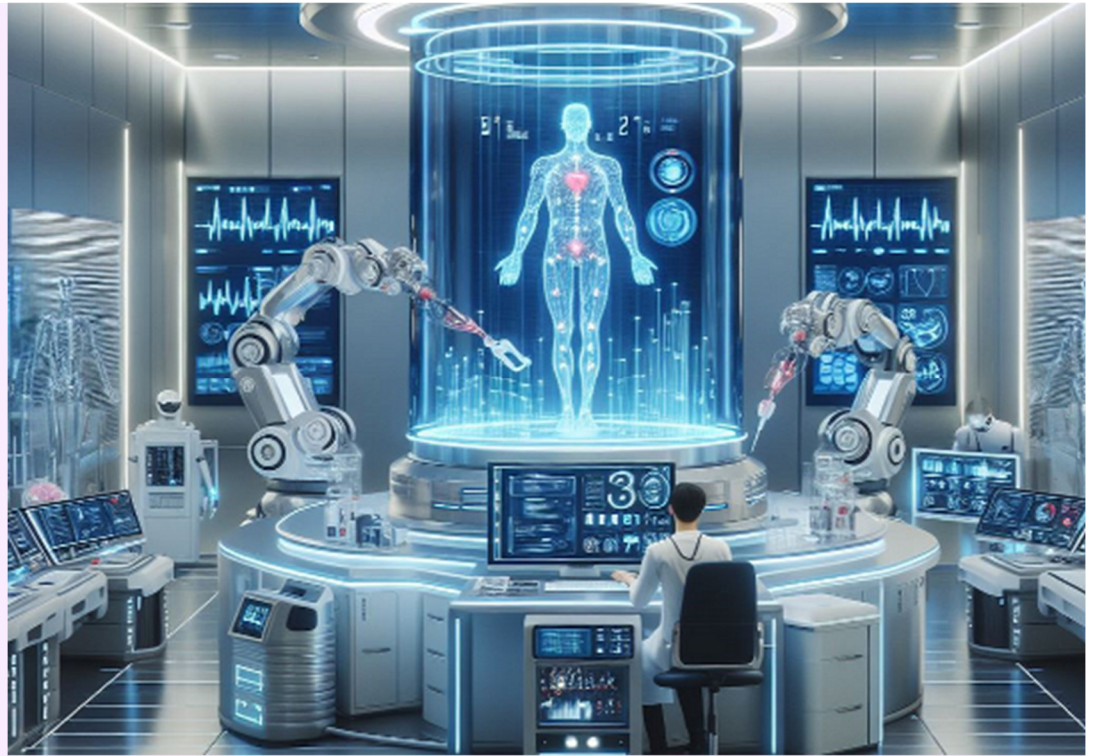
We'll send out some new questions before the next issue is published.



# 2075: Hidden Reefing - A Cautionary Tale

## By Rob Cookson

*In the year 2075, reef keeping has transformed from a quirky hobby into a crucial yet covert part of environmental preservation and survival. Thanks to political shenanigans and cultural paranoia, reef keeping morphed from a popular pastime into an underground movement, shrouded in secrecy and strangled by laws. Wild corals, battered by climate change and pollution, were now extremely rare, barely hanging on in their natural habitats. Uninformed politicians decided that the best way to save the reefs was to ban all coral movement, stifling the once thriving reef-keeping community and pushing it into the shadows. Despite these challenges, a band of die-hard enthusiasts (mainly those from North Yorkshire) refused to give up!*



Alex glanced around the dimly lit basement, double-checking that the doors were locked before approaching the hidden entrance to her refuge. Behind a false wall lay a sprawling reef aquarium, a marvel of modern technology and a labour of love. Unlike the open displays of yesteryears, this tank was concealed, its secrets known only to a trusted few. It always took her breath away when she saw it. The majesty of the corals blew her mind as the multitude of colours emanated from the tank, painting the room with vibrant hues. People still wanted to see marine tanks, but now the ones on display were all holograms.

Fish darted about happily, eager to see her, eager for food. The tank's glass was no ordinary barrier but a cutting-edge see-through display and sensor panel. This transparent screen projected vital information directly into the glass, blending seamlessly with the aquatic scenery. Water temperature, salinity, pH levels, nutrient and bacterial concentrations were all displayed in real-time, making monitoring effortless. But the technology didn't stop there.



Pattern recognition algorithms, integrated into the tank's control system, constantly analysed the behaviour and movement of the fish and coral growth. Each fish was individually tracked, their unique swimming patterns and routines logged into the system. When a fish deviated from its usual behaviour, the system flagged the anomaly and alerted Alex. She watched as one of the clownfish darted through the anemone, its movements traced by faint, glowing lines that appeared on the glass. The reef control system ran a scan and highlighted the fish in a soft green hue, indicating optimal health.

Alex asked the voice assistant to switch its attention to the corals wellbeing. Each coral was similarly tracked, its growth patterns, coloration, and polyp extension logged. The corals growth and feeding behaviour was constantly monitored detecting signs of stress or disease by analysing patterns such as growth rates, colour changes, and polyp activity. The reef control system (RCS) would

also watch out for anything out of the ordinary, and when necessary, administer corrective action.

Alex chuckled, remembering how her old reefing buddy Toby had once told her about the early days of coral keeping. Back then, they used harsh chemicals to try and remove unwanted pests from their tanks. They would also add supplements in an effort to 'feed' the corals. Little did they know, these treatments were harming the beneficial bacteria that were essential to coral health. Honestly, she couldn't imagine what they were thinking. The knowledge and technology had come so far since those early days, making the reef-keeping practices of the past seem almost primitive by comparison.

By 2075, coral preservation had reached an advanced level of sophistication. Tiny swimming machines, like underwater drones, administered bespoke doses of drugs directly to the corals, addressing specific needs and ailments. These mini submarines navigated the tank with precision, guided by an array of sensors. Gone were the days of clunky dosing pumps and endless testing machines. Now, a simple sump, an ion-cleanser, a skimmer (still going strong after all these years), and a tiny in-tank robot were all you needed. Just toss in a supplement pack now and then, and you were good to go.

Water quality was tracked through a dual system: a membrane on the tank's glass provided constant feedback on the general chemical composition, while the swimming machines' sensors collected localised data. This allowed for a two-tiered dosing approach: general treatments for the whole tank and targeted interventions where needed, ensuring each coral got what it required.

Flow dynamics were meticulously managed. Alex made small adjustments via her slightly outdated acoustic streaming devices (ASDs) hanging over the tank. These devices emitted sound waves that intersected within the tank, creating currents. The Magnetohydrodynamic propulsion units, or "Magno Drives," as they were called, drew water in huge swaths, recreating ocean surges.

In addition to maintaining ideal water flow, the system was programmed to anticipate the corals' nutritional needs. Supplements and nutrients were added based on projected growth patterns, ensuring that each coral received the precise amount of nourishment required. This predictive approach minimises waste and prevented over-supplementation, contributing to a stable and healthy tank environment.

The most recent lights on the market were the Radion XR30's Gen19, which had been released way back in 2064. Alex had managed to snag a set from 'RR's aquatic store' when they first came out (Historical note: the store was owned by Randy and Ryan – the duo had retaken control of BRS through a crowdfunded initiative back in 2029). Despite the impressive capabilities of her Radion lights, Alex couldn't help but daydream about the latest optofluidic light controllers. These advanced devices promised unparalleled precision in light distribution and intensity, tailoring the illumination to the unique needs of each coral.



Her Radions did the job, but the itch to upgrade was always there. After all, there's always room for some shiny new toys on the tank, right?

As Alex daydreamed, the reef control system flagged a slight anomaly in one of the Acropora corals. The coral's polyp extension had decreased slightly, an early sign of stress. "Let's take a closer look," Alex instructed. Within seconds, a tiny robot deployed, gliding gracefully to the Acropora. The see-through display showed a close-up feed, and the AI provided a detailed analysis. "There," Alex pointed out. The RCS responded "A slight increase in mucus production and a small area of discoloration. It appears to be a mild bacterial infection."

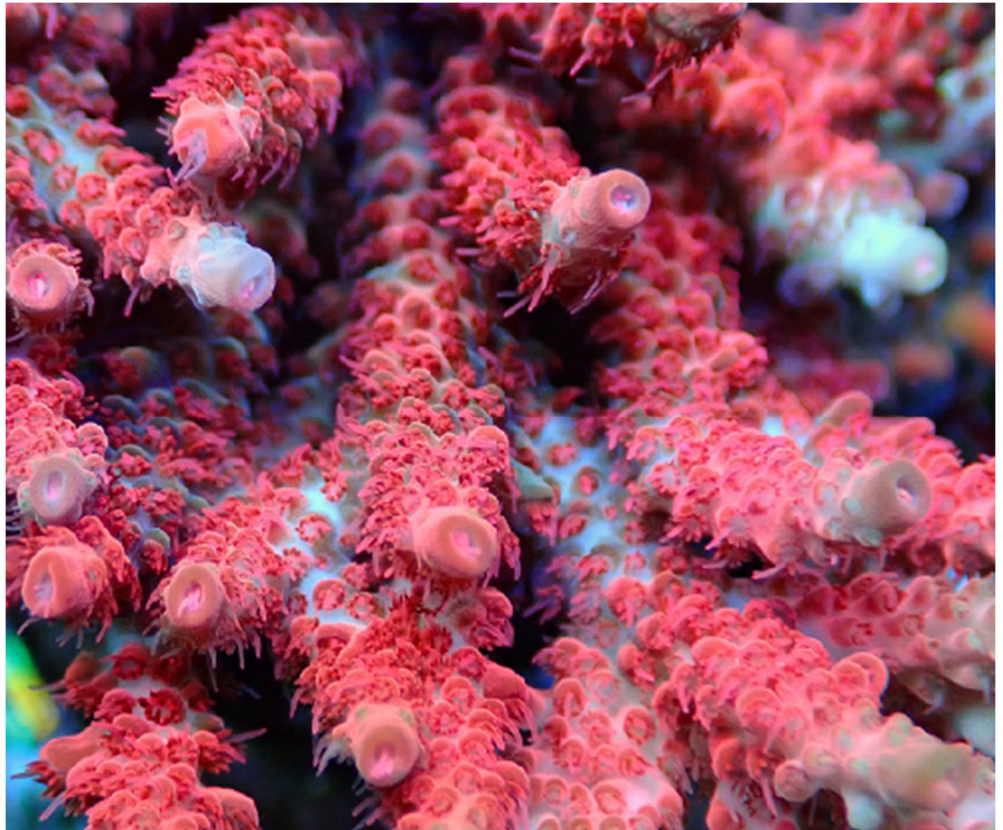
"Can you handle this?" Alex teased the RCS. The robot extended a fine nozzle and delivered a precise dose of antibiotics. As it returned to its docking station, Alex sighed. "If only there had been robots like this in the wild," she mused. But the work to repair the past and the damage done to wild coral reefs was not something that could be easily fixed. She knew that repairing the damage done to wild coral reefs would take concerted effort and time. The advancements in technology and understanding gained from her underground reef-keeping sanctuary were a small part of a larger puzzle. Conservation efforts, policy changes, and global cooperation were essential to restoring and protecting coral ecosystems worldwide.



She logged onto the encrypted forum, updating the community on the recent bacterial infection and its successful treatment. The tank's data had already been transmitted to the HUB, where it had been analysed and pondered over by various experts. Responses flooded in from fellow enthusiasts, offering support, sharing similar experiences, and discussing new strategies for maintaining healthy reefs. Luckily the system was smart enough nowadays to weed out 'unhelpful' comments – ah yes, the benefits of SmartCensorship©. The underground network was a lifeline—having reefing buddies was crucial, especially in trying times.

Not too long ago, the reef keeping community hit some serious turbulence that turned the hobby on its head. Once a booming industry backed by lively trade and shiny new tech, reef keeping, and its scientific spin-offs started tanking under a pile of restrictions and logistical nightmares—all because of some frankly terrible practices by some in the scene. CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) stepped in, clamping down hard on trading wild-caught marine species, including corals. With rules tightening, getting corals into countries like the former United States, Europe, Australia, most of Asia, and the UK became virtually impossible. This chokehold drastically cut down the variety of corals available for tanks, leaving enthusiasts high and dry.

Things got even worse with interstate and transcontinental travel restrictions. It started in the former United States and spread like wildfire to other countries. Coral vendors and hobbyists who once freely traded frags across state lines and borders for trade shows, exhibitions, and sales suddenly found themselves tangled in red tape. These rules, originally aimed at stopping the spread of invasive species and diseases, now misused accidentally throttled to death the bustling coral trade network. Before travel restrictions took hold you'd think hobbyists would've jumped at the chance to share their corals and promote widespread safe keeping, but with supply and demand massively altered and reef keeping heavily monetised, many were reluctant to spread out the corals they were hoarding. Despite the 'hobbyist's code' launched in the late '20s to encourage sharing and banking of corals, it was too late. The great electricity hack of 2031 (caused by the Bitcoin overload) wiped out much of the hoarded coral stock, which had been kept in the hands of a few.



The decline in coral availability and economic support for vendors also impacted the technological and scientific innovation that had once fuelled the hobby. Innovations such as advanced monitoring systems, AI-driven analytics for coral health, and sustainable aquaculture techniques relied on a robust market and community of researchers and developers. With fewer resources and opportunities for collaboration, progress in these areas stagnated. The reef keeping community went from riding the crest of the wave to barely treading water, bogged down by a sea of new laws.

Alex was lucky, for just in time (and by a small miracle) enough data had been collected by online monitoring solutions to allow the first generative AI to develop the necessary algorithms back in the late 30's. Thanks to hobbyists who shared data collectively and used cameras to capture actual results-based data instead of just visual observations, this progress was made possible. Without the collaboration between hobbyists and scientists, without real data, none of this would have ever happened and Alex would have become a drug developer, or worse, an accountant.

Alex sighed, reflecting on the hurdles facing coral reef keeping. The commercialisation of corals, with their branded names and steep prices, had taken the hobby far from its origins. Societal changes had also eroded trust in experts, complicating efforts to tackle climate change and biodiversity loss. "If only things had been different 50 years ago," she mused. Still, she was grateful for the good friends she had made along the way.



# Common Marine Algae and Adjusting Your Nutrients by Sapphire Littler (Courtesy of Yorkshire Reefs)

Everyone gets algae from time to time. Don't panic! When your tank isn't looking its best, it can always come back around. The trick is to have patience, and go through the process step by step.

Step 1: Check your nitrates and phosphates.

Nitrates and phosphates act a bit like a see-saw. We want them to be balanced - if one is high, and the other is low, certain algae will absolutely thrive. The first thing we need to do is check our nutrients are in range. We're looking for nitrates between 5 and 10 ppm, and phosphates between 0.06 and 0.1 ppm. Work on bringing the high one down, or the low one up if they're out of balance. If they're out of range, start working on bringing them into range (and stable) and see if you have a reduction in algae.

Step 2: Identify the algae.

## Filamentous Algae

Is it a hairy green algae? Bubble algae? Does it feel rough? It's probably one of these.

### Bubble Algae



### Bryopsis



### Hair Algae



If it's one of these, or it looks similar, the treatment is the same. Add something in to eat it - Foxfaces, bristletooth tangs, hermit crabs, urchins, and emerald crabs will all help. Make sure your tank is big enough for each species.

Bubble algae:

Foxfaces & Emerald crabs will do the best job.

Bryopsis & Hair Algae:

Bristletooth tangs, Foxfaces, Urchins & Hermit Crabs will do the best job.

Try and manually remove it - scrape it off and siphon it out.

Keep an eye on phosphates - these algae tend to lock phosphates inside of them. As they're eaten and removed, phosphates can leech back into the water column. You may need to run some phosphate remover as you're removing them (like Rowaphos).

Can't make them budge? Come and chat to us about some other options.

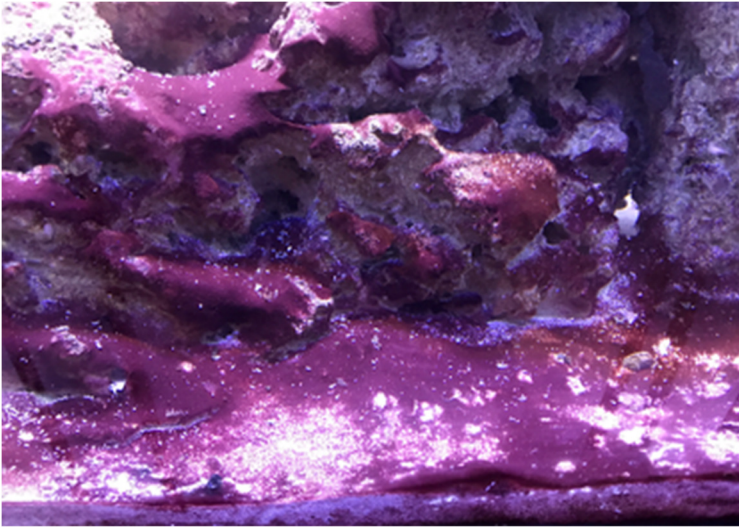


### **Slimy, red or brown algae**

Is the algae on the sand bed? Does it feel slimy to the touch? Does it go away at night (or look worse when the lights are on?) It's probably one of these.

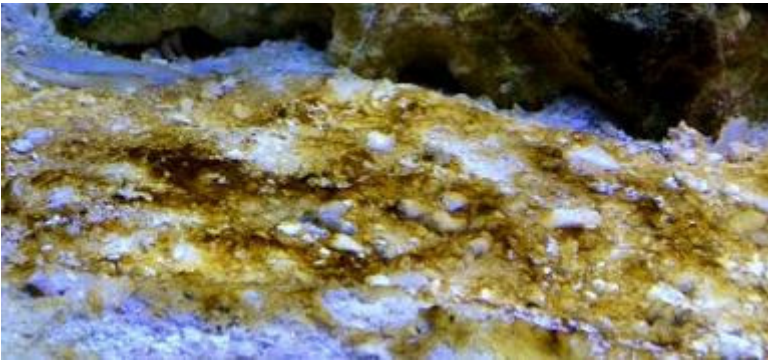
### **Cyanobacteria**

Can be red or green in colour, and will tend to lift off in sheets if you siphon it.



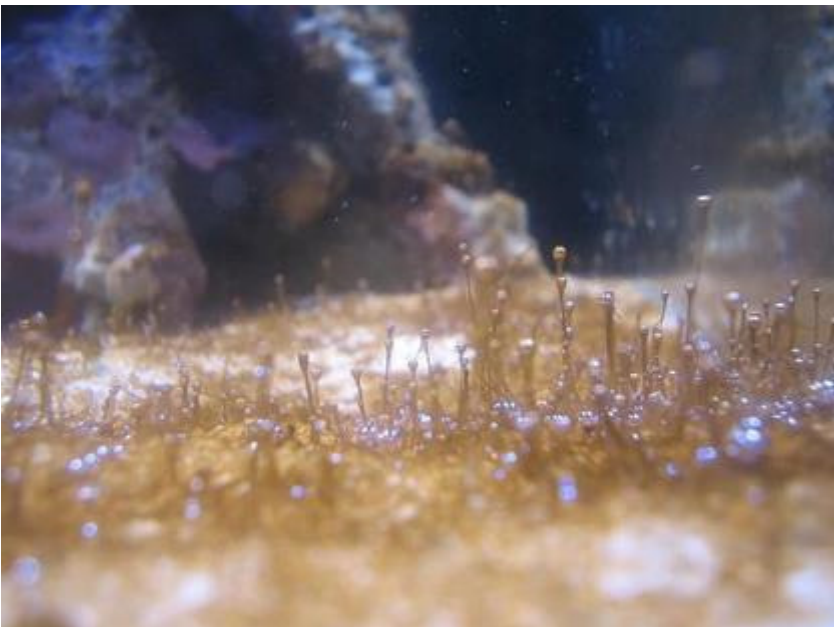
### **Diatoms**

Brown and slimy, and very common in new tanks.



### **Dinoflagellates**

Brown in colour, sometimes stringy with air bubbles. Doesn't look as bad when the lights are off.



If it's one of these, you can bring a sample of the algae into Yorkshire Reefs (bring it in a pot or jar with some tank water). These can be really hard to identify by eye, so we can look at it under the microscope and let you know what it actually is.



All three of these can be caused by an imbalance in nitrate and phosphate, so work on getting those levels right (Nitrate 5-10 ppm, Phosphate 0.06-0.1 ppm) and see if it has any effect. Try and siphon out as much as you can during your water changes.

### Extra steps

If it's cyanobacteria, you may need to treat the tank with a liquid product such as Modern Reef's Cyano Cleaner but this will only work as a long term solution if your nitrates and phosphates are in range; so get them there first!

If it's diatoms, adding in copepods as well as dosing liquid phytoplankton weekly will help a lot. If you've got a new tank, just keep your nutrients in line and it'll go away with time. It's just a part of having a young reef aquarium. If they're still kicking about, come and see us so we can work on getting them gone! If it's dinoflagellates, start adding copepods and phytoplankton weekly. Adding in a good bacteria will help such as Biodiversity by Modern Reef though there are a lot of products out there. If you've got a UV, that will help too, so turn it on!

### Adjusting Nutrients (Nitrate and Phosphate) in Reef Tanks

Keeping nitrate and phosphate balanced is an important part of saltwater aquarium keeping. Not only are these two parameters essential for coral health, but they are linked to how algae will grow in your aquarium. We've already mentioned the ideal parameters to aim for. Nitrate and phosphate behave a bit like a see-saw - we want to keep them in the right ratio - if one is low, and the other is high, the higher one will continue to rise as the bacteria which breaks them down needs both in the water column to work. Some algae thrive when your nutrients are imbalanced, so fixing them will lead to a cleaner looking tank.

If nitrate is above 20 ppm, and phosphate is above 0.12 ppm we can bring them both down using Red Sea NO<sub>3</sub>PO<sub>4</sub>. Start dosing 1ml per 100 l of tank water daily, and keep watching your nutrient levels. If this isn't working after 10 days, bring your daily dosage up to 2ml per 100 l. If nitrate drops below 10 ppm, or phosphate drops below 0.08 ppm, you'll need to stop, or lower, NO<sub>3</sub>PO<sub>4</sub> dosing, as it can feed other bacteria in your tank which will make your water cloudy, or lead to milky white slime on your glass and in your sump. If your phosphate level is above 0.2 ppm, use Rowaphos\_phosphate remover alongside the NO<sub>3</sub>PO<sub>4</sub>. Wash it first in RO water, then place in a reactor or a filter bag somewhere with good flow in your sump.

If you have **high nitrate and phosphate at or below 0.08 ppm** water changes will help bring your nitrate down. Try and do 10% at least twice per week. If your phosphate is 0.04 ppm or lower, we'll need to bring your phosphate up to help bring your nitrate down. Try manually dosing phosphate into the tank using a liquid phosphate plus. Start on a low dosage, keep checking your phosphate daily and try to keep it at 0.08ppm.

If you have **high phosphate, but nitrate which is at 15ppm or lower**, Rowaphos phosphate remover will bring it down. Wash it first in RO, then place in a reactor or a filter bag somewhere with good flow in your sump.

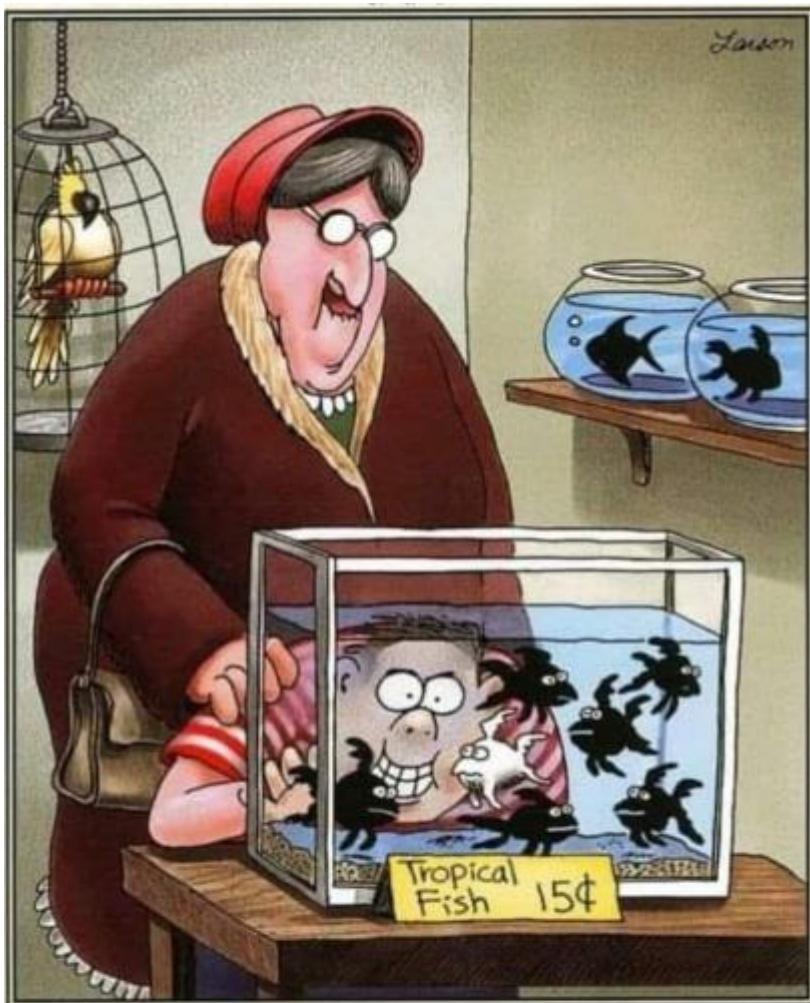
If you have **low nitrate, but phosphate which is in range** try adding some more fish to your aquarium (if you have room). Try and increase how much your fish are fed, and increase (or start) dosing Red Sea AB+ daily. If these aren't holding your nitrate as high as we need, or pushing up phosphate too much, try using Rowaphos at the same time. If this isn't working for you, consider dosing liquid nitrate into the tank. Always start on the smallest dosage, and check levels daily. Adjust the dose as necessary.

If you have **low phosphate, but nitrate which is in range** try and increase how much your fish are fed, and increase (or start) dosing Red Sea AB+ daily. If these aren't holding your phosphate as high as we need, try dosing liquid phosphate into the tank. Always start on the smallest dosage, and check levels daily. Adjust the dose as necessary.

If you have **low phosphate and low nitrate**. try adding some more fish to your aquarium (if you have room). If you get ICPs once per month, you can stop doing water changes for now. Try and increase how much your fish are fed, and increase (or start) dosing Red Sea AB+ daily. If these aren't holding your nitrate or phosphate as high as we need, try dosing liquid nutrients into the tank. Always start on the smallest dosage, and check levels daily. Adjust the dose as necessary.







“Okay, okay, little Ahab. ... Which one is it going to be?”

## WANTED—Articles for Marinews

Why not write of your experiences in Marinews. We're always delighted to publish material from aquarists out there who have a wealth of information to share. There's no need to feel your spelling or grammar isn't up to it, that can all be sorted.

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## Interested in Joining York Reefers

York Reefers is a group of friendly reefers in the York area. We have regular meet-ups, social events and offer mutual support when we encounter reefing problems! If you are interested in joining then please complete the form on the back page, photograph or scan, and return to either:

**Campbell Robertson (07825 294114) or e-mail to [marinews@btinternet.com](mailto:marinews@btinternet.com)**





# YORK REEFERS



York Reefers are a group of friendly, reef-keeping enthusiasts in the York area. We have members with all levels of experience and diverse interests. Meet ups are usually held on a Monday or Tuesday evening and include various fishy events as well as more social occasions and are held approximately every 2 months. A newsletter, Marinews, is sent out to members in between.

Name \_\_\_\_\_

e-mail \_\_\_\_\_

Phone number (mobile) to join WhatsApp \_\_\_\_\_

What type of aquarium do you keep?

Fish only

Coral only

Mixed reef

Softies

LPS

SPS

I'd like to attend York Reefers meetings and be part of the WhatsApp group



Are there any aspects of the hobby you consider yourself to be particularly experienced or expert in?

Any suggestions for future meetings?

PLEASE PHOTOGRAPH OR SCAN THIS FORM AND RETURN TO  
**Campbell Robertson (07825 294114) or Mark Taylor (07746 256869)**  
or e-mail to [marinews@btinternet.com](mailto:marinews@btinternet.com)