MARINEWS

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Welcome to issue 13 of Marinews, the bulletin of York Reefers.

One of the things which makes this hobby such an attraction is the fact that there is always something new to learn. This could be related to aquarium chemistry, how to provide the best conditions for maintaining fish and corals or simply things that you pick up from fellow reefers that you never considered before. Sometimes this can be a bit of a 'light bulb' moment.

This happened to me just a few days ago when in conversation with fellow member Josh Philips. As it happens we had both had issues with high nutrient levels. This is something which I have had problems with for years and had to battle very hard to bring my nitrate levels down to respectable levels of around 10-15 ppm. I'm embarrassed to say how high they had been before but for years now, they have hovered between the 40-60 ppm mark. Corals appeared healthy and I'd no algae issues but I did feel that things weren't quite as good as they could be.

I then committed the big scientific sin of changing three parameters at once! I started using Modern Reef dosing solutions, I started using polymer bio-pellets in a fluidiser and I added two extra G4 XR15 lights to the existing G6 XR 15s above my 1200 mm tank. This dramatically increased PAR readings in the tank.

Since the summer, my nitrates have been falling steadily to 5 ppm. I put this down to the use of the bio-pellets.

That is, until I had the conversation with Josh. He had been in contact with Modern Reef and they advised extending the photoperiod of his lights and increasing their brightness. This rather goes against the advice when people have high nutrients of reducing their light levels to discourage algae growth. But it worked! It would appear that a lot has to do with the time and light levels required by corals to complete metabolic processes which consume nitrates. Obviously this advice applies to a tank well stocked with corals and not a newly set up reef tank with only a few corals.

So the reduction in my nitrate levels might well be due to the increased lighting which did coincide with their downward path.

What this goes to show is the importance of Reefers communicating with one another!

IMPORTANT - PLEASE READ

When we first started issuing Marinews to members in December 2021, it was a good way of maintaining communication within the group alongside the WhatsApp app. Meet-ups were more intermittent, probably as a consequence of all the disruption caused by lock-downs and restrictions imposed during Covid.

There were some excellent contributions from members but the flow has rather dried up of late. Even getting responses to the members Feedback Forum has required quite a degree of arm twisting and badgering! Yet this is a really easy way for members to share their experiences and knowledge which lots of our York Reefers have in large quantities.

Putting together this bulletin is not difficult and not that time consuming but if it doesn't provide anything meaningful for members then its not worth producing.

Let me know your thoughts.

NEXT MEET-UP

We will try and arrange a date for a quiz night in the new year. My grandson has been working on an alternative to Who Wants to be a Millionaire so we may have a new format, again based on a popular TV quiz. Unfortunately he's not telling me what it is till after Christmas!

Feedback Forum

Thanks to Paul Samson, Campbell Robertson, Josh Philips, Tom Hector and Renato Avram.

Q1. What do you find is the most enjoyable aspect of reef-keeping?

Always first to contribute is member Paul, who answers as follows.

"*Undoubtedly the relaxing and stress relieving nature of simply being absorbed and mesmerised by the sheer beauty and calming nature that owning an aquarium has. (Although this is not always the case when something goes wrong, then we can easily argue that aquariums have the exact opposite effect!!)*"

Campbell mentions the advantages of being a York Reefer.

"*Having an interest in science, biology and technology means that the hobby of reefkeeping fits my needs perfectly. Having kept marines in the late 60s and 70s I*

found a whole new world had opened up when I returned to the hobby. There is so much information to absorb it makes the hobby challenging in many ways but at the same time means there is always something new to learn. Contact with fellow York Reefers has also been a huge plus in the hobby."

Tom finds he enjoys the challenge—and boy, can it be challenging at times.

"*The most enjoyable part of the hobby, I find, is the appreciation of a successful tank. Be that from other reefers when meeting and sharing experiences or myself when I take a step back and take in the accomplishments made. The success of a reeftank cannot be faked."*

Josh appreciates seeing fish and corals thrive and grow.

"*Observing the interactions between the different fish within the tank and also being able to see the new corals that you add take hold and starting to grow."*

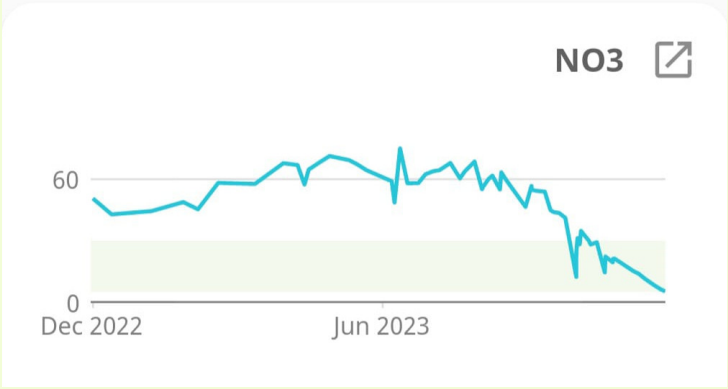
Renato shares the views of Josh.

"*The most enjoyable aspect of reef-keeping is the fact that I can have a piece of the ocean in my house. Being able to grow corals and see them happy and full of colour makes me very proud. The down side of being too successful is the fact that you never have space because some of them grow so fast. I just can't stop buying corals!"*

Q2. Have you ever done something which is against the normal advice and pulled it off - or otherwise!?
As one of our longer term reef keepers we'll let Tom answer this first.
"I attempted to house a spotted dragonet male and a psychedelic female. Unfortunately, this went as you would

expect and I saw how aggressive fish can be. I saved the fish and housed them separately shortly after introduction."

Campbell responds.
"*If you look at online forums you'll find a myriad of answers to the same question so perhaps there is lots of scope to deviate from the accepted norm. I'm a strong believer in using lots of rockwork to provide places for fish to explore and find safe places to sleep at night. It kind of goes against the grain of avoiding areas where water flow is reduced. This may have led to the other no-no of high nitrates. For years I have had nitrates in the 50 ppm plus range. Over the last six months it's come down to 5 ppm and I may well have to start dosing nitrates! The reason for the reduction (I think) is a dedicated fluidiser with polymer bio-pellets though Josh's answer made me re-think this!"* (See introduction on page 1).



Josh raised some interesting points.
"*I was previously struggling with high nutrients about a year ago, after trying carbon dosing and Rowaphos I still had no luck managing to keep them stable and near where I wanted them. After several conversations with Ali (from Modern Reef) he suggested taking all types of nutrient control offline, keep dosing as I was with coral food and feed the same but turn the lights up brighter and leave them on longer. As this is something I'd read the complete opposite of I was dubious, I know this won't work for every system but for me it worked and I now have stable nutrients"*

Renato put his hand up to making mistakes though that's something we've all done in our time in this hobby!
"I can't say I've done something that is against the normal. I would say that I've done a lot of rookie mistakes and lost a lot of corals and fish. Like putting hammer next to torches, or having a large carpet anemone in a small tank like mine.

That cost me a lot...I lost over 5 fish.
But let's be honest, we all did it at some point. In this hobby we always learn something new and maybe this is a reason why we all like it so much."

Last word on this question goes to Paul.
"My aquarium is mainly fish only (and Xenia). I do test for alkalinity most days and keep it around 8-8.5, I also test and try to keep my magnesium and calcium at normal levels. However, my nitrate and phosphate levels are both sky high (off the scale) and I no longer try to keep their levels down against normal advice. I see no adverse effect on the fish or Xenia. Indeed the Xenia seems to love the crazy high levels. I do a 10% water change every two weeks and that's it. Keeping fish simple. I seem to have pulled this off?

Q3. Which are your top fish for a community tank that won't beat the living daylights out of their tankmates?
We'll give Paul first crack at this question as he has some big show fish in his tank.
"*Top fish. I have never seen my copperband (now sadly deceased) show any aggression ever, even after 5 years. I have seen varying levels of aggression for all my other fish (angels and tangs) so I guess my "list" is very short. Just the Copperband Butterfly."*

The best fish in Josh's opinion are….
"Flasher wrasse, smaller than most other dwarf parrots, I've found they're very peaceful and very much keep to themselves".

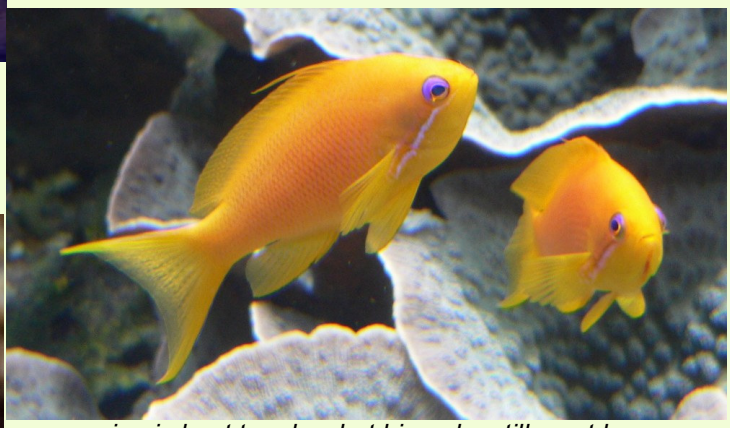
Campbell has found two species amongst those tank bullies—damselfish.
"Two of my least aggressive fish are a copperband butterfly and a large regal tang. One of the most attractive and hardy fish are damsel fish but they can be so aggressive. I have kept two species which are much less so which allows them to be kept in groups. These are Allen's damselfish and Springer damselfish. Like most reefers, I've gone down the

green chromis route which invariably ends up with two unless you have a large tank. I've also a group of 5 Banggai cardinals though two are obviously a pair and dominate the others though not excessively."

Renato has three favourites.
"*For me, the best 3 fish to have in a reef tank that won't cause you any problems are : royal gramma, bicolour*

blenny and peacock wrasse. I might be wrong, but in my tank they are very friendly and every time I add a new fish they ignore it."

Last word this month goes to Tom.
"*Although they can be known to be aggressive towards each other, my top fish for a community tank are Anthias. I believe when selected together and in reasonable numbers,*



aggression is kept to a low but hierachy still must be established for a dominant male".

Now for the questions for the next issue.

Q1. What are your experiences, good or bad, of buying fish or corals on-line?

Q2. Whats the most you'd consider spending for a fish or coral and what might tempt you to spend that amount?

Q3. What pieces of equipment have you bought but now sit in the garage unused and why?

Please send your answers by e-mail to **marinews@btinternet.com** or text/message to **07825 294114**.

Who Wants to be a Millionaire

No prizes but the chance to test your knowledge on matters reefing. How far can you get?

Answers on Page 18.

50:50

£100

WHICH FISH IS NAMED AFTER A SWEET?

A. DOMINO DAMSEL

B. ELECTRIC BLUE DAMSEL

C. HUMBUG DAMSEL

D. JEWEL DAMSEL

50:50

£200

A DISTRACTION FROM THE TRUTH IS

A. A SPOTTY SPRATT

B. A RED HERRING

C. A COLOURFUL COD

D. A STIFF SARDINE

50:50

£300

THE CORRECT SPECIFIC GRAVITY FOR A REEF TANK IS

A. 1.25

B. 1.0025

C. 1.025

D. 25

50:50

£500

IN THE DISNEY FILM, THE LITTLE MERMAID IS CALLED

A. ARIEL

B. ANGELA

C. MEGAN

D. OREO

50:50

£1000

WHICH REEF SHOP WOULD YOU FIND IN MALTON?

A. OCEAN CORALS & REPTILES

B. KRAKEN CORALS

C. YORKSHIRE REEFS

D. RADICAL AQUATICS

50:50

£2000

HOW MANY MILLILITRES IN A LITRE?

A. 100

B. 1000

C. 10 000

D. 1 000 000

50:50

£4000

WAVELENGTHS OF LIGHT BEYOND VISIBLE VIOLET ARE CALLED

A. ULTRA VIOLET

B. INFRA VIOLET

C. SUPRA VIOLET

D. MICRO VIOLET

50:50

£8000

ANIMALS IN THE PHYLUM PORIFERA ARE

A. CRABS

B. CORALS

C. SEA SLUGS

D. SPONGES

50:50

£16000

THE COMMON NAME OF CORIS GAIMARD IS

A. CLOWN WRASSE

B. CLOWN SURGEON

C. CLOWN SWEETLIPS

D. CLOWN TRIGGER

50:50

£32000

BOBBIT WORMS GET NOURISHMENT THROUGH

A. EATING ALGAE

B. EATING FISH

C. SIFTING SAND

D. PHOTOSYNTHESIS

50:50

£64000

REEF FACTORY PRODUCTS ARE BASED IN

A. AUSTRALIA

B. CZECH REPUBLIC

C. POLAND

D. GERMANY

50:50

£125000

LYMPHOCYCTIS IS COMMONLY CALLED

A. WHITESPOT

B. VELVET

C. COTTON WOOL DISEASE

D. POP EYE

50:50

£250000

WHO DISCOVERED THE GREAT BARRIER REEF?

A. JAMES COOK

B. FERDINAND MAGELLAN

C. VASCO DE GAMA

D. CHARLES DARWIN

50:50

£500000

CAULERPA IS UNUSUAL BECAUSE

A) IT IS FOUND IN ALL MAJOR OCEANS

B) IT CONSISTS OF A SINGLE CELL

C) HAS NO CELL NUCLEI

D) FRONDS CONTAIN CHLOROPLASTS

50:50

£1000000

THE ROCK BEAUTY, HOLACANTHUS TRICOLOUR, IS ONLY FOUND

A. AROUND HAWAII

B. IN THE RED SEA

C. IN THE INDIAN OCEAN

D. IN THE TROPICAL WEST ATLANTIC

Choosing a Healthy Fish by Lance Jepson

Reprinted from Marine World

Buying a new fish for your marine aquarium is, if you're like me, one of the most exciting but worrying points of the hobby. It's exciting because you are about to introduce something stunning, interesting and new to your collection. It may be a species that you have never kept before, or it may be a mate for that lonesome fish that you already have. At the same time it's always worrying because each new fish is an unknown quantity with an unknown history. What you hope will be the star of your marine aquarium can easily turn out to be a Trojan horse of parasites or bacteria that proves to be the death knell of all your ambitions.

The underlying cause for this concern is that the vast majority of marine fish are wild caught and so potentially come in with a certain baggage of naturally occurring parasites and occasionally other diseases. This is not to say that every wild caught fish is unhealthy — that's not true. A healthy wild fish has a fully functional immune system that controls the numbers of parasites in a kind of Mexican standoff. Low numbers of these parasites and may even play a beneficial role by constantly tweaking their fish host's immune system, almost like a vaccination.

Typically, opportunities for a wild caught marine fish to contract a disease occur at several key points on its journey to your aquarium. In the wild diseases, especially parasitic ones, do occur under natural conditions. At the time of capture these fish are severely stressed. This will have a knock-on effect on the fish's health by compromising its immune system. Such fish are therefore more susceptible to disease.

The collector. Fish are grouped together at the collector's for a varying length of time. Captured fish are transferred from a low numbers, high volume environment (swimming around the reef or holding individual territories there) to a high numbers low volume situation (many fish kept in aquaria). This is stressful—fish from different habitats are exposed to each other and the high stocking densities mean that conditions are ideal for infectious diseases to be transmitted.

The exporter. Here fish from different areas are brought together in preparation for export, often from widely spaced geographic areas. The fish are mixed and so potentially are their diseases.

The wholesalers. Wholesalers import from a variety of different countries and so we get a further mixing of fish that often derive from different oceans. Therefore Caribbean species may swim with those from the Red Sea and Pacific. Many of these large importers use technology to control disease such as ultraviolet light or ozone. Good wholesalers will quarantine their stock for a period of time, allowing the fish to acclimatise after their ordeal.

Retailers are the final step before you buy. Here newly stocked fish will mix with those that have been in the retailer's tanks for a while. Also it is any here where captive-bred fish such as clownfish and Banggai cardinals will be often mixed with wild caught species. thereby almost negating one of the major advantages of buying captive bred marines.

To me, choosing a fish is a three-stage process that starts with the retail shop. Shops vary in their state of general tidiness and appearance but this is generally an irrelevance. One serious indicator is the number of dead or sick fish (and invertebrates) on display or worse still, for sale. If we consider that most shops will stock hundreds, if not. thousands of individual fish and inverts, then inevitably some of these will sicken and die for a variety of different reasons. The old adage of 'if you have enough live stock, you'll get some dead stock' is certainly true. What is not acceptable is to have rotting carcasses lying on the bottom of the aquarium, or being scavenged by the other tank inhabitants. Partially skeletonised carcasses suggest that the fish has been dead for some time. Now if you can see these things, then other customers can see them too. Also the staff can see them, and to the shop's cash flow, each dead fish represents a possible three-fold loss.

- First of all they have lost money on that individual fish.
- Secondly they risk losing money when any in contact or scavenging fish come down with whatever killed the first fish.
- Thirdly they lose money because you or I, or any number of customers decide not to make a purchase based upon what we can see.

So if I walk into a shop that has a large number of such fish, the message this sends to me is that the shop staff just cannot be bothered. If that's the case then I'm a lot less inclined to part with any of my hard-earned cash. There is no reason why staff in aquatic retail outlets cannot regularly inspect each aquarium during the course of the day, and remove sick or dead stock. Humane euthanasia of irretrievably sick fish is better than allowing it to die and then be consumed by its tank mates.

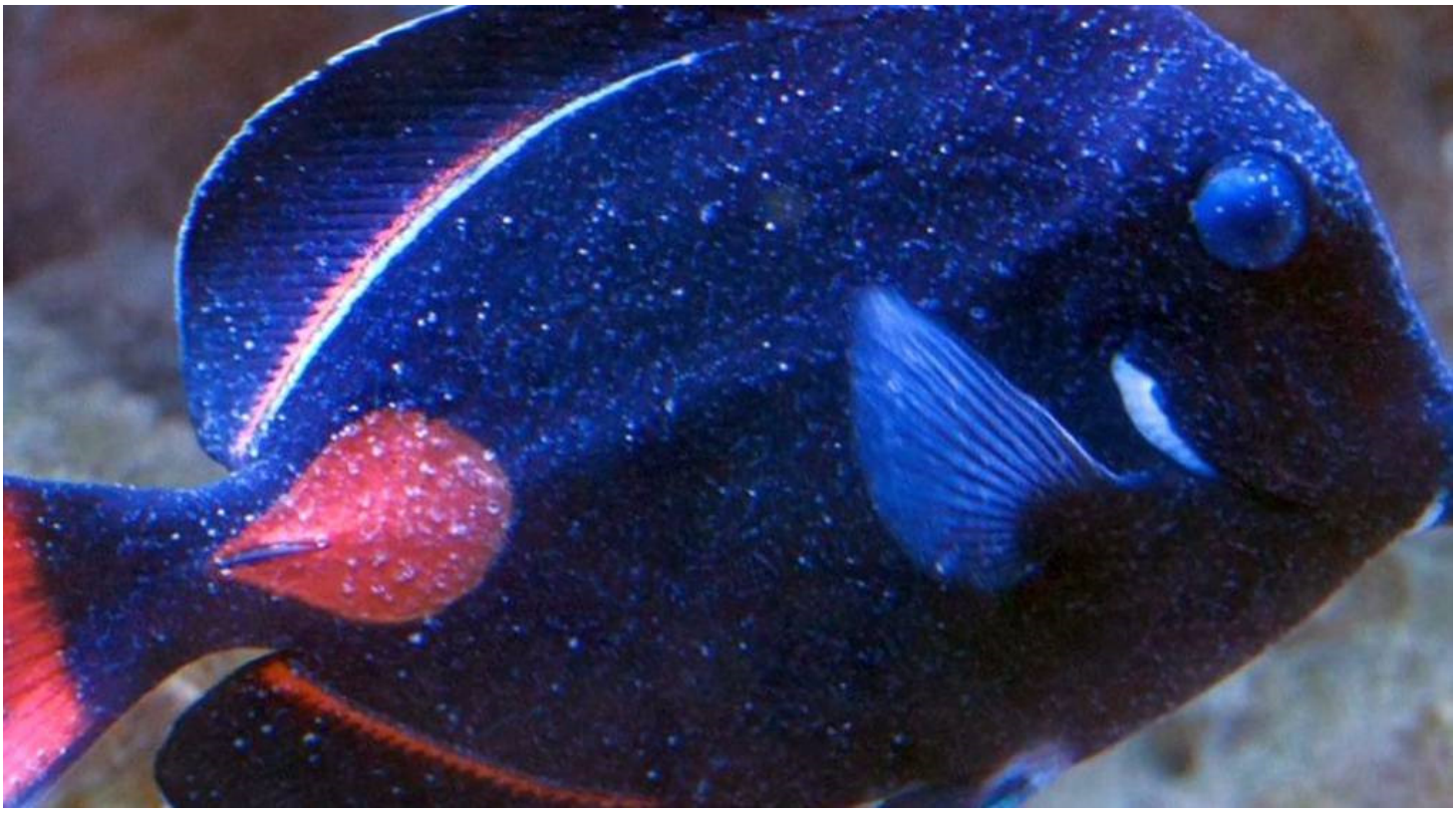
Every time you visit a shop you only get a snapshot of what it is like at that time. That's why if you are happy with a retailer, it’s better to keep going back to the same one or two shops regularly because that builds confidence. This is why word-of-mouth is often the best means of recommendation — it's recommendation built up over time.

The next stage in buying a fish pretty much boils down to a general health assessment. The pointers that we look for can be divided into the following

Behaviour. Most marine fish found in the hobby are diurnal — they are active during the day. So when you visit a marine outlet, most species of fish will be up and swimming around. Many appear completely fearless and will even show an active interest in you. Fish that you know should be actively swimming around but are skulking in the back corner are a cause for concern.

They may be genuinely sick or just intimidated by the other fish in the tank, but either way they represent a poor risk. Fish that are scratching or flicking may have an external parasitic problem. If all the fish are gasping at the surface or hanging around the filter outflow then the aquarium may be low in oxygen; if only one is doing this then its gills may be badly diseased. If a fish is having problems balancing then there may be problem with its swimbladder, or even its nervous system.

Movement. Fish move in characteristic fashions. Neon gobies hop from perch to perch or chase each other in lightening streaks; clownfish waggle and angelfish appear to cruise around the aquarium. Fish moving abnormally such as shimmying (an exaggerated on-the-spot swimming motion) or sitting motionless on the substrate, fins clamped, are likely to be ill.



Skin. The outside surfaces of the fish are the most obvious indicators of any problems with an individual fish. The skin colouring tends to be species specific and any serious deviations from this should be viewed with suspicion. Fish with ectoparasites such as skin flukes and protozoan parasites like Brooklynella and Uronema tend to be quite dull in colour as they carry a heavy mucus coat in response to the infestation. Cryptocaryon will appear as pinhead sized white spots (no surprise that it's known as ‘white spot’.) Fish with reddened areas of skin or erosions where the outer layers of skin are lost (ulcers) are likely to be suffering a bacterial or protozoal disease—or possibly both! Fish scales sit in the skin, not at the surface, so any scale loss represents a serious skin lesion. Septicaemia can show as reddened haemorrhages in the skin, around the mouth and in the fins. Make sure you have a good look around the vent (often situated between the pelvic fins) as unseen lesions may lurk here.

Eyes. Fish with eyes that are not clear should be avoided, When the cornea, the transparent part at the front of the eye, becomes inflamed it turns white or grey. Ulcers of the cornea appear as depressed circles and these can progress until the eyeball ruptures. Flukes may attach to the eye and appear as whitish ‘blobs’.

Fins. The fins easily show signs of infection or damage. The skin stretched between the rays is relatively thin and so any inflammation of it or its associated blood vessels will be very obvious. Split webbing between the rays is usually of no concern as it will heal readily, but broken, inflamed fins which have been eaten away are a concern. Avoid those fish where there is a loss of rays with ulceration around the fin base as this will be infection eating into the underlying skin and muscle. Large cauliflower-like growths on the fins and skin are typical of Lymphocystis, a viral infection.

Rapid breathing. Rapid breathing is of concern especially if accompanied by other signs. Common causes of this can be parasitic or bacterial gill infections. Cryptocaryon will, in some cases, target only the gills, killing the fish but without showing the characteristic white spots on the skin. Fish that breathe with only one operculum (gill cover) are also immediately suspect as this can be a sign that it may be infected with gill flukes or some other similar disorder.

Body condition. Marines that are obviously thin with concave flanks or ‘big head with a little body’ should flag a warning. These fish may have serious internal problems going on. If it is an uncommon fish it may be that it has specific dietary needs that are just not being met. Either way you will be better off without it. Most fish are symmetrical around their long axis so any lumps or bumps present on one side that are not on the other are something to be concerned about. Such swellings could be bacterial or fungal infections, parasitic cysts or even tumours.

A healthy fish should be feeding vigorously and it is often recommended to request to see the fish feed. I can, however, understand retailers being unhappy about being asked to offer food by every prospective purchaser. I suppose it depends upon how pushy you wish to be, or how much money you're going to part with. If you have a long journey ahead of you, remember that the last thing you want is for your fish to vomit back its food in the bag on the way home!

When we look at a prospective purchase think of the fish as a member of its species. This is where experience becomes invaluable and is something that you only gain with time. What you are doing is comparing your prospective purchase with an ideal ‘standard’ for that species, in both behaviour and physical aspects. This is when we start to pick up common, species-related problems.

Now a word about cyanide. Cyanide is still used in some parts of the world for the collection of marine fish for the aquarium trade. It is used to temporarily ‘anaesthetise’ those fish holed up in reef crevices that cannot be caught by net. Unfortunately exposure to cyanide is invariably fatal—if not at the time of capture then at some point, often several weeks, further down the line.

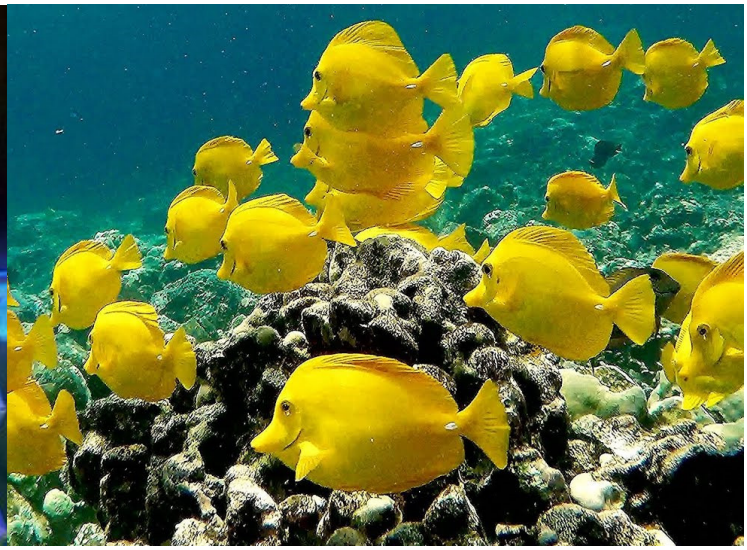
Affected fish look healthy, often their colours are superb, but they rarely feed because this chemical has destroyed their livers. Due to USA legislation cyanide is illegal to use in the capture of fish so those fish originating from the Caribbean are usually safe. If cyanide is a problem, it tends to in those fish hailing from the Pacific. In the past the Philippines were the worst offenders, although its use is cropping up in other countries despite moves to curb its usage.

If you are happy with the retailer, and the fish you want to buy checks out fine on general health points, then the final decision as to whether you put your cash on the counter depends on how normal and healthy that fish is for its species. This is easy for me to say. but with a conservative estimate of over 2000 species available in the trade, experience does begin to play some part. If you have kept Royal grammas (*Gramma loreto*) before then you'll know how they behave - if not then you may be worried as to why the fish you want to buy is head-standing behind the uplift tube in the corner. Try to find out as much as you can about that particular fish species - magazines such as this one, or books, are an excellent resource. Use the Internet too, but always remember that no one edits the information found on the majority of websites so what you read may be based solely on personal opinions and not be factual.

Corroborating information found here with that which you've read elsewhere is a good way of gaining some confidence in what you are downloading from the various websites. When in the shop, spend some time watching the fish to see how it moves and interacts with any other fish in the aquarium. or how its behaviour compares with others of the same or related species. If it's a species you are not familiar with don't be afraid to ask questions of the retailer regarding compatibility, ease of feeding or any other pertinent questions. My experience is that good ones will either be able to answer immediately or will grab a book to check up for you. It is impossible to cover all species of marine fish encountered in the trade, but below are some guidelines for the commonest groups of fish that you are likely to encounter.

Surgeonfish and Tangs

These fish are active, strong and bold swimmers so avoid those that are spending most of their time sitting on the substrate, especially if their fins are clamped and if they have a high respiratory rate. In aquaria the majority of species need to be kept individually due to territorial aggression but some such as Regal tangs (*Paracanthurus hepatus*) and Yellow tangs (*Zebrasoma flavescens*) are happy shoaling.



It would be easy to say don't buy the fish skulking away from the main group, but personally I wouldn't buy any tangs from a group that has one sick individual. Regal tangs in particular will dive as a group into coral crevices or other hideaways, with such close contact an ideal way to transfer disease. Tangs are primarily herbivorous, feeding on a variety of algae (and so probably inadvertently a large number of invertebrates too) in the wild. They graze a little and often, picking their way over any corals or rockwork and so should be provided with sources of algae in aquaria - look for clips holding pieces of seaweed (algae) or as a poor substitute - boiled lettuce. A healthy tang or surgeonfish should have a reasonable muscle mass above the lateral line and a degree of gut fill giving them a plump appearance so try to look at these fish from the front. Tangs that have been briefly starved will have a thin abdomen but normal muscle mass. Thin tangs with a loss of muscle mass (so the muscled area above the lateral line is concave, not flat or convex) have either been starved for a long period of time or possibly have an internal parasitic problem such as *Cryptosporidium nasoris*. Even if the fish is only starved, this can have a serious effect on the numbers and type of the fish's natural beneficial gut bacteria. These fish rely upon these bacteria to break down its food so if bacterial populations are damaged, true recovery may take some time. In short if the tang looks like a razor from the front, don't buy it. Any loss of natural colouration should be suspect, plus any large ulcers or depressions should be regarded as potential signs of head and lateral line disease (HLLD). Check for spots indicative of white spot (Crytocaryon) as these fish appear to be very susceptible to this parasite.

Angelfish

Angelfish, whether they are large species such as *Pomacanthus* or *Holacanthus*, or 'dwarves' belonging to the genus *Centropyge*, should be slightly plump, just like the tangs and surgeonfish. Those that are thin are likely to have an internal problem, or possibly have specific dietary requirements that have not been addressed. An example of this would be the Rock beauty (*Holocanthus tricolor*), a stunning angelfish but one that requires a high intake of sponges in its diet if it is to thrive. This group should also be provided with vegetable material as part of their diet so look for signs that they are being fed this; also do not buy them if you are unable to supply this.

Common angelfish diseases include HLLD, which in at least one case in Koran angelfish (*P. semicircularis*) has been linked to a viral infection. Skin flukes can cause problems. In some cases these are large enough to distinguish visibly and can cause irritation; on some occasions they even trigger swelling of the eyes and clouding of the corneas. Similar eye problems can be linked to other parasitic diseases such as those caused by protozoa. Occasionally other large parasites may be encountered such as anchor worm (*Lemeascus*). The opercular spines should be examined as these can be damaged during netting.

Butterflyfish (including *Chaetodon*, *Heniochus* and *Forcipiger* species)

Again, as with angelfish, these should be slightly plump. Many butterflyfish species do have unusual dietary requirements and so correct identification is essential. Fish that are thin may be starving specialist feeders, for example needing coral polyps such as the ornate butterflyfish (*C. ornatissimus*), or may have internal parasites or other disorders.

Butterflyfish are also very susceptible to trauma from poor handling and appear to bruise easily, a problem that readily escalates to secondary bacterial infections, septicemia and death. Protozoan and fluke infections are common and serious in this group. In short, if any of the butterflyfish in that aquarium are showing signs of reddening or ulceration of the skin or around the mouth and fins, don't buy any of them. The viral infection lymphocystis may occasionally be encountered as whitish masses on the fins and occasionally the skin.

Pufferfish

This includes those fish in the genera *Arothron* (large marine puffers), *Canthigaster* (Tobies), *Diodon* (Porcupinefish), *Lactoria* (Cowfish) and *Ostracion* (boxfish). Healthy puffer fish are active, curious fish that are rotund to the point of plumpness, with an appetite to match. In the wild they feed on coral polyps, hard-shelled molluscs and crustaceans. This diet is hard on their teeth so pufferfish have responded by having continually growing front (incisor) teeth that compensate for the continual wear. Puffers that are thin may just not be getting enough food for their hearty appetites, or it may be that their front teeth are not being worn down. Puffers need to be fed on a variety of hard- shelled foods, often cockles in captivity, and if not provided with these foods their continuously growing teeth are not worn down resulting in overgrowth. Such puffers are unable to feed properly and unless the teeth are burred back and diet altered, they will starve to death. Avoid sick looking boxfish in particular as these can release a toxin into the surrounding water, thereby committing suicide and taking the rest of your fish stocks with them.

Triggerfish

As a group these fish are extremely hardy and tolerant of traditional medications and treatment regimes so disease is less common than with other groups. They should be bright and active in the aquarium; these are intelligent and curious fish. Their ability to lock themselves into crevices in pieces of rock can lead to damaged fins during capture and sale, but any fin injuries usually heal readily. As with the puffer fish their incisor teeth grow continuously so a selection of hard-shelled food should be offered. A thin trigger (almost a contradiction!) may well have overgrown teeth.

Damselfish

Popular, common and relatively cheap members of this group are freely available with even more species seeming to be becoming more common in the last few years. Hardy species include the Blue devil (*Chrysiptera cynea*), Sergeant-majors (*Abudefduf saxitalis*) and Domino damsels (*Dascyllus trimaculatus*). Such fish are bright, alert and responsive to everything going on around them. *Chromis* species on the other hand are more susceptible to poor water quality and handling and will readily succumb to bacterial and parasitic infections, so avoid those with reddened bruise-like patches of the skin, mouth and fins.

A common theme with this group is that most are territorial to a greater or lesser extent. Such aggression can lead to damage, stress and death in smaller or subordinate individuals. Torn and bitten fins are common and will heal, but thin, battered individuals should be avoided. Territorial aggression is avoided in retail aquaria either by heavy stocking levels that prevent any one individual from gaining territorial supremacy, or by providing plenty of hiding places for subordinates to retire to.

Clownfish (*Amphiprion* species)

This is the other arm of the damselfish group. Large numbers of commercially produced, captive-bred clownfish should mean that infectious diseases are a thing of the past. However the mixing of such stocks with wild caught at the retailers does increase the risk of disease. Healthy clownfish should be alert both to other fish around them and to onlookers, happily waggling their way to the front glass in the hope of a feed. Some shops will keep pairs or groups with host anemones although for the majority of clownfish this is not essential. Wild caught clownfish in contrast are very susceptible to a wide host of bacterial and parasitic diseases, often triggered by poor handling and stress. Look out for individuals sitting on the bottom with clamped fins, heavy and rapid breathing, or with areas of reddening or ulceration - these are all signs of Brooklynella, a protozoa! disease that in the past was such a problem with this group of fish that it was called Clownfish disease. As with other species white spots suggest Cryptocaryon and reddened areas bacterial infections.

Dottybacks and Grammas

Found on opposite sides of the world, these two groups appear to be analogs that occupy a similar ecological niche in their home waters. This even extends to similarity of colouring with some species such as the Royal gramma and the Bicolour dottyback (*Pseudochromis paccagnellae*). Most of these are aggressively territorial and should be kept one to a tank in both the retailers and at home. Exceptions are the Royal gramma and the Orchid dottyback (*P. fridmani*) that can be kept in groups if they are in a large enough aquarium with suitable hiding places. Note that grammas in particular orientate themselves to the substrate so it is not uncommon to find them at unusual angles depending upon how the aquarium furniture is arranged. Torn fins due to aggression may be encountered but these should heal readily. Other than this, the usual health pointers apply.

Lionfish

Both the large *Pterois* and the smaller *Dendrochirus* species are popular. These are predatory fish whose feeding behaviour is initially triggered by movement so following capture there is always a period of readjustment and learning to

accept a new diet. For many species crustaceans are their preferred wild diet and so offering fish may not prove to be acceptable initially. The Fu Manchu lionfish (*D. biocellatus*) can be a particular problem to convert on to captive diets. There has also been a trend in recent years to import very small specimens of Pterois species such as *P. radiata* - these too can be tricky to convert on to a captive diet and may be in advanced starvation if not offered live food by the wholesaler or retailer. Lionfish that are not feeding may appear to have a large head and thin body, but this can also be caused by internal parasites. Lionfish will shed their skin at occasional intervals - an activity that is often accompanied by coughing and flicking. This is natural and you should attempt to differentiate this from abnormal skin disease such as by parasitism.

Anthias

These small relatives of the larger groupers are bright and colourful shoaling fish that are naturally found in areas of high water movement, where they continuously feed on plankton during the hours of daylight. They are rarely far from corals or rockwork into which they can dive at a moment's notice should a predator appear. Stress caused by poor water quality, bad diet and aggression from tankmates makes these fish very susceptible to disease so depressed, thin looking fish may be suffering from irregular or inappropriate feeding, low oxygen levels or disease.

Gobies

A wide number of goby species are available today, many sold as beneficial inhabitants of reef systems. In my wandering around a great many shops selling marines it seems to me that many gobies, especially the sand-sifting sleeper gobies (*Vallencienna* species) look half- starved with a typical big head and thin body.

I suspect that the majority of these are either not being given appropriate food or are being out-competed by the other fish in the aquarium. Such fish may also be harbouring internal parasites especially as they sift sand containing the fecal material from the other fish present and are thereby heavily exposed to infective eggs and cyst stages of a whole variety of gut parasites.

Mandarins

These spectacular dragonets are stunning to look at but difficult to keep. Difficult because of their particular dietary needs - an infinite supply of live tiny crustaceans such as copepods. Unless they are kept in a reef system or live-rock tank in the shop then long term starvation and dietary deficiencies are likely to be a problem. If it looks thin, leave it alone.

Wrasse (Family *Labridae*)

Wrasse should be slightly plump so avoid those that are obviously thin. What should be noted is that many wrasse will naturally appear to ·scratch' against objects or the substrate. This seems to be a part of their behavioural repertoire and providing no other fish in the aquarium are doing likewise and everyone appears healthy this is unlikely to be due to disease. Otherwise these are hardy fish that suffer no more and no less than any other marines from the variety of infectious and other diseases that we encounter.

Cardinals - members of the *Apogonidae*

A hugely popular cardinal is the Banggai cardinal *Pterapogon kaudemi*. This species is attractive and can be bred in captivity so disease-free captive-bred stocks are available. Consider carefully before buying very small ones, as they are prone to a shock-like syndrome due to a dietary lack of highly unsaturated fatty acids (HUFA).

This should not be a problem if the fish produced by one of the large commercial fish breeders, but could be an issue if they are produced locally by an amateur breeder. Adult and sub-adult Banggai cardinals, given a more varied diet, should be free of this however.

Who wants to be a Millionaire - Answers

£100	C.	Humbug damsel	£2000	B.	1000	£64 000	C.	Poland
£200	B.	Red herring	£4000	A.	Ultraviolet	£125 000	C.	Cotton wool disease
£300	C.	1.025 .	£8000	D.	Sponges	£250 000	A.	James Cook
£500	A.	Ariel	£16 000	A.	Clown wrasse	£500 000	B.	Consists of a single cell
£1000	C.	Yorkshire Reefs	£32 000	B.	Eating fish	£1 000 000	D.	Tropical West Atlantic

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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?

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The absolutely stunning juvemile *Platax pinnatus* batfish. But don't be fooled. It grows into a VERY large, rather plain looking fish and its also very difficult to feed!