

# REEF

## HOBBYIST

M A G A Z I N E

FOURTH QUARTER 2019 | VOLUME 13

### REEF 3.0

A CORAL PARADISE

FLORIDA'S  
ALGAE-EATING  
FAIRY WRASSE

(OK, SO IT'S ACTUALLY A SMALL PARROTFISH)

TREMENDOUS TORCHES

REEF SPOTLIGHTS: BANASOPHIA'S BEAUTY  
AND FARMERTY'S ACRO OBSESSION

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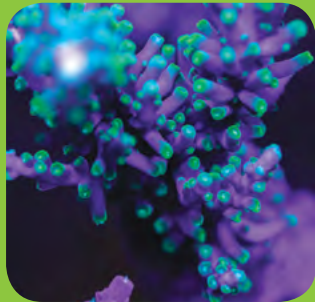
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## 6 FLORIDA'S ALGAE-EATING FAIRY WRASSE (OK, so it's actually a small parrotfish)

Matt Pedersen is a veteran aquarist, fish breeder, and owner of MiniWaters.fish. In this fish spotlight, Matt highlights a little-known and underappreciated Caribbean dwarf parrotfish that is both reef safe and an algae eater.

## 14 ON THE COVER



### REEF 3.0

Juan Gabriel Grajales is a professional DJ (DJ Godzu) living in Mexico City and has been in the hobby for 6 years. This award-winning coral paradise shows what can be done with a simple methodology and strict attention to water chemistry.

Cover image by author



## 22 CHEAP AND EASY DIY SNAGGER

Jim Adelberg is executive editor for RHM and breeds marine fish in his spare time. Collecting fish larvae and eggs from your reef doesn't have to be difficult or expensive. Learn how Jim built this inexpensive snagger with commonly available materials.



## 26 BANASOPHIA'S BEAUTY

Karen Gifford is new to the hobby, has two nano tanks, and lives in Northern California. After setting up an aquarium for her daughter, Karen realized she wanted a tank of her own, and that led to the creation of this nano beauty.



## 34 FUZZY DWARF LIONFISH

Timothy Smith is a South African ichthyologist and public aquarist. The Fuzzy Dwarf Lionfish offers all the charm and grace of its larger cousins with considerably fewer drawbacks. Here, Tim describes the appropriate tank setup, care, and feeding of these little lions.



## 38 AN ACRO OBSESSION

Ty Ta has been reefing since 2004, has a bachelor's degree in ocean and coastal resources, and owns FarmerTy Frags. In this piece, FarmerTy shows us his beautiful acro-filled reef and the angels he feeds heavily to maintain the perfect balance of water chemistry and nutrients.



## 46 TREMENDOUS TORCHES

Darrell Wakashige is the owner of All Delight Corals and has an extreme passion for Torch Corals. The humble Torch Coral has resurfaced as a collector favorite with a slew of new color morphs now available. Join Darrell for a roundup of some of his collector favorites.

50 **PRODUCT REVIEW:** TUNZE Macroalgae Reactor 3181

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MATT PEDERSEN

# Florida's Algae-Eating Fairy Wrasse

(OK, so it's actually a small parrotfish)

Fairy wrasses (*Cirrhilabrus* spp.) and flasher wrasses (*Paracheilinus* spp.) are astoundingly popular with reef aquarists. With vibrant colors, sometimes bold personalities, a generally peaceful nature, and manageable sizes (typically maxing out at 3–6"), they often assume starring roles in our aquarium communities. Many aquarists are drawn to their interesting harem social structures driven by a protogynous, hermaphroditic reproductive strategy. Overall, these zooplankton feeders settle into aquarium life quite well. While these two popular wrasse genera are widespread throughout the Indo-Pacific and Red Sea, they are notably absent in one locale: the Atlantic Ocean.

Algae is the bane of every hobbyist at some point in their reefkeeping careers. We pile on cleanup crews to tackle it, and we underfeed

our fishes in a perhaps misguided attempt to prevent it. Tangs and rabbitfishes are often purchased not only for their aesthetics but also for the functional roles we hope they'll play as active algal grazers in our captive reefs.

These days, the fishes of Florida are pretty much an afterthought. Modern reef aquariums are generally dominated by species collected from the Indo-Pacific, and if we have the finances, some of the more expensive varieties from far-flung locales such as the Red Sea or Madagascar. It's almost humorous to suggest that the fishes found and collected in our subtropical coastal waters warrant our attention. Many are less vividly colored, they're generally inexpensive and common, and few are truly reef safe, relegating most to large fish-only displays. While the fishes of Florida formed the early backbone of the saltwater aquarium hobby in the United



At less than 2 inches in length, this juvenile parrotfish will mature into a stunner.

A beautiful example of the male Greenblotch Parrotfish



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A striking example of the female Greenblotch Parrotfish

States, our native fishes have taken a back seat—no, they’re often left hitchhiking—due to a preference for fishes that originate further from home.

What if I told you that we could combine all the beneficial features of a fairy wrasse with the algae-eating capabilities of many surgeonfishes, while obtaining this obviously desirable fish from our local waters at an inexpensive price? Such a fish sounds like a fantasy, but in fact it does exist.

Meet the Greenblotch Parrotfish, *Sparisoma atomarium*. This tiny dynamo was first brought to my attention almost simultaneously by Tony Vargas and Julian Sprung when I was on the hunt for interesting fishes to include in a Caribbean biotope aquarium. Both knew of its existence, but finding one at the time proved impossibly difficult.

But before I dive in, why would anyone want to keep a parrotfish? Aquarists most often know them as brightly-colored fishes that attain large sizes and subsist on live coral, defecating future tropical beaches in their wake. Parrotfishes, at first glance, have abysmal captive husbandry records as well. With a few exceptions, most are on the “stay away” list.

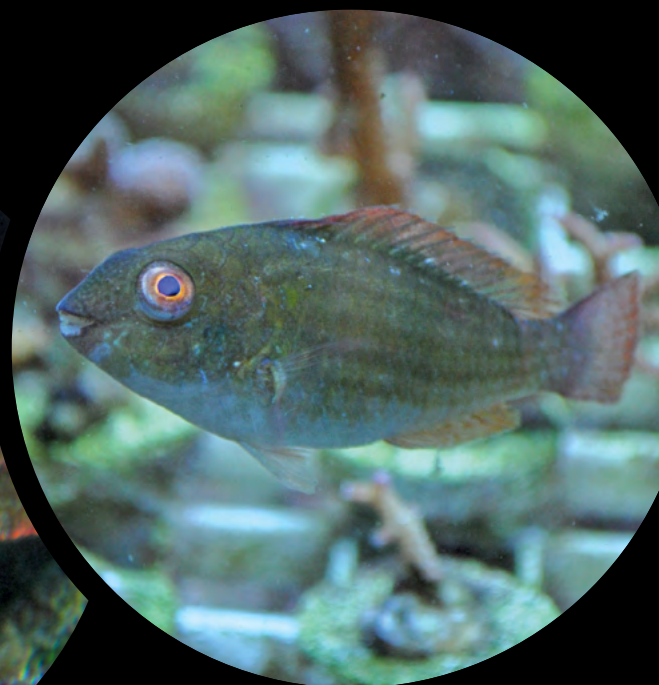
*Sparisoma atomarium* is different. A devout herbivore through and through, this charming little parrotfish grazes algae with abandon while leaving corals largely ignored (I’ve never seen one pick at coral). Fishbase lists a maximum size of 10 inches (25 cm) for the species, but I think that’s

wrong. Humann’s *Reef Fish Identification: Florida, Caribbean, and Bahamas* suggests the maximum size is only 4.5 inches (roughly 11.5 cm), and *The Online Guide to the Animals of Trinidad and Tobago*, published by the University of the West Indies, notes that the Greenblotch Parrotfish transitions from female to male at just over 2 inches (5.5 cm) in length. My personal experiences support these latter observations.

What we have in this species are small protogynous hermaphrodites that live in harems, with females residing within a dominant male’s territory. The coloration of juveniles and females is predominantly red to pink. Younger fish display white on the lower half of the body with a series of red, horizontal lines starting midflank and leading back to the caudal peduncle. Mature females brighten and will be

(Left) A beautiful and vibrant example of the male Greenblotch Parrotfish

(Right) A transitional specimen that arrived as a female and is turning into a male





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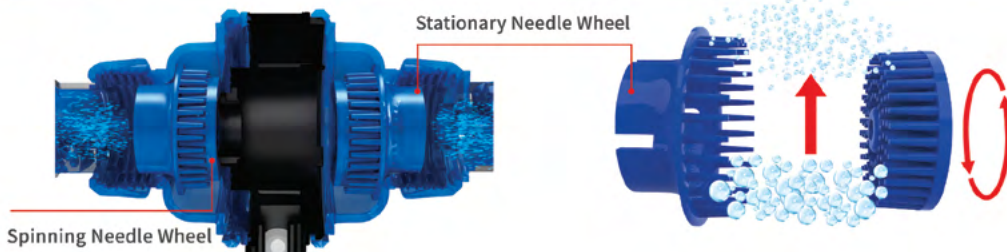


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These young Greenblotch Parrotfish exhibit the mottled stress coloration. They are fresh out of the bag and being acclimated to their new home.

the flanks are a rainbow of reds, blues, and greens. Coloration and intensity of pattern is also highly mood dependent, which makes it difficult to pin down a general description of this fish's coloration.

So we've established that there's a very manageably sized parrotfish available to us that doesn't really eat any corals, but where do you get one? That was the next challenge. While the species was obviously known, it wasn't on anyone's collection radar. Admittedly, I was stumped until my wife and I had the opportunity to dive with now-retired marine fish collector Tom Scaturro (Diver Tom) in 2011. It was a surreal experience to try to collect our own fishes, although we failed miserably at it. But what struck me was the realization that this highly overlooked species of parrotfish was simply everywhere we dove in the Florida Keys. I returned to

more red, while mature males (terminal phase) are various shades of olive green with red fins (a broad generalization, but you get the idea). The color palette varies depending on the locale. For example, Humann's text illustrates very different male colorations in St. Lucia where fins are green, the tail red, and

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shore extremely excited, and after our trip ended, I talked with all my contacts in the Keys about this species.

Tom, and later Kara and Philipp Rauch of KP Aquatics, soon had my tanks filled with several individuals of the species. To this day, these are the only sources I am aware of for the species. The Greenblotch Parrotfish has remained decidedly on the fringe, which is perhaps not where this fish belongs!

### CAPTIVE HUSBANDRY

Nearly all the Greenblotch Parrotfish I received were juveniles, and only one male had been shipped. More males would arise later on in the groups I established. Along the way, I received at least one fish that was not the Greenblotch, instead being a juvenile Redband Parrotfish



Note the multiple horizontal stripes on the lower flank of this female; this is a helpful way to determine if you have the right species.

(*Sparisoma aurofrenatum*). The Redband Parrot proved to be a larger and much more aggressive species, most readily identified by the large black spot on the flank behind the upper operculum. I recall rehoming that fish in short order because it was better suited for a large fish-only tank.



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Appearing pink under the blue lighting, a female forages around coral frags and eggcrate for algae.

My Greenblotch Parrotfish easily took to prepared foods of all types. Pellet foods were the norm, and they actively grazed the rockwork. During my time working with the species, I kept them in a few aquaria, most notably a 24-gallon Nano Cube and a much larger 92-gallon Caribbean reef tank.

The biggest husbandry challenge with the Greenblotch Parrotfish proved to be their curious habit of launching themselves skyward. Yes, they can be jumpers.

I saw little if any aggression, although all my populations contained only one male, with the rest showing female/juvenile coloration. I think aquarists who wish to keep this species should request smaller juveniles.

### SPAWNING THE GREENBLOTCH PARROTFISH

By 2012, I had managed to witness captive spawning in both my smaller and larger aquarium groups, and this occurred repeatedly during my time with the fish. To this day, I cannot say with certainty when they will spawn. In one of my aquaria, spawning typically occurred at dusk, but in the larger 92-gallon setup, spawns often occurred before the lights turned on or in the late morning. What I know of other marine fish species is that sometimes the spawning time can be dictated by water temperature, with the parents instinctively trying to hit a particular hatching time (say, after nightfall). Thus, they adjust when to spawn based on temperature to ensure the desired hatch time. Of course, the parrotfish have no watch on their fins to figure this all out, but that is my current hypothesis.

Courtship in this species starts out with what I call “parallel swimming.” The male (4”) and female (3”) race around the tank together, sometimes going through the motions of a spawn or otherwise pausing. The actual spawn, however, is a sight not to

be missed. The pair rockets toward the surface while spiraling around each other in a corkscrew pattern. This is an intense affair and may explain why I found fish on the floor even when I thought my tanks had ample coverage. But, more importantly, I was usually tipped off that a spawning was occurring when I’d hear fish slamming into the glass cover on the aquarium.

### HATCHING THE GREENBLOTCH PARROTFISH

I’ve managed to incubate and hatch the 0.6 mm eggs from this species. The eggs are initially clear with a tiny, dark oil globule that appears reddish under certain lights. Hundreds or possibly thousands of eggs may be released during a spawning session.

In my care, hatching occurred in about 24 hours. The resultant offspring were prolarvae: no eyes, mouth, gut, or gills, and they measured 1.65 mm in length. This is very small by all marine fish larval standards. I didn’t manage to rear any of them, although at that point in time, I didn’t have any type of zooplankton to offer that could have been accepted. Sadly, this is as far as I’ve made it (to date) with attempts to breed this species. It’s noteworthy that Tom Bowling and Biota Marine Life Palau have reared the much larger Bumphead Parrotfish, *Bolbometopon muricatum*, from wild-harvested eggs. As I see it, this is a tremendous breakthrough; a parrotfish has been successfully reared. That paves the way for success with the Greenblotch Parrotfish to be bred one day. Race you!

### GIVE THEM A SHOT

It might seem odd to be reading the tale of an overlooked marine aquarium fish, but the Greenblotch Parrotfish deserves some consideration. While these fish may still be difficult to obtain due to limited intentional collection, they are out there, and they are not terribly expensive. They shouldn’t become ubiquitous as wild-collected fish, but again, they did seem to be everywhere when I dove some years ago. I would love nothing more than to see an intrepid breeder take my experiences and run with them. A captive-bred, algae-eating Atlantic (not a) fairy (nor a) wrasse would truly make for a winning combination. *R*



This female is all fired up, showing off the true beauty of this tiny parrotfish!

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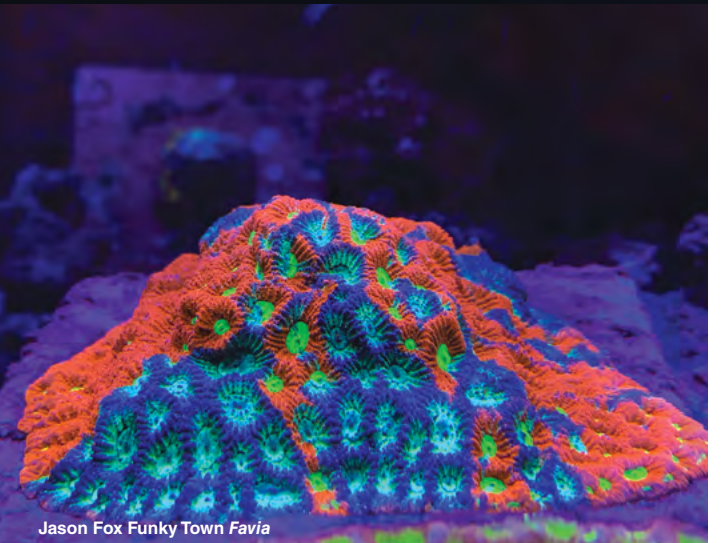
JUAN GABRIEL GRAJALES



# Reef 3.0



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**M**y name is Juan Gabriel Grajales, and I live in Mexico City. I'm an active member of the Aquaforest Group, the Triton page, and Reef Central. I'm grateful to *Reef Hobbyist Magazine* for inspiring me, and I appreciate the opportunity to present my own aquarium and explain how I maintain this reef here in Mexico.

It all started 6 years ago with a 35-gallon, all-in-one system with T5 lighting, a skimmer, and a circulation pump, everything I needed to get started. I began with about 5 pounds of live rock and immediately started observing it closely. What was going to come out of it or grow on it? Many things eventually appeared: copepods, macroalgae, fire worms, and *Aiptasia*, to name a few. One thing that beginners need to understand is that a reef aquarium is a constant parade of surprises.

Over the years, I transitioned to a 65-gallon Red Sea system and subsequently to a 175-gallon system that I named REEF 3.0. Even though my tank is dominated by small-polyp stony (SPS) corals, with *Acropora* spp. being my favorite, I also keep other types of corals.

This system has been running for approximately 3.5 years, and I currently run the full Aquaforest system. My keys to success involve using an efficient skimmer, quality lighting, lots of flow, and keeping a healthy number of fish that I feed heavily. With a large, high quality protein skimmer, I can overfeed without causing any problems.

After so many years, my tank still brings me great joy. Whether I'm standing in front of the tank staring at the coral or casually enjoying

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**Cowabunga!**  
**Holy Smokes!**  
**Shazam!**  
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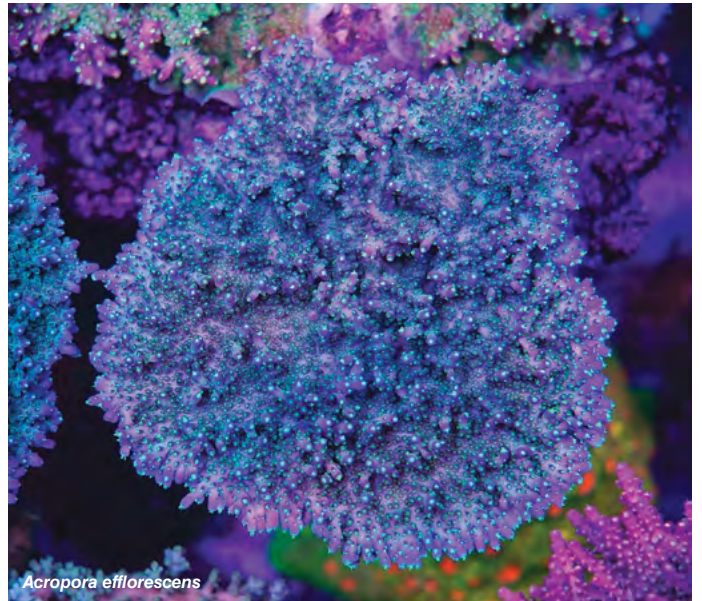
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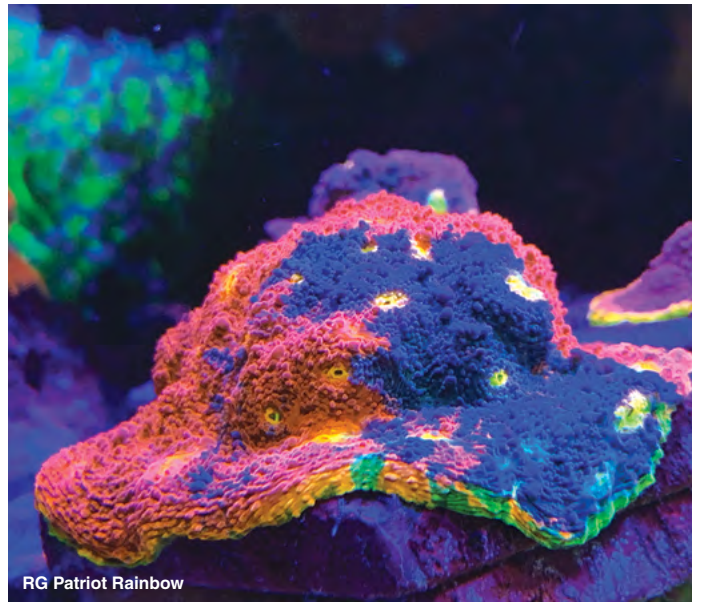
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the tank with friends, I love being near it. Sometimes it can cause a lot of stress, but most of the time, it is a great stress reliever.

I do a 17.5-gallon (10 percent) water change once a week, but I try to do a 60-gallon water change every 4 weeks. I also do a 100-gallon water change every year. When I notice that the water has a slight yellow tint when viewed through the side of the tank, I run ozone for a few days. The most time-consuming maintenance these days is figuring out what to trim, prune, move, or even eliminate as corals become large colonies. It's a good problem to have, but sometimes it's much harder than keeping a younger aquarium.

I try to keep my KH around 8, but I don't worry too much if it goes slightly higher. My preferred range is 8.0–8.5 dKH. As long as calcium is over 400, I'm happy, and I've never seen much difference

between 400 and 550. I test alkalinity with a Hanna Checker several times a week, and I test calcium every month or two, magnesium a couple of times a year, and nitrate and phosphate when I feel there's a need, all with Aquaforest test kits. I have seen problems when dKH rises above 9 in my tank, so I do my best to prevent that. Certainly, stability is not a bad thing, but I believe that stability within a range should be the focus. Having parameters that are outside desirable ranges is where the problem really lies, not with small fluctuations.

One thing I am very sure of from all my years of experimenting is that when it comes to supplements, all it takes to maintain a large aquarium is simply to keep the calcium, alkalinity, and carbonate hardness (dKH) stable.





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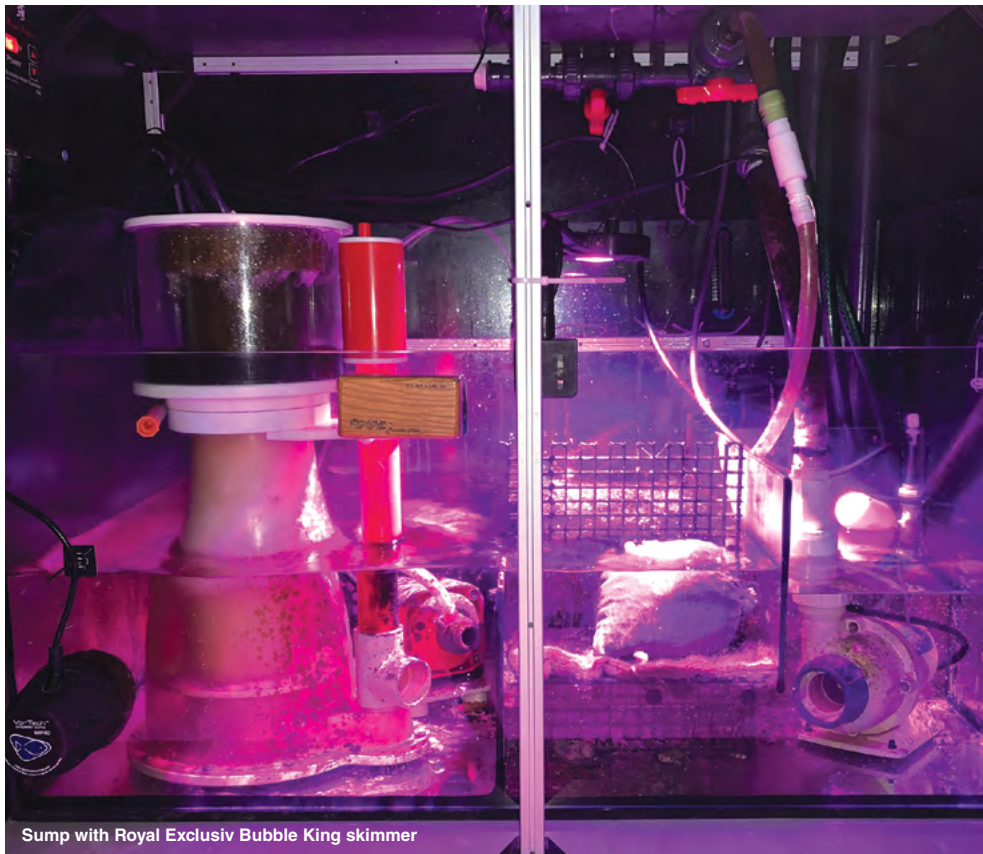
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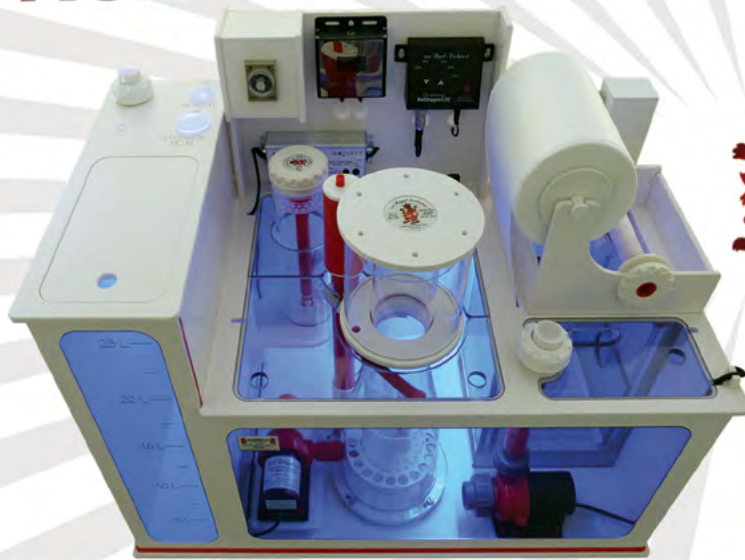
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- Water Movement:** (3) EcoTech MP40, (2) Maxspect Gyre XF 280
- Skimmer:** Royal Exclusiv Bubble King Double Cone 200 + RD Speedy
- Media Reactor:** Next Reef MR1 with AF Zeo Mix, AF Carbon, AF Phosphate Minus
- Algae Reactor:** Pacific Sun AR-Pro M
- Dosers:** (2) Apex Dos, Triton Core7
- Refugium:** *Chaetomorpha* sp., Kessil A80 lighting
- Ozone:** Ozotech Poseidon 200

### WATER PARAMETERS

- Temperature:** 78–80° F
- Specific Gravity:** 1.025
- Nitrate:** 0.2–0.5 ppm
- Phosphate:** <0.04 ppm
- Calcium:** 400–440 ppm
- Magnesium:** 1250–1350 ppm
- Alkalinity:** 8.0–8.5 dKH

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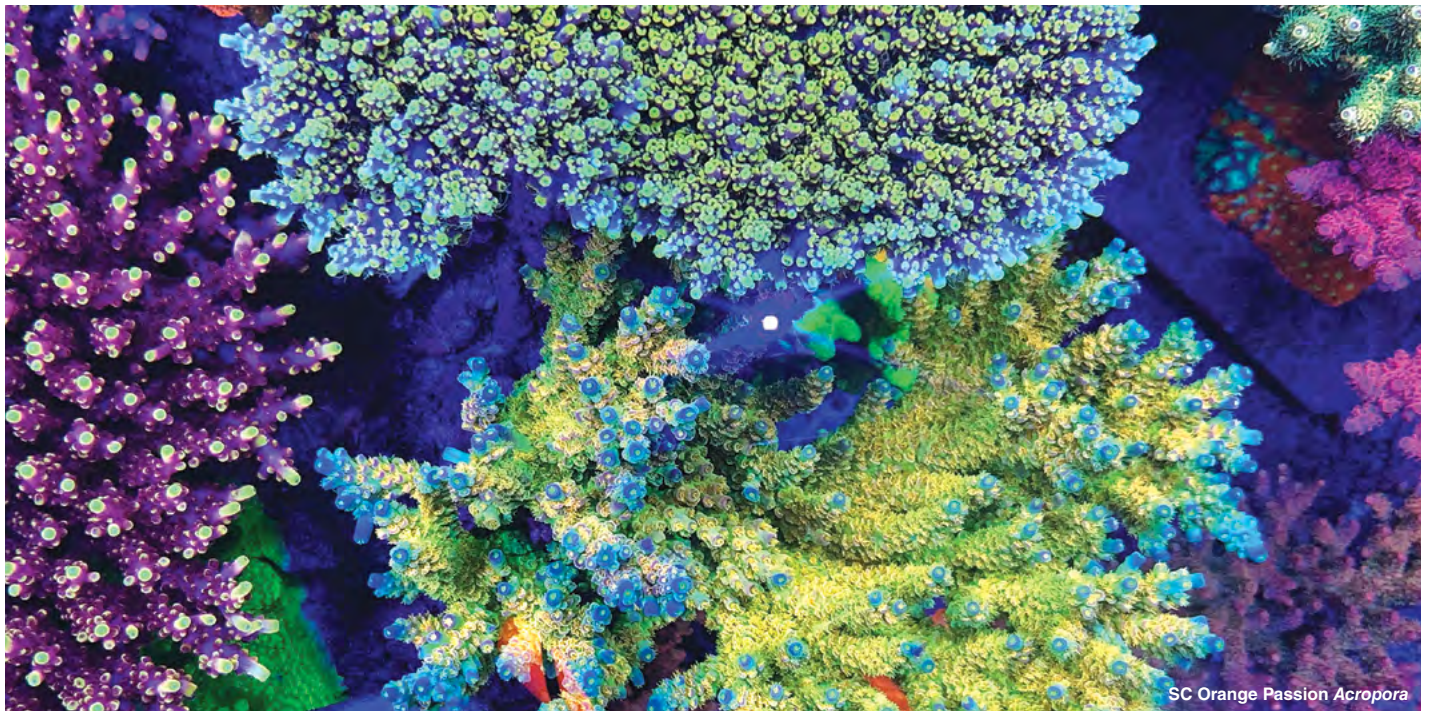


## MAINTENANCE

- 10 percent water change every week
- 7 drops of AF Bio S per water change
- 7 drops of AF Pro Bio S per water change
- 7 drops of AF Amino Mix, AF Vitality, and AF Energy twice/week
- 7 spoons of AF Power Food and AF Pure Food twice/week

## CONCLUSION

My hope is that your time in the hobby will be a rewarding experience for you, and perhaps reading this article may help some of you in your reefkeeping. I trust that through my images and writing (even though my writing skills are extremely limited), I can express a sense of my passion for reef maintenance and love for this hobby. 



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# Cheap and Easy DIY Snagger

Our hobby is relatively young, and I'm relatively old. That means I can still remember when very few products were made specifically for us reefers. Whether it was homemade overflows or protein skimmers, the DIY perspective was critical then, and I think it's still useful now.

I've done a fair amount of marine fish breeding. I started with clowns and then moved successfully through a few goby species. At the time, I used a light-trap-style snagger (Vossen Aquatics), and it worked great for collecting those newly hatched fish.

I eventually decided that my next fish to try and raise would be Royal Grammas. I really love this species and ended up ordering four juveniles to work with in a 30-gallon Starfire cube in my bedroom. This tank has a single rear drain hole drilled at about running-water level in one back corner and had always run with just a plastic strainer to keep fish out of the drain. As the grammas matured,

I realized I didn't want a light trap in my bedroom overnight (and frankly I didn't know if baby grammas were even attracted to light). I decided that my best bet was to make a true surface extracting larval snagger for the tank, and so my DIY brain started mulling around different ideas.

There were many considerations. First, the surface snagger had to be very gentle with the newly hatched fish. Most fish are fairly delicate in their first few days, so I wanted to minimize the physical stressors of collection as much as possible. This also extended to the hours the fry would stay in the trap, so I required gentle, broad flow that wouldn't pin the fry against a screen while still passing the full flow of water from the return pump. In addition, whatever I made had to allow removal of the fry from the trap in as stress-free a manner as I could engineer. My next consideration was that if the trap clogged with sediment or algae, I needed a safety overflow that could kick in until I got around to cleaning the trap.

And the last considerations were more whimsical: I wanted to use inexpensive and commonly available components so any reefer could easily and cheaply recreate it.

The core idea was to have the larvae fall very gently over an edge into a submerged collection area with high but diffuse flow and have an easy way to collect the fish and move them to the fry tank.

I started with the ubiquitous plastic coffee filter available virtually everywhere. I didn't want to use a metal mesh in saltwater (obviously!), and the mesh bottom and sides of the plastic filter seemed like they would keep up with the full flow from the tank. The next question was what to use as the main body of the overflow cup. After trying the screen in a number of containers, I found that the filter fit perfectly in a shredded parmesan cheese container. The final issue was the safety overflow, and that was as simple



The emergency overflow level should be set just above the overflow cup's normal running level.

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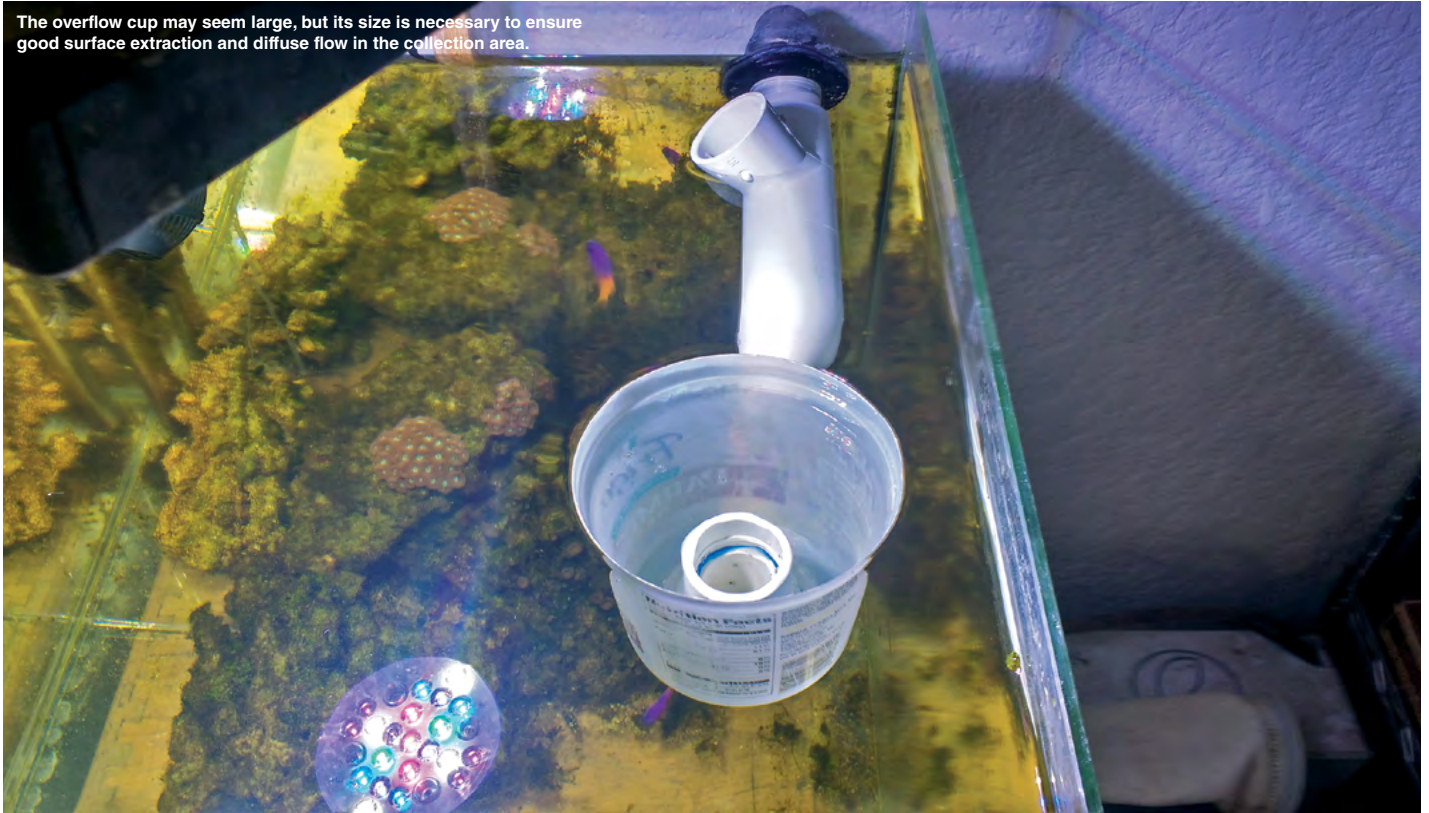
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The overflow cup may seem large, but its size is necessary to ensure good surface extraction and diffuse flow in the collection area.



as adding an open PVC T on the horizontal pipe just before the drain. Because none of the pipe segments are glued together, this emergency overflow can be rotated to kick in anywhere from a little above the effective overflow level to ½” or more above that level. As I mentioned, I didn’t glue the pipes together, and that resulted in a super easy-to-clean device. I just bring it to the sink and clean the inside of the pipe segments with a bottle brush, and the rest gets scrubbed down with a scrubbie. The only items that were siliconed together were the PVC pipe segments that screw together to sandwich the parmesan container. I siliconed them for additional structural integrity, although I could have used a flat rubber gasket just as well.

As far as using the trap goes, it’s been very easy. I wake up in the morning, and larvae are swimming freely in the coffee screen. I saved the plastic that the coffee filter came in, so I just put some water in that, lift the screen out of the parmesan container, and quickly move it to the transport container. I can then take this container with the filter and fish inside, submerge the whole thing in the larvae tank, and let the fry swim free. The fish are never pressed up against the filter material, always kept under water, and able to be transferred in a safe way.

I believe this snagger works well, is cheap to build, and easy to use and maintain. I collected many batches of gramma fry using this snagger and raised multiple batches to between 3 and 4 weeks old. I failed to raise any to adulthood, but I’ll be trying again this year. I hope that seeing how easy it is to collect larvae (and floating eggs, presumably) will encourage people with breeding fish to take that next step and try to raise some fish themselves! 

This coffee filter works great and is commonly available.





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**KAREN GIFFORD**

# BANASOPHIA'S BEAUTY



The aquascape was made using CaribSea LifeRock. This rock has a coating that gives it a mature coralline algae look from the start.

A couple of years ago, my daughter wanted a fish tank, so I bought her a freshwater aquarium. After spending hours getting her new tank up and running, I knew I wanted a tank of my own. I'm a detail-oriented science nerd, and I've been fascinated by tide pools since I was a kid, so the challenge of keeping a saltwater tank seemed like a perfect fit.

### DECISIONS AND CONSTRAINTS

As a new hobbyist, it didn't take me long to discover that there is a lot of seemingly contradictory information on keeping a reef tank, and people are often adamant that their way is the only right way.

I remember in the beginning wishing that there actually was a single "right way" to keep a reef because the variety of successful approaches made for a huge learning curve, requiring me to research everything.

### TANK SIZE

People often advise new hobbyists to start with the biggest tank they can afford, noting the rapid swings in parameters that can occur in a small tank. However, smaller tanks have their own benefits: they fit into smaller spaces, are less expensive, require less time to do water changes, and may not need dosing. Of course, the downsides include limits on the number of fish and corals you can stock and the need to stay on top of water changes to keep the tank stable.

I decided on a 16-gallon LED BioCube and got it running in March 2018. I was immediately hooked and started my second tank, an IM Nuvo 10, just a few months later.

### BIOCUBE LIGHTING

A big decision with this tank was whether to keep the stock lighting or upgrade to something stronger.

But there are a lot of great things about the BioCube's stock lighting, including the easy programming, the ramping up and down for sunrise and sunset, and the three distinct lighting phases per day, which accentuate different features of the reef. I opted to keep the stock lighting and fill my tank with lower-light soft corals, large-polyp stonies (LPS), and non-photosynthetic (NPS) corals.

### ACCELERATED CYCLE

To cycle my tank, I used some of the products that are now available to speed up the establishment of the biofilter, including CaribSea Liferock (that was already cured at my local fish store), live sand, Nutri-Seawater, Instant Ocean BioSpira, and Seachem Matrix biofiltration media.

Though many of the nitrifying bacteria products indicate that you can add fish right away, I think it's important to take the time to ensure all equipment (including tank, lights, pump, powerhead, heater, thermometer, etc.) is working properly.

I added my custom cleanup crew from Reef Cleaners approximately one week after the diatoms showed up. A week after that, my local fish store double-checked my water parameters, and I added my clownfish pair. At the 3-week mark, I introduced a couple of beginner corals.

### NPS DIFFICULTY

For me, NPS corals haven't been difficult so far. I suspect they may be easier in a nano. I can target and broadcast feed a lot of

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food and then employ various mechanisms to export the excess nutrients. Large water changes are much more feasible in a small tank, and I only need to use 1.5 mL of Red Sea's NOPOX (nitrate and phosphate reducer) daily and a few drops of Blue Life's Phosphate RX (phosphate precipitant) every couple of weeks to keep things stable.

The sun corals seem to be very happy in my system. They release planula larvae on a regular basis, so sun corals are spreading throughout my tank.

## MANDARIN IN A NANO

It's generally not recommended to keep a Mandarin Dragonet in a nano tank. Mandarins have a voracious appetite for pods, and the typical amount of rock in a nano just isn't enough to sustain a pod population with a hungry pod predator like a Mandarin. You will need to take special measures to be sure your fish stays well nourished, like adding pods frequently or constructing a rubble pile or a refuge to promote pod growth.

My Mandarin is a captive-bred fish from Biota. I was told that captive-bred Mandarins have some unique advantages over wild specimens: they are hardier and more accustomed to prepared foods and the conditions found in home aquariums.

If you are considering a Mandarin for your tank, I urge you to research thoroughly and be prepared to spend a great deal of time and money caring for it. The initial \$90 price tag for a captive-bred Mandarin may seem like a lot, but it was nothing compared to the money I've spent to properly care for him. Then again, my whole tank was planned around creating a good home for this fish.

## TANK SPECIFICATIONS

**Display:** Coralife LED BioCube, 15" x 16.5" x 17.5"

**Volume:** 16 gallons

**Stand:** (2) IKEA KALLAX

**Rock:** CaribSea LifeRock (live and cured from local fish store)

**Substrate:** CaribSea Caribbean Live Sand

**Lighting:** stock LED

**Heater:** Cobalt Neo-Therm (50 watts)

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**Chiller:** Chill Solutions CSXC-1

**Circulation:** stock pump (185 gallons per hour), Jebao OW-10 wavemaker

**Skimmer:** stock

**Filtration:** stock media rack

**Filter Media:** Aquatic Experts Premium True dual density filter pad, Chemipure Elite, Seachem Purigen, Seachem Matrix media

**Dosing:** Red Sea NOPOX, Kent Tech I (long-acting iodide)

### Rear Chambers

- Chamber 1: Coralife skimmer, temperature probe, false floor still intact, tab between chamber 1 and 2 still intact (I recommend keeping the tab intact as it supports the Coralife skimmer if you ever want to use one)
- Chamber 2: stock media rack, filter floss, Chemipure Elite (for up to 25 gallons), two sacks of Seachem Matrix media
- Chamber 3: Cobalt Neo-Therm 50-watt heater, Chill Solutions chiller pump and hoses, Seachem Purigen, which is sitting in the spot where the small black sponge filter was (if you take out the sponge, save it in case you want to use it in the future)

### FEEDING AND MAINTENANCE

#### Feeding

Almost all the manufacturers of the foods I use advise to only feed what the fish can eat in 2 minutes. It's a bit different in my tank, more like 2 hours!



Mandarin Dragonets are beautiful fish, but they require special care.

I feed heavily due to my NPS corals and Mandarin Dragonet. In the beginning, I fed twice per day, but I'm currently feeding once per day in the evening and monitoring closely to ensure my Mandarin and NPS corals are well fed and happy.

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This BioCube is home to a variety of soft corals, LPS, sponges, anemones, and fish. Corals include photosynthetic and non-photosynthetic species.

- Turn off the pump and wavemaker and add Sustainable Aquatics Hatchery Diet pellets (two pinches whole and two pinches crushed)
- 3 days per week, pour in some freshly hatched baby brine shrimp, which I hatch in a shrimpery
- Wait 15 minutes before adding frozen food (currently a mix of Reef Frenzy Nano, San Francisco Bay Brand Marine Cuisine, and reef plankton or cyclops) mixed with a pinch of Coral Frenzy or Reef Roids powder
- Approximately 15–30 minutes later (when sun corals are fully open), target feed more to the sun corals and leave the flow off for 15–30 minutes
- Turn on the powerhead to swirl the food around for 30 minutes
- Add phytoplankton and zooplankton a few times per week, especially if my Spider Sponge and Chili Coral aren't opening or if my pod population seems lighter than usual
- When finished, turn the pump back on

### Daily Maintenance

- Clean glass and closely inspect the tank
- Check filter floss and skimmer, change or empty as needed (usually two times per week)
- Dose NOPOX (carbon dosing to control nitrates and phosphates)

### Weekly Maintenance

- Check salinity and perform a 4-gallon water change, including turkey basting the rocks and stirring and/or siphoning the sandbed
- Clean the powerhead and return nozzle during my water change if algae is growing on them
- Add Kent Tech I (long-acting iodide)

### Other

- Check parameters monthly or as needed if something appears to be off
- Dose Phosphate RX every 2 to 4 weeks to lower phosphates
- Change out the airstone in my skimmer every month or two
- Replace Chemipure and Seachem Purigen every 2 to 3 months
- Clean pump every 6 months

### FISH

- Ocellaris Clownfish (pair)
- Mandarin Dragonet (captive bred)
- Yellow Clown Goby
- Tailspot Blenny

### INVERTEBRATES

- *Discosoma* spp.
- pipe organ corals
- candy cane corals
- yellow Fiji leather
- Aussie finger leather
- *Capnella* sp.
- xenia
- *Rhodactis* spp.
- *Ricordea florida*
- zoanthids
- *Palythoa* spp.
- Purple Brush
- sun corals
- *Dendrophyllia* sp.
- Branching Dendro
- Chili Coral
- *Leptastrea* spp.
- *Micromussa lordhowensis*
- *Blastomussa* sp.
- *Leptoseris* sp.
- Rock Flower Anemones
- Red Tree Sponges

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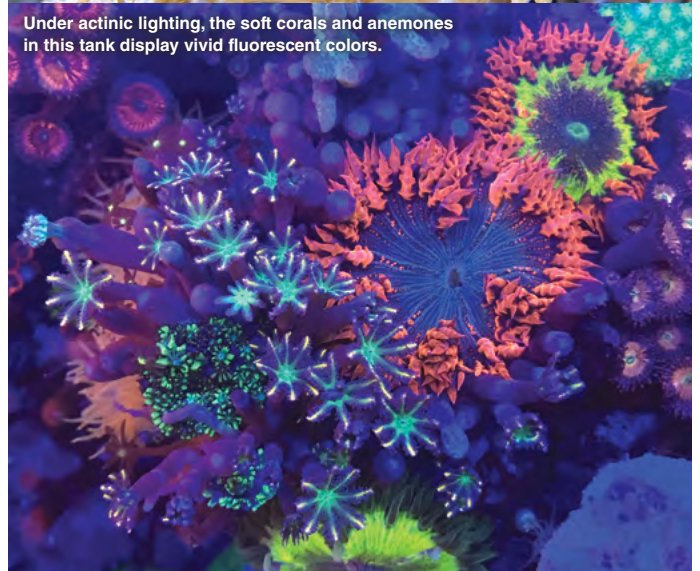


Spider Sponges are known to be difficult to keep in home aquaria, and this one has been no exception.

Yellow Clown Gobies are peaceful, beautiful fish. Care should be taken, however, in a tank with small-polyp stony corals, as these fish may nip at coral polyps.



Under actinic lighting, the soft corals and anemones in this tank display vivid fluorescent colors.








Sea hares are kept as periodic inhabitants in the system, rented from the local fish store to remove green hair algae.

- Blue Sympodium
- *Knopia* sp.
- clove polyps
- green star polyps
- Purple Angular Sea Whip
- Purple Sea Rod
- sea hare (periodically rented from the local fish store)
- Spider Sponge
- hermit crabs
- Emerald Mithrax Crab
- Ruby Mithrax Crab
- Tiger Sand Conch
- snails
- bristleworms

### FUTURE PLANS

I'm still very new to the hobby and have so much to learn. I'm thankful to have a variety of corals and other livestock in my small tank. My goal is to continue to learn about them and enjoy them as they grow. I do have the go-ahead to upgrade, so I'm considering my options and hoping to try some different strategies for my next build. I think I'd like to try to keep a larger tank to see for myself why so many people say that bigger is better, though I really can't imagine anything better than the two nano tanks I have now. 

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TIMOTHY SMITH  
Images by author except as noted

# Fuzzy Dwarf Lionfish

**G**o big or go home, right? Some of the most exciting fish choices for a marine setup are those charismatic reef predators that everyone knows and loves: morays, groupers, and lionfish. However, their adult sizes and cavernous mouths prevent their inclusion in most home aquaria.

If you ask me what “dynamite in a small package” looks like, I’d probably show you a picture of a Fuzzy Dwarf Lionfish. You might think that this species is just a shrunken copy of its better-known relatives, but it offers so much more to the discerning aquarist. These lionfish pop up in stores with some regularity and pack all the punch of their bigger cousins but without all of the drawbacks.

The Fuzzy Dwarf Lionfish, *Dendrochirus brachypterus*, is indeed a true lionfish. This places it in the family Scorpaenidae, alongside the well-known scorpionfishes and stonefishes. Like its relatives, it too packs a painful sting! Unlike the larger lionfishes in the genus *Pterois*, the Fuzzy Dwarf Lionfish rarely exceeds 6.5 inches in length. Often, you’ll see what are considered larger specimens at about 4.5 inches, as growth is quite slow from this point onwards. This small adult size not only benefits the aquarist in reduced tank size requirements but also expands the list of potential tankmates.

The smaller size of *D. brachypterus* makes it safer to house with other fish, but by no means does that make it a community fish. In contrast to other lionfishes, its diet does tend more toward invertebrates, but it certainly won’t turn down small fish that wander too close.

This means a lot of common reef inhabitants—blennies, gobies, small damselfish, and cardinalfish, among others—are best left out of the stocking plan. If you plan to add other species, first watch your lionfish feed to gauge what will and won’t fit into its mouth.

The Fuzzy Dwarf Lionfish can be considered reef safe in the presence of corals and other sessile invertebrates. Smaller shrimps, crabs, and worms are all fair game, as they closely match prey that these animals hunt in the wild. While this species has been known to rest upon corals in some instances (this usually doesn’t harm the coral), you can avoid this by providing much-preferred nooks and crannies for them to squeeze into.

These lionfish can be kept singly or in a group, although there are a few considerations if you’d like to keep more than one. It isn’t that this fish is antisocial; it is regularly found in small groups in the wild, and social hunting behaviors have been observed in some species of *Dendrochirus*.

Fuzzy Dwarf Lionfish will boldly explore their surroundings once settled.



However, in the confines of an aquarium, there is the potential for hierarchical disputes to break out. This appears to be an issue when there are multiple larger individuals who might squabble for dominance but otherwise leave smaller conspecifics alone. These conflicts can be avoided by providing ample tank space and creating a more complex environment. A tank with several hiding spots and structures that can break the lines of sight will be useful in preventing more dominant individuals from antagonizing others too often—out of sight, out of mind.

Should conflict prove to be excessive, be ready to separate the fish and find alternative arrangements. A lot of the aggression may just start off as posturing but can lead to physical aggression and even the death of less dominant fish.

In the wild, these fish are found in moderately shallow waters, usually associated with some sort of underwater structures on reefs or in lagoons. During their hunting expeditions into the late afternoon and evening, however, Fuzzy Dwarf Lionfish are known to happily wander into fairly open terrain without much cover.

In the home setting, it is best to give your lionfish the option to retreat to rocky overhangs and crevices. Not only will this help it settle into its environment, but it will also grant your fish the confidence to be bolder in its roaming habits, knowing that there are safe spots to duck into. Don't go overboard on the rockwork though, as this species appreciates some open space for hunting and social behaviors too.

For an individual fish, aim for nothing less than 30 to 40 gallons, which gives ample roaming space and enough water volume to deal with the lionfish's moderate waste output. For each additional

Fuzzy Dwarf Lionfish you add, you should increase your tank size by an additional 10 to 15 gallons.

Although the Fuzzy Dwarf Lionfish is a smaller fish and doesn't need to be fed every day, you'll still want to provide efficient filtration to deal with its high-protein diet. A protein skimmer and an efficient biological filter will go a long way in this regard.

This species is nocturnal by nature, but most acclimated specimens don't appear to mind making appearances throughout the day. This is especially true when there are ample overhangs provided for retreat if they feel the need. If you wish to be even more accommodating, dimmer tank lighting closely mimics the dawn and dusk levels of lighting they prefer.

Fortunately, stings from this animal are not very dangerous unless you're specifically allergic, though the pain is well worth avoiding. Given their size and preference to perch on and around rockwork, the odds of brushing against their spines are much lower than with the more outgoing *Pterois* spp. The venom glands are associated with the dorsal, anal, and pectoral fins only, and you'll notice that these are the exact fins that perk up if you ever corner your fish. If you're having particularly bad luck and do happen to get poked, treatment is the same for nearly all fish envenomations: immerse the wound site in water as hot as you can stand. No hotter than 113° F should be necessary. It is advised that you seek medical assistance even if the symptoms die down, since a piece of the spine or integumentary sheath may remain in the wound, which would require careful removal. Keep the wound clean because infection after an aquarium injury is not an uncommon occurrence.

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These fish can be successfully kept in small groups, although males may sometimes squabble for territory.



## FEEDING

Keeping up with family tradition, the Fuzzy Dwarf Lionfish might initially refuse to take nonliving foods. However, it can survive without food for moderate periods of time, so don't stress too much if it misses a few feeding attempts while you wean it onto prepared foods.

The use of tongs is recommended for feeding. Not only can you better reach your fish's preferred hiding spot, but soon, the Fuzzy Dwarf Lionfish will associate the tongs with feeding time. While other species of lionfish tend to roam gracefully over the reef, the Fuzzy Dwarf Lionfish allows its prey to wander into its vicinity before taking action.

Your best bet is to alternate between live and prepared foods, using the same prey type for both feedings. Often, this is enough to pique the interest of a Fuzzy Dwarf Lionfish to investigate the familiar item, and eventually, it'll give in and strike. After a few successful hits, other prepared food items will usually be accepted once your fish realizes that the tongs entering the tank signals feeding time.

Offer items close to its natural diet, which is composed primarily of crustaceans (shrimp seem to be at the top of that list), and supplement with small fish or fish pieces as an occasional treat. Feeding either a small amount daily or larger portions every 2 to 3 days are both acceptable options.

Spawning is not unheard of in captivity, although the specimens you're likely to come across will undoubtedly be wild caught.

Sexual maturity is thought to occur at just over the 4-inch mark, with females becoming full bellied and paler. If the male can successfully woo a female, the resultant mating produces a floating, jelly-like mass of eggs. The eggs should hatch about 2 days after being laid. The fry are large by marine fish standards but will still require


tiny foods in high concentrations. Copepod nauplii should suffice for these initial stages.

Typically, the *Dendrochirus brachypterus* you'll see available are reddish in base color, although reddish-brown to deep brown shades do show up from time to time. A yellow morph of this species also exists and is a spectacular sight to behold. I have not been fortunate enough to see one in the flesh, but perhaps this is for the best, as such specimens can fetch extraordinarily high prices.

While it is easy to distinguish this species from the larger lionfishes, dwarf lionfishes of the genus *Dendrochirus* may be mistaken for one another by those unfamiliar with the group.

Juvenile specimens of the larger *Pterois* lionfishes can be easily identified by their pectoral fin filaments, which project well beyond the rest of the pectoral fin. Young *Pterois* are also quite light in color, in contrast to the darker shades of most *Dendrochirus*.

Other *Dendrochirus* lionfishes make appearances in the hobby, the most common being *D. zebra* (Zebra Lionfish) and *D. biocellatus* (Twinspot or Fu Manchu Lionfish).

The Zebra Lionfish has a pattern quite like the larger *Pterois* lionfishes, although its fins are not as elaborate as those of its relatives. The Twinspot Lionfish is unmistakable; besides the large ocelli on the rear of its dorsal fin, it also bears the large "mustache" that has earned this fish its common name, Fu Manchu Lionfish. Both species have similar care requirements as outlined for the Fuzzy Dwarf Lionfish and are worth looking out for if you enjoy these kinds of fish. 



The slow movements of these fish across the open areas of your tank are graceful and a sight to be appreciated.

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# AN ACRO OBSESSION

I've never kept freshwater tanks. I went straight to salt water and never looked back. I was even obsessed before I ever kept a tank, so obsessed that I enrolled to study marine biology at Texas A&M University but ultimately changed my major to ocean and coastal resources (essentially environmental science for the marine world).

I've kept saltwater systems since 2004, which puts me at 15 years of continuous reefing, though I evolved through many tanks over those years. I still have bioactive live rock from 2004 that has never been dry. It's fun to think that I have kept a living saltwater bacterial culture alive for over 15 years!

I started with softies, as most do. My first success was being able to keep a common mushroom alive, which bolstered my confidence as a reefer. My absolute favorite beginner coral was my green *Fungia* sp. plate. I could watch it eat all day!

I slowly developed a love for the many different varieties and colors of zoanthids. I started to heavily collect zoas and got really obsessed with them for a time. It's funny because fish were a low priority in my reef tank. I even disliked that they distracted non-reefers from my prized corals.

I remember making friends with a local hobbyist between 2011 and 2012 who was into *Acropora*. I greatly admired his tank and told him I wanted to try keeping some acros in my tank. He clipped me six test frags for free and told me to give it a try. I proceeded to take them home, mount them, and kill every one of them within a week.

I went back to my friend, bought some more frags, and managed not to kill them that go-round. From that point on, I was hooked on the challenge of acros—not just keeping them alive but trying to maximize their growth. I tried to tease out the best colors, discover their ideal PAR (photosynthetically



active radiation) level and placement, and drench them in the perfect spectrum of light. There are so many intricacies involved in optimizing *Acropora* care that this hobby has become a lifelong labor of love for me.

As I grew more successful with acros, I took deviations from this path to experiment with keeping high-end *Montipora*, high-end anemones, and even a nice fish population.

I now run an *Acropora*-dominated system and have over 150 different types of *Acropora*. It is absolutely an addiction that is only hampered by space limitations, my budget, and the ever-present stink eye from my wife.

I also have an affinity toward angelfish. I keep six species of angels in my system: Emperor, Japanese Swallowtail, Regal, Majestic, Flame, and Bandit. Generally, angels aren't the best fish for reef tanks, but I only attempted this because of my acro-dominant system. If I had large-polyp stonies (LPS), these fish would have been a no-go for me. I keep a Black Tang and Blonde Naso Tang as remnants of my tang-heavy days.

## METHODOLOGY

My approach to reef tanks over the years has always been focused on replicating natural habitats as best as I could.

My main goal is heavy input of food and nutrients. I feed massive quantities of food to the tank daily and have systems in place (reactors, skimmer, etc.) to combat the breakdown of food and fish/coral waste before it becomes a problem in my volume-limited system.

This starts with a large fish population to produce waste in order to feed the corals throughout the day. Multiple feedings a day to the fish via pellets, frozen food, and nori are my inputs for nutrition and energy for the reef, besides lighting of course. These feedings in turn provide food for the corals and other biosystems in the tank further down the food chain.

To accommodate this quantity of daily food input, I run a series of reactors and a giant protein skimmer rated for about two times my total system volume. This allows me to feed heavily and not have persistent nutrient issues. I can control my nitrate and phosphate levels easily. This feeding schedule, combined with my calcium reactor and kalkwasser in my auto top-off (ATO) system, has allowed my system to go years without a major water change.

## SYSTEM SPECIFICATIONS

**Display Tank:** 72" x 24" x 28"

**Volume:** 215 gallons

**Material:** glass

**Stand:** 2" square steel tubing, powder coated red

**Sump:** DIY 90-gallon glass tank with baffles

**Grow-out Tank:** (2) Zoo Med Low Boy tied into main system

**Protein Skimmer:** Reef Octopus 5000

**Carbon/Phosphate Filtration:** granular ferric oxide (GFO) and ROX Carbon, Avast Marine reactor

FarmerTy Titanium Tenuis



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Bandit Angelfish



Red Sea Regal Angelfish



Majestic Angelfish



Hawaiian Flame Wrasse

**Return Pump:** Jebao 14000

**Water Movement:** (2) Maxspect Gyre 3500, (2) EcoTech VorTech MP60

**Lighting (display):** 8-bulb ATI Sunpower ( B+, C+, B+, actinic, GE 6500 K, purple+, C+, B+), (2) SB Reef actinic bars

**Lighting (grow-out #1):** Aquatic Life Hybrid, (2) EcoTech Radion XR30 G4 Pros, (2) B+, (2) actinic bulbs

**Lighting (grow-out #2):** Aquatic Life Hybrid, (3) EcoTech Radion XR15 G4 Pros, (2) B+, (2) actinic bulbs

**Calcium/Alkalinity/Magnesium Dosing:** Kalkwasser in top-off reservoir, MTC calcium reactor

**Auto Top-off:** Apex

**Heating:** 800-watt Finnex

**Cooling:** portable AC unit with dehumidifier for fish room

**System Control:** Apex 2016

**UV Sterilization:** 114-watt TMC UV sterilizer

## WATER CIRCULATION AND FLOW

Water circulation is handled almost entirely by the return pump and two gyres on opposite sides of the tank. I rotate the gyre flow every minute so it builds up just enough to have a full gyre effect in one direction before the other pump turns on and the active one turns off to reverse the direction. This causes the corals to sway back and forth every minute with the crashing waves as they shift directions. I disrupt this slow back and forth with the intermittent on and off of my EcoTech MP60s throughout the day to mix things up.

## WATER PARAMETERS

I prefer to keep a relatively high nitrate level and aim to maintain my phosphate as low as possible.

**Temperature:** 78–81° F

**pH:** 8.1–8.4

**Specific Gravity:** 1.025–1.026

**Nitrate:** 25 ppm

**Calcium:** 420 ppm

**Alkalinity:** 8.0 dKH

**Magnesium:** 1400 ppm

**Phosphate:** 0.03 ppm

## LIGHTING

My goal is to provide full-spectrum lighting to my corals. Call me old fashioned, but I prefer to enjoy my tank under approximately a 14,000 K spectrum. My sand appears relatively white with a touch of blue to it. The added warmth in this spectrum allows me to appreciate all the blues, purples, and shades of red that are lost under heavy blue lighting. Don't get me wrong, I do enjoy an all-blue view at dawn and dusk, but my primary viewing is done mainly under full-spectrum lighting.

For my display, I run an 8-bulb ATI Sunpower fixture flanked by two SB Reef actinic bars. I very much enjoy the T5/LED hybrid lighting system, and I feel this is the perfect balance for my display. The T5s are great at enveloping every inch of the tank in light, which is important for acros as they grow into large colonies. I still love the LED pop, and the SB Reef actinic bars provide that to complement the coverage and color of the T5s. For my display, I wouldn't have it any other way.

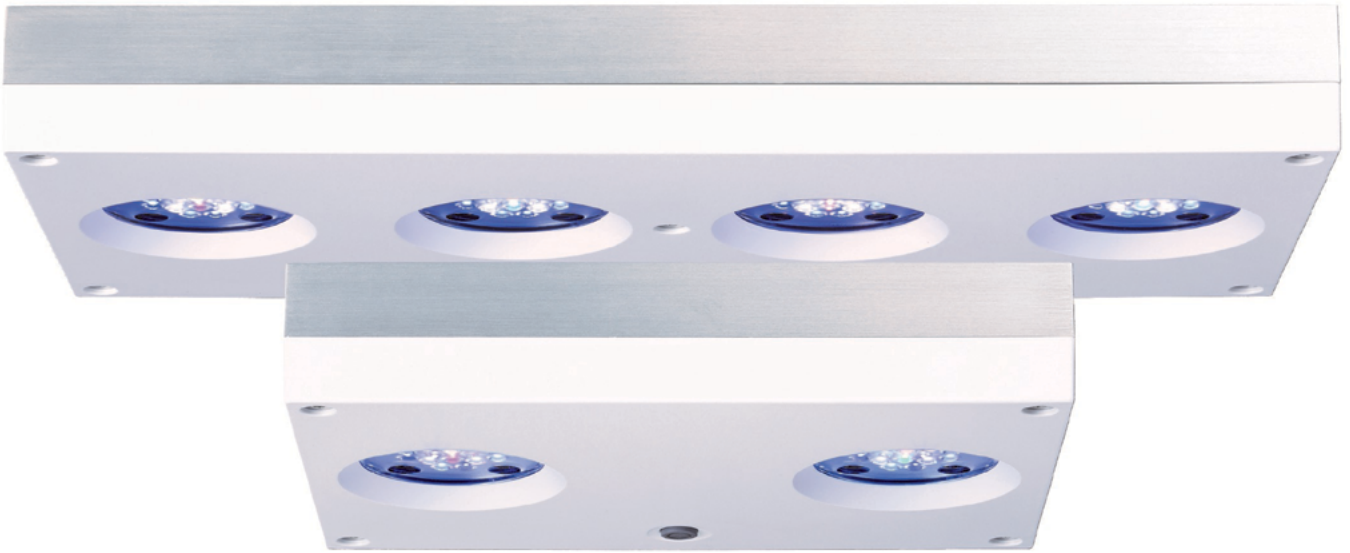
## PHOTOPERIOD

- Display Tank
  - T5s on for 8 hours
  - SB Reef actinic bars on for 12 hours



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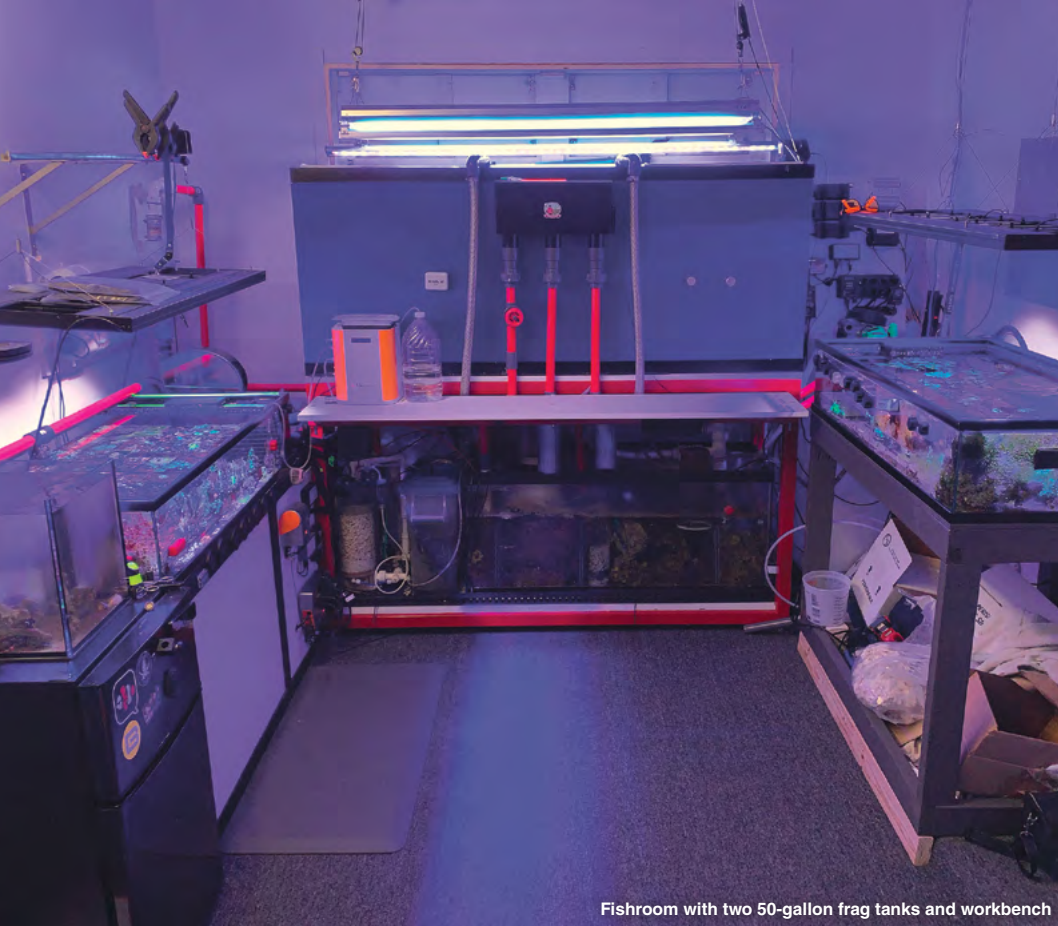


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  - ramp up and ramp down of all-blue setting for 8 hours total
  - T5s on for 8 hours

## FILTRATION & WATER QUALITY

As I mentioned briefly in the introduction, my objective is no water changes and, instead, to use a series of reactors to maintain water quality.

I use a GFO reactor for phosphate control, a biopellet reactor for nitrate control, and activated carbon for chemicals, toxins, and dissolved organic compounds. The oversized skimmer reduces the skimmable organic waste in the system to lighten the load on my GFO and biopellet reactors. It also plays a large role in keeping the water properly oxygenated.

For foundation and trace elements, I rely on my calcium reactor to replenish calcium, alkalinity, magnesium, and other trace elements, and I add kalkwasser to my ATO to mitigate the pH drop caused by the supplementation of calcium and alkalinity. This also assists in the reduction of phosphate in the system.

## FISH

- Bandit Angelfish
- Majestic Angelfish
- Emperor Angelfish
- Hawaiian Black Tang
- Blonde Naso Tang
- Flame Hawkfish
- Foxface
- Ocellaris Clownfish
- Midas Blenny
- Japanese Swallowtail Angelfish
- Hawaiian Flame Angelfish
- Red Sea Regal Angelfish
- Hawaiian Terminal Flame Wrasse
- (2) Pyramid Butterflyfish
- (2) Subzero Frostbite Clownfish
- (7) Bimaculatus Anthias
- (9) Black and White Ocellaris

## FEEDING

I feed a mix of frozen foods daily, and an auto-feeder dispenses pellets three times per day. Frozen food consists of Rod's, PE Mysis, bloodworms, krill, and my own frozen mix of tilapia, salmon, shrimp, octopus, squid, oysters, scallops, mussels, and fish eggs.

## LEARNING OPPORTUNITIES

It's funny; I can rattle off all my major mistakes since I started reefing in 2004, but it's often difficult to remember the successes. I guess I can start with some of the failures.

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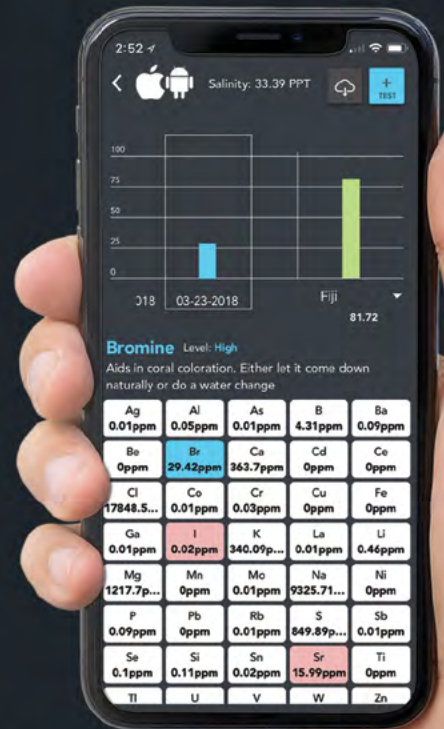


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Right side of the aquascape



Vivid Aquariums Confetti (under actinic lighting)



Aqua SD Rainbow Millepora

- There were not one but two epic fish-population wipeouts due to marine velvet. One was due to not quarantining my final fish addition, a Flame Angel, in my last tank. The other was more recent, just about 1.5 years ago after I moved. I bought a frag from a grow-out tub at a local fish store. I dipped it as I normally do and then added it to the system. Within 4 days, 75 percent of my fish were dead from velvet. I literally cried when my 7–8" Emperor died in my hands in the treatment tank. I had it since it was less than 3 inches long.

- I had an *Acropora*-eating flatworm (AEFW) infestation in 2013, two tanks ago. This was before I practiced safe quarantine protocols for new frags. I lost a large number of acros, but thanks to Bayer Advanced Complete Insect Killer, I was able to save a lot too.

- During one tank upgrade, I used an old hydrometer to set the salinity in the new tank. My acros slowly died over a period of 3 months, and I couldn't figure out why. I finally went to a local fish store to have them run some tests, and they told me my salinity was 1.031. Total rookie move!

- When I was tightening a union on my old ReeFlo Hammerhead pump capable of pushing 5,550 gallons per hour (GPH), I over-tightened it, the union cracked, and all 5,550 GPH hit me in the chest. The resulting scramble to shove my hand into the pipe to stop the flow as I reached around desperately to unplug the pump without electrocuting myself would have been Hollywood gold if it had been caught on video.

- I went fallow for 76 days two times in a one-year period to rid the tank of ich and was unsuccessful both times, to my dismay.

Okay, now for my successes. I'm already depressed again after having to relive all of the failures above. I guess my one success is being able to learn from my failures and to share this knowledge as best as I can so others can avoid the missteps I took.

## FUTURE PLANS

I hope to be able to get a deeper tank one day, something at least 30 inches deep. I'd like to expand the fish room and add more frag tanks, too. My immediate plan is to upgrade my skimmer to a larger external unit and also upgrade to a larger calcium reactor so I can better keep up with my growing stock level.

## FINAL NOTE

It's important to be engaged in the community to learn, share, and grow as a reefer. If you make it to the top, don't forget to help those who are just starting out, as someone was kind to you when you first started out and helped you get to where you are today.

No matter what level you feel your tank is at, share it. Relish the beauty of what you created and the potential it has as the years go by. Don't be afraid to ask questions, but also do your own research first. I'm always happy to help others when they start from a place of helping themselves first. [🔗](#)

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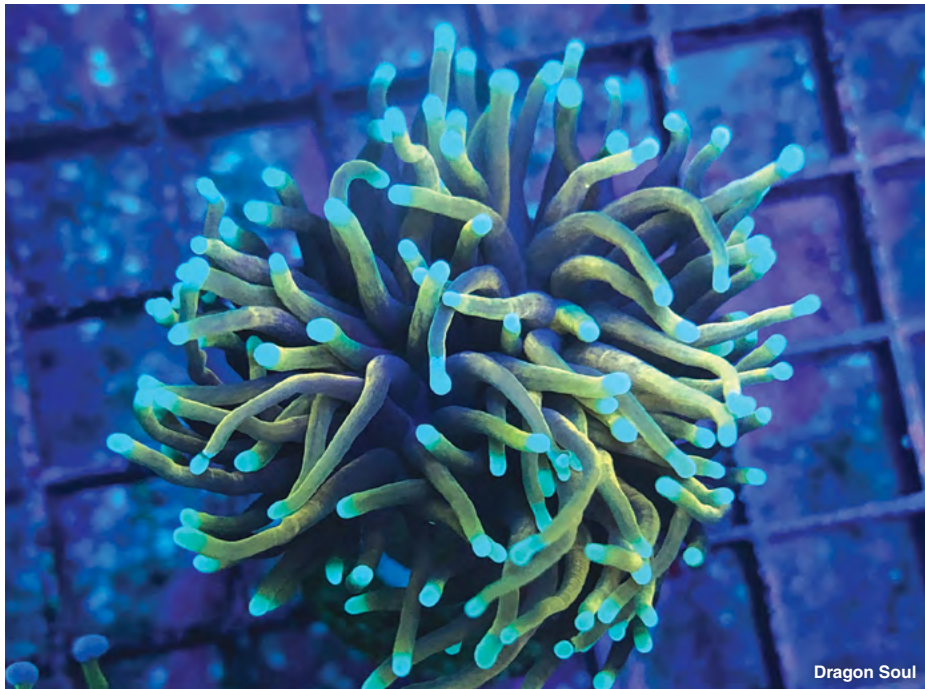
## TREMENDOUS TORCHES

**T**orch Corals (*Euphyllia glabrescens*) have been popular with hobbyists for decades. Beginners and experts alike love to collect and maintain these beautiful and distinctive animals. The variety of colors is vast, and the hypnotic swaying motion of their tentacles is mesmerizing. Plus, torches are relatively easy to care for if they are provided with stable water parameters, moderate lighting, and good water movement.



Aussie orange tip with green mouths

In the last year or so, the hobby has experienced a strong demand for high-end color morphs of Torch Corals. The closure of Indonesian exports has made it difficult to satisfy this demand, and the prices of highly desired color morphs have increased significantly. The original Aqua SD Holy Grail Torch is the most sought after Torch Coral of all. Its glowing bright-green and yellow tentacles are showstopping, making it a perfect centerpiece for any reef tank. I acquired a frag of this strain back in 2014, which was immediately placed into one of my display tanks. After a year, this frag turned into a small colony, and a couple of single-head frags were taken from the colony and placed into grow-out tanks.



Dragon Soul

## Change for good ?



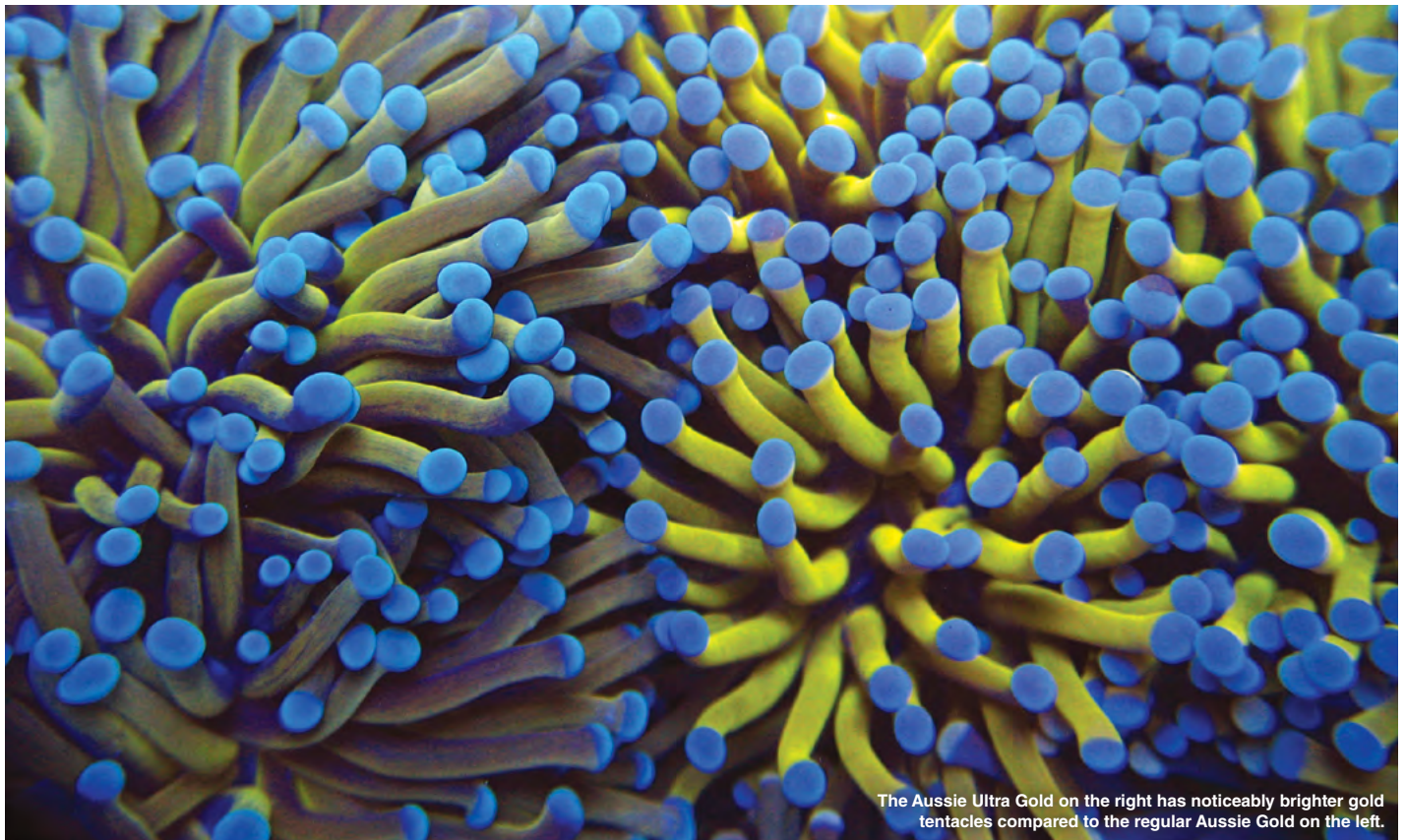
When you buy **AccuraSea<sup>®</sup>1** in the 200 gallon box, Two Little Fishies donates a portion of the profit to **Rising Tide Conservation** and **Marine Breeding Initiative** to support the advancement of aquaculture of marine ornamentals. That's why the box features beautiful black and white marine fishes that have been captive raised in recent years.

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## Is it time for a change ?



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The Aussie Ultra Gold on the right has noticeably brighter gold tentacles compared to the regular Aussie Gold on the left.

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The Dragon Soul Torch Coral is another very popular golden, orange, and green color morph. This color morph is also from Indonesia, so this strain is currently not available for import. Dragon Soul, Indo Gold, Indo Rainbow, and Indo Orange are, in my opinion, all slight variations of one another. This color strain is more widely available than the Aqua SD Holy Grail.

Aussie Gold Torches are very popular among hobbyists, and with the active importation of these corals, they are readily available. However, over-collection in the past few years has resulted in a decrease in availability compared to 2016. Like the Indonesian Dragon Soul variant, the Aussie Gold Torch has different color variants that result in price variations. When shipments arrive, Aussie Gold Torches are separated into two categories: Aussie Gold and Aussie Ultra Gold. The Aussie Gold is a darker gold, and the tentacles are partially gold colored. The Ultra Gold has fully colored, bright, vibrant yellow tentacles. A very rare variant I've received only once in 4 years is an Aussie Gold with a green mouth.

Recently, in July of 2019, I acquired a very special Malaysian-sourced Torch Coral. Its green-based tentacles with orange tips make it an extremely unusual color strain. I am calling it All Delight Corals Infinity Torch, and I'm currently growing this beautiful Torch in my farm system.

In my grow-out tanks, I keep my Torch Corals under a variety of different lighting. Some tanks are lit with Kessil LEDs, while others are lit with hybrid EcoTech Radion G4 Pro plus T5s. Still other tanks are lit with just T5s. Keeping the photosynthetically active radiation




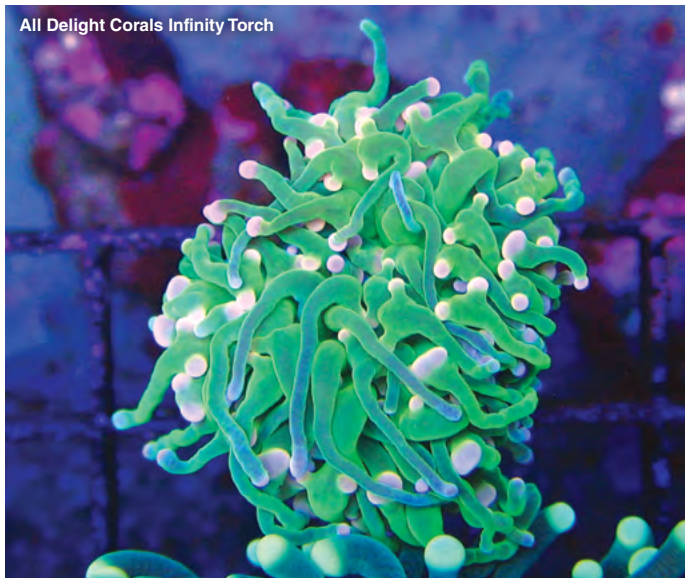


(PAR) levels in the range of 100 to 220 has been successful. In my experience, I have seen beneficial results from spot feedings of Polyp Lab Reef Roids. As with any system, keep in mind that the frequency of feedings should be determined by what the filtration can accommodate (not how much fun it is to feed the corals!). However, spot feedings are not necessary in display tanks with a decent population of fish that are fed regularly.

#### GROW-OUT TANK PARAMETERS

- Alkalinity:** 7.3–8.0 dKH
- Calcium:** 400–440 ppm
- Magnesium:** 1350–1400 ppm
- Nitrate:** 0.5–2.0 ppm
- Phosphate:** 0–0.08 ppm

Torch Corals have been a staple in our hobby for many years. Their ease of propagation, combined with their beautiful and unique color morphs, means we can expect Torch Corals to continue to gain popularity in our hobby for years to come. Pick your strain and start a colony now! 





# X1

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## PRODUCT REVIEW

# TUNZE MACROALGAE REACTOR 3181

BY RHM STAFF

From time to time, RHM reviews products that we think will be of interest to our readers. The new Tunze algae reactors are two such products. As a quick review, various live algae have long been used in our hobby for purifying aquarium water. They have a well-established history, beginning with planted refugiums and continuing forward through algae turf scrubbers and algae reactors. Algae can significantly reduce nitrates and phosphates, bind up metals and various other toxins in the tank, produce oxygen, reduce carbon dioxide, and provide a sanctuary for growing pods and other critters. If the algae in the reactor is maintained on a reverse lighting schedule from the tank, it can also reduce the nighttime pH drop many home reefs experience. To gain all the advantages of a single algae reactor, you would otherwise need to use multiple media reactors with all the associated space requirements, power and media costs, and waste (spent media).

There has been a recent trend of either modifying existing media reactors for use as algae reactors or creating homemade devices to fill this need, but it's only in the last few years that we've seen the larger manufacturers producing off-the-shelf, dedicated algae reactors, Tunze being the latest.

I'll admit right from the start that I really like the idea of using the most natural solutions possible to address all my reefing needs. I'm also a big fan of ease of maintenance and self-adjusting systems. With an algae reactor, there's nothing to continually repurchase. There is no variability in media efficacy, and there is less of the instability caused by replacing old media with fresh media. Additionally, the algae will simply grow faster in the presence of more nutrients and slower if the system is very clean. The overall maintenance involved with an algae reactor is as simple as harvesting some of the algae when the reactor is full and wiping down the inside of the reactor chamber. Occasionally, you will need to clean the feed pump.


### NOTABLE FEATURES OF THE TUNZE MACROALGAE REACTOR

There are a few features on this reactor that I think are worth mentioning specifically, but I want to start by pointing out the very high build quality. The reactor chamber is quite thick and very securely mounted to the base. The cover fits perfectly, and it's clear a lot of attention was put into the cover design. A further testament to Tunze's faith in the build quality is a comprehensive 2-year warranty. I have also been told that an entirely new pump was developed to run this reactor to meet Tunze's specific requirements for this product. These reactors are designed to be run in a sump or in a remote location. This flexibility allows the reactor to be used on all-in-one systems or undrilled tanks. Tunze also provides a quiet, variable-speed pump and plant-specific LED lighting, and the whole system operates at a maximum of 20 watts consumption. Tunze has included high quality silicone tubing and clips to make the whole installation completely watertight. There's even a coiled plastic hose sleeve to install over the hose to avoid any compression for situations where it must go over an edge.



I mentioned before that the cover displays the care that went into this product's design, and in addition to the standard knurled screws to hold the cover in place, Tunze has installed a set of magnets that can be used as the sole closing mechanism when the reactor is run in a sump. Although they say not to do it, I had to try out the magnet-only closure, even though I had the reactor in a remote location. The reactor ran for a couple of hours and didn't leak a drop, which is another testament to the build quality. This reactor is available in two sizes, and for this review, I tested the smaller MAR 3181. This size is recommended for tanks from 26 to 159 gallons, measures roughly 9.2" x 7.7" x 16.6", and has a flow rate of up to 317 gallons per hour (GPH). The larger reactor is the MAR 3182, which is recommended for tanks from about 130 gallons up to 420 gallons, consumes up to 40 watts, measures 12.2" x 9.8" x 16.9", and has a flow rate up to 634 GPH.

You may have noticed that I haven't called this a chaeto reactor, and that was deliberate. I set this unit up with both chaeto and Dragon's Tongue (*Halymenia* sp.) about a month ago, and both have grown well. I especially noticed that my chaeto has gone from loose and stringy to a much tighter growth form, indicating that both light and water are getting to the center of the chaeto ball. This good balance of flow and light should allow the algae in the reactor to function at peak efficiency without the typical die-off at the center of the chaeto mass. I intend to try a bunch of different macroalgae in this reactor over time, and I suspect many will thrive.

All this quality isn't free, of course, and the pricing on this unit is around \$340. But considering the value of having a well-thought-out and well-built algae reactor that will last years, it seems like a bargain to me. 

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— **Corey Dale, Owner, Budman's Corals**



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