

The Accidental Aquarist

Are you the victim of an unexpected fish acquisition? Follow these steps for an inexpensive, natural, and low-maintenance aquarium.

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The Hoof-Print Story

They are beautiful. As you gaze at the graceful, flowing fins and spectacular colours, the store owner wanders over and extolls the virtues of these gorgeous *Betta splendens*; exotic Siamese Fighting Fish that can be kept in bowls (that she also happens to sell). You explain you've just come in for some cat food, and isn't it a bit cramped in a bowl anyway? That's when the retailer pulls out the big guns. "In the wild," she explains, "they live in hoof prints."

Sound familiar? That customers so often question the feasibility of fish living in bowls and require retailers to reproduce hoof-print stories suggests that deep down a little voice is

whispering something is not right. Listen to that voice. It is wise. Although housing Bettas in bowls is convenient to humans, logically, we know that keeping creatures native to vast tropical rice-paddies in cold, unfiltered bowls is trouble. While technically a wild Betta may live in a hoof print in the same way a human may live in a burning building, any Betta left stranded in a hoof print after seasonal waters recede will, of course, perish.

While impulse purchases are responsible for many accidental fish acquisitions, fish may also be thrust upon unsuspecting victims by others. Here's why you should avoid inflicting fish on your acquaintances.

The Wedding Betta - When people discover I am fond of animals and especially of fish, they often insist on telling me their most horrifying animal-cruelty stories. It's an interesting quirk of human nature and I don't know if this happens to other animal-lovers, but I *do* know what happens to Bettas in wedding centerpieces. Intoxicated people have all sorts of interesting theories, one of which is fish will enjoy alcohol, since they themselves are enjoying it so much. Consequently, what will be remembered most about your precious day is not how great you looked, but a bunch of dead fish. Bettas that avoid being poisoned, swallowed, or stuffed down the fronts of wedding dresses do end up being taken home by guests, however, and this places an unfair responsibility on the recipient.

The Goldfish Giveaway - Humans are good at many things, but what they really excel at is telling themselves all sorts of stories to suit their purposes: Goldfish live only a year; they grow to the size of the bowl; they're not bored in bowls because by the time they make the circuit they've forgotten where they started. These Goldfish myths are so ingrained in our society that people are genuinely shocked when they learn the average lifespan of a Goldfish is twenty years, their failure to grow in bowls is due to stunting, and they are used in piscine experiments because of their excellent memories. When you give away a Goldfish as a prize, one of two things will happen. Most likely the recipient will place the Goldfish in a bowl in which it will languish until it dies prematurely. Or, there is the slightest of possibilities that your Goldfish recipient will purchase a thirty-gallon aquarium system and two more Goldfish. However they will not be thinking fondly of you at this point. Scenario one is inhumane to the Goldfish, while scenario two is inhumane to the recipient. This is why humane societies recommend **never giving animals as gifts**.

Whether you've swallowed the hoof-print story, rescued a wedding Betta, or won a Goldfish at ring-toss, you have a new aquatic resident swimming about in the human-equivalent of a burning building. After a few dark thoughts directed towards the fish-giver/hoof-print storyteller, you are determined to create a proper home, set an example for your children, and have a bit of fun without breaking the bank. Very good; follow me, accidental aquarist, while we set up an easy aquarium.

Acquiring the Aquarium and Gear

Be aware that upon visiting your local fish or department store, you will be met with a

veritable shotgun blast of bad products backed by brilliant marketing.

There are fish bowls, of course, but the most notorious of Stupid Pet Products is the small, themed, novelty 'aquarium.' Although your child may fancy the idea of their fish swimming about characters like Spongebob Squarepants, they may lose some enthusiasm after said fish floats belly-up while Monsieur Squarepants continues to goggle away. The trouble with these units is that they are simply too small. Too small to dilute metabolic wastes, too small to accommodate a heater and filter, too small to get in some decent swimming. So give Spongebob and his animated cohorts a pass and get it right from the start.

The fishkeeping hobby is notorious for beginners getting out of it rather quickly. This is a shame, but you can profit from it by purchasing used equipment cheaply, and avoid the same fate by researching, as you are now! The glut of used aquaria on local list services is rivalled only by foot-long Plecos. Try to purchase systems that are still set up, so you can check for leaks and ensure all the accessories work. Bring a level with you, and only consider aquaria that have been running planar and level. Non-level/planar systems put strain on the silicone seals and can result in sudden failure. Don't be tempted to place aquaria larger than forty litres (ten gallons) on furniture not designed to hold aquaria. Nothing puts a damper on the hobby like several dozen litres of water all over the floor.

The Betta System

Although *Betta splendens* requires a heated, filtered, minimum twenty-litre (five-gallon) aquarium, second-hand forty-litre (ten-gallon) systems are more ubiquitous, run about the same price, and provide more stable living conditions. A used forty-litre plus accessories cost about as much as one of those Spongebob units; sometimes they are even free! Gentle filtration is required, so although air-powered sponge-filters or box filters are ideal, it's likely your system will come with a hang-on-the-back (HOB) filter. Simply fit a chunk of aquarium sponge over the intake to prevent those long fins from getting sucked in, and turn the filter flow-rate down (if possible) so your Betta isn't buffeted. If your filter uses cartridges, rather than buy refills, cut another chunk of that aquarium sponge to size and place it where the cartridge goes. Or fill an existing cartridge with bio-balls or ceramic rings. You'll never have to replace these; simply rinse/squeeze them in tank water periodically during water changes. Keep your Betta at 26-28 degrees Celsius (80-82 Fahrenheit).



HOB filter with aquarium sponge over intake

An entire industry has sprung up around housing the Betta. You need water conditioner, but you don't need special *Betta* water conditioner; this is the same water conditioner sold for regular aquaria except much diluted (and much more expensive). Special Betta food is also more expensive, and can lead to constipation if fed exclusively. A quality staple tropical flake or pellet augmented with cooked, shelled peas and frozen foods is ideal.

The Goldfish System

If you are on a budget, I hope your new fish is not a Goldfish. Because Goldfish are expensive. Yes, the fish may have been free, but housing the fish is not. Goldfish like company, so you will require two more Goldfish. Three Goldfish require a minimum 115-litre (30-gallon) aquarium, and ideally 200-litres (55 gallons). They also require massive filtration, so that HOB filter claiming it will filter up to 30 gallons isn't going to cut it. You'll need a filter that has a turnover rate of six times the volume of the aquarium per hour. On the plus side, Goldfish usually don't require a heater in centrally-heated homes. Again, large used systems may be acquired inexpensively. Feed your Goldfish mostly greens like peas, Sushi Nori, lettuce, and aquarium plants, and augment with a commercial food.



In today's world where marketers are given free reign and ethics have not only been set aside but hurled at high speeds out the window, consumers must be more wary than ever. This Goldfish-emblazoned system is completely inappropriate for Goldfish.

Aquascaping

Substrate - Substrates affectionately known as 'clown puke' -- fluorescent gravels that are unsightly, expensive, and a poor choice for growing plants, are extremely popular. That so many hobbyists choose to carpet their aquariums with the stuff is mystifying. Marbles are also popular, and not with just the under-twelve crowd. The problem is they disconcert fish with all sorts of odd reflections, food and waste become trapped beneath them, and cultivating rooted plants will be impossible.

An excellent alternative is simple play sand, pool-filter sand, or silica (silver) sand from your local garden centre or home-improvement store. Rinsed thoroughly and added to a depth of 5-8 cm (2-3 inches), these are inexpensive, natural-looking, and excellent for growing plants, especially with the addition of fertilizer tablets. A bottle of liquid aquarium-plant fertilizer may also be employed and lasts a long time.

Decorations

You may recall fondly the air-powered burping clam of your childhood or the even more sophisticated modern-day 'bubbling bum.' There's no need to use your electricity and money on these ornaments when you can find perfectly serviceable substitutes around the house.

Coconut Shells - Boil the shells a few times, draining the dark tannin-stained water between boilings. This will prevent your aquarium water from becoming coconut-shell tea. Coconut half-shells can be used to pot aquatic plants; add a door and they make nifty caves.



Terracotta Pots - Ensure these are unglazed and unused. Break them in half to make quick, attractive caves, or pot up some plants and fill the top with rocks to prevent digging fish from uprooting them.



Rocks - Those lumpy things in your garden can often be employed in aquaria. Stay away from anything sparkly, containing metal seams, mica flakes or pesticides. Geodes or quartz may be contaminated with toxic metals. Limestone will increase water hardness. What you're after are smooth river stones, slate slabs, or chunks of granite.



Driftwood - Pricy at retailers, it's tempting to collect it from local water bodies. This can be done, but with caution. Ensure the driftwood hasn't been exposed to pesticides or other chemicals. Strip off most of the easily removable organic detritus; if it still has a lot of bark, it's too fresh; look for a more weathered piece. Boil it to kill parasites, remove tannins, and hasten the water-logging process so it will sink. I have used locally-collected driftwood from an urban freshwater reservoir successfully, but this practice is not without risk. On other hand, it's great fun to go on a driftwood hunt and gratifying to find a complicated, beautiful piece.

Backgrounds - Pricy commercial aquarium backgrounds bought off the roll tend to feature colourful scenes that often conflict with your decor. Dark-coloured foam sheets are waterproof, come in a myriad of solid colours, show off natural decor well, and are available at craft/dollar stores.



Natural decor is also inexpensive

Cycling

Cycling is the process all new aquaria must go through to establish bacteria in the filter. These bacteria convert the deadly ammonia that fish produce to nitrate, which is a fairly harmless substance and removed via regular water changes. The problem with cycling is that it may kill your fish before there are enough bacteria to neutralize the ammonia. Experienced aquarists will cycle an aquarium through fishless cycling; adding a source of ammonia (such as a daily pinch of fish food) to the aquarium for the first few weeks to establish the filter bacteria. But what if you already *have* the fish. You can't do a fishless cycle, and your new pet may not survive the cycling process, which can take three to six weeks.

Commercial bacteria-in-a-bottle products are unreliable, and although using filter media from a friend's or retailer's system can work, you run the risk of introducing pathogens. You can help your fish weather cycling by performing 25% - 50% daily water changes for the first three to six weeks to dilute the toxins. But what if I told you there was a magical thing that will protect your fish from cycling, prevent algae, and purify your water . . .

Plants

Fast-growing plants will absorb the deadly invisible waste that fish produce. Now, before you get too excited, you should know there's a good chance the plants you purchase at your retailer will die. Not only are many of them grown emersed (above water), ensuring that most of the existing leaves will die once submerged, but many will not suit your local water conditions or temperature. Some of these plants are not even aquatic.

The usual scenario is the beginner purchases two or three plants from their local retailer. The plants end up smothered with algae and die. The aquarist buys plastic plants. The

aquarist spends hours scrubbing algae from all those tiny plastic leaves. The aquarist gets annoyed with scrubbing algae and puts their aquarium on Kijiji (see previous heading "Acquiring the Aquarium and Gear").

The key to silently cycling your aquarium and eradicating algae is to plant your aquarium with **fast-growing stem plants covering at least seventy-five percent of the substrate**. This is an expensive prospect if you plan to purchase plants from your retailer. However, plants procured through local aquarium-club auctions or on-line list services will be a fraction of the cost, grown immersed (underwater), and suited to your water chemistry. Plants use up light that algae would otherwise take advantage of, nutrients that harm your fishes, and produce algae-suppressing biochemicals (allelopathy).



Easy fast-growing stem plants: *Bacopa monnieri*, *Hemianthus micranthemoides* (Pearlweed), *Hygrophila corymbosa* "angustifolia", *Hygrophila difformis* (Water Wisteria), *Hygrophila polysperma*, *Limnophila sessiliflora* (Ambulia), *Ludwigia repens*, *Pogostemon stellatus*, *Rotala rotundifolia*



Common medium-fast growing rosette plants: *Echinodorus barthii* "red_melon", *Sagittaria subulata*, *Vallisneria asiatica*, *Vallisneria spiralis*

For these plants to thrive, you'll need adequate lighting. A single tube in your aquarium canopy won't be enough to grow most stem plants. Although humankind has failed to harness the sun's energy, you can; don't be afraid to place your well-planted aquarium near a window. Just watch for extreme temperature fluctuations; avoid draughty or excessively hot locations.



Alternatively you can purchase more lighting (the equivalent of three or four T12 fluorescent tubes will be enough for most fast-growing stem plants), or simply use low light plants (although, being slow growing, these won't help much with protecting your fish from cycling). The key to combating algae is to have a balanced light-to-plant ratio; don't flood your aquarium with light, natural or otherwise, if you don't have a lot of fast-growing plants to use it up.



Low-light slow growers: *Anubias barteri* "nana", *Cryptocoryne wendtii* "bronze", *Microsorium pteropus* (Java Fern), *Taxiphyllum barbieri* (Java Moss)

Although Bettas won't disturb plants, Goldfish will. However, you can keep floating plants like Hornwort, Elodea, Duckweed, Guppy Grass, and Water Sprite/Indian Fern (*Ceratopteris* spp.), which will function as Goldfish snacks and remove nutrients.



Floating plants: *Ceratophyllum* spp. (Hornwort), *Hydrilla verticillata* (Florida Elodea), *Najas guadalupensis* (Guppy Grass), *Riccia fluitans*, *Spirodela polyrhiza* (Giant Duckweed)

Understock

You've got your unexpected guest installed in its new quarters, prevented large chunks of cash from exiting your bank account, and are experiencing a nice warm fuzzy feeling when you suddenly think, 'He looks lonely.'

Here you must tread carefully. If you have a Betta in a ten-gallon heavily-planted tank, you've got it easy. The tank is understocked, nitrates are used up by plants and you can get away with monthly (instead of the usual weekly) twenty-five percent water changes. And tank mates for Bettas can be tricky. The problem is not the male Betta's

aggressiveness (although this may be a factor), the problem is that thanks to decades of selective breeding the Betta is saddled with copious amounts of tasty fins that can turn the most innocuous of fishes into nippers. If you do decide on tank mates, be sure to have a backup plan. You may end up having to purchase another aquarium.

Let's hope your Goldfish already has a couple of friends. Since Goldfish can grow to the size of a football, you're not going to have room for more fish unless you've got a large system. Smaller sub-tropical tank mates may be viewed as food, while things like Plecostomus will grow bigger than the Goldfish, produce massive amounts of waste, and end up as one of those foot-long Pleco Kijiji listings. Too many fish and you'll have to up your weekly 25-50% water changes to twice a week or more. Nothing discourages a budding aquarist more than an overstocked aquarium requiring a constant treadmill of water changes.

The Easy Aquarium

It's one of life's happy coincidences that the easiest aquarium is not only healthy and beautiful, but inexpensive too. And as for that pretty bowl and bag of sparkly marbles on which you wasted your money? Don't fret; you can always use it as a wedding centrepiece . . . but put a rose in it.

Sidebar: Sample Betta System



- Used 40-litre (ten gallon) aquarium with HOB filter, 50W heater, and single-tube fluorescent light canopy: \$25
- One twenty-kilogram (44 pound) bag of play sand: \$7
- Bag of various plant cuttings sufficient for a forty-litre (ten gallon) system: \$10
- Water Conditioner (250 ml): \$7.50

- Coconut (makes two caves/pots - optional): \$1.50
- Clay pot (optional): \$1
- Driftwood (optional): Free
- Sunlight (optional): Free

Total: \$52*

*Based on Canadian marketplace/currency

1 Canadian Dollar = 1 US dollar = 1 Australian Dollar = 0.64 British Pound = 0.74 Euro at time of writing.

References/Further Reading:

Fenner, R. [The Siamese Fighting Fish, Betta splendens](#), WetWebMedia.com

Monks, N. [Goldfish 101: Goldfish May Be Popular, And They May Be Cheap, But That Doesn't Make Them Easy Aquarium Fish](#), WetWebMedia.com