Recapturing the Wonder

A Guide to Start Your Aquarium

D. Patrick Donston

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FRESHWATER OR SALTWATER?

(HOW TO DECIDE)

By D. Patrick Donston

Setting up an aquarium today is easy, fun and educational. Contrary to popular belief; "Aquariums are NOT hard to do anymore", like our grandparents experienced. Today's innovations make keeping a "real" ecosystem in your home - - - "A reality!" Deciding whether to set-up a freshwater or marine aquarium can be confusing; the thought that marine aquariums are "harder" is somewhat misleading. It is best to think marine aquariums are more time consuming and costly at the initial stage. If one meets the proper criteria, a "saltwater" ecosystem can be replicated quite easily.

The selection, diversity, and cost of freshwater organisms are its best attributes. Consider visiting our shop to look around. See what truly energizes your imagination. Talk with a few different aquarists as you look around. What interests and fascinates you? Look at the freshwater and marine exhibits. Which ones do you connect with?

BUDGETING

Next is your budget. Decide how much you would like to spend for your initial set-up costs. You will be able to get a larger freshwater set-up for any budgeted amounts.

For example:

Initial Set-Up Budget $	**Freshwater General Size**	**Marine-Fish General Size**	**Reef Aquarium General Size**
$ 200.00	10 gallon	-	-
$ 600.00	30 gallon	-	10 gallon
$1,250.00	75 gallon	55 gallon	30 gallon
$2,500.00	150 gallon	90 gallon	65 gallon

Prices are general samples and not exact amounts. Variations of costs occur depending on furniture, and specific equipment needed for certain ecosystems.

Any associate would be pleased to price out any aquarium size with options for you. It is important you get a brief explanation as to what and why they are including certain equipment into your cost. Remember to ask if there are other options to upgrade or buy later. Sometimes clients are "sticker-shocked" where in reality they could have purchased the same set-up at a lower cost and added higher tech equipment later as needed. (Please read Chapter 3.).

Your personal/family time will be important to consider before making your decision. Marine aquariums, in particular reef ensembles need more day-to-day and weekly dedication. My advice is to consider the chart below before spending your hard-earned money. Not dedicating the proper time will degrade the bio-system you initially started and will cost you later.

TIME CONSUMPTION

General Weekly Hrs. Needed for Care to:	**Freshwater General Size Up to:**	**Marine Fish General Size Up to:**	**Reef Aquarium General Size Up**
1	30 Gallon	20 Gallon	10 Gallon
2	90 Gallon	75 Gallon	30 Gallon
3	180 Gallon	120 Gallon	75 Gallon
4	300 Gallon & Up	200 + Gallon	150/180 Gallon

Times are average to help you in decisions. They do not include feeding and testing water.

After considering all of your options, you may have questions that need answered before making your decisions. We highly encourage you to call or stop in. We want your decision to be best for you and your household. We find ALL aquariums to be a treasure.

"Securing a better world for fish, through human understanding..."

P. Donston

SETTING UP A FRESHWATER DISPLAY

By D. Patrick Donston

Necessities with Consideration

Before setting up any aquarium, consider the following:

- A level to insure the aquarium is level front to back and side to side. This will give even water pressure and prevent leaks over time.

- A dedicated bucket for aquarium fills and later, water changes. Do not use previously used buckets with household soaps or chemicals.

- Rinse decorations, heaters, and accessories in water only after opening. Do not use soap, sprays, or cleaners on the glass or any aquarium accessories.

- Do Not fully stock a new aquarium with maximum capacity of livestock. (Please read: "Something to know, before setting up your aquarium").

- Tape the background on the outside back of aquarium before placing tank/stand in place.

- Always install the thermometer on the opposite side of the heater.

- Plug all electrical components into a power strip with a surge protector, never right into the wall outlets.

- Do not plug and/or turn on any electrical components without the aquarium fully filled with water. Always use a "drop U" on cords so water cannot bead down a cord and straight into an electrical outlet.

- If you plan to use an air pump, always purchase a check value for airline hosing. This will prevent water from back siphoning out of aquarium in case of power outages.

LEVELING

1.) After placing your set-up in place, check with a level and use wood shims to ensure proper level from front to back and side to side. Open packages of accessories, rinse decorations with tap water and place to side. Next, rinse the substrate in a colander or clean bucket to get dust/debris out. Keep filling the bucket and pouring off until the water becomes clear. When clear, lay the substrate in the tank evenly at bottom. Do not worry about sloping or mounding substrate at this point. If you desire to do this, you should aquascape after water is filled into aquarium.

***Note:** The top and/or light should not be on the aquarium at this time.

FILTER ASSEMBLY

2.) Assemble your filter:

Power Filters - media or cartridges should be rinsed in tap water and placed into chamber per manufacture instructions. These filters hang off the back of the aquarium and should be placed to the far right or left. Do not fill the filter with water.

Canister Filters – media should be rinsed in tap water and placed into chamber per manufacture instructions. These filters go under the aquarium (in the stand) and all hosing must be connected and suction cupped to inside glass per manufacture instructions.

***Note:** Do not fill the canister filter with water.

Internal filters – media should be rinsed and placed in chamber per manufacture instructions. Filter should be secured in far right or left of aquarium.

HEATER TEMPERATURE

3.) Next you will want to secure your heater to the inside right or left backside of the aquarium (opposite of filter side). Set the heater temperature to 78 degrees F.

***Note**: Do not ever plug in heater without water in the aquarium. Always unplug heater when doing water changes.

Stick the thermometer on the front side glass opposite of the heater. Usually this will be on the same side as where you have placed your filter. Make sure you can see the thermometer easily. If you are using an air pump, set-up per manufacture instructions. Run airline tubing up the back outside and over the top into aquarium. Secure air tubing and airstone with suction cups.

***Note:** Airstones should never be placed directly under the filter intake, as airflow may cause a filter to cease suction. Always use an airline check valve in the tubing line between the air pump out-flow and the airstone in the aquarium. (See above – tips.).

FILLING AQUARIUM WITH WATER

4.) Filling the aquarium with water:

You will need a small plastic bowl. Place the bowl on the gravel bed so when you fill aquarium, the water hits inside the bowl first, then slowly over-flows into the gravel bed. This will keep the bed from disturbance and the water clearer as the aquarium is being filled. Once water in the aquarium is over the bowl, it may be removed and continue to fill the aquarium up to the bottom of the top frame. *Note: The aquarium water level should not be seen from the front. Once the level reaches the top frame, stop filling.

Tips: Use your water conditioner and add recommended dose to water. After you have fish in the aquarium, you should condition water in buckets before adding to the aquarium.

Never add cold water to your aquarium. If using tap water, turn cold on, then hot to get a "room" temperature feel. It is valuable to purchase a second thermometer to hold under running tap water. Temperature of tropical aquariums should always be maintained 78 degrees F. Always use water conditioner when using tap water.

OPERATION OF EQUIPMENT

5.) Now it is time to get the equipment operating. First run the filter. If using a power filter, take a small cup and scoop water out of the aquarium and add to the filter well (back side of filter). Plug it in, wait for filter to prime and then start flowing. If the filter does not flow, add more water to the back of the filter.

Canister filters are equipped with manual pumps to prime the water from the aquarium, through the tubes, filling up the canister under the stand. Follow manufacture instructions and wait until the hoses and canister are filled with water before plugging in cord.

Important: As noted above, never fill a canister with water, before starting the prime (filter will not work). The manual pump-primes are designed to prime when hoses and canister are empty with no water.

Internal filters may be plugged in as they are submersed under water.

Air pumps may be plugged in. Check your air-flow and bubbles are not going into any filter in-takes.

Caution: Never use a broken heater with cracked glass. It will cause electric shock and harm.

Place tops, covers, and lights on per manufacturer's instructions and turn on lights. The back of covers will have cut-outs to hang power filters, run hoses, cords etc. At first your water may look "hazy". This is normal and should clear within 12 hours of filter operation.

6.) Let your artistic mind flow…

All artificial decorations and rocks can be rinsed in tap water and used. Never use household soaps to clean ornaments. Driftwood should be soaked in hot water (outside of aquarium) in a bucket for 24-48 hours before use. This will bleed out any tannins which may make aquarium brown like tea.

AQUASCAPING

Aqua-scaping is an art form. To get ideas, we suggest you stop by and look at our aquariums. There are over 182 to review. You may choose to slope your gravel, or theme the aquarium; natural, Antarctic penguins, florescent-bright, castles, desert, natural landscapes, sunken ships, etc. The possibilities are endless. For most freshwater fish, your desired aquascape will not matter, although you should provide hiding places and foliage to the surface in some areas.

Lastly, test your pH (or bring in a sample for us to test for you) before buying your first fish. Remember to start your aquarium with purchasing only 1/4 - 1/3 of the total fish

capacity. All aquariums must cycle by establishing a beneficial nitrifying bacteria culture in your filter and gravel beds. This may take up to 3 – 4 weeks. An initial bacteria culture may be purchased and is recommended to inoculate your aquarium. (Please read; "Something to know, before setting up your aquarium".).

Enjoy! Become enamored – and have fun!

THE MARINE AQUARIUM

A Thought on Where to Start

By D. Patrick Donston

BEING "EASY" NOT DIFFICULT

Through many years in the retail trade, I have been asked countless times about setting up a marine aquarium. The myth is; "Marine aquariums are hard to keep." Although the initial set-up cost is higher, they are no harder to keep than a freshwater tank. A marine tank can be twice the price of a freshwater tank of comparable size. This does not mean it cannot be done in an affordable manner. I often recommend staying within a budget. Buy the right equipment the first time, and build on the system as time goes on. With this in mind, many are willing to try, but still so many are not. Mainly because of the horror stories fellow hobbyist have encountered.

Recent technology has advanced to the point where some marine fishes we thought ten years ago that could not be kept are now living and thriving today. Every year we learn more and succeed in breeding different species of fishes and invertebrates than ever before. So for those of you who always thought it was costly or too much trouble, you may want to think twice about it today.

So many times I hear the complaints of new-corners to the marine hobby;

"I'm breaking my tank down, it is too hard, and costing me too much money."

Livestock mortality is usually the hindrance of them sticking with it. After listening to their situation, I find the set-up to be inadequate for marine fish. Of course, it is going to be hard

if you do not have the right equipment. I cannot tell you the number of times I have said, "Well that tank is good for fresh water, but not nearly enough filtration for marine." That is why you must do it right the first time. Set up your tank with the right equipment and it will cost you less in the end.

SO HOW DO WE KNOW IF IT IS SET UP RIGHT?

The hobby is growing and information is easy to obtain. New magazines and books come out yearly. The internet is full of ideas and solutions to problems. There are more fish stores opening up than ever before. Enthusiastic employees are ready to lend a helping hand. So with all of this information available, why do people still have problems setting up their marine tank? One reason is the advice varies dramatically. Hobbyists get confused and do not know what to do. If source A says, it can be done for 50 dollars and source B says it can be done for 100 dollars. Chances are people choose source A. I'm not saying this is right or wrong, but there has to be a way to make a decision.

Now you have loads and loads of information and it is not all saying the same thing. We have to sort out this advice and make practical decisions on what equipment to buy.

First of all, know your source. Is it reputable? Just because it is written down or they work in a fish store does not answer that question. Books can be out-dated. Employees can be just as new as you in the marine hobby. Find experienced aquarists and get their advice on what to read, what is new, and used today. In other words, interview employees at perspective fish stores. After all, they are advising you on how to spend your money.

I'm a true believer we must obtain as much information as we can to succeed in this hobby. None of us know everything, and listening to all ideas can only help us learn more. Do not just do or buy something without an explanation of why. A reputable source will be able to explain the advantages and disadvantages of a product or theory. Always remember;

"Husbandry practices should be done in accordance

with the biological needs of the animals we wish to keep."

My best advice is to go to a store that houses a lot of marine life. Decide what you really want to keep, come up with a budget, and work within it. Know your limits. Bigger is not always better, more expensive is not always the answer. A smaller tank or cheaper filter does not mean it cannot be done. At the same time, you may not be able to house the same animals of someone with a more advanced filter. All theories and equipment have their advantages, but they all have their limits. For example, a power filter, the least expensive filter used for a marine aquarium, will limit you in number, sizes, and types of fish you wish to keep. It will limit you not eliminate you from keeping marine fishes. On the other hand, it would be wrong for someone to advise a power filter to be used in all marine tank situations. In a limited budget, I have often recommended to start with a power filter and stay with relatively hearty fishes. Add another filter (or higher-tech equipment) only when they plan to keep more specialized fish. The same would apply to different techniques and maintenance schedules. We can be lenient on heartier animals than we can on more biologically pressed organisms. A good advisor knows the biological needs and is able to distinguish the right equipment and technique for sustenance and growth of all marine fauna.

There are plenty of experienced marine aquarists out there. Find one willing to work within your budget giving you the best advice, and stick with him. Remember a good aquarist always does what is best biologically for the animals. With this in mind, your experience in the marine hobby will be an enjoyable one.

HOW TO SET UP A MARINE AQUARIUM

By Robyn Bright

Here are the steps to follow when setting up a saltwater tank:

PLACEMENT

1.) Place the aquarium on a very sturdy piece of furniture or preferably on an aquarium stand, especially for larger tanks. Water weighs eight pounds per gallon and when all the equipment, rock and substrate is added on, the tank's weight can be considered anywhere from nine to ten times the size of the size of the tank, so a ten gallon tank weighs ninety to 100 pounds. If placed on furniture, it may be best to place a piece of plexiglass on top first, as some water will end up around the tank due to water changes and so on. This also means that any furniture used should not be an antique or family heirloom as it may be damaged if used as a tank stand. If the tank is being built into a wall or other area, make sure you have plenty of access space at the top and bottom to get to equipment easily, do water changes, and so on.

2.) It is best to locate the tank away from any windows so direct sunlight cannot hit the glass as this will cause algae blooms and in some cases may heat the tank too much. If it is a larger tank, be sure the floor underneath can handle the weight (see step one above). Another important point in deciding where a tank should be located is to place it where you will get the most enjoyment out of it. Set it up in a room where people tend to congregate, such as a TV room, and not so out of the way, that it cannot be seen easily. Note that once tanks are filled with water, they should not be moved unless all the water, rock and/or décor, along with most of the substrate are removed first.

3.) The tank should be level, in its both length and width, before being filled with water, substrate and any rock or decorations.

“LIVE” SUBSTRATE

4.) Most saltwater substrates including live and on the market do not need to be, or should not be if it is “live”, rinsed off before placing in the tank. The exception is any substrate that has a lot of dust such as crushed coral. If the substrate does need to be cleaned, it can be placed in small amounts into a strainer and washed over with plain tap water until no dust is left, or some can be put in a bucket and filled with tap water. As the water goes into the bucket, the substrate can be swished around and around and then the water with the dust in it can be poured out and more water added until the substrate is clean. Sometimes it is best, especially with finer substrates, to have water in the tank first (and conditioned “live” – see step 5 below). To keep finer substrates from completely clouding up the tank, cut a corner from the bag and place the whole bag in the water with the opening near the bottom so the substrate pours straight out onto the bottom glass area. There will still be some cloudiness even with this method, but it will be much less than if the fine substrate was poured in the tank from above the water. If a coarser substrate is used, like crushed coral, it can be put in the tank first before the water, but be sure you are pouring it close to the glass at the bottom and not from a high point where it might damage the tank.

Spread the substrate out into fairly even layer of approximately one-half to one inch across the whole bottom if live rock is not being used. If live rock is being placed in the tank, then it should go in first before the substrate and then push the substrate around it as it is better not to have any or very little, substrate under the rock. Since the rock is “live”, it needs to be placed in a tank filled with conditioned water (not up to the top to allow for the rock) that is the correct temperature and salinity just like the live sand.

FILLING & SALTING AQUARIUM

5.) Begin filling the tank with water if not done in step 4 already due to use of live rock. Note that it is usually easiest and best to put the water, water conditioner and salt in and have the filter, heater and any other equipment running overnight before putting in live sand and/or rock. The water placed in the tank should not be too hot or cold but just slightly above room temperature (around 77 to 81 degrees F). If you use a bucket (or buckets to fill the tank, make sure it is a new bucket that has never had any soap products in it as even a small amount of soap can kill fish and invertebrates. A thermometer can be used at the sink so be more exact if the thermometer is one that does not get stuck to the outside glass of the tank. If it does, stick the thermometer on the tank, preferably toward the side and low in the front or on a side glass panel where it can still be read easily, and watch it as water is placed in the tank once the water level is above the thermometer, then the temperature can be read and the tap water being used adjusted if needed. Do not fill the tank all the way to the top, but about two to three inches below to allow for water displacement from the rock, substrate and any décor. Once everything is in place, the tank

can be filled about one inch from the top so you will be able to float new fish in their bags on top of the water. The correct water level in glass tanks is just to a point where you cannot see the top of the water from the side of the tank as it would be behind the plastic frame. Never fill a tank all the way to the very top.

6.) To get the water ready for any live sand, rock or livestock, put in the appropriate water conditioner and add the correct amount of ocean salt mix according to the manufacturer's directions (which is usually half a cup per gallon). If needed, make up extra water with salt and water conditioner to fill a sump filter, as some of them may take many gallons of water to fill to the right level depending on their size. Swish the salt with your hands in the tank or bucket every five to ten minutes or so to get it to dissolve quicker. Running water pumps, power heads and in some cases filters will help speed up the process. In very large tanks over 55 gallons, it may take an hour or two for all the salt to dissolve completely and give an accurate reading of the salt level (salinity). Once you are sure the salt has dissolved completely, use a hydrometer to check the salinity. It should be at least 1.021 for fish only tanks and at least 1.024 for reef tanks. It can be as high as 1.026, but should never be any more than this. If the salt level is testing low, swish the water around again and then wait a few minutes and check it again. If you are getting the same reading and are still too low, add more salt mix (approximately one-half cup for every ten gallons or so of tank water to bring up the amount roughly .001 – take your time). If the salt level is reading too high, remove some of the salt water and replace it with fresh water until the right level is achieved. With all new water and salt mix, the pH should be correct at the beginning, but check it before adding any live organisms. Have buffer available to bring up the pH (and alkalinity) which will be more necessary as the tank gets older.

Add buffer to the tank whenever the pH is reading lower than 8.2 as the pH in tanks, especially those with invertebrates, should never be below 8.0 or above 8.4 in the future, whenever you do partial water changes, buffer can and most likely needs to be added to the new water in the bucket (along with any water conditioners and of course salt that has had time to dissolve) to keep the pH up in your aquarium.

SETTING UP FILTRATION

Power Filter

Reef Sump

Wet Dry

7.) Set up the filter according to the instructions. In most cases, filters need to be filled up with water before plugged in. Get the filter running smoothly and remember that most filter media, especially carbon if it is being used, must be changed every month, as it will not work after this time. Any sponges, socks or pads need to be washed out, preferably with tank water, every month or as needed, and should not be replaced when worn, preferably not at the same time as the carbon or any other filter media being used, but after two weeks or so. With some filters, cartridges are used that are all in one can therefore be thrown out and replaced once a month. Filter parts, especially the impeller and impeller well, should be cleaned out every four months to keep the filter running properly. The above is also true for any power heads or other water pumps being used, as they should be for reef tanks, so their sponge protectors must be rinsed out as needed and the impeller and impeller well need to be cleaned out every few months.

8.) Place the fully submersible heater (or two as needed for larger systems – be sure they are the same wattage) in the tank. It can be placed low and horizontally on the back approximately one to two inches above the substrate after first setting the temperature to

run in the high seventies or very low eighties as needed for most saltwater tanks. This way water changes can be done without worrying about the heater being exposed while plugged in and breaking, plus you can place rock or décor in front of the heater easily in this position so it cannot be seen from the front. The chiller, if one is being used, can also be set up at this time according to the manufacturer's direction. Some chillers have a spot to place a heater or a heater is included, so one does not need to be placed in the tank. DO NOT plug in the heater until it is in the tank (and that is why you do not want to fill the tank with cold water or hot water – if that happened you must wait until the water is at room temperature before plugging in the heater).

LIVE ROCK & AQUASCAPING

9.) Place live rock or other decorations into the tank if it has not already been done in step 4 above. If setting up a reef tank so that at least a pound of live rock is being used per gallon of tank water, the largest rocks should be placed at the bottom with no substrate underneath them and slightly apart so other rocks can be placed on top of them to form caves. This is desirable not only for looks and to let fish and invertebrates move around the rock easily, but to let water flow around the rock to keep organisms in it alive and help slow down algae growth. When building a live rock wall, make sure that rock is locking together well and not rocking or moving at all as live rock should not be moved once in place. It can take hours to build a rock wall or piles correctly, as rock will sometimes need to be turned and turned and flipped and so on to get it to stay in place, so take your time. Clay cement that is safe to use in saltwater tanks is available but should only be used to stick on small rock with corals on them to bigger rock than cementing large rocks together as it may not hold well. Keep the rock wall and/or piles toward the middle back and far enough away from the front and side glass so that the glass can be cleaned easily.

It is also best not to have the rock touching the back glass too much except as needed to form braces. Along with all this, and when possible, try to keep in mind to leave shelf like projections and areas to place the corals that you buy later. Even if the tank is a fish only tank and rock is not being used, it is important to have some décor, as it gives the fish some security if they feel the need to hide along with making the tank look great. There are many great looking plastic decorations and plants on the market along with some very real looking artificial corals. If you go with artificial decorations, be sure to have different heights with some reaching almost to the top to help break up the tank and will make it look a lot better than doing all short decorations.

TOPS & LIGHTS

10.) Place the hood or glass cover and lighting on the tank. You may need to cut or break out pieces on the back of the hood or cover to allow for a hang on filter or other equipment that goes into the tank. Try not to leave a lot of space open as that will allow more water evaporation and many fish are good jumpers. It is best to put the lighting on a timer, especially for reef tanks, so it is consistent in time and in the time of day it is on. Usually six to eight hours is fine for fish only saltwater tanks without corals, anemones or other livestock that needs light to live, and approximately twelve hours of high intensity lighting will work well for reef tanks with corals and so on. Lights need to be off at night, as fish and invertebrates need darkness to sleep properly. You can, have the light go on during early afternoon and off in the evening a bit if you will be looking at the tank more before going to bed. For instance, a fish only tank (or one with invertebrates that do not need strong lighting like shrimp and crabs) can go on at 2pm and off at 9pm. With reef tanks, many light fixtures have both bright white bulbs and blue (actinic) bulbs on separate switches. These can be put on separate timers so the actinic come on a half hour before and go off a half hour after the brighter white bulbs to act like sunrise and sunset. Both bulbs should be on together during the day (and if wanted into the evening a bit) for approximately eleven hours. Make sure to replace all bulbs (except LED's – no replacement needed) no matter what type of tank they are on, every six to eight months as they will lose intensity over time and shift color temperature therefore causing more algae growth (and unhappy light-needing organisms).

LAST CHECKS & FINAL TIPS

11.) Check the temperature of the tank after a few hours, and the next day, to see if it is at the right level and staying there. Once the temperature is stable, you can start to add fish

and invertebrates. There is no need to wait more than twenty-four hours after setting up a saltwater tank to place livestock in it, as it will not start cycle until live creatures are added UNLESS uncured live rock is used. Uncured live rock has organisms that are dying on it and the rock will have a definite bad smell to it. You cannot add anything to the tank until the rock has cured, which may take as long as six weeks. Keep checking ammonia and nitrite levels (and change water if they get high) at least twice a week in a tank with uncured live rock. Once ammonia and nitrite are reading zero, then you can begin to add livestock. If you do not wish to wait, then you must buy cured live rock (and some filter systems like refugiums should be set up on tanks that have used cured live rock only). When adding the first creatures to the tank, buy fish that are hardy (and preferably peaceful) and remember to only add one smaller (two inches or less sized) fish for every 15 or 20 gallons of tank water at the most! Ammonia is very toxic in the high pH environment of a salt-water tank, so add little for fish and wait a good month in-between additions.

If there is live rock, you can add a bunch of reef safe hermit crabs (about one for every two to three gallons) and small snails (about one for every 15-20 gallons) at the beginning to keep the rock clean. Hardy corals can be added to a tank once it has cycled with fish for a month along with other invertebrates that are hardy. It is best to avoid any sensitive invertebrates, like some shrimps and starfish, until the tank has been running for at least three to four months.

Visit us online for more information about setting up and caring for your freshwater, saltwater or reef aquarium at:

www.absolutelyfish.com

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