Guidelines for Setting up a Marine Tank

Marine fish are some of the most beautiful fish available, and their interesting behaviour, bright colours, and wide range of body shapes and sizes lend interest and colour to the home aquarium.

Their care requirements are different to those of freshwater fish however, and their tolerance for variations in such parameters as temperature and pH is less than that of freshwater fish. The ocean itself is remarkably stable, with very little fluctuation on a daily or even annual basis, and for that reason it is very important to maintain a stable environment for any Marine fish held in an aquarium. It is important to spend time in establishing the tank well before adding any fish, and to monitor the conditions in the tank regularly once it is established.

Many people achieve this, with the establishment of a regular routine and a few good maintenance habits. Below you will find a guide to establishing and maintaining your own Marine tank. This guide will act as a basic introduction, but is by no means comprehensive. For more information, speak to your Aquarium Retailer.

Which system is right for you?

There are essentially 2 different ways to set up a Marine Aquarium – as either “Fish Only” or as a “Reef System”. Reef systems contain Coral, Live Rock, Crabs and / or Shrimp in addition to Fish. Below are the recommended water parameters for these 2 different systems:

Water Parameters (Fish Only System)

Temperature	24ºC - 27 ºC
SG	1.020 – 1.024 ppt
pH	8.0 – 8.4
Ammonia (NH3)	zero
Nitrite (NO2-)	zero
Nitrate (NO3-)	< 20 mg/L
Phosphate	< 0.02mg/L
Alkalinity	125 – 200 mg/L
Copper	0 – 0.3 mg/L

Water Parameters (Reef system, fish/ invertebrates)

Temperature	24ºC - 27 ºC
SG	1.023 – 1.026 ppt
pH	8.0 – 8.4
Ammonia (NH3)	zero
Nitrite (NO2-)	zero
Nitrate (NO3-)	< 10 mg/L
Phosphate	< 0.02mg/L
Alkalinity	125 – 200 mg/L
Calcium	400 – 475 mg/L
Copper	zero (toxic to invertebrates)

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Checklist for setting up your Marine Tank

Your Pet or Aquarium Retailer will be able to provide you with all of the items below. Ask them about "All in One Systems" too, which are now available. These have been packaged by some of the major suppliers to contain the majority of the required components, and require less time and effort when assembling.

• Tank

The tank should be as large as possible for the space you have provided. The larger the tank, the more stable the water conditions and, as previously mentioned, it is very important to keep the water conditions stable for these fish. Also ensure that the tank is the appropriate size for the fish you will be housing (e.g. active, mobile swimmers such as Tangs require a larger tank than Clownfish.) The Aquarium Industries website contains Care Sheets for most Marine species, and you will find out more about the required tank size by downloading these Care Sheets.

• Filtration

Under gravel filters are generally not recommended, as they are easily clogged by sand. Due to their size, they are also usually not effective enough to cope with the large amount of water required in marine systems.

Hang on back filters provide gentle water movement and provide good bio-filtration but not much mechanical filtration. They will suit a small tank with one Clownfish.

Canister filters provide excellent mechanical and biological filtration, and can be used for chemical filtration. They are usually used in conjunction with other filter components.

Trickle systems are excellent for fish only systems, but they leave high levels of nitrate which is undesirable for invertebrates (live rock can be used instead of bio balls for reef tanks). Trickle systems can be used in conjunction with other filtration methods to help reduce and eliminate nitrates.

Protein skimmers are excellent at removing nitrogenous and organic compounds before they need to be broken down by the biological filter. This is essential for Reef Systems.

Live rock in conjunction with good water movement provided by powerheads creates excellent nitrification and denitrification because of the large surface area of the rock. down the organism.

UV sterilizers eliminate pathogens and suspended organic matter by exposing the water (and its micro inhabitants) to Ultra violet light which destroys the cell walls and breaks down the organism.

Deep sand beds, **refugiums**, **fluidised sand filters** and **algae turf scrubbers** are other methods of filtration used for marine systems.

• Temperature

Is controlled by heaters and/or chillers which are either installed within the tank or run separately from the sump.

• Substrate

It is best to use a calcareous substrate such as crushed coral or aragonite**.** These substances will help buffer the pH. The size of the substrate should not be so small as to get sucked into any filtration, but not large enough to pose problems to sand sifting fish such as gobies. The average size used is around 1 – 3mm.

• Decorations

Should be made up of substances that will not negatively alter the water chemistry. Dead coral, lava rock and coral rubble are all suitable choices. Live rock will also perform biological filtration (see "Filtration"). Only cured live rock should be added to an established tank, as premium live rock will have flora and fauna that are still dying off and which will create ammonia spikes. Premium live rock may also introduce unwanted animals into your established tank.

• Test Kits

Good quality test kits are essential to test for the above-mentioned parameters. Electronic meters are available, but are expensive. To measure the specific gravity of the water, you need a hydrometer or refractometer. There are 2 types of hydrometers: the glass type that floats (and usually measures temperature as well), and the plastic kind with a floating arm. Refractometers are more accurate than hydrometers.

• Water

Marine tanks require the addition of salt, to mimic the condition of sea water. Use good quality marine salt that contains no nitrates or phosphates and has all of the trace elements needed for marine organisms. Rock salt or conditioning salts cannot ever be used as a substitute. Natural sea water can be used, as long as it is obtained from an unpolluted source.

• Lighting

For a fish only tank lighting is not critical. Reef setups require specific lighting, such as metal halide, high output T5, actinic lighting and/or LED lighting.

Establishing your Marine Tank

• Initial Set up

Day 1: Decide on the location of your tank before you start. Ensure that it is out of draughts and direct sunlight. Fill the tank with water (natural sea water or fresh water) to the desired level. If using fresh water, add the amount of marine salt required to achieve target SG.

Setup power heads, filters and heaters. Turn them on and leave overnight to mix. **CAUTION:** Do not turn on your electrical equipment until there is water in the tank and your hands are completely removed.

Day 2: Test temperature and raise/lower the thermostat if required. Test the specific gravity and add fresh water if the reading is too high or marine salt if reading is too low.

Day 3 – Day 42: Add substrate and live rock and let cure for a few weeks (add small amounts of food and rock/sand from established systems to seed biological filter). You can add Mollies, which have a very wide tolerance to salinity, to 'seed' the filter.

Test ammonia and nitrite regularly to determine when appropriate to start stocking with fish (slowly). The nitrogen cycle in marine systems is much slower than that of freshwater systems. It may take up to 6 weeks before the cycle is complete, and nitrates are produced.

• Introducing Marine Fish into tank

Before starting, test the tank water once again. Ensure that all water parameters are correct.

Before purchasing fish, ensure that all requirements (feeding, hiding spots, room to grow to adult size) of the species can be catered for and ensure that the fish you have chosen will be compatible. The care sheets available from the Aquarium Industries website will provide valuable information here. We also recommend that you check what water parameters your Aquarium retailer has, and then keeping your parameters as close as possible to those.

Once you have purchased your fish, immediately take them to your home. Do not leave them in the car, and do not place them in hot areas.

Float the bag in the aquarium to acclimate temperature. Do not open the bag at this point. Leave for 15 – 30 minutes.

In a dark quiet area, setup a container with an airstone. Pour the contents of the bag (including the fish) into the container.

Over a period of 1 – 2 hours siphon water from the main tank (using a small airline tube) into the aerated container to slowly acclimatise the fish. This process may be sped up with hardy species or with fish that are not stressed, and may also be lengthened for delicate species (including shrimp and echinoderms) that do not adjust well to changing conditions.

When ready, use a clean, sterilised net to catch the fish from the acclimatisation container and put into the main tank. In some cases the fish can be placed in a floating basket within the tank, while it becomes familiar with its new home and new companions. This also helps the existing fish acclimatise to the arrival of a new tank mate. Using this technique also helps you to identify any aggression, without the fish actually having the opportunity to fight.

Ensure that the lights are off and that there are plenty of places to hide for the new fish that may come under scrutiny from existing tank mates.

It is not unusual for fish to hide for several days until they become accustomed to their new home.

Do not feed on Day 1. Don't be concerned if the fish do not feed for the first 3 – 4 days.

Suitable Fish

Hardy fish which are suited to beginners include Damsels, Clownfish, Blennies & Gobies, as well as some Tangs and Wrasse. Visit the Aquarium Industries website for more details about each of these species, along with information about other popular Marine Fish.

Stocking Densities

• Fish only tank

Stocking densities are much lower than they would be for freshwater systems. The number of fish that you can hold depends on the species and the effectiveness of your filtration system.

• Reef systems

Because invertebrates are more sensitive to organic matter than fish, stocking densities must be lower than in fish only marine systems.

Regular Maintenance

As stressed elsewhere in this care sheet, good maintenance is critical to the success of a Marine tank, as Marine Fish cannot tolerate fluctuations in water quality in the same way that freshwater fish can. Regular testing, cleaning, and appropriate feeding are vitally important.

However, as long as the tasks are performed regularly, the work is not overly time consuming. Prevention is better than cure, so follow these guidelines to ensure that your tank stays in top condition.

- **Daily**

Feed fish and check on behaviour for potential issues (health or territorial).

While feeding, perform a quick visual check to ensure that all pumps, filters and lights are working.

- **Weekly**

Test the water and adjust where necessary (only fresh water is necessary to top up losses from evaporation).

Clean algae from the front of the tank.

Check flow rates of filters and remove 'scum' from collection chambers of protein skimmers.

- **Every 2— 3 weeks**

Perform water changes when nitrate levels get to the high end of tolerance range (see water parameters) if you do not have other methods of removing nitrates.

- **Every 6 months**

Change tubes or light bulbs on tanks containing corals, and globes in any UV units.

Potential Health Problems

95% of health problems experienced by fish, both freshwater and marine, relate to poor water quality. Problems which can be experienced may be Viral, Bacterial, Fungal or Parasitic. All are able to be treated using commercially available treatments, coupled with good maintenance and improved feeding.

For a brief overview of the possible health problems experienced by Marine Fish, download the 'Marine Fish: A Guide to Health' Care Sheet from the Aquarium Industries website.

With a little care, you will enjoy many years of pleasure from your Marine tank. Visit your nearest Pet or Aquarium retailer today to start!

The above is intended as a Guide Only, and we recommend that you discuss your specific requirements with your Pet or Aquarium Retailer. You will find more care sheets at www.aquariumindustries.com.au.

For more Care Sheets like this, visit our website: aquariumindustries.com.au

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