

A Step-by-Step Guide to Your Nano Reef

Basic Requirements of a Successful Marine Aquarium

Any reef tank – if small or large – is a snapshot of a complex and vast natural habitat. This tiny cutout needs to be well designed and sustained with the right technical support. Only in optimal conditions your tank mates will thrive and you will find pleasure in watching them. Although it is difficult to be patient during the setting up, a well planned and stepwise approach will get you fastest to long-term success. In the following we introduce some basic requirements you should consider before starting your Nano aquarium.

Enjoy your mini reef!

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Step 1: Research and Study

When being a newcomer to this hobby, get and study as much information as available before you do your first shopping. There is a plethora of publications, books and online sources available. Also try speaking to experienced aquarists and learn from their tries and errors.

Step 2: Rethink Investments

Make up your mind how much money, time and effort you are willing to invest. A major cost factor is maintenance (e.g. electricity), not the initial purchase of hardware. Once you know what you can and want to afford, visit a dedicated reef shop and get advice on the suitable tank size.

Step 3: Planning the Stocking

When being sure about the aquarium size, start thinking about stocking your tank: What kind of marine life would you want to keep and what are their needs? Can you cater the needs of these animals (e.g. nutrition, habitat, temperature, behavior, space)? Are the selected species compatible with each other?

If you can afford a large tank, you can plan your aquarium according to your favorite wildlife's needs. However, in most cases the stocking will need to follow the tank size.

Step 4: Setting up and Cycling

Finally you can start setting up your tank and build your reef with live rock according to the needs of any other planned livestock. Consider the following requirements:

a) Water Quality

It is best to use purified water, filtered through an ion-exchange resin filter after osmosis. Water purification ensures there are no heavy metals, nitrate, phosphate or silica left. Generally electrical conductance will be around 0 and 1 Microsiemens. As water volume is limited in Nano tanks, alternatively distilled water can be purchased and used.

Tap water should only be used when nitrate load is below 10 Milligram per Liter and phosphate values are below 0,1 Milligram per Liter. Silicates shouldn't exceed 0,05 (diatoms can become a pest in Nano tanks easily).

Many pharmaceutical branded salt mixes are available on the market – a **MUST** for any reef tank. Salinity can be set a bit higher in small tanks lacking a calcium reactor, to ensure trace elements and minerals like magnesium and calcium are sufficiently provided. Ideally salinity is between 34 to 35 Gramm per Liter; specific gravity at 1.024 to 1.025. Check salinity regularly. A change in the salt mix you use from time to time helps overcome potential deficiencies in the composition.

Once a week you should replace around 10% of your tank water with prepared salt water. A regular, although small, **water exchange** helps to establish continuity and avoids heavy oscillation in water parameters. Moreover it replaces trace elements and reduces the load with organic substances (e.g. debris, feces).

Generally you should observe your tank closely to react to problems right away before they become disastrous.

When discussing **water quality parameters** there are many opinions and it is hard to tell what is right or wrong. It is desirable to mimic water parameters like in the natural environment of our wild tank mates and avoid heavy fluctuations, which cause stress to them. Keep in mind that water quality is to suit your livestock. As such watching the well being of your tank mates is more

important than keeping a strict standard. Sometimes feeding your fish is better than enjoying a low nitrate value shown in your test kit.

b) Technical Supply

Especially when you decided for a Nano tank, you'll need to ensure good conditions and thus supply the needed technical help. These small aquariums are more susceptible to changes in water quality and temperature because they contain a smaller volume of water with therefore limited buffering capacity.

To provide, e.g. corals with sufficient light and water movement, it needs a jet pump and a surface skimmer. Especially in small tanks biofilm builds up easily on the water surface, hindering light and oxygen diffusion. Illuminants, filter and protein skimmer (especially when stocking with fish) are obligatory supplies same as in any larger sized aquarium.

c) Set up and Decoration

Set up and decoration of the tank needs to **answer the needs of livestock**: bottom dwellers like gobies need sufficient sand and coral rubble, ranging specimens a lot of swimming space, everybody needs a hiding ground, corals and mushrooms substrate to grown on...

A framework of live rock and bottom substrate is important to build up micro fauna, including nitrogen-fixing bacteria, which help stabilize water quality. Micro fauna also forms the base of nutrition for some tank mates. As a rule of thumb: 10% of the total water volume translates to the needed volume of live rock in kilogram.

Also consider that corals, anemones and sponges can grow significantly and thus take additional space from the free water column some tank mates need to swim around. When focusing on ranging specimens it is thus better to use less live rock. To the opposite the tank with mainly sessile and sedentary inhabitants benefits from more rockwork.

d) Cycling and Stocking

After setting up and decorating your tank, it mainly needs time. Cycling your tank without any additional livestock beside live rock is essential to stabilize

water parameters and establish a well functioning micro fauna. When the water quality suits the needs of higher life, you can introduce the chosen invertebrates and vertebrates.

Often not considered livestock, the cleaner crew of invertebrates is an essential asset of every tank, helping to control unwelcome algae growth and debris.

Any new arrivals need to be acclimatized first. Even when transport time was short, there will be differences in water parameters between transport and tank water, which need to be balanced out.

In order to avoid the spread of disease in your main tank, but also to reduce stress to the newcomer, it is best to use a quarantine tank with the same water parameters as your main tank for acclimation. A minimum quarantine period of two to seven days is recommended.

Further guidance on acclimation and quarantine can be found here:

http://saia-online.eu/images/downloads/en/saia-acclimation-procedures_en.pdf

http://saia-online.eu/images/downloads/en/saia-quarantine-procedures_en.pdf

More guidance on the setting up of a Nano tank is given here:

<http://reefbuilders.com/2009/03/28/nano-reef-aquarium-secrets-simplicity-key/>

<http://reefbuilders.com/2007/04/26/starting-a-nano-reef-aquarium/>

http://en.wikipedia.org/wiki/Reef_aquarium

<http://www.liveaquaria.com/pic/article.cfm?aid=204>

<http://aquadaily.com/2009/02/23/setting-up-a-reef-tank/>

<http://www.myfishtank.net/forum/nano-saltwater-discussion/34054-nano-reef-step-step-guide.html>

<http://fishprofiles.com/articles/article.php?id=46>

<http://www.wetwebmedia.com/marine/index.htm>