

SAIA – WATER QUALITY PARAMETERS

Note: This document outlines procedures to maintain water quality SAIA recognizes and recommends as best practices in line with the Code of Best Practices.

Purpose of Water Quality Procedures:

Water is the environment of our tank mates. To ensure their health and long life we thus need to ensure a quality environment. Fluctuating and inappropriate water parameters are one of the major causes for illness and mortality for animals in our industry.

There are different ways to achieve quality water. It is even difficult to provide guideline values for water parameters as several ranges will work out. In general the goal is to provide a similar environment like at the place of origin. However success in doing so will always be limited as even a well-run hobbyist tank is only a fragment of a huge ecosystem that is impossible to copy. In a multi-tank holding facility things can get even more complicated, but the importance of achieving certain standards is given.

Water Quality Procedures

A) The first step in providing good quality water is to carefully cycle your system while setting it up and to choose the equipment carefully.

Recommended equipment includes, but is not limited to:

1. Quality salt (or clean natural seawater)
2. Filter (biological and mechanical)
3. Pumps to ensure water flow
4. Skimmer
5. Temperature regulation
6. Sterilizer (UV and/or ozone)

B) Water quality needs to be regularly monitored. It is advisable to invest in electronic test equipment for pH, salinity and temperature, as these parameters need to be monitored closely (see table1).

What to measure?

PH – vital to any organism’s health

Temperature – most marine organisms are very sensitive to temperature changes

Salinity – crucial to maintain the ideal environment for marine organisms

Alkalinity/carbon hardness – closely related to pH, your buffering system

Ammonia/Ammonium – killer no. 1, very toxic to all organisms

Nitrate – the fertilizer for unwanted algae growth, stress factor to organism

Nitrite – elevated levels when your biological filter is not working properly, toxic to all organisms

Also recommended are:

Oxygen – vital to fish health and proper working of biological filter

REDOX – to measure the potential of your water to oxidize and remove contaminants

Calcium – for corals especially to enable growth

Phosphate – a key calcification inhibitor

Acceptable Tolerances

All tolerances indicated here are only guiding values. It is important to keep each parameter in a certain range tolerable by and supporting the organisms health.

All parameters are connected and will influence each other, thus one parameter out of tolerance requires immediate corrective action before affecting other parameters and the general water quality.

Optimal values are given in brackets, where applicable.

	pH	Temp.	Salinity	Alkalinity	Ammonia/ Ammonium	Nitrate	Nitrite
Fish only	8.1 – 8.5 (8.4)	24°-28°C (26°C)	27-35 g/l (32-34)	6.5-11 dkH (8)	0.0 mg/l	<30mg/l	0.0mg/l
Invertebrates	8.1 – 8.5 (8.4)	24°-28°C (26°C)	30-35 g/l (32-34)	6.5-11 dkH (8)	0.0 mg/l	< 5mg/l	0.0mg/l
Test Frequency	Daily	Daily	Min. Weekly	Monthly	Weekly	Monthly*	Biweekly*

* Depending on stocking density and turnover rates

C) Good maintenance is another important step to keep good water quality.

Clean and disinfect tanks regularly and remove excessive food particles and dead organisms as soon as possible. Siphon tank bottoms at least daily – more during quarantine.

Maintenance is very important for your equipment too. Follow the indicated steps and frequency given by the manufactures and clean filters and skimmers regularly to maintain their optimal functioning. When using UV, it is important to apply the needed wattage, quantity and regulate the flow rate, but also to exchange bulbs at the minimum every 6 months.

Regular water changes/re-fills are part of good maintenance as well as calibration of your test equipment.