

9 Most Important Reef Tank Aquarium Water Parameters

Water Parameter	Value	Importance
Alkalinity	8-12 dkh	Alkalinity is a complex concept/thing to contemplate. As aquarists, we don't care so much about the scientific definition of it, as much as we care that it is a proxy (a way to estimate) the amount of bicarbonate available in the water--because bicarbonate is essential for coral health.
Ammonia	~0 ppm	Ammonia is a toxic waste in your aquarium. Except for when you are cycling your tank, you want ammonia levels to be as close to zero as possible
Calcium	~400 ppm	Calcium is another essential element for coral health in a saltwater aquarium. According to the Drs. Foster and Smith chart, natural coral reefs tend to have calcium levels between 380-420 ppm (parts per million). For simplicity sake, I find 400 ppm to be a suitable approximate value
Nitrate	~0 ppm	In a properly cycled aquarium, the presence of nitrate is confirmation that your biological filter is working. Congratulations on that. On an ongoing basis, you want to strive for nitrate levels as low as possible. However levels around 30-40 ppm are generally tolerated by most saltwater aquarium fish (except for fragile species) and many soft corals that tend to come from nutrient rich waters.
Nitrite	~0 ppm	Nitrite is an intermediate by-product produced by your bacterial filter. In your filter, bacteria convert toxic ammonia into less toxic nitrite and then nitrite is further converted into an even more safe chemical called nitrate. Except when cycling your tank, nitrite levels should remain as close to zero as possible
pH	~8.1-8.4	While the absolute pH is important, it is perhaps even more important to ensure that the pH remains stable. Dramatic swings in pH can cause problems for your live stock
Phosphate	<0.2 ppm	On natural reefs, phosphate is present at a level of ~0.13 ppm. In your saltwater aquarium, it acts as a fertilizer for algae--because of that, I recommend you keep levels below 0.2 ppm if possible
Salinity	Measured as specific gravity 1.025	The salinity of the ocean is actually ~ 35 g/L, but for your saltwater aquarium, it is more common to measure the specific gravity of the water as a proxy for salinity, because of how easily specific gravity can be measured.
Temperature	73-84 Fahrenheit	As long as the temperature of your saltwater aquarium is in this range, keeping the temperature consistent (avoiding fluctuation) becomes more important than the actual value itself. I have most commonly seen/heard recommended temperatures around 78 degrees Fahrenheit (25.5 degrees Celsius)

3 Important Water Parameters That Aren't Worth Measuring

Water Parameter	Value	Importance
Iodine	0.06 ppm	Iodine, as a trace element does appear to be important to several macro algae, shrimp and coral species, but because natural levels are so low (0.06 ppm), it is very difficult to test and maintain these levels with standard test kits. As such, I don't recommend dosing iodine as a supplement with the intent to keep levels consistent with natural seawater
Magnesium	1285-1300 ppm	Magnesium is the third-most abundant ion in seawater. It is an extremely important ion, but since it is generally present in such high quantities, measuring it and worrying about it just doesn't seem that practical to me. As such, I put it in the 'nice to know, but don't need to worry' bucket
Strontium	8 ppm	Strontium is actually a bit of a controversial supplement in the saltwater aquarium hobby (well, I guess as controversial as something like strontium supplementation could be). If you want to learn more about Strontium than most chemists (slight exaggeration there) check out this article. By the way, the author states that typical ocean levels of strontium are 8 ppm