

Ok, so you want to know how many fish you can keep in your tank. Well, the answer to that question is not as easy as it may seem. Many novice aquarists are told that they should have less than 1 inch of fish per gallon of water. This is one of the most widespread myths of fish keeping. It is also dead wrong.

For one thing, an inch of a thick-bodied fish like an Oscar is much different than an inch of a thin-bodied fish like a neon tetra. Anyone who thinks 12 one-inch neon tetras place the same demand on a tank's filtration and require the same space as a 12-inch Oscar needs to rethink things a little. The Oscar will likely weigh almost a pound, while all 12 neons together will weigh just an ounce or two at the most. Also, a 1-inch fish does not need nearly as much room to swim as a 12-inch fish.

So, you can see that the 1-inch per gallon rule misses the mark. The same is true of any other one-size-fits-all rule that you hear from your local fish store or from fellow hobbyists. So, you might then wonder how you can correctly determine when your tank is too full.

While there is no easy answer, I have developed a few guidelines through my experience as a fish keeper, and through reading the suggestions of others in the hobby. These guidelines are somewhat general, and will not give you an exact answer, but they will give you an idea of whether or not you are on the right track. Also, I have developed these guidelines for a freshwater tank. The concerns for a saltwater tank are similar, but not exactly the same. There is a link at the bottom of this article to an excellent discussion of stocking levels in saltwater aquaria.

Remember when considering these issues to take into account the full adult size of your fish. That cute little one inch Oscar at the store will eventually be a 12-inch or bigger adult. His needs as an adult are much greater than his needs as a baby. Do not fall into the trap of thinking that you will eventually get a bigger tank. The need for that bigger tank will creep up on you a lot faster than you think, and you may not have the resources to buy it when the need arises. It is best to stick with fish that will be comfortable in your tank for their whole life. When you finally do get that bigger tank, you can then consider those bigger fish you have been drooling over.

Now for the guidelines:

Bio-load

Bio-load is a measure of the amount of waste produced by the fish and other organisms in the aquarium. In other words, it represents the amount of work that the bacteria in your filtration media will need to do to keep the ammonia and nitrite in the tank below toxic levels. If you are not familiar with how this works, please refer to [\[this\]](#) article on the nitrogen cycle.

The actual bio-load is going to depend on the total weight of the fish in the tank, the amount you feed them, whether there are plants to use up some of the waste products, your maintenance routine, and how much surface area is available in your tank and your filtration media for nitrifying bacteria to grow.

When determining whether you have too much bio-load for your set-up, tests for ammonia, nitrites, and nitrates are invaluable. If your tank is cycled, you should never have any detectable

ammonia or nitrites in your water. If you do, there is a problem. One possibility is that your bio-load is too high for your filtration and the size of the tank.

Also, nitrates will build up over time. The jury is still out over exactly how sensitive freshwater fish are to nitrates, but regardless, your nitrate levels are good indicators of the overall level of pollutants in your tank. For most freshwater fish, the nitrates should be kept below 40 parts per million with under 20ppm being much preferred. You want your fish spending more time in nitrate concentrations below 20ppm than above it and you never want nitrates to exceed 40ppm for any significant length of time. If you find that you are forced to do water changes too often to keep the nitrates in check, then your tank is probably supporting too much bio-load.

Oxygen Demand

Related to the bio-mass is the issue of oxygen demand. The more biomass present in the tank, the greater the demand for oxygen. If there is not enough oxygen in your water, your fish will suffer. The amount of oxygen in your tank is controlled by several variables. These include the oxygen demand by the tank's inhabitants, surface area of the tank, amount of agitation at the surface of the water, water temperature and any oxygen added to the water by plants.

Generally, the larger the surface area of your tank, the more the surface is agitated, and the lower the water temperature, the more oxygen will be available to your fish. Plants will also help in this area, but are not nearly as important as surface area and good surface agitation. Generally, if there is not enough oxygen in your tank, you will see your fish gasping at the surface. This is a good indication that you need to do something to correct this problem. Possible solutions include removing some of the fish, and increasing the agitation at the surface through the use of additional filtration and/or air pumps.

Swimming room

Like all animals, a fish needs to exercise to be happy and healthy. Bigger fish need more room than smaller fish, and faster fish need more room than slower fish. The main things to consider

here are the length and width of the tank as compared to the length each of your fish.

The length of the tank should be at least 4 times the length of your largest fish, or even longer if that fish is particularly fast. The width is not quite as important as the length, but should at least be enough that your biggest fish can turn around comfortably and without bending its body.

Territorial needs

Cichlids are a good example of territorial fish. Each of them has a need, particularly during spawning, to establish an area in the tank that is “theirs”. If you do not provide enough space and hiding places for the establishment of this territory, violence will occur. To assess whether a given tank will provide enough territory, you need to look at the “footprint” of the tank. To find the footprint of your tank, multiply its length by its width. If your units of measure are inches, your answer will be in square inches. This area, not the total water volume is crucial with territorial fish. That is one reason it is often better to get a longer, wider tank rather than a taller tank.

I tend to divide territorial fish into 3 categories based on size. Large territorial fish (those that grow upwards of 9 inches) seem to need upwards of 3 square feet of territory each. To get this, you need a really big tank if you are going to keep very many. Medium sized cichlids (those that grow between 4 and 8 inches) can get by with a smaller territory, about 1.5 square feet. Smaller cichlids can get by with even less territory.

These are all approximations and may vary a lot with specific species and individuals, and they are completely inaccurate with rift lake cichlids, which tend to be so aggressive that you either have to give them huge amounts of territory for the size, or pack them in so tight that no one fish

can establish a territory.

Height

Some fish, such as discus, and angelfish, need a taller tank. This is counter to my previous statements about longer wider tanks being better. How tall the tank needs to be really depends on the fish, but I would recommend that it be at least twice the height of your “tallest” fish.

Conclusions

These guidelines may seem a little daunting at first, but as you gain knowledge and experience as a fish keeper, they will start to seem like second nature to you. If your tank is overloaded, you will just “know” it. In the meantime, the best advice is to start with just a few fish and slowly add more over a period of several months. This way, you will be able to see how your tank will react to the new additions and you will be able to detect an over-stocked situation before disaster strikes. Remember to research your fish thoroughly before you buy them so that you know before you buy it that you will be able to care for it properly. When you run into problems, do not be afraid to ask here or on other fish forums. Most aquarists are happy to share their knowledge with budding fish keepers. We were all new to this once.