African Cichlid Deaths

Moving fish between aquariums is stressful.

By Paul V. Loiselle

Q. I recently purchased a used 75-gallon acrylic aquarium and am attempting to raise African cichlids. I've installed a wet/dry filter, I clean the tank at two-week intervals and have purchased all the necessary supplies to keep the fish healthy. After the filter had cycled (six weeks) I replaced the original tetras and catfish with eight cichlids.

Things were going well for four or five weeks, so I decided to buy some more Africans. With the addition of 14 new cichlids to my original lot of eight, the tank now housed 22 fish. After a few days I had lost four fish. By the end of a week the total had risen to eight. Two weeks after adding the new fish to the tank all 22 had died. The retailer I bought the fish from suggested that I could avoid a repetition of this disaster by stocking the tank more heavily, providing more hiding places, checking the ammount of salt in the water, feeding the fish more frequently and raising the water temperature from 80 to 85 degrees Fahrenheit. Can you suggest anything else a beginning aquarist could do in this case?

A. Your disaster happened because you disregarded two of the cardinal principles of fishkeeping. Your first error was to introduce new fish into an established aquarium without a suitable quarantine period. Your second was to assume that the capacity of a functioning biological filter could instantly expand to accommodate a tripling of your tank's fish population.

Moving fish between aquariums is stressful. The greater the difference between the conditions under which the fish are kept, the greater the stress. Because stress compromises their immune systems, newly moved fish run a greater risk of being attacked by pathogens and parasites than do established animals. If, as often happens, these attacks overwhelm the victim's defenses, the numbers of pathogens or parasites in the aquarium can increase explosively until they overwhelm the defenses of even otherwise healthy tankmates.

Isolating newcomers in a quarantine tank that facilitates careful observation automatically protects a display tank's established residents from such a threat, maximizes the chances of detecting a disease outbreak soon enough to afford some type of successful treatment and simplifies the task of administering an appropriate therapy. Many commonly used therapeutic agents will compromise the function of or totally destroy a display tank's functioning biological filter. This problem does not arise in an appropriately set-up quarantine tank.

In the case of Lake Malawi cichlids, such isolation also makes it possible to initiate aggressive prophyllactic treatment of the intestinal Hexamita infestations that appear endemic to the Florida-bred animals most commonly available through commercial channels. A seven- to 10-day regimen of a commercial anti-parasitical food will significantly increase the survival prospects of pond-bred Malawi cichlids, and in so doing greatly minimize the risk such newcomers pose to a tank's established residents. Thus, my advice is that you set up a 15- to 20-gallon quarantine tank before you make any further purchases of fish for your display tank.

The actual cause of your debacle was almost certainly the overloading of your biological filter by increasing your tank's fish population threefold overnight. A biological filter depends upon the activity of a resident population of nitrifying bacteria to efficiently break fish waste down to relatively harmless nitrate. When the amount of waste produced exceeds the filter's processing capacity, levels of toxic ammonia and nitrite can suddenly peak. Such "spikes," even if not immediately lethal to a tank's residents, significantly increase stress levels and in so doing can open the door to opportunistic fish pathogens.

While nitrifying bacteria are capable of rapid multiplication, they still require a realistic interval of time to increase their population densities in response to an increased bioload and augmented food source. Had you introduced your 14 new fish at the rate of two a week over a period of a couple of months, it is highly probable that the exercise would have been carried out without any mortalities at all. Alternatively, you could have added several cups of an ammonia-absorbing zeolite to your filter to compensate for the sudden increase of nitrogenous wastes to the aquarium that was inevitable with such a dramatic population increase.

In short, while the advice you received from your retailer is certainly germane to the management of an established community of African cichlids, none of this information was particularly relevant to the task of getting the community established in the first place. If you quarantine all new purchases before adding them to your tank and respect the limitations of your filter system by increasing its population incrementally, your second attempt at Malawi cichlid husbandry should be much more rewarding than the first.