FAQ: DISEASES AND OTHER PLAGUES

[Editor's Note: Volumes are in US gallons; Temperature is in ^{o}F]

Contents:

FAQ: FISH DISEASES

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Causes

Q: Why is my fish sick and how do I prevent more illness?

A: Probably 80-90% of diseases in captive fish can be prevented by avoiding stress. Stress weakens fishes' immune systems, leading to increased susceptibility to disease. Actually, diseases and pathogens are almost always present in tanks, but a healthy fish's immune system will prevent them from being a problem. Some of the most common stressors for captive fish are:

- Poor water quality: measurable ammonia or nitrites, or very high nitrates.
- The water temperature is fluctuating more than 2 deg F/day
- Incompatible species in the tank.
- Too many fish in the tank (5 adult angelfish in 10g [38 litres] tank).
- The tank is too small for the fish (foot long fish in 10g [38 litres] tank).
- The water is too warm or too cold for the species (goldfish vs.tropicals).
- wrong pH for species (Discus vs. African cichlids)
- pH fluctuations greater than 0.2 units/day.
- Insufficient cover or hiding places present.
- Wrong water hardness for the species (Discus vs. African cichlids).
- Insufficient oxygen in the water.
- Improper fish nutrition (wrong food, foods not varied).

Keeping your tank free of disease

Q: Do I need a quarantine tank for new fish?

A: Quarantining new fish is a good habit for all aquaria, but is not absolutely necessary for success. Quarantining is simply keeping a fish in a separate tank for long enough to be certain that it is disease free. Many beginners do fine without a quarantine tank, and object to the cost of another setup. A quarantine tank does cost more, but if a hobbyist has hundreds of dollars invested in fish, it is cheaper to have a separate quarantine tank than to replace fish killed by a newly introduced disease. Also, many of us become attached to fish and do not want to expose our pets to diseases from newcomers, no matter what the cost.

The purpose of quarantining is to avoid introducing new diseases to a stable system, and to be able to better observe new fish for signs of disease. A quarantine tank can also double as a hospital tank for sick fish. Hospital tanks are good because they lower the cost of using medicines and keep diseased fish separate from healthy ones. Quarantine is probably most important for saltwater tanks/reef systems because of the difficulty of treating diseases, or wild-caught freshwater fish because they are probably not disease-free. Quarantining itself can stress fish so be sure quarantine is as stress-free as possible. To set up a quarantine or hospital tank:

- Keep an extra filter -- a sponge filter is ideal -- or piece of filter floss in an established tank, so that you don't have to keep the quarantine tank set up at all times. Some people choose instead to keep the filter going with guppies or danios (for freshwater) or mollies (for saltwater).
- If you don't keep the tank running, use old tank water to fill the tank. So: old tank water + established filter = instant established tank.
- Add a spare airpump and heater. If you haven't messed with the heater during storage, it should come to wherever you had it last time.
- Consider using Amquel or equivalent when medicating the tank in case the biological filter bacteria are sensitive to the medication. Sick fish are especially susceptible to ammonia. (Note that ammonia which has been bound with Amquel still shows up on a nessler ammonia test. So, if you are planning on testing for ammonia in that tank, you need to use a salicylate ammonia test.)
- For a hospital tank, do small, frequent water changes (even every day). If possible, quarantine all of your new fish for about three weeks. During that time, gradually acclimate the fish to your tank's parameters: hardness, pH, salinity, temperature, etc., and watch for and treat any signs of disease.

Do not medicate quarantined fish "just in case." Only treat evident, definitely identified diseases. Treating all quarantined fish with a bunch of medicines will just lead to weakened fish and antibiotic resistant bacteria. Once you are done with the quarantine, if you treated any especially nasty diseases, it is good to disinfect the tank and reestablish the filter. Chlorine bleach or strong saltwater (for freshwater) work well. Be sure all traces of bleach are rinsed off. Another good disinfectant is potassium permanganate (Jungle's Clear Water is one commercial way to get it) *[unsure that you can get Jungle's Clear Water in Australia. You can get the crystals from a chemist..Editor]*. If you choose not to quarantine, do not add store water to your tank with the new fish (see the BEGINNER FAQ for acclimation ideas *[hopefully in the next issue..Editor]*).

Q: How about quarantining plants?

A: Plants can carry diseases into a tank, too. It is a good idea to disinfect new plants if there were fish in the tank with them at the store. Refer to the PLANT FAQ *[hopefully next issue..Editor]* for disinfection methods.

Q: How do I avoid introducing diseases in the first place?

A: Never buy sick fish from a store. Especially do not buy fish or plants from a tank if ANY fish in the tank shows any signs of disease or if there is medicine in the water (water is colored yellow, green, or blue). Store people may say the fish are fine, but if they were, why is the medicine in the tank? Also ask how long the fish have been in the store. New arrivals may be carrying diseases that have not shown up yet. It is better to wait a couple of weeks before purchasing the fish. If you must have a fish that just came in, be especially sure to quarantine it properly.

Diagnosis/common diseases or: How do I know the fish is sick?

- Most important: watch your fish and know what their normal behaviour and appearance is. If you don't know what normal is, you can't know what sick is. Bad signs:
- Clamped fins (fins are held abnormally close to body)
- The fish refuses its usual food for more than 2 days.
- There are visible spots, lesions, or white patches on the fish.
- The fish gasps at the surface of the water.
- The fish floats, sinks, whirls, or swims sideways.
- The fish shimmies (moves from side to side without going forward).
- A normally active fish is still.
- A normally still fish is very active.
- The fish suddenly bloats up, and it's not due to eggs or young.
- The fish is scratching against tank decorations. I suggest setting up a fish medicine cabinet. It seems like fish always get sick when the store is closed.

  Water quality test kits: pH, ammonia, nitrite, nitrate
  Aquarium salt (NOT table salt. Most table salts contain additives to keep them from clumping. Kosher or rock salt is OK).
  Malachite green/formalin ich remedy
  Methylene blue
  Chlorine bleach for disinfection
  Maybe one antibiotic (Kaynamycin or Furanace) *[unknown if in Australia..Ed.]*
  Antibiotic-containing food
  Copper remedy for parasites And for fish big enough to handle:
  Q-tips
  Malachite green or mercurochrome

Common diseases/problems or What's wrong with my fish?

Bad water quality

Fish are gasping at the surface, or very inactive, but there are not visible lesions when it first starts. Their fins may be clamped. Many fish of different species are affected, and possibly the whole tank. If the water has been bad for a while, the fish may have finrot, or streaks of blood in their fins. If fish are gasping at the surface, or have purple gills: high ammonia or low dissolved O_2 may be the problem; test ammonia, dissolved O_2 If the main symptom is inactivity: test nitrites, pH, dissolved O_2, nitrates Depending on your test results, try the following:

- Ammonia

  Change enough of the water to reduce ammonia levels to 1-2 ppm for freshwater or below 1 ppm for saltwater. If that means changing more than a third of the water, be sure the water you add is the same temperature, salinity, hardness and pH of the tank water. It is also okay to do multiple smaller water changes for a few days. Aerate, and make sure pH is at or below 7.0 for freshwater tanks. In addition to or instead of changing water, you can also add a dose of AmQuel to give fish immediate relief. Find out why ammonia is present and correct the problem.
- Nitrites

  Change enough of the water to bring nitrites down to below 2 ppm (as with ammonia, if this is a lot of water, match water parameters or do multiple water changes), add 1 tbsp/gallon salt (not all fish may tolerate this much -- start out with 1 tsp), and add supplemental aeration. Find out why the nitrite levels are high and correct the problem.
- Nitrates

  Change water and clean the filter. If your filter is dirty, there is more waste material present to break down into nitrate. Start feeding less and changing water more often. Low oxygen Run an airstone. If this helps a lot, the fish probably don't have enough oxygen in the water. Your tank may need cleaning, fewer fish, or additional water movement at the surface from a powerhead, airstone, or filter.

- Improper pH

  If pH is too low: make sure carbonate buffering is adequate -- at least 5dKH. In general, adding baking soda at 1 tsp. per 30 gal. raises dKH about 2 degrees. For a 10-20g tank that just needs the pH a little higher, try about a quarter teaspoonful. If that isn't enough, add up to a teaspoonful more. You can scale this up to 1 tsp/30 gal for larger tanks. If the pH is still too low and the KH is at least 5-6 dKH, clean the tank. For long-term buffering in saltwater and alkaline freshwater systems, add crushed coral. If pH is too high, pH down (phosphoric acid) can be added. Don't rely on this stuff, except in extreme situations like ammonia poisoning because it can cause excessive algal growth. To lower pH long-term, filter over peat, or use distilled or deionized water mixed with your tapwater.

Freshwater Ich

Symptoms: Fish look like they have little white salt grains on them and may scratch against objects in the tank. White spot disease (Ichthyopthirius multifiliis) is caused by a protozoan with a life cycle that includes a free-living stage. Ich grows on a fish --> it falls off and attaches to gravel or tank glass --> it reproduces to MANY parasites --> these swarmers then attach to other fish. If the swarmers do not find a fish host, they die in about 3 days (depending on the water temperature). Therefore, to treat it, medicine must be added to the display tank to kill free-living parasites. If fish are removed to quarantine, parasites living in the tank will escape the treatment -- unless ALL fish are removed for about a week in freshwater or three weeks in saltwater systems. In a reef tank, where invertebrates are sensitive to ich medications, removing the fish is the only option. Some people think that ich is probably dormant in most tanks. It is most often triggered by temperature fluctuations.

Remedy: For most fish, use a medication with formalin and malachite green. These are the active ingredients in many ich medications at fish shops. Some products are Kordon's Rid Ich and Aquarium Products' Quick Cure *[US Brand names]*. Just read the label and you may find others. Check for temperature fluctuations in the tank and fix them to avoid recurrences. Note that tetras can be a little sensitive to malachite green, so use it at half the dose. Use these products as directed (usually a daily dose) until all of the fish are spot-free. Then dose every three days for a total of four more doses. This will kill any free-swimming parasites as they hatch out of cysts. Another remedy is to raise the tank temperature to about 90 deg F and add 1 tsp/gallon salt to the water. Not all fish tolerate this. Finally, one can treat ich with a ``transfer method.'' Fish are moved daily into a different tank with clean, conditioned, warmed water. Parasites that came off of the fish are left behind in the tank. After moving the fish daily for a week, the fish (presumably cured) can be put back into the main tank. The disadvantage of this method is that it stresses both fish and fishkeeper.

Fin rot

Fishes' fins turn whitish and die back. Fin rot often follows damage or injury. It can also be caused by poor water quality.

Remedy: First, fix the water and remove any fin-nipping fish. Change some water (25% is good) and add 1 tsp/gallon salt to promote healing. If bad water quality or an aggressive tankmate was the problem, that should be adequate. Healing will begin within a couple of days. If it worsens, decide first whether it's fungal or bacterial. Fungal finrot looks like clumps of cotton on the fins and usually follows injury. It is commonly seen in African cichlids or fish that have injured themselves against decorations. Bacterial finrot is whitish, but not cottony (unless it's columnaris), and can be contagious. The fish then need to be removed from the tank and medicated.

Fungus: For fish large enough to handle, catch the fish, and dab malachite green directly on the fungus with a Q-tip. This is extremely effective. Repeat treatments may be necessary. For small fish, a commercial fungicide such as Maroxy may work. For severe infestations, try a bath in methylene blue (enough so you can barely see the fish) until the fungus turns blue or for 20 min. If you add methylene blue directly to a tank, you will kill plants and trash your biological filter.

Bacterial: Antibiotic treatment in a quarantine tank. This is stressful for the fish, and doesn't always work, so be sure of what you are doing before you attempt it. If the fish is still eating, the best bet is an antibiotic food. Tetra makes one that works well -- just buy the one for bacterial diseases and follow the directions on the can. If the fish is not eating, a bath treatment is necessary. A combination of Kaynamycin and Furanace usually works, especially for Columnaris. Again, treat in a separate tank and aerate heavily.

Injuries

Cichlids and other "scrappy" fish may sustain injuries that are severe enough to draw blood from fighting. Other fish may run into tank decorations, walls, or rocks. Larger fish can be netted and their injuries dabbed with mercurochrome (available at drug stores) or Betadine (iodine-based antibiotic also available at drug stores) to help prevent infection. Be sure to keep these chemicals off of the gills and eyes. For really small fish, put the affected fish in dilute methylene blue (pale blue) and 1 tsp/gallon salt in a separate tank. If you want to keep the fish in the main tank just add salt, as methylene blue will trash your biological filter. Watch the fish to be sure injuries are healing cleanly, and repeat the mercurochrome dosage if necessary. If finrot or fungus sets in, see the above section on finrot.

Dropsy

Fish swells up like a balloon and may show popeyes. It may recover with no treatment and may die despite it. The swelling is because the fish is absorbing water faster than it can eliminate it, and it can be caused by many different problems. High nitrates are one thing to check. Internal bacterial infections, including fish TB, are other possibilities. If there are no water quality problems, you may want to attempt antibiotic treatment in a separate tank.

Head and Lateral Line Erosion (hole-in-head disease)

This disease can affect discus, other cichlids, and many saltwater fish. The fish develops holes in it's head and sometimes along its lateral line. Causes are unclear but as in any disease, stress and poor water quality likely play a role. The Manual of Fish Health states that HLLE is probably due to nutritional deficiency, especially of vitamin C. Fish in planted tanks rarely get HLLE, which supports the nutrition idea, since fish can nibble on the plants and obtain extra nutrition. Untergasser also observes that the protozoan Hexamita can be found in the lesions. Untreated cases can eventually prove disfiguring or fatal. Remedy: First, make sure water quality is optimal and reduce stress. Stopping carbon filtration may help as it can remove nutrients from the water. Then feed a vitamin-enriched food, paying particular attention to vitamin C supplementation. For stubborn cases, some books suggest metronidazole (Flagyl) to eliminate Hexamita (a mildly pathogenic protozoan) from the lesions. Your mileage may vary with that one. Metrozole and Hex-a-mit are commercial medications with metronidazole.

Swim bladder disorders

Fish floats upside-down or sideways. This is particularly common in fancy goldfish because of their bizarre body shapes. Dry food eaten quickly swells up in the fish's intestine and keeps the fish from controlling its swim bladder properly. To help, feed the fish pre-soaked or gel-based foods. Green foods are also helpful; peas in particular. As with finrot, these disorders can also be caused by bacterial infection. Treatment is much the same. Use antibiotic food if the fish is eating, or add antibiotic to the water in a quarantine tank if the fish is too sick to eat.

Large external parasites (as opposed to ich)

Add a copper remedy to the tank and monitor it with a copper test kit. Also, Mardel's Maroxy works well. For anchor worms or lecches on pond fish, remove them from the affected fish with tweezers and swab the area with mercurochrome to prevent infection.

Velvet

Fish look like they have been finely dusted with flecks of gold. Fins may be clamped and the fish may shimmy. Treat with an anti-parasitic medication such as copper or formalin/malachite green.

References

The Manual of Fish Health_ Dr. Chris Andrews, Adrian Exell and Dr. Neville Carrington. New Jersey: Tetra Press, 1988 This is an outstanding book, and I highly recommend it to anyone who is interested in reading about fish disease. _Handbook of Fish Diseases_ Dieter Untergasser Translation by Howard H. Hirschhorn T.F.H. Publications, Inc., 1989 This is my second-choice disease book. It is very good, but some of the treatments may be difficult to obtain, and it goes into more detail than the average hobbyist needs (or wants) to know.