"Ich"

Ichthyophthirius multifiliis

WHAT IS ICH? *Ichthyophthirius multifiliis* ("Ich" or "Ick"), a species of ciliated protozoans, is a fish parasite which survives by feeding on the skin and tissue of fishes. Ich is a single-celled creature that goes through several developmental stages before you see the all-too-familiar "white spots". ("Marine Ich" is caused by *Cryptocaryon*, a different species of ciliates, but their symptoms and life cycle are very similar to those of *Ichthyophthirius*.)

LIFE CYCLE OF ICH:

Trophont: This stage is characterized by little white spots on your fish. These visible white spots are where the parasites burrow under the skin or gills of your fish and feed on the fish's cells and body fluids.

Tomont: Once fully matured after feeding, the trophont detach from the fish and fall to the bottom (or other surfaces) of the tank. On these surfaces, the mature parasite becomes encysted.

Tomites: Inside this cyst, the Ich divides into many (up to 1000!) tomites. These offspring emerge from the cyst to become free-swimming larvae.

Theront: Once emerged from the cyst, the tomites develop into theronts (also called swarmers) which are the infective stage of Ich. They actively seek out a new host and must find a host within 48 hours or they will die!

Trophont: When the theront find a host, they burrow in its skin, and the life cycle begins again.

Ich's life cycle is temperature-dependent. The warmer the tank water, the faster this cycle will occur. In freshwater, the complete cycle takes as little as 3-7 days at 75º Fahrenheit.

WHAT CAUSES ICH? Ich is caused by fairly simple, correctable environmental factors like temperature fluctuations, lack of tank cleanliness, exposure to weakened or already parasitized fish, poor diet, general weakness of some fish in the tank or other stressful situations such as one fish bullying another, improper acclimation procedures, or poor water changing technique.

Outbreaks of Ich are most common in the spring and fall - the transition seasons. In these months, temperatures fluctuate most, both in range and rapidity. Tropical fish do not react well to rapid temperature changes, even those within the "safe" range (74º - 82º). An aquarium located in a western window (afternoon sun) or in the path of an air-conditioning vent is also prone to temperature fluctuation. These fluctuations cause stress to fish, which can weaken their immune systems, making them more susceptible to Ich.

Other than temperature, the next greatest probability of cause is poor tank maintenance. A dirty tank which has too much ammonia, nitrite, or nitrate in the water will weaken the fish. (See our handout "Basic Information on Water and Water Changes".)

"Pecking order" problems and the introduction of new fish can also be a cause of Ich. Almost every tank establishes some sort of pecking order, and the new fish are automatically the "lowest on the totem pole" until they establish their rank. If the lowest fish in the pecking order gets pecked a little too much, the stress will weaken it and Ich attacks. New fish do not have to be sick to cause Ich as the tomont stage can remain dormant for months depending on the water temperature.

Another common causes of Ich is poor diet. Most aquarist feed their fish once a day with the same food. A varied diet is better as it ensures the health of your fish by providing a complete range of essential nutrients.

HOW CAN YOU PREVENT ICH? Proper water changes, varied diet, compatible tankmates, and a heater are some of the easiest ways to keep Ich away. When buying new fish, never buy from a tank showing signs of this disease.

Ich is contagious so don't overcrowd your tank. When an aquarium is overcrowded, the chance of fish being parasitized is greater because the swarmers can more easily find a host.

Ultraviolet sterilization, the passing of water over an ultraviolet light, can help prevent Ich by killing swarmers.

HOW DO YOU GET RID OF ICH? As you now know, Ich is not just a disease of fish - it is a disease of the tank. The whole tank is infected with some stage of the parasite. Effective management requires a combination of proper tank maintenance, stress reduction, and targeted treatment during the parasite's vulnerable free-swimming stage.

The use of a chemical (such as Nox-Ich, Rid-Ich Plus, Super Ick Cure, or ParaGuard - see labels to ensure you use the correct product for your particular tank) is the most common method to treat Ich. Following label directions, removing the carbon from the filter, and most importantly, doing a 25% water change with a gravel washer every other day for four days will normally eliminate the problem.

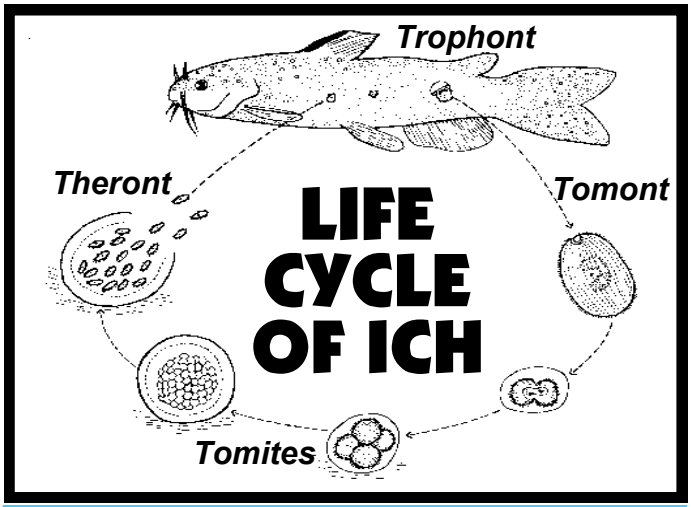
In a saltwater tank, the use of chemicals is not as easy as it is in freshwater. Many saltwater aquarist keep invertebrates (shrimp, crabs, corals, anemones, etc.) with their fish; this presents an additional problem because the very chemical you use to kill the Ich may also kill the invertebrates. Since invertebrates are not parasitized by Ich, you can separate them and treat the fish. Again, please follow label directions!

Copper-based medications can also be effective for treating Ich, but they require extra caution as higher concentrations of copper can be toxic to fish and invertebrates. The copper must remain in the water for at least 5 to 7 days to get rid of the swarmers. Depending on the specific copper used, its absorption by the crushed coral, rocks, or decorations may vary. Use a copper test kit to monitor the copper concentration. When treating a saltwater reef tank, it is best to remove the fish to a separate treatment tank. You could then leave the display tank in a fishless fallow period to cause the remaining Ich in the that tank to die off.

Using UV sterilizers and water polishing filters charged with diatomaceous earth can help eliminate Ich from both freshwater and saltwater tanks without using chemicals. UV kills swarmers whereas very fine filtration using diatom powder will literally "filter out" the swarmers.

Adjust the temperature before beginning treatment to improve success. Raising the tank temperature by 3º - 4º (up to a maximum of 82º) speeds up Ich's life cycle which causes the parasites to leave the fish sooner and enter their free-swimming stage, where treatments are most effective.

With vigilance and the right tools, aquarists can both prevent and eliminate Ich, ensuring a healthier environment for their aquarium.



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