

## Pox on Carp

**The likelihood of koi having carp pox is rather, well, unlikely.**

*By Stephen M. Meyer*

Q. I recently read about carp pox in a local pond club's newsletter. The article said that the disease occurs in early spring or because of poor water quality conditions. The author noted that the disease appears as whitish or grayish bumps on the fish's skin that look like molten wax. Apparently, some of these bumps get rather large — about the size of a pencil eraser.

I think my koi have this disease and, even though the article said it is not particularly dangerous, I am concerned because it says that no treatment exists. Can you say more about this?

A. Carp pox was probably the earliest recognized viral disease of fish. It was discovered about 400 years ago. Carp pox is actually a herpes virus: herpes virus cyprini. Macroscopically, it produces whitish, opalescent, very hard bumps on the external surface of the fish — signs very similar to those produced by about two dozen other common fish diseases. Thus, only a virological analysis can determine the presence of carp pox.

While it is possible that your fish do harbor this virus, I can almost guarantee that your fish do not have "carp pox." It's just not that common among ornamental carp. In fact, I have never seen a properly diagnosed case of carp pox on any koi and have only heard of a handful of authenticated cases.

Unfortunately, many well-meaning hobbyist "koi doctors" (and hobbyist books) have also been misled by the appearance of large, opalescent bumps into the misdiagnosis of a much more common problem: coldwater "ich" parasite infestations. This parasitic disease is very commonly seen in the eastern and northern parts of the U.S. and it can be a serious threat to the fish, especially to young koi.

Coldwater ich disease (an infestation of the common *Ichthyophthirius multifiliis* parasite) usually occurs as water temperatures warm to the range of 10 to 15 degrees Celsius (50 to 60 degrees Fahrenheit). As a result, coldwater ich is most often seen in early spring. However, careful examination will reveal its presence on fish in colder mid-winter waters as well. It also appears when water conditions are poor.

The signs of an infestation are large, wax-like bumps on the fish's scales, fins and around the mouth — noticeably different in size and shape from the far better-known "salt" spots caused by ich in warm water conditions.

The bumps produced by coldwater ich may be whitish, grayish, bluish or pinkish in color. These bumps are not the parasite but a reaction of the fish's outer skin to the parasite burrowing into the flesh. Ich-related bumps can often be scraped away with a fingernail (though this is NOT recommended), whereas true carp pox growths cannot be scraped off.

Thus, in terms of both the conditions that produce the disease and their macro-appearance, carp pox and coldwater ich are indistinguishable even to the advanced koi keeper. The difference is that the latter can be treated successfully.

The disease can indeed be "cured," but it requires gradually warming up the water and the fish to temperatures of about 20 degrees Celsius (68 degrees Fahrenheit). At this temperature the disease does not disappear, as some pondkeepers assume — it merely becomes less noticeable because the spots shrink. Once the water temperature reaches approximately 20 degrees Celsius, standard ich treatment with malachite green/formalin can rid the fish of this parasite. This treatment, however, requires maintaining the higher backyard pond temperature for a couple of weeks.

Because *Ichthyophthirius multifiliis* is a ubiquitous parasite in a koi pond, there is no way to get rid of it. It can only be controlled. Maintaining excellent water quality is essential. By keeping water conditions at the optimum pH, with plenty of dissolved oxygen and no measurable ammonia or nitrite, the immune systems of the fish will minimize infestations.

In other words, the single most effective way to prevent major outbreaks of this parasitic disease is to maintain a low fish load in the backyard pond. Good water quality and a low fish load will enable the natural defenses of the fish to control the parasites all year round.

The same basic advice is also good for the far less likely carp pox virus. Here again, good water quality, low fish loads

and moderate water temperatures will control the outward manifestations of the disease. This cannot be overemphasized. Pondkeepers who adhere to this advice seldom are troubled with diseased koi or goldfish.