

**RAMBLINGS**— Jerry Kyle**COLD WEATHER KOI**

Although you may not be feeding your fish right now, pond and filter cleaning should still be high priorities.

Burrrrrrrrr, it's cold. My pond water temperature dropped to just under 50 degrees. Even I quit feeding my koi at that temperature. I understand there is a general rule somewhere that says we do not feed our koi during the winter. I believe that pertains to people in areas like North Dakota or Montana but not to me in central California.

In the summer my koi get fed when I get fed morning, noon, and night with all they can consume in 5 minutes. Sure, when the kids come over everyone gets snacks including the koi. The temperature is warm and the koi are active and need to be more heavily fed a balanced diet to grow and remain healthy. However, as the pond cools the activity level of cold blooded koi slows down and they do not require as much nourishment. Also the bacteria in their gut that help digest the food slows down so they cannot readily digest food even if they wanted to. If overfed, the koi pass food through undigested to fall to the bottom of the pond to add to another problem I will discuss later.

I let my koi tell me when they need food. They will always come to the surface, stick their mouths and heads out of the water, and beg. Hungry or not, it is a trained reaction. But when the water temperature is below 60 degrees they will feed leisurely instead of climbing over each other to be the first to feed. As the aggressive eating diminishes, so does the amount I feed until by about 55 degrees they get fed only every third or fourth day and very little as just what they will consume in only five minutes once a day. At 50 degrees they do not get fed at all as most of the food will just be passed through to feed the pond mulm.

Ciliated parasites such as Chilodonella can reproduce in cold water and prefer temperatures around 50 degrees. That is also when the koi immune system is suppressed. As the temperature begins to increase the ciliated parasites begin to more actively attack the weakened koi but as the temperature increases the koi immune system also begins to increase. If the temperature steadily increased and the koi immune system steadily increased Mother Nature would not need our help. But spring warm up is not steady. The temperatures fluctuate greatly.

The immune system which was increasing plummets a month later when the weather cools temporarily before once again beginning the warming trend towards summer. During this cooling off trend the parasites just keep on multiplying while the koi immune system are temporarily depressed and the koi could be in trouble. (Although we cleaned our ponds and filters last fall getting ready for winter our ponds are not completely clean. The winter storms and winds have blown in dirt and leaves which are now on the bottom of the pond and, for those of us who have a bottom drain, lurking unseen in the pipe running from the bottom drain. There is more hiding in that pipe than most would expect and it has to go.

“Specific pathogens such as Pseudomonas and Aeromonas *depend* upon fouled water to attack fish,” wrote Erick L. Johnson, D.V.M. in his book Koi Health and Disease. He explains that many parasites do better with a thick mulm layer on the bottom of the pond. It is imperative that we clean our ponds extra carefully at the end of January or early February. The pond bottom needs to be swept or vacuumed, the bottom drain line must be flushed, filters flushed, and gravel removed from gravel filter systems to be spread on the driveway and well washed with a hose. Within a couple of days your water will be clear

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and the bacteria will not have any reasonable fuel. The koi will be minimally stressed, if at all, and since we are not feeding at this time the biofilters will have time to reactivate as we lightly begin feeding in the spring.

In my opinion, some people are just too lazy to do as I suggest and will choose instead to look for a “magic bullet” such as Formalin or Potassium Permanganate to use on their pond. These items are poisons. They are poisonous to the pathogens, poisonous to the koi, and poisonous to humans. Yes, you had better use rubber gloves. These poisons will not kill one hundred percent of the pathogens unless used in sufficient concentrations to also kill one hundred percent of the koi and perhaps the humans. If you have such an infestation that there is no other way then perhaps poisons must be used but, only as a last resort. It then becomes a guessing game as to the best concentration to kill the most pathogens with the least koi kill. That decision is for a vet and depends on a lot of varying circumstances. The bottom line is that for less than a one hundred percent kill we may so badly burn our koi’s gills that we may simply trade one problem for another perhaps more deadly problem. All Veterinarians must take the same oath, “Do no harm.” And we must follow this example.

I like salt. An 0.3 percent solution administered for two weeks will kill the most dangerous ciliated pathogens including Chilodinella, Costia, and Thrichodina. These cold water parasites are our biggest concerns coming out of winter and will not survive for two weeks in 0.3 percent salt solution water. Most will not survive the first few hours. Salt is not dangerous to the koi or humans and it is cheap. As a matter of fact, the cheaper stuff is usually the best as it has less or no additives which we do not want anyway. When we must use stronger medications we also salt the pond as it greatly reduces stress and helps the koi immune system do the job. I often wonder how often someone uses a caustic medication and adds salt to reduce stress and credits the medication for success when it was simply the salt reducing stress that did the job. Salt or not as you like. I will remove plants and salt the first of February and maintain 0.3 percent solution until pond warms up. Then I will remove salt through water changes as I do not want a continually salted pond but, that is another article.

In conclusion, clean it thoroughly. That alone will do more good than any other thing you do to your pond this year. But, you must do it now.