

Wintering Fish

Reprinted from the December, 1993 edition of the Goldfish Report

I have had my current pond for several years, but this was the first year in which I would keep my fish outdoors for the winter. I had no idea how to begin, so I read a few articles on over-wintering fish. The first article appeared in the December, 1991 edition of The Goldfish Report, and was written by Larry Christensen. It explained the basic requirements for pond maintenance, feeding, and fish health. The second article appeared in the September/October 1992 edition of Koi USA, and was written by Jackson Hui. This article was also concerned with pond maintenance, fish health, etc. Finally, there is a section concerned with winter pond maintenance in the Tetra Encyclopedia of Koi, which is also helpful in preparing your pond for winter.

Armed with the knowledge gained from reading these articles, I began my winter pond maintenance. My pond contains five koi of about 16 to 18 inches each. The pond itself is about 500 gallons and contains a small (approximately 20 gallons) biological filter. The first decision I faced concerned heating the pond. All three articles recommended the addition of a small heater to keep the surface of the pond free from ice. By maintaining an area on the surface of the pond which does not freeze, the exchange of gasses (oxygen and carbon dioxide primarily) can continue throughout the winter. I purchased a floating heating unit of 1500 watts, and hoped it would keep a portion of the pond's surface free of ice.

The second decision to be made was whether or not to keep the filter running during the winter. The articles maintained that pond filtration was really a matter of preference. At temperatures below 40 degrees (Fahrenheit), biological activity in the filter slows markedly; the bacteria responsible for maintaining water clarity (and conversion of ammonia to nitrate) become somewhat dormant. Besides the obvious question of water clarity and plumbing which was performed for the pond would be more susceptible to damage if the filter was not running. Finally, the filter itself might become damaged during a freeze. It looked like it might be more difficult not running the filter, so I chose to continue filtration throughout the winter.

The water quality has remained excellent, and the combination of the water current from the filter return, and the 1500 watt heater has kept the entire pond free from ice throughout the winter. The water return was modified somewhat from the pattern employed in the summer. During the summer months, the water is returned via a waterfall and a small hose. For the winter, I discontinued the waterfall (thinking that the waterfall might freeze), and sent all water through the return hose. As a safety precaution, I insulated all water pipes leading to and from the pond.

If your pond remains unfrozen, additional water caused by winter rainstorms or snowstorms could cause the pond to overflow if an overflow drain is not provided. If the pond remains frozen, additional snow will probably not make much difference (it may be beneficial due to its insulating properties); unless a small area is kept ice-free at the surface. I have had contradictory advice as to the practice of cutting a hole through the ice surface of a pond. In a small body of water, this practice is probably harmful

and could damage the fish. It is safer to melt the ice with a pan of hot water placed on the pond surface, or to maintain running water which will prevent a total freeze.

Regular cleansing of the filter media should take place throughout the winter, although the frequency of cleaning is not the same as in summer. In mid-summer I cleaned filter pads every 2 – 3 days. During the winter, cleaning of filter pads can be done every few weeks (or months). It is worth remembering that the filter is not functioning at peak capacity from a biological standpoint, but is acting as primarily a mechanical filter. As with all mechanical filters, cleaning is necessary, and the effectiveness of the filter decreases when clogged.

One aspect of winter pond keeping which surprised me was the continued growth of hair algae in the pond. It seems that with the pond remaining free of ice, the algae receive enough sunlight to continue to grow. Besides the oxygenation that the algae provides, the fish to continue to feed on the algae during the winter. I have been expecting weight loss from the fish (I have not fed them since early November), but it looks like they might have added some weight. One of the fish in particular had a fondness for algae, and it appears he has actually grown during the last few months. (Author's note: the "he" was really a "she," and was full of eggs; she spawned that spring).

All three articles stressed that the fish become dormant during the winter. As their metabolism slows their need for feeding decreases. If the fish are fed during the winter months, the food should be made up of vegetable matter, or foods high in carbohydrates. Foods with a high cereal or wheat content are preferable at this time of year, since they are easily digestible. If available, algae are a good food source during the winter months, and have the added benefit of being available when the fish are hungry.

Having survived the winter, I look forward to spring, although I've begun to wonder where I will put those fry, come spring time. (Actually, I had to build a 2,500 gallon pond to house the koi, goldfish, and koi/goldfish babies).

Author's note, the following is an addendum to the original article.

The above article was written over 12 years ago, and since that time, I've over-wintered each year. I've learned a few things since then, and would like to add three new items which should be performed each year.

1. Add a pond cover. If you're paying to heat the pond, either with an electronic or a gas-fired heating unit, your efforts are only partially successful, since you're letting heat escape at the pond surface. The addition of a pond cover will help to trap the heat generated by your pond heater, and will have the further benefit of providing a more stable environment for the pond. If the cover is large enough, it will allow you access to the fish, and might maintain a water temperature that is high enough to continue feeding throughout the winter months.

2. Do partial water changes throughout the winter. As I've mentioned in many articles, partial water changes provide for the removal of traces of ammonia and/or nitrate, which build up in the water. In addition to the removal of ammonia and nitrates, partial water changes also eliminate mineral salt build up which occurs over time.
3. Keep your aeration going during the winter. Due to the shorter days, the aeration provided by photosynthesis is diminished. I'm also convinced that lack of oxygen is the number one killer of fish in the winter time, so keep the air stones going in the winter.