South Hants Koi Club

Koi Health and Welfare

Dealing with Water Quality Problems

Should water quality problems occur, immediate action should be taken to lower the toxins should the parameters substantially exceed the levels suggested in the Water Testing section. At the same time, it will be necessary to determine why the problem has occurred and remedy.

Immediate action:

- **Dilution of toxins by partial water changes. A deep water change is far more efficient than several small changes – however, as the pond water temperature should not vary more than 1 deg.C/ day and pH no more than 0.3 units/day, small regular changes will have to suffice. Obviously, in cases of emergency, these constraints may well have to be exceeded.**

- **Increase aeration.**

- **Feed very sparingly – a complete cessation in feeding can cause further stress.**

- **For ammonia problems, Ion-exchange materials such as Zeolite will assist. Zeolite should not be used if salt is present in the pond. It should be removed from the pond once a week and recharged in a salt solution for 24 hours.**

- **For high Nitrite problems, the toxicity can be reduced by the addition of salt into the pond. Although generally we do not advocate the addition of salt, it can be beneficial in this instance as it helps to stop the Nitrite Ion binding to the gills. Suggested dosage rate 0.2% solution (2Kg/ 1000 litres or 0.32oz/ gallon).**

- **High Nitrate problems do not generally occur provided you carry out your regular water changes as part of your pond maintenance programme. For long term solutions, you can continue with your water changes, install or increase the size of your vegetable filter or install an ion exchange resin or reverse osmosis filters.**

- **The addition of water quality improvers such as 'Envirex', 'Ammo-lok', clays etc. (depending upon the problem) are beneficial.**

Remedy of Problems:

1. New Pond Syndrome or rapid increase in Stocking Level:

The sudden stocking of a new system or excessive additional stocking of an existing system is likely to cause water quality problems. Biological filters need at least 14 days in ideal conditions to respond to increased Ammonia levels during which time, the toxic ammonia level rises. Following a time lag when the Nitrosomas bacteria (bacteria responsible for converting Ammonia to Nitrite) builds up, the Nitrite level will increase, sometimes to unacceptable levels, as the Nitrobacter bacteria (bacteria responsible for converting Nitrite to Nitrate) develops. It may well take at least 4 to 8 weeks before conditions stabilise. Maturity may well take a couple of years, for the filter to reach optimum conditions.

In order to help mitigate the problem:

- **Stock or add additional stock to your pond slowly (2/ 3 Koi at a time).**
- **Add a filter starter for both the Nitrosomas & Nitrobacter bacteria. The Nitrobacter is the more difficult bacteria to cultivate.**
- **Add plenty of oxygen to your filters.**
- **Other filter additives such as 'Envirex', Clays, Sludge Busters etc. are beneficial.**
- **For existing systems, ensure that your regular maintenance regime (cleaning with pond water) has been carried out.**
- **Again, feed very sparingly.**

2. 'Filter Crash':

- **Remove filter contents and clean with pond water, storing in a container of pond water, before returning to the cleaned filter bays.**
- **Re-start filter as outlined in 1. Above.**
- **In view of your likely stocking level in an existing pond, it would be beneficial if you could 'borrow' a fluid bed filter during the interim period to assist with water quality, until the re-started filter 'kicks-in' to a satisfactory level.**
