

Winter Effects on Koi and your Pond
By Sarah Garrison, updated by Phil Goulding

Water temp--know what it is

Wireless thermometer: Pinpoint by American Marine
about \$40 with S&H from MarineDepot.com

Fluctuations are worst--depend on depth of pond--swings of air
temp from daytime to nighttime $\pm 15^{\circ}$ - 20° hard on fish

Temps and digestion: slows down below 55° - 60°

Digestion still takes place below 50°

May still feed small amounts if fish are interested. Don't switch
to wheat germ—it does not provide appropriate nutrition.

Temps and bio bugs: bio bugs slow down as well--below 40°

may quit functioning but not necessarily die. If possible, keep
biofilter going in winter to make spring easier.

Filters: probably don't need to clean as much in winter--less waste
Keep them going if you can

Salt: Below 37° salt may help with slime coat, but something like
Ultimate also works to help relieve stress at temperatures
below 40°

Cleanliness: thoroughly clean pond in the fall to prevent rotting of
mulm. Net leaves before they have a chance to sink
Oxygen - cold water holds more, so not a concern in winter

Koi enter stasis, or torpid state when temperatures are in the
low 40s where fish move very little

GAS (general adaptation syndrome)--disturbed in stasis, fish stress
and will "flee" using up energy and stored nutrition.

Because koi continue to “respire” they still give off ammonia and gasses. If water is flowing through an open filter (not pressure filter) ammonia will gas off. Otherwise, keep air exchange hole open through ice. Use a trough heater, de-icers (feed store for about \$25). – fix in place to protect liner
thermo controlled – place near circulating water, air bubbler or anything that maintains a nice big hole! Caution— don’t chop a hole in the ice. It is very stressful and can kill koi. Use hot water, or a pot with hot water place on the ice (tied!)

Continue to check water in winter--ammonia and kH important
Do water changes--smaller, less frequent, but still important
Water change may increase temp slightly
Have Ultimate or Chloram-X if ammonia gets high

Air Bubblers – protect line from freezing--run thru PVC. Put air pump inside the house or garage, or underneath the pond cover.
Warm air

Waterfalls: danger of ice dams and losing water out of pond
Super chilling--some can occur through water in falls or showers Turn off falls and showers.

Thermocline: water warmer near bottom--doesn’t apply in small ponds

Best Way: Cover to keep off cold winds & snow--retain heat from sun, etc Need light--don’t cover so you shut it out--too long a period here in CO
Plastic – depends on size needed--from Lowes, greenhouse film in 4-6 mil may be used for a couple years. Regular 6 mil is only good for one year. It gets very brittle.

Heat: pond heaters are efficient, but expensive. Light bulb under cover (be sure it can't fall in) or by filters, pumps help. A polycarbonate cover with an air pump underneath it and good sunlight can keep a pond at 45° except on very cold <0°

Pipes – if not going to keep water running, make sure they are empty or open so ice inside can expand

Snow – cover must be strong enough and right shape to shed snow, ice, water melt

Anything that has moving water should either be underground, in a building or pit, or covered with thin insulation. My filters are all outside but I cover them with Reflectix and it help to maintain the temperature