Pond Guide

its all about water quality

Pond Guide - Getting started

When creating a pond there are several aspects to be considered...
First you need to choose the material to make the pond from: UPVC, fibre-glass, concrete and pond liners are perhaps the most common. Discuss your requirements with your local shop who will help you decide on the best option for you.

Positioning the pond

The pond should be situated in good light for your pond plants, but not so strong as to promote algae. Place the pond away from trees, to prevent the leaves falling into the pond in the Autumn.

Choosing a liner size

If you decide to buy a pond liner, this is how to work out the size you will require: Measure the length (L), width (W) and depth (D) of the pond excavation in metres. Size of the liner = (twice the depth + the width) by (twice the depth + the length) E.g. Pond excavation is 6 (L), 4 (W) & 2 (D). Liner size required is 8 x 10. Allow some extra liner capacity for the overlap.
N.B. If you are to keep koi, the pond should ideally be 1m (3 ft.) in depth.

Pumps and Filters

There are a myriad of pumps and filters on the market - internal, external etc. Take advise from your dealer but always purchase the largest filter you can afford. This will ensure good water quality which will keep your fish healthy in the future.

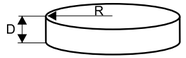
Installation

Once you have dug your pond shape out accordingly (checking the span of the pond regularly with a spirit level to ensure the sides are even), removed any sharp stones, added underlay and fitted the liner into the excavation ..... you now are ready to add water! Fill the pond with tap water (flattening creases as you go)

Pond capacity

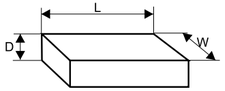
Once the pond is in place, the following calculations may be used to give you an approximate indication of pond volume.

Round pond
Radius in metres x radius metres x 3.14 = Surface Area m²
Surface Area m² x depth metres = Volume m³
Volume m³ x 1000 = Litres capacity



R = Radius
D = Depth

Square / rectangular pond
Length x width x depth metres = Surface Area m³
Surface Area m³ x 1000 = Litres capacity



L = Length
W = Width
D = Depth

N.B. Make allowances for sloping sides, shelves etc.
If the pond is an irregular shape use the average dimension figures.
To calculate galls. from the litre capacity divide litres by 4.5

Add the correct amount of **Waterlife's PoolShield** (dechlorinator / water conditioner). This will neutralize toxins (chlorine, chloramine etc.) found in raw tap water. Once the pond is full, trim off the edges of the liner to leave a 15 cm + (6 ins.+) overlap. Place rocks or paving stones around the outside of the pond to weigh down the liner overlap. Use mortar to point in the rocks or paving stones to hold them in place. The mortar should be sealed or suitable for pond use to prevent it making the pond water alkaline. Install the filter and pump (according to manufacturer's instructions). In some set-ups the filter/pump may need to be installed first.

Now add a **Waterlife BioMat** to the filter box (if appropriate) and a double dose of **BacterLife P** to help mature it with live bacteria.

BacterLife P contains two essential groups of bacteria. One to help digest toxic ammonia and nitrite, the other to break down organic waste which is responsible for sludge in the pond.
After setting up your pond, **Bacterlife P** can be used regularly to help maintain good water quality. These other uses are discussed later within the leaflet.

Plants

Now you are ready to plant your pond. Plants offer many advantages to the pond keeper.

- Submerged plants release life-giving oxygen into the water whilst simultaneously absorbing carbon dioxide and other fish waste.
- Plants compete with algae for nutrients in the water and so restrict their growth. Water lilies are probably the best at this because their leaves or 'pads' also block sunlight.

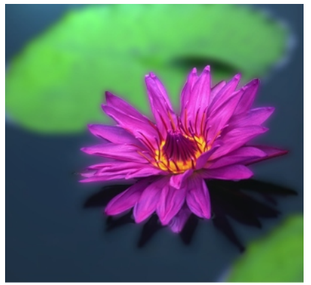
Other widely available aquatic plants include elodea, water iris.

N.B. Some species of fish eat submerged plants, so choose your selection carefully.

Potting up your plants
Take a plastic basket, and line it with perforated polythene or hessian sacking. Carefully remove the plant from its container placing it into the basket with a **PondFlora** plant food tablet at its roots. Now back-fill the basket with water logged aquatic soil and cover with a layer of gravel.

Waterlife's PondFlora delivers nutrients exactly where the plant needs them without releasing them into the whole pond and encouraging algae. You should push a **PondFlora** tablet into the soil every 2 months during the growth season April to August (N. Europe).

Some plants may benefit from being introduced in 2 stages. Firstly support the plants clear of the pond floor with an up-turned planting basket so that the foliage is near the surface. After a few weeks you can move them to their final position as indicated on their label.



SNAILS - As well as eating valuable plant life, snails play host to many pathogens and parasites, which can infect fish. Their numbers are best controlled by removing them when seen.

Stocking your pond

Assuming you have now filled your pond, treated the water with **Waterlife's PoolShield,** added plants and left the system running for an appropriate length of time (determined by your local shop) - you are ready for fish.
It is important that your fish have enough room to grow, use the ratio of 2.5 cm (1") of fish per 45 litres (10 galls.) of pond water. The other golden rule is to stagger the introduction of fish to your pond.
This enables good, nitrifying bacteria to grow with the fish, so your filter isn't overloaded. If you have a "natural pond" this delay enables aquatic plants to establish and absorb wastes.
After introducing new fishes to your pond you are recommended to treat with **Waterlife's Myxazin P**.
This powerful bactericide / fungistat will reduce the chances of stress induced illness, which pond fish can contract.

Fish

There are many species of fish available so discuss the best varieties for you with your local retailer. We have outlined the most popular fish below to help you:

Goldfish - The most commonly kept fish, reaching 8-25 cm (3-10 in).
Orfe - Fast swimming, schooling fish, growing up to 40 cm (16 in).

CAUTION - Orfe come from fast flowing, well oxygenated mountain streams and are always the first casualties in a badly managed / designed pond or in hot or thunderous weather. Under these conditions dissolved oxygen will be very low unless the water is continually aerated / circulated.

Koi - Perhaps the largest fish which most people try to keep outside, growing up to 75 cm (30 in), although they need plenty of space to reach their full size.
Shubunkins - Highly colourful version of the goldfish.
Size: 8-25 cm (3-10 in), excluding the tail fin.
Tench - These scavengers are useful for eating left-over food, which would otherwise rot on the bottom of a pond. Growing to over 70 cm (28 in) both green and golden varieties are available.
Rudd - These are similar to Orfe in behaviour and water quality requirements. Rudd reach 40 cm (16 in) overall in the wild.

Feeding & fish nutrition

Most ponds don't contain enough natural food to keep your pond fish in good health, so it is necessary to supplement their diet. It is very important to feed with a well-balanced dried food (pellets or flake) as the correct ingredients and vitamin content play an essential role in maintaining fish's health. If you buy a premium food it is unnecessary to feed large quantities which may promote algal growth and water pollution. Usually feeding once or twice a day is adequate. It is recommended to use a wheat germ pellet at the start/end of the season (Typically Mar - Sept N. Europe) as it is easier for the fish to digest.
To boost the vitamin content of the feed, soak in some **Vitazin** treated water for 5 minutes, prior to feeding. This will improve the fishes vitality and colour.

Water testing

As the owner of a pond, there are a few water tests that should be carried out on a regular basis: pH, ammonia and nitrite levels in the pond water are probably the most important to check. These can be easily monitored with your **Waterlife test kits.**

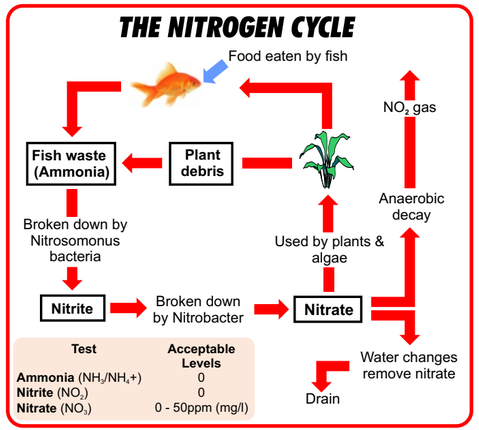
Pond pH test

pH is the measure of acidity or alkalinity in your pond. Most ornamental pond fish require a pH of 6.5 - 8.5. Water that is markedly more acidic than this optimum range (i.e. lower than pH 6.5) or more alkaline (i.e. higher than pH 8.5) may cause fish to become stressed, which in turn can lead to disease. The pH of the pond-water is affected by many things, for example unsealed concrete. calcium or magnesium based rocks, municipal tap water, fish waste etc. The pH can easily be reduced with **Waterlife's Pond Buffer**. Using this product will help the fish by:

- Reducing ammonium toxicity
- Lowering stress.

The nitrogen cycle

The nitrogen cycle is a natural process which is responsible for the conversion and generation of different nitrogen compounds. Ammonia is a nitrogen compound, excreted by all fishes, and is extremely toxic to them. High levels are a consequence of poor filtration and of overstocking and/or overfeeding. Ammonia is converted to nitrite by filtration bacteria. Use **BacterLife P** regularly to help keep levels safe.



Ammonia and nitrite testing

These toxins are produced by fish as waste and also by rotting organic matter in your pond. The only good ammonia or nitrite reading is zero. If you obtain any reading above zero you must:

1. Examine your pond for corpses, uneaten food, and decaying vegetation and remove when seen.
2. Check your filtration is working efficiently and that your pond is not overstocked.
3. Stop feeding, as this will only exacerbate the problem. Resume feeding when the readings are back to zero (usually within a few days).
4. Carry out a partial water change using tap water and **Waterlife's PoolShield** water conditioner to neutralize chlorine, chloramines and other toxins in tap water, all of which have a harmful effect on the fishes. Use **BacterLife P** (live bacteria) daily until nitrite readings fall.

N.B. Before testing for ammonia or nitrite, allow a few hours to elapse after feeding otherwise you may obtain a false reading.

Nitrate Testing

Nitrites are oxidized by nitrifying bacteria, into less toxic nitrates which are absorbed by plants as food. However, it should be noted that high nitrates are a major contributor to algal growth, poor fish coloration, lethargy and a failure to breed. Therefore, nitrate levels as monitored by a **Waterlife test kit,** are an indication of when a partial water change is necessary.

Filter maintenance tips

As you can see, good water quality is essential to fish health, so routine maintenance (in terms of water changes etc.) is required to keep it that way. When the filter sponge(s) eventually need to be cleaned, (as indicated by reduced water flow rate), remember to clean in a bucket of pond water (NOT TAP WATER). This is because the bacteria get used to the water that they are in and the chlorine in the tap water will destroy them. Remember to only remove the worst of the debris from the sponge(s) as filters always work best slightly clogged.

Trouble-shooting algae problems

Blanket weed and green / cloudy water are the bane of most pond-keepers lives! They are unsightly and can cause night-time asphyxiation of the fish or smothering of submerged plants.

Cause and Treatment

Green water is caused by unicellular algae, which float in the water giving a pea soup appearance. **Waterlife's Algizin G** will rapidly clear the green water within a matter of hours, by flocculating the green algae into larger particles, which will sink or be removed by the filter. It is advisable to use **Waterlife's BacterLife P** to help breakdown the dead algae.

Blanket weed is caused by twin celled algae. It resembles green candy-floss in appearance.

Waterlife offer three products for controlling blanket weed:

1. **Algizin P**, an HSE registered algicide. **Algizin P** is a targeted blanket weed destroyer that will not harm aquatic plants, fish or filtration bacteria. **Algizin P** is very effective and will usually destroy blanket weed within one week!
2. **AlgiBlitz,** restricts nutrients that blanket weed needs to thrive. In addition, **AlgiBlitz** also encourages higher plant growth, like lilies, which in turn suppresses algae.
3. **AlgiStraw**, a natural product which inhibits algae growth. **AlgiStraw** is supplied in easy to use pouches, and comes complete with a float to prevent the pouches sinking to the bottom of the pond.

Pond Summary / FAQ's

Q. My fish seem in poor health and the water appears cloudy.
A. Check water quality with your **Waterlife test kits**. If you have high ammonia or nitrite readings, carry out a partial water change using **PoolShield** (dechlorinator / water conditioner). Use **BacterLife P** (concentrated filter bacteria). Check the pond is not overstocked and consider increasing pump / filter capacity. Reduce feeding, as this is often the cause of poor water quality.

Q. My filter isn't working properly
A. Disconnect pump from electricity. Check the pump impeller. Check filter media. If necessary, remove and clean in a bucket of pond water. Add a **Waterlife BioMat** (live filter media) or use **BacterLife P** regularly to maintain the correct levels of bacteria in the filter.

Q. The pond water is like pea soup.
A. Green water algae is often caused by a high pH level. If the pH is high, use **Waterlife Pond Buffer** to bring into acceptable parameters (pH of 6.5 - 8.5). Introduce more natural plants like lilies as this will stop light penetrating the water and compete with the algae for nutrients. **Waterlife's PondFlora** may be used to promote the growth of higher plants. Consider building a pergola structure or the use of netting. Use **Algizin G** to clear green water problems.

Q. My pond has a "green candy-floss" growth around the side walls and covering the plants.
A. This is a type of algae called blanket weed. You can reduce its growth by using **Pond Buffer** and **Algizin P, AlgiBlitz** or **AlgiStraw.**

Tips for Spring

Once the temperature has reached 10'C, net or syphon excessive debris from the bottom of the pond. Use Bacterlife P to boost the bacteria levels in the filter.

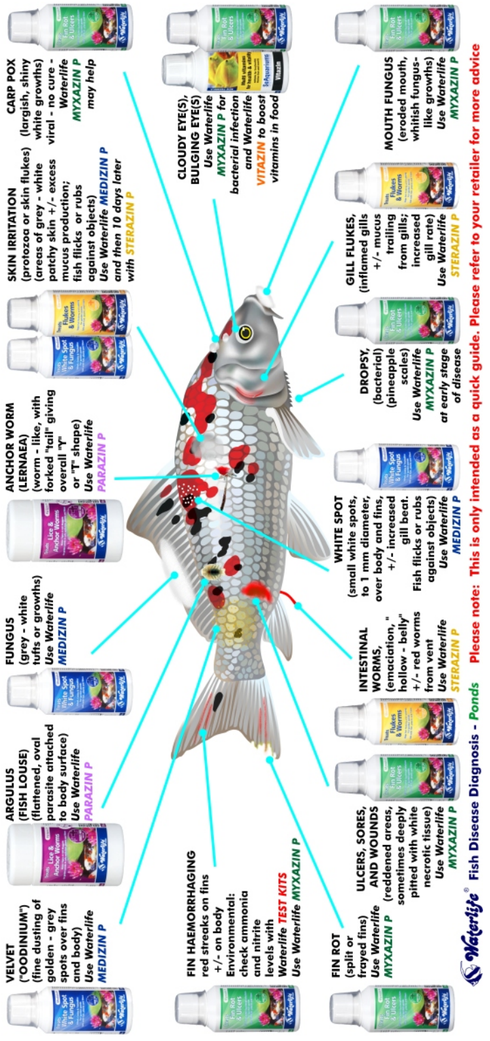
Fish disease

Although parasites / pathogens may strike at any time of year, fish are at their most susceptible in Spring and Autumn as the weather changes. As a preventative measure we recommend using **Medizin P** (first) to treat fast acting protozoa organisms and fungus, followed 10 days later with a course of **Sterazin P** to treat other parasites. The use of ***PondSal** tonic salts will build up a protective coating of body mucus on pond fish and help prevent disease.

** **N.B. PondSal** should not be used if other salt - based products are present in the pond water. After the initial dose, **PondSal** should only be added pro rata to the water that is changed. Always follow the Instructions on the label. Do not use more than one treatment at a time. Ensure the pond is oxygenated whilst treating with medications and do not use in hot midday sun.*

Please refer to the diagram over leaf for commonly encountered pond fish ailments and the corresponding **Waterlife** treatments.

"A gram of prevention is worth a tonne of cure!"



Shopping list

Item	Price
Liner / preformed pond	
Waterfall	
Pond pump	
Pond filter	
U.V. Sterilizer	
Mains cable	
Waterproof connector	
Waterproof junction box	
Hose	
Jubilee clips	
PoolShield - neutralises chlorine	
BacterLife P - breaks down fish waste	
BioMat - 'live' filter media	
PondFlora - tablet plant food	
Myxazin P - for fin rot & ulcers	
Pond pH Test - balances pH	
Pond Nitrite Test - water toxicity test	
Pond Buffer - acidifies pond water	
Algizin G - clears green / cloudy water	
Algizin P - blanketweed destroyer	
AlgiBlitz - starves blanketweed of nutrients	
AlgiStraw - natural algistat	
Medizin P - for whitespot and fungus	
Sterazin P - for flukes and internal worms	
PondSal - tonic salts	
Parazin P - for fish lice and anchor worms	
Paragon - oxidising tonic	
Vitazin - vitamins	
Total	

For further Waterlife guides go to :
http://www.waterlife.co.uk

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Waterlife Research Ind. Ltd.,
Bath Rd, Longford, Middlesex UB7 0ED (UK)
Tel: (Information line 10am until 4pm) 01753 685696
web: http://www.waterlife.co.uk