JBL

POND MANUAL 2.0



VORSPRUNG
DURCH FORSCHUNG
AHEAD THROUGH RESEARCH

JBL



Dear Pond Enthusiasts,

As the scope of this new pond manual indicates, we have completely reworked the pond and Koi sections. Our cordial links to Japanese top koi breeders have resulted in us receiving more and more useful information, which we are happy to pass on to you. Garden ponds are back in fashion. Our JBL team develops pond products to keep your fish healthy and your algae in check. Changes in legislation mean that new requirements are constantly being set. As a result, some products have been omitted. But our research department has always managed to develop new and legally-compliant products for you, so that you will always enjoy running that beautiful pond in your garden!

With best wishes,

Roland Böhme



The JBL success story

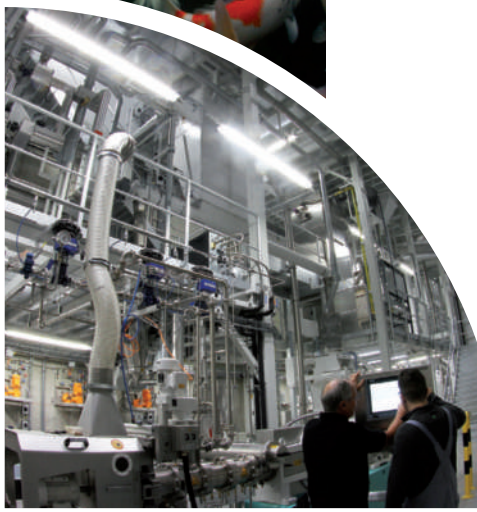
From a 30 m² pet shop to a worldwide aquarium product specialist





It all began in Ludwigshafen in 1960 with a small pet shop, just 30 m² in size, which Joachim Böhme, a trained chemist from Dresden, opened and so made his hobby his job. His love of animals, his white lab coat as his working clothes, and his friendly manner as well as his specialist knowledge all contributed to his success.
His business grew and the pet shop evolved into a wholesale ornamental fish business. As fish diseases became a problem, Joachim Böhme put his studies to good use and developed a highly effective remedy against ectoparasites, which he named Punktol.
Up to the present day, JBL, under the leadership of Roland Böhme, the son of the founder, has expanded its range to over 1000 products for the aquarium, terrarium and garden pond and has established a position as a leading producer in this field, exporting to 65 countries around the world.
Using the latest production and filling plant, all JBL products are manufactured and dispatched from Neuhofen. The company site covers over 12,000 m² and includes not only the Production plant and the 6,500 m² Logistics Center completed in 2008, but also the Research Center. Here many fully stocked aquariums and terrariums operate on a permanent basis in order to test all the products under realistic conditions. In order to take the in-house tests to an even more stringent level, JBL cooperates with leading scientific institutions throughout Europe, such as the Leibnitz Institute for Marine Science in Kiel (IFM Geomar), the Department of Measurement and Laser Technology at the University of Ulm and the Haus des Meeres in Vienna.





In addition to the usual experiments and tests in the laboratory, JBL biologists have for many years gained their insight into the habitats and life of the animals directly from nature in the course of JBL research expeditions and workshops. The protection of wildlife and environmental awareness are key factors for JBL. By means of a photovoltaic system installed on the roofs of the company buildings, JBL is able to generate sufficient electricity itself to meet the entire requirements of production. For many years JBL has been a supporter of the SHARK PROJECT, the largest international protection organization for sharks, as sharks are threatened with imminent extinction at the hands of man.





Aquarium enthusiasts know that they can depend on the quality of JBL products and appreciate the new innovations which JBL regularly launches on the market.
Michael Donner, Director of Development at JBL states, “The best ideas don’t originate from us! It´s the pond enthusiasts, aquarium fans and sales staff who phone us and tell us their ideas. We then apply our knowhow to convert these often amazing ideas into products at acceptable prices.“



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You will find additional information online at the JBL Themeworld POND about the topic whenever you see this icon.

www.jbl.de/qr/100391

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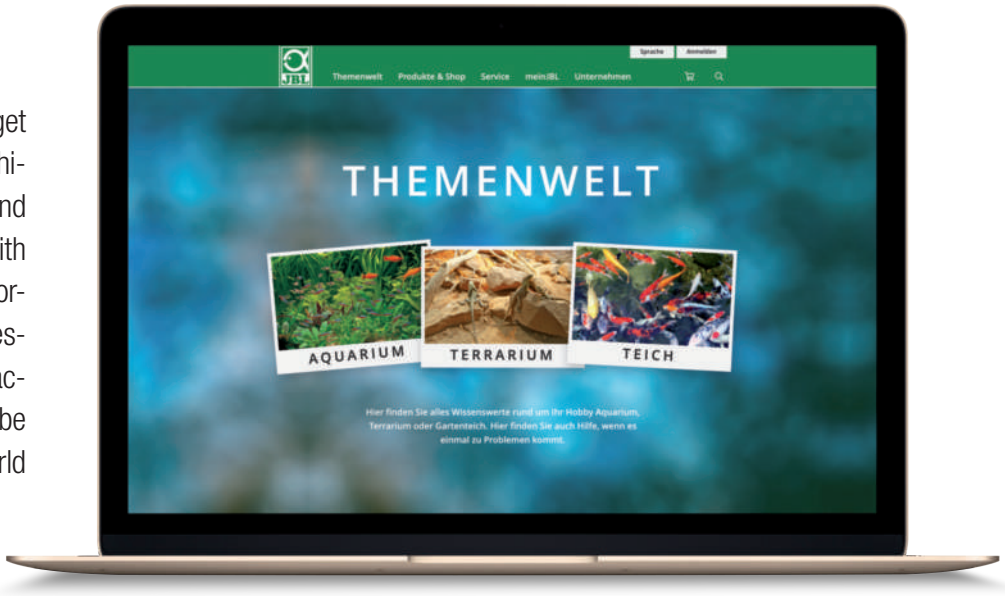
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Be a part of it

Experience JBL live – You can't get closer than this! We report on exhibitions, share important facts and exchange ideas and information with you. The JBL expert team looks forward to your questions and suggestions. And we offer you numerous activities and events which are not to be missed. Immerse yourself in the world of JBL!



myJBL

Become a part of the JBL world. Here you will receive information about your hobby and your JBL products. Don't miss any of our activities, such as the JBL Advent Calendar or the annual fan meeting. Your application gives you the chance to participate. Furthermore you will get unlimited access to additional information, contact with the JBL expert team and other useful material, such as the JBL Catalogue, the newsletter, guide booklets or a calendar.

Themeworlds

Here you will find all you need to know about your hobby aquarium, terrarium or garden pond. You will also find help here, if problems arise.

Newsletter

Never risk being out of touch again, and receive further information about your hobby and the JBL products free of charge. Subscribe today!

Themeworlds – Laboratories / Calculators

Solutions for your aquarium and pond problems. Ranging from how to solve algae problems, to how to diagnose fish diseases and the evaluation of water analyses. We are there with help, advice and online analyses which will solve the problems and answer your questions.

Blog

Would you like to learn some interesting facts about your hobby or have a glimpse behind the scenes at JBL? Our team of experts regularly share tips, knowledge, and further information not to be found on any packaging or product. Use this opportunity to discuss and ask questions. Experience the expert team as never before.

Catalogues / Manuals

Download the JBL Catalogue and the manuals as a PDF file. That way you'll always have all the information to hand. You can save the catalogue and the manuals on your device and print it out completely or in sections. You will find pictures and product descriptions of EVERY JBL product in the fields of aquarium, terrarium and pond here, all laid out in a clear format and with a large variety of additional information about your hobby.

Expeditions, Workshops and Travelogues

JBL undertakes yearly expeditions to the native habitats of ornamental fish and terrarium animals and collects data of habitats and makes observations about their way of life based on first-hand experience. Anyone who is interested in nature can accompany the JBL research team on the JBL expeditions. Next to good physical fitness a keen interest in nature is required, because the expeditions are not wellness holidays but nature tours sometimes in quite rough conditions. Anyone who wants to join us, needs to attach a photo to the application form and send it to JBL. The application form can be found in the terms and conditions of participation for the coming JBL expedition.

FAQ

There are many questions so interesting they are worth sharing with everyone. That's why we have the FAQ section (frequently asked questions), where you can look for your question using a key word or through an alphabetical search.

CUSTOMER SERVICE CENTER

Should you have questions concerning a JBL product or your hobby, the JBL expert team in the customer service center will support you with individual advice. Most matters can be solved with a onestep correspondence.

Having a functioning, healthy and algae-free pond is not magic!

A pond is like a car: there are different types and they need some maintenance. Of course you can drive your car without any care or inspection, but it will cost you more later if you have to buy a new engine instead of having regular oil changes. And you don't need to worry about the varnish either, if you can live with a few scratches and a faded paint tone.

If you just let your pond run on, you'll have to live with the consequences: The pond will be silted up, will contain more and more nutrients and will end up a paradise for algae. Parasites may spread and sort out the plants for you. With a little basic water, plant and fish care, you can prevent problems and ensure that your paint - sorry pond - always looks the way you want it to! Specialists and practitioners will tell you exactly how you should maintain your pond so that it meets your expectations!



Natural pond or artificial pond?

Both ponds have a lot in common, but there are some differences too: Artificial ponds rarely have a natural inlet and outlet. This means they only receive fresh water in the form of rainwater and direct action such as a partial water change. Please remember that Rainwater is important, since rainwater lowers the mineral content of the water in an artificial pond and some maintenance is needed.

The natural pond doesn't have a liner or shell as a bottom, but has earth, clay or other soils instead. All ponds, regardless of whether artificial or natural, tend to silt up when leaves fall or when any organic matter, such as branches and twigs, enter. In the long run this is a real problem for artificial ponds and you need to take action before the "sludge" in your pond can either i) lead the bacteria in your pond to consume too much oxygen breaking down the sludge, or ii) reduce the depth of the pond, which can jeopardise the fish's survival in winter. Mechanical sludge removal and the use of special bacteria with active oxygen (JBL SediEx Pond) is essential.









Don't be surprised to find animals you have never seen before in your pond! Bird faeces can contain the eggs of a variety of animal species. Frogs and newts moving across the landscape may choose your pond as their new habitat.

Koi ponds can differ from other artificial ponds. They often have vertical walls, no plants, no substrate and a bottom drain with a strong filter system. This type of pond is least like a natural pond.



The creatures in and near the pond



In addition to the fish we add intentionally, animals we didn't put in settle in all ponds sooner or later. We generally don't mind, as it brings life into the pond and makes it much more interesting.



There are only a few animals we really don't like: parasites, such as fish leeches, predatory dragonfly larvae (which can be dangerous for fry) and a few more.



Aquatic plants can also be „introduced" into your pond by water birds. So don't be surprised if you find things you never planted growing in your pond!

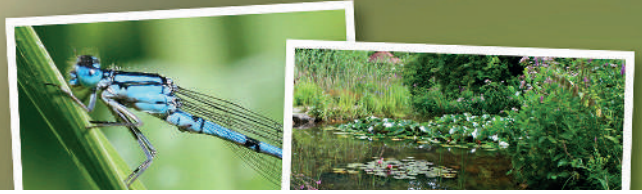
Water birds, wind, rain and even animals drinking from your pond can introduce animals too. Snail eggs and plankton, as an example, can migrate when you add aquatic plants. Fish are even happy to eat the water striders (Gerris lacustris) you see on the water surface, which can be up to 3 cm long. These water striders can travel far on land to “access” your pond.



The most common dragonfly species are the southern hawker (Aeshna cyanea) and the broad-bodied chaser (Libellula depressa). Dragonflies don’t sting and they enrich our pond life. They prey on other insects, e.g. mosquitoes, in the air. But their larvae are highly predatory and catch EVERYTHING they can fit in their strong jaws. This includes small fish, newts and young frogs.



Water boatmen, great diving beetles and dragonfly larvae can also be dangerous for fry. However there is nothing you can do. You just have to accept that these predators may enter your pond. The only solution is to try catching these villains by hand.





Frogs and toads like to use your pond as a retreat and for reproduction. The grass frog (Rana temporaria), the edible frog (Pelophylax esculentus) and the common toad (Bufo bufo) are the most common species there. All anurans feed on insects and worms. The male animals of various species croak at different volumes. Green frogs can croak so noisily that they disturb your neighbours. Luckily your neighbours can't take legal action against "your" frogs. Anurans sometimes hibernate in the mud of your pond. Then it's better when the water surface is not completely frozen over. Here an ice preventer with aeration (JBL PondOxi-Set) can help. Newts, like the smooth newt (Lissotriton vulgaris), live in the water from March to August. The eat anything they can fit in their mouth.



Mosquitoes lay their eggs in the pond (and in any other patch of water). Fish living in the pond regard mosquito larvae as a delicacy which helps keep their numbers down. Ponds without fish stock definitely have a lot more mosquitoes!
Did you know that the JBL remedy JBL ArguPond Plus helps combat mosquito larvae? This could be a solution for anyone who has a pond with no mosquito larvae eating fish.



Pond mussels which are often offered on the market are live mini-filters. But please don't expect a few pond mussels to replace the pond filter!

In order to reproduce, bitterlings need pond mussels to spawn inside.



You can find all sorts of water snails in your pond: big-ear radix, great ramshorn, pond snails and great pond snails. Their gelatinous clutches are mostly introduced by water plants. All native snail species are harmless and feed on algae.





You are welcome to add your turtle to your pond in summer, assuming the turtle can't just escape and migrate to natural waters. This would lead to a disturbance of fauna and possibly jeopardise the native pond terrapin.



The least welcome visitor to your pond is the grey heron! It is beautiful to look at but is a real danger for your fish! If you notice wounds on the fish's back, this may be caused by the grey heron. There are quite a few remedies for them, but only a few really work. The plastic heron is quite comical as a solution. The heron thinks: I'll go and see what my pal is up to and keep it company. Deterrent effect: zero! An electric fence might work well, but it looks unsightly. Sprinklers, triggered by light barriers, also work, but they need to be repositioned now and then because herons are fast learners.

Planning & setting up

All you need to know about planning and setting up biotope, koi and garden ponds with technology and with multiple zones.



Biotope ponds

If you are planning to or already own a biotope pond or a natural pond you are clearly a fan of unspoiled nature, and want a pond with as little technical equipment as possible and without any exotic animals. While you may not want to intervene when a plant starts to spread, you will still have to carry out a little maintenance. There are, for instance, always the leaves which fall into the water and in the course of time create an increasingly thickening sludge layer. In the wild all ponds silt up eventually.





Of course, you could simply accept this and repeatedly create new ponds in your garden, but nobody wants this! Removing leaves belongs to the key activities in biotope ponds. The jury is out about actively adding fish to biotope ponds, but when fish develop from eggs which have been accidentally imported by birds or plants, this is accepted as a natural process. Biotope ponds often look a little overgrown and wild, but as with gardens, this can add to the charm and may be preferred to a “designer” pond. As biotope ponds often have next to no technical equipment (filters, aeration or watercourse), the construction and shape of the pond is all the more important! The water volume/surface ratio is also vital to ensure there is sufficient oxygen content in the water. A shallow bowl has more oxygen in the water than a saucepan. The biotope pond’s flat areas, where marsh areas form, are especially important if your pond is to work for a long time. Your pond needs a depth of at least 180 cm so that the animals can survive the hard winter. Of course, we are talking about the water depth and not the water plus sludge depth!



One thing you definitely need to deal with is the vegetation around the pond. Most of our trees and bushes lose their foliage in autumn and large quantities of this ends up in the pond. There it sinks to the bottom and forms a layer of sludge. Bacteria decompose the organic matter, consuming enormous amounts of oxygen. This can be so much that the water dwellers may suffer. Preventing leaves from entering the water is the best method, removing them is the second best method. Otherwise we are quickly back at the subject of “sedimentation”.



Koi ponds

Koi ponds often have a different design to “normal” garden ponds. This is due to the fact that koi regard pond plants as a great supplement to their daily diet and also because their high metabolism leads to heavy soiling. This can be remedied by a bottom drain and a good filter. The gravel is often omitted to prevent the bottom drain from clogging.





Not all Koi fans like marshy areas, where putrefaction processes can take place, germs can reproduce and where the shallow depth heats up the pond in summer. The use of a little technology will reward you with an efficiently running pond, in which the animals are the centre of attention. Keeping grey herons away from koi ponds is an important issue (see Pond dwellers).



In view of the size koi can grow to, there should be at least 2000-3000 litres available per fish. The Ogata koi farm in Japan provides 256 cubic metres of water for each koi! This is a brief reminder not to overstock your pond, which is one of the main mistakes in koi keeping. The larger water volume also impacts the animals’ health positively because the germ load is lower and the risk of infection decreases.

Garden ponds

Ponds which are neither biotope nor koi ponds

Let's now mention ponds which are neither pure biotope ponds nor pure koi ponds. You might call them "mixed ponds". And if you love ponds with marsh plants, but also love goldfish and koi, this might be the right choice for you. Fans of the pure pond types wouldn't recommend this, but most ponds are "mixed ponds" anyway.



Zoning of the ponds

The design of mixed ponds is a matter of taste of course. But there are a few basic rules you should follow: Flat zones increase the surface and the opportunity for oxygen enrichment without technical intervention. Flat zones are also very suitable for marsh plants which withdraw a lot of nutrients from the water and, as a result, the algae's nutritional basis. Your pond needs a depth of at least 180 cm for the animals to survive a hard winter. If you use a filter (highly recommended), the intake strainer should NOT be positioned at the deepest point, because it will become soiled faster there and it will mix together all the water layers. The warm water is always at the top and the colder below. In summer especially this is a good thing because the colder water can bind more oxygen. If the intake strainer is directly on top of the pump, a large bucket can be used to raise the pump off the bottom.



The thermocline

At first warm – then suddenly cold

When the water warms up at the top a thermocline forms. Below it the water can be 10 ° colder!



It's raining leaves

Foliage leads to a mudbath

One thing you definitely need to deal with is the vegetation around the pond. Most of our trees and bushes lose their foliage in autumn and large quantities of this end up in the pond. There it sinks to the bottom and forms a layer of sludge. Bacteria decompose the organic matter, consuming enormous amounts of oxygen. This can be so much that the water dwellers may suffer. Preventing leaves from entering the water is the best method, removing them is the second best method.

Lack of oxygen at the bottom leads to purple bacteria, which look nice, but indicate oxygen depletion in combination with putrefaction processes.



Birth control

Overpopulation in the pond

When stocking your fish please remember that they have sex and produce offspring. Your pond might quickly become overpopulated. Ask your specialist pond supplies dealer or your pet shop if they would like your fish offspring.



Your pond as part of your garden landscape



Your primary concern is probably that the pond blends into your garden well. It's a matter of aesthetics. When building a pond you DON'T need a building permit. Please note that you'll need uncomplicated and practicable access to the pond. Existing bushes and small trees around you pond will grow and throw their leaves into the pond. Unfortunately as time goes by the foliage will form an unattractive layer of sludge. The advantage of bushes and trees is that they provide shade and prevent too strong sunlight heating up the pond water.



A small artificial watercourse is the best thing you can do for your pond! It generates oxygen, cleans the water and looks nice too. If you can build a watercourse, don't forget to integrate it into the garden design. An existing small slope or mound of earth could save you some work.

Consider renting a small digger for the excavation work. It may turn out to be a blessing when laying power cables for pond filters, lighting or waterspouts etc.

Partial shade is ideal for your pond. Perhaps you could find a position where your pond will have a little sun and varying partial shade during the day.





Pond zones

How many pond zones does your pond have?

„Only one - and it's filled with water" might be your response. But there are innumerable advantages to having your pond split into different zones. Let's start with the shallow water: a shallow water zone gives a lot of marsh plants the opportunity to grow upright in the water, to withdraw nutrients from the water (so that the algae die of starvation) and saves them from being gnawed by plant-eating fish. In these marshy zones a lot of beneficial bacterial degradation processes also take place, to keep your pond clean and clear.





The pond bottom often slopes down towards the deeper areas. Gravel is then unable to settle on the slopes and even small stones slide down. A terraced structure can help here.

The deepest point should have a depth of at least 180 cm in countries with harsh winters. In this deepest area the water will not drop under 4 °C, since water has its highest density at 4 °C. Your fish can hibernate here, no matter how thick the ice cover above is.



For larger fish it is advisable to build steep pond walls with the upper slabs reaching to the edge or over the edge of the water to give access. This will also provide an ideal spot for fish feeding without them having to slip around in the shallow water, damaging the mucous membrane on their bellies. You'll be able to kneel right at the side of the pond, feeding them individually by hand. This will make it easier for you to catch a fish at a later date, if it should fall ill, etc.



Useful technical equipment

Support for your pond

Our wishes aside, it's very hard to run a pond as a natural biotope without any technical support! That's why we have these useful pond devices to simplify or make maintenance possible in the first place.

Pond filters



A useful investment

There is no question that pond filters help you to keep the pond clean and clear. There are incredible numbers of different pond filters. Their most important criteria: It ought to be large enough! The strongest pump is useless if the filter volume is so small that it is completely soiled every couple of days. Please make sure when you buy a filter that its filter volume and the pump performance suit your pond volume. You can most easily and precisely determine this with the Pond laboratory / calculator.



The UV-C water clarifier

For clear water with few germs

In addition to filtering a UV-C water clarifier (JBL PRO-CRISTAL Compact UV-C 36W) will help you to keep your pond water low on germs and to prevent floating algae (green water) without anti-algae agents. When using a new pond filter or after a full clean a UV-C water clarifier should be installed behind the filter to prevent the bacterial settlement in the filter. Otherwise the installation IN FRONT OF the filter is useful to catch the dead bacteria, fungi, germs and floating algae directly afterwards in the filter and to remove them during the cleaning process from the water circuit.



Aeration

Air bubbles against oxygen depletion

Air stones for aeration: The oxygen content decreases in winter and midsummer. Then aeration is not only useful but highly advisable! You will need an air pump, a hose and ideally a floater to prevent the air stone from hanging at a depth where it could mix the water layers. JBL offers this as a complete kit under the name JBL PondOxi-Set.

In winter strong aeration prevents parts of your pond from freezing, especially when the aeration is combined with an ice preventer, made of styrofoam.



Useful decoration

Spluttering and spouting for a good cause

Waterspouts and water fountains are a good thing in principle: They enrich your pond water with oxygen. They often enhance the garden pond area and people like the splashing sounds.



Watercourse and waterfall

Space-consuming, but enormously useful

Watercourse/waterfall: A watercourse with small or larger waterfalls gives you the perfect opportunity to increase the oxygen content of the water and they offer plenty of living space for pollutant-degrading bacteria. The pump output required for this purpose depends on the height and width of the watercourse.





How to conceal your technical items and the pond edge

Only a few tech fans will want to have their technical products on show. Most of us are happy to have the technological benefits of these items without having to look at them. Almost all pond filters can be buried beneath the garden. Their inlet and outlets can also be laid slightly below the lawn. Alternatively filters can be concealed behind the vegetation planted around the pond.



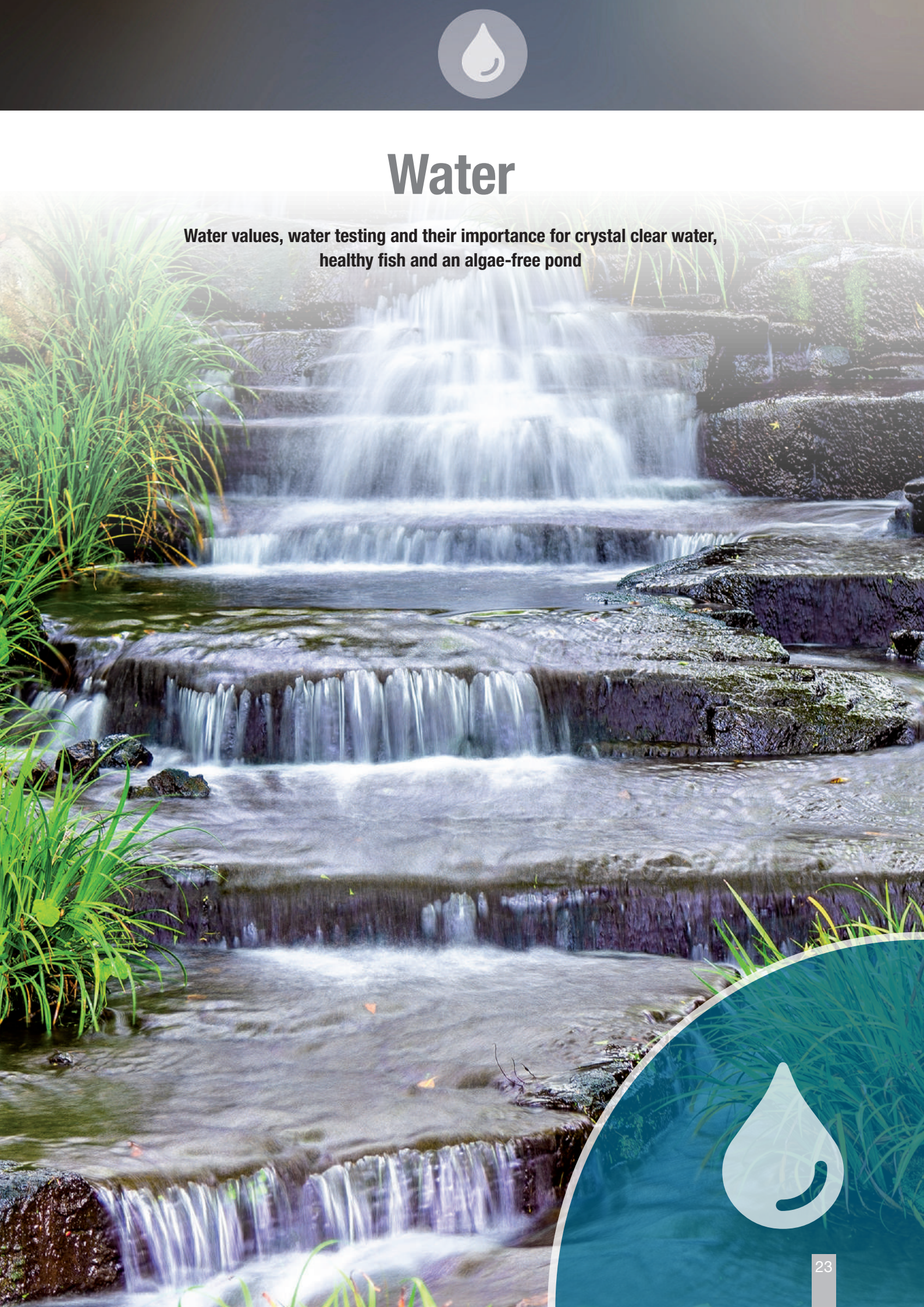
Hiding the pond liner is a little bit more complicated. But even this can be almost completely concealed. First lay the pond liner in the deep part of the pond. When you reach the shallow area with only 10-20 cm depth, build another step on which you can place stones. Lay the liner to the highest point (pond edge) behind these stones and fold it over. Now you can use more stones to seamlessly cover the visible liner edge in the water and on land.

If you have a steep or vertical bank, draw the pond liner vertically upwards to the pond edge and lie it flat on the ground of your garden. Place your stone slabs or wooden planks on top, making sure they overlap the liner and cover it completely.

Please also include an intentional spillway area! In case of extreme rainfall or if you forget to turn off the water after refilling, the pond needs a point where it can overflow without causing damage.

Water

Water values, water testing and their importance for crystal clear water, healthy fish and an algae-free pond





Water tests

Why and when do you need to test your pond water?

Water can look crystal-clear but still contain deadly poison, such as arsenic. Unfortunately we cannot identify the quality of the pond water visually. We only can say, whether it's clear, cloudy or green. Only the water tests give us the opportunity, similar to the physician's stethoscope, to cast a glance into the "interior" of the water.

We need to test the most important water values, such as KH, pH and nitrite regularly (i.e. weekly). But we are only human and tend only to react when problems occur in the air and/or in the water.



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Which tests do you need?

You don't need to carry out all the tests, just like a physician will not look into your ears to treat a pain in the knee. In the following table you will find a brief outline of when water tests can help.
What does the water value indicate, what's its ideal range and how can you correct it? You will find all the information about every individual water test here:



This will tell you how acidic or alkaline your pond water is. The perfect pH value is between 7.5 and 8.5. Tip: Measure once in the morning at sunrise and once in the evening after sunset. If the values between morning and evening are outside this recommended range, you'll need to learn more about water stability (carbonate hardness).

The carbonate hardness, abbreviated to KH, stabilises the pH value. Your pond water contains various minerals from your tap or well water. Plants, algae and microorganisms consume these minerals as time goes by and the rainwater "dilutes" your pond water's mineral content. With carbonate hardness levels below 4 °dKH the pH value of your pond water is not sufficiently stabilised anymore and can fluctuate between 6.5 and 10.5!

With JBL StabiloPond KH you increase the KH to at least 4 °dKH and thus stabilise the pH level.

With the help of a carbonate hardness test you can find out in a few seconds how high the carbonate hardness of your source water and pond water is. Action is needed with KH values below 4.





In well-functioning and healthy ponds the oxygen content lies above 5 mg/l. There is no such thing as too much oxygen. High oxygen levels always have a positive effect for your pond. It is vital you test not only the water at the surface but also the water at the pond bottom (as deep down as you can reach without needing to dive). Especially at the pond bottom there is often an absence of oxygen! Always measure the oxygen in the morning when it has its lowest value.



Generally your pond dwellers (incl. bacteria and plants) are not happy about copper (abbreviated as Cu)! From 0.3 mg/l a copper content can even be deadly for your fish. A typical reason for increased copper levels in your pond water is the entering of rainwater by means of copper gutters. You also can measure an increased copper content after the use of anti-algae agents.

Your plants love a bit of iron (abbreviated to Fe) in the pond water and grow better. Too high iron levels in turn have rather a negative influence on all pond inhabitants. Iron values between 0.05 and 0.1 mg/l are perfect. In many cases too high iron values are caused by using well water. Because of this and other reasons not all wells can be recommended as a water source. By using JBL BiotoPond you can reduce the unwanted high iron levels to the desired level.

JBL BiotoPond binds all kind of heavy metals, such as iron, lead, copper and zinc.

With the help of iron tests you can quickly and reliably check whether your source or pond water contains too much iron. Brown deposits in the water often show that the iron content is already too high.





Beneficial bacteria degrade the dirt accumulating in your pond water and at the bottom of the pond. Ammonium (NH_4) and ammonia (NH_3) are created from protein. Both are further processed to nitrite (NO_2) and then to nitrate (NO_3). Ammonium is also breathed out through the gills of your fish. These degrading bacteria can be damaged by new ponds, after bigger clean-up operations or after the use of antibacterial remedies, causing the ammonium content in the water to rise. In healthy, well established and efficient ponds you will almost never measure ammonium values above 0.1 mg/l. Ammonium itself is non-poisonous but a chemical equilibrium reaction causes it to transform itself to poisonous ammonia. The percentage of this newly created ammonia increases at pH values from 7.0 onwards. As soon as your fish show symptoms of poisoning (gasping at the water surface, darting backwards and forwards, reeling etc.), measure the ammonium content! The remedy is (firstly) an extensive water change to dilute the ammonia concentration and to slightly decrease the pH value to transform the poisonous ammonia back into non-poisonous ammonium. And (secondly) add beneficial bacteria with JBL BactoPond so that they can process ammonium/ammonia.





Nitrite (NO_2) occurs in the normal biological degradation process from ammonium and is processed to nitrate (NO_3). During this nitrogen decomposition (nitrification) the pond water consumes a lot of oxygen. That's why a good oxygen enrichment for the pond water is not only important for the fish. Without the required oxygen your pond bacteria are not able to do their work properly.
From 0.3 mg/l nitrite is toxic for fish and from about 0.5 mg/l it is usually deadly. This is because nitrite prevents the transport of oxygen by haemoglobin. It has the same shape as oxygen and blocks the docking of the oxygen to the red blood cells (similar to the lock-and-key principle).

An increased nitrite value in your pond water is an extreme alarm signal that there is something wrong in your pond! The nitrite value should ALWAYS be below the detection limit! It's important you then immediately find out why your bacteria didn't process the nitrite to harmless nitrate.

Possible causes: If your pond is still quite new (max. 3 weeks old), nitrite still can accumulate because your beneficial bacteria have yet to develop. With JBL FilterStart Pond and JBL BactoPond you can help your pond and accelerate the running-in process enormously. If you have added salt to your pond (why? This does more harm than good), your bacteria won't like that at all. Bacteria can't get used to fluctuating salinity. If you insist on adding salt, you will have to restart the bacterial fauna AFTER the adding of salt with JBL FilterStart Pond and JBL BactoPond. Neither do your bacteria like you adding antibacterial medicines to your pond because the medicines can't differentiate between beneficial cleansing bacteria and pathogenic bacteria. Also in this case a bacterial reactivation with JBL FilterStart Pond and JBL BactoPond is urgently advised.



Nitrogen decomposition usually ends with nitrate (NO_3). Nitrate is non-poisonous and serves as food for plants and algae. The more plants you have in your pond the more nitrate is removed from the water and is no longer available as nutrition for the algae. Nitrate values above 10-20 mg/l can promote algae. In case your tap or well water has nitrate values below 10 mg/l we would recommend a partial water change (more about partial water changes in Pond cleaning).



Phosphates (PO_4) are completely harmless for your pond dwellers, but being the main nutrient for algae, they unfortunately promote algae growth. Therefore you always need to keep an eye on the phosphates. Your algae welcome phosphate levels above 0.05 mg/l. You can quickly and reliably remove the unwanted phosphates with JBL PhosEX Pond Filter or JBL PhosEX Pond Direct (if you do not have a filter).

Tip: As long as your algae are growing well the phosphate content will stay low, because the phosphate is absorbed by the algae. But as soon as you combat the algae and they die off, the phosphates are released into your pond water to fertilise the next algae generation. The best time to remove the algae is in winter and 24-48 h after the algae control has killed them off.

Most phosphates originate from organic matter (dying and decaying leaves and excessive fish food). But inferior feed also leads to increased phosphate values, caused by poor digestion. JBL PROPOND foods are precisely formulated for your fish and have the benefits of needing to be given less often and of considerably improving your fish's digestion.

JBL PROAQUATEST POND Check pH/KH



In only a few minutes this quick test will help you to determine whether your pond water is stable (mineral content, here: whether there is sufficient carbonate hardness) and within which range the pH level (acidity) falls. For this simple test you don't need to have studied chemistry to gain two important water parameters and to find out whether these values are okay or not.

JBL PROAQUATEST COMBISET POND



This "small test case" contains the most important water tests for the analysis of pond water, with result sheets, a syringe to easily measure the right water amount, colour charts to compare the colours resulting from the test, test liquids and cuvettes to carry out the tests.

JBL PROAQUATEST LAB Koi



It is especially important for Koi owners to know that their valuable fish are doing well in the pond at all times. Using this test case you can check ALL the relevant water parameters and then optimise them if necessary. You can check whether your well water is suitable for your pond, how many nutrients there are inside your pond, how hard your tap and pond water is, and whether substances are accumulating in the water which can pose a threat to your fish. In addition to a pen and result sheets the waterproof plastic case includes all the utensils you will need for simple but professional water tests.

JBL PROSCAN



Use the technical capacities of your smartphone for an extremely accurate water analysis in only 60 seconds! With special test strips you can precisely measure and evaluate six important parameters of your garden pond with a free app.



Rainwater and carbonate hardness

Life insurance for your pond

Rainwater is basically distilled water without any minerals and unfortunately it is often also acidic. That's why – unless you live in the desert - you really have to get to grips with this issue.

It's a hard life for a pond: It is exposed to all weather conditions, it gets unwanted rainwater and it has to digest leaves, flower pollen and any particulate matter that enters.

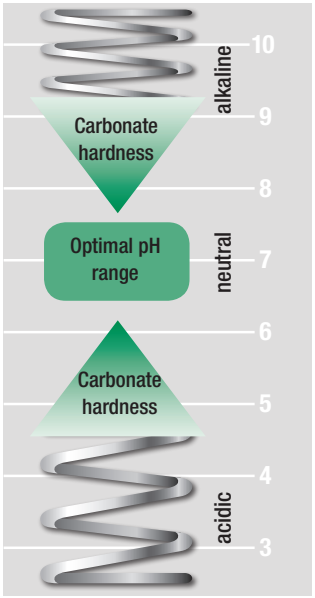
Rainwater sounds positive at first for most of us. Clean free natural water. Putting aside the matter of air pollution, let's take a look at the composition of rainwater. Rainwater is basically distilled water and therefore free of minerals. And that is exactly the problem. Tap and well water contain minerals, which are essential for the pond to function, whether it's a garden or koi pond. They are the water's life insurance with all the living organisms they contain. The minerals in question are called general hardness and carbonate hardness. Let us start with the carbonate hardness, the meaning of which is not always fully understood. It's not that simple to explain it in an easily understandable way either. The minerals of the carbonate hardness have the property to bind acids and bases. During the course of the day the acidity in the pond water changes (decreases) and the pH value rises. At night the opposite happens (the acidity rises) and the pH value drops. That's how the pH level fluctuates within certain limits.

The carbonate hardness makes sure that the fluctuations in the acidity don't become too large. Chemists say that the carbonate hardness buffers the pH value, meaning that both the increase and the decrease is reduced, or buffered. When the carbonate hardness falls below certain values, this effect fails and the pH value as a measure for the acidity doesn't buffer anymore. And because a pH fluctuation from 8 to 6 doesn't mean twice as much but 100 times more acid in the water, this is, unfortunately, a dramatic situation for the pond dwellers. All this sounds more complicated than it really is. In a nutshell: add the essential minerals to your pond regularly with JBL StabiloPond Basis and thus "insure" your pond against rainfall and the problems caused by pH level fluctuations. If you want to see these pH fluctuations in black and white, just use a pH test to measure your pond water once at sunrise and once just AFTER sunset. Should your pH value deviate more than 2, urgent action is needed!

Daily results of pH levels in the pond in the summer on a sunny day at KH 0 and KH 4



The second aspect is the general hardness (GH), in other words the magnesium and calcium content of the water. With very low GH values in your pond water the fish need to expend up to 30 % more energy to attain their mineral balance (salt/water balance)! By adding JBL StabiloPond Basis regularly to your water, you can increase the mineral content of your pond water (which can drop dramatically at any time as a result of rain water intrusion) and thus reduce the stress it creates for your fish.



Expert tip

If you want to see the fluctuations in black and white, just use a pH test to measure your pond water once at sunrise and once just AFTER sunset. Should your pH value deviate more than 2, urgent action is needed!

Oxygen and temperature



As important as air for breathing!

Oxygen determines not only our life, but also the life of your pond dwellers and even that of the pollutant degrading beneficial bacteria – but this only applies when there is enough oxygen available.

The right oxygen supply for your pond

What do you need to remember?

How does oxygen enter your pond water? As long as the oxygen concentration of our air (21 %) is higher than in the pond water, oxygen (O_2) will always diffuse from the air through the water surface into the pond water. The larger the surface, the higher the gas exchange. Wave movement, diffuser stones with air bubbles, waterspouts and waterfalls enlarge the surface and thus increase the oxygen content in the water.

For very deep ponds with plenty of fish the water surface is no longer sufficient for the oxygen supply and needs to be supported by technology (as mentioned above). To solve this problem JBL offers you the JBL PondOxi-Set for strong aeration. In summer especially you need to help your pond animals, as warm water absorbs considerably less oxygen than cold water. Having combatted and killed your algae, you definitely need to ensure there is a strong aeration. The degrading bacteria consume unbelievable amounts of oxygen. This even reaches a point where the lack of oxygen means the bacteria can't degrade anymore. It is really important to read up a little on the subject of oxygen and to check with a water test.

Oxygen supply in winter

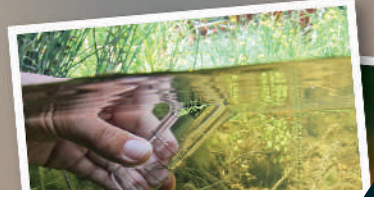
In the cold season the animals gather at the pond bottom which is the warmest place (about 4 °C). If you now mix the water layers using a pump, air stones etc. the pond can continue to freeze and cause problems. An ice cover hinders the gas exchange at the surface. To avoid this an ice preventer in combination with an aeration device is paramount (JBL PondOxi-Set)!





Oxygen saturation depending on the water temperature

°C	mg/l	°C	mg/l
4	12,7	20	8,84
6	12,1	21	8,68
8	11,5	22	8,53
10	10,9	23	8,38
11	10,7	24	8,25
12	10,4	25	8,11
13	10,2	26	7,99
14	10,0	27	7,86
15	9,80	28	7,75
16	9,56	29	7,64
17	9,37	30	7,53
18	9,18	31	7,42
19	9,00	32	7,32





Water treatment

Tap or well water are still far from perfect pond waters

In most cases tap water is intended to be suitable as drinking water for us humans. It needs to be germ-free – nothing else. In some regions it contains a lot of minerals (hard water), whereas in others very few (soft water). Because of the water pipes it can contain heavy metals, such as copper, lead or zinc which can be toxic for our water dwellers. In some countries and regions chlorine is added for its disinfection. No water animals can easily tolerate chlorine.

The copper rain gutter problem



If you direct rain water through copper rain gutters into your pond, the following happens: The rain water dissolves copper from the copper gutter and it enters your pond. Copper is not only a problem for invertebrates, it can also be deadly for fish from a concentration of 0.3 mg/l.

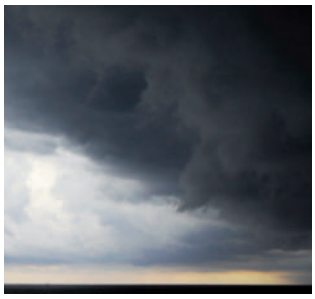
That's why a water conditioner JBL BiotoPond is highly advisable. It neutralises the effect of chlorine and encloses (chelates) heavy metals so that they no longer pose a problem.

Well water



Not every type of well water is suitable for pond water. This is the reason that a lot of wells are NOT used to source of drinking water. In agricultural regions herbicides (weed killers), pesticides (pest control agents), fertilisers (phosphate and nitrate), as well as some very high iron concentrations can accumulate in the groundwater (= well water). You can check phosphate, nitrate and iron contents reliably and quickly with water tests. Herbicides and fungicides are difficult to trace. Please test your well water in a mini aquarium with plants and microorganisms (not with fish!) before using it in the pond. This will quickly and clearly show whether it is suitable for the pond.

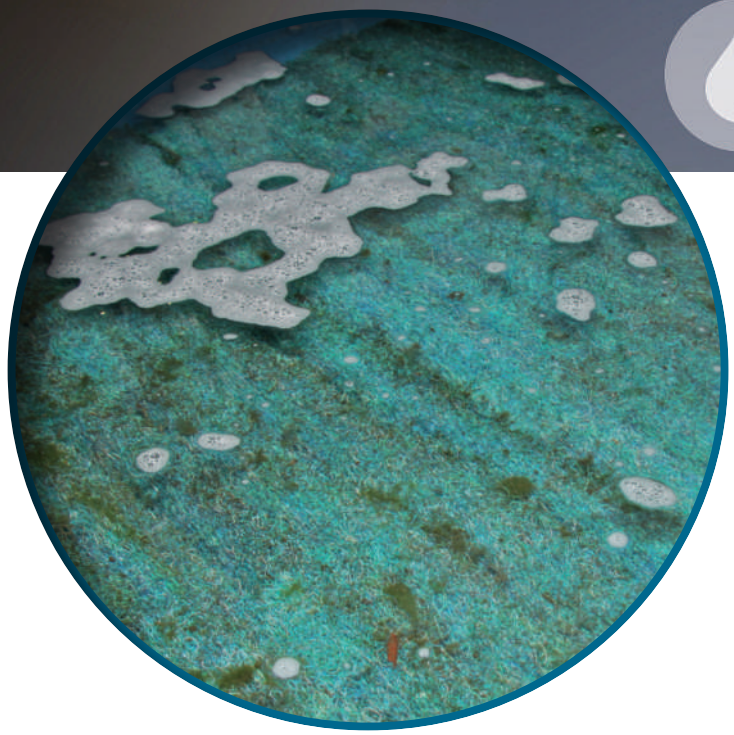
Acid rain



In regions with soft water and whenever rain water enters the pond, the mineral content of the water decreases steadily. One part of the minerals, the so-called carbonate hardness, ensures a stable pH value. If its content drops too, the pH level of your pond is no longer stable and fluctuates wildly. Since the pH value has a logarithmic scale, a rise from 7 to 10 in the course of the day means a thousand fold decrease of the acid components in the water. At night the pH value drops again and the animals again have to cope with a thousand fold increase of the acid components. You don't have to be a biologist to see that this not good in the long run.

You can avert this problem by adding minerals. For regular applications JBL StabiloPond Basis is available for you. For an individual application after very heavy rainfall JBL StabiloPond KH is the right means.





Beneficial bacteria in the pond

There are bacteria which cause diseases and there are beneficial bacteria which decompose pollutants, producing clear and clean water. This makes bacteria a very important subject for pond owners!

Beneficial bacteria in the filter



(Unfortunately) not every pond owner uses a filter, but once you have one it's worth giving it a bit of attention. Filters not only remove clouding substances from the water, they also provide a settlement area for bacteria which break pollutants down. A new or a cleaned filter is clinically dead. The bacteria have not yet had a chance to settle in the filter media and will not have done so completely for several weeks. In the meantime it's best to give your filter a little boost of bacteria.

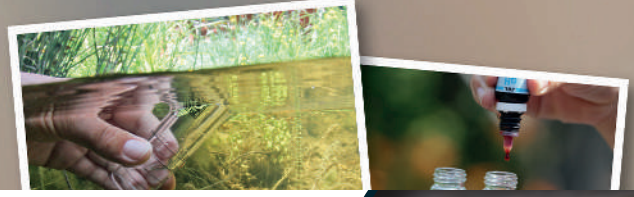
JBL FilterStart Pond contains enough bacteria to activate your filter within a few days and to make it fully operational. The use of JBL FilterStart Pond is not only advisable for the initail set-up, but also after the use of remedies, after disinfection measures and after the cleaning of the filter.



What your bacteria really don't like

There are some situations which your beneficial bacteria in your pond filter or pond bottom don't like at all: First and foremost this is the addition of salt. Some pond enthusiasts add salt to the water as disease prevention. Bacteria don't tolerate large changes in salt content and die. Adding bactericidal remedies, such as JBL Ektol bac Pond Plus, for example, will badly damage the bacterial fauna since the medication can't distinguish between "good" and "bad" bacteria. We can't do anything about the high summer water temperatures proving a problem for the pollutant-destroying bacteria. But high water temperatures also mean low oxygen concentrations, and here we can do something. Aerate your pond in summer not only to create enough oxygen for your fish, but also for the bacteria at the bottom to degrade the leaves and the pollutants.





Water clarification with UV-C



Crystal clear water thanks to UV-C water clarifiers

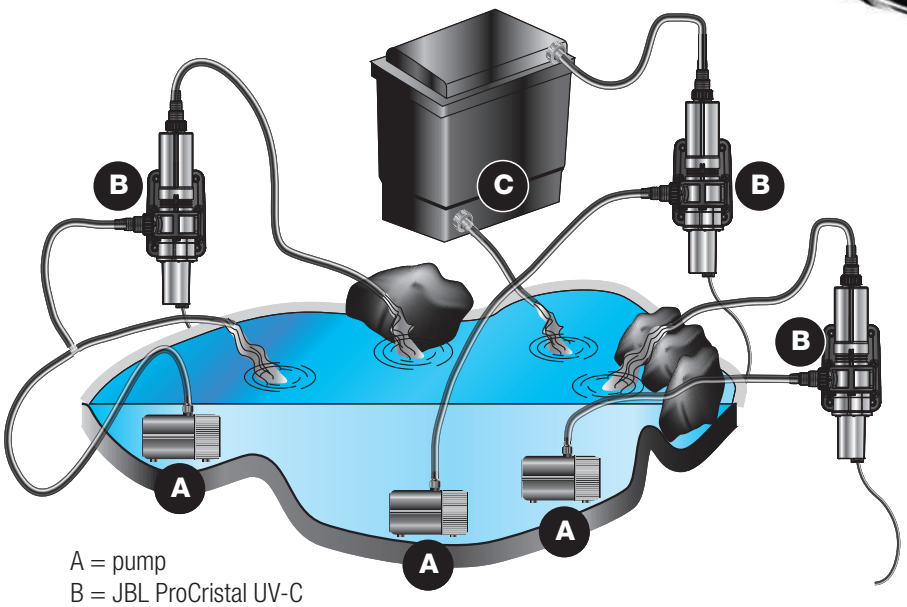
You can make your water crystal clear without any chemicals quickly and easily by using a UV-C water clarifier!

Poor light conditions, over-fertilisation or even a surplus of nutrients can have negative effects on the water and may promote algae growth. Floating algae lead to green, bacteria to white clouding. The JBL water clarifier eliminates clouding caused by bacteria and floating algae. The water passes through the sturdy UV-resistant casing of the clarifier. The UV-C radiation kills off bacteria, other germs and floating algae as the water passes through.The efficiency of this UV-C water clarifier is particularly high, since the glass cylinder is surrounded by a reflecting stainless steel foil which reflects the UV-C radiation, thus doubling the efficiency. This can also help to eliminate persistent algae, such as thread algae, since their spores are also largely killed off.

No harmful side effects
No change to the water values / no negative influence on the essential cleansing bacteria in the filter.



If your pond filter is still fairly new the use of a UV-C clarifier IN FRONT of the filter would prevent cleansing bacteria from colonising it. Then it's important to use JBL FilterStart Pond to activate your filter.



A = pump
B = JBL ProCristal UV-C
C = filter



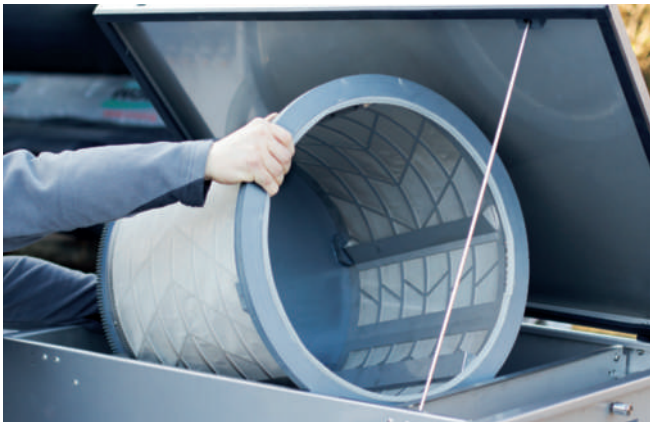


Pond filters

There is an incredible abundance of different pond filters. There are too many to list or to explain here. However there are a few points worth paying attention to:



The most important factor: how many litres is your pond?
It is vital that the volume and pump output of your pond filter match the volume of your pond. The strongest pump is useless if its filter volume is too small and it is completely soiled every couple of days. When buying a filter make sure that the filter volume and the pump size match the volume of your pond.



Filter cleaning is a MUST!
Find out how easy or complicated it is to clean the filter. Our experience tells us that filters rarely get cleaned when the cleaning takes forever.

At last you have an excuse to drive a digger!
If you plan to dig your pond with a small excavator, you can use it for the pond filter hole, too!



Filter suction pipe and bottom drain
Never position the suction pipe at the deepest point because this would mix all the water layers together. This is not good in summer or winter! Only in koi ponds without a substrate should you install the bottom drain at the deepest spot.

Here's how to start your pond filter properly
Activate your new pond filter with filter bacteria (JBL FilterStart Pond), if you don't want to wait for 4 weeks until your filter is working biologically.



JBL FilterStart Pond doesn't only reduce the running-in time, it also simultaneously inoculates your filter with precisely those bacterial strains which actively break down, protein, ammonium and nitrite.



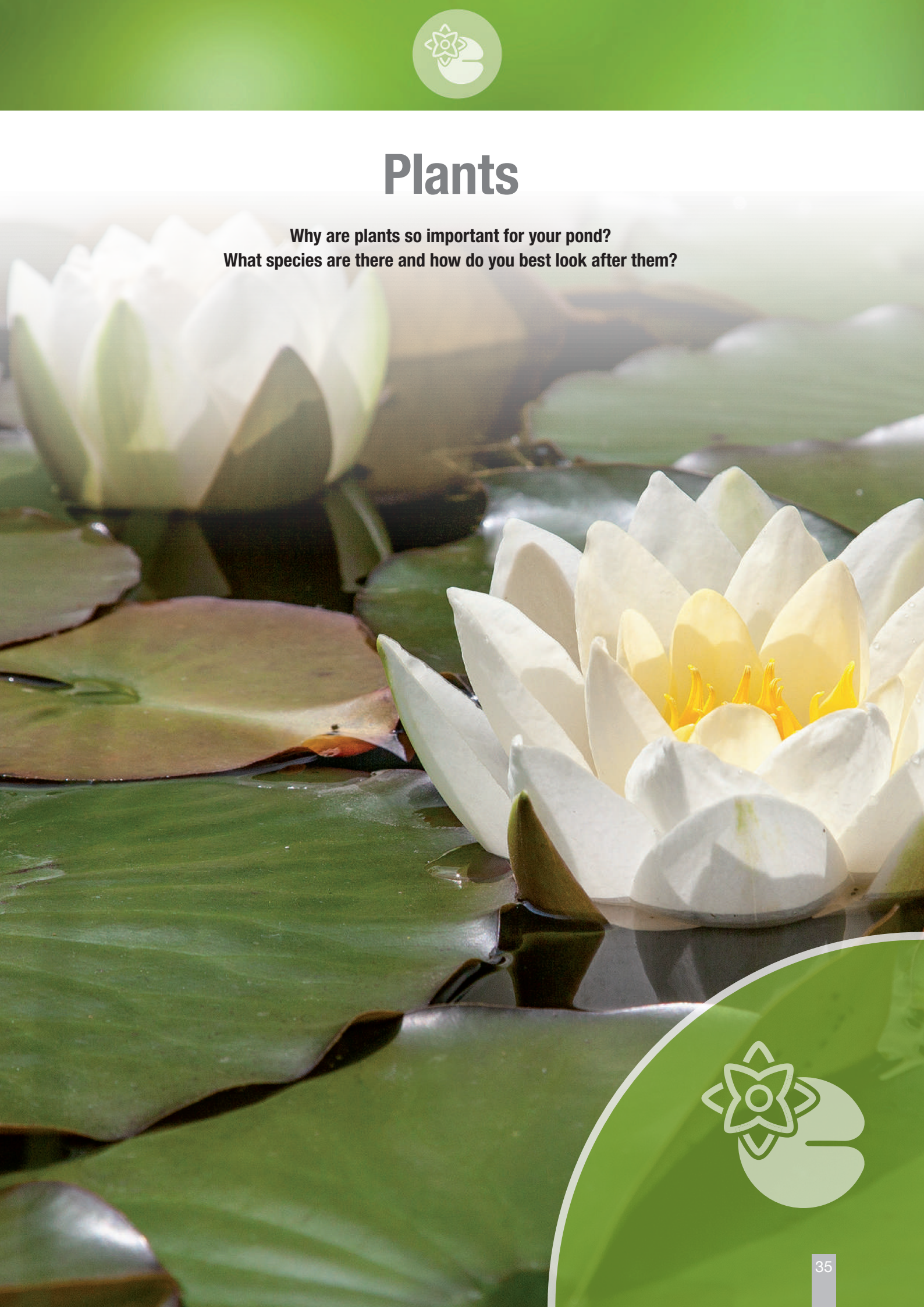


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Plants

Why are plants so important for your pond?
What species are there and how do you best look after them?





Plants - the best helpers there are

Pond plants not only look beautiful, they also help your pond to work biologically and ensure good water values. Even if a lot of fish just eat them, you ought to keep plants in your pond.



If you can keep plants in your pond, whether it's in the water, under water or in the marsh area, do! Plants help you to keep the water clear and to control algae. Plants need nitrogens (ammonium & nitrate) and phosphates (PO_4) and absorb these substances from the pond water. Algae are also plants and require the same nutrition. But once your plants start growing strong, the algae begin to starve and can't grow properly! Algae control can be so easy!



Plant killers: your fish!

The only problem is your fish's healthy appetite for greens. If you just insert a few underwater plants, you'll only have a short time to enjoy (and derive benefit from) them. The goldfish and koi will find and destroy them completely. Larger numbers of plants mean a better chance of the plants growing quicker than they can be eaten. The plants in the marsh zone will have a significantly better chance to survive. Although they are in the water, they'll grow above the water surface. The fish would need to jump off the water to reach them! All that matters here is that the plant roots are in pond water so that they can access its nutrients.



Dead plants = nutrition for algae

You need to remove dying plants, such as water lilies in autumn, from the pond immediately. Otherwise the nutrients, absorbed during the growth process, will return to the water to fertilise the algae.



Plant species for garden ponds

Which plant species are the right ones for your pond?



You can choose your marsh zone pond plants, according to your colour preference, but will need to consider some general points about plant selection.

What is beautiful?

Firstly, of course, your personal aesthetic perception is important. Flower colours and shapes and plant growth is completely a matter of your own taste. A sensible approach is to read about the flowering periods of the plants and to establish a planting plan to make sure that not everything is flowering in one go but successively.

Useful pond plants

Even more important than beauty is the benefit you get from the plants. Which plants absorb a higher level of nutrients from the water to keep the algae down? Which plants clean the water and which ones provide shade etc.?

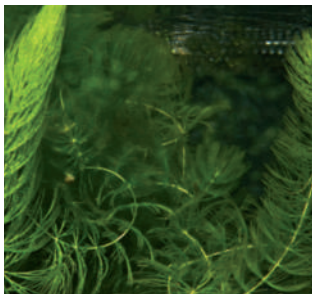




Underwater plants

Cultivation in greenhouses and deliveries in plant containers mean you can plant from spring to autumn nowadays. The only limits are set by frost and autumn withering.

Start by planting the deep zones of your pond. You'll still be able to walk over the marsh zone without damaging the plants to reach the deeper areas. Hornwort (Ceratophyllum demersum) is a fast growing underwater plant which also hibernates in the pond bottom.



Ceratophyllum demersum

The watermilfoil (Myriophyllum spicatum), as already described, has an antibiotic and detoxifying effect. The waterweed species (Egeria densa and Elodea canadensis) grow very fast and thus extract a lot of algae-promoting nutrients from the pond water.

Watermilfoil (Myriophyllum) has an antibiotic effect and decreases the bacterial count in the water to reduce the fish's risk of infection! It gives them a better immunity.



Myriophyllum

Companion pond plants

The mare's tail (Hippuris vulgaris) is a plant which quickly spreads and absorbs a lot of nutrients from the water. Its dense growth houses a huge fauna of small animals.



Hippuris vulgaris

The water knotweed (Persicaria amphibia) and the fringed water lily (Nymphoides peltata) are beautiful additions or alternatives, too.

Duckweeds, water caltrops and water soldiers are also hardy.



Nymphoides peltata







Floating plants

Water lilies (Nympaea species) are not only attractive, they are also very useful: They give shade and work against extreme water heating. Always plant water lilies in planting baskets and add a good root fertiliser for the roots to take well (JBL FloraPond). Between May and October they are in full bloom.



Nymphaea

There are more floating-leaf plants to choose from. The water hawthorn (Aponogeton distachyos) from South Africa is not really hardy but it is still a very beautiful and useful plant with attractive floating leaves.



Aponogeton distachyos

Some attractive floating plants like the water cabbage and water hyacinths are not hardy and need to hibernate indoors.



Marsh plants



Alisma plantago-aquatica

Shallow water plants (5-40 cm water depth): These plant species tolerate varying water levels and even survive outside the water for a short time. Galingale (Cyperus longus), common water-plantain (Alisma plantago-aquatica), dwarf bulrush (Typha minima), marsh-marigold (Caltha palustris) and many others belong to this group.



Caltha palustris

We know bulrush species from lakesides. They look very decorative in domestic ponds but their spread needs to be prevented before they suppress all other species. This is perfectly doable with planting bowls.



Plant care



Every plant needs a little care

It might seem you're doing everything right when your plants are growing well, blooming and giving you pleasure. Stunted growth and lack of blossoms indicate problems which need solving.

The correct positioning of your pond plants

Before you start to maintain your plants, make sure you plant them in the right place. Follow the small information tags in your plant pot which tell you which depth the plants need to be planted in and whether they need sun, part shade or shade. This is really basic information.



Planting baskets are useful

Rampantly growing species, such as the mare's tail and a few water lily species, really belong in a planting basket, so that their growth can be curbed.

Give your plants a little boost to help them take root before you „immerse" the pots in your pond. One or two substrate fertiliser balls (JBL FloraPond) in the plant pot work wonders. Just by looking at the growth of the plants later will show whether you forgot to supply a pot with JBL FloraPond. The growth starts later, is slower and less vigorous!

Water lilies especially appreciate it when you briefly remove the plant basket and add some root fertiliser when they first start to grow JBL FloraPond.





Wild water - calm water

Water lilies don't like strong currents or splashing water. Drops of water are like magnifying lenses burning on their blossoms.

Winter preparation: pruning plants

Some plant species, like the purple loosestrife (Lythrum salicaria) need to be cut back in late autumn. Never break plant parts off, cut them! A lot of long grass-like plants and bulrushes need to be cut down to a hand's breadth above the water surface after the wilting phase in autumn, when they begin to bend. A hedge trimmer can be useful with a lot of grasses. Remember to remove all the plant trimmings from the water!



Don't forget to feed your plants!

Just like indoor or aquarium plants, pond plants require nutrients and trace elements for healthy and vigorous growth, With the help of fertiliser balls (JBL FloraPond), you press into the pond plants' root area (best directly after purchase) you supply all root forming marsh and aquatic plant species with nutrients, minerals and trace elements. Your pond plants receive the other nutrients, such as nitrogen, phosphorus and carbon from the water or, as with marsh plants, from the air.

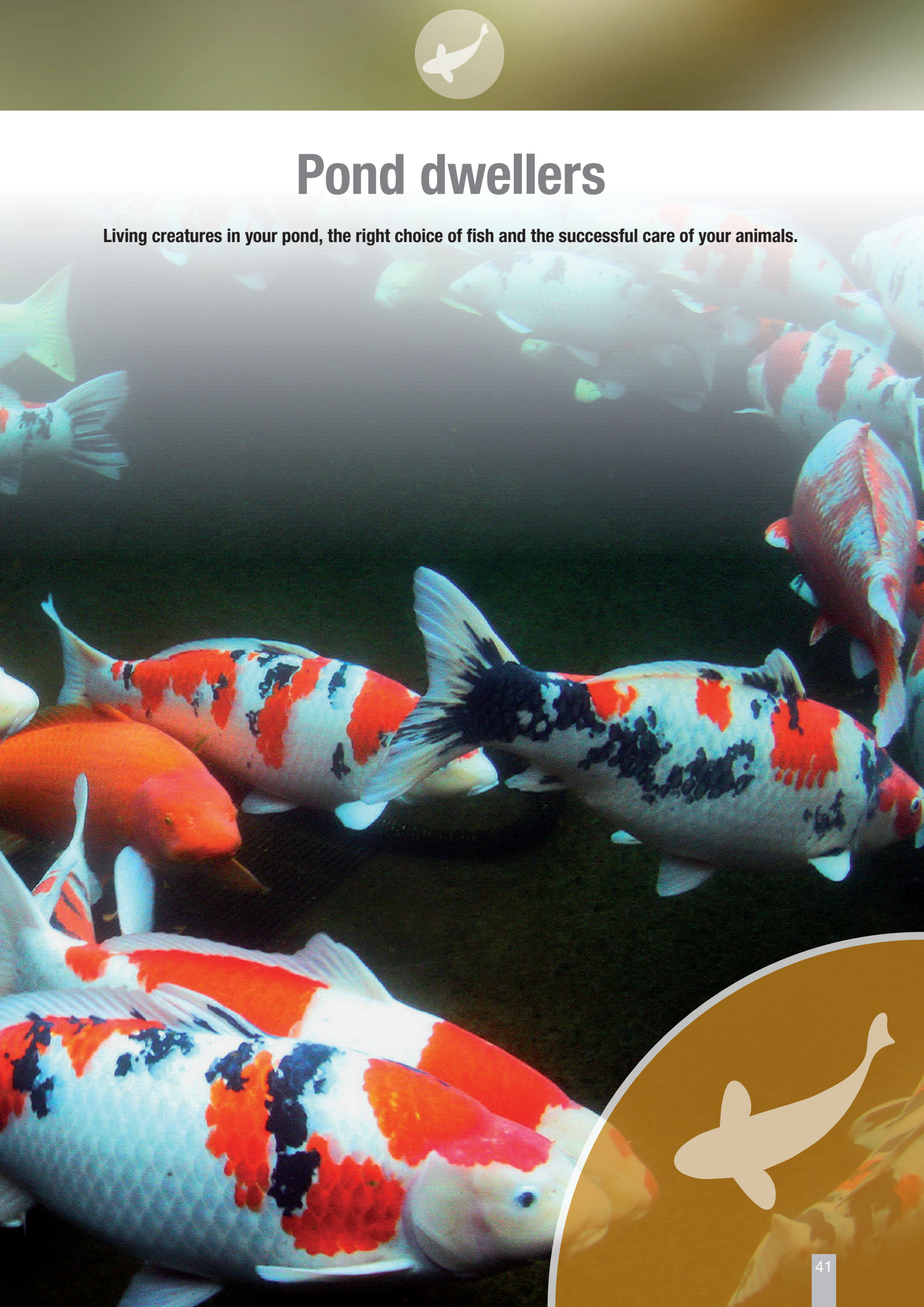


Expert tip

Remove as many dying plant leaves as possible! As it decays, dead organic matter (often from plant leaves) releases the nutrients absorbed during their lifetime, and thus promotes algae growth! Regular pruning of the marsh plants in autumn before the garden pond's dormancy is also an important step towards reducing nutrients. But leave about 10 % of the marsh plants' stems above the water surface. They provide somewhere to hibernate for a diversity of insects. In addition the stems stand in the water like snorkels and ensure the aeration of the water while the surface is frozen.

Pond dwellers

Living creatures in your pond, the right choice of fish and the successful care of your animals.



Animals in the pond

"We enjoy watching these animals because it's like having a simpler reflection of ourselves put before us."

Arthur Schopenhauer, 1854



Strictly speaking you have no influence on the animal stock of your pond. You may intend to select and add fish, but fish, invertebrates and amphibians will arrive uninvited too. Unless you own an "indoor pond", your pond is an open system.

Water birds are probably the most frequent carriers of organisms. They transport plant remains, algae, fish eggs and invertebrate eggs in their faeces or on their body "appendages."

Don't be surprised to find fish and snails in your pond, even if you didn't put them there! Adding new pond plants can also mean introducing new inhabitants. Eggs from various animals can be on the plants and they will then develop in your pond. A few animals will find their way overland on their own. These include frogs, toads and newts.



The fish for your pond

Which fish fit in?

Consider carefully which animals you would like to add to your pond. Removing them later involve huge problems and challenges!

Consider carefully which animals you would like to add to your pond. Removing them later involve huge problems and challenges!

There will never be a pond without animals, because most animal just come on their own (see Pond dwellers). You only need to select and add a few specific fish species and mussels.

As soon as you add your fish to the pond the water pollution will increase. The fish feed and excrete. One basic rule is, that all ponds with fish inside need a filter (see Technical items).

For the fish to survive a very cold winter the pond requires a depth of 180 cm at its deepest point. It is not easy to state a general rule for the stock density. Some fish need more space than others. Roughly you can say that per 10 cm of fish there ought to be 500 l water available. For a few species, like sturgeons and grass carps, the pond has to have a minimum size in addition to the minimum quantity of water. A 80 cm long sturgeon would feel cruelly constricted in a 4000 litre pond even when the above mentioned minimum water quantity of 8x500 l has been complied with. Strictly speaking, 80 % of ponds are not suitable for sturgeons.

Fish species for your garden pond

Species, sizes and requirements

You will find the most important information about the most popular pond fish, from the little minnow to the large sterlet, here:



goldfish (Carassius auratus)

This most popular of all pond fish is the cultivated form of the crucian carp. It can grow as large as 30 cm! Don't even think about those glossy pictures of goldfish bowls with cute fish happily swimming around inside. The rule of thumb of 500 l water per 10 cm fish also applies to goldfish. Highly bred forms such as lionheads and black moors are very sensitive and more suitable for an aquarium than for the pond. Goldfish feed on water insects and algae, but also like aquatic plants. With JBL PROPOND goldfish you are giving your fish the right food. Koi food is also suitable for goldfish, as goldfish are very similar in their nutritional physiology to the carp.



koi (Cyprinus rubrofuscus)

A young koi reaches a length of 50-60 cm after 3 to 4 years. The maximum size of Japanese top koi is about 100 cm. They can live as long as 50 years, in exceptional cases also significantly longer. Koi feel really at home in groups. Keeping them individually is like putting them in a solitary confinement! As a cultivated carp breed, koi are opportunistic feeders: they eat whatever nature gives them each season. So the right koi food should also be adapted to the respective seasons, as is the case with the JBL PROPOND Seasons concept.



grass carp (Ctenopharyngodon idella)

This carp species grows up to 100 cm long and originates from Asia. They really are "cows under water" and quite radically graze off your unwanted algae as well as the plants you do want. They are therefore only suitable for ponds without plants or for pond owners who want to get rid of their pond plants. They are often used to combat thread algae problems, in the knowledge that the plants will also disappear as collateral damage.



silver carb (Hypophtalmichtys molitrix)

Can become 100 cm long, but often remains smaller in ponds. Originates from Asia like the grass carp. It feeds on plankton and floating algae and is therefore often used combat "green water". It does not damage plants.





orfe (Leuciscus idus)

These beautiful fish can become 35-45 cm long and make quite high demands on the water quality and the oxygen content. They feed predatorily on all small animals in the water or on the water surface. JBL PROPOND BIOTOPE XS: Provides an ideal diet for these fish if your pond does not have enough micro-organisms for this species.



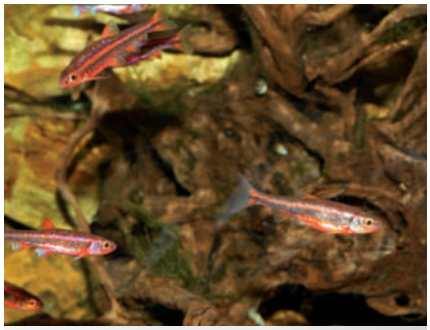
bitterling (Rhodeus amarus)

These 9 cm small, beautifully coloured fish (the males, at least, during the courtship display) are small gems. They feed on microorganisms and algae. JBL PROPOND BIOTOPE XS: Provides an ideal diet for these fish if your pond does not have enough micro-organisms for this species.



sunbleak (Leucaspius delineatus)

Only reaches 6 to 10 cm. Even if they are "only" silvery, they are an enrichment for your pond. Their food consists of algae and small animals. JBL PROPOND BIOTOPE XS: Provides an ideal diet for these fish if your pond does not have enough micro-organisms for this species.



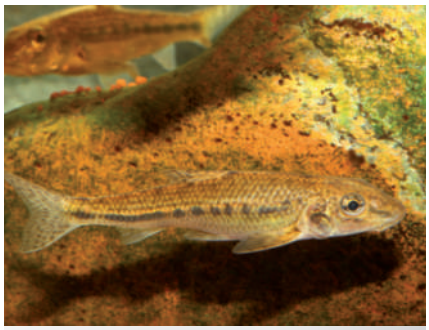
minnow (Phoxinus phoxinus)

A slim fish, growing up to 15 cm long, which also likes currents.



three-spined stickleback (Gasterosteus aculeatus)

This very interesting fish is only 5-8 cm long and originates in the cool European climate.



gudgeon (Gobio gobio)

Gudgeons can reach a maximum of 18 cm and originate from Europe's running waters.



sterlet (Acipenser ruthenus)

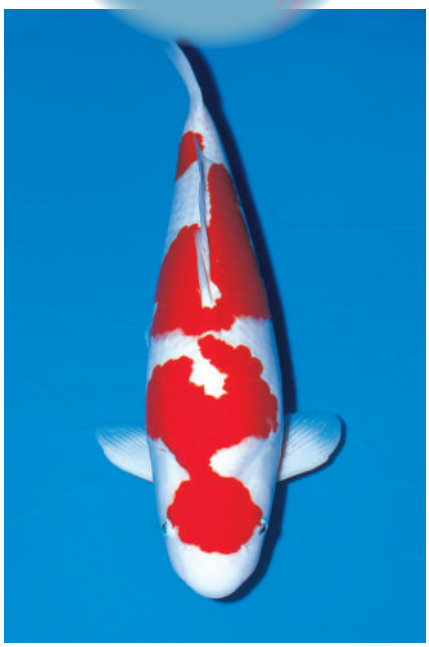
Even though many pond owners put sterlets in their ponds, these fish are only suitable for garden ponds in exceptional cases. Alone their maximum size of 100 cm often makes it impossible to keep these animals properly. They need different food to Koi or goldfish and like to eat it at the bottom. Since Koi and goldfish are faster and more impetuous than sterlets, the sterlets often don't get enough food! Apart from that they are fascinatingly beautiful fish.

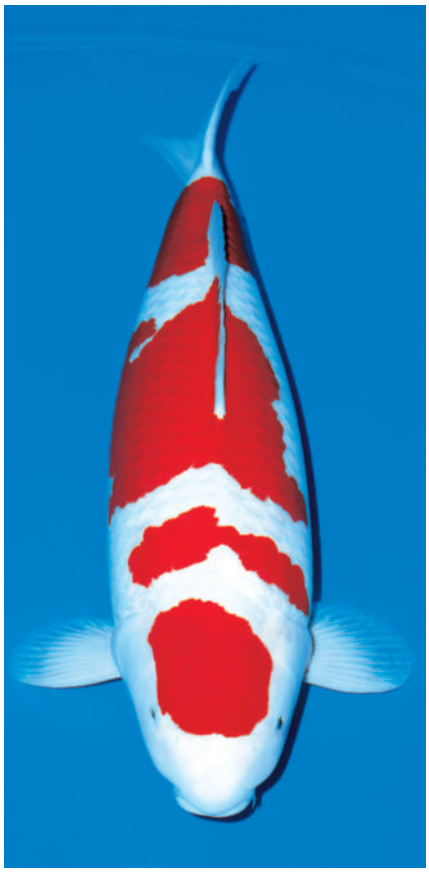
And as a final request: Please DON'T put shrimps, crayfish or other aquarium animals in your pond! They are quickly spread by water birds in native waters and become invasive species. Even if the thought of beautiful shrimps and crayfish in our natural lakes and ponds sounds enticing: invasive species cause the greatest ecological problems imaginable. Please – confine them to the aquarium!

Koi Varieties

KOHAKU









TAISHO SANSHOKU









HI UTSURI



KI UTSURI

UTSURI-MONO

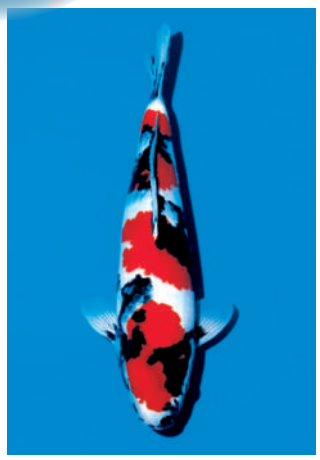
SHIRO UTSURI



SHOWA SANSHOKU

KINDAI SHOWA





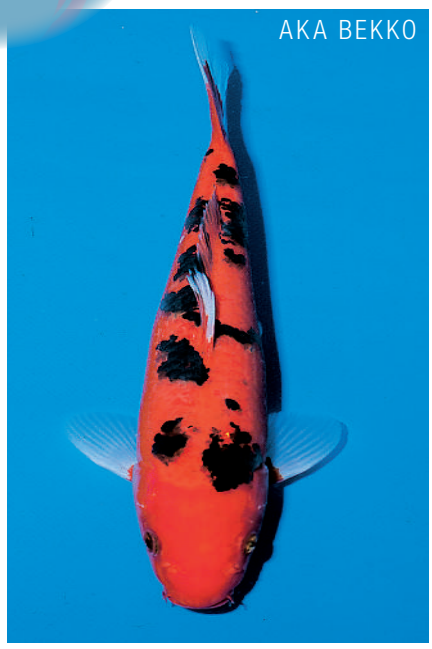
BEKKO



SHIRO BEKKO



AKA BEKKO

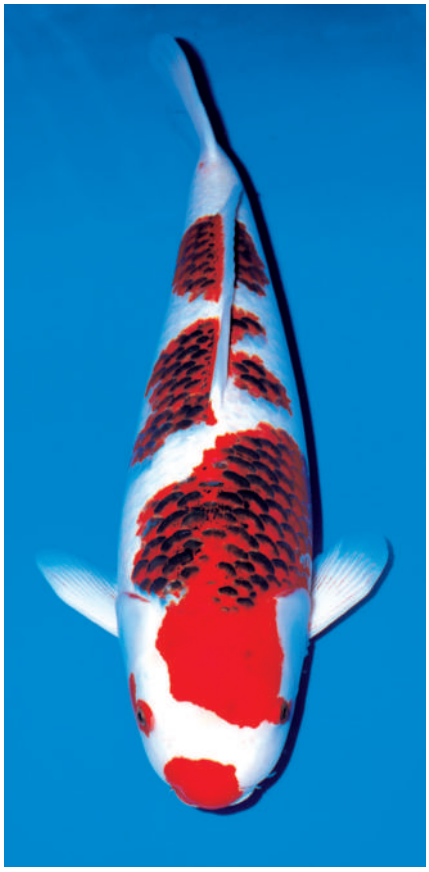


KOROMO



BUDO
GOROMO

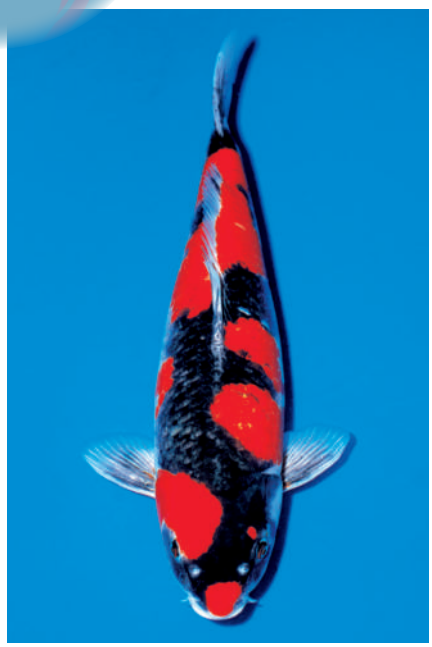




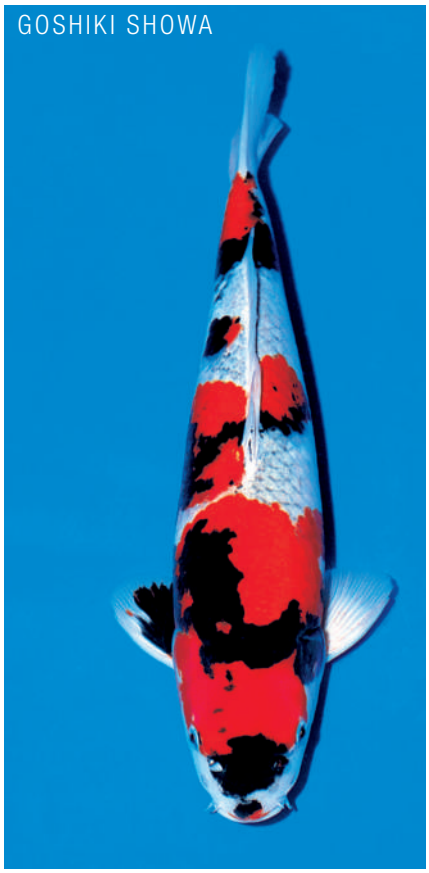


GOSHIKI

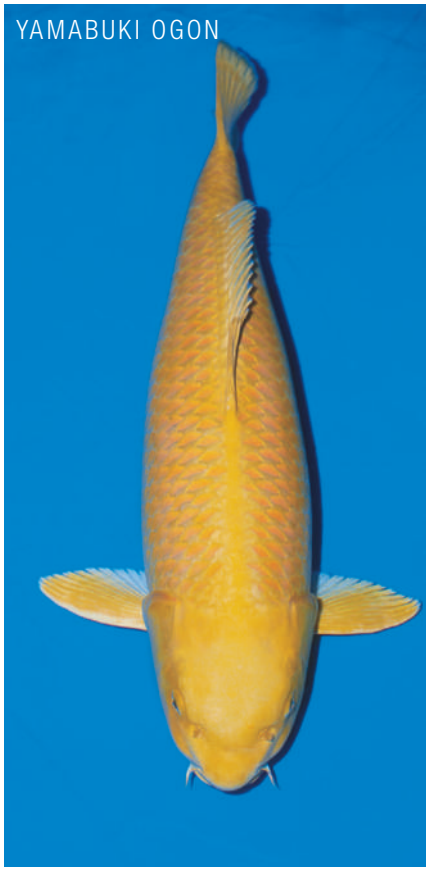




GOSHIKI SHOWA

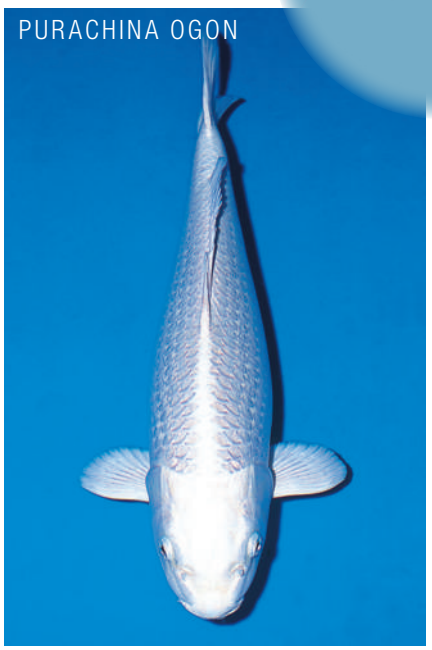


YAMABUKI OGON



HIKARI-MUJI

PURACHINA OGON



AKA MATSUBA OGON



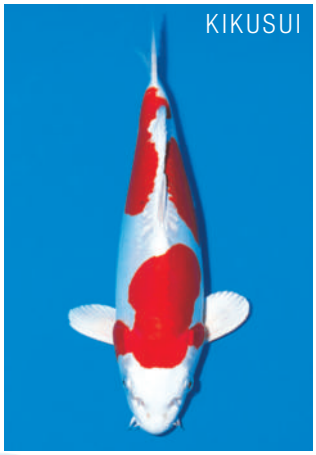
KINKI UTSURI



HARIWAKE



KIKUSUI



HIKARI-MOYO

YAMATONISHIKI



HIKARI-UTSURI

GIN SHIRO



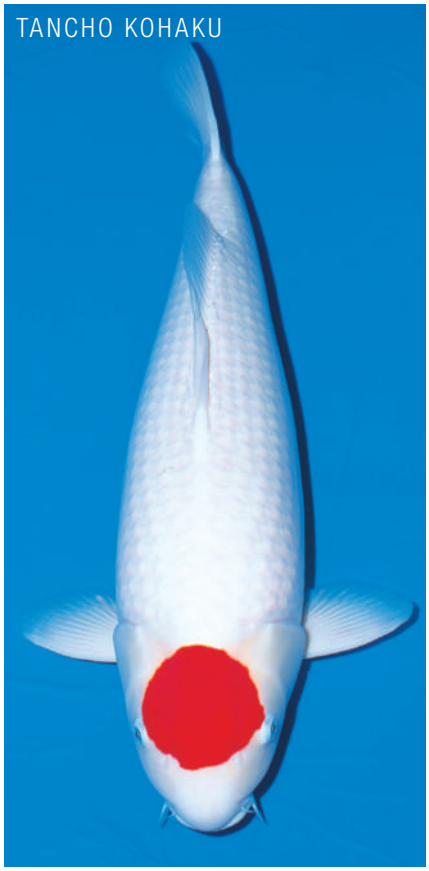
KIN SHOWA



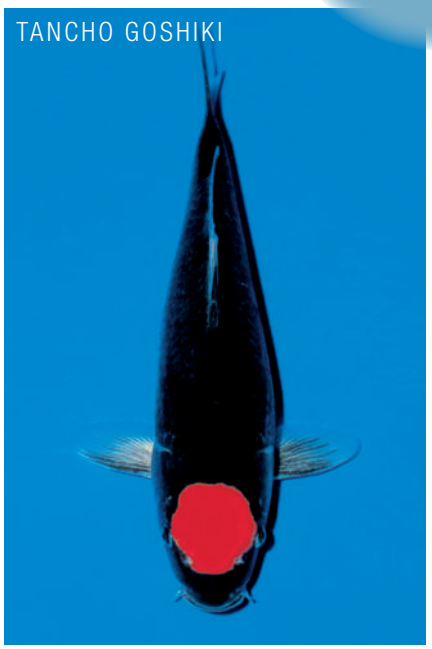


TANCHO

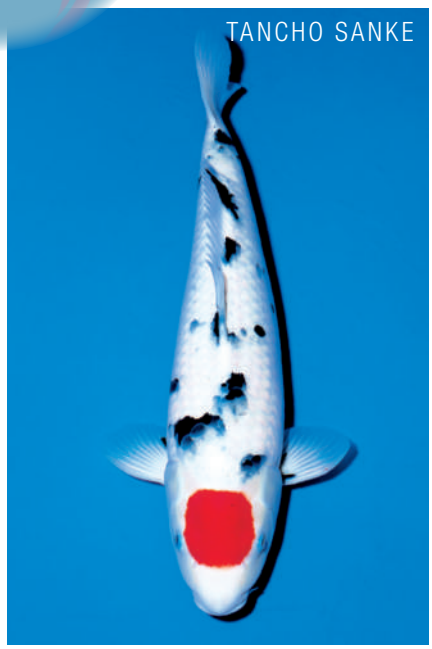
TANCHO KOHAKU



TANCHO GOSHIKI

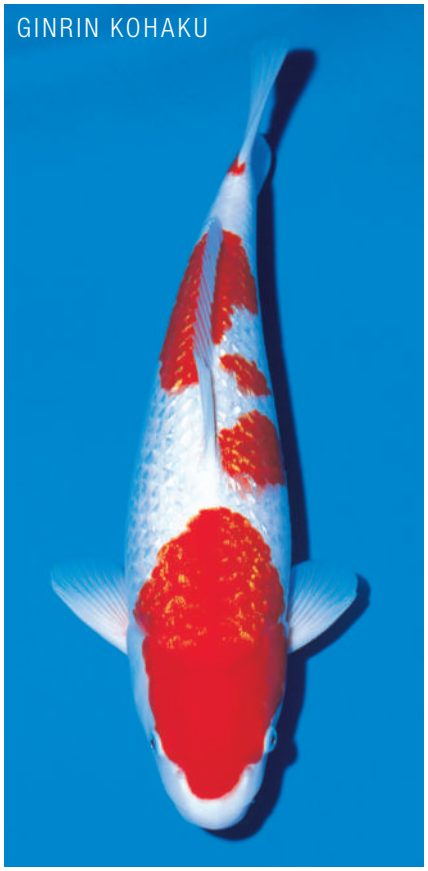


TANCHO SANKE



KINGINRIN

GINRIN KOHAKU



GINRIN MATSUWAKABAKE

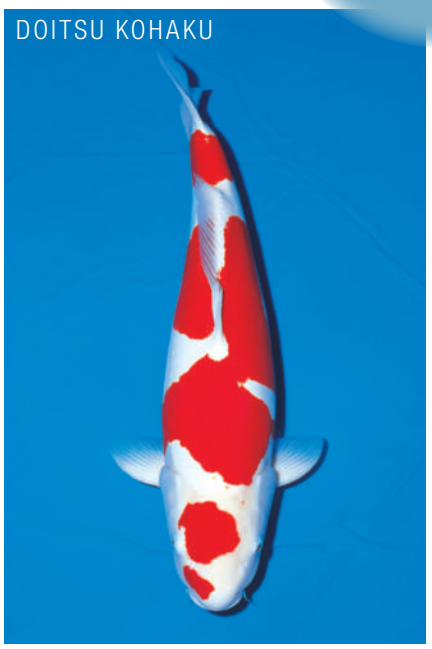


GINRIN SHOWA

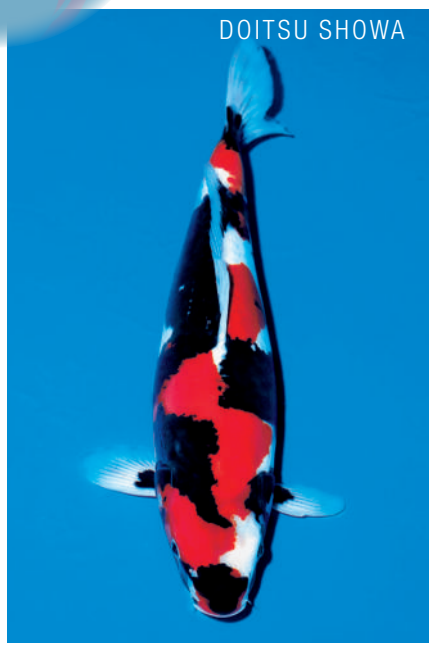


DOITSU

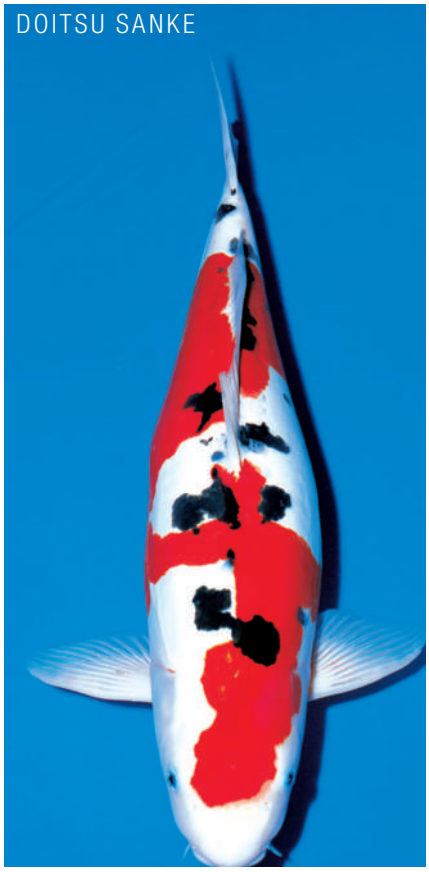
DOITSU KOHAKU



DOITSU SHOWA



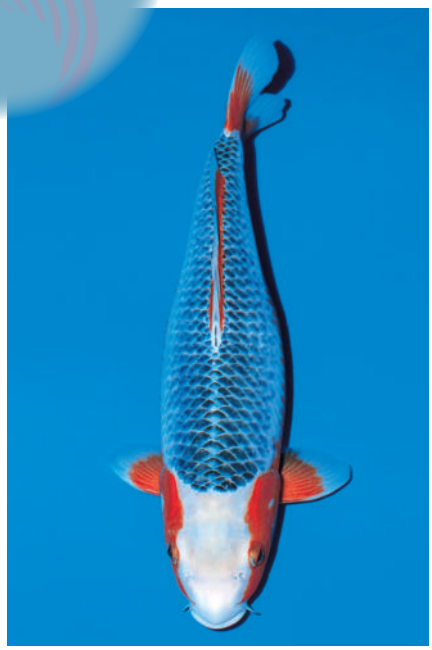
DOITSU SANKE





ASAGI



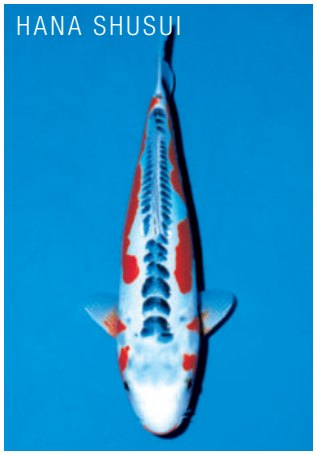




SHUSUI



HANA SHUSUI

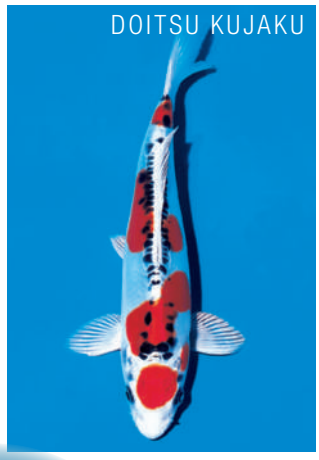


HI SHUSUI

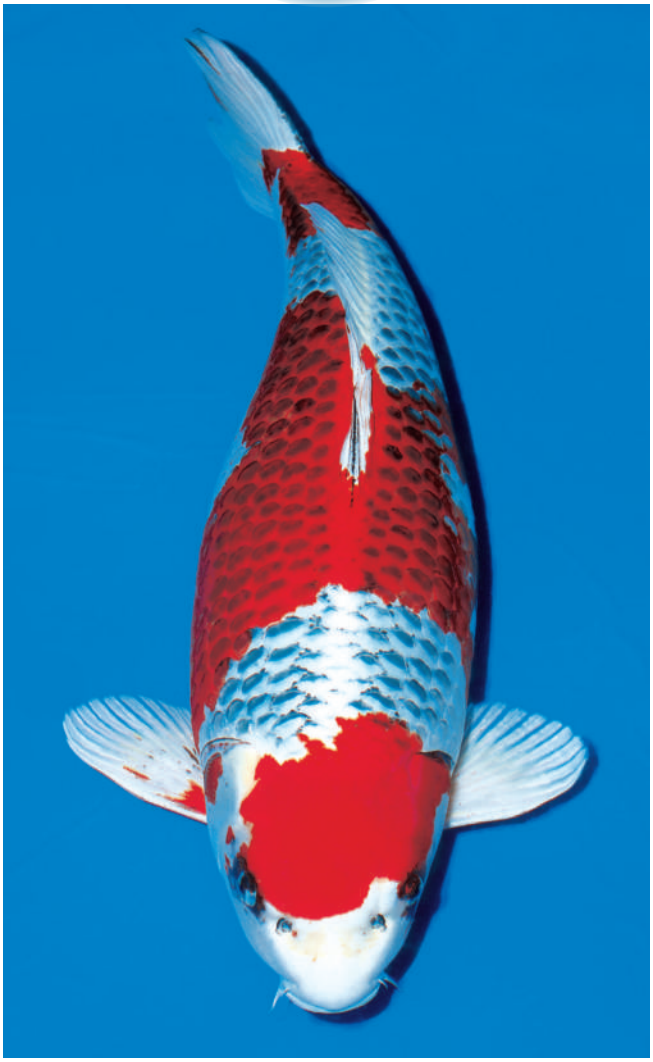




DOITSU KUJAKU

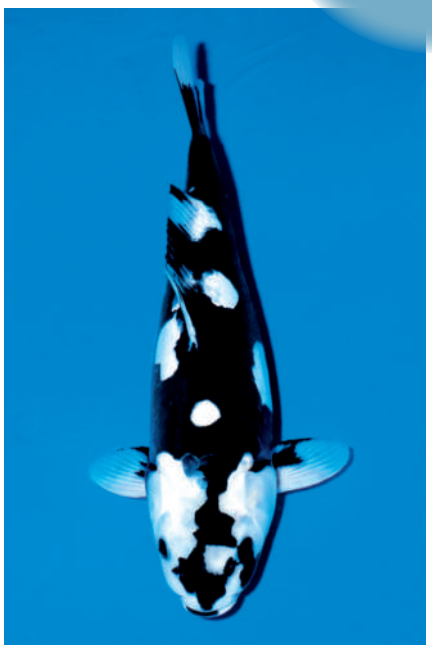


KUJAKU



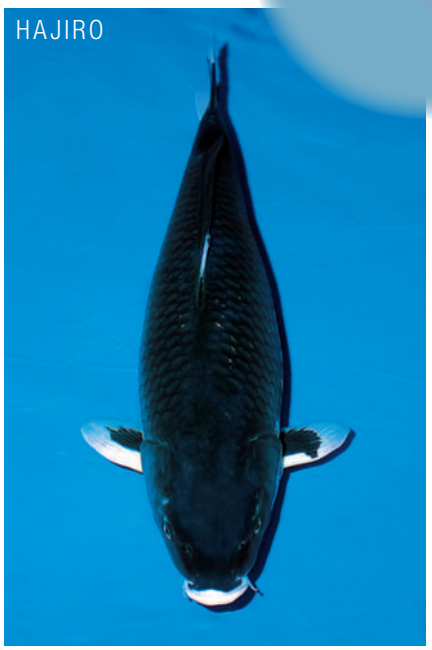
KUMONRYU







KAWARIGOI





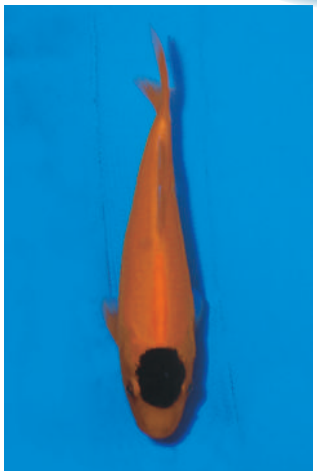


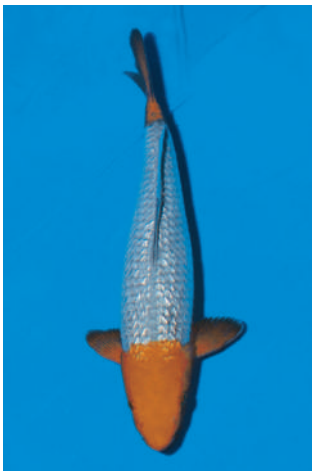







SPECIAL KOI



The pictures of the koi varieties were kindly provided by KOI KURIER.

www.koikurier.de

KOI KURIER
Das unentbehrliche Fachmagazin für jeden Koiliebhaber!

Here's how to add fish properly



Welcome New Arrivals!

You buy healthy fish and put them into your pond – and that's it. This may work, but it can also lead to fish loss! Here are a few things to bear in mind, to ensure that all goes well.

For the fish a move is a serious matter. Alone the capture causes the fish a lot of stress. Wriggling in the net often damages the fish's mucous membrane which is their protection against infection. That's why fish are more susceptible to diseases after being captured than other fish. JBL AccliPond has been developed to make the move and the acclimatisation to the new environment and to new water values easier for the fish. It protects the mucous membrane and strengthens the fish's resistance to disease.

JBL AccliPond needs to be INSIDE the transport bag before the fish so that its mucous membrane protecting agents can start working straight away. Before putting the animals into the pond it's best to add a dose JBL AccliPond.

Your new fish need to get used to your pond's water values slowly because the degree of hardness (minerals) and the pH value may vary greatly from what they are used to. The move into deviating water parameters causes the fish enormous stress! Therefore please open the transport bag straight away after arrival at your pond and add small quantities of water to the bag for half an hour. To get large koi used to the new values please put them in a tub. This way the new arrivals get used to the water temperature and the other new water parameters. Do by all means cover the tub to prevent the fish from jumping out.





Professional tip

In addition to the temperature and the pH value, differences in the general and carbonate hardness matter greatly during the relocation of fish. Experts measure the GH (general hardness) and KH (carbonate hardness) in the transport water and in the pond. Ponds mostly have a lower hardness and their mineral content needs to be raised BEFORE the new fish are added. JBL StabiloPond Basis is suitable for such cases. Fish easily tolerate hardness differences of up to 5 °dH. If the differences are greater the water needs to be adapted.



Are you just feeding or really nourishing your pets?

Feeding fish - the second most beautiful thing in the world!

Feeding fish is fun for everyone - young or old! A lot of fish species learn to eat out of your hand very fast and apparently develop a special relationship to their keeper. Hand feeding has real benefits too: you can feed weak fish individually with a higher food amount and catch them more easily if you need to.
There are a large number of different fish foods with sometimes considerable price differences.

Why is a species-appropriate nutrition so important?
Because fish feeding is such fun, a lot of pond owners tend to forget that there is a lot more to it than that. Food, of course, is important. It influences such factors as growth and resistance to disease. And fish, which can differ from each other as much as a cat does from a cow, have widely differing feeding demands to reflect this! Predatory fish, such as trout or perch, need food based on (fish) meat, whereas semi plant eating omnivores, such as goldfish or koi, need a higher plant content in their food. Do not forget that commercial trout or carb farming food is created to build up as much fish biomass as possible in the shortest possible time (age of slaughtering), whereas in the garden pond more importance is attached to continuous and slower growth for a long fish life. Nobody wants to slaughter their expensive koi carps after 2 years just to eat them. This accounts for the significant differences between most commercially produced fish food and food produced specifically for garden pond fish.

Not all pond fish require the same food and their stage of life (young/old) is also relevant. Another very important point is the metabolic rate (digestibility) of the food. Dog owners know the problem: Cheap food leads to huge piles of faeces, while the dog still shows deficiency symptoms. With fish unsuitable food has identical results, and while this doesn't annoy pedestrians so much, it badly contaminates the pond water with pollutants. This in turn leads to problems with unwanted algae.



Which species eat which food?
If you keep several fish genera or species in your pond, which is mostly the case, the first question is, of course, how to feed the different species separately. In "community ponds" this is simply impossible unless you feed all the fish by hand. With a collection of various families and species in a pond it is important to offer a range of food which meets all their requirements. That's the only way to avoid deficiency symptoms and diseases. This difficulty, incidentally, has led to the trend of more and more pond owners building pure "species ponds". One could contain just koi, another one just sturgeon species.





Koi breeder
Kaneko in Japan



The professional pond fish nutrition with the NEO Index®

THE ONLY PHYSIOLOGICAL-NUTRITIONAL CONCEPT ON THE MARKET

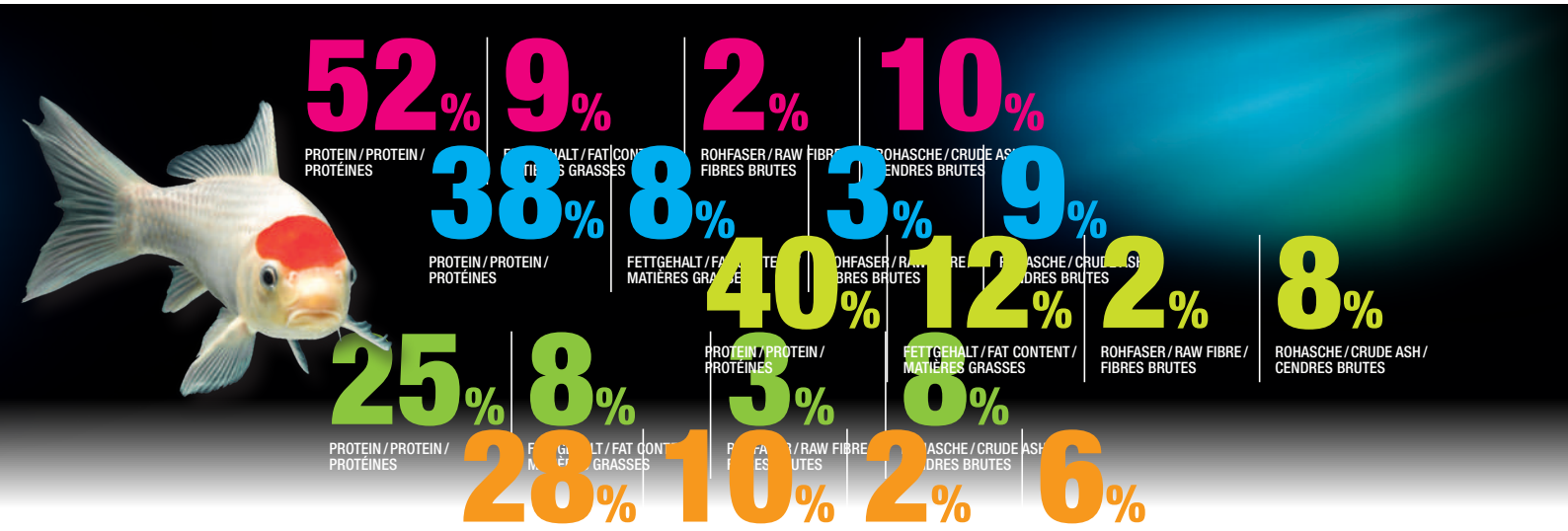
FISH SPECIES | **AGE / SIZE** | **TEMPERATURE** | **HABITAT**

NEO Index® literally means: natural, energy-optimised nutrition. Behind this lies the ratio of proteins to fats in the food. Looking at the season alone, the fish would only need half as much protein in winter (2:1) as in summer (4:1). But because not only the season (meaning the water temperature), but also the size and age of the fish, and food function (e.g. growth food) play determining roles, the der NEO Index® has been developed to deal with all these factors in one. Feed your animals throughout the year with the natural, balanced JBL PROPOND fish food, to keep them healthy and active long-term. By supporting all their vital functions it ensures active, disease-resistant fish with vibrant colours. The food is highly digestible thanks to its prebiotic ingredients.



ONLY THE BEST THAT NATURE HAS TO OFFER - For our JBL PROPOND pond fish food we set the highest quality requirements for the foods' ingredients. Every single component is examined in accordance with our specific JBL quality criteria before the ingredient is used for the food. Especially important for us are the controlled cultivation, the freshness and the pollution control. All PROPOND products of the physiological-nutritional concept contain high-quality ingredients in accordance with the NEO Index®.





Protein, Fat, Crude Fibre and Crude Ash - What Does What?

For a natural optimised food 4 main components are required: protein, fat, crude fibre and crude ash.

Scientists and pond fish experts develop the food concepts first and then they build a production line dedicated to the product and housed in a suitable building! But it was by following this unconventional approach that it was possible to offer you (or your fish) the first food which precisely meets the varying demands of different pond fish. This is a huge step towards species-appropriate animal care and towards animal welfare in practice.

What's What?
This background knowledge will help you to understand the NEO Index, which literally means: Natural, Energy-Optimised nutrition. Behind this lies the ratio of proteins to fats in the food. We will now explain which tasks the individual factors fulfil:

PROTEIN

Proteins are basic components of the body and necessary for the building and renewal of body cells. Proteins as enzymes and hormones are also responsible for a wide range of tasks in the body. Amino acids are also classified as proteins and they create important conditions for healthy and good growth. Proteins can be found in all raw materials. Particularly suitable for the pond fish are protein sources from fish, crustaceans and molluscs.

FAT

Fats provide an important energy storage in the body and are therefore an especially important food component when higher storage is required (before winter). In addition there are also essential substances in fats (which the body cannot produce and have to be taken via food). High-quality fats with many Omega-3 and Omega-6 fatty acids are therefore an important supplement in fish food. Fish oil especially provides quite naturally the ideal composition of fats for our pond fish and further important substances, such as carotenes which support the colouring of the fish.

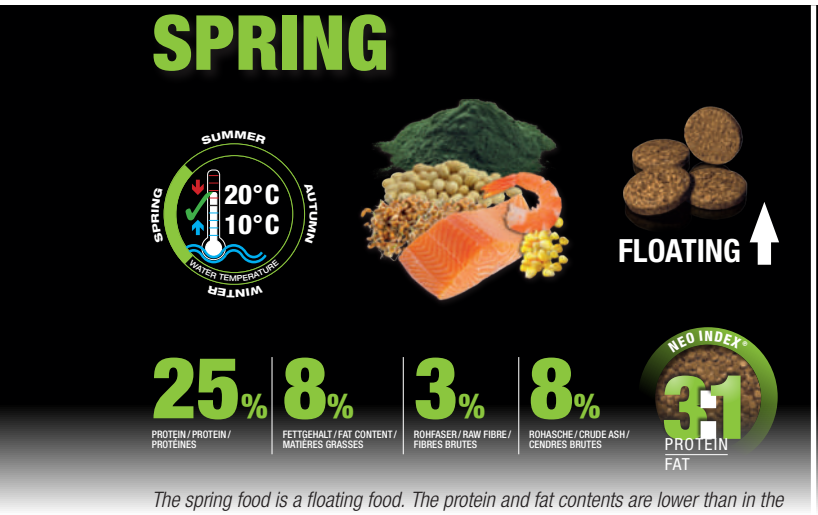
CRUDE FIBRE

Just like us, our fish need an indigestible proportion of their diet to support the digestion. The crude fibres make sure that the food is better absorbed.

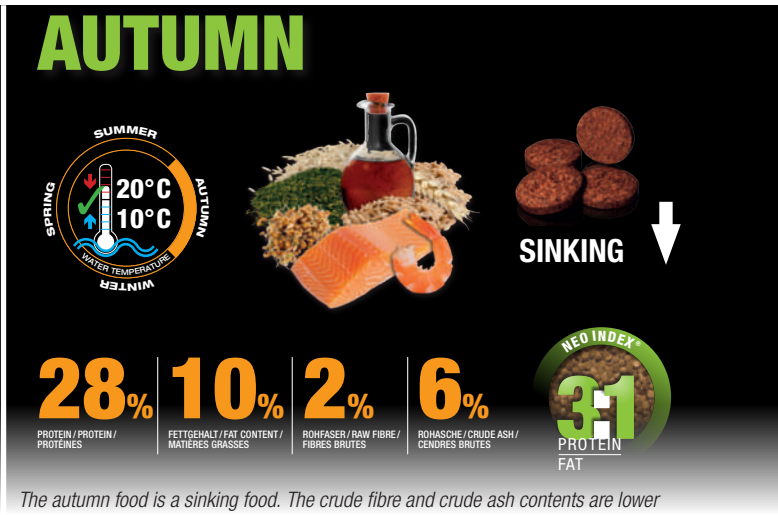
CRUDE ASH

In crude ash substances can be found which can be absorbed as minerals or trace elements and are essential for many processes in the body. Important for the formation of the skeleton are, for example, calcium and phosphorus, for the metabolic processes sodium, potassium, magnesium and chlorine, and iron for the function of oxygen transport.





The spring food is a floating food. The protein and fat contents are lower than in the autumn food since no energy reserves need to be built up.



The autumn food is a sinking food. The crude fibre and crude ash contents are lower than in the spring food to prepare the digestive tract for the coming winter.

SAME NEO Index® - DIFFERENT FOOD

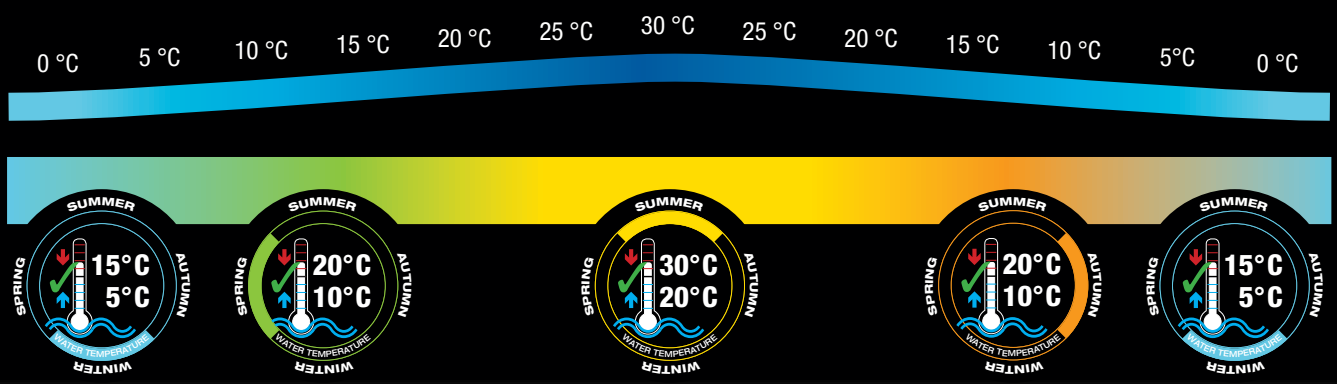
If you think, for instance, that the spring food (JBL PROPOND SPRING) has the same protein/fat ratio (3:1) as the autumn food (JBL PROPOND AUTUMN), a glance at the exact composition shows that they are not the same food in different packages but that the ingredients show significant differences.

FISH GROW THROUGHOUT THEIR LIVES

If we visualized the growth of a fish as a growth curve it would become a rising curve which flattens at the top. The growth thus slows down with increasing age, but never stops. There can also be dents in the curve because fish growth is also dependent on food availability and living conditions. A 5 cm long koi weights about 2.2 g. When it reaches its threefold size, its weight will have increased to nearly 60 g. When it is 50 cm in length it will weigh over 2 kg. A 50 cm koi needs approx. 110 g food per day since it needs 3.5-5 % of its body weight as daily nutrition.







AS VARIED AS THE DEMANDS ON THE FISH'S METABOLISM

Even if your pond fish are always hungry and happy to eat any food they can get it's important to get to grips with the subject of correct nutrition. It is not enough to select the right seasonal food. Proper nutrition needs to provide energy at the right time and in the right place. Fish are cold-blooded animals! Therefore their metabolism always depends on the ambient temperature (water temperature). While you need to stop feeding in cold winter temperatures (below 5 degree Celsius), the fish need more and more food as the temperature increases. Although the metabolism of the fish depends on the ambient temperature, a classification into metabolic rate, (required for the maintenance of the life functions), and the active metabolic rate can still be made. These types of energy are dependent on the ambient temperature, age, sex and the activity of the fish.

VARIETY OF SHAPES/DIVERSITY FOR EVERY PURPOSE


Sticks


Wafer


Pearls


Flakes



Let's just compare fish food with our vegetables. You can eat vegetables raw, cooked, in soup or as a gratin. Each of these can be very healthy, if it is prepared CORRECTLY and not overcooked. It is similar with fish food. We can offer the same ingredients in a different shape and form, which may be a flake, a stick or an extrudate. With a flake the fish need to expend a lot of energy per flake, because ONE flake contains very little weight and food. With sticks the situation is somewhat better, but they still contain three times more air than an extrudate. This is clearly illustrated by comparing the weights in the same packaging size. And the truth really is, the higher the weight per volume the better! Along with the variant, the size is important. For the fish too large food causes considerably more problems than too small food. Please therefore select the appropriate "grain size" for your fish stock and if in doubt, use the smaller size. For the sinking behaviour we have created two versions: floating food for spring and summer and sinking food for autumn and winter and for sturgeon species, which always feed at the bottom.

The food with the NEO Index®

Feeding with JBL PROPOND, the only fish food range with the NEO Index®, means systematic feeding. Adapted to the optimal metabolism of your fish, JBL PROPOND provides a wide choice either as a complete food or to be combined with each other. That's why the JBL PROPOND range is divided into the four elementary fields depicted: Season Food, Function Food, Special Food and Goody Food.

SEASON FOOD

THE INFLUENCE OF THE SEASONS

Even if the seasons are not the same all around the world the water temperature plays a determining role for the feed composition.
If you want, you can also use one food as complete food (JBL PROPOND ALL SEASONS), in the same way as many people drive with all-season tyres instead of summer and winter tyres. But it is even better to select the feeds which are especially designed for their respective water temperature. You will find the temperature specifications on the right hand side of the front of the packaging.





FUNCTION FOOD

A SOLUTION FOR EACH SITUATION

The fish's living conditions are also incorporated into the NEO Index and factored in the different function foods. Thus the prebiotic ingredients of JBL PROPOND FITNESS provide ideal conditions for good health, even when the temperatures are varying wildly in times of seasonal change! Your young koi also will grow without growth food (JBL PROPOND Growth), but they will grow more slowly and their body will not develop the beautiful shape it does when using this food. JBL PROPOND Color will bring out the colours of your fish and also make sure that the fish will retain their beautiful colours after purchase, because retailers generally feed colour enhancing food to show off their fish in their most beautiful colours. JBL PROPOND Color will also help younger fish (mostly two years old) to develop their colours properly when they are 3-5 years old.



THE RIGHT FOOD FOR YOUR FISH

Along with size, age, season and water temperature the fish species also plays an important role, of course. Although koi and goldfish are very close in their nutritional and physiological aspects, a special complete food has been developed to especially meet the requirements of the goldfish. Those who have high demands on the goldfish food, e.g. to intensify the colour enhancement or just to grant their fish the best of the best, can feed their goldfish with JBL koi foods. Sturgeons are very special fish. Their body shape indicates their way of life: They swim near the ground and use their barbels (chemosensor organ) to feel for small invertebrates, which they would eat in the wild. JBL PROPOND STERLET has been adapted to suit these eating habits, both in its composition (increased share of invertebrates) and in its sinking behaviour. Even if sturgeons can learn to feed at the water surface, this feeding behaviour doesn't represent their natural behaviour and harbours the risk of excessive air swallowing. Sturgeons should always be fed with their own food because it has a dedicated composition and the sturgeons could hurt the koi's mucous membrane with their bone plates when fighting for their food. In practice you can feed your goldfish and koi on the surface at a corner of the pond and your sturgeons with sinking sturgeon food at the other corner.



POND FOOD FOR ALL BIOTOPE FISH

As well as koi and goldfish many pond owners keep further "native" fish species in their pond. These Central European or North American fish species are referred to as biotope fish. The most common species are: sunbleaks, gudgeons, orfes & ides, three-spined sticklebacks, European bitterlings, common minnow species and others.
Most biotope fish are small animal eaters. Some species also eat herbal elements.
Since goldfish and koi have a different food spectrum and also often a different size, biotope fish which are mostly significantly smaller need to be fed with a special biotope fish food, such as JBL PROPOND Biotope.

During the feeding goldfish and koi will certainly also eat JBL PROPOND Biotope. But this shouldn't be a problem because they like and tolerate the ingredients of this food, too.





GOODY FOOD

EVEN IN THE WILD FISH GET TREATS (GOODIES)

Sometimes a fruit falls into the water, sometimes an insect lands on the water surface. With the JBL PROPOND Goodies you can treat your fish to a special meal, which also offers another advantage. Your fish learn quite easily to eat out of your hand. Should you once need to catch a specific fish for an examination or treatment, you'll be able to do this simply and easily thanks to the hand feeding.

The ingredients of the JBL PROPOND goodies have been complemented so that these foods also can be fed as complete feed (which you couldn't do with pure silkworm or shrimp food).



How much do you need to feed?

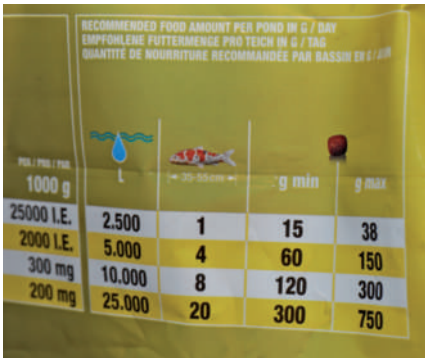


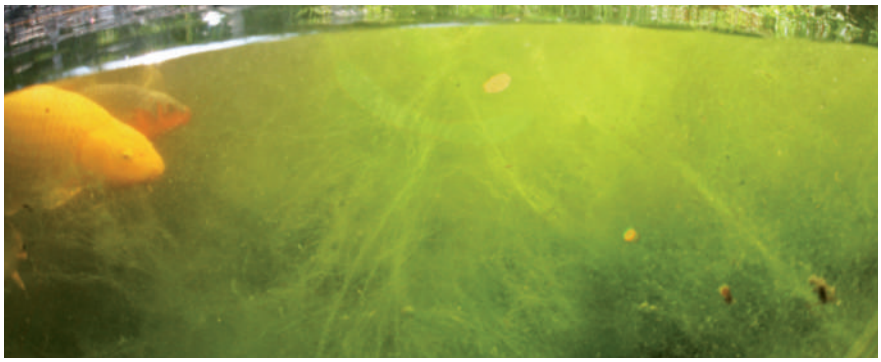
Please feed as much as can be completely eaten by the fish in about 2-3 minutes. Should uneaten food still be floating on the water surface or lying on the pond bottom after 5 minutes, you have fed too much!

Strangely most pond owners seem to be afraid that their fish will starve to death. As a result they often overfeed their animals. This is extremely unhealthy and causes extreme pollution in the pond (resulting in algae problems).

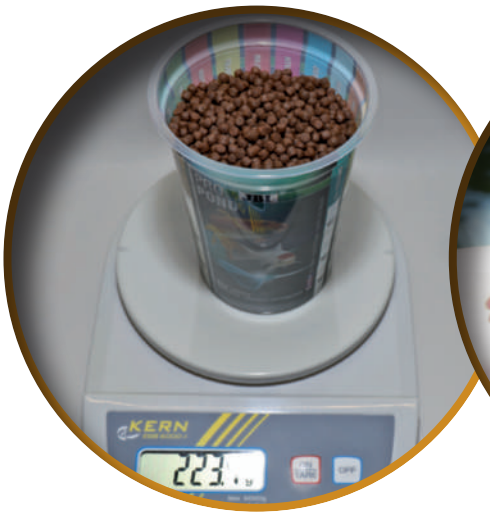
You can accurately dose the food quantity if you know the weight of your fish. 100 grammes body weight of a large koi requires about 1 - 2 grammes of food per day. But who wants to weigh their fish and the food all the time? The “eaten in a few minutes“ rule is absolutely sufficient and leads, when combined with the right food and feeding frequency, to perfectly healthy fish.

On the side of every PROPOND® / NEO Index® pack you will find a table with precise feeding recommendations.





In addition pet shops sell JBL food dosing cups, similar to washing powder dosing cups, to help you to determine the right food amount per type of diet. This is a professional way to prevent under and overfeeding and thus to keep your pond fish healthy and well fed.









How often should you feed?



The basic rule is: little and often is better than a lot all at once. Here, too, the parallels to human nutrition are obvious. Young animals need their food ration at least 5 times a day, while older animals can manage with one evening feed.

And don't forget that most ponds older than two years of age have extensive microfauna and flora that can provide dietary supplements.

The vitamin cure



Your pond fish and koi will receive vitamins through the food you feed them and through the natural nutrition present in your pond. As with us humans the vitamin supply is only sufficient when an optimally balanced diet can be achieved. The same applies to your pond dwellers, and it is therefore advisable to administer an extra dose of vitamins at least once a week. The most efficient method is to drip the vitamin concentrate JBL Atvitol onto the food, shortly before it is fed to the fish. When your fish show symptoms of disease, the vitamin cure is, along with medicinal supplements, the most important step. Medications only have an effect on pathogens, whereas the vitamins strengthen the fish's resistance to disease and help them to get well.

What happens during the holiday/ the weekend?



A weekend without the pond keeper feeding them means the fish have to search for their food in the pond themselves – that's all! It can prove to be a good diet now and then.

If your fish do not find enough food in the pond and need to be fed, this will need to continue in your absence. An automatic feeder (JBL PROPOND AutoFood) ticks all the boxes! Unlike your helpful neighbour, an automatic feeder feeds just the right amount of food up to 24 times a day, no matter what the weather! The option to feed 24 times a day may appear to be a lot, but it's actually highly appreciated by fish breeders and very young Koi. The JBL Automatic Feeder is powered by solar panels, is thus independent of the mains, and can be programmed to suit your exact requirements. Its maximum volume of 25 litres caters for longer holidays too!



Sturgeons and other fish in one pond

How do you feed fish with different requirements?

Sturgeons not only need a different food than your koi or goldfish, they also have a different feeding behaviour! Generally goldfish and koi are eager feeders and swim to the feed area when a human approaches the pond. After feeding there's usually nothing left for the sturgeons and sterlets! You can solve this problem with a trick: take an opaque plastic tube and put the sturgeon food inside it.

JBL PROPOND STERLET M is a sinking food and reaches the bottom through the tube, where the sturgeons learn to pick it up. That's how the sturgeons get "their" food and the other pond dwellers can't eat it away!

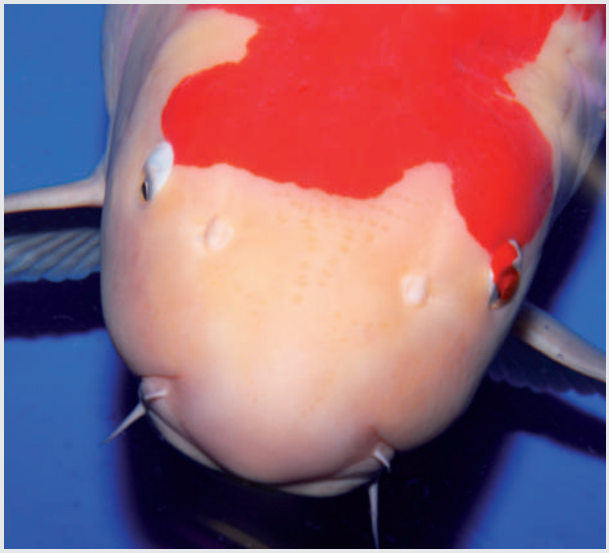
Should you also feed pond fish in winter?

Even when the water temperature sinks under 15 °C the fish are still active. Activity means energy consumption, which needs to be fed back to the fish. For this purpose JBL has developed a special low temperature food (winter). The composition of this food is such that the food is easy to digest and doesn't affect the digestive tract, because in low temperatures the digestion process works very slowly. A good winter food needs to supply the animals with more energy than required for the digestion of the food. Otherwise the fish would be greatly weakened by their energy loss, despite eating!



Professional tip: Do white koi need different food to red-and-white or orange-coloured koi?

The fish colours are created by pigments in special pigment cells inside the skin. Natural substances such as carotenes and astaxanthines enhance special yellowish and reddish colours in the skin. But if too many natural colorants are added to the food, a white koi can become pink! Therefore a lot of experience and knowledge is required to achieve colour enhancement with clear colour separation at the same time! Now there is no need for fish owners to worry about feeding their fish artificial chemicals to make them beautifully coloured! The carotenes (from carrots etc.) and even more so the expensive astaxanthines originate from high-quality feed animals, such as krill, gammarus, brine shrimp, cyclops and water fleas – thus from a natural fish diet. They are extracted and concentrated and then, carefully dosed, are added to the pond food. Metallic shimmering colours, depending on the light, are called structural colours and can't be influenced by the food.



Maintenance

Pond care from A to Z.
Water, food, algae, cleaning and the influence of the seasons.



Here's how to maintain your pond

The seasons vary significantly on our planet. In countries situated in the north and in the south of the southern hemisphere seasons also mean different temperatures. And precisely that is crucial for the fish nutrition!

SPRING

In spring two processes happen at once: On the one hand the water temperatures rise and the fish start to become active after the winter. Then it is essential to choose the right food for low temperatures (JBL PROPOND SPRING) with an addition of vitamins to the food (JBL Atvitol), to strengthen the resistance of the animals. This is the only way of effectively preventing diseases, such as spring viraemia.

On the other hand the many nutrients dissolved in the water (nitrates, but even more phosphates) result in burgeoning algae growth as soon as the solar radiation increases. The shade provided by the water plants and other vegetation around the pond is still missing. This means that spring is usually the last chance of the year to bind the nutrients and thus deprive the food source of the emerging algae (e.g. JBL PhosEX Pond Direct).

At the same time the monitoring of the water quality (carbonate hardness) is strongly advised because rain falls strongly dilute the mineral content and this leads to very soft water. Check the carbonate hardness either with the JBL PROAQUATEST KH Carbonate hardness, PROSCAN or with the JBL PROAQUATEST POND Check pH/KH, in order to find out how stable your water is after the wintertime.



WINTER

Although the pond is dormant in the cold season you should still pay attention to a few basics: Not every winter is extremely cold and "warm" periods can occur where fish become active and want food. In these phases it is important and recommended you feed the fish, but only with a specific and an easy digestible food which also doesn't stay long in the digestive tract of the fish during the low temperatures (JBL PROPOND WINTER). If ponds are less than 180 cm in depth they may completely freeze. With an ice-free device and a specific aeration (JBL PondOxi-Set) under the device you can usually prevent the pond from freezing all the way to the bottom. If a pump is in operation it should NOT be placed at the deepest point because it would mix all the water layers. But a water temperature of 4 °C MUST be maintained in the deeper regions where the fish can then survive the winter.







through all the seasons of the year

Let's give some thought to the seasons. This will save you problems and often money, too! Maintenance carried out in one season can have a serious impact in the following season!



SUMMER

In summer three situations arise at the same time: Firstly, due to rising temperatures in the water, the oxygen content drops, and aeration can become necessary. By the way, aeration is not only essential for the fish, but also for the bacteria which break down pollutants. The high water temperatures mean pond fish need an easily digestible food (JBL PROPOND SUMMER). Strong thunderstorms in summer with heavy rainfalls decrease the water hardness drastically and your pond water is not stable anymore. With JBL StabiloPond KH you can re-stabilize your water and prevent high fluctuations of the pH level.





AUTUMN

In autumn several factors have to be considered: To prevent losses, the fish have to be prepared for the wintertime. Due to the falling leaves the water is increasingly burdened with organic substances. Water plants and algae die slowly and move into their winter phase. In doing so, they release the nutrients stored in their tissue into the water. This creates the basis for the following year's algae growth. Autumn and early winter (before the start of the frost period) are the ideal times to remove nutrients from the pond water (to really get them out of the water system). These are the only times when the algae promoting nutrients are really free inside the water and not bound to the algae. The absorption of nutrients in autumn is vital for the coming year and should happen over JBL PhosEX Pond Filter (nutrient export), alternatively through JBL PhosEX Pond Direct. The fish need to eat nourishing and varied food in this phase to increase their resilience and to create reserves of strength for the winter break (JBL PROPOND AUTUMN). Sickness in fish in springtime is very often caused by insufficient strengthening for the winter. A vitamin supplement every 2 day to the food (JBL Atvitol) significantly increases the resilience of the fish. Leaf fall into the pond can be significantly reduced by using netting or can be counteracted by taking out the leaves by mechanical means. If lots of leaves have accumulated, JBL SediEx Pond helps (bacteria & oxygen).

Water maintenance

A little water care will prevent most problems!



Water maintenance sounds a bit strange, but is in fact one of the most important maintenance measures of all, as your pond is an open system which is exposed to the weather conditions without protection. The water maintenance here covers three areas: the water treatment, the water stabilisation and the nutrient limitation.

Making the water habitable

Tap water and well water are not always ideal for pond dwellers. Tap water can contain heavy metals, such as copper, lead and zinc, especially when the water hasn't been flowing in the domestic water pipes made of metal for some time.

Unfortunately rainwater is no longer free of pollutants. The rainwater is often collected from the roof by means of metal pipes and the pond owner believes he is doing something for the environment by supplying this water to his pond. While this is definitely a good thing to do, further metal ions can end up in the garden pond with the water which has been collected. And this is why we have the water conditioner JBL BiotoPond to treat the water for the pond dwellers.

JBL BiotoPond binds heavy metals, protects gills, skin and fins and completely neutralises dangerous chlorine, should it be present in the tap water.

An additional effect of the water conditioner is that is makes any iron, which is to be found in well water and elsewhere, available to the plants. But be careful: Don't use well water for your pond if it contains brownish flakes or if they form after it has been stagnant for any period of time. The metal content will be too high. In general you need to thoroughly check the composition of any well water before using it in your garden pond (see the chapter water test). Depending on the area there are large fluctuations in composition and quality. Normally the iron is present in a form which the plants cannot use. Only the water conditioner's JBL BiotoPond chelators make it possible for the plants to absorb iron.

Why do you need to stabilise your pond water?



Your tap water contains various minerals, whose quantity decides whether the water can be referred to as HARD or SOFT. These minerals not only make the water harder, they also stabilise the pH value (acidity or acid content) of your water. With a low hardness (carbonate hardness) the pH value fluctuates immensely during day and night time and does harm to your fish and microorganisms. With hardness degrees from 4 °dKH the pH level is clearly more stable and fluctuates within significantly narrower limits. Since the pH value has a logarithmic scale a reduction from pH 10 to pH 8 means a hundred fold increase of the acidic components in the water. A further decrease to pH 7 would be a thousand fold increase compared to pH 10. Therefore it is really essential to stabilise the pH value with JBL StabiloPond KH.

Since your pond is presumably not roofed-over, rainwater will enter your pond. Rainwater is basically distilled water without any minerals. The more rainwater reaches your pond water, the softer (= lower in minerals) the water will become and the more unstable the pH level will be. You can harden your pond water again with the help of a mineral mix (JBL StabiloPond KH) to make it pH-stable.



This is how to use anti-algae agents properly

There is yet another reason to stabilise your pond water: If you plan to use an anti-algae agent (applies practically to ALL anti-algae agents), the pH level needs to be below 8.5 where the anti-algae agents have an optimal effect. It is best to proceed as follows: Stabilise your pond water in the evening (add JBL StabiloPond KH). Through the adding of your minerals, as well as automatically due to biological processes the pH value will decrease overnight to reach values below 8.5 the next morning. This is exactly the right time for you to add the anti-algae agent!



Here's how to monitor your water stability

You can check the stabilisation level of your pond water at any time in just one minute: For the JBL KH Test (carbonate hardness test), drop an indicator into a cuvette, filled with 5 ml of your pond water. Then just count the drops until the colour changes from blue into yellow. The number of the drops needed to effect the colour change corresponds to the carbonate hardness of your pond water. With values below 4 you should add JBL StabiloPond KH. For values above 4 your water is stable and no action is needed.

As an alternative to the single KH test, there is also a double test that provides each pond owner with a quick, simple and precise statement on the KH and pH value: the JBL ProAquaTest PondCheck. In two cuvettes with 5 drops each of reagent, you can determine the pH of the pond water in one cuvette, and on the basis of the resulting colour, you can check whether the pond water has the required minimum carbonate hardness of 5 ° dKH in the second cuvette.



Here's how to steal food from the algae

Limiting algae nutrients

There are two reasons why algae grow: they receive light and nutrients. In winter nutrients are available but there is a lack of sufficient light. In spring especially enough nutrients are available, there is sufficient light, and the algae start to grow. You can't do anything about the light, so you'll have to work on the nutrients. Phosphates are the main nutrients for algae. If you remove them from the pond water, the algae will die of starvation. This is a very efficient method.

Second option: You use an anti-algae agent to kill off the algae. But what happens after the algae have died off? The nutrients which have been stored in the algae are released into your pond water again! This way the dying algae generation fertilises the next algae generation and you are back to square one. That's why we strongly recommend you remove the phosphates which have been released!



Here's how nutrient limitation works

Up to 15 kg algae can theoretically arise from about 1g of phosphate.
JBL has two products in its range to bind phosphates.

For ponds with a pond filter

If you have a pond filter in operation you can use JBL PhosEX Pond Filter for year-round use in the filter. We recommended you start using this special filter material in spring to limit upcoming phosphate values from the start. 500 g JBL PhosEX Pond Filter work for about 3 months and are able to absorb 25,000 mg phosphate.





For ponds without a pond filter

If you don't have a filter, or your filter can't be equipped with special filter media or you have already successfully carried out treatment against algal infestation, you can use JBL PhosEX Pond Direct. 500 ml of this liquid phosphate remover binds 22,500 mg of phosphate and is sufficient for 10,000l of pond water.



We recommend you test the phosphate value of your pond water BEFORE you use a phosphate remover. That way you will know its precise initial value in your pond water. If you then use a phosphate remover you can keep track of exactly how greatly the phosphate level decreases in the water and you can estimate when to stop the phosphate removal. If, for instance, the phosphate input through food and leaves is too high, the phosphate test would indicate that the phosphate remover can't manage this and that you need to fine-tune the food quality (good food reduces the water pollution) and leaf fall (leaf protection net, leaf removal by mechanical means).



Please keep going!

Stopping means losing the battle against the algae!

The third step of the JBL 1-2-3 algae-free concept consists of the nutrient limitation described above. Please don't stop after the anti-algae treatment in step 2 when the algae die off! Just after that you need to start the most important step of nutrient limitation!



Algae

www.jbl.de/qr/100414



New fish

If you have purchased new fish protect your new acquisitions from the start!

A couple of points are important if we need everything to go well. Moving is a huge issue for the fish. Alone the capture causes them a lot of stress.



Wriggling in the net often damages the fish's mucous membrane which is their protection against infection. That's why fish are more susceptible to diseases than other fish after being captured. JBL AcclipPond has been developed to make the move and the acclimatisation to the new environment and new water values easier for the fish. It protects the mucous membrane and strengthens the fish's resistance to disease.



JBL AcclipPond needs to be INSIDE the transport bag before the fish so that its mucous membrane protecting agents can start working straight away. Before putting the animals into the pond it's best to add a dose of JBL AcclipPond to the pond water.

What else do you need to think about when caring for your fish?

Once your fish have arrived safe and sound in your pond you need to be careful to maintain their health. This includes having the appropriate water values (see Testing water) and the right diet (see Feeding). Please also make sure that not too many fish live in your pond. Too many fish wouldn't have enough space, which will lead to stress and often illness (see Pond fish).





Pond cleaning and maintenance

Leaves, mud and rain – what now?

ANY pond which is not roofed-over will build up sludge from leaves, aquatic plant leaves and other matter entering with the air (keyword particulate matter). Natural ponds and small lakes have the same problem and silt up more and more – a process, which can possibly take years to several centuries and cannot be prevented. In other words, this means that any non-draining pool, pond or lake has a limited lifetime. But this is exactly what you don't need in your garden pond. To prevent this from happening you need to take steps.



Leaves turn to sludge

A mechanical removal of leaves from trees and plants is a big help! But do something for your pond under the water surface too: the sinking leaves can form a thick layer on the bottom and slowly get broken down by bacteria, which uses up oxygen. JBL SediEx Pond has been designed to promote and accelerate the removal of sludge. It consists of two components: Firstly of highly active cleansing bacteria which decompose organic matter, and secondly of active oxygen which makes this decomposition possible in the first place. Add these two components to the sludge layer inside your pond. The added oxygen will make the bacteria slowly break down your sludge. Unfortunately the bacteria and the oxygen are not enough for thicker sludge layers. There you will need to resort to mechanical means and remove the sludge with a rake or a shovel. A lot of pond owners are completely caught by surprise that from the initial depth of 180 cm only 80 cm of free water is left!!! Then there is only one thing for it: cleaning the complete pond right down to the bottom. If you want to avoid this we highly recommend you remove the sludge little by little, since this stresses your pond less than in ONE violent action.

When algae die off

If you have used the anti-algae agent of your choice and the algae have died off, these algae start to release the nutrients they have bound into your pond water. That's just the right moment for a partial water change, ideally carried out with a pond sludge remover! If you haven't got one and don't want to buy one, ask your specialist shop for a loan tool!





Partial water change

You don't normally need to change any water in your pond. The rain refills it or you use tap water during dry seasons to top it up. This is not ideal because rainwater gradually softens your water, making it low on minerals, but this is the reality.
Refilling evaporated pond water is not without its pitfalls: only pure water (which means H_2O) evaporates from your pond, the minerals remain there and your water becomes richer in minerals (harder). If you then regularly refill tap or well water with a hardness of X, this hardness increases the previous hardness of the pond water. Neither fish nor plants like too hard water. It is therefore more useful to change part of the water instead of always refilling it.

Partial water change to combat discolourations

Has your pond water turned brown or yellow? With a partial water change you "dilute" the substances which cause water discolouration, your pond becomes crystal clear again and after 3-5 partial water changes no longer shows any colouration. Ideally you should carry out the partial water change with a sludge remover. If you haven't got one and don't want to buy one, ask your specialist shop for a loan tool!



Partial water change to counteract heat

Especially in shallow ponds, long hot periods can result in water temperatures above 30 °C. Then it's time to take action, preferably in advance. Shading the pond with water lilies and their numerous floating leaves helps to avert a further increase in water temperature. A partial water change with significantly cooler tap or well water will also help. This step allows you to reduce the water temperature below the critical 30 ° limit simply and immediately.



Here's how to carry out a partial water change

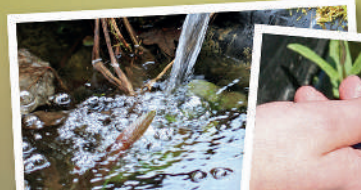
Drain the water out of your pond with the help of a submersible pump. Use this water with its many useful nutrients for your garden plants! Ideally connect a sludge remover during the suction procedure. But spread the pond sludge over your beds and under your garden plants and not over your lawn, to avoid the impression of a dug up garden. It's the best you can do for your shrubs and other plants!

Drain out water until the water level has gone down about 15 cm and refill with tab or (suitable) well water. Treat the new water with the JBL BiotoPond water conditioner to neutralise harmful substances, such as heavy metal. Dose the water conditioner according to the amount of pond water you have changed.



Water analysis sheet

		1st Test	2nd Test	3rd Test	4th Test	5th Test	6th Test	Required value	▲ **Increasing levels** - your measurement levels were below the recommended levels	▼ **Reducing levels** - your measurement levels were above the recommended levels
	Date, hour									
	Site									
	Temperature (°C)							**4 - 25**	Pond heater	Floating plants. Creating shade with an awning, for example
Base measurements always take	**KH Carbonate hardness (°dKH)**							**4 - 12**	JBL StabiloPond	Seldom necessary, but if necessary mix with clean rain water or add JBL pH Minus.
	pH Acidity							**7,5 - 8,5**	Seldom necessary. pH stabilizing with JBL StabiloPond usually sufficient!	JBL StabiloPond
	GH Total hardness (°dGH)							**6 - 20**	JBL StabiloPond	Mixing with clean rainwater.
Optional measurements for problems Fish	**NH_4 Ammonium (mg/l)** **NH_3 Ammonia**							**< 0,1**	Unnecessary	Add JBL BactoPond
	NO_2 Nitrite (mg/l)							**0 - 0,2**	Not appropriate as nitrite is toxic!	Add JBL BactoPond
	Cu Copper (mg/l)							**0**	Not appropriate as harmful to micro-organisms and invertebrates.	JBL BiotoPond, do not introduce water via materials containing copper such as a rain gutter.
	O_2 Oxygen (mg/l)							**5 - 20**	Aeration with JBL PondOxiSet, Oxydators, increase surface water movement.	Unnecessary as there can never be too much oxygen!
Algae and plant growth	**Conductivity**							**250 - 800**	JBL StabiloPond	Addition of clean rainwater.
	NO_3 Nitrate (mg/l)							**0 -10**	Not required	Seldom necessary, water change.
	PO_4 Phosphate (mg/l)							**< 0,05**	Not appropriate	JBL PhosEx Pond Filter, JBL PhosEx Pond Direct, fast-growing plants, water change.





Water analysis

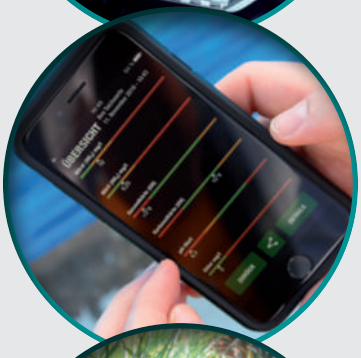
Why and when do you need to test your pond water?

Water can look crystal-clear but still contain deadly poison, such as arsenic. Unfortunately we cannot identify the quality of the pond water visually. We only can say, whether it's clear, cloudy or green. Only the water tests give us the opportunity, similar to the physician's stethoscope, to cast a glance into the "interior" of the water.

We need to test the most important water values, such as KH, pH and nitrite regularly (i.e. weekly). But we are only human and tend only to react when problems occur in the air and/or in the water.









How do water tests work?

It is much easier than a lot of people think!

At least the water values help us to find the cause of the problems and to solve them. There are two types of water tests available: colour change and colour comparison tests. During the colour change tests (JBL PROAQUATEST GH General hardness & JBL PROAQUATEST KH Carbonate hardness) you add an indicator drop by drop to your pond water sample and count the drops until the colour changes (e.g. from blue to yellow). The number of drops you needed for the colour change corresponds to the value of the carbonate hardness.

With the colour comparison tests you add indicators to your pond water sample, until you have a colour, which you can compare on a colour chart. The chart will tell you the corresponding value (e.g. the pH value 8.5). With these methods you can exactly determine ALL possible values of your pond water within about 30 minutes. A set waiting time can mean that a single test can last for a maximum of 20 minutes, but most tests can be done within a few minutes.

Use your smartphone to test the water!

Water testing was never easier and more precise

Alternatively, there is a new method for testing water with the help of your smartphone (JBL PROSCAN): Dip a multi-test strip into your pond water for 3 seconds, carefully tap the water off and put the test strip on the colour chart. Using our dedicated app, take a photo with your smartphone. Then the 5 most important water values are immediately displayed with recommendations on how to improve unfavourable values.

More information about JBL PROAQUATEST from page 24

Pond accessories

Use helpful accessories for your pond care

As always there are useful and less useful accessories. A few items will really be helpful to keep your pond beautiful and functional.

JBL PondOxy-Set

In midsummer and winter you can solve the lack of oxygen in your pond very simply by aerating it. This also helps to prevent the pond freezing in winter. The JBL PondOxi-Set contains all the parts you need to aerate your pond effectively: air pump, 10 m hose and a floater which keeps the air stone at the right water depth. This is important because the air stone should never be situated at the deepest point where it would mix all the water layers. But the deepest part is also the coldest and therefore the water with the most oxygen content. Do not mix this with the warmer water. If you already have an aeration system you can purchase the floater separately (JBL Floater + AntiKink).

JBL Pond Net

To catch your fish you need catch nets. They are necessary if you have too many fish in your pond or you need to catch fish because of a disease. The JBL catch nets (JBL Pond Net, long) are very durable, available in 2 sizes and mesh sizes and they have telescopic handles. It's easiest to catch your fish with two nets during a feed. The tamer your fish are and the more they are used to you hand feeding them treats like JBL PROPOND SHRIMP M or JBL PROPOND SILKWORMS M, the easier it will be to catch them.



JBL Pond Thermometer

In order to feed your pond fish professionally you need to know how cold or warm your water is. The water temperature forms the basis for the selection of the right food. With a pond thermometer (JBL Pond Thermometer) you can quickly and conveniently see how warm your pond is. You can easily pull the thermometer towards you with a cord, take it out the water (it floats) and read the value.



Problems

Algae, diseases, cloudiness or other influences due to poisoning and missing substances





Algae in the pond

Why are algae a problem? Which algae species can be found in the pond and how can you combat them effectively in the long run?

Algae belong in the pond as much as other water organisms. You can't easily prevent their occurrence. As long as the algae growth remains low or it doesn't noticeably gain the upper hand there is no need to worry.

Strong algae growth, however, has a dramatic effect on the water: Algae are plants and produce oxygen during the day (which is a positive effect). But at night the situation reverses and the algae consume oxygen. With a heavy algae infestation the oxygen can drop into dangerous ranges at night and threaten the life in the garden pond. It is then advisable to aerate at night.

Exposed to light (during the day), the algae continue to consume carbon dioxide (CO_2) like the water plants. This consumption can lead to an extreme increase in the pH level (acidity > 9), which in turn leads to a life-threatening environment. At night they, like all plants, also produce carbon dioxide, leading to a lower pH value.

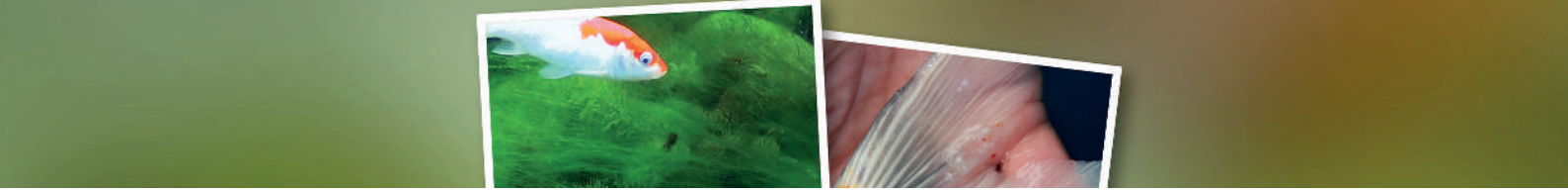
If the CO_2 content in the water is no longer sufficient, algae are able to dissolve the CO_2 out of the carbonate hardness (KH). The result is a decrease of this important water parameter which leads to an unstable pH level. The pH level drops significantly at night (mostly to values as low as 6) and rises during the day to far too high values (up to values over 10). This can create huge problems for all the life in the pond.

Finally it is worth mentioning that dying algae are broken down by bacteria during oxygen consumption. Therefore the water needs to be aerated additionally when algae die, either by themselves or when combated actively.

These processes seem to be very complicated at first glance. But don't worry: If you approach them step by step and break them down into single processes, they are easier to follow and absolutely manageable – we promise!

Note

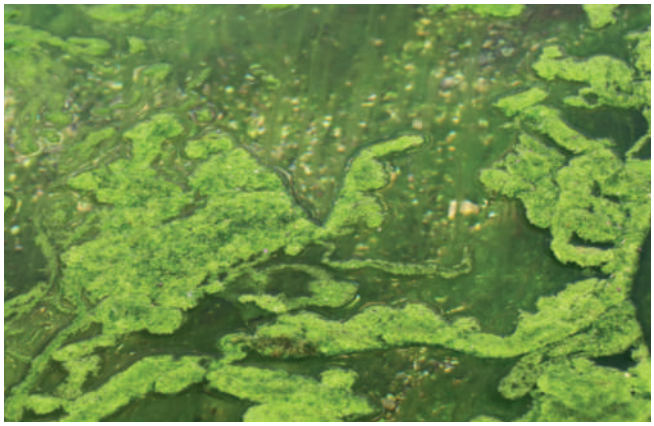
A change of one step in the pH value means a tenfold of the lye amount (pH value increases) or the acid amount (pH value decreases). A change of two steps is a hundredfold change of concentration, 3 steps imply a thousandfold change of concentration.



Which algae species can be found in the pond?

Two groups of algae commonly occur in garden ponds:
Thread algae and floating algae belong to the green algae species and are always a result of an excess of nutrients in combination with too much light. They therefore usually appear in spring and summer, when the intensity of the sun is increasing or is very strong.

There are temporal correlations with the growth of the higher aquarium plants. In early spring, when the light quantity intensifies, the floating algae primarily develop because the nutrient competition provided by water plants isn't there yet. When the floating algae have finished blooming, the second step commences. This is when the thread algae appear with the higher aquarium plants in early summer/summer because more light is falling on the substrate and on the water plants. While this phenomenon does not entail a 100% coupling of the occurrences of the respective algae group, many interdependencies do exist, including an interdependency between algae occurrence and the respective meteorological conditions (cold/warm spring).



How do you combat algae in the pond?

There are, of course, JBL anti-algae agents designed to successfully combat the various species of algae. But this success could be short-lived: because when the algae combatted by the anti-algae agents die, they release the nutrients they have stored in their cells, and these nutrients serve as food for the next generation of algae. For this reason you need to embark on this long-term and reliable algae control in 3 steps:

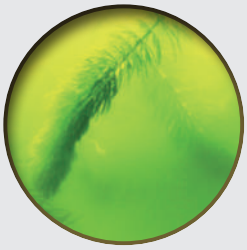
1. **Stabilise the water to ensure that the anti-algae agents have an effect at all.**
2. **Target the specific type of algae.**
3. **Bind the nutrients so that the algae can no longer grow.**

To give you precise instructions on how to combat your algae effectively we'll need some details about your pond. Have a look at our pond laboratory!

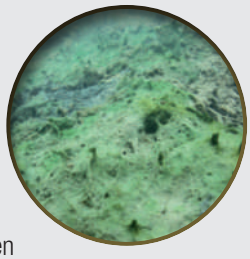
Thread algae
Filamentous, greenish or brownish algae which stick to the substrate, the borders of the pond, the stones and plants.



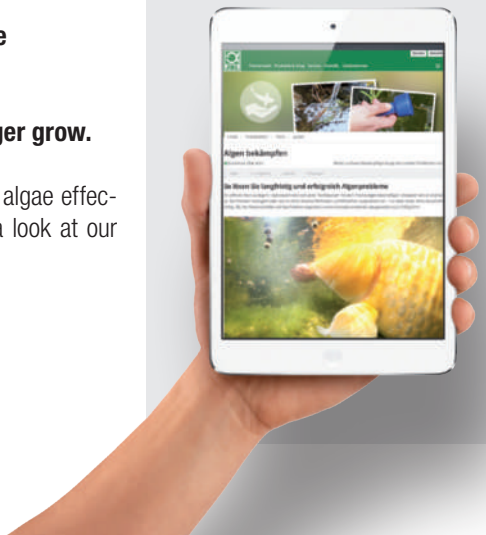
Floating algae
Floating algae which turn the water green. To most people this term is unfamiliar and they just call this problem “green water”.



Blue-green algae
Another „algae species“ is the so-called „blue-green algae“. They form a smeary blue- green or brownish algae coating (together with diatoms) on pond walls, substrates, stones and even plants. The blue-green algae are not really algae but bacteria (cyanobacteria), which use the light as an energy source. They are something between animals and plants. The blue-green algae occur with high water pollution and when organic matter (leaves) decays and gets broken down.



Other algae species in the garden pond, such as red algae, play a minor role. In general the garden pond enthusiast hardly notices them. It is also important to know that algae can absorb huge quantities of nutrients and store them in their cells. Thus many algae species can absorb and store more than the 100,000-fold of the concentrations in the water, some algae species even up to the 3.8 million-fold of the measurable concentration. The algae use this nutrient buffer for their unimpeded further growth when there are nutritional deficiencies. This is why we can frequently observe algae continuing to grow vigorously, even though we cannot detect any nutrients in the garden pond.



Algae +

www.jbl.de/qr/100414

Algae control



Here's how to solve algae problems in the long run and successfully

Let's be honest: Sooner or later every pond owner has to deal with the algae issue. Sometimes it's the first time they've had to think about it and sometimes they have tried out various methods and treatments – unfortunately without any long term success. JBL put their scientists to work on the problem and they have worked out a concept which will guarantee success.

Of course a guaranteed successful concept involves following the instructions as accurately as possible. The same rules also apply to the JBL "1-2-3 algae-free" concept. Follow all the steps in the correct order and in their entirety. Then it will work! This we promise and guarantee you!

1

Stabilise the water by adding minerals to adjust the pH value of the water to enable the anti-algae agents of the second step to be effective. At too high pH levels the anti-algae agents won't work effectively, and extreme, short-term changes to the pH value will endanger the stability of your pond! In the evening before you add the anti-algae agent, add JBL StabiloPond KH. This way your pH level will be stabilised and brought into a range where the anti-algae agents have an optimal effect.



2

Now add the anti-algae agent, preferably aimed against the dominant type of algae. If there are several types of algae JBL AlgoPond Forte* is the best choice. Should you have a problem with floating algae (green water) please use JBL AlgoPond Green*.

For thread algae (green thread-like formations on the bottom, plants and stones) please choose, as for several types of algae, JBL AlgoPond Forte*.

It is generally important to add your chosen anti-algae agent to the pond IN THE MORNING. This is because the pH value of the water is the lowest in the morning and therefore the anti-algae agent can work most effectively then. Doing this in the evening would be counterproductive since the pH value rises in the course of the day and would restrict the agent's effect!



* *Use biocides safely. Always read the label and product information before use!*



The 1-2-3 algae-free system with guarantee

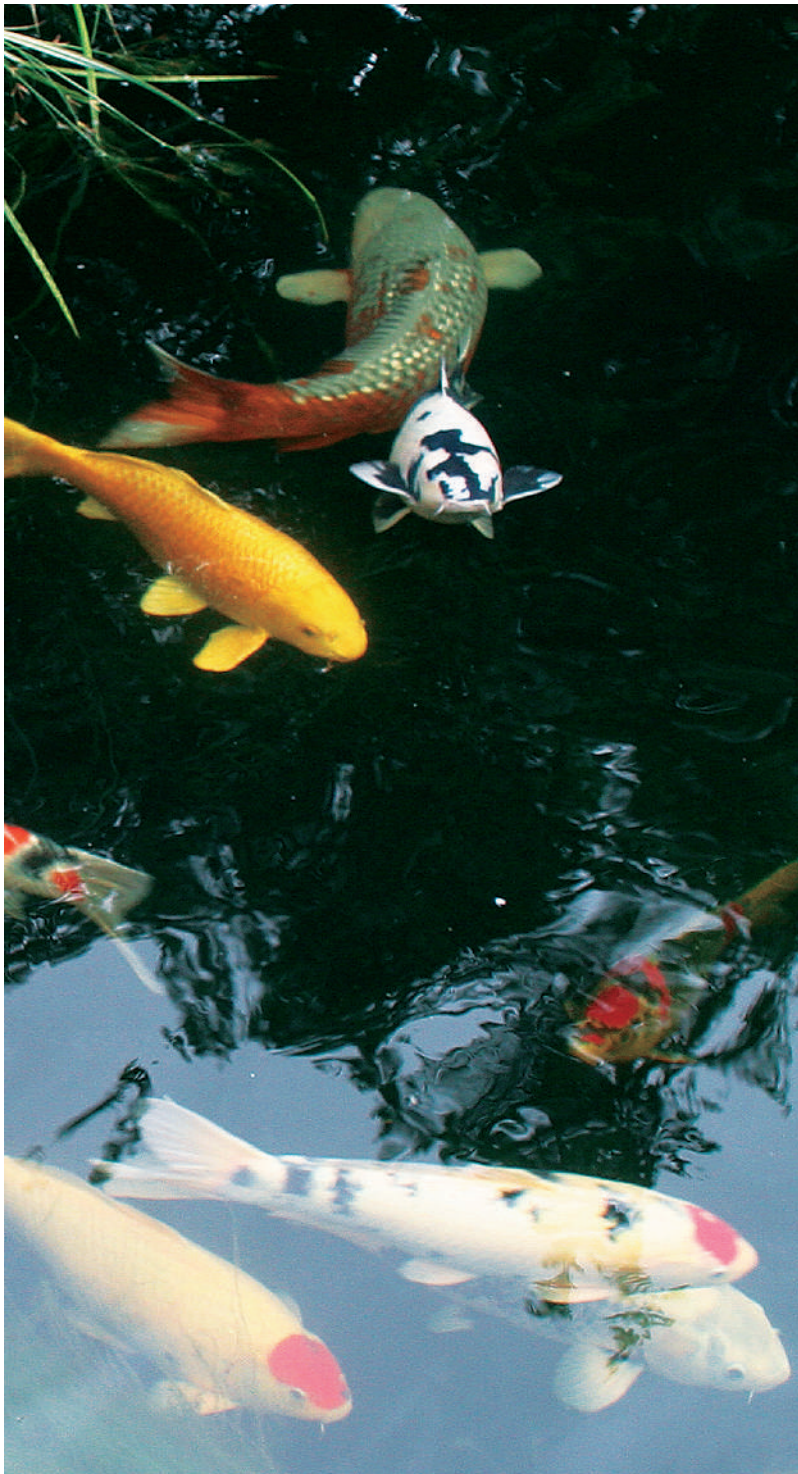
Permanent algae control – here's how it works

A few algae in the pond do not pose a problem and can even be part of a healthy pond. But once the water turns green or threaded algae become rampant, you have a problem which needs combatting. Effective and long-term algae control consists, as already mentioned, of three steps.

3

The third step relates to the removal of the algae nutrient phosphate. As soon as step 2 takes effect and the algae die, they release the nutrients they absorbed during their growth phase back into the water. This provides a plentiful food supply for the next algae generation. A phosphate remover (JBL PhosEX Pond Direct) helps you prevent these nutrients from reaching the next generation of algae and thus endangers their existence: the algae can't grow back anymore!







JBL grants you a functional guarantee!

JBL grants a functional guarantee on this 1-2-3 algae-free concept. It turned out in the many comments we received that 80 % had used the wrong dosage because they had estimated the number of litres of their pond INCORRECTLY! On the JBL website you can find a pond volume calculator which precisely determines the number of litres of your pond.





One last word before concluding:

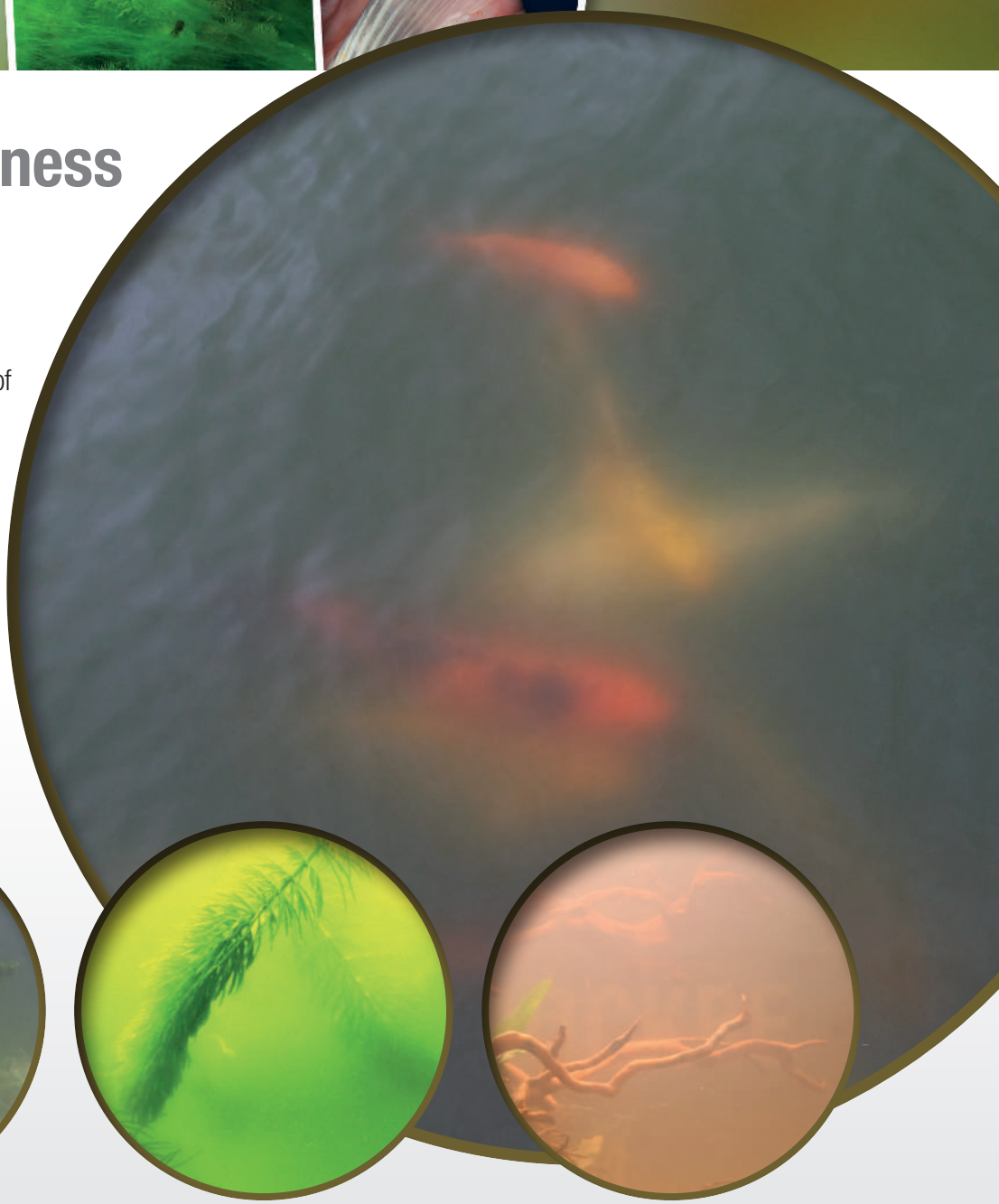
Now your pond is algae-free and you have been successful with the JBL 1-2-3 algae-free concept. Of course, we would have preferred to sell you only one product to solve all your pond problems. But such a product doesn't exist and you certainly have found out that your pond represents a complicated and sensitive biological system!

The success of the JBL 1-2-3 algae-free concept is due to it approaching the problems in a scientific manner. If the algae problem reappears next year, you will be well prepared. Anyone who understands the 3 steps (stabilisation - algae combat – limitation of nutrients) and carries them out, will be successful! We wish you continued success with your garden pond.

Water cloudiness

Need for clarity

Clear water is right at the top of almost all pond owners' wish list. There are several types of cloudiness to annoy us:





Whitish cloudiness
This is often caused by an explosive increase of bacteria. There can be many different reasons for this. You can remove this kind of cloudiness in no time with the help of a PROCRISTAL water clarifier.



Greenish cloudiness
This is caused by floating algae, which usually arise from a combination of a lot of nutrients in the water and strong light entering the water. You can remove this kind of cloudiness in no time with the help of a PROCRISTAL water clarifier.

If you have no PROCRISTAL water clarifier available you can treat greenish blooms of floating algae with JBL AlgoPond Green*.

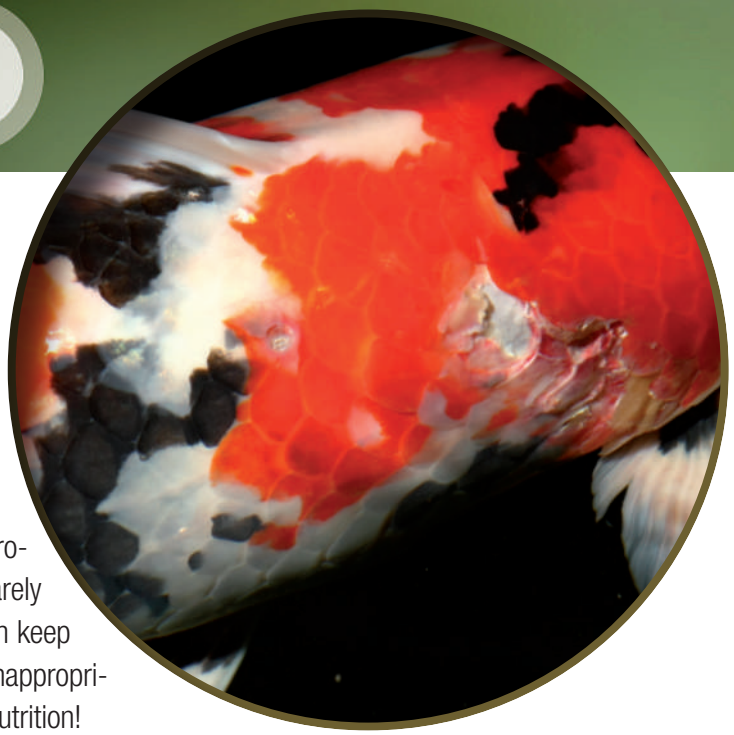


Brownish cloudiness
Mostly the whirling up of sludge (organic matter on the bottom) is the cause. A strong filtering with fine filter material (JBL Fine Filter Foam) will help you to get your water clear again. For this JBL CleroPond can help you. JBL CleroPond flocculates the cloudiness, which then gets caught by the filter or it sinks and can be vacuumed away. A UV-C water clarifier wouldn't help in this case.



**Use biocides safely. Always read the label and product information before use!*

Pond fish diseases



What are the various pond fish diseases and how can you combat them?

A lot of pond owners believe that fish diseases are mainly introduced and passed on by sick fish. Fortunately this is very rarely the case and it's mostly within your control whether your fish keep well and fit. More than 90 % of the diseases are caused by inappropriate living conditions, such as water values and inadequate nutrition!

Identification of fish diseases

Describing fish diseases is not easy. This is why we have collected hundreds of photos, which can help you to identify a fish disease. Have a look at the Online Hospital. There you can diagnose a fish disease using photos or identify them with the help of an identification key. A click on the photo of the disease will lead you to the corresponding fish disease and refer you to the treatment, as well as to any possible mix-ups.





JBL Online Hospital

www.jbl.de/qr/100395

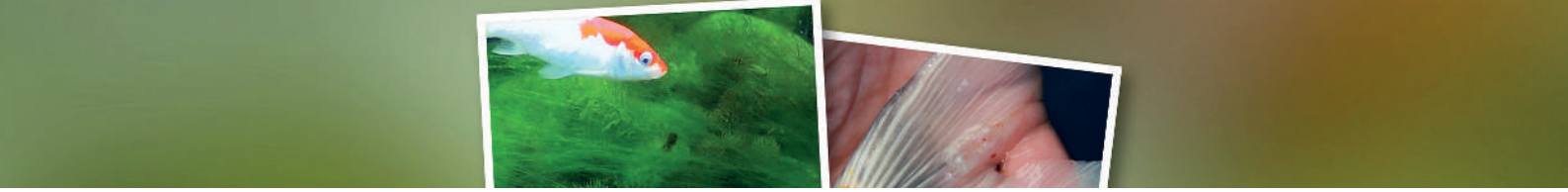
Triggering factors of fish diseases in pond fish

Although fish diseases in pond fish are caused by parasites, bacteria or other pathogens they are often triggered beforehand by other factors. Thus the fluctuation of the pH level of your pond water (with low pH 6 in the morning and high in the evening) can result in a weakening of your fish, and their weakened immune system makes the infection through pathogen germs or parasites possible in the first place. If we compare it to humans it illustrates the situation well. We are also more vulnerable to illnesses when we are extremely stressed.

Therefore a stable aquatic environment and good nutrition are the best preventive measures against fish diseases. Combat fish diseases with the suitable medication and afterwards check your water parameters to find out the cause. Consider changing the diet of your fish to a high quality food, which exactly matches the fish size and feeding habits.

Outbreaks of disease after adding new fish

Pond enthusiasts sometimes notice that new fish cause an outbreak of disease, and thus assume that the retailer has sold them diseased pond fish. This is not usually the case! Again a comparison with humans serves to illustrate the problem. When the Spanish conquered South America in about 1500 AD, they introduced the "harmless" influenza virus. Since the natives of South America had never been exposed to influenza viruses before, they hadn't enough resistance to them and died in their thousands. It can be similar in the pond. The newly added fish have harmless parasites, to which they have developed a resistance against. Your pond fish have never been in contact with these germs and are therefore very susceptible. So strengthening your fish's immune system and also that of your new arrivals (the problem can go either way) with JBL AccliPond is highly recommended!

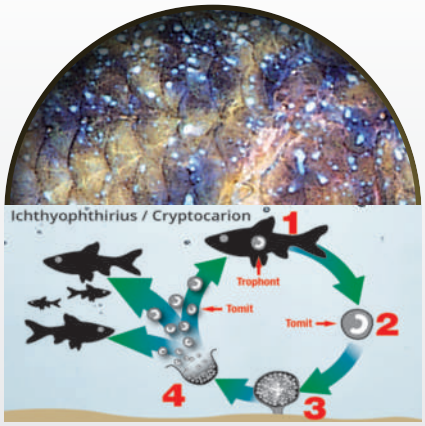


Outline of pond fish diseases

There are some diseases which occur again and again in pond fish and which can be quickly and reliably treated with special medications. There are only a few diseases where treatment is unfortunately not possible, as, is the case with the koi herpes virus. Here we will provide an outline of the most important pond fish diseases and explain whether or how you can treat them.

Parasites

White spot disease (Ichthyo)



Scientific name: Ichthyophthirius multifiliis, also called Ichthyo or white spots.

This is a parasite from the group of the single-celled animals (Ciliates), which can be killed off quickly and safely with JBL MedoPond Plus*. This parasite has a life cycle with several stages during which it cannot be killed off. Only during a free floating "swarm out" phase is the successful elimination possible. That's why the treatment needs to be carried out over a period of two weeks at a water temperature of 25 °C. With cooler temperatures the treatment time is prolonged.

After the treatment is completed apply JBL AcciPond should be applied to aid the regeneration of the mucous membrane.



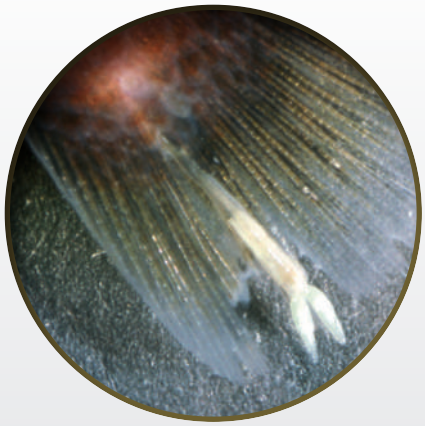
Fish leech (Hirudinea)



These leeches can be up to 5 cm long and attach themselves to the fish skin, suck blood and afterwards cause bacterial and fungal infections. You can't combat leeches with over the counter medicines. Not even prescription medicines can kill off the leeches' eggs. Manual removal of the leech is possible with pincers. Afterwards you need to add JBL Ektol bac Pond Plus* into the pond water to prevent likely bacterial secondary infections. Alternatively there is the option of bathing the fish for some minutes in a 2 to 3% sodium chloride (common salt) solution. The bath removes the leeches from the fish. A subsequent prophylaxis against bacterial infections is also advisable here.



Anchor worm = Lernaea crustaceans

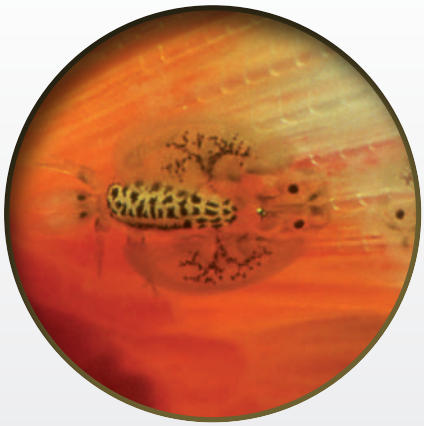


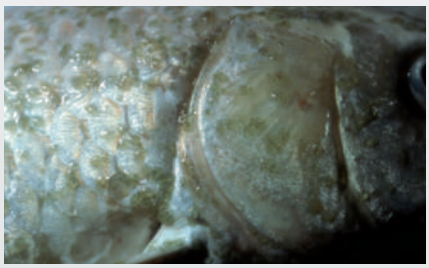
Although this parasite, which can grow to about 20 mm long, is termed a „worm", it belongs to the crustaceans. The juvenile stages of these parasites can survive for about 5 days without a host. JBL ArguPond Plus* makes a quick and safe treatment possible. Afterwards we recommend the application of an antibacterial remedy, such as JBL Ektol bac Pond Plus*, in order to prevent a bacterial infection of the "wound". The infection with Lernaea crustaceans weakens the host fish and harbours the risk of a fungal or bacterial infection.



** For information about risks and side-effects please read the pack insert and ask your veterinary surgeon or pharmacist.*

Carp louse (Argulus)





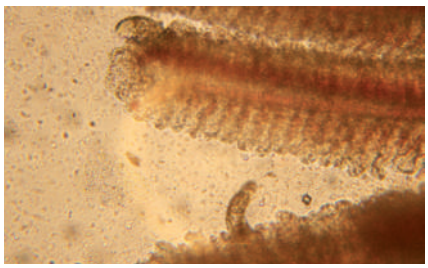
The carp louse Argulus is easily recognised on affected fish. It is a parasite. It can grow up to more than one centimetre long, and has a round, flattened body. The carp louse belongs to the fish lice (Branchiura) with about 70 crustacean species which live parasitically. They bore into the fish's flesh to suck blood. Inflammations and infections can occur from the bite. If heavily infested, the fish will also lose weight. Treatment:

JBL ArguPond Plus* has been especially developed to combat carb lice and copepodes. Sodium chloride or potassium permanganate baths do not have any noticeable effect. Carp lice can also be removed from the fish using pincers. Afterwards an application of an antibacterial remedy, such as JBL Ektol bac Pond Plus* is advised, in order to prevent a bacterial infection of the "wound".



Skin and gill flukes (Trematoda)





The pond fish's most frequent worm diseases can quickly and effectively be combated with JBL ArguPond Plus*. Skin flukes (Gyrodactylus) can be seen by looking closely at the fish skin with the naked eye. Gill flukes (Dactylogyrus) can only be diagnosed reliably by means of a gill smear. For the egg laying gill flukes a second treatment is required.

The active substance praziquantel helps for tapeworms (Cestoda), but in most countries it only is allowed to be prescribed by veterinarians. For this reason the JBL medication JBL GyroPond Plus (with praziquantel) is also not allowed to be sold in all countries.

Fungal infections (Achlya)

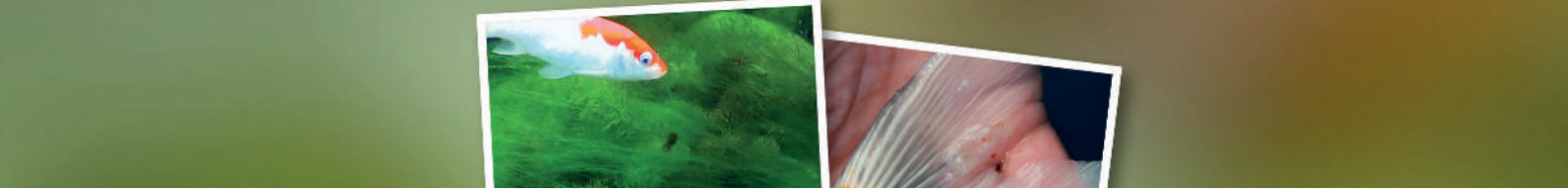


Fungal infections are easily recognisable on fish with their cotton wool-like formations. By adding JBL MedoPond Plus* fungal infections can quickly and reliably be combated. It is very important to start the treatment quickly because the fungus deposits poisonous metabolic products into the fish metabolism. This poisoning is the main problem. The fish can easily regenerate the destroyed fish skin and the surrounding tissue during the healing process. The visible fungal infection is often a secondary infection. The primary infection can be of a bacterial nature, or some such. In such cases a combined treatment is advised:

JBL Ektol bac Pond Plus* for the bacterial primary infection, complemented by JBL AccliPond which rebuilds and sustainably protects the destroyed mucous membrane of the fish.



** For information about risks and side-effects please read the pack insert and ask your veterinary surgeon or pharmacist.*



Open wounds, ulcers etc.

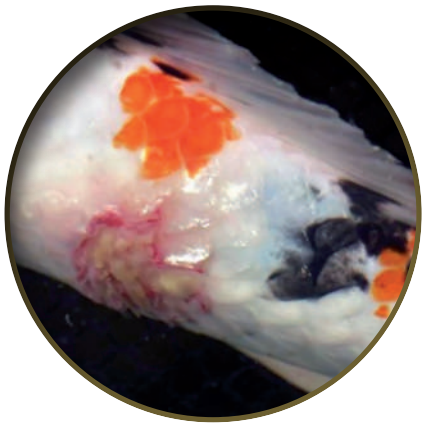
Mouth and fin rot (Aeromonas, Pseudomonas)





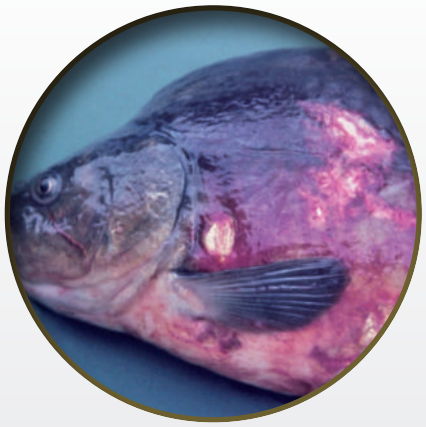
This disease can be recognised by the fraying, rotting off and later by the complete loss of body parts. By adding JBL Ektol bac Pond Plus* the disease can be stopped quickly and the fish is able to completely regenerate the body parts affected. To build up sufficient energy reserves for the fish we recommend adding JBL Atvitol to the food twice a week. Mouth or fin rot is caused by water quality problems, even if the pathogen is of a bacterial nature. The causative bacteria of the Aeromonas and Pseudomonas group reproduce in the pond alarmingly quickly if the water quality is not right. Not only the right remedy but also an improvement of the water quality is necessary. The most important values, which need to be checked and if necessary corrected, are: carbonate hardness (KH), pH (pH value), ammonium (NH_4)/ammonia (NH_3) and nitrite (NO_2). All you need to know about these water values and how to improve them can be found in the Online Hospital.

Bacterial Infections



Internal and external bacterial infections can take on a wide variety of appearances, which can quickly and reliably be combated with JBL Ektol bac Pond Plus*. Whitish coatings often appear on the fish skin. However, bloodshot spots can also be discerned or completely different symptoms can occur. A clear diagnosis is only practically possible with a microscope. We often assume it is a parasitic infection, choose a suitable medicine, such as JBL MedoPond Plus* and if it doesn't get better we use JBL Ektol bac Pond Plus*, which is effective against bacterial infections. This needs to be followed by JBL AcclíPond which rebuilds and sustainably protects the destroyed mucous membrane of the fish.

Spring viraemia, SVC/virämia/ Erythrodermatitis



This is a viral disease in fish (especially in carp-like fish like koi). The trigger is a virus by the name of Rhabdovirus carpio (RNA virus). This disease usually occurs in the spring in ponds with water temperatures between 10 to 20 °C. The symptoms are: bloodshot spots on the skin (at the edge of the fin), apathetic behaviour, sometimes pop-eyes and swollen abdominal cavities. Fish that survive the disease may remain carriers of the disease all their life without exhibiting symptoms themselves. Direct treatment with medication is not yet possible. It is important to improve the keeping conditions of the fish. The addition of vitamins in the food with JBL Atvitol is very helpful and might be combined with JBL AcclíPond which rebuilds and sustainably protects the destroyed mucous membrane of the fish. Raising the temperature to above 20 °C has also been reported as helpful (Dr. Sandra Lechleiter: Krankheiten der Koi, DATZ aquarium books).



** For information about risks and side-effects please read the pack insert and ask your veterinary surgeon or pharmacist.*

Open wounds, ulcers etc.

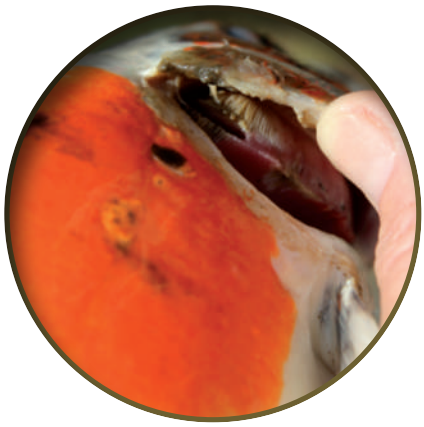
Ulcerous proliferations on the body, skin ulcers

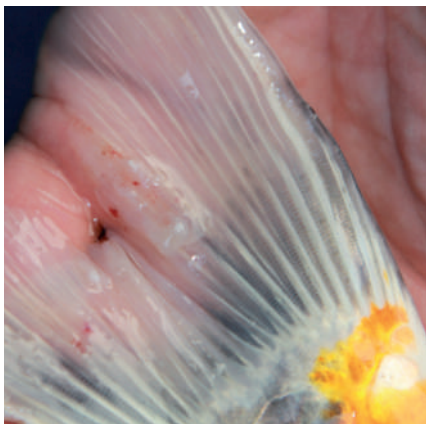


The triggers for ulcers and open wounds on the body of the fish are bacteria, which are always to be found latent in the water or on the body of the fish. In a bad environment they can reproduce at great speed and cause problems. An antibacterial remedy such as JBL Ektol bac Pond Plus* is highly effective against the bacteria but not against the cause. It is essential that a cause study is carried out: water load, fish stock, planting, feeding and oxygen concentration need to be checked. In the garden pond it is noticeable that these problems always occur in spring. Increasing temperatures, combined with increasing fish activity and missing energy resources are the main reasons for the outbreak of the disease. The remedy and even more so the prevention are quite simple: As soon as the fish come out of hibernation and start to feed, they need the right low-temperature food (JBL PROPOND SPRING). A weekly addition of JBL Atvitol provides the fish with strengthening vitamins to prevent an outbreak of the disease.



Koi herpes virus, KHV, koi pox





This often occurs in summer, even in the best fish keeping conditions, and is highly infectious. The pathogen is a virus which only reproduces above 10 and below 30 °C and which mostly affects only koi. The fish show massive mucous membrane changes and they die within a few days. In the gills you can detect a significant necrosis (fading and decay). The result is often that the fish stay near the water surface to gasp for “air”. Often you see their eyes are sunken. There is no really effective method of treatment. Any surviving fish are carriers of the virus and therefore infectious all their lives.

Popeyes (Exophthalmus)



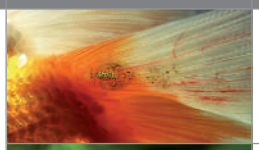
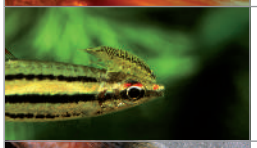
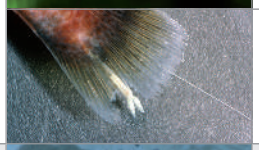
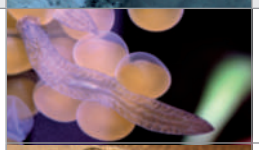
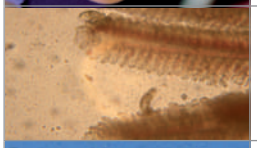
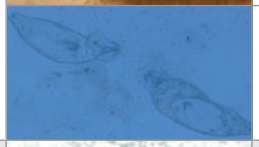
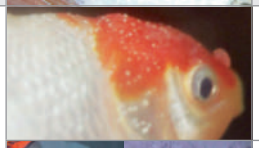
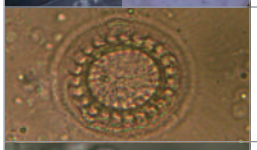
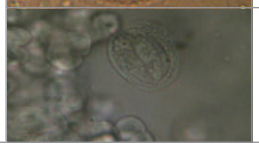
One or both eyes stand out of the head oddly. The causes of this clearly visible disease can be varied. In most cases the cause is a deterioration of the water quality. An examination of pH, KH, ammonium, nitrite and nitrate is strongly advised. It has also been observed that vitamin deficiency in the nutrition can cause popeyes. Please check if a varied diet is being fed to the fish and whether opened food containers are being used up within 3 months at most. 3 months after opening the food tin there are hardly any vitamins present in the food. A subsequent adding of vitamins with JBL Atvitol is then required. If only a single fish is affected it can possibly be a bacterial infection. In this case the rapid use of JBL Ektol bac Pond Plus is required to combat the disease and to prevent its further spread. But it could also be the incurable fish tuberculosis.



** For information about risks and side-effects please read the pack insert and ask your veterinary surgeon or pharmacist.*



Overview parasites

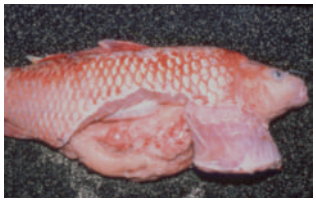
Family of parasites		English name	Scientific name	ArguPond Plus	MedoPond Plus
Crustaceans (Crustea)		Carp lice	Argulus	●	
		Fish lice	Livoneca	●	
		Anchor worms	Lernaea	●	
Tapeworms		Tapeworms	Cestoda		
Trematodes		Flat worms	Planaria		
		Gill flukes	Dactyloogyrus	●	
		Skin flukes	Gyrodactylus	●	
Leeches (Hirudinea)		Leeches	New discovery: No medication is effective!		
Protozoa		White spots	Ichthyophthirius		●
		Costia	Costia (Ichthyobodo)		●
		Trichodina	Trichodina		●
		Chilodonella	Chilodonella		●



Nutritional deficiencies

Can food lead to illness?

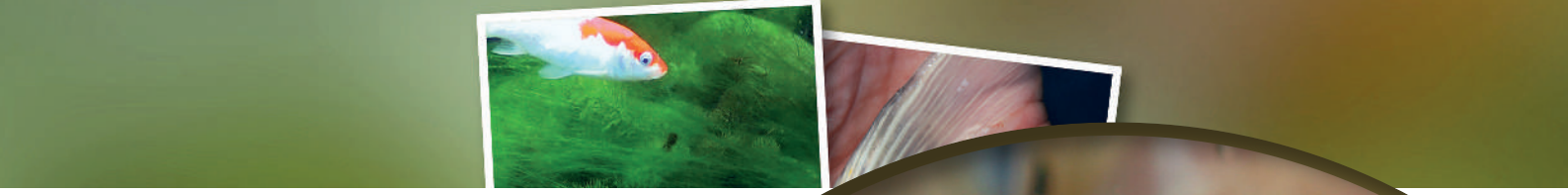
It's a strange-sounding topic, but unfortunately an important one. On production, quality food, such as JBL's, has the high vitamin content the fish need for their immune system. About 3 months after first opening the container/bucket, the vitamin content has decreased dramatically due to the air and the influence of light and the food needs to be used up or new food purchased. This is comparable to frozen vegetables in an open packet. If the same food is still being fed 3 months later, it can lead to vitamin deficiencies, which in turn can lead to an increased susceptibility to germs.



If you buy very cheap brown pellets, either to save money or because you don't know the difference, you won't usually get pond fish food, you'll get trout or carp fattening feed, with a composition completely unsuitable for your pond fish. It will massively overfatten your pond fish and eventually lead to their death.

Like us humans, fish also need a balanced diet, which has adapted in the course of their evolution to correspond to the huge diversity to be found in the wild. This diversity and the metabolism's demand on the food was taken into account for the development of PROPOND® / NEO Index®. Each individual PROPOND® / NEO Index® food can be fed to your fish as a complete food to keep them healthy. Nevertheless even fish appreciate variety and they'll reward you with even more beautiful colours, increased growth, familiarity and often also with offspring. Have a look at the JBL PROPOND concept and make one or two additions to your basic food.





Oxygen deficiency

If fish breathe heavily and hang around under the water surface this can be a sign of oxygen deficiency or a poisoning symptom. Many pond owners think by mistake that the fish are only gasping for breath. But this is not quite correct. They are gasping for the thinner water layer, which is directly situated below the water surface, because this water layer has the highest oxygen content!





By means of an oxygen test (JBL PROAQUATEST O_2 Oxygen) you can quickly and easily determine whether there is a problem with oxygen. Only with an oxygen content of below 4 mg/l will you notice a higher breathing activity with most fish. The remedy is quite simple: With the help of aeration pumps and air stones (JBL PondOxi-Set) the oxygen content can be significantly raised in just a few hours.



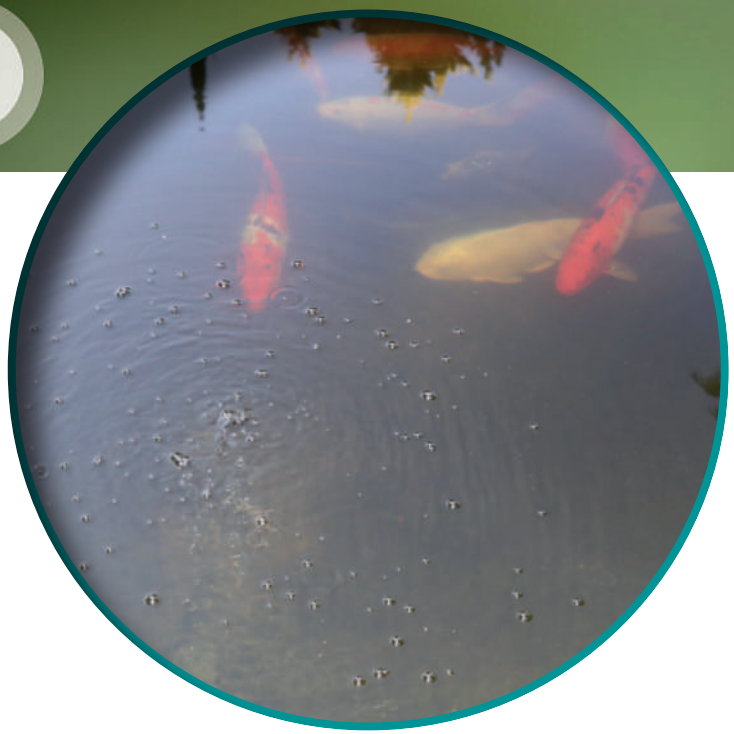
The oxygen content can also be increased by means of a water backflow in the filter. That's why many pond owners use the water backflow of the filter to operate a watercourse or small waterfalls. Basically the following applies: The more the water surface is moved, the more oxygen can be absorbed. At the same time the following also applies: The warmer the water the less oxygen can be absorbed by the water. That's why it is especially necessary to aerate in midsummer!





It is, however, more difficult to determine why the oxygen level is so low. Dying organisms (fish, algae, plants) use up quite a lot of oxygen when they are bacterially broken down. Combating algae especially leads to an extreme decline in oxygen levels and this needs to be counteracted at all costs! The symptoms of oxygen deficiency can also indicate nitrite poisoning.

The water temperature



If you don't use a pond heater, the water temperature is determined by the ambient air. Depending on the latitude in which you live, there may be strong fluctuations between summer and winter. Pond fish know these water temperatures and can also adapt to them. The water temperatures become critical in midsummer (> 28 ° C) and in deep winter (ice cover). The higher the water temperature, the less oxygen can be absorbed by the water. Therefore, an aeration in the hot summer months is really very useful.

If your pond is deeper than 150 cm, a temperature stratification will occur. In summer the coldest water is towards the bottom and in winter the warmest water (4 °C) will be right at the bottom. The cause is the negative thermal expansion of the water. Therefore, fish in deep ponds feel more comfortable in extreme temperatures than in shallow ponds. A shallow watercourse can act like a heater in the summer and needs to be shut down in extreme temperatures. Then, however, the oxygen content in the water needs to be increased by other means!

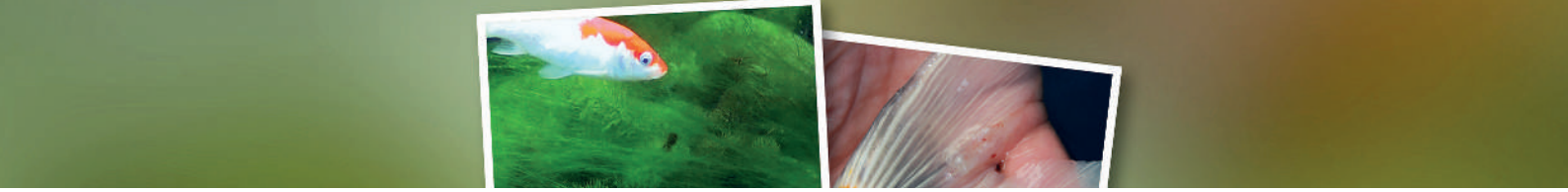
In any case it is important NOT to completely mix the layers of water. The suction inlet for filters or watercourses should NEVER be at the lowest point. You can place the pump on a basket or bucket on the ground. This way the water will not be drawn from the very bottom and the pump will not be clogged by leaves so easily.



Floating leaves of water lilies cover the surface of the water, reduce the warming caused by solar radiation and thus counteract water heating.

As just described the water depth is as important In winter. The animals can retreat into the deeper water layers or into the ground (frogs, newts, etc.). There, the water is about 4 ° C and gets colder towards the top until it freezes on the surface. Water is lightest when frozen and this allows it to float on the water. A slight aeration from the middle water layer with the JBL PondOxi-Set in combination with an ice preventer is very useful. It prevents the oxygen level from dropping into potentially dangerous ranges.





Accidental poisoning

If your pond seems to be out of balance or if your animals show worrying behaviour or die, this could be a result of poisoning, even if the water tests aren't indicating the wrong water levels.

Metal poisoning

As a general rule metals do not belong in the pond water! A lot of metals have the property to release free metal ions (charged particles) to the water, which have toxic effects on invertebrates, fish and microorganisms. The more acidic the water (pH value below 7), the higher the percentage of dissolved metal ions in the water. An extreme situation occurs with (acid) rain, when the rainwater collects in roof gutters and is reused: The low pH value of the rain water dissolves large quantities of copper ions out of the mostly copper-bearing gutters, which then lead to symptoms of poisoning. Titanium zinc is mostly used for rain gutters. This material has a service life of several decades and yet has the merit of being relatively cheap. Roof gutters made of copper are relatively expensive when compared to other materials, but they do provide a very long service life.



Care needs to be taken when multiple materials are used on the same building. Aluminium gutters are long-lasting but expensive. To be brief: A rainwater drainage system using metal gutters can lead to problems. Either you avoid this kind of water supply or you use a very effective water conditioner! The water conditioner JBL BiotoPond results in the binding (chelation) of metal ions. A water change is still necessary if you discern any poisoning symptoms. Be careful when using tap water. Metal pipes mean that lead, copper or zinc may be present in tap water (JBL PROAQUATEST Cu Copper). It is, therefore, absolutely necessary to use a good water conditioner (JBL BiotoPond) when carrying out a water change!





Ammonia poisoning

Beneficial bacteria degrade the dirt accumulating in your pond water and at the bottom of the pond. Ammonium (NH_4) and ammonia (NH_3) are created from protein. Both are further processed to nitrite (NO_2) and then to nitrate (NO_3). Ammonium is also breathed out through the gills of your fish. These degrading bacteria can be damaged by new ponds, after bigger clean-up operations or after the use of antibacterial remedies, causing the ammonium content in the water to rise. In healthy, well established and efficient ponds you will almost never measure ammonium values above 0.1 mg/l. Ammonium itself is non-poisonous but a chemical equilibrium reaction causes it to transform itself to poisonous ammonia. The percentage of this newly created ammonia increases at pH values from 7.0 onwards. As soon as your fish show symptoms of poisoning (gasping at the water surface, darting backwards and forwards, reeling etc.), measure the ammonium content! The remedy is (firstly) an extensive water change to dilute the ammonia concentration and to slightly decrease the pH value to transform the poisonous ammonia back into non-poisonous ammonium. And (secondly) add beneficial bacteria with JBL BactoPond so that they can process ammonium/ammonia.



pH	NH_4 mg/l							
	0,1	0,2	0,4	0,8	1,2	2,0	3,0	5,0
7,0								
7,5								
8,0								
8,2								
8,4								
8,6								
8,8								
9,0								

Nitrite poisoning

Nitrite (NO_2) occurs in the normal biological degradation process from ammonium and is processed to nitrate (NO_3). During this nitrogen decomposition (nitrification) the pond water consumes a lot of oxygen. That's why a good oxygen enrichment for the pond water is not only important for the fish. Without the required oxygen your pond bacteria are not able to do their work properly.

From 0.3 mg/l nitrite is toxic for fish and from about 0.5 mg/l it is usually deadly. This is because nitrite prevents the transport of oxygen by haemoglobin. It has the same shape as oxygen and blocks the docking of the oxygen to the red blood cells (similar to the lock-and-key principle). An increased nitrite value (JBL PROAQUATEST NO_2 Nitrite) an increased nitrite value in your pond water is an extreme alarm signal that there is something wrong in your pond! The nitrite value should ALWAYS be below the detection limit! It's important you then immediately find out why your bacteria didn't process the nitrite to harmless nitrate. Possible causes: If your pond is still quite new (max. 3 weeks old), nitrite can accumulate because your beneficial bacteria have yet to develop. Remedy: With JBL FilterStart Pond and JBL BactoPond you can help your pond and accelerate the running-in process enormously.



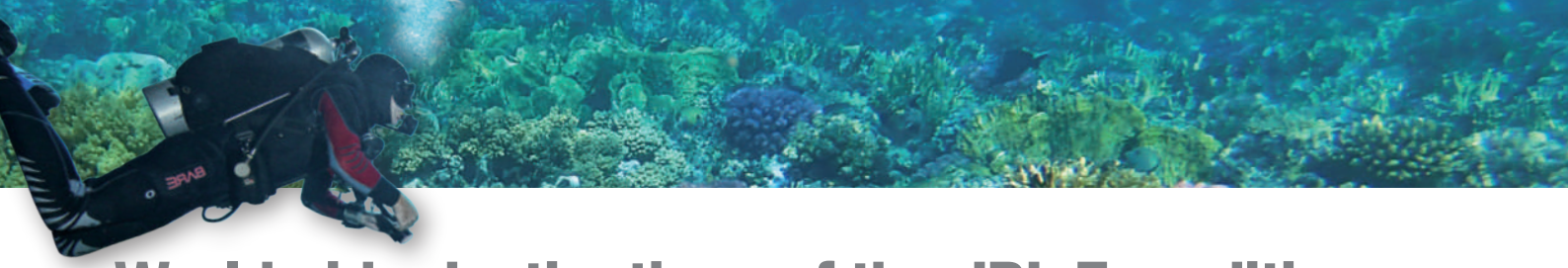
Further ways to destroy the beneficial bacteria in the pond

If you have added salt to your pond (why? This does more harm than good), your bacteria won't like that at all. Bacteria can't get used to fluctuating salinity. If you insist on adding salt, you will have to restart the bacterial fauna AFTER the adding of salt with JBL FilterStart Pond and JBL BactoPond.

Neither do your bacteria like you adding antibacterial medicines to your pond because the medicines can't differentiate between beneficial cleansing bacteria and pathogenic bacteria. Also in this case a bacterial reactivation with JBL FilterStart Pond and JBL BactoPond is urgently advised.







Worldwide destinations of the JBL Expeditions

The JBL Research Team obtains information on aquarium fish and terrarium animals first-hand by carrying out expeditions into the regions where the animals live on a regular basis. There, biotope investigations are performed on site, the results of which are used for publications and the development of JBL's products.
Every fan of nature is eligible for participation: As soon as the details of a JBL Expedition have been set, they are posted on JBL's website. Then it's time to apply – and, with some luck, take part!



- 2001 Sulawesi/Indonesia
- 2002 Sri Lanka & Maledives
- 2004 French Guyana & Caribbean
- 2005 Red Sea/Egypt
- 2006 South Africa & Lake Malawi
- 2007 Negros/Philippines
- 2009 Amazonia & Pantanal/Brazil
- 2010 Tanzania & Lake Tanganyika
- 2012 Central America & Galapagos
- 2013 Vietnam
- 2015 South Pacific & Australia
- 2016 Venezuela
- 2018 Indian Ocean – Madagascar/ Mauritius/Seychelles
- 2019 Eleuthera, Bahamas
- 2019 Japan
- 2021 Colombia



https://www.jbl.de/qr/100393

JBL Expeditions stand for adventure and research, all in one!

Who can take part in the JBL Expeditions & Workshops?



Every lover of nature who is physically fit and at least 18 years of age (at the time of departure), can take part. Proficiency in German and/or English is helpful so that communication within the group is not limited to body language.

Physical fitness helps withstand the tropical temperatures and humidity levels, which are sometimes high. There are no extreme walks. Sometimes, though, a few walks to beautiful biotopes just can‘t be avoided.

Do you have to be an animal specialist?
No! There are always experts/ scientists along who are very knowledgeable about their field of expertise and willing to help, be it in regard to salt water, fresh water, invertebrates, terrarium animals or plants.

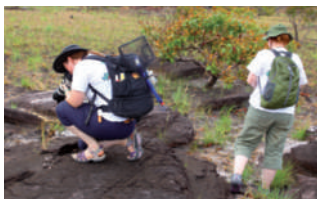


What makes the JBL Expeditions different from other trips?
What‘s different about the JBL trips is that like-minded persons travel together. On other trips, you can‘t stop simply to see a beautiful body of water or a lizard basking in the sun next to the road. On our trips, it‘s normal to be „crazy“ and storm every puddle and shrub.





Do you have to be a diver?
If you don‘t have a scuba diving license, you can go snorkelling. Snorkelling is usually better suited than compressed air diving in fresh water anyways. In the ocean, there are always spots for snorkelling in addition to the scuba diving spots. Sometimes there are animal species that can only be found at great depths, so that they can only be reached by scuba divers. Many participants acquired their scuba diving license after they received their written confirmation for participation.

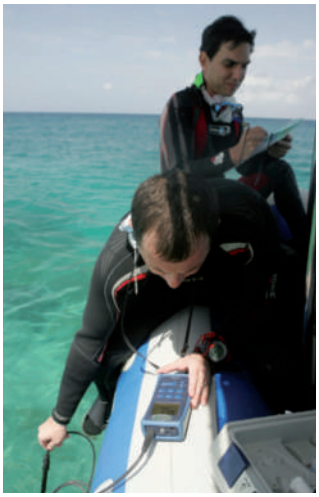




What about if you can‘t handle boat travel and car travel?
If you are unable to handle boat travel or car travel, you can use medication against travel sickness. Read the trip description carefully in order to determine whether there is a lot of boat travel and car travel.









How good are the chances of taking part?
If JBL receives more applications than there are spots by the deadline that has been set, unfortunately, a draw must decide. Prospective participant who have not yet taken part in a JBL Expedition are given priority over former participants. Looking back, we can confirm that every applicant had a chance of over 60 %.

Expedition 2001

Sulawesi/Indonesia

Back when Sulawesi shrimp weren't popular yet, the first JBL Expedition led to the island of Sulawesi in the Indo-Pacific Ocean. The base that was selected for the group's activities was near the city of Manado located in the far north of the island.
The primary goal consisted of saltwater research in the Bunaken National Park with coral reefs counted among the most beautiful in the world and boasting the greatest diversity of species.

This first expedition was aimed at determining all of the saltwater parameters on site. A second goal consisted of investigating the water parameters and fish fauna of freshwater lakes in the region.









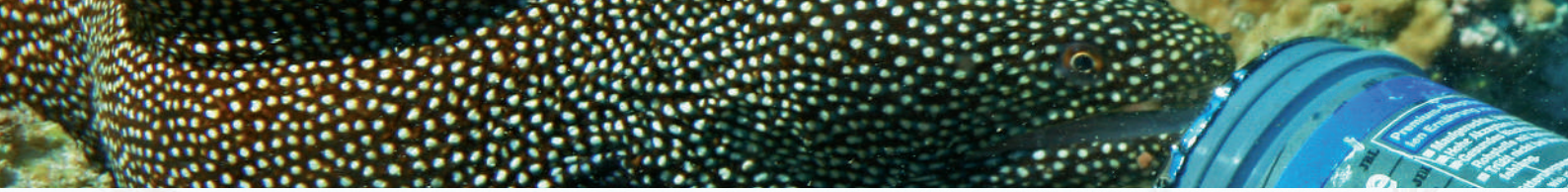


Bunaken National Park Salt water

Depth	5 m	10 m	20 m	30 m
Temp. (°C)	29,7	29,7	25,0	24,0
pH	8,17	8,13	8,08	8,10
KH (°dKH)	7	7	7	7
Ca (mg/l)	420	400	400	400
Mg (mg/l)	1200	1200	1200	1200
O_2 (mg/l)	7,5	7,3	7,0	7,1

Freshwater biotopes

	Lake Seper	Lake Uluna	Rice field	Ronuanco River
Temp. (°C)	30,2	25,0	35,0	29,2
pH	8,45	6,30	6,60	7,60
GH (°dGH)	3	3	3	4
KH (°dKH)	4	3	3	5
O_2 (mg/)	7,8	7,8		7,5
Conductivity (µS/cm)	144	300		290



Expedition 2002

Sri Lanka & Maldives



We always try to cover both fields, fresh water and salt water, on our expeditions. Due to the fact that the ocean of Sri Lanka can become very murky within a few hours, we only did the section concentrating on the rain forest and fresh water there and then flew over to the Maldives nearby to measure coral growth in natural surroundings. The high seawater temperatures of 36 °C in 1998 caused by the El Niño phenomenon killed all of the coral down to a depth of around 8 m. Therefore, we were able to determine growth accurately 4 years later and find out that stony coral (madreporarians) grow faster in an aquarium under ideal conditions.

















Sri Lanka Freshwater biotopes

Depth	Attanagalu Oya	Puwakpitiya Oya	Aberdeen Falls	Black River	Hatton Oya
Time/Temp. (°C)	12:30/28,7		09:00/23		15:00/23
pH	6,05	6,45	7,4	6,05	7,4
GH (°dGH)	0	3	3		0
KH (°dKH)	3	0	2		0
O_2 (mg/l)			>10		6
Fe	0,6	0,1	0,75		0,7
Cond. (µS/cm)		20	75		50

Maya Tila/Maledives Salt water

Depth	5 m	10 m	15 m	20 m	25 m
Temp. (°C)	28,2	28	28	27,8	28
pH	8,2	8,2	8,5	8,1	8,2
KH (°dKH)	8	8	8	8	8
Ca (mg/l)	380	440	360	480	460
Mg (mg/l)	1220	1060	1240	1320	1160
O_2 (mg/l)	7	7	7	7	7

Expedition 2004

French Guyana & Caribbean

French Guyana offers an opportunity to penetrate deep into the rain forest and spend the night outdoors safely at the same time. This is not the case everywhere in South America. Accordingly, we were able to spend a few days and nights right next to a river in the Amazonian lowlands and record 24-hour trends of temperatures and air humidity. Astonishingly, air temperatures dropped down to 22 °C.

In the Caribbean, we unexpectedly had an opportunity to experience a hurricane with its effects on the reefs live. Hurricane Jeanne developed from a tropical storm into a hurricane right in front of our eyes and conjured a nifty JBL green tint on the faces of our team on the diving ship. We were able to observe how the uppermost sections of the reef were damaged directly by the storm, and indirectly as well by uprooted trees that were drifting in the ocean. A famous marine biologist once said: “A reef roof won’t grow until it has been damaged.” This highly provocative statement is actually not wrong, although, of course, it does not give people a carte blanche to damage natural reefs!



















Caribbean	Salt water	
	Saba	Sint Eustatius (Statia)
Temp. (°C)	29,4	28
pH	8,2	8,2
KH (°dKH)	10	9
Ca (mg/l)	460	440
Mg (mg/l)	1240	1360
Cond. (µS/cm))	53,4	

Franz. Guyana	Freshwater biotopes		
	Crique Gabrielle	Crique Bagot	Pain de sucre
Temp. (°C)	27	25,5	23,9
pH	6,3	6,5	5,5
GH (°dGH)	0	0	1
KH (°dKH)	2	0	3
Fe (mg/l)	0,6	0,3	0,2
Cond. (µS/cm)	31	23	22

Expedition 2005

Red Sea, Egypt







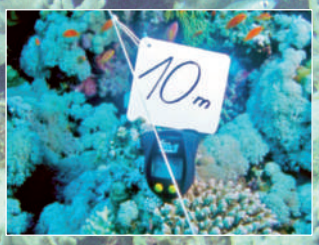


80 persons travelled to Marsa Shagra with the JBL Research Team in order to carry out seawater research under scientific guidance right in the reef. Shark researcher, Dr. Erich Ritter, came from Florida expressly to give a lecture on the body language of sharks to all of the participants. The following day, the scuba divers were able to try out what they had learned with oceanic whitetip sharks right on the Elphinstone Reef.

The water analyses were aimed at determining whether marine water parameters differ in different areas, among other things. Water samples were taken from near the beach, at the surface and at a depth of 30 metres, as well as from reefs that were distant from the coast, and analysed for this purpose.













Marsa Shagra/Red Sea Salt water

	Inner reef	Outer Reef	Dolphinhouse
Temp. (°C)	25,3	24,8	24,7
pH	8,10	8,17	8,13
KH (°dKH)	8	8	8
Ca (mg/l)	448	467	457
Mg (mg/l)	1360	1281	1277
O_2 (mg/l)	8	8	8





Expedition 2006

South Africa & Lake Malawi

The southern most coral reef of the world lies off the east coast of South Africa. We found the water temperature here to be 17 °C, which is lower than the minimum temperature indicated for coral reefs in the literature (20 °C). The world's most famous shark researchers were there with us, so that we were able to listen to personal lectures on the various species of sharks by Dr. Erich Ritter, Andre Hartmann and Andy Cobb. We were then able to see all of these sharks in their natural surroundings during our dives and from a cage. This is where the friendship with the shark protection organisation, SharkProject, began, which JBL has been supporting ever since.

While at Lake Malawi, our primary goal was to do water analyses, while our second goal was to do feeding experiments right under the water and on cichlids that had just been caught in Stuart Grant's export station. We found that grazing cichlids such as Pseudotropheus prefer carnivorous food if it is offered to them. It was also interesting to discover that green algae are only found down to a depth of 50 cm and that blue-green algae and diatomes predominate below this, so that they form the primary food of grazing cichlids.















South Africa Salt water		
	Aliwal Shoal	Shark Alley
Temp. (°C)	24	13
pH	8,2	8,2
KH (°dKH)	7	9
Ca (mg/l)	480	440
Mg (mg/l)	1200	1200
Cond. (µS/cm)		51,2

Lake Malawi Simbawe Rock Freshwater		
Tiefe	1 m	42 m
Temp. (°C)	25	21
pH	8,6	8,5
GH (°dGH)	5,5	5
KH (°dKH)	7	7
O_2 (mg/l)	8,0	7,5
Cond. (µS/cm)	243	237 / 25,5 °C

Expedition 2007

Negros/Philippines

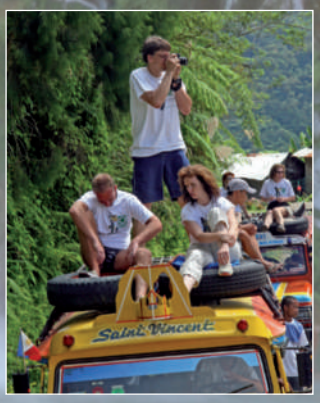






The friendship with Georg, the owner of two lodges in the Philippines, made it possible to keep the price of the workshop below € 1,000. 82 participants analysed, observed and experimented in the ocean and the rain forest of the island of Negros for one week. The trip into the rain forest, which fully lived up to its name, was an unforgettable experience for several participants. A normal tropical rain shower caused the water levels of the streams to rise so high that bridges were under water and our group prevented from traveling for a number of hours.
The underwater fauna off of Apo Island was especially impressive. The coral formations and colours were among the most beautiful that even the most experienced divers had ever seen.













Apo Island/Philippines Salt water

Depth	0 m	3 m	10 m	20 m	30 m
Temp. (°C)	29	29	26	25	24
pH	8.35/8.2	8.29/8.2	8.30/8.2	8.25/8.2	8.22/8.2
KH (°dKH)	7	7	7	7	7
Ca (mg/l)	400	400	400	410	420
Mg (mg/l)	1500	1500	1500	1700	1800
O_2 (mg/l)	5.0/5.0	5.2/6.0	5.2/5.0	5.0/5.0	5.0/4.5
Cond. (µS/cm)	49.3	49.2	49.5	49.6	49.7

Philippines Freshwater

	Negros
Temp. (°C)	25
pH	7,5
GH (°dGH)	4
KH (°dKH)	2
NO_3 (mg/l)	0
PO_4 (mg/l))	0

Amazonia & Pantanal















We rode on the Rio Negro, the black water river with clear tributaries, for one week before we reached where it flows into the Amazon River at Manaus. We examined the black water, which is hostile to life and had an immeasurable hardness and a pH level of 4. In this water, we were barely able to catch any plankton with our plankton net. Only the river dolphins and the red neon appeared to feel comfortable here.
We left the cloudy white water of the Amazon and the tea-coloured water of the Rio Negro behind us and continued on to the clear water rivers of the Pantanal. Here, we were able to observe fish with a visibility of over 50 m under water, as though they were in an aquarium. Encounters with piranhas and freshwater rays were definitely highlights.







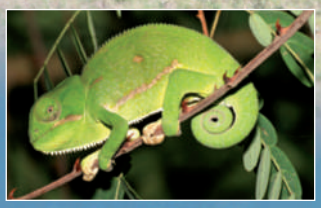


Amazonia Freshwater biotopes

	Rio Negro Barcelos	Rio Branco	Rio Jauaperi	Cayman Lake	Rio Negro Manaus	Rio Negro-Solimoes	Solimoes	Piranha lake Nobres
Type of water	black	white	clear	clear	black	mixed	white	clear
Temp. (°C)	30,3	30	26,3	27,8	28,9	28	27,9	28,9
pH	4,5	6,5	4,5	6,01	5,16	5,5	6,5	7,31
KH (°dKH)	0	0	0	0	0	1,5	2	11
O_2 (mg/l)	72,4	60			33		49	41
Cond. (µS/cm)	16	19	8	12	10		83	388

Expedition 2010 Tanzania, Zanzibar & Lake Tanganyika







76 participants took the opportunity to get to know very diverse African habitats in 13 days. Rain forest, tropical dry forest, savannah, steppe, mountains, streams and lakes, and, as a grand finale, Lake Tanganyika were all on the program. Cichlid specialist, Dr. Stefan Koblmüller, and some other participants were able to catch a species of cichlid that was considered extinct alive in a stream near Mt. Meru and identify it. Terrarium enthusiasts, in particular, were able to measure the surface temperature of rocks and wood with laser metres for the first time in order to offer animals optimal conditions in captivity.

Lake Tanganyika, which already presented almost all of the cichlids known from aquariums near the shore, was definitely a highlight. The scuba divers then also had an opportunity to observe Cyphotilapia frontosa in their natural habitat at a depth of 20 to 45 m. The logistics for this workshop were a real challenge: They ranged from organising an airplane that all of the participants and their luggage could fit into (freshly bought, unpainted Boing of Air Tanzania) to the transport of compressed air cylinders by truck across Tanzania from Mount Kilimanjaro to Lake Tanganyika.













Zanzibar Salt water

	Zanzibar	Nungwi
Temp. (°C)	29	29,3
pH	8,2	8,3
KH (°dKH)	6	8
Ca (mg/l)	380	420
Mg (mg/l)	1300	1180
Cond. (µS/cm)	51,7	51,6

Kigoma/ Lake Tanganjika Freshwater

Depth	0 m	10 m	20 m
Temp. (°C)	29,3	29	26
pH	8,9	8,8	>9
GH (°dGH)	10	11	11
KH (°dKH)	18	17	16
O_2 (mg/l)	8	8	8
Cond. (µS/cm)	644	690	

Central America & Galapagos

















In Costa Rica, we had to learn that it was more difficult to find the famous red-eyed frogs than we had imagined. We were on the exact river where they lived, we could hear them, but we couldn't find them, not even after many hours of search by night!

We dove deep into the Mexican cenotes in search of the Mexican blind cavefish. The longest cave system in the world with a length of several hundred kilometres belonged to the most fascinating biotopes we had ever seen.

We were able to find shrimp in Lake Nicaragua, even though they weren't as pretty as the ones in Sulawesi.

Our trip culminated with an absolute highlight: the Galapagos Islands in the Pacific. These extraordinary islands, which had already inspired Charles Darwin to come up with his theory of evolution, offered a true emotional adventure for every nature enthusiast. All the way from observing the giant tortoises, to unique marine iguanas and to hammerhead sharks and mantas, our days were filled with unmatched experiences of nature. Even if they weren't all truly relevant for aquarium keeping,













Carribean Salt water

	Playa del Carmen	Bartolomé Island
Temp. (°C)	26	27
pH	8,1	7,8/8,5
KH (°dKH)	9	6
Ca (mg/l)	500	360
Mg (mg/l)	1100	1140
Cond. (µS/cm)	53,5	47,6

Central America Freshwater

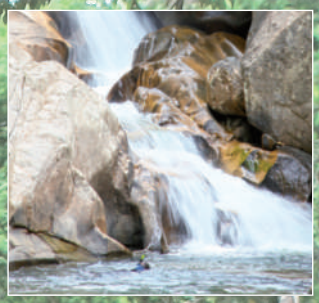
	Ponderosa Cenote	Grande Cenote	Nicaragua Lake	Rio Papaturro	Chira/ Mangroves
Temp. (°C)	25,4	25,5	28	25,8	29,2
pH	6,97	7,4	8,48	6,92	7,8
KH (°dKH)	0-1	17	4	3	7
GH (°dGH)		30	4	4	
Fe (mg/l)	<0,02	<0,02	<0,02	1	
Cond. (µS/cm)	8,18	3500	219	127	46,7

Expedition 2013

Vietnam









70 nature lovers had 10 days to explore the region around Nha Trang in the rainforest, the desert and the offshore coral reef.

Everyone was thrilled by the clear mountain rivers with gobies and loaches, the waterfalls with hillstream loaches and the jungles with many interesting snakes. More dangerous were the slippery stones in the rivers they had to cross in order to penetrate deeper into the wilds. But it was worth it. They were rewarded with intensive natural experiences, extensive biotope data and for the first time water current measurements.





















Na Thrang Salt water

	Hon Mun West	Hon Mun North
Temp. (°C)	28,8	29,6
pH	8,2	8
KH (°dKH)	8	6
Ca (mg/l)	420	440
Mg (mg/l)	1400	1440
Cond. (µS/cm)	50,8	50,8

Na Thrang Freshwater biotopes

	Hon Ba Region	Ba Ho River	Ba Ho Lower waterfall	Ba Ho Middle waterfall	Ba Ho Upper waterfall
Temp. (°C)	28	28-29	28,7	28,5	29,5
pH	6,4	6,6-6,7	7,2	6,8	7,8
KH (°dKH)	0	1	1	4	7
GH (°dGH)	0	0	1	0	9
Fe	0,03	0,3	0,05	0,05	0,05
Cond. (µS/cm)	37	53	136		84

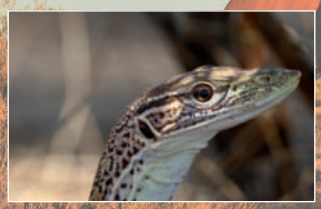
California, South Seas & Australia











The 14 members of the JBL research team went round the world in 18 days. We started in California, continued our flight to French Polynesia and then reached Australia. We flew back to Germany via Dubai.

Catalina Island/California
There is a small paradise just off the coast of Los Angeles. The Pacific around Catalina Island is crystal-clear and contains the most beautiful fish species in the cold Pacific. We wanted to observe the bright orange Garibaldi damselfish and the orange-blue Catalina goby which grow to a length of only a few centimetres.

Moorea/ French Polynesia
Feeding trials in the extremely clear water of the South Seas were on the agenda. After measuring the water values we went to the reef 20 m into the depth outside of the lagoon. ALL the fish species present, even the shy butterflyfish species, gladly accepted the JBL MariPearls offered. The behaviour of the reef and lemon sharks there was interesting. They could smell the food, but couldn't see it because of its small size.

Great Barrier Reef/Australia – East Coast
A short trip to the world's longest coral reef should provide us with information on the water values, which we wanted to compare with the values in California and the South Seas. Shortly after our departure the Barrier Reef was hit by a disastrous water heating (not caused by the El Niño phenomenon) with the effect that 2/3 of all corals died off. Seems to be easy for us to demolish our planet....

Atherton Tablelands/Australia – North East
In the tropical rainforests we studied the biotopes of the rivers, streams and forests. The "bee shrimps" in a stream and the variety of the lizards in the jungle were of particular interest.

Outback/Australia – Central
Australia's red heart welcomed us with millions of flies. But the diversity of the landscape with dry areas, waters in canyons (gorges) and crystal-clear streams was unbelievable. Our destination was the biotopes of the rainbow fish and many lizard species.

Darwin-Litchfield/Australia – The Tropical North
The nature reserves in the north, which are well-known for their large saltwater crocodiles, marked the end of the Australia trip. In crocodile-free waters we were able to collect a lot of biotope data, but also do some interesting underwater feeding.

California, South Seas, Australia Salt water

	Catalina Island	Moorea	Great Barrier Reef
Temp. (°C)	22	26	27
pH	8	7,6	8,0 - 8,2
KH (°dKH)	9	7	5
Ca (mg/l)	360	380	400
Mg (mg/l)	1084	1160	1160
Density	1,0235	1,0235	1,0243

Australia Freshwater biotopes

	Ormiston Gorge	Kathleen Springs	Babinda Creek
Temp. (°C)	25	24	24
pH	< 2	> 15	< 2
KH (°dKH)	6	5	2
GH (°dGH)	3	6	2
O_2 (mg/l)	6	6	6
Cond. (µS/cm)	343	539	44

Australia Freshwater biotopes

	Tully Gorge	Rainforest Lodge	Lake Eacham	Lake Barrine	Emerald Creek	Glen Helen Gorge	Gunlom Falls	Wangi Falls
Temp. (°C)	20	21	23	24	21,5	22,3	28	30
pH	6,5	6	7	7	7	8	6	< 6
KH (°dKH)	3	3	1	2	2	11	1	0,5-1
GH (°dGH)	1	2	1	2	2	> 36	1	0,5-1
O_2 (mg/l)	5	3	6	10	10	5	8	4
Cond. (µS/cm)	38	58	52	77	47	5230	13	14





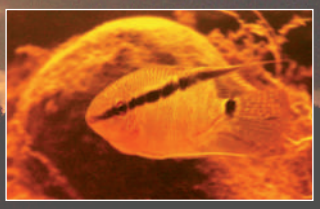




In April the 50 team members went first to the Orinoco Delta and afterwards to the famous table-top mountains in the south of Venezuela.

In April the 50 team members went first to the Orinoco Delta and afterwards to the famous table-top mountains in the south of Venezuela.

In the Orinoco Delta our camp was a simple jungle lodge on piles in the river. We spent the night in hammocks under mosquito nets and took daily boat trips to make studies of various biotopes. We were amazed by the way soft water plecos and algaevorous snails, which need marine water to reproduce, cohabited. Hugely impressive was the sheer range of animal variety, from piranhas to anacondas. We spent the days until late into the night out in small groups, looking for animals and gathering measurement data. Even deep mud holes didn't stop us from penetrating any waters where we could expect to meet some interesting fish species.
We deep-flew into the south to the table-top mountains in small Cessnas, with doors that didn't close properly and instruments that didn't display anything. From Canaima we went far up the river Carrao in longboats. Unfortunately the water level was too low for an onward journey to the Salto Angel, the world's highest waterfall. Sightseeing flights gave us the opportunity to experience the impressive waterfall from a height of 1000 m. The coffee brown but clear blackwater of the Canaima lagoon and the nearby rivers offered intensive snorkeling opportunities for everyone to observe tetras, cichlids and catfish under water. The rainforest between the majestic table-top mountains was full of lizards, snakes and poison dart frogs (D. leucomelas).

















	Orinoco								Canaima
	Hauna= Waterlilies Camp	River bank	Eco-Camp	River bank	Narrow river	River bank	River bank	Cow pond	Lagoon
Temp. (°C)	27,8	28	29	27	28,3	28,4	28,6	33	28
pH	4,5		6	6,2		6	6	7,2	5
KH (°dKH)	0	2	< 1	2	2	2,0	2	8	0
GH (°dGH)	28	21	< 1	2	2	0,25	0,25	< 3	0
O_2 (mg/l)	8		10	6		8-10	10		8
Cond. (µS/cm)			67	97	71	75	77	386	9

Shark Workshop 2018

Eleuthera/Bahamas

























This workshop gave EVERYONE taking part some of the most memorable experiences of their lives and for many of us, this is saying a lot! We have all seen sharks in the past: sometimes one, sometimes a few of them and mostly more than two meters away. But to snorkel and dive between 20 sharks, to be jostled and pushed aside by them, was incredible.

It started with our first dive or snorkel with the sharks (Caribbean reef sharks), before we learned something about the body language of sharks from the shark expert Dr. Erich Ritter that evening. Erich showed us that a slightly opened mouth indicates that the shark is relaxed, how we can tell which direction the shark is going to take by the lowering of a pectoral fin and how to maintain eye contact to the shark, so that the shark also maintains eye contact to us. During the following encounters with the 20 plus sharks present, we gradually came to understand more and more about their body language and to interact with them. When we fed them we learnt that there is no bloodlust between sharks – just jealousy about food. They are totally indifferent to human blood – but not to fish blood. Between shark interactions, free diving world record holder Christian Redl taught us how to double the time we could hold our breath to interact even better with the shy water dwellers. We noticed how the sharks were highly interested in electronic devices like underwater flash units and GoPro cameras (electromagnetic impulses) and how they perceived us only as obstacles in their way. While snorkelling we learned to maintain a vertical position in the water, in order to be more mobile around the body axis and to keep an eye on the sharks. This is also the most important preventive measure for an unexpected shark encounter in the sea. Accidents do not happen because the sharks are dangerous, but because of the given circumstances.

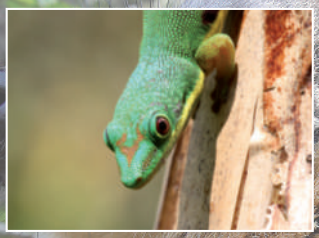


Bahamas Salt water	
	Cape Eleuthera
Temp. (°C)	29,4
pH	8,2
KH (°dKH)	8
Ca (mg/l)	440
Mg (mg/l)	1360
Density	1,024
Cond.(µS/cm)	54,6

Expedition 2018 **Madagascar**

















Due to their size of over 10 meters whale sharks aren't exactly the ideal aquarium inhabitants. This doesn't stop more and more public aquariums worldwide, from Atlanta/USA to Taiwan, from keeping whale sharks in aquariums. The JBL expedition team travelled to the north of Madagascar to see the behaviour of whale sharks in the wild and came to the conclusion that while their nutrition in the aquarium may not be a problem, the aquariums, no matter how big they are, always constitute a tiny prison space for them.

Then we went to the central rainforests of Madagascar to take a closer look at the biotopes of the legendary chameleons, day geckos and frogs. The most important finding was that the humidity and temperatures vary enormously: from 29.4 °C with 59 % humidity at noon at 12:30 to 19.8 °C with 98 % at 21:30 in the evening. The habitats with these strongly fluctuating parameters were apparently ideal for an unbelievable abundance of animals. Accompanied by the screaming of the lemurs, the participants found a lot of frog and chameleon species, all the day gecko species living there, turtles and two snake species. We actually found the standard guides of the national parks more a hindrance than a help, as they were written for tourists and were full of tours through the jungle in search of prosimians, or sensationalist attempts to create attractions out of chameleons which had been relocated there for the tourists.

In Mauritius, we focussed on marine habitats. A comparison with Madagascar showed a lower biodiversity and also a scarcity of corals which could not be explained by the marine water parameters: Only the magnesium content of the marine water, at 1220 mg/l, was slightly lower than that of Madagascar (1340 mg/l) or the Seychelles (1300-1400 mg/l). The two wrecks Emily and Water Lilly, which sank in 1981/82 and are now resting on sandy soil at a depth of 25 m, also showed a correspondingly low growth of stony corals. The Acropora corals growing on the ship's wall had grown to only 40 cm in the past 37 years. In other places and in the aquarium the growth is higher to the factor of 10!

At the end of the JBL expedition, the team travelled to the Seychelles, just below the equator. Above water the islands looked absolutely fantastic, but underwater they were nothing special. Although the coral growth and biodiversity were significantly higher than in Mauritius, they lie nowhere near the diversity level of the Maldives, which lie only 2000 km northeast in the same ocean.

This JBL expedition made it clear that marine diversity cannot be determined by water values, it depends very much on geographical conditions. The Caribbean is clearly species-poor, the Indo-Pacific region has the most species in the world, and the extensive regions of the Pacific (South Sea) are very species-poor.



Mauritius

Seychelles































Saltwater			
	Madagascar Nosy Be	Mauritius	Seychelles La Digue
Temp. (°C)	30,7	27,7	30
pH	8,2	8,2	8,3
KH (°dKH)	8	8	9
Ca (mg/l)	460	460	380
Mg (mg/l)	1340	1220	1400
Cond. (µS/cm)	53,1	53,7	53,9

Brackish water	
	Seychelles La Digue
Temp. (°C)	30
pH	8
KH (°dKH)	6,5
Ca (mg/l)	400
Mg (mg/l)	1400
Cond. (µS/cm)	38

Freshwater	
	Madagascar Matsinjo
Temp. (°C)	20
pH	6,5
KH (°dKH)	0
GH (°dGH)	0
Fe (mg/l)	0,1
Cond. (µS/cm)	19



Expedition 2019

Japan – Niigata/Southern Ryukyu Islands







In October 2019 40 participants will probably join the JBL expedition with the most variety of all. After a short sightseeing tour in Tokyo we will go to the northwest of the main island Honshu, to visit the koi breeders in the mountains of the prefecture Niigata. Thanks to our cordial relations with some of the most famous koi breeders our team members will have the opportunity to measure the water values in their facilities and to ask the breeders questions.

To get an impression of Japanese culture we will visit Nikko. We'll see some very old, almost dilapidated temple complexes and some very well preserved ones too, as well as some Shinto shrines and a tea ceremony.

Worth seeing are also the Kegon Waterfalls and a mountain river, which might attract any group members insensitive to the cold for a snorkeling observation of native fish and invertebrates.

For the next destination we will be flying from Tokyo to reach the Ryukyu Islands about 2,000 km to the south. Situated around the island Ishigaki there are coral reefs with an astonishing diversity. There we will snorkel or dive to carry out marine water analyses and light measurements under water. Along with interesting observations of the coral growth we will be able to observe a gratifying number of sea snakes and mantas.

There are hardly any roads in the neighbouring island Iriomote but all the more untouched rainforest with crystal-clear small rivers. There we will work our way up from the brackish water area of the mangroves with mudskippers and puffer fish through a river with about 23 °C water temperature to a waterfall. In doing that we will go snorkeling to observe beautiful goby species and lots of shrimps. In the surrounding rainforest terrarium enthusiasts will get their money's worth, and be able to watch lizards, frogs, interesting insects and spiders.
After two days our two groups of 16 will swap islands, so that there are never more than 16 participants (usually working in smaller groups) in one place (or diving boat).

Expedition 2021

Preview

Colombia







To see altum angelfish and cardinal tetras in clearwater

Clear jungle rivers, many interesting fish species, indigenous villages and aquatic research are the highlights of this exciting JBL expedition at the end of January - beginning of February 2021 for about € 1900 (incl. flights). For ten days four boats, each with teams of 8 people on board, will leave Inirida to visit various habitats.

Before we take a smaller plane to the east of Colombia to the Venezuelan border, we will spend the night in Bogota, the capital of Colombia. The next morning we'll all fly to Puerto Inirida in the lowland rainforest.

We'll be going in boats to regions 30 minutes to 3 hours away in the middle of the rain forest. Rivers such as the Rio Inirida or the Rio Atabapo flow towards Orinoco, forwarding very clear blackwater and forming the habitat of huge numbers of ornamental fish species familiar to us from our aquariums.
We'll be staying the night with indigenous people, who'll also be preparing our meals. The food is sure to be tasty and inanimate! There won't be a McDonalds anywhere! We will be fully integrated into the village life of the locals and we'll receive an intimate knowledge of their lifestyles.
A very special habitat will be the large boulders in the Rio Atabapo. Dr. Wolfgang Staeck found very beautiful L number catfish species during his trip there.
In other biotopes we'll find banded cichlids (Heros species), dwarf cichlids (Apistogramma species), altum angelfish (Pterophyllum altum), cardinal tetras (Paracheirodon axelrodi), flag cichlids (Mesonauta insignis), Crenicichla species and many more. Dr. Wolfgang Staeck will be present on site and help us determine them.
Terrarium animal lovers will also get their heart's desire. The rainforests along the riverbank are home to countless interesting terrarium animals, from tarantulas to lizards and snakes. In the waters live caimans and turtles. One of our expedition tasks will be to determine the biotope data.

JBL PRODUCTS



VORSPRUNG DURCH FORSCHUNG
AHEAD THROUGH RESEARCH



JBL ProScan
Water test with analysis via smartphone
- Water analysis and diagnosis via smartphone: easy control of the values. GH, KH, pH, NO2, NO3, Cl and CO2 calculation
- The new generation of analysis: download app, insert strip, position on colour chart, scan, read values
- Fast diagnosis – precise results: test value results are additionally evaluated (good/medium/poor)
- Compatible with iPhone and iPad: iOS 7.0 or higher, Android 4.0 or higher and a camera with autofocus needed
- Contents: 1 pack ProScan with 24 water analysis strips, 1 colour chart, 1 ProScan app to download free of charge

Art. no. **25420**

Content 24 Tests





JBL ProScan Recharge
Refill test strips for analysis via smartphone
- Water analysis and diagnosis via smartphone: easy control of the values. GH, KH, pH, NO2, NO3, Cl and CO2 calculation
- The new generation of analysis: download app, insert test strip, position strip on colour chart, scan, read values
- Fast diagnosis – precise results: test value results are additionally evaluated (good/medium/poor)
- Compatible with iPhone and iPad: iOS 5.0 or higher, Android 4.0 or higher and a camera with autofocus needed
- Contents: 1 pack ProScan Recharge with 24 water analysis strips

Art. no. **25421**

Content 24 Tests





JBL ProAquaTest pH 3.10-10.0
Quick test to determine the acidity
- Simple and reliable monitoring of the water values. Determines the ideal pH value in fresh and marine water
- Quick test: fill plastic cuvette with sample water, add reagent, read sample value off colour chart
- When to use: for setting up a new aquarium: daily for one week, afterwards weekly
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Package contents: 1 complete set with one reagent pH 3.0-10.0, 1 cuvette and 1 colour card; contents for approx. 50 measurements

Art. no. **24101** **24102**

For 50 Tests Refill





JBL ProAquaTest pH 7.4-9.0
pH test for aquariums and ponds in the range 7.4-9.0
- Simple monitoring of the water values in ponds and aquariums. Determines the perfect pH value in fresh and marine water
- Laboratory comparator system to compensate inherent water colouring: read off sample water & reagent on chart in holder
- When to use: for setting up a new aquarium: daily for one week, afterwards weekly
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contents: quick test with 1 reagent, approx. 80 measurements, incl. glass vials, syringe, comparator block, colour chart

Art. no. **24105** **24106**

For 80 Tests Refill





JBL ProAquaTest GH General Hardness
Quick test to determine the general hardness
- Simple and reliable monitoring of water values. Determines the ideal general hardness in freshwater aquariums & ponds
- Colour change test: add reagent drop by drop until colour changes from red to green. Number of drops = general hardness
- When to use: for setting up a new aquarium: once a week, afterwards once a month
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Package contents: 1 GH quick test, incl. one reagent and plastic cuvette. Reagent refill separately available

Art. no. **24108** **24109**

Set Refill





JBL ProAquaTest KH Carbonate Hardness
Quick test to determine the carbonate hardness (KH)
- Monitoring of water values. Determination of the optimal carbonate hardness in freshwater & marine aquariums & in ponds
- Colour change test: add reagent drop by drop until the colour changes from blue to yellow. Number of drops = KH level
- When to use: for setting up a new aquarium: once a week
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Package contents: 1 KH quick test, incl. one reagent and plastic cuvette. Reagent refill separately available

Art. no. **24110** **24111**

Set Refill





JBL ProAquaTest O2 Oxygen
Quick test to determine the oxygen content
- For freshwater and marine aquariums and ponds. Indicates whether measures to increase the O2 content need to be taken
- Quick test to monitor the aeration: add reagents, read sample value off colour chart
- Use: once a week in newly set up aquariums & during oxygen deficiencies. Clear colour indication from yellow to wine-red
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Package contents: 1 oxygen quick test for approx. 40 measurements, incl. 3 reagents, syringe, glass vial & colour chart

Art. no. **24112** **24113**

For 40 Tests Refill





JBL ProAquaTest Cu Copper

Quick test to determine the copper content

- Reliable monitoring of water values. Determines the copper value and monitors heavy metals in aquariums & ponds
- Comparator takes inherent water colouring into account: fill water into cuvettes, add reagent in 1 cuvette, read value
- Use: when setting up a new aquarium, in cases of invertebrate and fish deaths and when dosing copper-bearing medications
- Find detailed information and troubleshooting tips about water analysis on JBL website in Essentials/ Aquarium or Pond
- Contents: Cu test for approx. 50 measurements, incl. 2 reagents, 2 glass vials, syringe, comparator block, colour scale

Art. no.
24114
24115

For
50 Tests
Refill





JBL ProAquaTest Fe Iron

Quick test to determine the iron content in the water

- Simple monitoring of the water values. Determines the perfect iron content to check the fertilisation in aquariums/ponds
- Comparator system: fill 2 cuvettes with water, add reagent to 1 cuvette, read colour value of sample off colour chart
- Use: 1x after setting up a new aquarium, then weekly. In case of green algae problems or when plants don't grow properly
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contents: 1 Fe test for approx. 50 measurements, incl. reagent, 2 glass vials, syringe, comparator block & colour scale

Art. no.
24116
24117

For
50 Tests
Refill





JBL ProAqua NH4 Ammonium test

Quick test to determine the ammonium/ammonia content

- Monitors the biological balance (bacterial activity) of NH4/NH3 in freshwater and marine water
- Comparator takes inherent water colouring into account: fill water into cuvettes, add reagent in one cuvette, read value
- Use: when setting up a new freshwater aquarium: once a day. Initial setup with marine water: once a week
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contents: ammonium test, for approx. 50 measurements, incl. glass vials, syringe, comparator block, colour chart & table

Art. no.
24121
24122

For
50 Tests
Refill





JBL ProAquaTest NO2 Nitrite

Quick test to determine the nitrite content

- Nitrite is a toxic nitrogen compound, formed when the bacterial balance is disturbed or in newly set up aquariums
- Comparator takes inherent water colouring into account: fill water into cuvettes, add reagent in one cuvette, read value
- Use: when setting up a new freshwater aquarium: daily for 3 weeks. For initial setup with marine water: once a week
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contents: 1 nitrite test for about 50 measurements, incl. 2 reagents, 2 vials, syringe, comparator block, colour scale

Art. no.
24123
24124

For
50 Tests
Refill





JBL ProAquaTest NO3 Nitrate

Quick test to determine the nitrate content

- Determines optimal nitrate value for perfect plant growth or possible cause of algae growth in freshwater & marine water
- Comparator takes inherent water colouring into account: fill water into cuvettes, add reagent in one cuvette, read value
- Use: For initial setup with fresh or marine water: once a week
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contains test kit for about 40 measurements, incl. 2 reagents, 2 cuvettes, syringe, spoon, comparator block, color scale

Art. no.
24125
24126

For
40 Tests
Refill





JBL ProAquaTest PO4 Phosphate sensitive

Quick test to determine the phosphate content

- Determines phosphate value for perfect plant growth or possible cause of algae growth in freshwater/marine water & ponds
- Comparator takes inherent water colouring into account: fill water into cuvettes, add reagent in 1 cuvette, read value
- Use: when setting up a new freshwater or marine aquarium: once a week. With algae problems and for checking tap water
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/Aquarium or Pond
- Contains test for approx. 50 measurements, incl. 2 reagents, 2 cuvettes, syringe, spoon, comparator block, colour scale

Art. no.
24127
24128

For
50 Tests
Refill





JBL Easy Test 7 in1

Test strips for quick aquarium water testing

- Test strips for testing 7 important water values in 1 minute: quick test for aquarium, pond, well and tap water
- Easy to use: dip into the water for 3 seconds, drain off & compare on colour scale. Read CO2 value off table
- Determination of: Cl, acidity (pH), general hardness (GH), nitrite (NO2), nitrate (NO3) carbonate hardness (KH), CO2
- Further tests for phosphate or ammonium/ammonia etc. are available as individual tests in the JBL program
- Package contents: test strips EasyTest 7 in 1 with colour scale and CO2 table. Contents: 50 test strips

Art. no.
24144

Content
50 Tests





JBL ProScape Cleaning Glove

Aquarium cleaning glove

- Removal of algae growth and deposits: aquarium glove with metal threads for the cleaning of glass panes and objects
- Easy handling: put on glove, clean by rubbing on the desired area
- Cleans all corners, technical items and pumps perfectly; easy removal of algae
- Care of glove: rinse in lukewarm water and dry out of direct sunlight
- Package contents: 1x aquarium glove

Art. no.	Content
61379	1 Piece





JBL ProCristal UV-C Compact Plus 18 W

Comp. UVC water clarifier 18W against water cloudiness

- Cristal-clear and healthy water: quick and efficient elimination of greenish and whitish cloudiness
- Space-saving: connect to ext. filter/pump. Inlet & outlet positioned for practical use. Installation length: min. 42 cm
- Germ-killing UVC radiation, reduces risk of infection, no change of water values. Guarantee: 2+2 years
- TÜV tested, safety switch: switches off when the device is opened, 2-glass-cylinder design, LED function indicator light
- UV-C device, 5 m cable, UV-C bulb 18 W, wall mount, V2A screws, nozzle hose connections for 12 - 40 mm hoses

Art. no.	Length	Performance
60470	42 cm	18 W





JBL ProCristal UV-C Compact Plus 36 W

Comp. UVC water clarifier 36W against water cloudiness

- Cristal-clear and healthy water: quick and efficient elimination of greenish and whitish cloudiness
- Space-saving: connect to ext. filter/pump. Inlet and outlet positioned for practical use. Installation length: min. 61cm
- Germ-killing UVC radiation, reduces risk of infection, no change of water values. Guarantee: 2+2 years
- TÜV tested, safety switch: switches off when the device is opened, 2-glass-cylinder design, LED function indicator light
- UV-C device, 5 m cable, UV-C bulb 18 W, wall mount, V2A screws, nozzle hose connections for 12 - 40 mm hoses

Art. no.	Length	Performance
60473	56,5 cm	36 W





JBL Fish Net, coarse

Wide-mesh premium aquarium net

- Gentle capture of aquarium fish: wide-meshed aquarium net with black net.
- Use in fresh and saltwater aquariums.
- Black net fabric makes catching fish easier, extra durable nylon netting
- Available in various sizes. The 15 cm wide net is also available with 41 cm long handle
- Sturdy reinforced handle for daily use

Art. no.	Width	Length
61032	5,5-6 cm	31 cm
61033	8 cm	31 cm
61034	10 cm	33 cm
61035	12 cm	35 cm
61036	15 cm	43 cm
61039	15 cm	54 cm
61037	20 cm	50,5 cm
61038	25 cm	54 cm





JBL aquarium hose GREY on reel

Grey aquarium hose, wound on reel

- Multi-purpose aquarium hose for water change, filters etc.
- Grey tinted, transparent hose, free of heavy metals
- Data printed on hose: dimensions and EAN barcode
- Available as air hose or water hose in various diameters
- Contents: 1 plastic reel with rolled up (non-kinked) hose. Colour: transparent grey

Art. no.	Length	Ø
61120	200 m	4/6
61121	70 m	9/12
61122	50 m	12/16
61123	25 m	16/22





JBL ProHaru Universal 80ml

Universal adhesive for aquariums, terrariums and ponds

- For the bonding of decorations, panes, technical items, leaks and anything else
- Bonds above and under water. Non-toxic to animals and plants.
- Bonds glass, metal (aluminium), wood, plastic materials (except PE, PP), mineral materials etc.
- Also glues mosses and ferns to decorations
- 80 ml black universal adhesive in resealable tube

Art. no.	Content
61397	80 ml





JBL ProHaru Rapid

Instant adhesive gel for aquariums and terrariums

- Bonds plants, corals and small decorations
- Fixes moss, plants and coral pieces
- Hardens instantly
- Transparent colour
- 20 g in resealable tube with tip

Art. no.	Content
61399	20 g





JBL Silicone Spray

Care spray for technical aquarium/garden pond items

- Cares for all movable parts and seals of technical articles in the aquarium and garden pond
- Spray on moving parts, seals and O-rings
- Water-neutral silicone grease spray
- Water clear, odourless, long-term adhesion, CFC-free, free of oils and ecotoxic substances
- Contents: 1 pressurised gas cylinder with 400 ml content and spray head attachment for a precise, fine stream

Art. no.	Content	Content
61395	223 g	400 ml





JBL Turtle Food

Main food with crayfish for turtles

- Especially for the dietry needs of turtles and pond terrapins: natural food with food sticks containing fish
- Excellent palatability: natural food made of gently dried crustaceans, water insects and sticks
- Healthy shell growth thanks to natural calcium content in the shells of the crustaceans, no water contamination
- High-quality ingredients, feed formulation created by practical research, no processing of cheap fishmeal
- Can be stored for 3 years unopened, use within 3 months after opening

Art. no.	Size	Weight
70362	100 ml	11 g
70363	250 ml	30 g
70364	1000 ml	120 g
70365	2500 ml	300 g





Feeding ProPond > Seasons > Winter

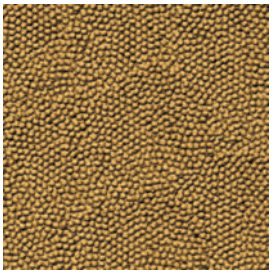


JBL ProPond Winter S

Winter food for small koi

- Right protein/fat ratio 2:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, fish oil, shrimp and corn for vigorous and healthy koi (at 5 -15 °C water temperature)
- Food size S (3 mm) for fish from 15-35 cm
- Sinking food pearls with 18 % protein, 11 % fat, 2 % crude fibre and 6 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41340	1 l	0,6 kg
41341	3 l	1,8 kg



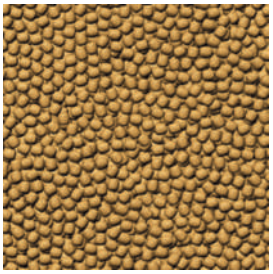


JBL ProPond Winter M

Winter food for medium-sized koi

- Right protein/fat ratio 2:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, fish oil, shrimp and corn for vigorous and healthy koi (at 5 -15 °C water temperature)
- Food size M (6 mm) for fish from 35-55 cm
- Sinking food pearls with 18 % protein, 11 % fat, 2 % crude fibre and 6 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41202	3 l	1,8 kg
41203	6 l	3,6 kg



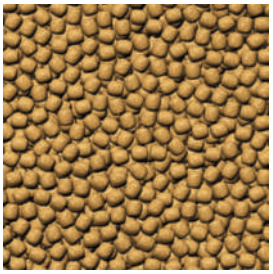


JBL ProPond Winter L

Winter food for large koi

- Right protein/fat ratio 2:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, fish oil, shrimp and corn for vigorous and healthy koi (at 5 -15 °C water temperature)
- Food size L (9 mm) for fish 55-85 cm.
- Sinking food pearls with 18 % protein, 11 % fat, 2 % crude fibre and 6 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41207	6 l	3,6 kg



Feeding ProPond > Seasons > Spring



JBL ProPond Spring S

Spring food for small koi

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, soya, shrimps, wheat, spinach and spirulina for vigorous and healthy koi (at 10-20 °C water temperature)
- Food size S (3 mm) for fish from 15-35 cm
- Floating food wafers with 25 % protein, 8 % fat, 3 % crude fibre and 8 % crude ash.
- Food wafers in resealable bag (air, water and lightproof) for the preservation of quality.

Art. no.	Size	Weight
41353	1 l	0,36 kg
41209	3 l	1,1 kg
41210	6 l	2,1 kg





JBL ProPond Spring M

Spring food for medium-sized koi

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, soya, shrimps, wheat, spinach and spirulina for vigorous and healthy koi (at 10-20 °C water temperature)
- Food size M (6 mm) for fish from 35-55 cm
- Floating food wafers with 25 % protein, 8 % fat, 3 % crude fibre and 8 % crude ash
- Food wafers in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41215	3 l	1,1 kg
41216	6 l	2,1 kg
41217	12 l	4,2 kg
41218	24 l	8,4 kg



Feeding ProPond > Seasons > Summer



JBL ProPond Summer S

Summer food for small koi

- Right protein/fat ratio 4:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With corn, salmon, soya, shrimp, gammarus and spirulina for vigorous and healthy koi (at 20-30 °C water temperature)
- Feed size S (3 mm) for fish from 15-35 cm. Without artificial colouring = clear & clean water
- Floating food pearls with 28 % protein, 7 % fat, 3 % crude fibre and 8 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41222	1 l	0,34 kg
41223	3 l	1 kg
41224	6 l	2,0 kg
41225	12 l	4,1 kg
41226	24 l	8,2 kg



Feeding ProPond > Seasons > Summer



JBL ProPond Summer M

Summer food for medium-sized koi

- Right protein/fat ratio 4:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With corn, salmon, soya, shrimp, gammarus and spirulina for vigorous and healthy koi (at 20-30 °C water temperature)
- Feed size M (6 mm) for fish from 35-55 cm. Without artificial colouring = clear & clean water
- Floating food pearls with 28 % protein, 7 % fat, 3 % crude fibre and 8 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41228	3 l	1,0 kg
41229	6 l	2,0 kg
41230	12 l	4,1 kg
41231	24 l	8,2 kg



Feeding ProPond > Seasons > Autumn



JBL ProPond Autumn S

Autumn food for small koi

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, fish oil and krill for vigorous and healthy pond fish (at 10-20 °C water temperature)
- Food size S (3 mm) for fish 15-35 cm.
- Sinking wafers with 28 % protein, 10 % fat, 2 % crude fibre and 6 % crude ash
- Food wafers in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41354	1 l	0,5 kg
41237	3 l	1,5 kg
41238	6 l	3,0 kg





JBL ProPond Autumn M

Autumn food for medium-sized koi

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, fish oil and krill for vigorous and healthy pond fish (at 10-20 °C water temperature)
- Food size M (6 mm) for fish from 35-55 cm
- Sinking wafers with 28 % protein, 10 % fat, 2 % crude fibre and 6 % crude ash
- Food wafers in resealable bag (air, water and lightproof) to preserve the quality

Art. no.	Size	Weight
41241	3 l	1,5 kg
41242	6 l	3,0 kg



Feeding ProPond > Seasons > All-season

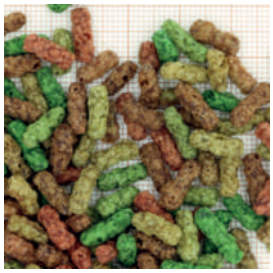


JBL ProPond All Seasons S

All-season food for small koi & pond fish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, spinach and spirulina for vigorous and healthy pond fish (at 10-25 °C water temperature)
- Food size S (8 mm) for fish 15-35 cm.
- Floating sticks with 24 % protein, 7 % fat, 4 % crude fibre and 8 % crude ash
- Food sticks in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41246	1 l	0,18 kg
41247	3 l	0,5 kg
41245	5,5 l	1 kg
41248	6 l	1,1 kg
41249	12 l	2,2 kg
41250	24 l	4,3 kg
41251	32 l	5,8 kg



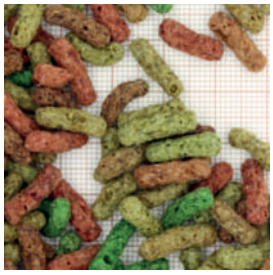


JBL ProPond All Seasons M

All-season food for koi and pond fish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, spinach and spirulina for vigorous and healthy pond fish (at 10-25 °C water temperature)
- Food size M (14 mm) for fish 35-55 cm.
- Floating sticks with 24 % protein, 7 % fat, 4 % crude fibre and 8 % crude ash
- Food sticks in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41254	3 l	0,5 kg
41255	6 l	1,1 kg
41256	12 l	2,2 kg
41257	24 l	4,3 kg
41258	32 l	5,8 kg
41259	42 l	7,5 kg



Feeding ProPond > Spezial > Goldfish

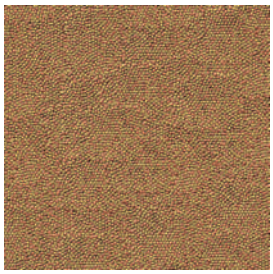


JBL ProPond Goldfish XS

Food pearls for small goldfish

- Complete food with the right protein/fat ratio 3:1 in accordance with the NEO index for all season feeding
- With wheat, salmon, shrimps & spinach for vigorous and healthy goldfish throughout the year (10-30 °C water temperature)
- Food size XS (1.5-2mm) for fish from 5-15 cm. Also for veiltails and other goldfish breeds
- Floating food pearls with 20 % protein, 6 % fat, 3 % crude fibre and 9 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41355	1 l	0,14 kg
41356	3 l	0,4 kg



Feeding ProPond > Spezial > Goldfish



JBL ProPond Goldfish S

Food sticks for small goldfish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, shrimp and spinach for vigorous and healthy goldfish (at 10-30 °C water temperature)
- Food size S (8 mm) for fish 5-15 cm.
- Floating sticks with 20 % protein, 6 % fat, 3 % crude fibre and 9 % crude ash
- Food sticks in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41262	3 l	0,4 kg
41263	6 l	0,8 kg
41264	12 l	1,7 kg



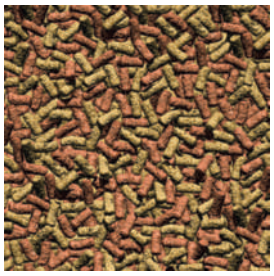


JBL ProPond Goldfish M

Food sticks for medium-sized to large goldfish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, salmon, shrimp and spinach for vigorous and healthy goldfish (at 10-30 °C water temperature)
- Food size M (14 mm) for fish from 15-35 cm
- Floating sticks with 20 % protein, 6 % fat, 3 % crude fibre and 9 % crude ash
- Food sticks in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41266	3 l	0,4 kg
41267	6 l	0,8 kg
41268	12 l	1,7 kg



Feeding ProPond > Spezial > Sterlet

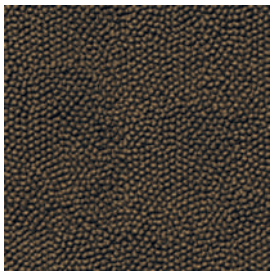


JBL ProPond Sterlet S

Complete food for small sterlets

- Right protein/fat ratio 6:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, octopus, spirulina and gammarus for a natural diet for sterlets (at 10-25 °C)
- Food size S (3 mm) for fish from 10-30 cm
- Sinking pearls with 40 % protein, 12 % fat, 2 % crude fibre and 8 % crude ash
- Small food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41276	1 l	0,5 kg
41277	3 l	1,5 kg
41278	6 l	3,0 kg
41279	12 l	6,0 kg



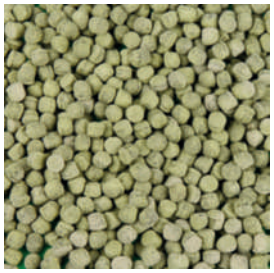


JBL ProPond Sterlet M

Complete food for medium-sized sterlets

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, octopus, spirulina and gammarus for a natural diet for sterlets (at 10-25 °C)
- Food size M (6 mm) for fish 30-60 cm.
- Sinking pearls with 40 % protein, 12 % fat, 2 % crude fibre and 8 % crude ash
- Medium-sized food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41282	6 l	3,0 kg
41283	12 l	6,0 kg





JBL ProPond Sterlet L

Complete food for large sterlets

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, octopus, spirulina and gammarus for a natural diet for sterlets (at 10-25 °C)
- Food size L (9 mm) for fish from 60-90 cm
- Sinking pearls with 40 % protein, 12 % fat, 2 % crude fibre and 8 % crude ash
- Large food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41285	6 l	3,0 kg
41286	12 l	6,0 kg



Feeding ProPond > Spezial > Biotope

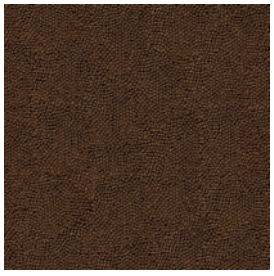


JBL ProPond Biotope XS

Pond food for all biotope fish

- With right protein/fat ratio 4:1 in accord. with NEO index, taking temperature, function, animal size & age into account
- For biotope fish, such as sunbleak, gudgeon, stickleback, minnow etc. (at 10-30 °C water temperature)
- Food size XS (1.5 mm) for fish from 5-15 cm
- Sinking food pearls with 34 % protein, 8 % fat, 4 % crude fibre and 12 % crude ash
- Food pearls in resealable (air, water and lightproof) plastic tin for the preservation of quality

Art. no.	Weight	Size
41362	0,53 kg	1 l



Feeding ProPond > Spezial > Flakes



JBL ProPond Flakes

Flake food for all pond fish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, gammarus, salmon, shrimp, and seaweed for vigorous and healthy pond fish (at 10-30 °C water temperature)
- Food size M (5-20 mm) for fish from 10-35 cm
- Floating flakes with 12 % protein, 4 % fat, 1 % crude fibre and 2 % crude ash
- Complete food in resealable (air, water and lightproof) bag for the preservation of quality

Art. no.	Size	Weight
41270	1 l	0,13 kg
41271	5,5 l	0,72 kg



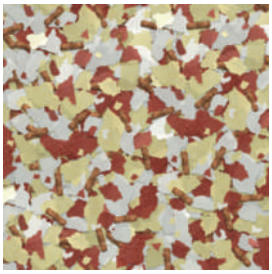


JBL ProPond Vario

Food mix for all pond fish

- Right protein/fat ratio 3:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With wheat, gammarus, salmon, shrimp, and seaweed for vigorous and healthy pond fish (at 10-30 °C water temperature)
- Food size M (5-20 mm) for fish from 10-35 cm
- Floating sticks & flakes with 23 % protein, 7 % fat, 4 % crude fibre and 11 % crude ash
- Complete food in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41273	1 l	0,13 kg
41274	5,5 l	0,72 kg



Feeding ProPond > Spezial > Growth

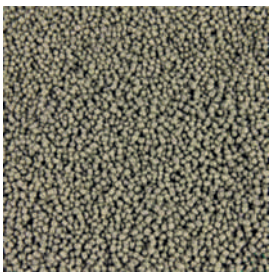


JBL ProPond Growth XS

Growth food for very small koi

- Right protein/fat ratio 6:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, spirulina, fish oil for optimal growth (at 15-25 °C water temperature)
- Food size XS (1.5 mm) for fish from 5-15 cm
- Floating pearls with 52 % protein, 9 % fat, 2 % crude fibre and 10 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41357	1 l	0,42 kg
41289	3 l	1,3 kg



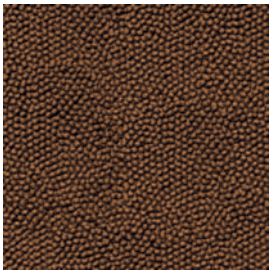


JBL ProPond Growth S

Growth food for small koi

- Right protein/fat ratio 5:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, spirulina, fish oil for optimal growth (at 15-25 °C water temperature)
- Food size S (3 mm) for fish from 15-35 cm
- Floating pearls with 46 % protein, 10 % fat, 2 % crude fibre and 10 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41293	3 l	1,3 kg
41294	6 l	2,5 kg



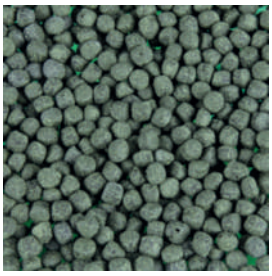


JBL ProPond Growth M

Growth food for medium-sized koi

- Right protein/fat ratio 5:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon, shrimp, spirulina, fish oil for optimal growth (at 15-25 °C water temperature)
- Food size M (6 mm) for fish from 35-55 cm
- Floating pearls with 46 % protein, 10 % fat, 2 % crude fibre and 10 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41297	6 l	2,5 kg
41298	12 l	5,0 kg



Feeding ProPond > Spezial > Colours



JBL ProPond Color S

Colour enhancing food for small koi

- Right protein/fat ratio 4:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon meal, shrimp, soya and astxanthin for perfect colours (at 15-25 °C water temperature)
- Food size S (3 mm) for fish from 15-35 cm
- Floating pearls with 36 % protein, 9 % fat, 3 % crude fibre and 9 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41359	0,42 kg	1 l
41305	3 l	1,3 kg
41306	6 l	2,5 kg
41307	12 l	5,0 kg



Feeding ProPond > Spezial > Colours



JBL ProPond Color M

Colour enhancing food for medium-sized koi

- Right protein/fat ratio 4:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon meal, shrimp, soya and astxanthin for perfect colours (at 15-25 °C water temperature)
- Food size M (6 mm) for fish from 35-55 cm
- Floating pearls with 36 % protein, 9 % fat, 3 % crude fibre and 9 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41310	3 l	1,3 kg
41311	6 l	2,5 kg
41312	12 l	5,0 kg





JBL ProPond Color L

Colour enhancing food for large koi

- Right protein/fat ratio 4:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- With salmon meal, shrimp, soya and astxanthin for perfect colours (at 15-25 °C water temperature)
- Food size L (9 mm) for fish from 55-85 cm
- Floating pearls with 36 % protein, 9 % fat, 3 % crude fibre and 9 % crude ash
- Food pearls in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41315	6 l	2,5 kg
41316	12 l	5,0 kg



Feeding ProPond > Goody (treat) > Silkworms & Shrimp



JBL ProPond Silkworms

Silkworm Goody for koi

- Right protein/fat ratio 5:1 in accord. with NEO index which takes temperature, function, animal size, age into account
- Silkworms with salmon, gammarus, spirulina and seaweed for a complete nutrition (at 15-25 °C water temperature)
- Food size M (15 mm) for fish from 15-85 cm
- Floating food in silkworm shape and ideal composition with 44 % protein, 9 % fat, 2 % crude fibre and 10 % crude ash
- Contains: shrimp extrudate in resealable bag (air, water and lightproof) for the preservation of quality

Art. no.	Size	Weight
41360	1 l	0,34 kg
41331	3 l	1 kg





JBL ProPond Shrimp

Shrimp Goody for koi

- Treats with the right protein/fat ratio 4:1, which takes temperature, function, animal size, age into account
- Shrimp with salmon, wheat germs, krill and spirulina for a complete nutrition (at 15-25 °C water temperature)
- Food size M (15 mm) for fish from 35-85 cm
- Floating food in shrimp shape and ideal composition: 38 % protein, 10 % fat, 2 % crude fibre and 10 % crude ash
- Contains: shrimp extrudate in resealable bag (air, water and lightproof) to preserve the quality

Art. no.	Size	Weight
41361	1 l	0,34 kg
41333	3 l	1 kg



Care products > Water maintenance



JBL StabiloPond Basis

Basic care product for all garden ponds

- Natural, biotope-like pond water balance: basic care product to stabilise the KH, GH and pH values in the pond
- Supplies minerals, stabilises the pH value, activates self-cleaning
- Supplies minerals, stabilises the pH value, activates self-cleaning
- The effectiveness of an anti-algae agent depends on a stabilised pH value
- Dosage: 100 g granulate for 1000 l pond water

Art. no.	Range	Content
27310	2500 l	0,25 kg
27311	10000 l	1 kg
27312	25000 l	2,5 kg
27313	50000 l	5 kg
27314	100000 l	10 kg





JBL FilterStart Pond

Bacteria starter for pond filters

- When using the filter for the first time, after filter cleaning or medication treatment: bacteria cultures to activate pond filters
- Healthy pond water: fast filter activation (within a few days) and service life extension of the pond filter
- Healthy pond filter: activates the filter quickly (within a few days) and prolongs the pond filter's service life.
- No risk for fish and plants, ecologically balanced: breaks down ammonium/ ammonia, nitrite and nitrate
- Dosage: 250 g granulate for 10.000 l pond water

Art. no.	Range	Content
27325	10000 l	0,25 kg



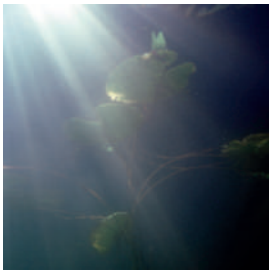


JBL AlgoPond Sorb

Biological algae blocker for the pond

- Crystal-clear water by reducing the algae growth – biological algae blocker for the pond
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Sunglasses effect: the reduction of light irradiation has a preventive effect against algae
- Active iodine and vital substances to promote the health of the fish, no decrease of the pH level or the hardness in the pond
- Dosage: 40 ml per about 700 - 800 l pond water

Art. no.	Range	Content
27362	10000 l	0,5 l
27363	50000 l	2,5 l





JBL SediEx Pond

Bacteria and active oxygen for the breakdown of sludge

- For water to suit both fish and plants: cleansing bacteria and active oxygen for the breakdown of pond sludge
- Easy to use: calculate required quantity, spread the granulate over the pond water, spread active oxygen
- Healthy pond water: breakdown of organic waste leads to the consumption of surplus nutrients
- Prevents fish loss, prevents algae, prevents decomposition processes at the bottom of the pond
- Dosing: component 1: 30-50 g/1000 l pond water; component 2: 50 g /1000 l pond water

Art. no.	Range	Content
27330	2500 l	0,25 kg
27331	10000 l	1 kg
27332	25000 l	2,5 kg

Use biocides safely. Always read the labelling and product information before use!





JBL CleroPond

Water clarifier for the elimination of water cloudiness

- For water to suit fish and plants: water clarifier for the removal of all types of clouding
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Immediate effect: flocculation of turbidity (collection via filter or pond vacuum cleaner)
- Harmless for fish, recognisable effect due to white cloud formation
- Dosage: 40 ml per approx. 700 - 800 l pond water

Art. no.	Range	Content
27350	10000 l	0,5 l
27351	50000 l	2,5 l





JBL ProAquaTest Combi Set Pond

Test case for water analyses in koi and garden ponds

- Simple & professional monitoring of the 6 important water values in garden ponds, spring water, tap water and well water
- Take a water sample, add indicator drop-wise, compare the resulting colour on the colour chart and read off the values
- With: pH (acidity) KH (pH stability), GH (minerals), ammonium (nitrogen), nitrite (toxin), phosphate (algae nutrient)
- Comparator system for easy and precise reading and for taking any inherent water colouring into account
- Complete, incl. water-proof case, colour charts, glass vials, syringe, dosing spoon, comparator block and test reagents

Art. no.		Content
24070		6 tests





JBL ProAquaTest Lab Koi

Professional test case for koi and garden ponds

- Monitors the 10 most important water values in aquariums simply and reliably in ponds & well and tap water
- Easy to use: syringe accurately measures the amount of water, detailed instructions
- Laboratory comparator system which takes inherent water colouring into account, analysis sheet, troubleshooting guide
- Childproof reagent bottles, waterproof plastic case, refillable kit
- Contains: case, reagents, cuvettes, syringes, measuring spoons, thermometer, comparator block, colour charts, pen

Art. no.		Content
24072		10 tests





JBL Pro AquaTest PondCheck pH/KH

Water test for the acidity & pH stability in ponds

- Determines the pH value and carbonate hardness in pond, tap and well water
- Easy to use: fill cuvette with water, add 5 drops of reagent, wait 1 minute, compare on colour chart
- The pH value should be 7.5-8.5. The KH stabilises the pH value and should be at least 4 ° dKH
- You will find detailed information and troubleshooting tips about water analysis on the JBL website in Essentials/Pond
- Contents: quick test, pH and KH test incl. 2 measuring tubes, pH reagent, KH reagent, colour scale and instructions

Art. no.		Content
24074		50 Tests



Care products > Water test



JBL Pro AquaTest PO4 Phosphat Koi

Phosphate test kit for garden and koi ponds

- Reliable monitoring of the water values in koi ponds: determines the algae nutrient phosphate from <0,1 up to 10 mg/l
- Use: to measure and routinely monitor the phosphate content
- Graduation of the measured phosphate values on the colour scale: <0.1; 0.25; 0.5; 1.0; 1.5; 2.0; 3.0; 5.0; 10 mg/l
- Find detailed information & troubleshooting tips about water analysis on the JBL website in Essentials/ Aquarium or Pond
- Contains: 1 test kit for 50 measurements, 2 reagents, 2 cuvettes, syringe, dosing spoon, comparator block & colour scale

Art. no.	Content
24076	50 Tests



Care products > Combating algae



JBL StabiloPond KH

pH balancer for garden ponds

- Natural balance: granulate to stabilise the pH value in the pond to between 7.5 and 8.5
- Easy to use: tells you the required quantity, you spread it on the pond
- Life insurance for fish and plants: prevents fish loss during algae blooms
- No risk for fish and plants: precise increase of carbonate hardness and absorption of heavy metals
- For first time use or at carbonate hardness 0: 200 g/1.000 l pond water; for repeated use: 100 g/1.000 l pond water

Art. no.	Range	Content
27317	2500 l	0,25 kg
27318	10000 l	1 kg
27319	25000 l	2,5 kg
27320	50000 l	5 kg
27321	100000 l	10 kg





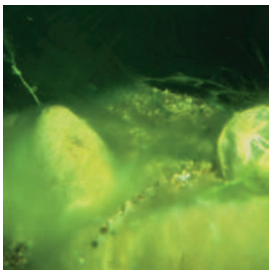
JBL AlgoPond Forte

Algaecide against all algae in the garden pond

- For water to suit both fish and plants: algaecide to combat all algae in the garden pond
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Quick treatment against green water and thread algae by affecting the algae's metabolism
- Does not contain any copper
- Dosage: 50 ml per about 1000 l pond water

Art. no.	Range	Content
27405	5000 l	0,25 l
27406	10000 l	0,5 l
27407	50000 l	2,5 l
27408	100000 l	5 l

Use biocides safely.
Always read the labelling and product information before use.





JBL AlgoPond Green

Water conditioner to combat floating algae

- For water to suit both fish and plants: water conditioner to combat floating algae (green water) in the pond.
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond.
- Reliable and fast: attacks and destroys algae cells within a few days.
- Harmless to fish when used correctly.
- Dosage: 25 ml per approx. 1000 l pond water. Repeat after 24 h

Art. no.	Range	Content
26064	5000 l	0,25 l
26065	10000 l	0,5 l
26066	50000 l	2,5 l
26067	100000 l	5 l

Use biocides safely.
Always read the labelling and product information before use.





JBL PhosEX Pond Filter

Phosphate remover for pond filters

- For pond water to suit both fish and plants: granules to reliably remove the algae nutrient phosphate
- Easy to use: fill the net bag, rinse under running water, insert between the filter materials
- Eliminates basic nutrients of algae: significant reduction of high phosphate contents (after 24 h) for about 3 months
- Without any harmful side effects: harmless to fish, no release of aluminium
- For 5000 l pond volume, incl. net bag

Art. no.	Range	Content
27373	5000 l	0,5 kg
27374	10000 l	1 kg
27375	25000 l	2,5 kg





JBL PhosEX Pond Direct

Phosphate remover for ponds

- For pond water to suit both fish and plants: reliable removal of algae nutrient phosphate from the pond water
- Easy to use: calculate the required quantity, mix with pond water in watering can, distribute evenly
- Eliminates the basic nutrients of all types of algae: significant reduction of high phosphate contents (already after 2-24 hours)
- Without any harmful side effects: harmless to fish, no release of aluminium
- Dosage: 40 ml for approx. 800 l pond water

Art. no.	Range	Content
27393	5000 l	0,25 l
27394	10000 l	0,5 l
27395	50000 l	2,5 l
27396	100000 l	5 l

Use biocides safely. Always read the labelling and product information before use!





JBL FloraPond

Fertiliser balls for pond plants

- Primary care of garden pond plants: Clay fertiliser balls for water lilies and marsh plants
- Vigorous plant growth, no deficiency symptoms, best, most intensive leaf colouring due to the right iron concentration
- Vigorous plant growth, no deficiency symptoms, best, most intensive leaf colouring due to the right iron concentration
- Perfect fertilising thanks to balanced mineral content
- 8 fertiliser balls for pond plants – diameter 30 mm.

Art. no.	Ø	Content
27380	30 mm	8 Pieces





JBL ArguPond Plus

Remedy against carp lice and anchor worms

- Rapid treatment: remedy for carp lice and anchor worms, gill maggots and other parasitic crustaceans
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Only use in water temperatures over 18 °C.
- JBL Online Hospital: enables you to identify fish diseases
- Dosage: 40 ml per 800 l pond water

Art. no.	Range	Content
27132	10000 l	0,5 l
27134	100000 l	5 l

*For questions on risks and side-effects please read the package insert and ask your veterinary or pharmacist.



JBL GyroPond Plus

Remedy for skin and gill flukes and tape worms

- Quick and reliable help: remedy for skin, gill flukes and tape worms
- Easy to use: calculate required quantity, mix it with pond water in watering can, distribute evenly
- Retention time in pond: 1 week
- JBL Online Hospital: enables you to identify fish diseases
- Dosage: 40 ml per 800 l pond water

Art. no.	Range	Content
27136	10000 l	0,5 l

Only for export! Medicines containing the active substance praziquantel are only available on prescription in Germany and their image can not be advertised.

JBL FuraPond

Treats internal & external bacterial diseases

- Remedy with very effective antibiotic Nifurpirinol to treat all kinds of bacterial diseases
- Helps to treat ulcers, fin rot and popeye rapidly and reliably, occurring in spring
- Is effective against bacteria of the genera Aeromonas, Pseudomonas, Columnaris , Flexibacter and others
- Very well tolerated, even for crayfish. Is quickly absorbed through the gills
- Remedy in tablet form for koi and other pond fish, use: 1 tablet per 125 l water. Package serves for 3000 l

Art. no.	Range	Content
27180	4200 l	24 Tabl.

In Germany, drugs with the active ingredient, sodium nifurstyrenate, are prescription drugs and may not be advertised by pictures.



JBL Ektol bac Pond Plus

Remedy for bacteria and fin rot

- Rapid treatment: remedy for ulcers, fin rot, popeye and dropsy, which often occur in spring
- For bacterial infestation in pond fish
- Simple to use: calculate required quantity, mix with pond water in watering can, distribute evenly over pond
- JBL Online Hospital: enables you to identify fish diseases
- Dosage: 40 ml per 800 l pond water

Art. no.	Range	Content
27141	10000 l	0,5 l
27142	50000 l	2,5 l
27143	100000 l	5 l

*For questions on risks and side-effects please read the package insert and ask your veterinary or pharmacist.





JBL MedoPond Plus

Remedy to treat white spot disease and fungal infections

- Quick and reliable help: remedy to treat white spot disease and fungal infections
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Does not contain any copper
- JBL Online Hospital: enables you to identify fish diseases
- Dosage: 40 ml per 800 l pond water

Art. no.	Range	Content
27144	5000 l	0,25 l
27145	10000 l	0,5 l
27146	50000 l	2,5 l
27147	100000 l	5 l

*For questions on risks and side-effects please read the package insert and ask your veterinary or pharmacist.





JBL BiotoPond

Water conditioner for ponds

- Pond environment to suit fish: water conditioner for a healthy pond environment and for the protection against stress and diseases
- Easy to use: calculate the amount needed, mix it with pond water in a watering can, pour it evenly over the pond
- Promotion of plant growth, protects gills, skin and fins, protection against stress and diseases
- Absorption of toxic heavy metals, complete removal of chlorine and chloramine
- Dosage: 30-50 g/1000 l pond water

Art. no.	Range	Content
26060	5000 l	0,25 l
26061	10000 l	0,5 l
26062	50000 l	2,5 l
26063	100000 l	5 l





JBL BactoPond

Bacteria for biological purification of the pond

- For water to suit both fish and plants: cleansing bacteria for the breakdown of biological contaminants in the garden pond
- Easy to use: calculate the amount needed, mix it with pond water in a watering can, pour it evenly over the pond
- Healthy pond water: removal of excess nutrients by the break down of biological waste
- Avoiding fish loss, preventing algae
- Dosage: 40 ml for about 700 - 800 l pond water

Art. no.	Range	Content
27326	5000 l	0,25 l
27327	10000 l	0,5 l
27328	50000 l	2,5 l





JBL AccliPond

Water conditioner for ponds

- Pond environment ideally suited to the requirements of the fish: water conditioner to activate the resistance and to promote the fish's health
- Easy to use: determine the required quantity, mix it with pond water in a watering can, pour it evenly over the pond
- Promotes readiness to spawn, strengthens immunity, enhances vitality and energy metabolism
- Stress-free fish transport, acclimatisation of pond fish, after the use of remedies
- Dosage 40 ml per 800 l pond water

Art. no.	Range	Content
26070	10000 l	0,5 l
26071	100000 l	5 l





JBL ProPond AutoFood

Weatherproof solar feeder for all pond fish

- Reliably feeds your pond fish up to 24x a day your desired amount of food, independent of electricity supply
- Mount, programme feeding times & quantities, fill with food and set throwing range to 0.5 or 1.0 m
- Energy source selectable: use built-in solar panel with battery or connect directly to power source via 5 m mains cable
- Holds max. 25 l of food. Water temperature is indicated on display by a temperature sensor. Dimensions: 375x375x462 mm
- Contents: ready-to-use automatic feeder & solar panel, power supply, water temperature sensor & warning at end of feed

Art. no.
28017





JBL PondOxi-Set

Aeration set with air pump for garden ponds

- Protects the pond against oxygen deficiency: reliable aeration and oxygen supply through set with floater and air pump
- Set up in dry place, connect pump and air stone with hose, put air hose into the holder
- Protection against oxygen deficiency; variable positioning at any water depth thanks to floater with hose holder
- High-powered air pump: 200 l/h air flow rate, 230 V, 50 Hz, 3 W, large ball-shaped 40 mm air stone
- Incl. air pump, 10 m air hose, air stone, floater with hose holder

Art. no.	Watt	Performance
28013	3 W	200 l/h





JBL Floater + AntiKink

Floater with anti-kink protection for PondOxi-Set

- Smart accessory: floater with anti-kink protection to fix an air hose with an air stone
- No contact with the lower water layers – no complete intermixing of the water
- Hang air hose with air stone into hose routing so that the air stone under water is about 30 cm above the ground.
- Firm hold through hose holder, position air stone at desired height.
- Package contents: floater with anti-kink holder to protect hose

Art. no.	For Ø
28016	6 mm



Technic > Aeration



JBL ProSilent Aeras Micro Ball L

Air stone for fine air bubbles

- Air pump accessory for tanks: air stone made of quartz sand mixture with fine pores - especially good for pond aeration
- Simply connect air stone to the air pump (not included), place inside the pond or aquarium
- No extra weighting: own weight of the air stone keeps it on the ground
- For fresh and saltwater aquariums: ball shaped air stone
- Package contents: 1 air stone, 40 mm diameter, Aeras Micro Ball L

Art. no.		Ø
61491		40 mm



Accessories > Control > Thermometers



JBL Pond Thermometer

Floating pond thermometer

- Conveniently monitors the pond temperature: floating pond thermometer makes the water temperature easy to read
- Shows water temperature at 20 cm depth, temperature indication between 0 and 50 °C
- Easy to use thanks to nylon cord
- JBL recommendation: the right treatment for every temperature
- Incl. 5m cord

Art. no.		Content
28011		1 Pieces



Accessories > Landing nets > Landing net



JBL pond fish net S, fine

Fine-meshed net with 160 cm telescopic handle

- For catching pond fish gently with soft, fine and black net. Also suitable for collecting leaves
- Very durable; net is attached to aluminium holder INSIDE (edge protection). Telescopic handle extendable from 95-160 cm
- Extremely stable net with 4-point mounting on the extendable aluminium handle. Mesh size 0.35 mm. Net: 40x35 cm
- Stem has secure foam grip to preclude slipping. Sturdy 1.1 cm thick aluminium net mounting
- Packaging content: 1 fine, 40x35 cm large, black net with extendable telescopic handle

Art. no.	Width	Mesh size
28704	40 cm	0,9 mm





JBL pond fish net S, coarse

Coarse-meshed net with 160 cm telescopic handle

- For catching pond fish gently with coarse and black net. Also very suitable for collecting leaves
- Very durable; net is attached to aluminium holder INSIDE (edge protection). Telescopic handle extendable from 95-160 cm
- Extremely stable net with 4-point mounting on the extendable aluminium handle. Mesh size 4.0 mm. Net: 40x35 cm
- Stem has secure foam grip to preclude slipping. Sturdy 1.1 cm thick aluminium net mounting
- Packaging content: 1 coarse, 40x35 cm large, black net with extendable telescopic handle

Art. no.	Width	Mesh size
28703	40 cm	4 mm





JBL pond fish net M, fine

Large fine-meshed net with 160 cm telescopic handle

- For catching pond fish gently with coarse and black net. Also very suitable for collecting leaves
- Very durable; net is attached to aluminium holder INSIDE (edge protection). Telescopic handle extendable from 95-160 cm
- Extremely stable net with 4-point mounting on the extendable aluminium handle. Mesh size 0.35 mm. Net: 50x43 cm
- Stem has secure foam grip to preclude slipping. Sturdy 1.1 cm thick aluminium net mounting
- Packaging content: 1 fine, 50x43 cm large, black net with extendable telescopic handle

Art. no.	Width	Mesh size
28708	50 cm	0,9 mm





JBL pond fish net M, coarse

Large coarse-meshed net with 160 cm telescopic handle

- For catching pond fish gently with coarse and black net. Also very suitable for collecting leaves
- Very durable; net is attached to aluminium holder INSIDE (edge protection). Telescopic handle extendable from 95-160 cm
- Extremely stable net with 4-point mounting on the extendable aluminium handle. Mesh size 4.0 mm. Net: 50x43 cm
- Stem has secure foam grip to preclude slipping. Sturdy 1.1 cm thick aluminium net mounting
- Packaging content: 1 coarse, 50x43 cm large, black net with extendable telescopic handle

Art. no.	Width	Mesh size
28707	50 cm	4 mm



BRESSER

A microscope is indispensable to diagnose fish diseases and check for parasites, algae and other microorganisms in the pond. Many diseases can only be identified correctly with a microscope. Problems or maintenance errors can be noticed early and you can start the correct treatment right away.
BRESSER is one of the leading manufacturers for optical products worldwide. Since 1957 the company stands for affordable products that suit any requirement. The focus is on user-oriented advice, because the employees are also enthusiastic hobbyists. You can always rely on their expertise and commitment. Through the cooperation with BRESSER, JBL offers selected microscopes and accessories at discount prices. Ask your JBL dealer for BRESSER microscopes.



Art.No.: 5102060

BRESSER Erudit DLX biological microscope

Professional monocular microscope, magnification 40x-600x

- Detect algae, parasites or microorganisms
- Check microbial life and “Aufwuchs” or parasites in skin scrapes or stool samples
- Monocular microscope with AC adapter and built in rechargeable battery Upgradeable for other magnifications
- Four objectives, wide field eyepiece and adjustable condenser, fine focus and coaxial mechanical desk
- Scope of delivery: microscope, AC adapter, dust cover



Art.No.: 5722100

BRESSER Researcher biological microscope

Binocular (5722100) or trinocular (5723100) microscope, magnification 40x-1000x

- Detect algae, parasites or microorganisms
- Check microbial life and “Aufwuchs” or parasites in skin scrapes or stool samples
- Binocular modell for fatigue free work. Adjustable camera tube for convenient documentation
- Four objectives, pair of wide field eyepieces, adjustable condenser, fine focus and coaxial mechanical desk
- Scope of delivery: microscope, AC adapter, power cord, free additional 60x objective

Art.No.: 5723100





Art.No.: 5913650

BRESSER microscope cameras

MikrOkular Full HD (5913650) or MikroCam SP 1.3 (5914131) for documentation

- Record images and video, share it with others and get expert opinion to help with diagnosis
- Replace eyepiece with the camera, or put into the camera tube and connect with Windows PC
- MikrOkular Full HD: Affordable and flexible to use, record images and video
- MikroCam SP 1.3: Professional C-Mount Camera includes powerful software package. Supports measurements which are helpful for a correct diagnosis
- Scope of delivery: Camera with adapters to 23.2mm, 30.0mm and 30.5mm. USB cable, Software CD compatible with Win 7/8/10

Art.No.: 5914131





Art.No.: 5942500

BRESSER Carry case for microscopes

For Erudit DLX and Researcher Bino / Trino microscopes

- Store and transport the microscope and accessories
- Erudit DLX fits directly inside, to stow away Researcher models, simply remove eyepieces and unscrew camera tube
- Lockable aluminum carry case with preformed foam inlay
- Takes up additional accessories, e.g. other objectives or eyepieces, glass slides, tools
- Scope of delivery: Carry case 410 x 320 x 220 mm





Art.No.: 5912100

5915100

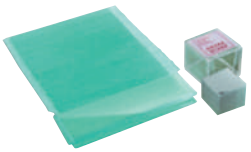
BRESSER microscope accessories

Glass slides / cover glasses and microscope tools “Solingen steel”

- Prepare sample on slide in a drop of water, or swab skin scrape onto slide and put cover glass on
- Consumables and tools are a standard accessory for all BRESSER microscopes
- Glass slides / cover glasses (5916000) or slides with indentation (5916600) for bigger organisms, matching cover glasses 22x22mm (5915100)
- Microscope tools (5912100) includes tweezers, spatula, scalpel, scissors, section lifter and two needles, stainless steel
- Scope of delivery: Set 50 slides / 100 cover glasses; 50 slides with indentation; 100 cover glasses 22x22mm; Tool set: 7 tools in leatherette pouch

Art.No.: 5916000

5916600







JBL • Impressions Niigata / Japan











Experience the JBL Themeworld POND online: www.jbl.de/qr/100391




Natürlicher Teich oder künstlicher Teich?
Einrichtung & Planung
Natural pond or artificial pond?
Planning & setting up
Wasser
Water
Pflanzen
Plants
Teichbewohner
Pond dwellers
Pflege
Maintenance
Probleme
Problems

JBL

Forward thinking
Reliable
Loyal to specialist retailers

Joachim Böhme founded the company, JBL, in Ludwigshafen in 1960. Over a period of 60 years, the small family business has developed into one of the leading suppliers of the aquarium, terrarium and pond trade.
Today JBL exports to over 65 countries and, with over 1000 articles, has one of the largest ranges of aquarium products in the world.
In the plant Neuhofen/Pfalz, where the expanding company has been located since 1984, production is focused on fish food and water care products.





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