



The science of fishkeeping

Developing further expertise



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Dive deeper into the science of fishkeeping

Today, there are over 30,000 different species of fish, this is almost twice the amount of birds, reptiles, amphibians and mammals combined. Fish are the most ancient of these vertebrate groups, first appearing on our planet around 460 million years ago. Roughly half of all fishes live in the world's oceans, the remainder are freshwater. Only 0.02% of the world's water is habitable freshwater, such as lakes, rivers or swamps; the bulk of the world's water, (96%), is in the seas.

For the fishkeeper there are immense possibilities for keeping a variety of fish from tropical waters, oceans and rivers, and Tetra can help, by expanding and developing fishkeeping knowledge. This guide has been written for the experienced fishkeeper, offering further insight and knowledge into the hobby, with background and scientific information on fishkeeping in general, as well as the Tetra products developed over the last 60 years that today offer a premier world class range of outstanding quality.



Water quality is essential

Fish are utterly dependent on fishkeepers to provide good quality water for them to live in. An old saying among aquarists states that you should 'look after the water and let the fish look after themselves'. But how should you define good water quality? Do all fishes need the same basic conditions?



The right water quality for fish depends on the environment they have evolved in, with species differing in terms of the water chemistry (e.g. acidity and hardness) they prefer, and in their tolerance to pollution. The humble goldfish for example, has a wide tolerance of pH (acidity) values, living happily in acidic water with a pH as low as 6 or alkaline water with a pH of 8.5. The pH value must be stable at any point within this range, but the fish can happily adapt – it is a pH generalist. Some fishes such as many Tetras, Rasboras and many Catfish or South American Cichlids should be kept in acidic water as their ancestral home was the acidic waters of the world's tropical rivers and swamps. Lake Malawi and Tanganyika Cichlids need alkaline water that mimics the conditions of their ancestral home.



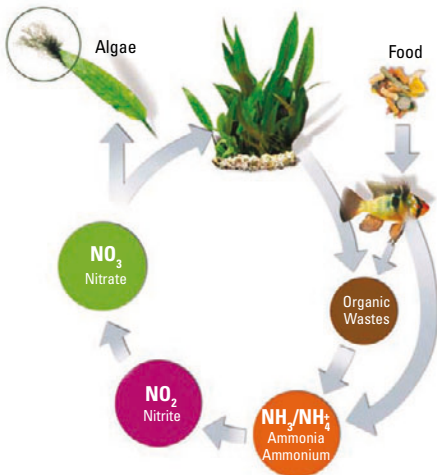
Water quality also encompasses the degree of pollution in the water. As fish feed and excrete in the closed confines of an aquarium, certain changes will occur to the chemistry of the water:

- The metabolism of protein in the fish's diet leads to the excretion of highly dangerous ammonia through the gills, depending on the pH value. In a healthy aquarium, this in turn is rapidly converted to toxic nitrite, then to non toxic, but water polluting nitrate by so-called filter bacteria living in the aquarium system. Under normal conditions, nitrate can therefore be expected to rise.
- Phosphate levels will also rise, as it is present in fish.
- Biological activity in the aquarium will lead to the KH sinking and 'soften' the water, which in turn leads to the pH instability.

Whatever fish you are trying to keep you must ensure you can meet its environmental requirements. This is especially true for less hardy species, which makes it important to ask about the needs of each fish you intend to keep. In particular, you should determine their requirement for pH, hardness, temperature, and oxygen. You should also ask about their sensitivity to pollution.

Check your water for:

General hardness	✓
pH	✓
Carbonate hardness (KH)	✓
Temperature	✓
Oxygen	✓



From this you can ensure you provide the right environment for your fish. Remember that water quality changes over time, and therefore regular checking of these parameters as well as water changes will be important.

Understanding the harmful effects



If you fail to meet a fish's water quality needs, it will experience stress. For example, this might happen if the pH level drops below the preferred point or if the tank is too cold, or if water pollution persistently stays above a tolerable threshold.

Fish, like other vertebrate animals have an elaborate array of nervous and hormonal mechanisms that allow them to get out of dangerous situations. Known

collectively as the stress response, the action a fish takes depends on the nature of the threat. When faced with a prolonged stressful situation without chance to recover, such as being trapped in a lake as water levels fall and pollutants accumulate, fish release hormones (called corticosteroids) that initiate a number of physiological changes.

For example, they increase the blood sugar levels of the fish, helping it to find spare

of stress

energy reserves to cope with these additional demands. They also shut down systems not essential to the immediate survival of the fish, such as the reproductive organs, the immune system, colour pigmentation, and even growth.

If we transfer this knowledge to aquarium fishes, it's easy to understand why keeping them in less than ideal conditions can lead to ill-health. The long-term stress that is caused will reduce the function of the immune system, leaving them more susceptible to common diseases. They will also display other signs such as poor colouration, poor growth and a general lack of condition.

It is vital for fishkeepers to appreciate the role of the stress response in the health of the fish and to realise that if

Short term stress has few severe health effects and the fish have a chance to recover. Most common short term stress factors are related to tank maintenance, e.g. gravel cleaning, netting the fish.

the correct environment is not provided, stress hormones will be released and dire health consequences will follow. It is worth revisiting the old saying: look after the water and the fish will look after themselves!

Expert
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Tetra Hotline
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Best water quality

We have already shown how the quality of the water in your aquarium is of paramount importance in achieving the very best results in fishkeeping. No doubt you have a good understanding of what maintaining good water quality entails. However, Tetra has an extensive range of water care and technical products that are designed specifically to help you in your goal of attaining excellent water quality and superb fish. Each one comes as a result of extensive research into the chemistry of water, from the point you first fill your aquarium and the effects over time on the varying water parameters. Maintaining good balance and consistency are key and the products contained in this next section can play an important role in achieving that aim.

Equipment



Filtration

Fitting a quality filtration unit is essential if you are going to keep your fish in top condition. Tetra's **EX** range of external filters are suitable for aquariums up to 500 litres in size with a choice of different models: **EX600**, **EX700** and **EX1200**. The filter media combination of bio balls, ceramic rings, foam, floss and carbon provides excellent mechanical and chemical filtration. Tetra **EX Filters** have been designed to provide quick and efficient set up and maintenance with powerful but quiet operation and low power consumption.

Alternatively, for a small to medium size tank an internal filter could be used such as the **Tetra INplus**. This is also suitable for breeding and quarantining fish.



Aeration

The secret of a good air pump is getting the balance between power and noise level. Tetra's range of **APS air pumps** get that balance exactly right. The state-of-the-art design offers powerful air flow for maximum oxygenation with quiet operation. Available in many sizes for aquariums up to 600 litres they are ideal for running filters and air stones.





Heating

Tetra's range of reliable, high performance **heaters** are available in different sizes for aquariums up to 450 litres. They can be adjusted to 0.5°C intervals from 20 to 32°C. They are manufactured using extra thick shock and heat resistant borosilicate glass with safety shut-off for extra peace of mind. The double ceramic element ensures regular heat conduction so safety and reliability are assured.



Aquarium Cleaning

Essential maintenance becomes less of a chore with the Tetra range of efficient **aquarium cleaners**. There are **gravel cleaners** with automatic starting mechanism as well as a **glass scraper** that offers superior algae removal even in awkward spots. Then there are **EasyWipes**, cleaning wipes for all aquariums. They quickly remove limescale and salt deposits both inside and outside the tank and are completely harmless to fish and plants.



For online spares and support
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Ensuring water quality

Water care

Test Kits: Tetra offers a wide range of test kits from the convenience of 6in1 Test Strips that allow quick and easy testing of aquarium water parameters to individual kits to test nitrite, nitrate, general and carbonate hardness, pH and oxygen. All Tetra test kits are highly accurate.



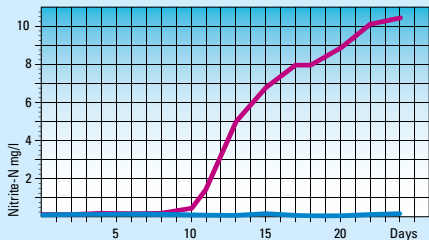
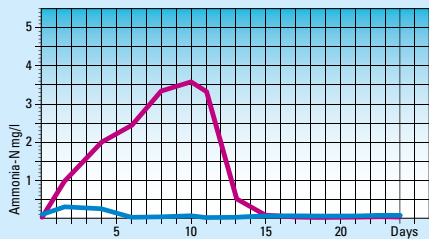
AquaSafe: A water conditioner which immediately transforms harmful tap water into safe water that is ideal for fish and plants. Adding **AquaSafe** when starting a new tank and every time you change the water will:

- Eliminate chlorine and chloramines.
- Bond heavy metals.
- Support the fish's protective mucus layer, which may be damaged during maintenance.
- Support the fish's ability to cope with the stress.
- Add iodine, magnesium, and vitamin B for health and vitality.



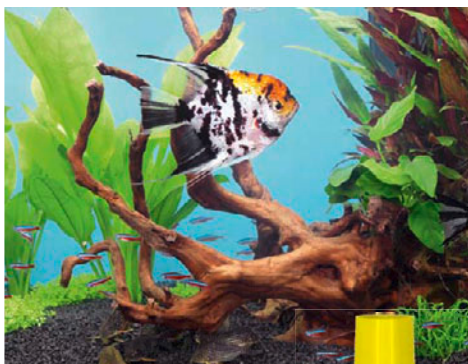
SafeStart: Contains a unique blend of highly effective live-filter bacteria. Use when setting up a new aquarium or when carrying out water changes and filter maintenance:

- Biologically activates an aquarium when either setting up or adding fish.
- Replaces lost bacteria when carrying out filter maintenance and water changes as well as after medical treatments.
- Bacteria convert toxic ammonia into nitrite and then into nitrate.



— with Tetra SafeStart — Untreated Aquarium

SafeStart reduces ammonia and nitrite significantly compared with control aquariums where nothing was added.



NitrateMinus: Permanently reduces nitrate levels utilising a natural process.



pH/KH Minus and pH/KH Plus:

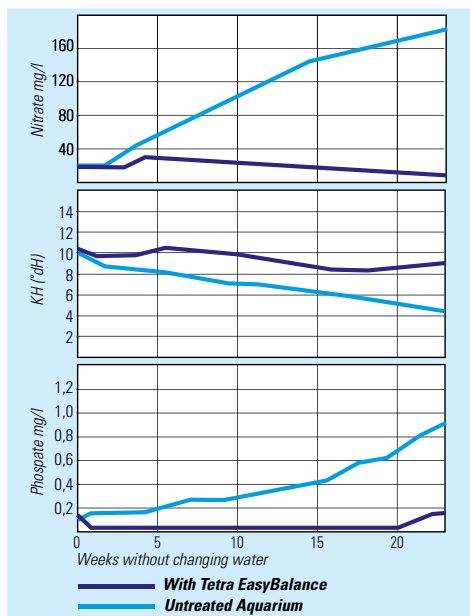
Allow the simple and safe adjustment of carbonate hardness (KH) and pH levels.



Use our dosage calculator to quickly work out how much Tetra product to use in your aquarium www.tetra.net

EasyBalance: Keeps aquarium water and fish healthy, without the need for frequent water changes. A weekly application will:

- Reduce nitrate and phosphate to permanently low levels resulting in far less algae.
- Preventing pH and KH instability and so preventing acid drop which can be life threatening.
- Add vitamins and trace elements that are essential to a healthy aquarium.



Thanks to Tetra EasyBalance you can prevent the proliferation of algae and increase your water's buffering capacity.

The importance of a good quality

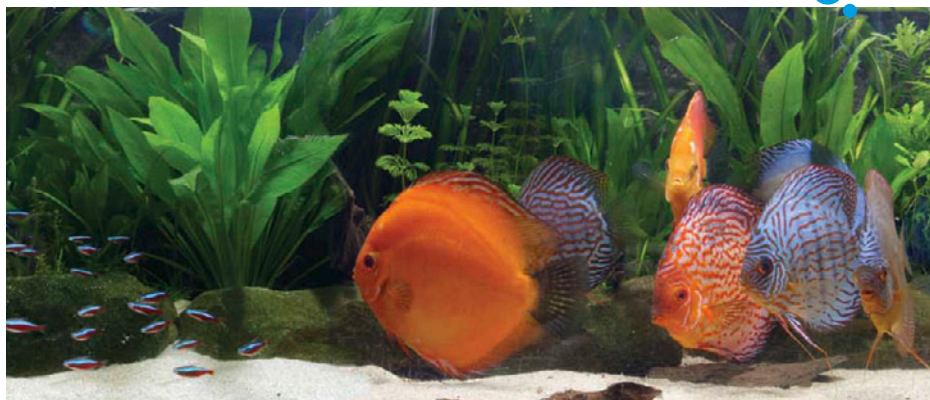


Looking after the water is essential to the welfare of the fish, but you must also feed them appropriately. Like any animal, a balanced diet has significant implications for the health, growth, and general well-being of a fish. In addition, digested food is the main source of pollution in an aquarium, which makes choosing a good quality, well-digested diet essential.

Fish foods have developed significantly since the early days of aquarium fishkeeping, when ant eggs were regarded as a balanced diet! Tetra were the first company to produce a flaked food for aquarium fish; released in 1955, **TetraMin** is still the world's most popular aquarium fish food.

In their ancestral homes aquarium fish would feed on wide variety of diets. The vast majority of commonly kept species can be regarded as omnivores, browsing continually on a wide range of animal and plant food items: tiny crustaceans, worms, molluscs, plant and algae fragments would feature heavily in their daily diet. Alongside these are a few specialist carnivores (meat eaters) and herbivores (algae and plant eaters).





The food fish eat can be split into different nutrient groups (see table). When formulating a diet for aquarium fish it is vital to provide the right and balanced levels of all of these nutrients, in a format that the fish can easily digest and use.

By taking time to carefully research and test a diet, it is possible to improve the health and general condition of the fish, and at the same time dramatically reduce waste production. For this reason, your choice of food is as important as providing the right water quality for your fish.

Important nutrients

Nutrient	Purpose
Proteins	Required for building body tissue and therefore for growth.
Fats	Most important source of energy and important for building body cells.
Vitamins	Required for all metabolic processes and a well functioning immune system.
Carbohydrates	A source of energy.
Fibre	Aids digestion.
Minerals	Nutrients for the skeleton and muscles and all bodily functions.

BioActive formula



Tetra has 60 years of experience in developing foods for ornamental fish, and runs the industry's leading research facility. To provide an optimum diet, Tetra foods also provide other benefits to fish. For example, all Tetra fish foods are enriched with the

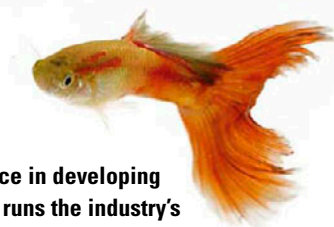
unique 'BioActive-formula'. This formula consists of a carefully balanced mixture of immunostimulants, high-quality energy boosters and essential vitamins, giving the fish greater resilience, more energy and increased vitality.

Vitamins for vitality: The BioActive formula consists of a perfect harmonisation and balance of vitamins, with maximum bioavailability (the proportion of a nutrient that is absorbed from the diet and used for body functions). This optimised formula significantly enhances fish health and promotes vitality. Biotin, a B-group vitamin, promotes nutrient utilisation and thus helps to release energy.

Energy from Omega-3 fatty acids:

To guarantee a healthy metabolism, fish require certain essential unsaturated fatty acids, which are generally present in our foods. These high-quality sources of energy can be used by fish to the best of their advantage and serve to actively improve bodily functions. These include Omega-3 fatty acids, amongst others.

Immunostimulants for a healthy immune system: Despite continued talk of new immunostimulants, there are only very few that are of real value to tropical fish, for example beta-glucan. This can be found in the cell walls of yeasts, cereals and fungi and above all strengthens the immune system's ability to fight bacterial infections, thus helping to prevent disease.






Different feeding needs

There is a wide range of fish available for tropical aquariums, many of which have different feeding needs. Generally fish tend to either feed at the surface, in mid-water, or from the bottom of the aquarium.

If you take a close look at your fish you can often identify their feeding preference from the position of their mouth. If it is upturned then they are surface feeders; if it is forward-facing they are mid-water feeders; and if it is downward-facing they feed from the bottom.

To ensure that all of your fish get the nutrition they need, it is important to feed foods that are appropriate for their feeding behaviour. Because of this, Tetra has foods to cater for all of your fishes' feeding preferences.



Mouth type		Feed types	Feeding behaviour
upturned		flakes, crisps, sticks, dried natural foods	at the water surface
forward facing		flakes, granules, gel food, crisps	mid-water
downward facing		flakes, granules, crisps, tablets, wafers, gel food	at the bottom

The food to suit your fish

Flakes e.g. **TetraMin Flakes**

Flakes provide the perfect type of feed for fish living in all areas of the aquarium, as they can be ingested either at the water's surface or as they sink to the bottom of the tank. Tetra's unique form of finely ground raw materials guarantees optimal nutrient utilisation and efficient soaking in the water.



Granules e.g. **Tetra Prima**

Granules are highly porous, meaning that they soften quickly and sink slowly to the bottom, which also makes it easy for small or timid fish to feed on them.



Crisps e.g. **TetraPro Energy** (also see pages 18/19)

This feed is produced using Tetra's unique gentle, low-temperature process so the crisps contain all the benefits of conventional food flakes but provide a greater source of energy. Regular use of these crisps will significantly reduce nitrate and phosphate accumulation in the water, which is often the cause of algae growth. Moreover, crisps are particularly well suited for use in automatic feeders to ensure that fish are provided with everything they need, even in the aquarist's absence.



Multi tablets and wafers e.g. **Tetra TabiMin** and **TetraWafer Mix**

These can be used to feed all types of tropical fish living at the bottom of the tank, for example catfish, loaches or spotted barbs. The feeding area can be strategically chosen due to the fact that tablets and wafers sink directly to the bottom of the tank. Both varieties can be easily deposited in concealed places to also allow timid fish to feed without being disturbed. Tablets disintegrate at the bottom of the tank, whilst wafers on the other hand are extrudates, have a high degree of dimensional stability and can thus retain their valuable ingredients for longer.



Gel foods e.g. **TetraNatura** (also see pages 20/21)

Invented by Tetra and providing a complete diet in the form of **TetraNatura Mix**, this feed caters for the natural feeding habits and is also a pure delicacy for your fish. Crucial trace elements, vitamins, proteins and fats are added to the gel in addition to natural foodstuffs, such as red bloodworms, daphnia and brine shrimps. The gel contains no preservatives and can be kept for up to three years even without refrigeration. In contrast to live or frozen food, Tetra gel food is completely germ free and requires no additional processing.



Natural foods e.g. **Tetra FreshDelica**

Tetra supplies natural foods as a perfect supplement to the range of fish food. Red Bloodworms, Daphnia and Brine Shrimps are particularly well suited for broadening your fishes' menu. The nutrient-enriched jelly comes in easy-to-use sachets to avoid mess. Tetra FreshDelica is an ideal treat for all tropical fish, marine fish and goldfish.



Sticks e.g. **TetraCichlid Sticks**

They are known as extrudates. **Tetra Sticks** are characterised by the speed at which they soften in the water, allowing the animals to effortlessly catch and swallow the food.



For more help and advice check out our online movies www.tetra.net

Innovative crisp technology

The complete diet for all types of tropical fish

Tetra currently offers several types of feed in crisp form, including TetraMin Pro, as well as premium feeds such as TetraPro Energy, TetraPro Colour, TetraPro Algae and a TetraPro Menu.

The premium-range multi-crisps, manufactured using a gentle low-temperature process, provide staple diets for all types of tropical fish. These unique recipes provide fish with a well-designed form of feed containing all essential nutrients, with an added bonus of high-quality fats, specific carotenoids or concentrated spirulina algae. The concentrated centre means that every bite provides the fish with a highly nutritious complete diet and an important added extra. There are four reasons why aquarists should feed **Pro Crisps** to their tropical fish:

- The feed is incredibly tasty and has a very high acceptance rate with fish.
- The optimised protein/fat ratio of the crisps allows for enhanced food conversion and improved nutrient utilisation. This means that the fish grow better, are more active and have increased resilience.
- The crisps have a particularly high nutritional value due to the gentle, low-temperature production process. The ingredients of these feeds are heated to around 75°C, whereas

the components of flake food are processed at temperatures of around 130°C. This allows for better retention of essential fatty acids as well as temperature sensitive vitamins, making a significant contribution towards fish growth and health.

- The patented multi-crisp manufacturing process allows for a targeted approach to feeding using the best premium food to promote colour and feed herbivorous (plant-eating) fish.



Feeding tests:

- Laboratory:** Biological Quality Assurance (test laboratory accredited according to the DIN EN ISO/IEC 17025 standard)
- Procedure:** Time frame: 12 weeks; fish kept under standard conditions; 3 parallels drawn with a total of 600 fish; 4 species of fish, including Rainbow fish (*Melanotaenia boesemani*), Rosy Barb (*Puntius conchonius*), Neon Tetras (*Paracheirodon innesi*) and Platies (*Xiphophorus maculatus*)



Results: Advantages of crisps over flakes

I. Increased food intake:



Fig. 1: Food intake rate with ad lib feeding of crisps compared with flakes (comparative increase in %)

II. Increased growth rate:

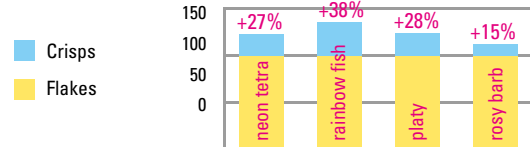


Fig. 2: Increase in fish body mass with ad lib feeding of crisps compared with flakes (comparative increase in %)

III. Reduced water contamination:

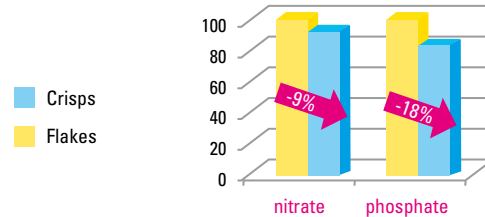


Fig. 3: Nitrate and phosphate levels with ad lib feeding of crisps compared with flakes (comparative increase in %)

What are feeding tests?

When new types of feed are produced or improvements are made to recipes, feeding tests are always carried out at Tetra's Biological Quality Assurance lab using the appropriate species of fish. By optimising the fish food mixture, market leader Tetra succeeds time and again in making outstanding achievements in this sector to the benefit of fish health.

Unique gel technology



The TetraNatura feeds, with their unique gel formula, replicate natural feeding habits more than almost any other form of food.

Gel feeds are soft, easy to bite and swallow and gradually sink to the bottom of the aquarium.

Using the individual sachets of mixes such as **TetraNatura Bloodworm Mix**, **TetraNatura Brine Shrimp Mix** and **TetraNatura Algae Mix**, as well as the individually-packed grazing blocks **TetraNatura Cyclops Block** and **TetraNatura Algae Block**, these types of feed can be easily and sparingly measured out to ensure that there are no leftovers.

The gel feeds are suitable for all types of tropical fish and contain feed animals, algae and gel, which is enriched with nutrients such as Omega-3 fatty acids and trace elements as well as vitamins and proteins, making these mixes a complete diet. Furthermore, the gel seals in the feed's essential ingredients in the water.



TetraNatura Grazing Blocks provide a feed supplement that lasts for up to 24 hours and are ideal for slow eaters or timid fish.

TetraNatura contains visible freeze-dried natural food and like all types of Tetra feeds, is free from genetically engineered substances, pesticides, hormones and artificial colourings. An autoclave is used to carefully remove germs from the ingredients.



Frozen food disadvantages

Compared with Tetra gel food there are many disadvantages and risks associated with using frozen feed:

- Frozen foods don't offer an optimally balanced diet and may even be lacking in important nutrients.
- If the cooling chain is disrupted the feed could start to rot.
- Substandard packaging can result in feed animals being unintentionally freeze-dried. This is also known as "freezer burn".
- The food needs to be quickly defrosted, rinsed and fed to the fish. If not, the feed animals could possibly rot.
- The frozen feed must never be left in water, as this is the perfect breeding ground for germs such as salmonella.
- Some frozen foods are highly unsuitable for feeding tropical aquarium fish. For example, bovine heart contains too much collagen and could cause digestive problems, even for young fish.
- Certain kinds of parasites could be transmitted (e.g. some kinds of worm eggs).
- Frozen foods could contain pathogens, even harmful to humans.
- Declarations are often missing.



About diseases

We have already seen how a stressed fish will not be able to defend itself effectively against infectious disease; the hormone cortisol which is released in stressful situations, suppresses the immune system. Remember the phrase 'look after the water and the fish will look after themselves'.

If we meet the environmental requirements of the fish, (and their nutritional needs too), then the fish should not be stressed, its immune system should be working efficiently and the fish is well defended against common diseases.

Before looking at some of the usual suspects that can cause disease in aquarium fish it is worth considering how the fish defends itself against infection. A tough covering of scales is found on the skin of most aquarium fishes. Over the skin and scales lies a covering of

protective mucus. Inside the fish, white blood cells roam the bloodstream hunting out infectious pathogens (organisms that cause disease) and destroying them.

The fish is also capable of producing antibodies, special proteins that are able to lock onto and destroy specific pathogens. The immune system is the collective name for this vast and complex array of defences and the fishkeeper make sure their fish's immune systems are in perfect working order and the mucus stays intact with **Tetra AquaSafe** when performing water changes.



Just like humans and other animals, infections may be caused by a range of fungi, parasites, bacteria and viruses.

Parasites

There are numerous types of microscopic ectoparasites (these live on the outside of the fish) that can pass through the mucus of stressed fish and damage the skin and gills. The most well-known of these is white spot, (*Ichthyophthirius multifiliis*), a tiny single-celled organism that leads to the development of small white pimples over the skin of the fish. It is very irritating to the fish leading them to flick and scratch against objects in the tank, and if left untreated it will rapidly kill the fish. Whenever fish show symptoms of white spot it is vital to add medication e.g. **Tetra Contralck** to the water that will kill the parasite and allow the fish to heal itself.

There are many other microscopic ectoparasites, such as flukes, Trichodinids or Costia, that live, like white spot, on the skin and the gills of the fish.

Unlike white spot these do not give such a clear calling card, and we can only detect their presence on the fish by the symptoms



they cause: lethargy, clamped fins, excessive body mucus, flicking, scratching or gasping at the water surface, (when the fish's gills are infected it makes it harder for the fish to breathe).

Treatment with an anti-parasitic such as **Tetra Contralck** or **TetraMedica Lifeguard** should be undertaken.

Whilst the parasitic diseases are the most commonly seen in aquarium fish, there are numerous other causes to consider.



! To prevent infection when adding new fish you should always quarantine them first.

Treating diseases



Water quality

It is very easy to confuse the symptoms fish show when infected with skin and gill parasites to those they show when poisoned by poor water quality. Hence before action is taken to treat these skin parasites, a thorough water quality appraisal and a water change must be performed.

Fungal infection

The development of a fluffy cotton-wool like growth on the skin of the fish is due to infection with a water mould (a type of fungus). These moulds grow on rotting organic matter. They infect the dead skin on wounds of fish and are often referred to as a secondary infection.

If your fish are showing signs of fungal infection, it is important to treat with a strong anti-fungal treatment such as **Tetra FungiStop**.

Before treating, consider how the fish acquired the infection, what factor led to the wounding? Often this can be poor aquarium hygiene, weakened immune system, fighting, spawning damage, or wounds left by prior parasite infection.

Bacteria

There are numerous types of bacteria that can also infect fish. Many can live harmlessly in the water thriving in the sludge at the bottom of the tank and in the filter.

Again, if the fish is weakened in some way, or has received a wound to the skin, then these opportunistic bacteria can find a route into the fish and can cause serious disease. Bacterial infection can lead to ulcers, red streaking on the skin and fins as well as more generalised symptoms of lethargy, gasping at the surface and loss of buoyancy. If bacterial disease of the skin is suspected, treat with **TetraMedica GeneralTonic**, following a full appraisal of water quality beforehand.

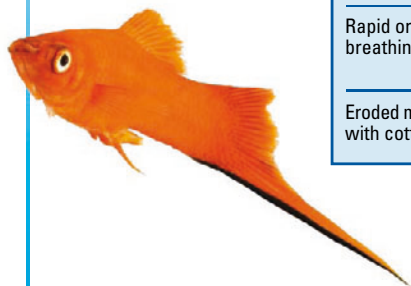
In serious terminal cases of internal bacterial infection, the internal organs of the fish are damaged and they begin to swell up with fluids – leading to an unpleasant condition called dropsy or pine cone disease.





The following table offers a guide to some typical symptoms and diseases they are likely to be associated with. Use this to try to identify the problem and the correct treatment. Where a specific disease cannot be identified, use a general remedy such as **TetraMedica GeneralTonic**.

Symptoms	Likely cause	Treatment
Small white spots covering skin and fins	White spot	TetraMedica Life-guard, Contralck
Peppering of yellow – gold “dust”	Velvet disease	Tetra GeneralTonic
Fish gasping at the surface	Water quality, gill parasites	TetraMedica Life-guard, Contralck
Thickened mucus, “milky” or slightly grey appearance to skin	Water quality, skin slime disease	TetraMedica Life-guard, Contralck
Mucus trailing from gills	Water quality, gill parasites	TetraMedica Life-guard, Contralck, GeneralTonic
Fishes are “flicking” against things	Water quality, skin parasites	TetraMedica Life-guard, Contralck, GeneralTonic
Cloudy eyes	Water quality, physical damage, bacterial infection	Tetra GeneralTonic
Inflamed fins and on body	Water quality, bacteria	Tetra GeneralTonic, FungiStop
Ulcers	Bacteria	Tetra GeneralTonic, FungiStop
Cotton wool like growths on body	Fungus	Tetra FungiStop
Darkening in colour/lethargy	Water quality, possible parasites and bacterial infection	Water change, check filter, review stocking of fish
Rapid or irregular breathing	Water quality, gill parasites	TetraMedica Life-guard, Contralck, GeneralTonic
Eroded mouth and head with cotton wool fluff	Cotton wool disease	TetraMedica Life-guard, GeneralTonic



There's 60 years of experience

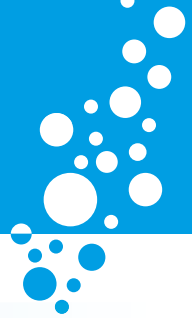


In the early days of aquarium fish keeping there was a very limited choice of fish and plants available to keep and the technology and foods used to keep them alive were somewhat primitive. The advent of long haul flights and the development of plastic bags, both essential for the global transport of fish from place of capture or production, meant the variety of species available soared whilst the costs of the hobby plummeted. Alongside this, in the early 1950s, Dr. Ulrich Baensch founded Tetra and developed the world's first staple food for aquarium fish – the world famous brand **TetraMin** was launched in 1955. This made it much easier to keep and

feed ornamental fish, and also contributed to the rapid expansion of the hobby.

Today Tetra has a large range of high quality food and care products to cater for all your fishes' needs. For details of our range of products or for more information about fishkeeping please check out the website at www.tetra.net





Excellence in Research

Tetra's leading role in the development of fishkeeping has been maintained through a dedication to excellence in research and development. This has been demonstrated through:

- One of the industry's largest R&D departments with hundreds of test aquariums.
- Over 250 patents.
- Continual testing of our products to ensure the highest level of quality.
- Continuous investment in research & development.

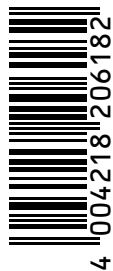


Sustainability

As market leader, Tetra consider it their duty to treat the world and its resources responsibly. Through constant improvement to the products, packaging, logistics and service, Tetra not only meets the needs of the business but also protects the environment at the same time through a continuous programme of sustainability as one of its guiding principles.



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