

## Indoor Coldwater Fish

### How to care for goldfish in aquaria

Goldfish are perhaps the most widely recognised aquarium and pond fish and have been kept for many centuries. They were first kept in bowls in China in the third century and imported into Europe in the 1700s. Goldfish can be found in many shapes and colour variations, including the sarasa comet and shubunkin, and many colours, including red, blue, yellow, black, white and orange.



### Water requirements

Goldfish are an adaptable species and can tolerate a wide range of environmental conditions. It is suggested that you maintain the water quality within the following guideline values:

Temperature:	between 4-25°C
pH:	6.0-8.0
Ammonia:	Zero mg per litre
Nitrite:	Zero mg per litre
Nitrate:	Not to exceed 20 mg per litre above normal tap water levels
Hardness:	Moderately soft-moderately hard (5-19°dH)

### Biology

*Carassius auratus* is the scientific name for the Goldfish which is a relative of the carp. They are members of the *Cyprinidae* family. Goldfish have reportedly grown to sizes of 40cm+, although in an aquarium, a maximum size of up to 25cm is more common. **Goldfish can live for many years in an aquarium with good water quality. There are many reports of fish living 6-8 years and even up to 20 years or more.** Goldfish can be sexed during the breeding season in the spring and summer. Males develop tubercles (white spots) on their gill covers and pectoral fins. Females have deeper bodies compared to males. If you are keeping your goldfish in a pond please see our *Pond fish* caresheet.

### Aquarium requirements

As a general rule you should, within reason, buy an aquarium as big as possible. Ideally, it should be able to accommodate your goldfish once they are fully grown (they can grow up to sizes of 25 cm in aquaria). An adult goldfish should be kept in at least a 100 litre aquarium, allowing for an extra 50 litres per additional adult fish, otherwise, you must be prepared to buy and upgrade their aquarium as they grow. If your goldfish is a non-fancy variety, you can transfer them to an outdoor ornamental pond\*. The



Sept 2022

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larger the aquarium, the more stable the environmental conditions such as temperature and water quality will be. Whatever the size, **a filter is always essential**.

The tank should also have gravel and ideally live plants present. Goldfish can readily eat live plants so do ask your OATA retailer for advice on which plants are suitable for goldfish. If live plants are not used, then the addition of plastic plants and suitable ornaments is recommended, such as plant pots or model caves, which supplies the fish with shelter.

A heater is not required for goldfish unless they are kept in a very cold room. Although goldfish are coldwater fish, they do not tolerate extreme fluctuations in their water temperature which can cause stress and lead to disease. Thus, their aquarium should not be situated near any draughts or heat sources. It should also be out of direct sunlight and away from loud noises, vibrations and sudden movements. Over tank lighting is recommended to maintain correct day-night cycle.

**Water testing kits are essential** as goldfish can be very dirty, which can increase levels of ammonia and nitrite. Water should be checked on a regular basis (once a week) to ensure it does not slip below the standards given above.

## Introducing your fish

Before adding any fish, seek advice from your OATA retailer to make sure that your aquarium is an appropriate size for the number of Goldfish you would like to keep. Check that the water quality in your aquarium is suitable i.e. levels of ammonia and nitrite are zero. Only increase the number of fish you have in your aquarium slowly as the population of beneficial bacteria established when maturing your aquarium filter need to increase every time more fish are added and feeding increases. Overstocking or stocking your aquarium too quickly can result in 'new tank syndrome'. This occurs when there are not enough nitrifying bacteria to cope with the increased waste load, leading to unhealthy levels of ammonia and nitrite and often fish may die.

Healthy fish have clear bright eyes, undamaged fins, intact scales, no ulcerations or bumps, appropriate swimming behaviour and steady breathing. Do not purchase a seemingly healthy fish if sickly fish are present in the tank with it. Signs of disease can include clamped fins, flicking against gravel or décor and shimmying (wobbling). Diseases can be easily carried by fish that do not show any clinical signs. If in doubt, ask your OATA retailer for advice as they will have in-depth knowledge and experience.

Your OATA retailer will usually sell your fish to you in a plastic bag. Try not to keep them in this for too long. Once purchased, take your new fish home as quickly as possible as fish are easily stressed by bright lights, extreme temperatures, noise and movement.



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Once home, your fish will need to acclimatise to their new environment and a common method of doing this is known as the 'floating bag' method. Switch off the aquarium lights and take the bag containing your new fish out of its outer wrappings carefully, avoiding exposure to bright light. Float the bag in the water of your tank to ensure the temperature in the bag is the same as the aquarium water. After 10 minutes, slowly introduce small amounts of aquarium water into the bag containing the fish for up to 20 minutes. Once complete, carefully release the fish into the aquarium whilst introducing as little bag water into the aquarium as possible. After this, dispose of the bag and any excess water appropriately. Monitor your new fish carefully for the first week, paying particular attention to water quality. If in doubt, contact your OATA retailer for advice.

## Maintenance

At least once every week, a partial water change of 25% is strongly recommended (a siphon device is useful to remove waste from the gravel). The water should be tested regularly (at least once per week) to ensure that ammonia and nitrites don't build up. Ensure that the replacement water is treated with tap water conditioner to remove any harmful chlorine or chloramine present before adding to the aquarium.

Filters should be checked for blockages. If the filter needs cleaning, then do not run it under the tap because any chlorine or chloramine present may kill the beneficial bacterial population that has established in the media. Instead, it should be rinsed lightly in the tank water which is removed during a partial water change as this reduces the amount of bacteria which are lost.

Good husbandry is essential as goldfish can be stressed by even the smallest amounts of ammonia and nitrite which may then cause them to develop various diseases. Test the water to monitor the ammonia, nitrite and nitrate levels, together with pH and water hardness every week, especially during initial set-up and after adding extra fish.

## What to watch out for

All fish will have slight variations in their behaviour or appearance, but keeping an eye on any changes in the following will help to identify any potential problems before they become a real health issue:

- swimming behaviour – hanging at the surface, sitting on the bottom or erratic swimming
- colour – turning a darker or paler colour than normal
- temperament – changes in level of aggression or hiding more than normal
- breathing – gill covers moving at a slower or faster rate than normal
- appearance – development of white spots or fluffy growths, loss of fins or scales
- condition – increase or decrease in body weight and condition
- feeding – reduced intake or lack of interest in food



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If you are concerned about the health of any of your livestock, then test your water quality and contact your OATA retailer for further guidance.

## Feeding

Goldfish are opportunistic feeders in the wild and will take most food types. In the home aquarium, they should be fed with a good quality flake or pellet. Goldfish require more carbohydrates than other fish species therefore specialised goldfish food should be used. They are insatiable feeders and will constantly look for food. Try not to over-feed them as this can lead to a build-up of uneaten food which breaks down releasing toxic waste into the water.

Goldfish should only be fed what they can eat within a few minutes, once a day. Take care not to overfeed as this can lead to a build-up of uneaten food which breaks down releasing toxic waste into the water. If in doubt ask, your OATA retailer for advice on appropriate feeding levels.

## Compatibility

Goldfish can be kept by themselves or with others. It is not advised that comet goldfish are kept with fancy goldfish because comets swim faster than the fancies and they often out-compete them for food. In some cases, there are reports of boisterous goldfish fin-nipping the slower swimming fancy varieties.

## Breeding

Goldfish can be successfully bred in large home aquariums. It is more likely to occur if males and females are kept in a ratio of 2:1 (males: females). Spawning can be induced by slowly raising the temperature (in effect, mimicking what happens in spring) to approximately 20°C. It often occurs following a partial water change.

Males will chase the females in a courtship display. The fish will lay eggs in plants or a spawning mop which should be removed afterwards as goldfish are notorious for eating their eggs and fry. If successful breeding has taken place, then the eggs will hatch within three days and dark-coloured fry should be seen swimming within a few days.

## Checklist

Before purchase make sure:

1. You have the appropriate equipment and position for the aquarium.
2. You have researched all the species in which you are interested and your final choices are all compatible.
3. You are familiar with how to transport and release your fish.



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4. You are aware of the daily, weekly and monthly maintenance your aquarium will require.
5. You are prepared to look after your fish properly for the duration of their life.

## Shopping List

- ▶ Glass or acrylic aquarium
- ▶ Filter\*
- ▶ Heater
- ▶ Lighting (required for live plants)\*
- ▶ Gravel or sand
- ▶ Tap water conditioner/dechlorinator
- ▶ Water testing kits (ideally ammonia, nitrite, nitrate, pH and water hardness)
- ▶ Gravel cleaner/siphon cleaning device (recommended)
- ▶ Aquarium decorations and/or live plants
- ▶ Bucket for water changes

\*may be included in branded aquarium sets but can be purchased separately.

## Before purchase make sure:

- ▶ The aquarium is of a suitable size that ideally can accommodate the fish once they are fully grown
- ▶ Water parameters are as advised in this leaflet.
- ▶ Aquarium is cycled and ready to receive fish.

## Always buy...

test kits and regularly check the water for ammonia, nitrite, nitrate and pH. This will allow you to make sure the water in your aquarium is not causing welfare problems for your goldfish.

## Maintain...

the water in the aquarium within the accepted parameters highlighted above. You may need to do regular water changes to achieve this.

## Never siphon by mouth...

A fish tank can harbour bacteria which can be harmful if swallowed. Buy a specially

## Establish a routine...

for testing the water in your aquarium. Record your results to enable you to identify fluctuations quickly. Also check the temperature of the water.

## Always wash your hands...

making sure to rinse off all soap residues, before putting them into your aquarium, or use long sleeved rubber gloves. Wash your hands again afterwards and certainly before eating, drinking or smoking.



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designed aquarium gravel cleaner which can be started or primed without the need to place the siphon in your mouth

### Five Welfare Needs Checklist:

The Animal Welfare Act 2006 states that all pet owners have a legal duty of care to their pets. Anyone who is cruel to an animal or is found not to be providing the five animal welfare needs, as listed below, can be prosecuted.

- ▶ A **suitable environment** e.g. appropriately sized tank (with water heater if tropical set up) within a suitable location in your home.
- ▶ A **suitable diet** which meets the needs of your chosen fish.
- ▶ **Behaviour** - Fish are able to exhibit their normal behaviour e.g. hiding places for timid fish, enough room for fish to swim freely.
- ▶ **Companionship** - Ensure you know whether your chosen fish need to be kept with, or apart from, other fish.
- ▶ **Health** - Protected from pain, injury, suffering & disease e.g. you are aware of the daily, weekly and monthly maintenance that your aquarium will need.

- ▶ **Water quality test kits are a necessity not an optional extra**
- ▶ **You must be prepared to look after your fish properly for the duration of their life and provide an aquarium which can accommodate your fish when fully grown**



\*Never release your aquarium animals or plants into the wild It is illegal and for most fish species this will lead to an untimely and possibly lingering death. Any animals or plants that do survive might be harmful to our native countryside. Take care to properly dispose of any soiled substrate (e.g. sand or gravel) water or decorations so that non-native organisms do not enter natural watercourses.

Visit [ornamentalfish.org](http://ornamentalfish.org) to find a full range of how to guides and species-specific care sheets to help you look after your fish successfully.



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