

## Freshwater Aquatic Animals

### How to care for aquatic frogs & axolotls

Aquatic frogs and axolotls are interesting aquarium inhabitants but require a special set-up to thrive properly. Most species originate from Africa or South America, but most found in the trade are captive bred. Although aquatic frogs and axolotls make good aquarium inhabitants, they should be kept in the appropriate set-up and rarely mixed with fish.



### Water requirements

Aquatic frogs and axolotls are usually undemanding of water chemistry and their suggested parameters are shown below. The parameters are a general guide for this group, so it is important to check with your OATA retailer for any species-specific requirements before purchasing.

Temperature:	between 22-25°C for frogs, 10-22°C for axolotls
pH:	7.0-8.0
Ammonia:	Zero mg per litre
Nitrite:	Zero mg per litre
Nitrate:	Not to exceed 20 mg per litre above normal tap water levels
General hardness:	Medium-hard (8-18°dH)
Carbonate hardness:	Medium-hard (10-15°dkH)

### Biology

Two aquatic frogs are commonly kept in trade, African dwarf or Congo frogs (*Hymenochirus* species) and African clawed frogs (*Xenopus laevis*). African dwarf frogs grow to 5cm, whereas African clawed frogs can grow up to 15cm. Smaller individuals can be identified using other features. African dwarf frogs have four webbed feet and eyes at the side of their head, whereas African clawed frogs have two webbed feet and eyes at the top of their head. Another popular amphibian is the axolotl (*Ambystoma mexicanum*), which can grow up to 30cm. This species is very endangered due to habitat loss in its native range and all individuals are captive bred. They have external gills on the side of their head and the unusual ability to regenerate lost limbs. Although amphibians usually live in moist habitats, these species are fully aquatic and live submerged for their whole life.

Aquatic frogs and axolotls vary in lifespan with some of the smaller aquatic frogs only living for a couple of years, but axolotls can live for many years in a well-matured set-up with good water quality. As they are scaleless, both aquatic frogs and axolotls are sensitive to



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treatments used in aquariums and so half doses should normally be used with these species unless otherwise specified in the manufacturers' guidelines.

Aquatic frogs are social and should ideally be kept in small groups of at least four, but all individuals should be of a similar size. Those which are kept singly or in groups that are too small will often become stressed. Axolotls can be kept singly or in groups, but when kept in groups, ensure that all individuals are of a similar size and have adequate space to avoid any potential conflict. It is easy to identify the sex of both aquatic frogs and axolotls. In the breeding season, male aquatic frogs develop nuptial pads, a spiny thickening of the skin on their 'thumbs' and forelegs and are slimmer than females. Female axolotls are fuller bodied than males. As a group, aquatic amphibians are prone to fungal infections and this will negatively affect their health. Always be vigilant for any changes in appearance of your frog or axolotl.

### Aquarium requirements

As a general rule, you should within reason, buy an aquarium as large as possible. It is recommended that an aquarium of at least 50 litres is used for a small group of African dwarf frogs. African clawed frogs and axolotls will need a larger aquarium of at least 100 litres for a small group. Aquariums for aquatic frogs and axolotls should be as long and wide as possible to provide adequate surface area. The 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**. This should be efficient enough to deal with the waste produced but should not produce a strong water flow.

Both aquatic frogs and axolotls have similar aquarium requirements. The aquarium should either be bare or have a base of sand to ensure their delicate skin and gills are not damaged. Aquarium décor should include pipes, caves, wood and large rounded pebbles to provide lots of cover, but pebbles must be large enough to prevent being swallowed. Plants can be included but should be secured to décor to prevent them from being uprooted. Frogs will need access to atmospheric air to breathe, so it might be important to drop the water level slightly if you have a tight-fitting lid. A cover is advised to prevent all amphibians from escaping.

For some species, a heater is required to maintain a suitable temperature all year round. To minimise fluctuations in water temperature, the 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. Overhead tank lighting is recommended to maintain a correct day-night cycle but should be relatively dim since bright light may cause stress. If lighting is required for plants, then ensure there are plenty of dark refuges for the amphibians.

**Water testing kits are essential** so that water quality can be checked on a regular basis (once a week) to ensure it does not slip below the water requirements stated above.



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## Introducing your amphibian

Before adding any aquatic frog or axolotl, seek advice from your OATA retailer to make sure that your aquarium is an appropriate size for the species 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 aquatic frogs or axolotls you have in your aquarium slowly, as the population of beneficial bacteria established when maturing your aquarium filter need to increase every time more livestock 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 from the inhabitants, leading to unhealthy levels of ammonia and nitrite, which may cause aquatic frogs or axolotls to become ill or die.

Your OATA retailer will usually sell your aquatic frog or axolotl to you in a plastic bag or container, try to avoid keeping them in this for too long. Once purchased, take your new amphibian home as quickly as possible because they are easily stressed by bright lights, extreme temperatures, noise and movement.

Once home, your aquatic frog or axolotl 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 livestock 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 aquatic frog or axolotl for at least 30 minutes. Once complete, carefully release the aquatic frog or axolotl 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 aquatic frog or axolotl 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 solid waste from the sand). 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, 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.



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Good husbandry is essential as aquatic frogs and axolotls 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 livestock.

### What to watch out for

All animals 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:

- colour – turning a darker or paler colour than normal, or reddening of the skin
- temperament – changes in level of aggression or hiding more than normal
- appearance – development of white spots, fluffy growths or ulcers on the skin, loss of body parts, swelling of the body and limbs, and reduced size of gill tissue in axolotls
- feeding – reduced intake or lack of interest in food

It can be difficult to assess the behaviour of aquatic frogs and axolotls as they are normally still or slow moving with occasional periods of fast movement. If you are concerned about the health of any of your livestock, then test your water quality and contact your OATA retailer or a local veterinary surgeon who specialises in amphibians for further guidance.

### Feeding

Aquatic frogs and axolotls are carnivores and so should be fed accordingly. Frozen meaty items should be fed according to the size of the individual. Smaller frogs should be fed brine shrimp, bloodworm and other insect larvae. Larger frogs and axolotls should be fed larger items such as prawns, mussels and cockles. It is best to supplement these with specialist prepared pellets to ensure they are getting a balanced diet with added vitamins. However, it may take some time to wean individuals onto prepared food if they are not accustomed to it since they are unlikely to scavenge it from the bottom of the aquarium. Frozen or live food may need to be fed alongside prepared feeds until they learn they are edible.

Aquatic frogs and axolotls should only be fed once a day. They will need time to eat and food should be left for about 15 minutes to allow them enough time to feed. Remove any uneaten food after this time. 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

Both aquatic frogs and axolotls are best kept in species-only aquariums. This is because they will predate on any fish they can fit in their mouths and the gills of



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axolotls are likely to be nipped at by fish too large to eat. African dwarf frogs can be kept with some species of fish, provided they are not small enough to be eaten or too large, nippy or predatory which will stress the frogs.

## Breeding

It is possible to breed both aquatic frogs and axolotls in home aquariums. Male aquatic frogs will court the female by 'singing' to her. They then swim up to the surface and back down again as she releases eggs which he immediately fertilises. The parents will eat the eggs and resulting tadpoles and so the eggs should be separated soon after fertilisation. Once the tadpoles have used up their yolks, they will require microscopic live food such as infusoria. The size of live food needs to increase as the tadpoles grow and metamorphose into frogs.

Axolotls have a similar courtship routine where the male deposits spermatophores which he then encourages the female to pick up. She then deposits fertilised eggs on aquatic plants. These should be removed as the parents will predate on the young. Fry need to be fed baby brine shrimp and will then need to be graded according to size and separated as cannibalism is common.

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

## Shopping List

- Glass or acrylic aquarium
- Filter\*
- Heater
- Lighting (required for live plants)\*
- Aquarium 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.

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

### 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 aquatic frogs and axolotls.

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

### 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.

### 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 frog or axolotl.
- **Behaviour** – Frogs and axolotls are able to exhibit their normal behaviour e.g. hiding places for timid species, enough room for individuals to move freely.
- **Companionship** - Ensure you know whether your chosen frog or axolotl needs to be kept with, or apart from, other tankmates.
- **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.**



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 **You must be prepared to look after your animals properly for the duration of their life and provide an aquarium which can accommodate all fish when fully grown.**



\*Never release your aquarium animals or plants into the wild

It is illegal and for most frog or axolotl 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) 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 animals successfully.**



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