

Brackish Fish

How to care for monos, scats & archerfish

Monos, scats and archerfish are some of the more interesting species of aquarium fish. They originate from various habitats from all over the world, but all occur in estuaries at some point in their life and will require brackish water (water that has some salt in it, but not as much as marine sea water). Some species can be more challenging to keep than others as they require specific water parameters, but they will reward a committed aquarist with interesting behaviours.

Thanks to Maidenhead Aquatics for use of this picture



Water requirements

There are some very general guidelines for monos, scats and archerfish below. However, the parameters for this group of fish can be wide ranging and very species-specific so it is important to check with your OATA retailer before purchasing.

Salinity:	Consult with your OATA retailer*
Temperature:	between 24-27°C
pH:	7.5-8.5
Ammonia:	Zero mg per litre
Nitrite:	Zero mg per litre
Nitrate:	Not to exceed 50 mg per litre
General hardness:	Hard – will be determined primarily by salinity level used
Carbonate hardness:	Hard (7-20°dkH) – will be influenced by source water and desired salinity

*As a rough guide, low-end brackish conditions would be considered to be up to 1.005 specific gravity (s.g.), medium brackish between 1.005 and 1.015 s.g., and high-end brackish between 1.015 s.g. and full seawater (approximately 1.026). In general, archerfish will be happy in low-medium brackish conditions, whereas monos and scats will be better kept in medium or high-end brackish conditions, especially as they mature.

Biology

Monos are active fish, and the two species usually encountered (*Monodactylus argenteus* and *Monodactylus sebae*) grow to approximately 25-30cm. Juveniles can be kept in brackish water, but adults do best in full strength sea water. There are three species of scat: the spotted or green scat (*Scatophagus argus*) – of which there is a reddish-coloured variant sometimes known under the invalid name of the red scat (*Scatophagus "rubrifrons"*),



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the silver scat (*Selenotoca multifasciata*), and the less common African banded scat (*Scatophagus tetracanthus*). All scat species grow to 30-40cm. Juveniles can be kept in brackish water, but adults do best in full strength sea water. There are many different species of archerfish, which can be told apart by their patterning, but they all grow between 15 and 30cm. Some can be kept in freshwater, but most will need to be kept in brackish water. Ask your OATA retailer for advice on the specific species of archerfish in which you are interested.

All these species inhabit estuarine habitats and aquariums should replicate this unique habitat. Archerfish are famous for their ability to shoot water at insects near the water's edge, a behaviour which is easily demonstrated in aquariums. Monos, scats and archerfish are all social fish and should be kept in small groups of at least six. Those kept singly or in too small groups will often become stressed. Sexing monos, scats and archerfish will vary by species: some will have very obvious differences, whilst others will be harder to sex unless breeding.

Scats possess poisonous dorsal spines and so should be handled carefully. See our *Hazardous Aquatic Animals* guidance for more information. Please read this guidance so that you are aware of what actions to take should you or anyone else be harmed by these species. It is best practice to have a sign on the front or lid of the aquarium, warning people what hazardous species are in the aquarium and the risks they pose.

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 600 litres is used for a group of these fish because of their large adult size and active behaviour. 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.**

The tank should also have aquarium gravel or sand. It should have plenty of rootlike structures to provide areas of shade and cover. A background can be used to help darken the back glass and make these fish feel more secure. Some species of live plants can be used at low-end brackish levels, but none will tolerate medium to high-end brackish conditions. Scats and monos will also eat live plants, so it is better to use artificial plants. Monos, scats and archerfish will all appreciate strong water flow and lots of dissolved oxygen. An aquarium cover is essential as these fish can jump if startled.

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 these species will not appreciate bright overhead lighting.



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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.

The salinity level should be measured with a hydrometer or refractometer before adding new fish, and on an ongoing basis. A hydrometer measures salinity indirectly as specific gravity (s.g.), whereas a refractometer may have a scale for both s.g. and a direct reading of salinity in parts per thousand (ppt).

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 monos, scats or archerfish 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 from the fish, leading to unhealthy levels of ammonia and nitrite, which may cause fish to become ill or 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 (shaking). 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 because fish are easily stressed by bright lights, extreme temperatures, noise and movement.

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.



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For sensitive species or to ensure retailer water does not enter your aquarium, a better method might be the use of drip acclimation. This could be achieved by keeping the fish in the container in which it is sold and a small airline siphon started to drip water into the container, slowly changing the water parameters to that of the aquarium. Ensure that the temperature does not fall too low during this procedure. Once conditions match, carefully net the fish from the container into the aquarium. Dispose of the water in the transport container 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.

If possible, quarantining new livestock in a separate aquarium for at least a week before they enter the main tank can help reduce any risk of disease spread from new inhabitants. Ask your OATA retailer for advice on this topic.

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 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, 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 monos, scats or archerfish 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, hardness and salinity 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



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- condition – increase or decrease in body weight and condition
- feeding – reduced intake or lack of interest in food

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

Monos, scats and archerfish have differing nutritional needs. Monos and scats are omnivorous and will require a mix of frozen meaty items such as mysis shrimp, krill and brine shrimp alongside algae enriched flake or pellets, and fresh vegetables such as lettuce and peas. Archerfish are carnivorous and will require frozen meaty foods such as mysis shrimp, brine shrimp and krill, alongside floating pellets and flakes. It is important that the food floats and they can take it from the surface. They can also be fed insects such as crickets if placed hanging above the surface.

Monos, scats and archerfish should only be fed what they can eat within a few minutes, twice 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

As they have specific needs, it is recommended that monos, scats and archerfish are not mixed with other species, as few other species share their water chemistry requirements. Always ask your OATA retailer before mixing monos, scats and archerfish with other species as they will need to tolerate brackish conditions and also be large enough to avoid being predated upon. Monos can be kept in marine aquariums once they are adult.

Breeding

It is unlikely that monos, scats and archerfish will successfully breed in the home aquarium as their life cycle requires changes in salinity and microscopic foods which are not present in the home aquarium.

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)
- ▶ Marine salt and a hydrometer or refractometer
- ▶ Gravel cleaner/siphon cleaning device (recommended)
- ▶ Aquarium decorations and/or live plants
- ▶ Bucket for water changes
- ▶ Protein skimmer* (at appropriate salinities)
- ▶ Ultraviolet steriliser (optional but recommended)

*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 monos, scats and archerfish.

Maintain...

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

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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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

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) or decorations so that non-native organisms do not enter natural watercourses.

Visit 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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