

**GTRM Govt Degree College, Yerraguntla,
Nandyal Dist.**



**CERTIFICATE COURSE
ON
ORNAMENTAL FISHES**

DEPARTMENT OF ZOOLOGY

CERTIFICATE COURSE ON ORNAMENTAL FISHES

Activity: certificate course on ornamental fishes.

Place: GTRMGDC, YERRAGUNTLA

DATE: 01-0220-23.



Department of Zoology conducted a certificate course on ornamental fishes from February 1st 2023 to 3rd March 2023. All final year BZC students participated in this activity. All B.Sc (BZC) students and lecturers are participated in this certificate programme.

Principal Dr D Ramakrishna Reddy garu, zoology lecturer G.E.P.Vijaya Rekha ,botany lecturer B.Pullreddy, chemistry lecturer S.khasim sahib participated in the certificate course.

- All the staff members are give a brief introduction on certificate course

Objectives

Through active participation in this course participants will

- Expand their knowledge of the theoretical and practical understanding
- They get self employment skills.

SYLLABUS

Environment: Aquarium Size

Aquarium Dimensions

Quantity Fish

Types of Fish

Species of the Fish

Fish Age

Fish Size

Fish Gender

Territory/Dominance Hierarchies Predatory Fish

Other Considerations

Decorations and Plants Fish Breeding

Fish Personalities

Aquarium Considerations

Names of the enrolled students in the Certificate Course

S.NO	NAME OF THE STUDENT
1	N.V LAVANYA
2	C.ADI LAKSHMI
3.	D.BABY RANI
4	N.KISHORE
5	G.MANO HAR
6	C.PAVAN KUMAR
7	N. PAVAN KUMAR
8	S. RAJESH
9	S.RAJIYABEE
10	I SHIVAMMA
11	C.SNEHA
12	B.SREEKANTH
13	S.SUDHAKAR REDDY
14	C.VISHNUVARDHAN
15	M.YASMIN

AQUARIUM FISHES

1. PEARL GOURAMI (TRICHOPODUS LEERII)



They are simple to care for regard less of your experience level and only grow to around 4to 5 inches. What's more, they can live for around 5 years in a well-maintainedfreshwatersetup.

Social, curious, and peaceful to many of the other species on this list, pearl gouramis prefer fairly warm and acidic water. However, thanks to how hardy and adaptable they're, these spotted, peach-toned little fishes can forgive a beginner's mistake here andthere.

Keep in mind, though, that while the males are more colorful and vibrant than the females,they can be some what territorial too thermal egouramis .It's best to keep onl yone male gouramiper aquarium,r egardless of the tank's size.

2. SILVERANGELFISH(PTEROPHYLLUMSCALARE)



The silver angel fish is one of the more visually stunning fish on this list. It's sure to be a center piece of your aquarium if you choose to give one a loving home.

With its attractive silver body color, thin black striping, and long, thin, tendril-like fins, this fish is an excellent choice for beginner aquarium keepers and experts alike. It grows to a fairly modest 6 inches in length. Silver angel fish can live for an impressive 10 years in captivity, provided you meet their care requirements.

Like many of the other species on this list, you can safely house the silver angel fish with various similar-sized tank mates. Compatible species include corydoras, plecos, mollies, gouramis, and more. They prefer fairly warm water with a pH level of roughly 6.8 to 7.8.

3. NEON TETRA (PARACHEIRODONINNESI)



The neon tetra is a small type of aquarium fish that only grows to around 1.5 to 2 inches long. Despite its diminutive size, its bright blue, orange, and silver coloring makes it easy to spot even from a distance.

Native to parts of Colombia, Peru, and Brazil, these bright little fish prefer fairly warmwater. Their pH level should be roughly 4 to 7.5. They should be kept in small groups of at least 7 to 12 individuals and be provided with plenty of plants to seek shelter from time to time. Neon tetras can be housed with guppies, gouramis, mollies, and other tetras, among many other species.

GOURAMI



gourami, any of more than 90 fresh water tropical labyrinth fishes classified in the families Osphronemidae and Helostomatidae in the order Perciformes and native to Asia. One of the most familiar is the giant gourami (*Osphronemus goramy*), a Southeast Asian fish that is caught or raised for food; it has been introduced elsewhere. This species is a compact fish with a long filamentous ray extending from each pelvic fin. It attains a weight of about 9 kg (20 pounds). As an adult, it is brown or gray with a paler belly; when young, it is dark-banded and reddish brown.

4. ZEBRAFISH/ZEBRADANIO(DANIORERIO)



The zebrafish, also known as the zebra danio or striped danio, is a small yet visually appealing type of aquarium fish thanks to its shimmering silver body color and thin, uniform black stripes. They only grow to around 2 inches long, but they will easily stand out among the other fish in your freshwater aquarium.

They enjoy living amongst other zebrafish and other small, peaceful species like tetras, gouramis, corydoras, and more. They're very inexpensive at only around \$2 to \$4 per fish, and their care needs are also easy to maintain long-term. Zebra danios live for around 5 to 6 years in an optimal setup. They should be kept in a tank with room temperature water and a pH level of 7.0 to 7.8.

Zebra fish are especially great for beginner aquarium keepers, as they are extremely hardy and durable. They are mild-mannered fish that can easily thrive in tanks as small as 10

5. COMMON GOLDFISH (CARASSIUS AURATUS)



The common gold fish may seem like an odd choice for this list at first, but they can actually live for up to 20 years if you put some effort into meeting their needs. Fortunately, their care requirements are very simple. The fish prefer slightly warm water with a pH level of anywhere from 7.0 to 8.4. Goldfish start off small at around 2 to 4 inches, but they can reach sizes of 10 inches or more.

These surprisingly handsome fish look great in just about any freshwater aquarium thanks to their vibrant golden-orange color and long, wispy fins. Gold fish enjoy living along side various other peaceful species of fresh water fish. Compatible species include the aforementioned zebra danio (as well as other danio species), platys, plecos, and more.

Perhaps the best thing about the common goldfish is, well, how common and thus inexpensive it is. Whether you're a total beginner or a seasoned aquarium keeper, goldfish are always a great choice to fill up space. Plus, they are social, mild-mannered, and curious, so you'll enjoy observing them in captivity.

6. GOLDENEYECICHLID(NANNACARAANOMALA)



These peaceful little fish enjoy living in groups, both amongst their own species and alongside others small, non-territorial species. They prefer warm water of around 72 to 75 F with a pH level of around 6 to 7.5.

Keep in mind that goldeneye cichlids are fairly prolific breeders. This means you'll need to provide them with a fair amount of plant cover and spawning areas.

7. BLACKSKIRT TETRA (GYMNOCORYMBUSTERNETZI)



These small fish aren't the most vibrant in color. However, their wide eyes, handsome black stripes, and black skirt-like fins make them a lovely addition to any freshwater tank. They fare especially well in medium-sized community tanks made up of other small and peaceful fish. Compatible species include gouramis, danios, and various other tetras (including the neon tetra mentioned earlier). Black skirt tetras also generally prefer existing around at least 5 to 10 other members of their species, as they are schooling fish.

Inexpensive and easy to feed and care for, this particular type of aquarium fish thrives in tanks with fairly warm water with a pH level of 6.0 to 7.5.

8. RAINBOW PLATY (XIPHOPHORUS MACULATUS)



The rainbow platy is small in size at only 2 to 3 inches, but its beautiful orange, red, blue, silver, and green coloration makes it stand out with ease. If its minimal care requirements are met, it can easily thrive in captivity for up to 4 years.

In general, these colorful fish prefer living in aquariums at least 10 to 20 gallons in size. They fare best in warm water with a pH level of around 6.8 to 8.5.

9. ALBINOCORYDORAS (CORYDORAS AENEUS)



These tiny catfish are peaceful bottom feeders who coexist well with various small freshwater fish. Compatible species include tetras, danios, and other corydoras. They grow to around 2 to 3 inches long and can live for around 5 to 8 years in captivity.

Like most other species on this list, the albino corydoras is hardy and easy to care for. They can easily thrive in tanks as small as 10 to 15 gallons and especially enjoy living alongside other members of their species.

Ideally, these silver and pink fish should be kept in warm water with a pH level of 6.0 to 8.0.

10. COMMON MOLLY (POECILIAS PHENOPS)



Common mollies can easily be cared for in tanks as small as 10 gallons in size, and they play well with other small freshwater species, including corydoras (like the albin variety mentioned above), danios, gouramis, and tetras. They prefer warm water with a pH level of around 7.5 to 8.5. If their needs are consistently met, common mollies can live for up to 5 years in captivity and grow to around 4 to 5 inches long.

While maintaining an aquarium, make sure everything is level wherever you place your aquarium and stand. Use the level of a contractor and put it on your stand and your aquarium. All should be completely level. Otherwise, aquariums and stands can be in stress by uneven pressure, crack, and break eventually.

A 20-gallon aquarium holds 75.7 liters of water weighing around 80-90 kilograms. That is quite heavy, so the bigger tank you get, you require a stronger stand that holds your aquarium. Buy a stand that is designed for the dimensions and shape of your tank. [Note: it is not safe to have an edge of the tank sticking out over the side].

PLACEMENT OF YOUR TANK

There are a few things you should consider when choosing the right spot for your fish tank. If you don't select the right location for your fish tank, it doesn't matter what the size of your fish tank, you could end up struggling to maintain the water quality of your fish tank and it could become a more stressful environment to your fish. A little sunlight is beneficial for the tank but placing the tank near the window with a lot of sunlight is harmful to water since it increases phosphate levels in water and increases algae problem. Place the tank near a wall socket.

Step 2: Prepare the tank

Once you have figured where you are keeping the tank, you can start preparing your tank. First, before you add anything inside it, you have to clean it. If your tank is brand new, just dampen a cloth and wipe the dust off. Never use any kind of soap and detergent.

While you are cleaning the tank, you will also need to clean any kind of decorative items and substrate you want to keep in the tank. You will have to clean your tank with unused clothes, bu



Once you finish cleaning, check for any leaks. You would not want your tank water leaking everywhere. Add a couple of inches of water inside the tank in order to check. Leave it for an hour and check by running your fingers around the bottom of the edge.

Step 3: Cleaning and Adding Substrate or Gravel

Do not add gravel without cleaning it. Most of the beginner fishkeepers forget to do that. If you do not want your water to be cloudy, wash your substrate properly.

Fish Tank Setup

Once you have selected the tank's placement, it's time to begin setting up the aquarium. It is essential to wash the gravel well because unwashed gravel creates cloudy water in your tank. Place the gravel in a bucket and wash your gravel using your hand after a few minutes drain the water and repeat this process 4 to 5 times until wastewater is visibly clear. This cleaning process is beneficial in removing dust from the storage and transportation of the substrate.





The amount of substrate you want to keep is dependable. How thick do you want it? The general rule of thumb is you can keep 1 lb of substrate per gallon of water. If you want to make 1" thick bed, it will be enough.

You can start by adding a thin layer at the bottom. Be careful and do not scratch your tank. Then pour the rest of it slowly. You can raise some areas that can be higher. This will come in handy when you want to plant live plants.

If you decide to raise the gravel then make sure that the higher points are at the back of the aquarium and the lowest is at the front.

Step 4: Install Equipment | Choosing the right heater, filter, and lighting for Fish Tank Setup

You already have all the necessary equipment on hand. After the tank is full of water, you will need to install tools such as filters, pumps, lights, etc. in your tank.

If you purchased the internal filters, it is very easy to install. First, you will need to assemble all the parts of the filter. Then, you must mount the filter on the back wall and the wire must have an energy supply. For an underwater gravel filter, you will need to install the filter before adding the water.

Whereas the external filter goes outside the tank. External filters provide space for more media and more effectively filter the water. External filters provide more media space and filter water more efficiently.

Maintaining your fish water quality and water is an important factor in the comfort and well-being of your fish. I recommend you to get an automatic heater for your fish tank then shuts down once your minimum temperature is reached using a simple formula to buy the heater (1 watt per gallon of water). While choosing a filter, make sure that you get the filter that has a turnover of at least 3 times the volume of water per hour. Choose an appropriate light for the aquarium. Place the light on or above the tank and set a timer for no more than 8 hours a day.

Step 5: Filling up the Tank

Now that you have your substrate ready, you need to add water. Depending on the type of tank you are setting, you need to read the water for freshwater or saltwater tank.

For a freshwater tank, place a saucer or bowl so that pouring water does not disturb the substrate. Pour the water on top of the saucer and keep on doing this until the tank is full. Once the tank is full, add de-chlorinator. The instructions on how to add the de-chlorinator are usually in the bottle. You usually get 1 ml of de-chlorinator per 20 gallons.

For a saltwater tank, before you add the water into the tank, first, you will need to prepare it. The water for the saltwater tank should go through the process of Reverse Osmosis (RO). To achieve this, you can buy RO water or use the necessary treatments. You will also need to use the de-chlorinator.

Fill up the aquarium with hose pipette. This makes it easy to fill up the tank and change the aquarium water. Use water de-chlorinator after filling. [Note: always use de-chlorinator every time you do a water change.]

Step 6: Add Decorations and Plants

The next step to the fish tank setup is the decorations. In this step, you can finally focus on the aesthetic viewing of the aquarium. All the decorations and plants depend on you.

also suitable for the tank. You should always choose to make your tank visually pleasing.

Step 7: Cycling your tank. fishtanksetupforbeginners

In this stage, your tank is almost ready. However, you still need the most important thing. The Nitrogen Cycle. Cycling the tank means that you are creating a 'bed' of bacteria in your biological filter that is crucial for your future fish's health.



At this time you need to Cycle your tank water. Cycling your tank requires patients and consistent testing of the water so, Cycling is the most important part of setting up your new aquarium. This will help promote building de-nitrifying bacteria and is essential to set up your new tank. Use Aquarium Test Kit to monitor the tank's water. This alerts you to toxic aquarium conditions and saves your fish.

Your tank will still have toxins so if you add fish without proper cycle, your fish will not survive.

Aquarium Nitrogen Cycle

Freshwater Cycling

To begin with the process, first, add a few ammonia into the tank. There are commercially available ones in almost all fish stores. Follow the instructions carefully and carry out the test regularly. You will need to monitor the ammonia,

nitrates,
and nitrites level every week. Once the ammonia and nitrite level becomes 0 ppm, the cycle is complete. Then only the tank is ready for fish.

This process can take a few weeks. You can speed up the cycling process in a few ways. Add existing tank filter media to your tank.

Increase the temperature of the water
Increase oxygen levels using air pumps
Saltwater Cycling
Live rock is the most common form of cycling a saltwater tank. The bacteria build up within these rocks. Switch the rock to your tank from wherever you purchased it to keep the bacteria from dying.

It takes about 6-8 weeks to complete this process. It takes about 6-8 weeks to complete this process. Use 50 percent water change to eliminate any build of nitrates once you have tested your levels of ammonia and nitrite to 0 ppm.

Step 8: Adding Fish

Alas! You have been waiting for this moment. Reaching for this step may have consumed much time and effort. Make sure you do not ruin it by adding a whole bunch of fish all at once. You will need to take time to add fish as well.

add fish
slowly over a few weeks' time. It depends on the size of your tank, the amount you can add. Start by adding only 1 inch per 10 gallons of fish.

After that, the fish must be acclimated. The goal of acclimatization is to make fish immune to changes in their water so that you can transfer them gradually from one tank to another. The water they are in is typically slightly different from the temperature, pH, and salinity of your tank. If you want to be safe, you can observe confining fish for a few weeks in a separate aquarium.

After you have set up the fish tank, you always need to maintain and clean the tank regularly. Have a look at our article on cleaning and maintaining the aquarium.

What Can You Do To Acclimatize Your Fish?

Sometimes it will take time for your fish to adjust in the new environment. You can perform the following steps to ensure the acclimation.

You can turn off or dim the lights in your room and aquarium. Floating the bag for 15 minutes so that the temperature can change.

Cut the bag open at the top, and roll it down to create an air pocket that will allow the bag to float.

Add 1/2 cup of water to the bag from your tank. Repeat until bags are full every 4-5 minutes.

Throughout the whole 4-

5 minute bag, discharge half of the water in the bag and add 1/2 cup of water once more to the bag.

Take the fish with a net and slowly take it from your bag and add it to your aquarium. Throw out the water from the bag.

Monitor your new fish for the next 24 hours to make sure they relax and feed properly. Conclusion

Finally, before you impulsively buy an aquarium or fish, first, think things through thoroughly. This article mentions a lot of steps but once you get used to it, you

can maintain and care for it very easily. And, always remember to change the water regularly and make sure your tank is clean.

Quantity of Fish

Some freshwater species, such as Tiger Barbs, Tetras, and Danios can be a little boisterous at times but tend to behave better when in large

schools. Schooling fish are also less likely to be picked on when kept in large numbers.

The best practice for purchasing schooling fish is to buy them in groups of six or more. This deters the dominant fish from singling out the weaker/submissive fish.

Species of the Fish

Freshwater fish species, just like all animals, communicate in a variety of ways. These fish signals can sometimes be misinterpreted by other fish in the aquarium because fish from different parts of the world sort of speak different languages. It is important to research the fish species you are considering before trying to stock your aquarium with them.

Cichlids, Loaches, Knife Fish, and other territorial fish do not often share aquarium space well with members of their own kind or closely related fish species. Having a large aquarium with plenty of cover and décor does help, but many of these types of fish are best kept as individuals with tank mates that aren't similar-looking or closely related.

Asking our fish experts at The Ocean Floor about how to put together a community fish tank with a variety of species is always a good option. For example, finding an appropriate fish compatible with Bettas can be challenging but our experts can help advise you.

Fish Age

The age of a

fish is also an important aspect to consider when building a community tank because juvenile fish typically tend to be easier going even if they are known to be aggressive as adults. Young fish can often be mixed with a wider selection of aquarium mates because they'll be more likely to accept them as they grow and mature. There have

been many reports of larger predatory fish coexisting with feeder fish they could easily swallow but don't because both fish were the same size when introduced, before the predatory fish grew larger and learned to eat other fish.

Fish Size

Most fish will be opportunistic with food. Even a relatively peaceful fish species will try to eat other fish if they think they can. That is why it is best to buy fish that are about the same size as the others in your aquarium. If you are mixing territorial fish species, then the new ones should be at least the same size as the largest and most aggressive fish already in the aquarium.

Fish Gender

Although one might not think of it right away, fish gender can also play a role in the ability of fish species to get along in a community aquarium. Male fish have a penchant for being more territorial and aggressive than the females of a fish species, especially when mating.

Avoid having more than one male of a similar or closely related territorial species fish within a community, especially if females are present. It is also a good idea to keep live-bearing fish in ratios of 2 to 3 females per male in order to lessen the persistent mating behavior of the males.

Territory and Dominance Hierarchies

Territory and dominance hierarchies are particularly common in the Cichlid community, where pecking orders exist, and a smaller or submissive fish may be picked on and need to be removed for their safety. Removing the aggressive fish is another option, but the next fish in the order may assume the dominant role and continue the cycle of aggression.

Predatory Fish

When someone thinks of a predatory fish, they often think of a large, aggressive fish like what is found in the Cichlid family, but there are other species of freshwater predators such as Catfish, Arowanas, Leaf Fish, Bichirs, Gar, and more. For species such as these, whatever they can fit in their mouth is fair game. That doesn't inherently make them aggressive, just hungry.

Fish Food

Fish require special fish foods. Do not even think that you can feed the fish diet that you eat. The fish diet should be rich in proteins and fat. Hence, it is essential to feed your fish the commercially available food only meant for them.

Dry foods

Flake food is a type of proprietary or artificially manufactured fish food consumed by a wide variety of tropical and saltwater fish and invertebrates. It is ideally suited to top dwellers and mid-water fish though numerous bottom dwelling species consume

flake food once it has settled on the bottom. Flake food is baked to remove moisture, ensuring a longer shelf life. Generally the more moisture a particular example of fish food contains, the more readily it will deteriorate in quality.

Dry foods are also available as pellets, sticks, tablets, granules, and wafers, manufactured to float or sink, depending on the species they are designed to feed.

Vacation food

Vacation foods, also known as "food blocks", are designed to be placed inside the aquarium to forgo feeding while the owner is absent. These blocks release small amounts of food as they dissolve. Food blocks can be a good choice for smaller tropical fish, but can pollute the water if the tank is neglected for too long.

Medicated fish food

Medicated fish food is a safe and effective method to deliver medication to fish. One advantage is that medicated food does not contaminate the aquatic environment and also, unlike bath treatments, does not negatively affect fish, filtration and algae growth in the aquarium. The parasites will get treated spot on by medicated food, because the fish is ingesting it.

Freeze-dried and frozen fish diets

Freeze-

dried and frozen fish foods were primarily developed for tropical and marine fish and are useful in providing variety to the diet or specialist feeding needs of some species. These include tubifex worms, mosquito larvae, bloodworms, water fleas (*Daphnia* and *Cyclops* spp.) along with brine shrimp (*Artemia salina*).

Frozen fish food

Perishable food can be preserved by frozen storage, and is often sold in blister packs or resealable packets. These can contain a variety of ingredients such as bloodworms, *Daphnia*, or brine shrimp, and are commonly used to feed such

fish as Discus which require a high protein diet. Often fed on beef heart fish food within the aquaculture industry, the discus fish are not the only fish which can benefit from a high quality prepared frozen mixture such as beef heart, although by far these are the fish most associated with this particular frozen food.

Live foods

Live fish food include earthworms, sludge worms, water fleas, bloodworms, and feederfish. Food for larvae and young fish include infusoria (Protozoa and other microorganisms), newly hatched brine shrimp and microworms. These are the most preferred type of food for fishes, but are difficult to get. However, freeze dried forms of earthworms, tubifex etc. are available now.

Decorations and Plants

Many fish need a place to claim as their own, and fish define their personal territory by physical boundaries. They also tend to mind their own business when they can't see each other. So, aquarium décor such as rocks, caves, driftwood, and other decorations help define territory for freshwater species such as Cichlids and other territorial fish. Tall, bushy plants provide habitat and give schooling fish such as Tetras, Barbs, Danios, and Rasboras their own areas. Visit our supplies page to select items for your freshwater environment.

One way to help deter aggression when introducing new territorial fish to an existing community tank is to add a few new décor items and rearrange existing items in order to eliminate territories controlled by established fish.

Fish Personalities

Although we can observe and make general observations about the behavior patterns of a fish species, there will always be exceptions. The factors mentioned previously can affect fish interaction in an aquarium but fish, like all creatures, will have individual personalities and will sometimes behave in unexpected ways. The best practice is to simply expect the unexpected and separate fish that don't get along.

Recommended Freshwater Aquarium Fish Combinations:

Although there are a ton of potential freshwater fish combinations, after speaking with our fish experts at The Ocean Floor, we made this list of combinations that have

proven to be successful for both owner and fish in order to help you put together your freshwater community aquarium. Peruse our selection of freshwater fish.

Fish combinations Apistogramma Dwarf Cichlid and Green Neon Tetra

1) Apistogramma Dwarf Cichlid and Green Neon Tetra

Apistogramma are stunning and interesting fish that come from South America in the Amazon region. They do great in small tanks with warm, soft water with tannins from driftwood and Catappa leaves. Apistogramma have a similar appearance to both African and common South/Central American Cichlids. Unlike many larger Cichlids, they stay very small with the largest varieties rarely growing over 3.5 inches.

There are many different varieties to choose from and they are generally peaceful towards many other types of community fish like Green Neon Tetras. Green Neon Tetras have a beautiful all blue and green hue running across their body. They tend to do better in softer water and the tannins in the water tend to make their color really pop. Green Neon Tetras tend to hang out up top, peacefully darting around, which is a beautiful contrast to the Apistogramma posturing toward each other while inhabiting the structure on the bottom of the tank.

1) Apistogramma Dwarf Cichlid and Green Neon Tetra

2) African Cichlids and Synodontis Catfish

3) Rainbow Shark and Tiger Barb

4) Guppies and Cherry Barbs

5) Discus, Rummy Nose Tetra, and Cardinal Tetra

6) Managuense Cichlid, Red Hook Silver Dollar, and Pictus Catfish

	Angelfish	Barb	Betta (Female)	African Cichlid	South Am. Cichlid	Cory Catfish	Danio/Minnow	Discus	Eel	Goldfish	Gourami	Guppy	Koi	Loach	Molly	Oscar	Platy	Plecostomus	Rainbowfish	Rasbora	Shark	Swordtail	Tetra	Shrimp and Crab	Plants
Angelfish	✓	✓	✗	✗	✗	✓	✓	✗	!	✗	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Barb	✓	✓	✗	!	✗	✓	✓	!	!	✗	✓	!	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Betta (Female)	✗	✗	!	✗	✗	✓	✓	✗	✗	✗	✗	✓	✗	!	✓	✗	✓	✓	✓	✓	✗	✓	✓	!	✓
African Cichlid	✗	!	✗	!	!	✗	✗	✗	!	✗	✗	✗	✗	!	✗	!	✗	!	✗	✗	!	✗	✗	!	✓
South Am. Cichlid	✗	✗	✗	!	!	✗	✗	✗	!	✗	✗	✗	✗	!	✗	!	✗	!	✗	✗	✗	✗	✗	✗	✗
Cory Catfish	✓	✓	✓	✗	✗	✓	✓	✓	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Danio/Minnow	✓	✓	✓	✗	✗	✓	✓	✗	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Discus	✗	!	✗	✗	✗	✓	✗	✓	!	✗	!	✗	✗	!	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Eel	!	!	✗	!	!	!	!	!	!	✗	!	!	✗	!	!	!	!	✓	!	!	!	!	!	!	✗
Goldfish	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	!	✗	✗	✗	!	✗	✗	✗	✗	✗	!	✓
Gourami	✓	✓	✗	✗	✗	✓	✓	!	!	✗	!	!	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Guppy	✗	!	✓	✗	✗	✓	✓	✗	!	✗	!	✓	✗	✓	✓	✗	✓	✓	✓	✓	!	✓	✓	!	✓
Koi	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	!	✗	✗	✗	!	✗	✗	✗	✗	✗	!	✓
Loach	✓	✓	!	!	!	✓	✓	!	!	!	✓	✓	!	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Molly	✓	✓	✓	✗	✗	✓	✓	!	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Oscar	✗	✗	✗	!	!	✗	✗	✗	!	✗	✗	✗	✗	✗	✗	!	✗	!	✗	✗	✗	✗	✗	!	✗
Platy	✓	✓	✓	✗	✗	✓	✓	✓	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Plecostomus	✓	✓	✓	!	!	✓	✓	✓	!	!	✓	✓	!	✓	✓	!	✓	✓	✓	✓	✓	✓	✓	!	✗
Rainbowfish	✓	✓	✓	✗	✗	✓	✓	!	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Rasbora	✓	✓	✓	✗	✗	✓	✓	!	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Shark	✓	✓	✗	!	✗	✓	✓	!	!	✗	!	!	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Swordtail	✓	✓	✓	✗	✗	✓	✓	!	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Tetra	✓	✓	✓	✗	✗	✓	✓	!	!	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	!	✓
Shrimp and Crab	!	!	!	!	✗	!	!	!	!	✗	✗	!	!	✗	!	!	!	!	!	!	!	!	!	!	✓
Plants	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	!	✓

✓ Generally Gets Along
✗ Does Not Get Along
! Can Sometimes Get Along

How To Maintain The Oxygen Level In An Aquarium?

November 21, 2020 by Salony Shakya

There are circumstances where the fish feel the lack of oxygen just like any other living creature. They take oxygen from the water, unlike other living beings which take oxygen from the open air. For such activity, fish needs regular oxygen supply and one should check the oxygen level in their aquariums time and often. Here is how you should maintain the oxygen level in the aquarium to keep your fish healthy.

In case of an emergency situation, you can do a water change of about 50%. This increases the oxygen level instantly. Moreover, using an air pump to pump the oxygen is the fastest way to maintain the oxygen level.

How Fish Breathe?

Unlikeland

creatures, fish have gills to breathe in oxygen which is present in the water. First, they take a gulp of water through their mouth which then passes through the feather-like fibers of the gills.

Secondly, these gill fibers absorb the oxygen from the water and send it to the bloodstream. Finally, the heart distributes the pumped blood throughout the body of the fish and simultaneously releases carbon dioxide through the gills.

Importance Of Oxygen Level For Fish

Dissolved oxygen (DO) is important for fish in order to survive. The depletion of DO is one of the major causes of fish deaths. Dissolved oxygen is also responsible for the growth of fish and fish appetite. So maintaining the right DO is crucial for maintaining the mortality rate.

Excess fish in a tank produces excess waste which the bacteria feeds. Your aquarium requires an adequate balance of bacteria as well in order to complete the nitrogen cycle.

But if the waste is too much, the bacteria can deplete the oxygen which is required by the fish so maintaining the waste is important so that the fish can get enough oxygen. Also, excess waste can lead to the generation of ammonia and nitrates which results in depletion of oxygen.

Find out Why Do Fish Tanks Get Dirty So Fast and How To Clean And Maintain Tanks.

Right Amount Of Oxygen In A Fish Tank

Fish are very sensitive to low oxygen and will immediately respond to it. It shows symptoms such as moving less, eating less, and also panting at the surface of the water.

These aquatic beings would miserably be searching for more oxygen leading them to let more and more water pass through their gills. This activity can also be confusing to them reacting to feeding them, the difference is

This, however, does not apply to every breed of fish, and for some like bettas and gourami is totally natural behavior.

The factors responsible include the temperature of the water where if the temperature rises, the amount of oxygen that the water can hold falls. Another factor is the amount of salt in the water, the saltier the water, the less oxygen it holds.

Considering the size of the fish, the smaller the fish the lesser the oxygen required and vice versa. Moreover, the feeding rate also describes how much oxygen fish needs. The more you feed them the more oxygen they require.

So, generally speaking, there is not a clear answer to how much oxygen does a fish need. There are also various kits you can use to measure the oxygen level of your tank. According to the fish in the tank, different tanks require different oxygen levels.

Checking The Oxygen Level

There is a portable dissolved oxygen meter for you to check the oxygen level of your aquarium. It is used by calibrating the meter first and you can place it in the water for the readings. It usually shows how many milligrams of oxygen are there in each liter of water.

There are also chemical test items that are used to check the oxygen level in terms of the pH meter. But be sure to test the chemicals before purchasing them as some might be harmful to the fish.

KKmoon Digital Dissolved Oxygen Detector Water Quality Tester is a portable dissolved oxygen meter, DO Pen Type Water Quality Tester Dissolved Oxygen Analyzer which is perfect for you.

Causes For Low Oxygen Level

Low oxygen levels are nightmares for fish in an aquarium. The common causes of low oxygen level might be:

Overstocking Of Fish

It is self-

explanatory that, the greater the number of fish in an aquarium, the more oxygen each individual fish needs so this is one of the most common reasons for low oxygen.

[How To Set A 50-Gallon Fish Tank? Learn about it here.](#)

Water Temperatures

Changes in water temperatures also define how much oxygen is needed, as mentioned earlier, the higher the temperature, the less oxygen the water can hold and vice versa. So, maintaining the right water temperature is quite important for fish.

Chemicals Usage

Using chemicals does not necessarily deplete the oxygen level but some chemicals which are used to cure the diseases might affect the oxygen-carrying capacity of water to some extent. So, you must increase the circulation of water before treating the fish if it somehow manages to deplete the oxygen.

[Maintain Aquarium Water Hardness properly from our Freshwater Aquarium Guide.](#) [Changes In Water In The Past Few Days](#)

If you made some changes to the water, for instance, change the water itself or added some types of equipment in the aquarium.

Fish Breeding

Just like many animal species across the globe, fish during breeding time can become especially defensive. Fish during breeding time will take over large areas of an aquarium, usually pushing all other tank inhabitants into a corner. It is best to have a dedicated breeding tank in order to mitigate this problem.

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Max marks
50 Max time 1½h
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Write the following

- | | |
|---|-------|
| Write a note on various ornamental fishes | 20mrk |
| Write steps involved in maintenance of a aquarium | 20mrk |
| Give short notes on maintenance of water pH in a aquarium | 10mrk |