

Aquarium Management



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TIPS ON AQUARIUM MANAGEMENT

Ornamental Fishery

- Aquarium keeping has emerged as the second most popular hobby in the world in recent years.
- Ornamental fishes usually mean attractive colorful fishes kept in glass containers of different shapes, size or garden pools & apart from aesthetic appeal it was found to reduce stress and control blood pressure.
- Quite cheap and convenient to pursue it as a hobby by all age groups.
- Easy to create novelty at lower cost.
- Extended choice and diversity.



How to choose/ select Aquarium?

- A glass aquarium with detachable hood and a stand which can hold the aquarium.
- The glass should be of minimum 6-8 mm thickness/ transparent moulded poly carbonate body with lighting arrangement inside the upper lid.

Types of accessories for aquarium?

- Choosing accessories depends on several factors such as size, cost, space available, aquarium design and the needs of fish and plants.
- The four important things required for an aquarium is lighting, heating aeration, good filtration system, and aquascaping.

Why lighting?

- It provides stimulus for the activity of both fish and plants.
- When the aquarium light is switched on, the plants take up CO₂ from the water and release Oxygen.
- Good light for at least 6-8 hrs is required for healthy growth of fishes.
- Different types of light sources are available. The common types are fluorescent tubes, sodium vapor lamps etc.

Why heating?

- Most of the tropical fish survive better in the temperature range of 25-27 C.
- Fall in temperature below the normal range affects fish growth, metabolism and weakness resistance.
- Glass immersion heater with a thermostat is a must for colder climates when winter day time temperatures fall below 10 C in aquarium.
- A good thermometer should also be used along with heater to monitor the temperature as excessive heat will increase ammonia toxicity and reduce dissolved oxygen.

Different types of filters are:

- Under gravel filter.
- Under gravel filter with power head.
- Internal power filter.
- External power filter.

Why filtration?

- Different varieties of fishes which are naturally found in open water bodies are brought into the confined environment of the aquarium. To maintain the water quality it is essential to remove fecal matter and food wastes.
- A good filter should provide:



- A. **Mechanical filtration:** to remove the particulate waste products as well as other suspended matter as it passes through the filter media.
- B. **Biological filtration:** uses bacterial action to break down the toxic organic products of fish metabolism into safer substances.
- C. **Chemical filtration:** it can remove ammonia, change pH, hardness of water. Discoloration of the water to be done by using dyes like methylene blue, malachite green.

Why aeration ?

- A. **Create tank current:** Fishes are found in rivers and streams where they swim against the current in search of food. Moderate current inside the tank/ aquaria simulates natural environment to some extent/ aeration.

Why Aqua scaping?

- They beautify the tank imparting it a natural look and creating miniature aquascape.
- They bring about water conditioning.
- They provide shelter for fish.
- They provide an ideal background/ vista against which the fishes display their natural color in true perspective.



Species selection for Aquarium:-

- Select compatible ornamental fish species for rearing in aquarium as not all fishes are gregarious. If incompatible fishes are kept in aquarium they fight amongst themselves/ leading to death & injuries.
- Tiger barb, angel fish, gold fish, black molly, sword tail, kissing gourami, guppies etc. can be reared in together aquarium.
- Species/ fishes should be healthy and free from diseases & visual injuries.
- Overcrowding should be avoided as each fish requires minimum of space and won't lead to depletion of oxygen content in water.

Aquarium management:-

- Monitoring of water quality and fish health should be carried out every alternate day.
- Observe fish behavior minutely and anything unnatural noticed should be attended to promptly. Take out suspended particles and dead fishes immediately with the help of Aquarium scoop net.
- Switch on lighting for at least 6-10 hours a day.
- Keep air pump and submersible filter operated for at least 6-8 hrs a day.
- Start heater when the water temperature dips below the normal range and should not be kept on heating for a longer time.
- Clean and disinfect the aquarium at least once in a month for better results.

Feeding:-

- Successful rearing of aquarium fish depends on timely availability of appropriate food.
- Feeds can be live or artificial/ formulated feed.

Importance of live fed:-

- In general ornamental fish prefers live food.
- Live food may be of plant origin (Phytoplankton), animal origin (infusoria), tubi fix, earth worm, clam meat, Artemianaupli (brine shrimp).
- Live feeds are the most suited feeds for ornamental fishes.
- Live feeds also induce better coloration of fishes besides providing nutritional balanced diet.

Requirement of artificial feed:-

- Though live feeds are superior to formulated one, ensuring steady supply of live feed in aquaria is not always easy or practical.
- Artificial feeds are available in both floating and sinking form. Floating feeds are available in globule and in flake forms while sinking feeds are in pallet form.
- Utmost caution is to be taken against over feeding. The feed quantity should be limited to the amount that will be fed upon within 5-10 minutes time.
- Over feeding leads to rapid water quality deterioration.
- Artificial feeds are more convenient since they can be prepared ahead and stored for longer period of time for later use.



Frequency of feeding.

- Feeding should be done preferably in small quantity two times a day that is morning and evening. Over feeding at all cost should be avoided so as to keep the water quality clean.

Fish health and diseases management in aquarium:-

- It is more important to avoid conditions which lead to diseases.
- Disease outbreaks are associated with poor water quality, overcrowding or inadequate nutrition.
- Optimum range of water parameters for ornamental fishes should always be maintained round the year and are:

Parameter	Range
Temperature	24-28 C
pH	6.5-8.5
Alkalinity	70-120 ppm
Hardness	60-100
Dissolving Oxygen (DO)	6.0-8.0 ppm

- Contaminated or bad quality food or a lot of leftover food can be a cause for diseases.
- Keeping of incompatible species in the aquaria cause injuries which can lead to infection.

Common Symptoms of Diseases:-

- Paling or darkening of body.
- Lack of appetite.
- Excessive mucus secretion.
- Increased or decreased breathing rate with gasping.
- Uncontrolled swimming.
- Staying still in dark corners or at surface of water.
- Scratching of body against hard objects in the tank.
- Fecal matter attaching to the anus in the form of rope without breaking off.
- Cloud eye.
- Frayed fins, with some parts rotten or worn off.
- White spot or nodules anywhere in the body.
- Appearance of body ulcers.
- Slimy covering on the body with fish showing irritation.

Types of Diseases & its Treatment:-

Common Disease/Symptom	Recommended Treatment
➤ Tail rot and fin rot diseases	Salt water treatment as continuous bath for five days
➤ Ulcer diseases and hemorrhagic septicemia	Antibiotic treatment
➤ Cotton wool disease or mouth fungus	Antibiotic treatment
➤ Abdominal dropsy	Broad spectrum antibiotic.
➤ Fungal infection	Methylene blue & malachite green treatment for several days
➤ White spot disease or “Ich”	Malachite green and commercial formalin treatment as a continuous bath for several days.
➤ Gill fluke or skin fluke	Improving water quality with 30-50% exchange of water.
➤ Fish lice & gill maggots	Deep bath with potassium permanganate.
➤ Leech infestation	Deep treatment with salt water and the aquarium should be thoroughly disinfected.

All these treatment are to be carried out in a separate tank/ aquarium and when fishes get cured then only they can be introduced bank to the system/ aquarium.



For more information/detail contact:

District Fisheries Development Officer of respective Districts
Or
The Directorate of Fisheries
Itanagar (Arunachal Pradesh)