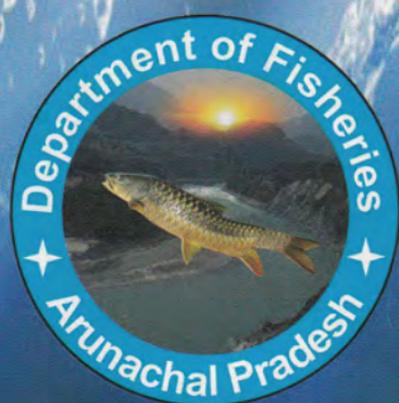


AQUARIUM MANAGEMENT



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TIPS ON AQUARIUM MANAGEMENT

Why Aquarium keeping?

- ⇒ Aquarium keeping has emerged as the second most popular hobby in recent year.
- ⇒ Ornamental fishes usually mean attractive colorful fishes usually kept in glass aquarium or garden pool for fun and recreation.



What are its advantages?

- ⇒ Quite cheap and convenient to pursue this hobby
- ⇒ 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 and preferably 36" x 12" x 18" which is of standard size or as per requirement depending upon space available.



Types of accessories for aquarium?

- ⇒ First and most important decision of choosing the right aquarium accessories depends on several factors such as size, cost, space available, aquarium design and the needs of fish and plants.
- ⇒ The three important things required for an aquarium is lighting, heating and good filtration system with accessories of aqua scoping.

Why lighting?

- ⇒ It provides stimulus for the activity of both fish and plants
- ⇒ When the aquarium light is switched on, the plants take up CO_2 from the water and give off oxygen.
- ⇒ Good light for at least 6-8 hrs is required for the healthy growth of fishes
- ⇒ Different types of light sources are available. The common types are fluorescent tubes, sodium vapor lamps and metal halides



Why Heating?

- ⇒ Most of the tropical fish survive better in the temperature range of 25-27 °C
- ⇒ With the fall in temperature below the normal range it affects fish metabolism and possibility of outbreak of diseases.



- ⇒ Good glass immersion heater fitted with a thermostat is of immediate necessity 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 the DO

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 and better survival of fish good filtration should be provided in aquarium.

- ⇒ A good filter should provide :

- Mechanical filtration** to remove the particulate waste products as well as other suspended matter as it passes through the filter media.
- Biological filtration** uses bacterial action to break down the toxic organic bi products of fish metabolism into safer substances
- Chemical filtration:** it can remove ammonia, change the PH or hardness in the water. Discoloration of the water by dyes like methylene blue, malachite green which is used for treating fungal disease
- Create Tank Current** fishes are found in fast flowing rivers and Streams where they swim against the current in search of food. If moderate current inside the tank/aquaria is created fishes survive for a longer time



◆ Different types of filter are:

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



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 and 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
- ⇒ Tiger barb, angel fish,





gold fish, black molly, sword tail, kissing gourami, guppies etc. can be kept/reared in the aquarium

- Species/fishes should be healthy and free from diseases
- Species should be quarantined before introduction into the aquarium
- Overcrowding at no point of time should be allowed



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 any suspended particles and dead fishes if any immediately with the help of Aquarium scoop net
- Switch on lighting for at least 10-12 hours a day in extended time frame
- Keep air pump and submersible filter operated for at least 6-8 hrs a day in extended time frame
- Induct 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 result

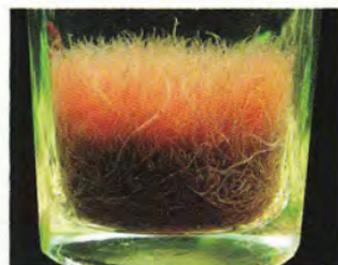
Feeding

- 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 fex, Earth worm, clam meat, Artemia naupli (brine shrimp)
- Live feeds are the most suited feeds for ornamental fishes
- To being of high quality nutritionally, live feed also induce better coloration of fishes and keep them healthier



Requirement of artificial feed

- Though live feeds are superior to formulated ensuring adequate supply of appropriate—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 at one time. 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

Fish Health and Diseases Management in Aquarium

- ⇒ It is more important to avoid conditions which leads 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
DO	6.0-8.0 ppm

- ⇒ Contaminated or bad quality food or a lot of leftover can be a cause for disease
- ⇒ 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
- ⇒ Un controlled 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 a rope without breaking off.
- ⇒ Cloudy 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

- Tail rot and fin rot diseases
- ⇒ Treatment: Salt water treatment as continuous bath for five days.





Fungus



- Ulcer diseases and hemorrhagic Septicemia
- ⇒ Treatment : Antibiotic treatment.
- Cotton wool disease or mouth fungus
- ⇒ Treatment : Antibiotic treatment.
- Abdominal dropsy
- ⇒ Treatment : Broad spectrum antibiotics.
- Fungal infection
- ⇒ Treatment : Methylene blue & malachite green treatment for several days.
- White spot disease or "Ich"
- ⇒ Treatment: Malachite green and commercial formalin treatment as a continuous bath for several days.
- Gill fluke or skin fluke
- ⇒ Treatment : Improving water quality with 30-50% exchange of water.
- Fish lice & gill maggots
- ⇒ Treatment : Deep bath with potassium permanganate.
- Leech infestation
- ⇒ Treatment : 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 gets cured then only they can be introduced back to the system/aquarium

For more information/detail contact :

**District Fisheries Development Officer of
respective Districts**

Or

**The Directorate of Fisheries
Itanagar (Arunachal Pradesh)**

