Use of aquarium space

- Fish have different lifestyles. Some species feed from the surface, some from the middle water level, and some from the the bottom.

- It is possible to place fish at every water level and provide shelter.
- Thus, the aquarium can be used marginally.

Aquarium Tank

•Although frame tanks are economically attractive, they are considered old-fashioned. These tanks usually consist of metal frames and glasses that are joined to these frames with putty.

•The frames are made of enameled iron alloy or stainless steel. No matter what the metal parts are, the structure will deteriorate over time and release toxic substances into the water. These tanks, which quickly rust due to salt in sea water, are not suitable for marine aquariums.

•Another tank type is acrylic tanks. This type of tanks are known to release a small amount of toxic substances into the water. But these tanks look aesthetically beautiful.

•Although an aesthetic material, acrylic is not very stiff and can be drawn very easily. For this reason, the brightness of acrylic disappears over time. It may turn yellow in time.

•Therefore, the most healthy and useful tank types are considered to be made of silicon-glued glass.

•The thickness of the glass is important in terms of durability of the tank. The thickness of the glasses of 45, 90, 120 cm tanks without metal supports should be 4 mm, 6.5 mm and 10 mm respectively.

Properties and use of fresh water

•Fresh waters contain very small amounts of disolved salt, some acids and various gases. When the amount of sodium and calcium is measured by various instruments, soft or hardness of water can be determined.

•Fish species require soft hard or low salt aquarium water similar to natural habitats. Distilled water should be added to reduce the hardness of the water and salt should be added to increase the salt ratio.

•Some fish species, especially during the breeding period, prefer the high acid water. In such cases, tannic acid may be added to the water.

Properties and use of sea water

Sea water contains salinity between 0.2-4%. These values should be prepared in the aquarium according to the fish species. In addition to salinity, other elements are needed. For this reason, it is of great benefit to use specially prepared mixtures.

- The drawback of using these mixtures is that they do not contain useful bacteria and micro-organisms in the sea water. In order to prevent this, sand and filter particles must be mixed from the aquariums already installed in the newly formed aquarium waters.

- In addition, the mixture prepared with fresh water should be ventilated for 48 hours before the addition to the aquarium.

Wastes

There are metabolic wastes (urine and feces) and dissolved protein molecules caused by food residues due to living things in aquariums. The majority of protein waste is composed of albumin.

•Over time, these wastes are transformed into toxic products such as ammonia and accumulate.

•These products can only be converted by bacteria into less toxic substances such as nitrate.

•Nitrate is a necessary product especially for the nutrition of plants. But over 100mg / L is considered dangerous.

•This can be overcome in fresh water by changing 1/3 of the aquarium water weekly and by appropriate filtration.

•In marine aquariums with a large number of big fish, there is a need for biological filters containing suitable bacteria columns.

Ventilation

- Except for some bacteria species, all living things in the aquarium need dissolved oxygen to survive in water. The oxygen demand in tropical aquariums reaches much higher dimensions due to the inverse proportionality of temperature-dissolved oxygen.

- For this reason, aeration pumps are needed to ventilate the aquariums.

- Pumps must be silent and durable in order to ensure uninterrupted ventilation.

- If centrifugal pumps are used for the filtration process, pipes made of plastic or silicone connected to pumps can provide air connection with outside. In addition, turbulence in water is a desirable property of many fish.
- This mobility also allows the gas to be exchanged with the atmosphere and oxygen saturation in a short time.
- In order to prevent the transport of contaminated gases into the water in the aquariums held in dirty environments, the air taken from the atmosphere have to be passed through the water in a closed container. It provide opportunity to eliminate most of the toxic substances.

Filtration

- Water must be filtered to remove decaying feed residues and particles. Various filtration devices are available for this purpose.

- It is most appropriate to select the external filters with centrifugal pumps. The use and function of internal filters is limited.

- The ideal filter for aquariums should be able to filter all water 5 times within 1-2 hours.

- Nylon and carbon filters are used for filtration. Carbon filters can also be used conveniently for chemical cleaning. The pumice stone placed inside the filters is useful in providing the necessary trace elements and marble particles providing the pH adjustment.

- It is more useful to use protein collectors in marine aquariums.

- Filters used in filtration must be changed periodically.

A typical aquarium filtering system:

(1) Water intake
(2) Mechanical filtration
(3) Chemical filtration
(4) Biological filtration medium
(5) Enterance to aquarium tank