Aquarium Management
Fish need a place to live!

• Just like all living organisms, fish need a place to live.

• The habitats fish live in are known as ecosystems.

• Ecosystems can be large, like an ocean or small like an aquarium.
Basic Needs

• Appropriate housing
• Nutrition
• Hygiene
• Enrichment
Enclosure Components

- Aquarium
- Stand
- Location
- Water
- Temperature Control
- Lights
- Environmental Enrichment
- Filtration
- Water Quality
Aquarium

Consider:
- Size
- Shape
- Materials
• Some fish need warm water and some fish need cold water.
• In an aquarium, it is important to keep fish at the right temperature so they do not get sick.

Fact: Water from your faucet has chlorine in it. This is harmful to fish and must be removed!
<table>
<thead>
<tr>
<th>Freshwater Parameters</th>
<th>Freshwater Community</th>
<th>African Cichlid</th>
<th>Freshwater Plants &amp; Discus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>72 - 82°F</td>
<td>72 - 82°F</td>
<td>76 - 86°F</td>
</tr>
<tr>
<td>pH</td>
<td>6.5 - 7.5</td>
<td>7.8 - 8.5</td>
<td>6.0 - 7.5</td>
</tr>
<tr>
<td>Ammonia</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Nitrite</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Nitrate</td>
<td>&lt; 50 ppm</td>
<td>&lt; 50 ppm</td>
<td>&lt; 30 ppm</td>
</tr>
<tr>
<td>Alkalinity (Carbonate Hardness)</td>
<td>4 - 8 KH</td>
<td>10 - 18 KH</td>
<td>3 - 8 KH</td>
</tr>
<tr>
<td>General Hardness</td>
<td>4 - 12 GH</td>
<td>12 - 20 GH</td>
<td>3 - 8 GH</td>
</tr>
</tbody>
</table>
Water Composition: Water Testing
Temperature Control

Heaters should be used when fish require a specific temperature. Room temperature may be suitable for some fish, provided this temperature does not change abruptly. The consistency of the temperature is usually more important than the actual temperature.

Enclosure Components: Temperature Regulation

How?

- Heaters
- Chillers
- Areators
Do fish need light?

- Most organisms need light in order to live and grow.
- In the wild, aquatic plants use sunlight to produce food. In an aquarium, light bulbs work as artificial sunlight.
- Plants, in the wild and in an aquarium provide food and shelter for fish.

Fact: Aquarium lights should be left on for no longer than eight hours a day.
Enclosure Components: Environmental Enrichment

Types:

- Wood
- Rocks
- Substrate
- Plants
Enclosure Components: Plants

Why?

- Oxygenation
- Waste removal
- Protection
Do fish need air?

- All living organisms need air to breathe.
- Fish must have air to breathe in order to survive, just like you and me.
- While we get oxygen from the air around us, fish get oxygen from the water around them!
- Fish have gills which allow them to take the oxygen in water into their bodies.
- Without oxygen, fish would not be able to breathe.
Don’t forget to feed the fish!

- Like all living things, fish need a food source.
- In the wild, fish catch their own meal. Some fish eat other fish, some fish graze on plant matter.
- In an aquarium, you supply the food source.
Nutrition

**Dry:**
- Flakes
- Pellets
- Floating
- Or Sinking

**Live/Frozen:**
- Blood Worms
- Daphnia
- Brine Shrimp
- Feeder fish
- Plants
# Filtration Systems

<table>
<thead>
<tr>
<th>Filtration:</th>
<th><strong>Mechanical</strong></th>
<th><strong>Biological</strong></th>
<th><strong>Chemical</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Types:</td>
<td>Wool, sponge</td>
<td>Ceramics, sponges, rocks (SURFACE AREA!!)</td>
<td>Charcoal, zeolite</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Remove large particulate waste</td>
<td>Removes fish waste products</td>
<td>Removes odors, discoloration, toxins, and some waste products</td>
</tr>
</tbody>
</table>
Filtration Systems

Considerations

- Tank size
- Stocking capacity
- Water flow
- Breeding
- Aeration
Filtration Systems
Filtration Systems
Too many fish?

- All organisms need room to move and grow.
- Without adequate room, all organisms can become sick and possibly die.
- In an aquarium, fish need room to swim.
- Tank mates will compete for food and space.
- Many fish in a tank will also produce a lot of waste and use up the available oxygen.
Maintenance

**Daily:**
- Feed
- Monitor
- Lighting

**Weekly:**
- Water testing
- Clean algae
- Empty protein skimmer
Maintenance

Monthly:
- Charcoal replacement in filter
- Plant maintenance
- Electrical Inspection

6 mos. To Yearly:
- Change light bulbs
Aquarium Management

Thank you