How to Not Kill Fish: the Saltwater Aquarium Hobbyist

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Aquarium Types

- **Freshwater** - often are heavily planted.
  - Salinity 1.0.
  - Usually duller coloured fish.
  - Tank sizes are usually smaller, river type fish.
  - Canister filters preferred.

- **Brackish Systems**
  - Half salt/half fresh.
  - Salinity 1.005-1.010
  - Some fish can adapt to low or high salt levels.
  - Usually smaller, river type fish.

- **Marine or Saltwater systems**
  - Salinity 1.025 (ocean level)
  - Bright coloured fish, reef and coral setups.

Aquarium Myths and Facts

- Freshwater is easier to maintain than salt.
  - After your system is setup, maintenance is similar to both.
  - Saltwater has initial higher cost for extra equipment.

- For colourful fish, you need saltwater.
  - You can get tropical looking fish in both setups.
  - Saltwater fish are pretty cheap too. Only rarities can get extremely pricey.

- Setup a tank for the species you want. Both setups can be expanded on later.

Saltwater Types

- **Tropical vs. Cold Water**
  - Tropical is the most common. Heat around 26 C.
  - Atlantic or Cold Water setups very expensive.
  - Special equipment (chillers) are needed to cool the tanks. Usually required larger tank volumes.

- **Fish Only (FO)**
  - Cheapest: No special lighting required, just filtering equipment.

- **FO with Live Rock (FOWLR)**
  - Live Rock can be expansive (around $800 for 60G tank).
  - Require more powerful light setups.

- **Reef Tanks**
  - Live Rock and Coral setups. Usually invertebrates and corals. With some fish that are safe fish.
  - Needs require high water quality maintains. More difficult to maintain.

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Filtration

- Most setups use a combination of biological and mechanical filters. Chemical filters also are used sometimes.
- Biological preferred… no maintenance.
- Live Rock / Live Sand (Biological)
  - Algae on rocks convert waste from the water to useable nutrients.
  - Self maintains. No extra work for the owner.
- Protein Skimmer
  - Cleans tank similar to how the waves clean the ocean.
  - Forces waste into a collection cup to be empty.
Filtration

• Wet/Dry Trickle Filter (Mechanical)
  - More popular before. A set of mechanical filters.
  - Must be replaced often, else becomes “nitrate traps”… polluting the tank.

• Canister Filter (Mechanical/Chemical)
  - Seen more often in freshwater setups.
  - Filters inside are replaced. Easy to setup and get started.

• Deep Sand Bed (Biological)
  - Creates dedicated layer to convert nitrates.

Filtration - SUMPS

• Separate aquarium from your main tank – increases water volume of tank.
• Used to hide filtration and other equipment.
• Can contain a Refugium:
  - Separate “sanctuary” from animals in your fish.
  - Grow macro algae which would normally get eaten in your tank.
  - Keep helpful invertebrate to clean the water.
• Baffles to remove micro bubbles from water-clearer water.

Other Equipment

• Lighting
  - Expensive and many types (depends on setup).
  - Fluorescent/Power Compact/LED/Metal Halide.
• Powerheads
  - For water circulation.
• Pumps
  - Bring water from Sump to tank.
• Heaters/Fans
• Water filter (Reverse Osmosis Water Filter)
  - For cleaning tap water.

Setup Your System

• Now to set up your tank.
• Usually you will need to do your own piping.
  - PVC Pipes used. Saltwater tanks will come with SUMP holes in the back to pipe down.

• Standpipes
  - The start of the process.
  - Can be very noisy. Many different standpipe designs.
  - Durso is a popular choice. Many personal designs as well found on internet.
  - Goal reduce noise.
• Small overflows setup too.
  - In case of power outages.

Cycling the Tank

• At this point you do a wet run.
  - No leaks, not excessively noisy.
• Live Rock needs curing.
  - Living organisms on the rock. Will initial have large die off rate.
  - Ammonia will shock the system if not cured first.
  - Wait until reaches equilibrium:
    • Enough ammonia eating organisms to handle die-off.
    • And enough nitrite eating organism to handle tank.
Cycling the Tank

- **Live Rock Curing:**
  - Very smelling process (rotten seaweed).
  - Depending on rock and organisms, can take up to a month to cure.
- Can add hardy fish (like damsels) to make the cycling process quicker.
- They add an extra level of nitrate (fish waste) to the tank.

Aquarium Life

- **Clean Up Crew:**
  - Invertebrates – snails/crabs/shrimp.
  - Clean bad algae off glass, algae off rocks.
- **Macro algae for Sump**
  - Provide biological buffer for the water.
  - Introduces nutrients/food into the water.
- **Decorative invertebrates can be added.**
  - Like starfish or clams (require high light).

Aquarium Life

- **Fish / Morays / Seahorses / etc**
- **Like humans, not all aqua animals get along.**
  - Keep predators with predators, and tanks with tanks – unless you want to give someone an expensive snack.
  - Always check compatibility prior to adding fish.
- **Fish are hardy! Easy to maintain.**

Monitoring the Tank

- **Salinity and PH levels need to be monitored:**
  - Refractometers or hydrometers for salinity.
  - Add salt if necessary. Any salt will do, but there is specific marine salt which have trace elements for your aquarium.
- **Waste products:**
  - Bacteria die, create ammonia.
  - Ammonia eating bacteria creates Nitrite (waste). Fish create nitrite as well. Stress levels and such increases this.
  - Nitrite eating bacteria create Nitrate. Need water change to remove. Safe in low levels.
- **With a fully equipped tank. Maintenance usually only includes:**
  - Changing or adding water (frequency depends on size of tank and setup).
  - Emptying skimmers collection cup when full.
  - Feeding the fishes.
  - Want to monitor Ammonia/Nitrite/Nitrate levels.
  - Ammonia/Nitrite levels may indicate something is wrong with the tank (ie fish are abnormally stressed, are sick)
  - Nitrate indicates a water change is needed.
Resources

• Valuable Online Resource:
  http://www.wetwebmedia.com/

• Any specific questions, local aquarium shops are best for quick and direct answers.

• J&L Aquatics is a famous saltwater shop located locally in Vancouver:
  http://www.jlaquatics.com/

Questions?

• Thanka!

http://aquarium.codybrown.ca/