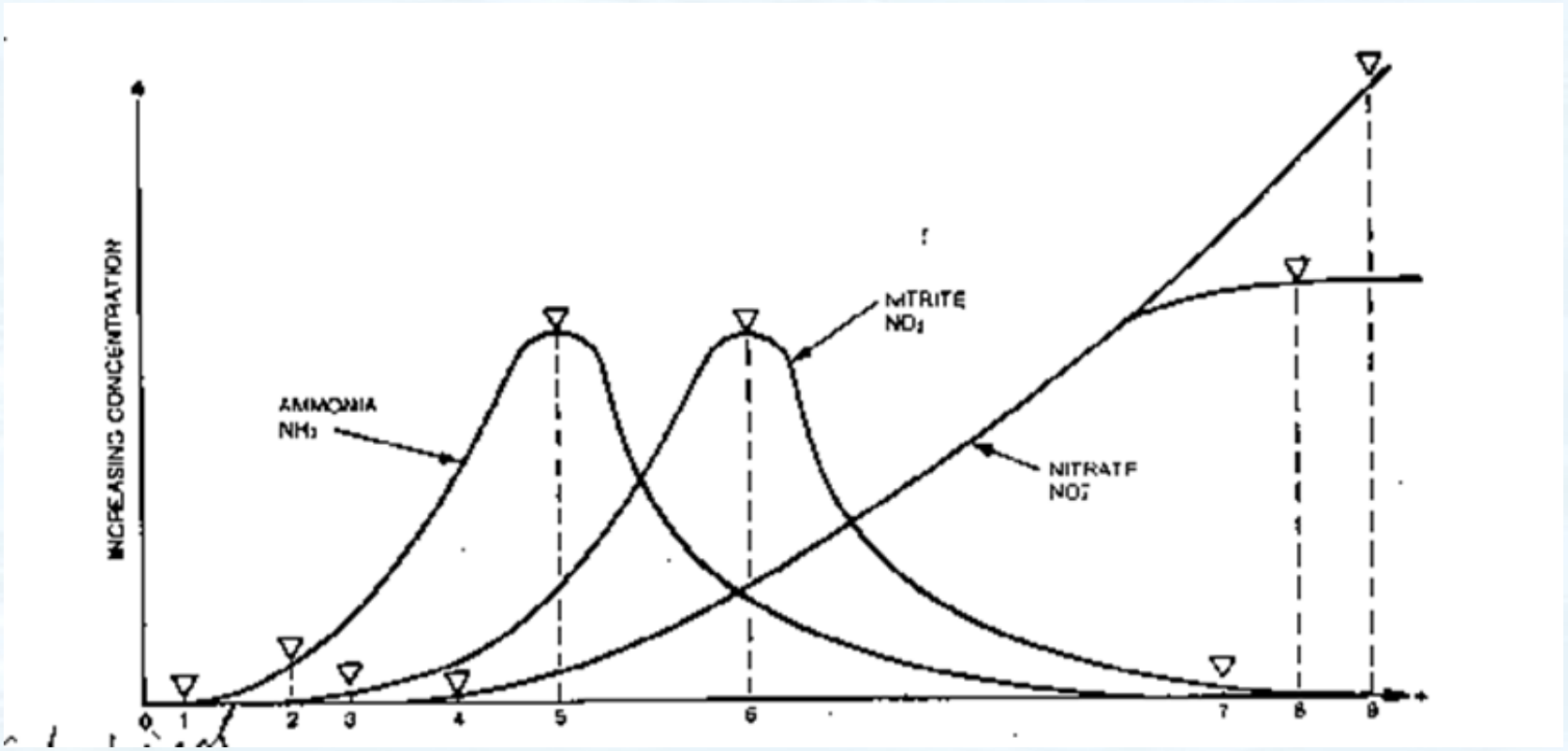
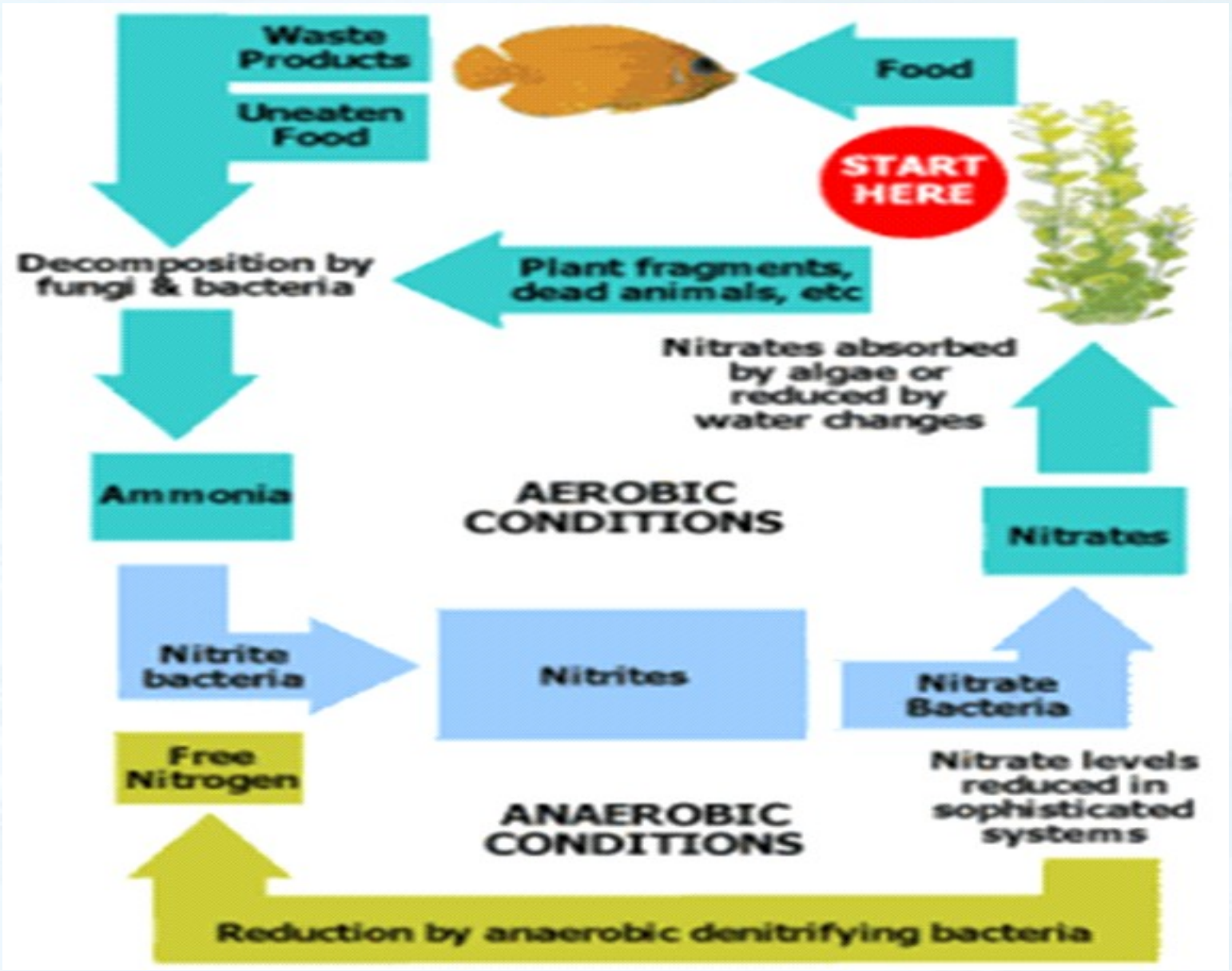
Tank compatibility and care basics

The Nitrogen Cycle?

The answer is time.




Waste Products
Uneaten Food
Food
START HERE
Decomposition by fungi & bacteria
Plant fragments, dead animals, etc
Nitrates absorbed by algae or reduced by water changes
Ammonia
AEROBIC CONDITIONS
Nitrates
Nitrite bacteria
Nitrites
Nitrate Bacteria
Free Nitrogen
Nitrate levels reduced in sophisticated systems
ANAEROBIC CONDITIONS
Reduction by anaerobic denitrifying bacteria

Biological cycling

(borrowing heavily from Mr Bob Fenner, wetwebmedia.com – *Establising Cycling in Freshwater Systems: About Time, The Magic and Essential Ingredient*)

Time Frame:
Most systems can be "cycled" in 2-4 weeks.

Temperature:
Temperature should be kept in the upper range (25-28 degrees) and kept stable – no more than a few degrees variation per day – for optimal cycling.

Used Media, Substrates:
Used media kept from extremes of temperature and moved in water to the new system will aid cycling.
The microbes and foods in the used media will populate your new system by themselves.

Bacteria and Not Cultures:

There are commercial preparations of bacteria, you can add from a bottle directly to your system. Use with the two methods above :-)

Time Frame:

May seem like right away... but best to wait a good two weeks after using these products.

Look for accumulating nitrate, possibly algae growth as indications that the system has "really" cycled enough.

About Torturing Other Wildlife:

Some say certain fish can be used to cycle tanks as they can survive the cycle.
Ammonia and nitrites are poisonous to *all* fish.
Don't torture them and risk introducing a parasite, pest or pollution to your new system.

Better Options:

Adding fish food, cooked prawns, even sources of ammonia like household cleaners can spur things on.
All of these can help applied in moderation and coupled with the above methods.

About Testing:

•Testing for ammonia, nitrites and nitrates during and regularly after cycling is vital. Observe and document rises and drops in ammonia and nitrites and the inevitable (and welcome) presence and increase in nitrates.

- When ammonia and nitrites have hit zero parts per million (ppm)
  - **and** there is appreciable nitrates (a few ppm)
  - **and** likely the beginning of algal growth,
- you are ready to start stocking your new system.
- Start with lower impact fish that produce less waste.

About Overloading Your Tank:

Ammonia, nitrite and nitrate are poisonous to fish. The more you have, the more dangerously toxic your water is. Some nitrate is good – not too much.

Do not add too much livestock too quickly (variable with type of system, filtration...), nor too much overall, nor - all can and will overload your biological filtration.

Too Late! Ammonia, Nitrite Too HIGH!!!

If you detect ammonia or nitrite concentrations approaching 1.0 ppm rapid action is needed – your fish are in serious danger.

Dilution Solution (water changes): Good stop-gap, but not a long-term solution – need to find root cause/s and fix the problem.

Chemical Filtrants: Stop-gap – still need to solve the problem.

More Beneficial Microbes: Placing more clean "old" substrate or filter media, or cycling products.

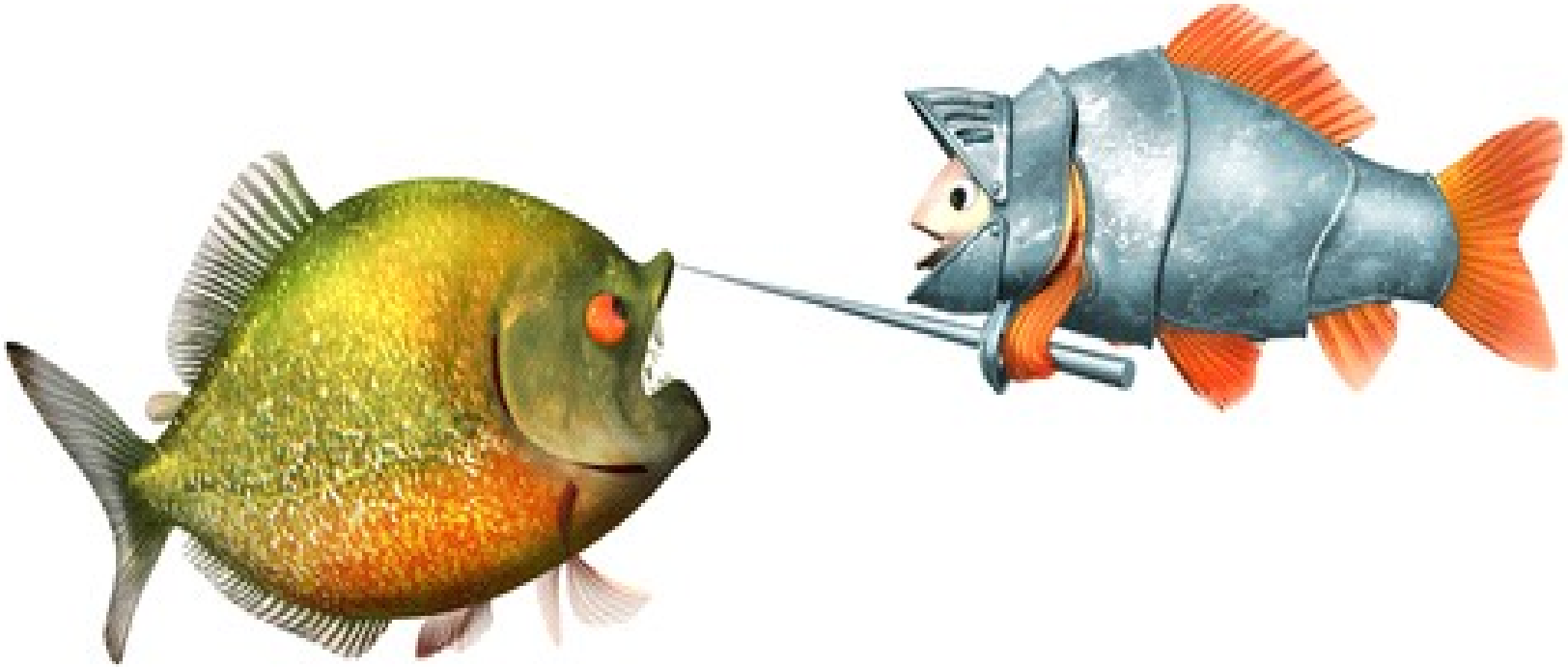
Moving Livestock: Good practical approach if you have room elsewhere in a fully-cycled, stable system.

Not Adding to the Problem: DO NOT add any more ammonia/nitrite producing livestock, and DO NOT feed the system. Fish will survive without feeding, but not with further poisoning.

"Not using a quarantine tank is like playing Russian roulette. Nobody wins the game, some people just get to play longer than others." - Anthony Calfo

Compatibility

You wouldn't house a chicken with a vulture

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Tank size

Water Parameters

- pH - How acid or alkaline is the water? pH of 7 is neutral. Each whole pH value below 7 is ten times more acidic than the next higher value. Each whole pH value above 7 is ten times more alkaline.For example, pH 4 is ten times more acidic than pH 5 and 100 times (10 times 10) more acidic than pH 6.
- kH - Carbonate hardness, or carbonate alkalinity is a measure of the alkalinity of water caused by the presence of carbonate and bicarbonate (HCO_3^-) anions. It is usually expressed either as parts per million (ppm or mg/L), or in degrees KH (from the German "Karbonathärte").
- gH - Degrees of general hardness (dGH) is a unit of water hardness. gH is a measure of the concentration of ions such as calcium and magnesium. It is expressed as for kH.
- Temperature and water motion

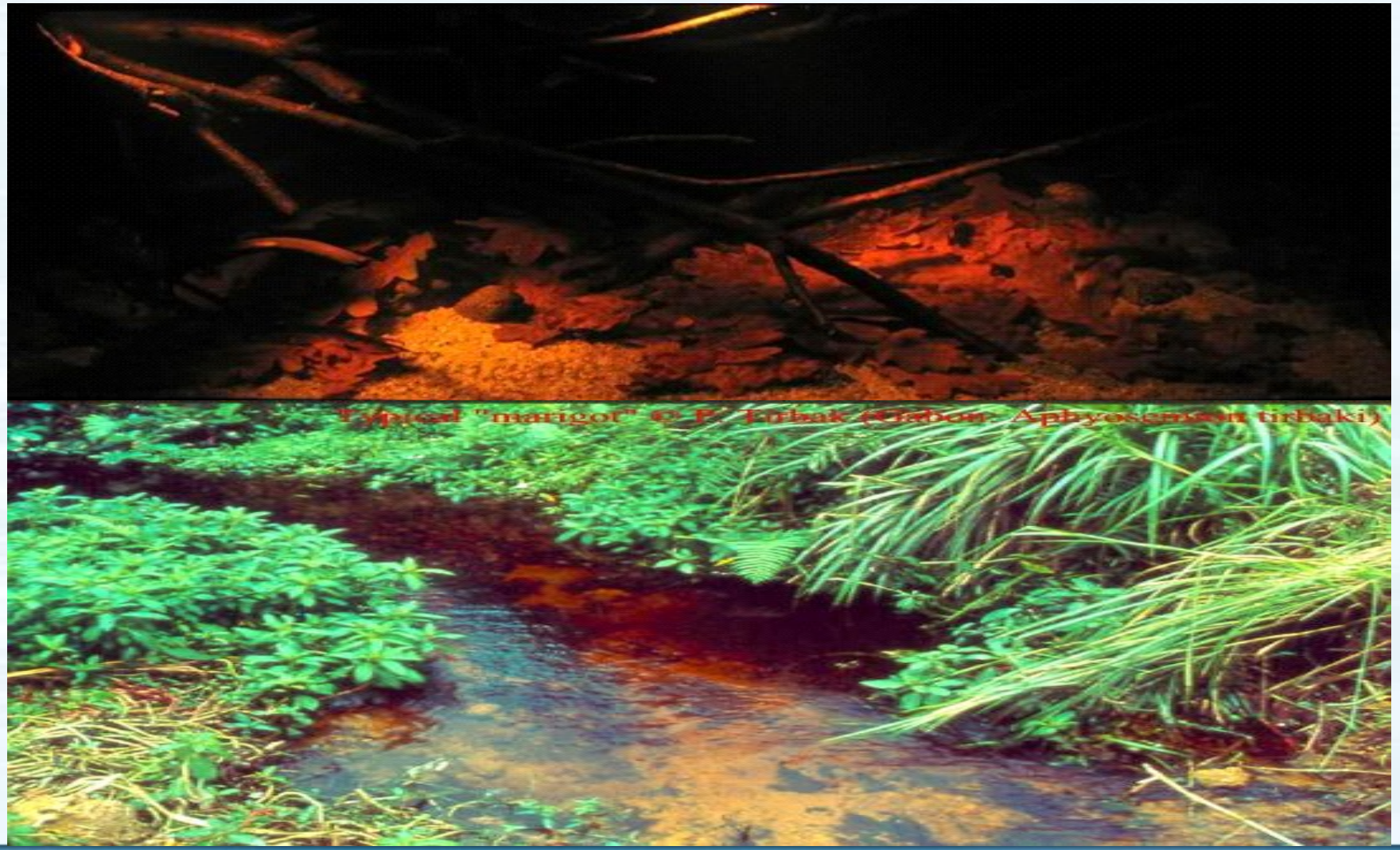
Water Changes

- Frequency depends on:
  - aquarium size
  - filtration
  - fish species
  - fish density
  - other livestock (eg, snails)
- 20-25% per week – good rule of thumb
- Always watch pH – driftwood or deaths can make it drop; stones etc. can make it rise

Scape

- Planted/not planted
- Sand vs gravel
- Wood (sharp/blunted)
- Rocks
- Natural works well!

Biotopes



Biotope Aquariums

- Contain plants, animals and water qualities from one biotope (habitat)
- Ideal for beginners as everything has same needs for pH, hardness, temperature
- Even fish bred in captivity for generations will flourish in something in natural conditions
- But remember – changes must be slow and gradual

The Amazon

Amazon Biotope

- Plants and fish native to the Amazon region of South America
  - Water is soft, acidic (6.0 to 6.9 pH)
  - Sunlight is strong, but water dark due to dissolved minerals and shading
  - Densely planted, lots of driftwood allowed to colour the water

Amazon Biotope (2)

- Fish:
  - Tetras – many small varieties
  - Angelfish (which love eating small tetras)
  - Dwarf cichlids
  - Catfish – Corydoras, Bristlenose, Royal Whiptail
  - Hatchet fish
  - Pencil fish
  - Larger Characins – eg, Silver Dollars
- Plants:
  - Echinodorus species - eg Amazon sword

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TankTalk

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