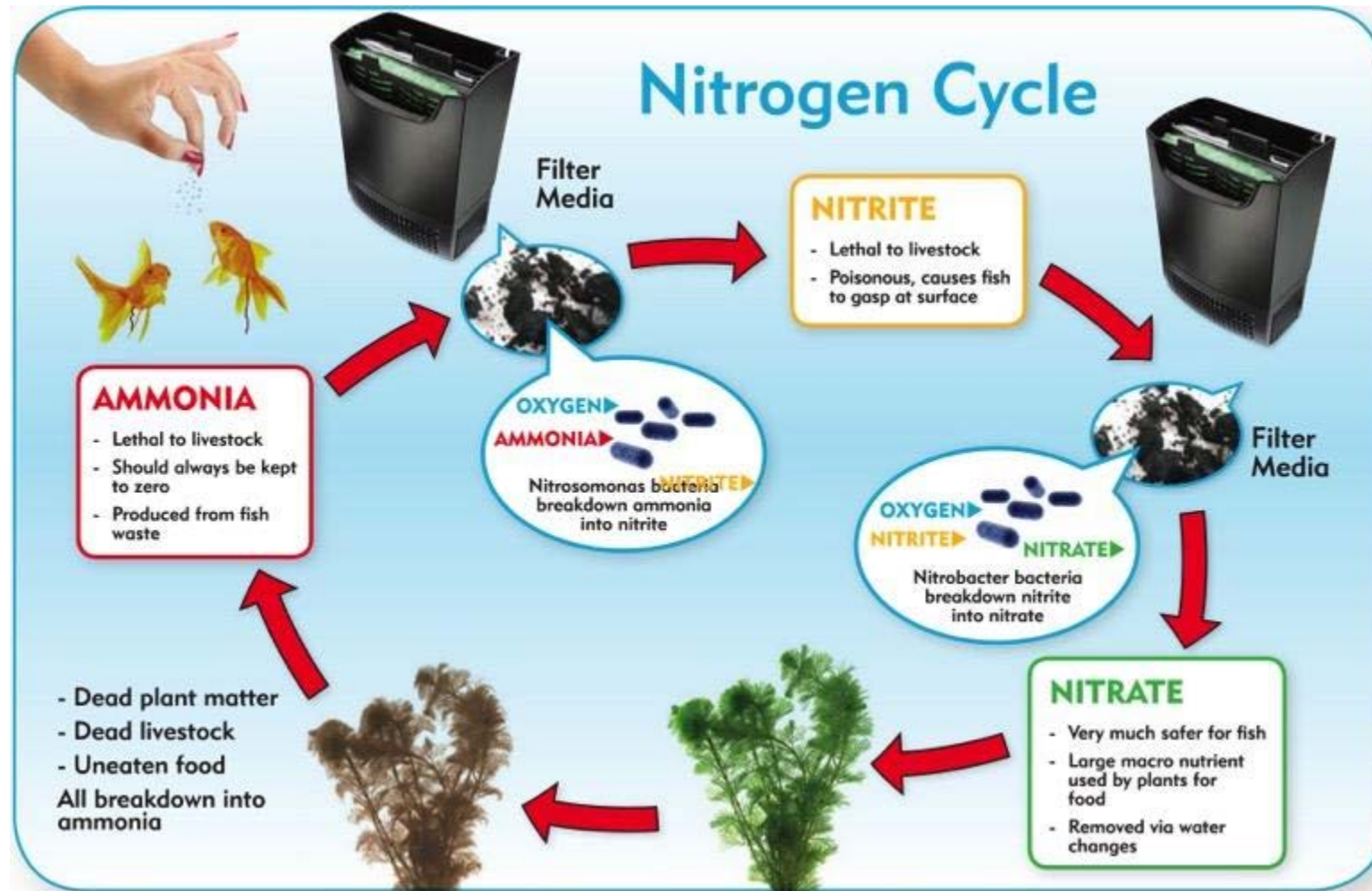




Pre-Cycling 101

- **GOAL:** Establish an effective microbial community PRIOR to fish arrival
 - Effective = bacterial community capable of completing the nitrogen cycle
- Avoids spikes of ammonia and nitrite while fish are in the tank
- Establish a "biofilter" for good water chemistry
- Unique situation with TIC Program
 - Water temperature and bacterial growth

The Nitrogen Cycle



<https://fishkeepingadvice.com/the-nitrogen-cycle/>

The Nitrogen Cycle II

Ammonia NH_3 —decomposition of biological waste, i.e., poop, FOOD

Nitrosomonas spp. and others

Nitrite NO_2

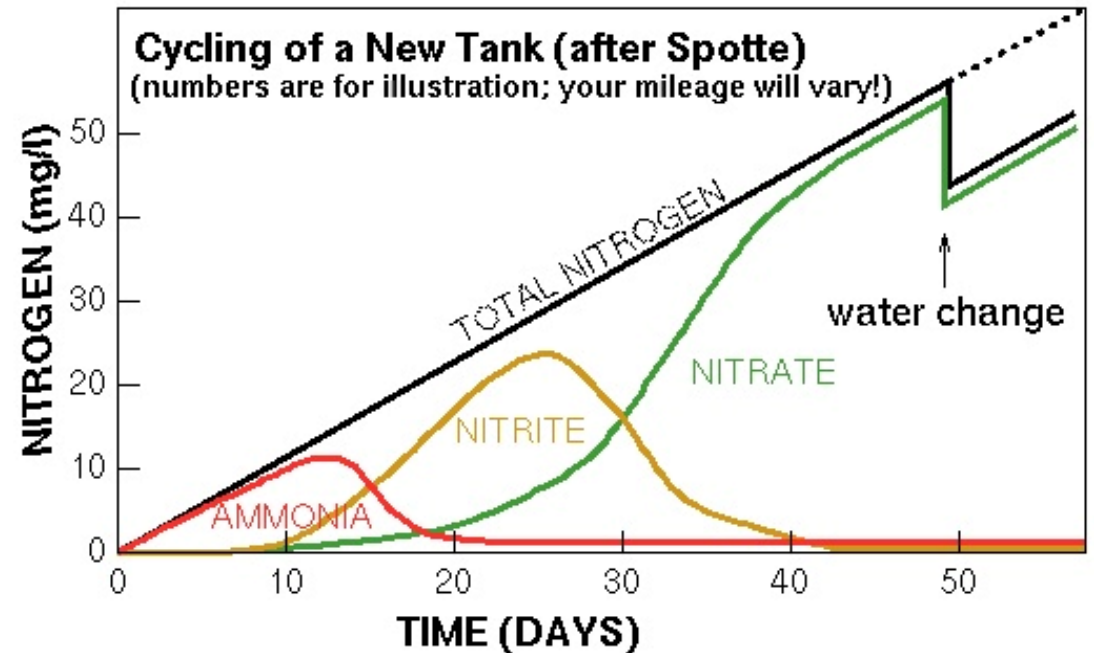
Nitrospira spp., Nitrobacter spp.

Nitrate NO_3



This reaction can acidify the water if KH is too low

**Ammonia and Nitrite
are HIGHLY TOXIC to
FISH!**



How do you Pre-Cycle?

VT TIC Manual Chapter 4

- Directly add a source of ammonia to the tank
 - Avoids many issues with using a biological source and is cheap and easy to control
 - Dr. Tim's Ammonium chloride solution
- Make sure water pH is around 7.0!
 - High KH is important - ~150 ppm ideal
- Add a source of "good" bacteria
 - *Nitrosomonas spp.* + *Nitrospira*
 - *NITE OUT II*
- Will likely need multiple additions of ammonia to the tank to fully complete the cycle
 - MONITOR MONITOR MONITOR!
 - Avoid having ammonia concentration go above 4-5 ppm during this process





Pre-Cycling Schedule

****Varies****



- Day 1 – initial water readings, add ammonia, test ammonia after addition, add NITE OUT II
- Day 2 – Measure ammonia and nitrite – RECORD
- Day 3 – **If** ammonia and nitrite are **below 3 ppm**, add more ammonia
- Days 4-5 – Measure ammonia nitrite daily – RECORD
- Day 6 – **If** ammonia and nitrite are **below 3 ppm**, add more ammonia. If they are above, do nothing.
- Day 7-8 – Measure ammonia nitrite daily – RECORD
- Day X Onwards – FEED THE BACTERIA until eggs arrive

On the first measurement day that BOTH ammonia and nitrite are below 0.5 ppm, your tank is close to being cycled.

You should be able to add food/ammonium chloride and have it turned into nitrate within a day = cycled tank.

Important Tips for Pre-Cycling

- DO NOT use your chiller during this process
- Instead, use tank heater to get water to 75 degrees F.
- Calculation of amount of ammonia to add is important
- Monitor ammonia, nitrite, nitrate, Kh, and pH levels during this process so you know what is going on in your tank
 - Will be easy to miss the spike in nitrite. Do not fear!
- Should take approximately 7-8 days – but will vary tank to tank !
- Keep filter running = oxygen
- **Need to maintain biofilter with some fish food or more Ammonium after established**
- Can always do a water change if needed!!

