

# AWT-1®

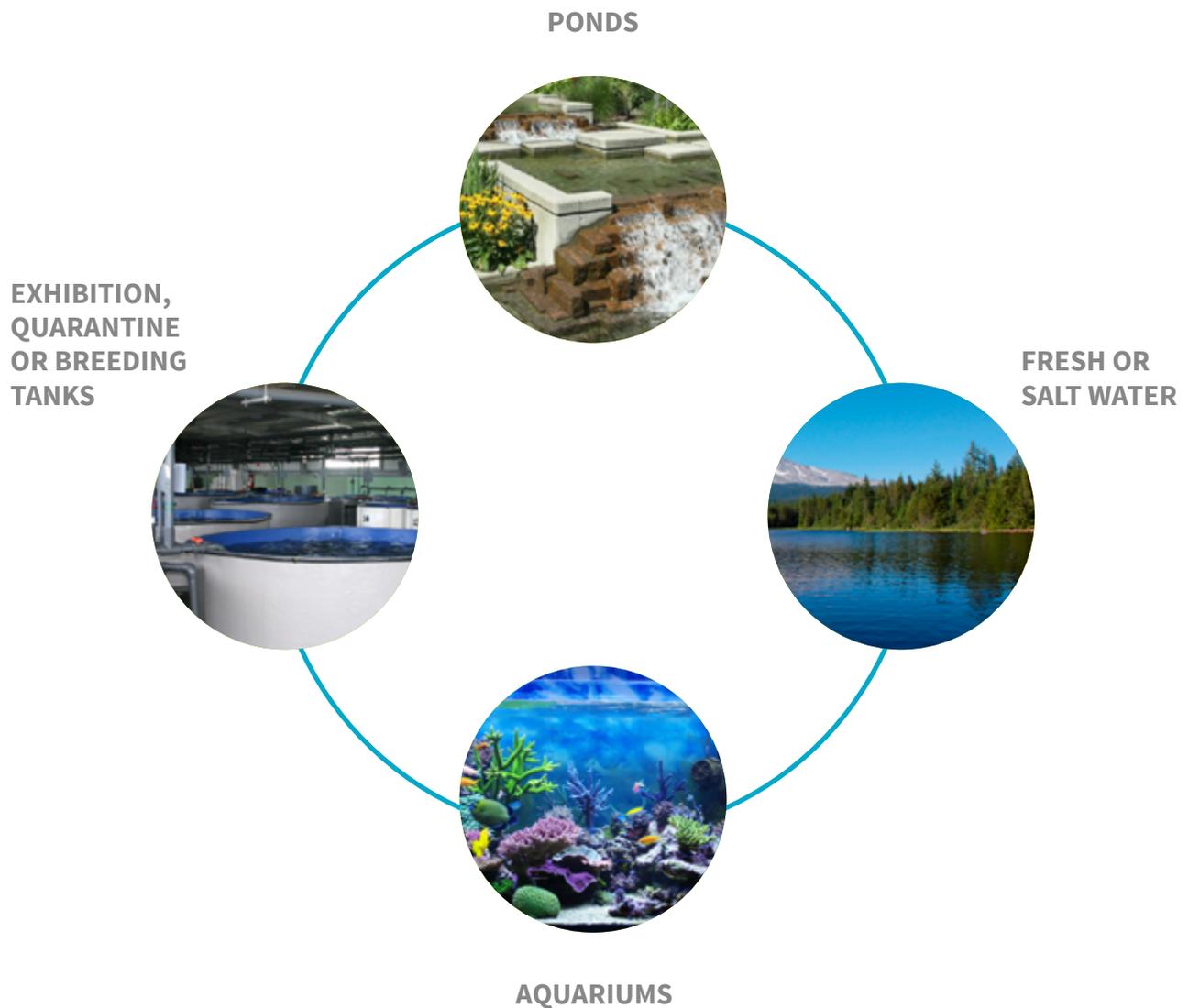
AQUARIUM  
WATER  
TREATMENT

Nitrifying bacteria.

# WHAT IS IT?

**AWT-1®** It is a solution that contains 9 species of nitrifying bacteria responsible for eliminating the ammonia and nitrites present in the water of aquariums and ponds.

## USES AND APPLICATIONS



# HOW DOES IT WORK?

The bacterial **AWT-1°** complex acts directly on the nitrogen cycle, mainly in converting ammonia to nitrite then nitrate.

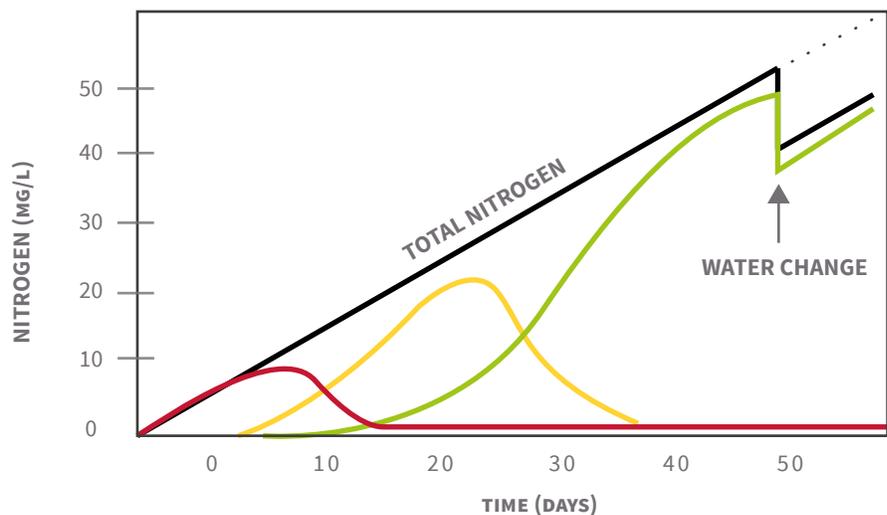
Nitrosomonas bacteria feed on inorganic compounds with ammonia as their main source of energy, these bacteria in turn produce nitrite (**NO<sub>2</sub>**).

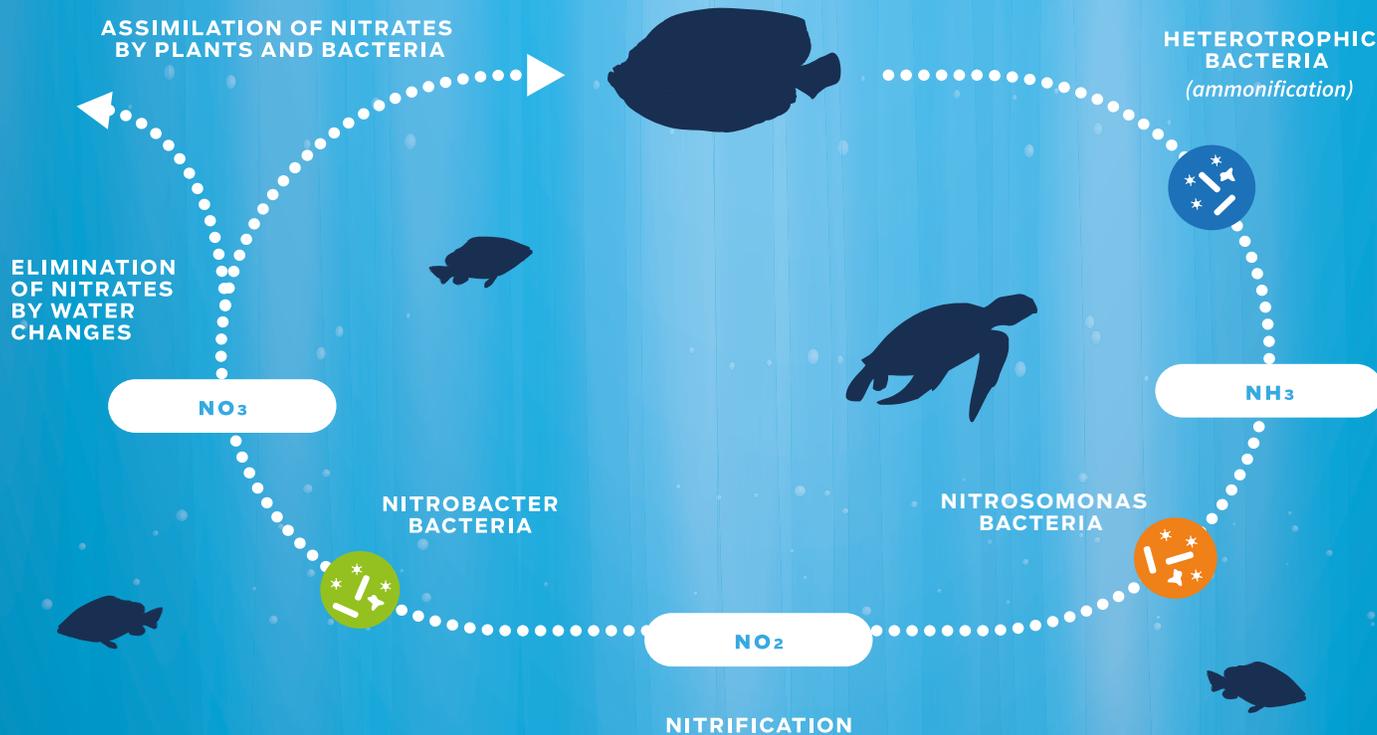
Nitrates accumulate slowly over time and are much less toxic to the animals.

**AWT-1°** allows an adequate balance of these microorganisms to achieve the establishment of the nitrogen cycle.

**CYCLE OF A NEW TANK**  
(NUMBERS ARE ILLUSTRATIVE)

- AMONIA
- NITRITE
- NITRATE





# WHAT ARE THE BENEFITS?

- Eliminates ammonia and nitrites present
- Generates a more efficient operation of bio-filters
- Reduces water change
- Reduces chemical and biological demands for oxygen
- Reduces suspended and dissolved solids
- Not harmful to aquatic life
- Can be used in fresh or salt water
- One application
- Complementary blend of Nitrifying bacteria used to seed, control build-up of ammonia and nitrite in aquariums, ponds and aquaculture operations.
- Grown when ordered to insure the greatest bacterial viability and longest shelf life.
- Custom made for fresh, brackish or salt water.
- Extremely concentrated to insure quick reduction of ammonia and nitrite
- Can be custom made for unique environments or applications.

# HOW IT IS APPLIED?

## USE IN AQUARIUMS:

DOSAGE		APPLICATION:
<b>AWT-1°</b> uses 1 gallon per 6,000 gallons of water for light to medium biological load systems.	Heavy biological loading systems may require up to 2 gallons <b>AWT-1°</b> per 6,000 gallons of water.	Pour the bacterial solution directly into the biological tank or filter.

**AWT-1°** product should be kept in a temperature between 37 to 47 degrees Fahrenheit.

## RECOMMENDATIONS:

- 1.** Before adding the product to the system, it is recommended to bring the product temperature slowly to the tank temperature so that the bacteria can acclimate. This can be done by placing the appropriate dosage of the product in a bag or a closed container floating in the tank for approximately 20 minutes. Failure to do so will not necessarily kill or affect bacteria, but will extend the adaptation phase which will cause the system to take more time for the cycle.
- 2.** If possible do not reverse the filter flushing flow until the tank has completed the cycle. Backwashing too early will remove the nitrifying microbes from the system before they have had time to attach to solid surfaces such as filter media, etc.
- 3.** If possible, turn off the ozone until the tank has completed the cycle. Nitrifying bacteria can take up to 400 ppm of ozone, but not all at once. Ozone levels can be restored slowly from 7 to 10 days after the cycle. Failure to do so can cause the establishment of the nitrifiers and tank cycle to take much longer.
- 4.** Ultraviolet sterilizers should be turned off for the first 48 hours and if possible until the tank cycle is completed.
- 5.** If possible, do not use antibiotics or chemical inhibitors until the tank has completed the cycle.

## SALTWATER SYSTEMS:

1. Fill the system with water and dechlorinate with sodium thiosulphate according to the manufacturer's instructions.
2. Add sea salt 30,000 to 36,000 ppm; If you use recirculated carbon for 24 hours, and remove carbon from the circulating system.
3. Add path elements according to the manufacturer's instructions.
4. Adjust the pH if necessary and allow the system to stabilize for at least 24 hours (preferably 36 hours).
5. Check the content of ammonia, nitrite and nitrate in the water. This is to obtain reference readings for these components.
6. Add 1 ppm of ammonium chloride and 1 ppm of sodium nitrite to the system water. Allow the system to recirculate for several hours.

Ammonium chloride feeds Nitrosomonas which convert ammonia to nitrite and sodium nitrite feeds Nitrobacter / Nitrospira which converts nitrite to nitrate. Once the nitrite readings begin to rise, the addition of sodium nitrite may be discontinued because the Nitrosomonas will be the supply of nitrite from the conversion of ammonia.

7. Add AWT to the system as far as possible from the skimmers or recirculation lines. The minimum dose is 1 to 2 gallons of AWT per 6,000 gallons of salt water. Keep oxygen levels at least 5 ppm.
8. After adding the AWT, immediately add sodium carbonate to the system at about 1 ppm. The dissolution of sodium carbonate to CO<sub>2</sub> will supply carbon to the nitrifiers. Nitrifying bacteria are autotrophic, which means that their only source of carbon is obtained from CO<sub>2</sub> and given that there are no animals that

breathe CO<sub>2</sub> in the system, a source of CO<sub>2</sub> must be added and maintained until the animals are added to the system. Sodium carbonate is a buffer and could raise the pH slightly, so monitor the pH regularly if necessary.

9. Daily maintenance will include the addition of 1 ppm of sodium carbonate. Every two days the ammonia readings should be checked and maintained at 1 ppm. On the third day check the nitrite and keep at 1 ppm. The nitrite readings should be taken every 3 days and if a nitrite peak occurs, stop adding any sodium nitrite to the system immediately. A nitrite peak will indicate that Nitrosomonas has begun to convert ammonia into nitrite. This should occur 3 to 5 days normally. Once the nitrite peak occurs, additional sodium nitrite will not be needed.
10. Take a nitrate reading at day 5. If the nitrate readings begin to rise, then the nitrogen cycle has begun. The increase of nitrate (NO<sub>3</sub>) is what is sought. If no nitrate increase is observed at day 5, continue to take readings at 3-day intervals until an increase.
11. Once the nitrogen cycle begins, the amount of ammonium chloride to be added before the animals are introduced into the system is a function of the total biological charge which will be present in the system after the animals are added. Liventia will provide the necessary technical support during this stage.



**NOTE:** Do not turn on the ozone until after the animals are added to the system.



Current customers using **AWT-1<sup>®</sup>** include:

Sea World; Moody Gardens, Galveston, TX; Dallas World Aquarium; Aquarium of Tennessee; Oceans Journey, Denver, CO; Aquarium Center, Houston, TX; Jenks Aquarium, OKC; Rain Forrest Cafe, Bloomington.



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