System Bio-Planning

Considerations for building and preparing biofilters

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Species Tolerance

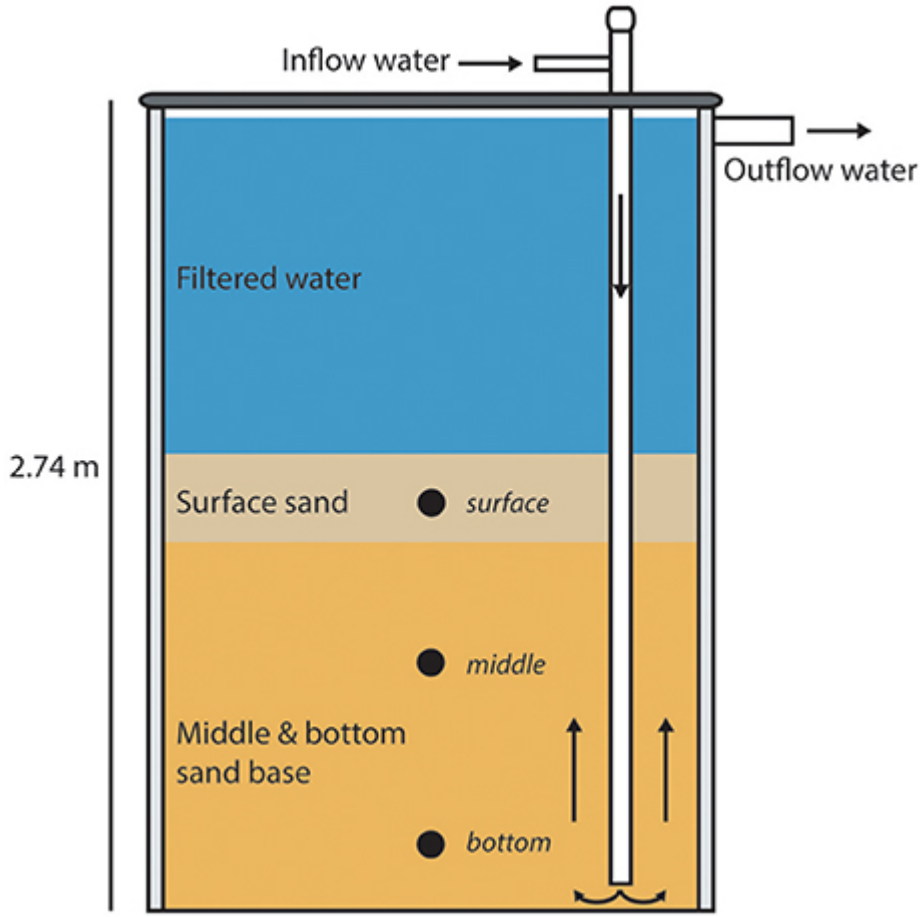
Need to know species thresholds for ammonia nitrogen compounds

- Yellow Perch are much more sensitive compared to walleye for water quality parameters

Choosing a Style

Moving Bed Bio Reactors

- Utilizes neutrally buoyant media and aeration
- Several different designs out there



Choosing a Style

Fluidized Bed Biofilter

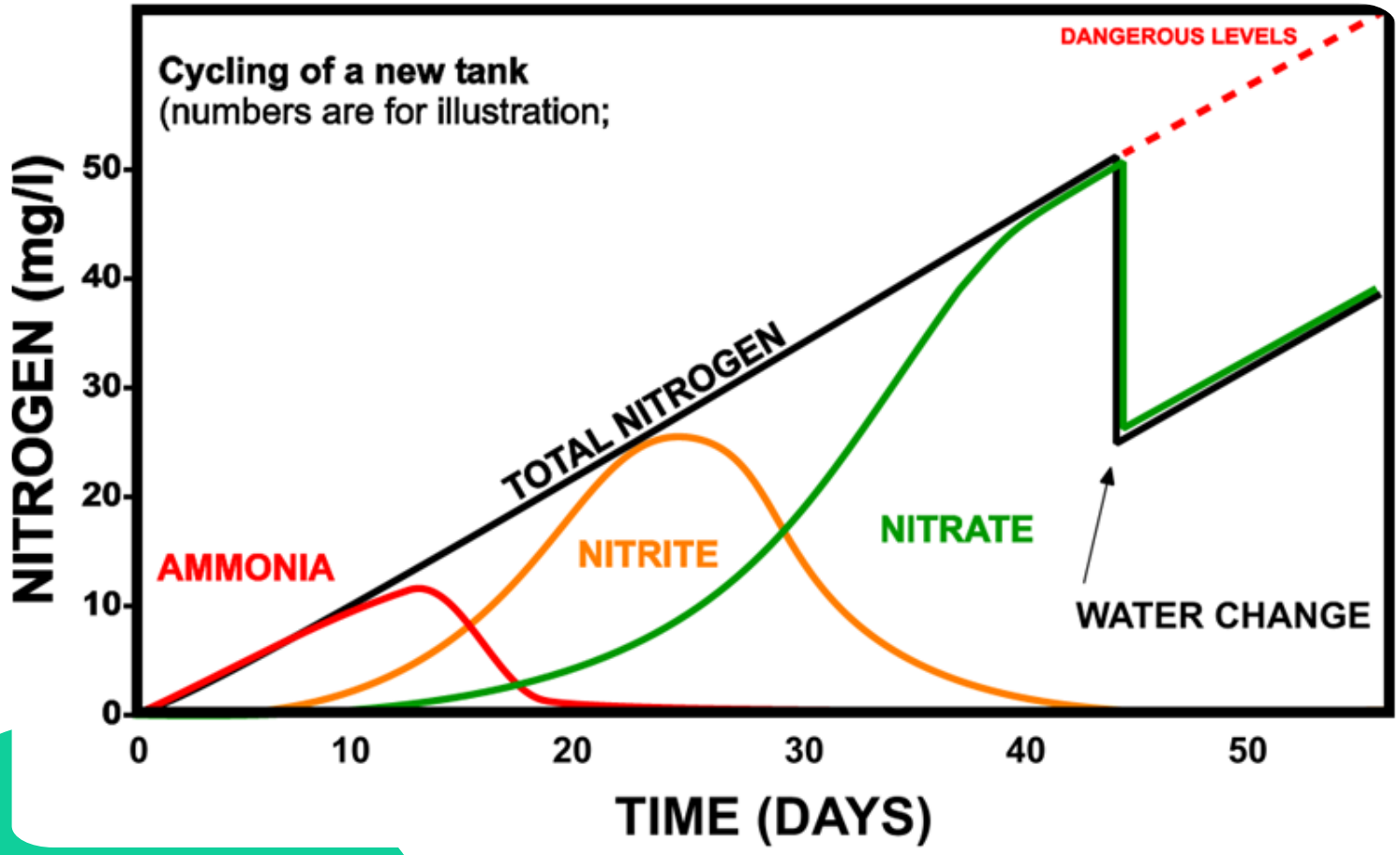
- Typically use aggregate media with reverse water flow – most common media type is sand
- Typically, only seen used in cold or cool-water aquaculture systems

Sizing Biofilters

Things to Know:

- Max Total Ammonia Nitrogen (TAN) concentration that your species can handle
  - Water temperature of system
  - pH of source water
- Feeding rate for desired FINAL fish stocking load
  - Protein % of feed plays a large role
- Space considerations for style of biofilter based on volume of media needed

Starting a Biofilter



Plan ahead!

- Slow process to get a good colony established

Ammonia Source

Goal is promoting as much bacteria growth as possible

Biofilter Care

Newly seeded biofilters are highly sensitive

In General, Avoid:

- Formalin treatments (egg/larval systems mostly)
- Salt treatments
- Drastically decreasing temperature

New Tank Syndrome

How you can manage new tank syndrome (short term)

- Water exchanges
- Increase aeration
- Reduce feeding
- Increase waste removal practices
- Reduce light/cover tank (decrease stress of your fish)

Stress + poor WQ = disease/mortality outbreaks