



Wastewater Challenges – F:M

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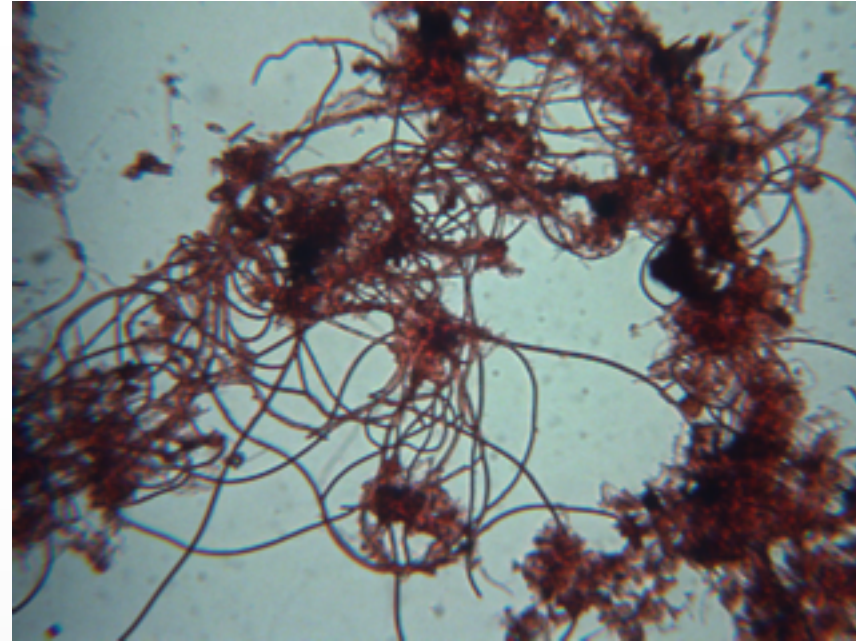
WASTEWATER CHALLENGES

- Wastewater challenges are both dynamic and unique
 - Problems with nitrification
 - See webinar from 3/25/2020 (COVID-19)
 - Problems with FOG (next webinar)
 - **Problems with F:M**
- Caused by several variables
 - Low flow (low F:M)
 - Extreme I&I (low F:M)
 - Overdesign (low F:M)
 - High BOD slugs (high F:M)
- So what now?



LOW F:M

- Not enough food to sustain biomass
- Due to
 - Underloading
 - I&I
 - Overdesign
- Bacteria begin to produce and then consume extracellular polymeric substances (EPS)
- Causes floc disintegration which can lead to
 - Filamentous bacteria
 - Pin floc
 - Lack of settling
 - High TSS
- Extreme cases can cause the biomass to die leading to a stinky mess



HIGH F:M

- Too much food for the biomass to consume
- Due to
 - Overloading
 - High BOD slugs (SIUs)
- Leads to
 - High TSS
 - High effluent BOD
- May cause nitrification issues
 - BOD needs to be low enough for nitrifying bacteria to thrive
 - Could lead to total nitrogen or ammonia effluent violations



HIGH F:M – WHAT YOU CAN DO

- Nothing
 - Wait for your plant to recover
 - Risky
 - Usually smelly
- Reduce wasting
- Increase aeration
 - Gives the bugs more oxygen to help the remove the BOD load



HIGH F:M – OUR RECOMMENDATION

- Add more bugs!



HIGH F:M – OUR RECOMMENDATION

- BioLynceus® ProBiotic Scrubber® II
 - Safely reintroduces a diverse population of bacteria to your wastewater facility
 - Good, clean bugs



PROBIOTIC SCRUBBER® II

- ProBiotic Scrubber® II is engineered to enhance regular wastewater operations by using several different species of beneficial bacteria – IT'S ALIVE!
- Having ProBiotic Scrubber® II on hand to reseed your plant quickly when required is a good proactive strategy
- Ordering ProBiotic Scrubber® II now can provide much needed insurance for your wastewater facility




LOW F:M – WHAT YOU CAN DO

- Nothing
 - Wait for the flows to return
- Make and operational change
 - Increase wasting (WAS)
 - Reduces MLVSS levels
 - Can be hard in times of low flow
 - If plant design allows, volume of water under treatment can be reduced
 - Can stop using some basins
 - Concentrates the food
 - Not an option for everyone



LOW F:M – OUR RECOMMENDATION

- Add external organic carbon (EOC)
 - Methanol
 - Dangerous 
 - Problems with methylotrophic bacteria
 - Glycerin-based products
 - Require a lot of work
 - Beer waste
 - Not always an option
 - Not in every town
 - Supply problems
 - Dog food
 - Loaded with grease, which can cause Nocardiaform foaming



LOW F:M – OUR RECOMMENDATION

- BioLynceus® Candy Carbon®
 - Safely provides your facility with external organic carbon
 - Humic substance
 - Derived from mined ore



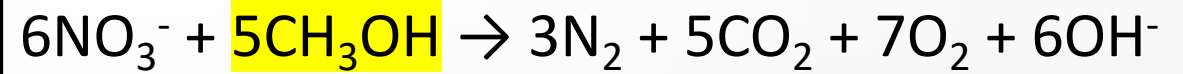
CANDY CARBON[®]

- Candy Carbon[®] safely introduces an organic carbon source to your wastewater facility
- Having Candy Carbon[®] on hand to feed your plant quickly when required is a good proactive strategy
- Ordering Candy Carbon[®] now can provide much needed insurance for your wastewater facility



DENITRIFICATION

- Essential in wastewater operations
- Conversion of NO_3^- to N_2
- Requires anoxic conditions
 - Denitrifying bacteria are aerobic organisms
 - The anoxic environment forces them to scavenge oxygen from the NO_3^- molecule
- If D.O. is present, there is no denitrification and therefore no NO_3^- removal
- The reaction also relies on the presence of carbon. If no carbon is present, the bugs cannot scavenge the oxygen from NO_3^-
 - Leads to fines from state regulators



OUR PRODUCTS

- Available in 5-gallon pails, 30- & 55- gallon drums, 275- & 330-gallons totes
- Ready to ship today



CONTACT US

- BioLynceus is a family-owned business in Estes Park, CO
- Our business hours are M-F from 8 AM – 5 PM (Mountain Time)
- Call us today at (970) 586-3391 to talk about your wastewater challenges or visit our newly renovated website BioLynceus.net



QUESTIONS?

Public Service Announcement: Wastewater Nitrification Amid COVID-19



Biolynceus®, LLC
(970) 586-3391

Providing Microbial Solutions for Wastewater,
Soil, Agriculture, & Turf

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Jason D. from Biolynceus, LLC
How can we help? We're here for you!
Reply to Jason D.
Chat by Drift



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