

# Turbidity Control

## Passive Treatment using Polyacrylamide (PAM)

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# What is Turbidity?



*Photo from James G. Carver,  
Department of Geography and  
Geology,  
University of South Alabama*

- Turbidity is the measure of relative water clarity
- Caused by clays/silts
- Measured in NTU's – Nephelometric Turbidity Units

## Basin Design for 99% Capture

- Surface Outlet
- Porous Baffles - Coir.
- Stable Slopes & Inlet
- 25 year sizing



## Maximizing Your BMPs Efficiencies

- May increase sediment capture from 60% to 90+%.
- This will increase maintenance needs.
- Turbidity will still be an issue
- Values far exceeding regulation standards



## What To Do?

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- Filter: often impractical because effective filters require maintenance (e.g. backflushing).
- Infiltrate: ideal solution (no runoff!) but often soil properties or high groundwater prevent it.
- Chemically Assisted Settling: effective, may not require much change, inexpensive.

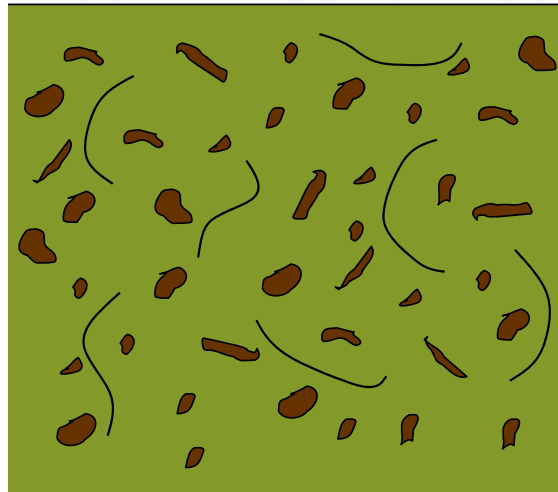
# Polymer Testing

- Jar test with sediment or muddy water
- Usually want to test a variety of products or chemistries.
- Looking for rapid flocculation and settling.



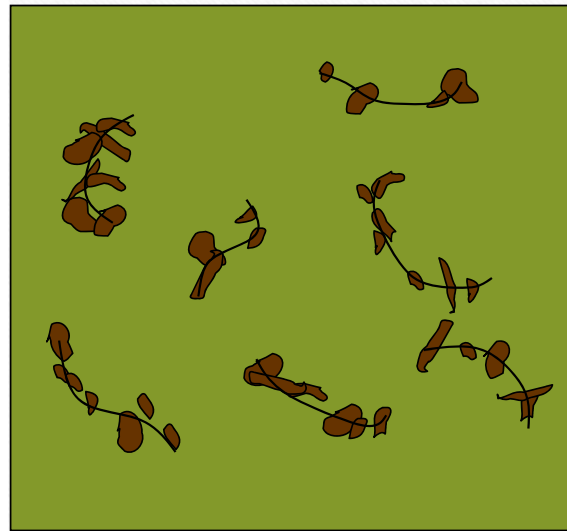
# Flocculation

- Flocculants bind suspended sediment by attaching to several soil particles forming a larger aggregate or floc.
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# Flocculation

- The larger (and now heavier) flocs then settle out of suspension.
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# Polyacrylamide (PAM)

- Water soluble synthetic polymer
- Forms: dry powder, effervescent tablets, solution, emulsion, logs/blocks



# Approach



Passive dosing is any system that relies on gravity flow in a conveyance to achieve flocculation.

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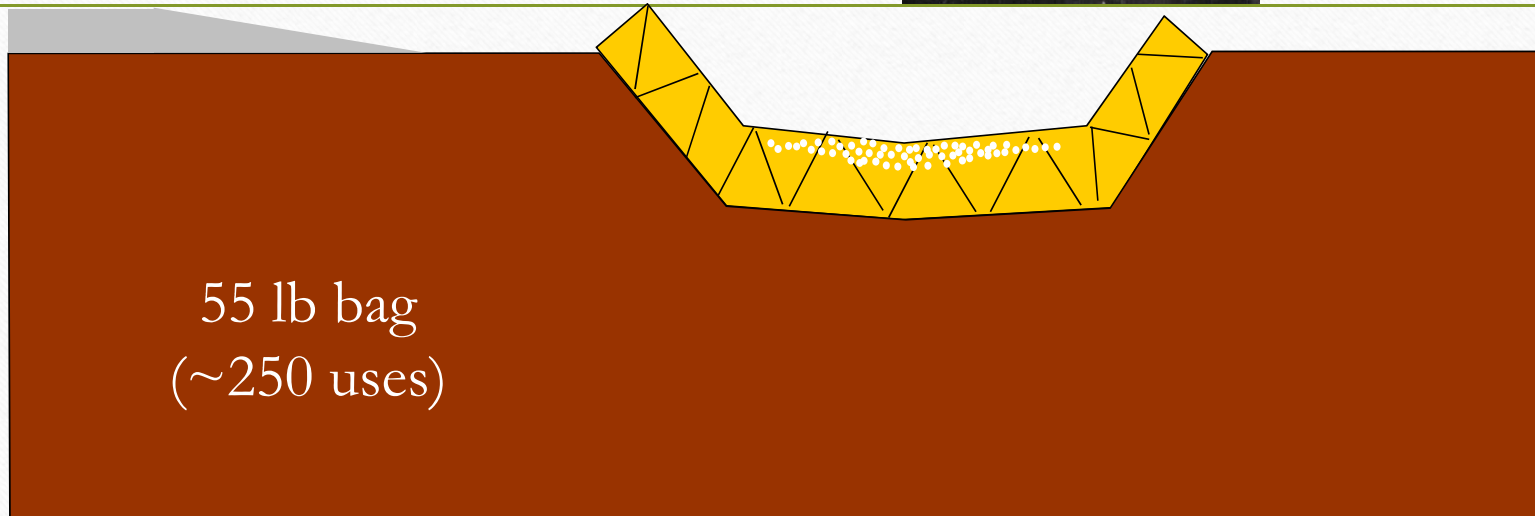
- Check dams with dry granular polymer
- Other granular polymer uses
- Polymer logs or socks (in pipes and other structures)

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Fiber Check  
Dams with  
granular PAM



Sprinkle 100 grams of PAM ( $\frac{1}{2}$  cup) over the lower center portion of the wattle and on the blanket above and below.



55 lb bag  
(~250 uses)

# Check Dam pooling



Drop Inlets –  
Another Good  
Option  
for flocculants



# Flocculant Treatment in Pipes



# Polyacrylamide Effervescent Tablets





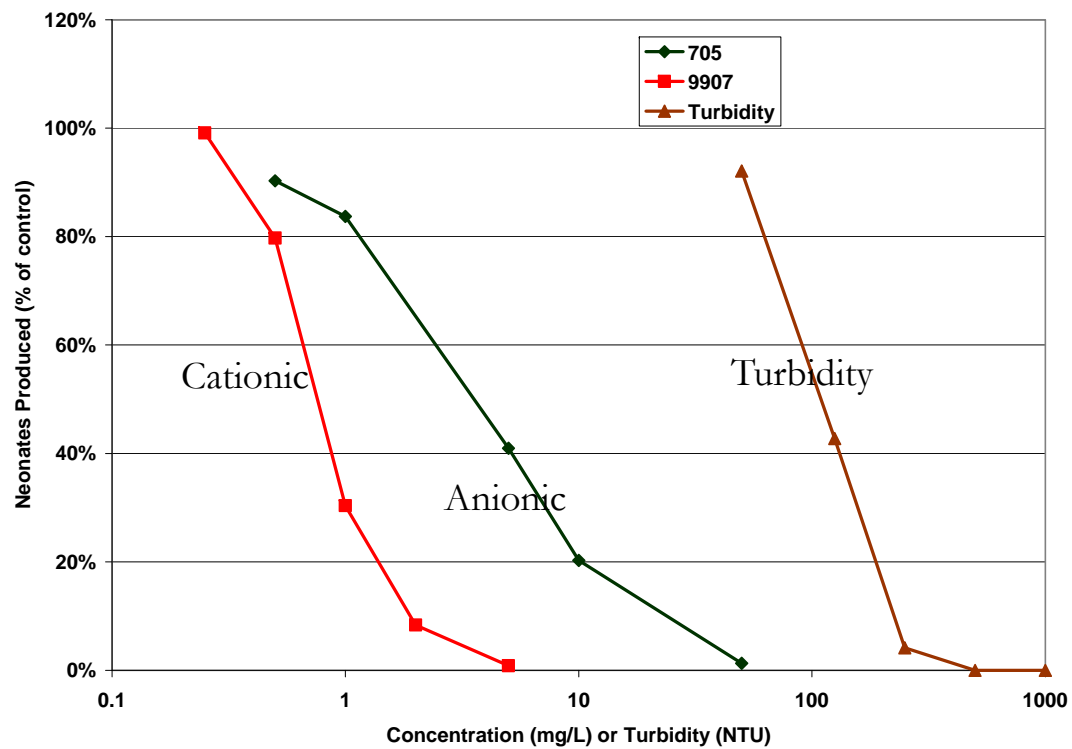
# Runoff Has to Pass Through System



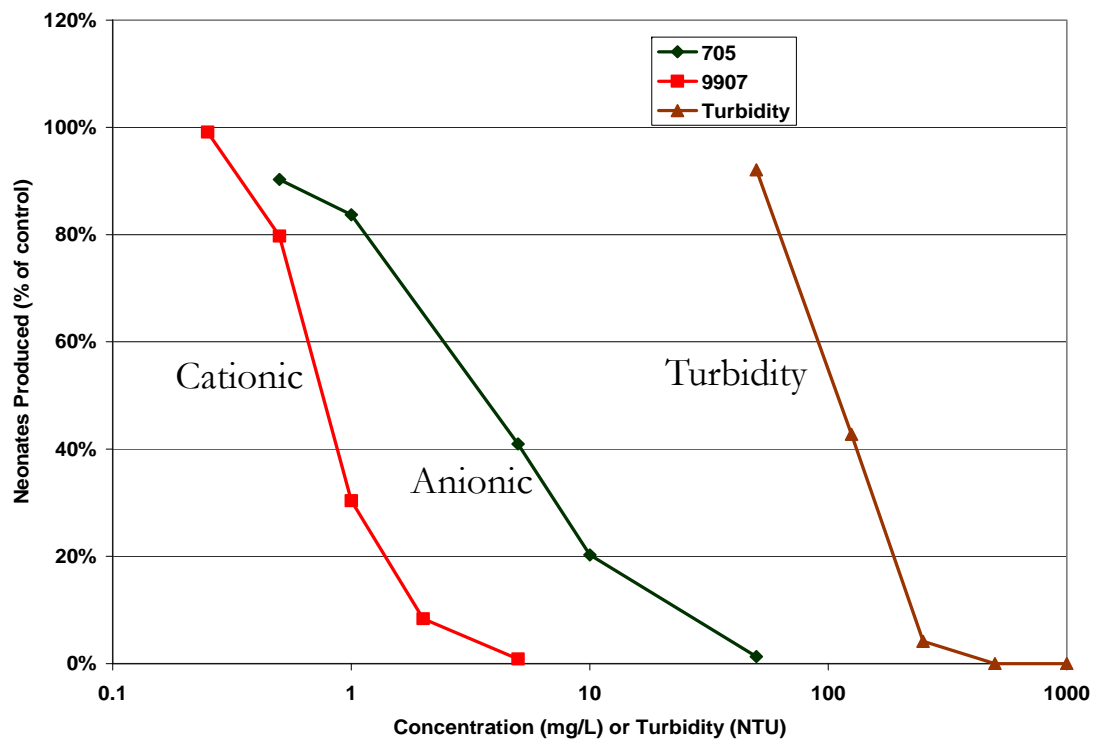
# Capture Treated Water and Collect Floccs



# Cationic, Anionic, Turbidity: Reproduction Effects



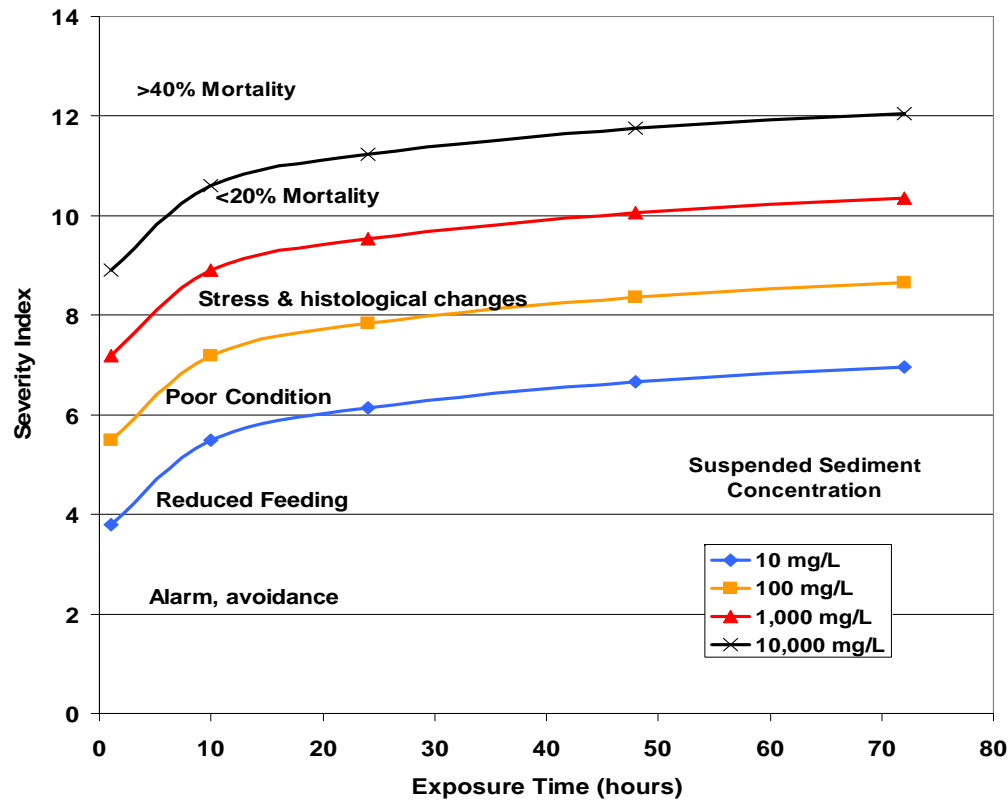
# Mortality Effects



# Suspended Sediment Effect on Aquatic Organisms



(from Newcombe & McDonald, 1991)



# Questions?

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