

Research Workgroup
Monday, January 26, 2009
10:30 AM to 11:30 AM

Individuals Present:

Linda Broach (TCEQ); Richard Chapin by phone (City of Houston); Tony Bennett (AECOM); Tom Ivy (Texas Stream Team); Steven Johnston (GBEP); George Guillen (UH-Clear Lake, EIH); Amy Branom by phone (TCEQ); Bruce Heiberg by phone (BPA)

H-GAC Staff Present:

Rachel Powers; Erin Anderson

Discussion:

Possible research topics:

- Prior land use research- rules already don't allow for soil to leave a site so do the *E.coli* levels from the prior land use make a difference, maybe construction site regulations just need to be enforced more thoroughly
- How much do inspections deter facilities from violations?
- Correlation between turbidity and bacteria- there is not always a correlation, but some land uses might result in a correlation. Research would need to take into account land use types, flow, discharges, turbidity, releases from dams, and rainfall events. This research would be helpful because of the many BMPs discussed that control turbidity. It would be good to see how much bacteria they remove.
- Research looking at bacteria persistence and regrowth- maybe data doesn't support this yet, but it keeps coming up in other groups. High *E.coli* results most likely do not come from naturalized bacteria. If bacteria do exist at some base level, that level needs to be recognized. Is the level of regrowth above the standard? How do we know the bacteria in the sediment didn't get there the day before? Maybe the DNA will be different. There is not enough data yet. Most bacteria do not survive very long in the bayous. Some research has been conducted, but it needs to be done again and in a different manner. A realistic simulation is needed.
- What is different about the 2% of sampled waterways in the Houston region that have not been found to be impaired? Possibly land use (not developed) or groundwater inflows (some waterways have this).
- Once bacteria get in the stormwater system how do we kill it/get it out?
 - UV might be possible, but it would depend on how thick the sludge is and the biofilm
 - Steam cleaning
 - Ozone solution
 - Peroxide
 - Chlorine dioxide
 - Aerators
 - Step pools with cascades
 - Electronic precipitators that would drop out sediment (probably wouldn't work)
 - Chlorinate in the storm sewer pipes and then dechlorinate. First, we would need to ensure there are no leaks using dye testing.

Research already conducted or in the process:

- H-GAC's UAA on BWO, its focus was specifically park areas, conducted through phone surveys and some observations
- Texas AgriLife did a UAA for the TCEQ Standards Team, what they didn't get out of the data is whether the data supported primary contact or secondary contact designation
- George Guillen is conducting a study looking at bottom-feeding fish as vectors of *E.coli* transport. It is believed that cold-blooded animals don't generate *E.coli*, but it is likely that they pick it up and transport it.
- Research looking at bacteria persistence and regrowth-
 - Harris County's study collected effluent and introduced bacteria. The study found that there was regrowth. This doesn't mean it will regrow in the bayous, because the study was done in a closed environment.
 - Dr. Robin Brinkmeyer's studies
- Correlation between turbidity and bacteria- Dr. Hanadi Rifai has looked into this some. Maybe she would be willing to share her current results.

Research to look for:

When looking at research already conducted, it needs to be assessed. Were there enough samples? What were they looking for? Could they find an effect vs. is there an effect?

- Dog poop test- bacteria in runoff from a lot with and without dog poop
- Methods of killing/removing bacteria from the stormwater system

Next meeting:

Wednesday, March 11, 2009, 10:00 AM to 11:00 AM, H-GAC offices, Conference Room B
Be prepared to discuss how we want to prioritize the research activities.