



SPRING CREEK WATERSHED PARTNERSHIP

Public Meeting Minutes

Thursday, December 10th, 2020
2:00 pm – 4:00 pm

In Attendance:

Organizers:

Houston-Galveston Area Council (H-GAC):
Andrea Tantillo
Rachel Windham

Texas Commission on Environmental Quality (TCEQ):
Jessica Uramkin

Attendees:

Aaron Williams (United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS))
Ben Thompson (Community Impact)
Brian Koch (Texas State Soil and Water Conservation Board (TSSWCB))
Camila Biaggi (Harris County Engineering)
Catherine Elliott (Harris County Flood Control District)
Danielle Cioce (Harris County Engineering)
Dawn Asher (Resident)
Desta Takie (City of Houston)
Diana Foss (Texas Parks and Wildlife Department (TPWD))
Erin Kinney (Houston Advanced Research Center)
Floyd Nauls (USDA-NRCS)
Glenna Sloan (Texas Master Naturalists (TMN) - Heartwood)
Jennifer Seale (TMN - Heartwood)
Kendra Park (TMN – Heartwood)
Kent Clingerman (Harris County Precinct 4 (HCP4))
Mac Martin (Texas A&M University Forest Service)
Monte Parks (HCP4)
Patrick Rightmyer (City of Houston)
Paul Nelson (Resident)
Robert Johnston (TMN – Heartwood)
Stephanie Zertuche (Montgomery County MUD 7)

Steve Ellison (TMN - Heartwood)
Teri MacArthur (The Woodlands Township)
Thomas Sample (United States Geological Service)
Todd Running (H-GAC)
Tom Douglas (Bayou Preservation Association)
2 Callers

Meeting Notes:

Welcome and Introductions

- Rachel Windham (H-GAC) commenced the meeting at 2:00 pm by welcoming the attendees. Andrea Tantillo (H-GAC) reviewed Zoom Meeting platform functions for asking questions and making comments throughout the presentation. Ms. Windham also introduced TCEQ Project Manager Jessica Uramkin (TCEQ). Attendance was recorded by the Zoom platform.

Project Overview and Partnership News

- Ms. Windham provided an overview of the Spring Creek Watershed Protection Plan Project facilitated by TCEQ and H-GAC:
 - Spring Creek and many of its tributaries are impaired for contact recreation use due to fecal indicator bacteria levels in exceedance of the state water quality standard. Depressed dissolved oxygen and high nutrient levels are also causes for concern.
 - The Spring Creek Watershed Partnership is being formed to develop a watershed protection plan informed by data analyses and stakeholder knowledge to implement water quality improvement strategies.
- Partnership News:
 - Teri MacArthur (The Woodlands Township)
 - The Watershed Project
 - Recruiting resident volunteers to work on water conservation and water quality issues
 - In January they will start having Zoom meetings to get the committee back together
 - Goal to have monthly volunteer training meetings
 - Just kicked off a project installing storm drain markers in Grogan's Mill (working with the village and MUD 6)

Model Results and Discussion

- Ms. Windham explained the results of analyses used to estimate the magnitude and sources of the fecal indicator bacteria *Escherichia coli* (*E. coli*) in Spring Creek and its tributaries with emphasis on spatially explicit load estimation calculation tool (SELECT) results.
 - Fall meeting overview of SELECT results
 - Factors contributing to *E. coli* loading in the Spring Creek Watershed were incorporated into a SELECT model. This model estimates the contribution of each source to the total load and the locations where each source is most likely to contribute to pollution in waterways. H-GAC considered human sources (wastewater treatment facilities (WWTFs), onsite sewage facilities (OSSFs)), domestic animals (dogs, livestock), invasive species (feral hogs) and wildlife (deer).
 - More potential daily loading is expected to occur in the downstream areas of the watershed and is most concentrated around centers of development. However, areas near the headwaters are expected to undergo further development in the next 25 years which could lead to greater potential daily loads compared to present day projections.
 - Preliminary SELECT results indicate dog waste contributes the majority of the total estimated daily load (64%) followed by livestock (20%) and other wildlife (10%). Nominal contributions to the total load are expected from OSSFs (4%), feral hogs (2%), deer (<1%) and WWTFs (<1%).
 - Overall, *E. coli* loading in the Spring Creek Watershed is expected to double in magnitude between 2018 and 2045 without effective management.
 - Suggested SELECT revisions
 - Livestock – Livestock estimates for cattle, horses, sheep and goats were calculated using USDA census data from each of the 4 counties overlapped by the watershed. 100% of county-specific livestock densities were assumed to occur in pasture and grassland land cover types. Potential for livestock related loading is higher in the headwaters area of the watershed. This is expected to decrease as westward expansion of development encroaches on agricultural land.
 - Based on conversations with area Soil and Water Conservation Districts and support from partnership members, livestock densities will be assumed at 90% in pasture and grassland.

- Stakeholders also observe occasional use of forest and shrubland especially where it borders grassland and pasture. To account for this, 10% of livestock densities will be assigned to forest and shrubland.
 - Because livestock populations are based on census data, the number of livestock will not be affected by these updates, but the distribution of the related bacteria load may better reflect stakeholder observations.
- Feral hogs – Feral hogs are a common invasive species in the watershed. Densities vary depending on land cover type and were initially underestimated due to reliance on an outdated literature reference from Texas A&M AgriLife. Regardless, potential for bacteria loading related to feral hogs is highest in the headwaters area. Feral hog loads are expected to decrease as habitat areas are replaced by new development.
- Ms. Windham points out that updated AgriLife density estimates (8.9-16.4 hogs per square mile) will be used in model revisions.
 - Based on stakeholder discussion, the new estimations for hog density will occur as follows:

Land Cover Type	Headwaters (Upper Spring Creek, Walnut Creek, Brushy Creek, Mill Creek)	Downstream (Middle and Lower Spring Creek, Panther Branch, Willow Creek)
Wetlands	16.4/ sq. mi.	16.4/ sq. mi.
Forest and Shrubland	16.4/ sq. mi.	16.4/ sq. mi.
Grassland and Pasture	16.4/ sq. mi.	12.7/ sq. mi.
Cultivated Cropland	12.7/ sq. mi.	12.7/ sq. mi.
Barren Land	12.7/ sq. mi.	12.7/ sq. mi.
Developed Open Space	12.7/ sq. mi.	8.9/ sq. mi.
Low Intensity Developed	12.7/ sq. mi.	8.9/ sq. mi.

- Human sources – WWTF outfall data was collected from discharge monitoring reports. WWTF potential load contribution is highest in

the downstream portion of the watershed. OSSF numbers were calculated by adding the total number of permitted facilities to the assumed number of unpermitted facilities and estimating a 10% failure rate. OSSF potential load is more generally widespread but highest in the downstream areas as well. Loads and distribution of these two sources are expected to increase over time as development moves westward throughout the watershed.

- No changes were recommended to these estimates. However, H-GAC stressed that properly maintained OSSF units are not expected to impact water quality.
- Pet waste – Dog populations were calculated using the American Veterinary Medical Association estimate of 0.6 dogs per household. The total potential load associated with dog waste was then reduced by 20% to account for pet waste management strategies in place in the watershed. *E. coli* loads resulting from dog waste comprise the majority of the total load. The potential for dog waste loading is highest in the more developed downstream areas. Loads and distribution related to dog waste is expected to increase over time with westward expansion of development.
 - Teri MacArthur (The Woodlands Township) shared anecdotal evidence of large volumes of bagged pet waste found in storm sewers. This indicates that residents understand the need to manage pet waste but are not following through with proper waste disposal. Due to this observation, she suggests the current estimation is conservative.
 - Catherine Elliott (Harris County Flood Control District) points out that TMDL projects in urban areas did not have a similar result in terms of pet waste contribution to the total load. This could be an artifact of the SELECT model, but may still be reflecting the load specific to this watershed considering how disposal is not being properly carried out. H-GAC will follow up with other population centers to see if similar disposal issues are being observed in other areas of the watershed, and Ms. Elliott will look into the availability of more appropriate estimation methods.
- Deer – Deer are the only wildlife species represented explicitly in the SELECT model due to the availability of density estimates provided by the TPWD. For the ecoregion type comprising the majority of the watershed, H-GAC estimates 1 deer per 40 acres in forest and

shrubland and 1 deer per 80 acres in open developed and low intensity developed areas (edge habitat). Potential for bacteria loading related to deer is highest in the headwaters area. This is expected to decrease as habitat areas are replaced by new development.

- Stakeholder feedback indicates preliminary deer estimates may be too low. Brian Koch (TSSWCB) pointed out that deer impacts may not be as significant due to their biology and habits (less bacteria in waste, not likely to directly impact streams). Tom Douglas (BPA) hypothesized that if deer populations thrive in edge habitat, continued development of previously natural areas may not affect deer in the same way that habitat loss impacts other animals. Diana Foss (TPWD) reinforced that the preliminary estimate is low and will follow up to see if more accurate population estimates are available.
- Other wildlife – Wildlife animals (not including deer) lack spatial population data but are potentially a key component to bacteria loads. H-GAC proposed assuming the total SELECT load estimate could be assumed to represent 90% of the load and that an additional 10% of the load could be attributed to other wildlife.
 - Mr. Koch supports accounting for wildlife impacts and brought a study conducted by Texas A&M to the attention of the partnership. With bacteria source tracking, this study identified significant bacteria loading associated with wildlife waste in watersheds within the region. For more information, see:

<https://gbep.texas.gov/wp-content/uploads/2020/07/Trinity-Galveston-BST-Gentry-2020.07.15.pdf>

- Tom Douglas expressed concern for attributing an additional 10% of the total load only to wildlife especially in future projections (constant addition of 10% to the growing total daily load would indicate an increase in wildlife). However, stakeholders were favorable to including a safety margin to the total estimated load that could account for wildlife and other sources not captured by the SELECT model. Therefore, the 10% addition that was previously assigned to other wildlife will now be referred to as a safety margin.

- Other *E. coli* loading sources are important to consider but were not formally included in the SELECT model due to lack of data.
 - Birds – short-term migratory populations and long-term colonial species may contribute to bacteria loading in the Spring Creek Watershed. While load estimations are made difficult from lack of data, the aforementioned safety margin may help to account for bird related impacts.
 - Sanitary Sewer Overflows (SSOs) – While these events have great impacts on bacteria loading and present a considerable risk to human health, they are not consistent in regard to timing or location and are not easily included in the SELECT model. Stakeholders did not object to considering management strategies for this challenge separately from the other estimated factors when developing the watershed protection plan.

Water Quality Improvement Strategies

- Due to time constraints, this section was abbreviated but will be discussed in great detail in workgroup sessions planned for the winter and early spring months.
- To gauge interest in workgroup participation, stakeholders were asked to participate in a Zoom poll identifying which group they would be more likely to participate in (“Human Sources and Pet Waste” or “Agriculture, Wildlife and Invasives”). Some attendees reported technical issues with this feature so the invitation to volunteer for the workgroups will be extended again in meeting follow-up communications.

Meeting Adjourned at 4:15 pm.

For more information, visit <http://springcreekpartnership.com>,
or contact Rachel Windham at:
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