EAHCP Science Committee
02/26/2020 Meeting Minutes

Members of this committee include: Tom Arsuffi, Janis Bush, Jacquelyn Duke, Charles Kreitler, Conrad Lamon, Glenn Longley, Doyle Mosier, Chad Norris, Jackie Poole, Floyd Weckerly and Jack Sharp.

At this meeting, the following business may be considered and recommended for committee action:

1. **Call to order.**
   Jack Sharp, Doyle Mosier, and Chad Norris were unable to attend.
2. **Public comment.**
   No public comment.
3. **Approval of the minutes from the June 27th Science Committee meeting (Attachment 1).**
   Floyd Weckerly motioned to approve the meeting minutes; Conrad Lamon seconded. The meeting minutes were approved with no objection.
4. **Receive report on EAHCP updates.**
   - **Hydrologic update:** SC members requested that information on J-17 and J-27 along with the springs be included at the next SC meeting in April
   - **Granicus system:** Olivia Ybarra presented an overview of how to access future SC meeting documents on Granicus.
   - **2019 Annual Report**
   - **Comal Springs riffle beetle Work Group:** The CSRB Work Group recommended a cotton lure mesocosm experiment, a request for proposals will be pursued later this year to select and initiate the study in the fall 2020.
   - **Springflow Habitat Protection Work Group:** Jamie Childers, EAHCP Manager, presented an overview of the draft charge for the Springflow Habitat Protection Work Group.

5. Discussion and possible action to elect the nomination for the 2020 Science Committee officers.

Floyd Weckerly nominated Jacquelyn Duke as Chair for 2020, Tom Arsuffi seconded the motion; no opposition. Jacquelyn Duke will serve as 2020 Science Committee Chair. Jacquelyn nominated Chad Norris as Vice Chair, Janis Bush seconded the motion; no opposition. Chad Norris will serve as 2020 Vice Chair.

6. Presentation on the results of the Sessom Creek sediment export study (Attachment 2).

Dr. Schwartz, Dr. Wolfe and Dr. Jeong presented the results of their Sessom Creek sediment export study. The final report can be accessed here and is also available on the EAHCP Applied Research webpage.

Stormwater samples were collected with an ISCO sampler and discharge was continuously measured at the sampling location. Field duplicates of stormwater samples were randomly selected, and all samples were processed within 24 hours of the rain event. Precipitation data were from two rain gages in watershed; one in the middle and one on top of Freeman Aquatic Biology. Basin-wide radar data were also used to calculate the antecedent conditions. Results helped assess the relationship between flow and turbidity, total suspended solids, and non-volatile organic chemicals over a range of flows. Twelve storm events were sampled with storm flow accounting for about 3% of the sampling timeframe. The gaging site recorded 0 cfs approximately 36% of the time, however there are small springs below the flow gage that provide a consistent low flow of around 1-3 cfs.

Dr. Lamon commented that some variables may be colinear with each other, such as evapotranspiration. Dr. Schwartz replied that it was considered and evapotranspiration 8 was significant for nitrate and evapotranspiration 2 was significant for ammonium. Soil moisture influences the phases of nitrogen, specifically the soluble phase and influences the aerobic and anaerobic cycles of the nitrate. Members asked about the antecedent conditions and how the time of year would influence the results. Dr. Schwartz replied that it was analyzed but was not significant perhaps due to the limited time period of the sampling.

Dr. Wolfe presented the calculated sediment load curves calculated through USGS Load estimator, LOADEST. He explained the different methods used the synthesize the data time series into uniform intervals. LOADEST, was used to perform a linear regression model based on flow/discharge and suspended sediment, total nitrogen, and total phosphorous. There was a relationship between discharge and total phosphorous, and TSS or total particulates. Also used a USGS spreadsheet tool for sediment that uses turbidity as a surrogate to estimate sediment concentration which was then applied to the discharge to estimate the total sediment load for the sampling period. Logarithmic scales helped adjust and normalize the data to then perform standard regression. For turbidity, a different tool with a log-log transformation was used to calculate a rating curve for concentration. Results showed a good fit and the tool was recommended for analyzing future turbidity data.

Members asked if the relationship changed with flow. Dr. Wolfe responded that it did not change with flow but added that the study collected not just sediments but also nutrients, so the sampling was triggered based on flow level. One way to enhance sediment sampling would be to set the sensor to collect sediment samples when it detects certain turbidity amounts (10, 100, 1000), the data could then help refine the relationship between turbidity and TSS concentration.

Hysteresis is the phenomenon in which the value of a physical property lags changes in the effect causing it. This hysteresis analysis analyzed the pattern that emerges between flow and turbidity peaks. The timing and degree of the rise and fall of sediment concentrations

and flow can explain if sources are close or far away (tributaries). Of the 42 storm events, some had multiple peaks and very distinct initial samples from the rest of the samples. This could be attributed to the initial flush of particulates from impervious cover, such as parking lots.

Dr. Jeong presented his research that assessed land use and land cover characteristics within the watershed. He noted the small size of the watershed, high slope, and soil composition as factors that influence the time and duration of the flow peaks. GIS data were analyzed within the SWAT model at a grid size scale of 3 ft x 3 ft combined with measured channel discharge data. Modeled outputs suggested that 80% of the sediment yield entering the creek may be from the channel bed, and the remaining 20% are from upland sources. The storms were somewhat flashy with a high sheer stress which may scour the bed and bank and transport it downstream. Highly erosive stormwater coming from storm drains, steep slopes, and impervious cover exacerbate the erosion within the main channel. He also emphasized the importance of collecting data during a longer, continuous time period to refine the trends observed.

7. Presentation on the history and current application of the Expanded Water Quality Monitoring Program (EAHCP 5.7.2).

Chad Furl presented a comprehensive overview of the expanded water quality monitoring program and the historical data observed. The sampling locations, list of parameters, and timelines are included within the presentation posted on the Science Committee website.

8. Consider future meetings, dates, locations, and agendas.

- Wednesday, April 29, 2020 at 9:00 am (Cancelled)
- Thursday September 10, 2020 at 9:00 am