



NOVEMBER 10, 2016 MEETING MINUTES

1. Call to order – 9:00 am

Members present included: Tom Arsuffi, Jacquelyn Duke, Conrad Lamon, Glenn Longley, Doyle Mosier, Chad Norris, Jackie Poole, Robert Mace, Charles Kreitler, and Janis Bush

**Dr. Weckerly was absent*

2. Public comment.

No comment.

3. Approval of September 9, 2016 Science Committee meeting minutes.

Dr. Kreitler motioned to approve the minutes, Dr. Duke seconds the motion, all were in favor.

4. Receive report from the Program Manager.

• **Springflow and Index Well Update**

Dr. Chad Furl, Chief Science Officer, provided a brief hydrologic update for the region. Discharge in both river systems is above average flow conditions. J-17 levels are above average, whereas, J-27 is close to average.

• **2016 Stormwater Sampling**

Dr. Furl presenting an overview of EAHCP stormwater sampling including locations and land cover characteristics of the San Marcos and Comal watershed.

• **2017 Science Committee Meeting Calendar**

Alicia Reinmund-Martinez discussed the 2017 Science Committee meeting times and locations. Starting in 2017, the meetings will be held quarterly with the first one occurring on March 8 at the San Marcos Activity Center.

• **USFWS Response to SAV Adaptive Management** *EAHCP Executive Director, Nathan Pence, discussed the positive feedback from USFWS and their acceptance of the SAV Adaptive Management changes.*

5. Presentation on the contract to establish EAHCP refugia operations and provide the Science Committee with information concerning the contract for EAHCP refugia operations.

Nathan Pence, EAHCP Executive Director, and Dr. Chad Furl, Chief Science Officer, provided a presentation to the Science Committee regarding the 2017 EAHCP refugia program operations.

**Questions are in italics; Responses are regular font*

- (1) *SC members inquired about the refugia staff and replacement contingencies. There will be 4-6 staff between the Uvalde and San Marcos facilities. If staff change, USFWS ensures staff succession has comparable training and experience. Moreover, they offer additional support with seasonal staff and interns. Chad Norris and the Committee agree that will be sufficient for program needs.*

- (2) *Members asked about the work going on at Uvalde.* Uvalde no longer works with sports fish, instead operations are now focused on standing and salvage stocks of Edwards Aquifer and other endangered species such as Texas wild-rice, Devil River minnow, pup fish, etc.
- (3) *Dr. Kreitler.- What if the wells go dry or become contaminated?* SMARC has two wells, and ponds with pumps for back-up. SMARC is developing a reuse UV water filtration system so they can be self-sufficient during periods of extreme drought. The new UV water reuse filtration system at SMARC is already being financed through USFWS and will not be paid for through EAHCP funds. Uvalde has 2 wells located in different aquifers. Both facilities have back-up generators in case of a power outage. If one facility becomes contaminated, then the other serves as a back-up as well.
- (4) *Dr. Mace - How is the water quality between both facilities?* John (USFWS) said that the water at Uvalde is not as good as the water at SMARC. The Uvalde water comes from 2 wells within different aquifers-the Austin Chalk and the Edwards. The Austin Chalk aquifer is connected to the Edwards aquifer, but has a higher calcium concentration than the Edwards. However, water at both facilities has been tested and the chemistry has been deemed sufficient for the Edwards species.
- (5) *Does the USFWS need a permit from the EAA to withdraw from the Edwards Aquifer?* No, they are exempt because they are federal.
- (6) *Are SOPs in place?* EAA will have documentation for potential issues.
- (7) *Dr. Longley-what are your contingencies for the 500 invertebrates you currently have? If you lose them, you would not be able to replace them all.* Most of the stock of 500 invertebrates are the non-listed, petitioned species. In the future, we will collect as many as we can, document the most successful measures for collecting specimens, practice husbandry and document successful propagation techniques.

Action Items:

*Dr. Kreitler recommends the EAA/USFWS put together a short review on the water and electrical contingency plans in the event of extreme drought or emergency outage. Also, requested documentation on water quality supply characterization summary for each facility.

6. Presentation of the 2015 Applied Research results: Suspended sediment impacts on Texas wild-rice & other aquatic plant growth characteristics & aquatic macroinvertebrates study

Dr. Thom Hardy, Chief Science Officer at The Meadows Center, presented an overview of the 2015 suspended sediment applied research.

- (1) *Dr. Arsuffi- How will the light requirements effect riparian restoration?* Thom: I have requested that riparian plantings should include native plants that allow for appropriate light penetration.
- (2) *Dr. Arsuffi - Are the goals of this research to increase habitat for wild-rice along river as it relates to riparian shading?* Thom: We want to plant in areas that receive adequate light as well as in areas that are not adversely impacted by recreation. Criteria for wild-rice restoration includes accounting for light availability, suitable depth and velocity during low flow, and areas not disturbed by recreation.

- (3) *Dr. Bush- is Wildrice a C3 or C4? Poole: C3; Dr. Bush: if it's a C3 then it should not be adversely impacted by shading from riparian vegetation since most of it should grow during the cooler times when there is less foliage and shade.*
- (4) *Dr. Duke - what are the major controls for light availability? Is it just riparian shading or are there depths with less than the 28% requirement? Thom: Light availability is not just a function of riparian shading but also variation within the water column. Checked PAR through water column, and it decreases when there's turbidity and when depths exceed the photic-zone.*
- (5) *Dr. Arsuffi - In situ experiment manipulates PAR at 20% for 6 weeks straight, that's not a condition that TWR in the field experiences. Thom: the study was outside with ambient light and natural variability of incident light with a 20% filter.*
- (6) *Dr. Bush – What about the seasonal variation of the deciduous trees? Do we assume that Wildrice has evolved in this habitat regardless of riparian tree shading? Thom: We collected PAR measurements during leaf on and leaf off for all the riparian tree species along the river to conduct the initial assessment. Historical discussion suggests that riparian community has changed over the years and did not have as many riparian trees, namely, exotics like ligustrum. The reduction of light is greater now than it has been historically.*
- (7) *Dr. Arsuffi -How do you account for the river continuum concept in the San Marcos? Thom: There's longitudinal gradient within macroinvertebrates relative to the amount of species also a diminishing ability to sustain Wildrice densities as you go down river in part due to CO2 depletion.....*
- (8) *Dr. Arsuffi - The San Marcos behaves as a 5th order river. The river continuum concept would suggest that shading is a relatively minor component as a factor effecting the function and shaping of that river. D. Mosier: it behaves as a fifth order river but it's not a fifth order river because it is a lot narrower and has more shading... Dr. Arsuffi: No, not if it's based on the functional feeding group composition and the photosynthesis. 5th order streams have a healthy macroinvertebrate communities with scrapers. D. Mosier: doesn't think it's a fifth order due to habitat characteristics such as width and canopy cover. Dr. Arsuffi: if it's a fifth order then that means the riparian coverage is not an issue. This study was done out of the context of a larger literature review of stream order and how they function.*
- (9) *Comment: Need to improve presentation order, graphs, tables, increase font size, and citations. The notch box and whisker plots, with a notch around the median, provide information on the central tendency and are easier to visualize with ANOVA.*
- (10) *Chad Norris: Are the anomalies at the Ramon Lucio site due to the river still adjusting from the dams at Rio Vista? Rio Vista does trap fine sediment but it is apparent from the Biomonitoring data, that the channel is changing between Cheatham Street to IH35 and downstream.*
- (11) *Wouldn't you expect, going through the seasons, to see thermal stability because you're dealing with stream order and temperatures don't change much? Yes, the reduction in Winter is far greater than we expected due to natural seasonal variation. It could instead be attributed to reduced recolonization since sampling occurred a month after the severe October 2015 flood.*

Action Items:

- * Need more documentation on methodology and procedures.
- * Thom will provide additional turbidity and PAR data that the student has collected since the report was submitted.
- * Should have had a higher macroinvertebrate community. Thom will check thesis on the San Marcos macroinvertebrate recolonization rates after a flood (Dr. Arsuffi has citation).

7. Presentation on the development of the EAHCP data management system, including review of data sets.

Dr. Furl provided an update to the Science Committee concerning the proposals received for the 2017 Applied Research Program and the Science Committee's review process. A summary of points of discussion concerning each project is provided below.

- *Will future contracts be required to maintain and update database?* No, staff will be trained so they can add and import new data without AI assistance.
- *Question: (1) Will there be requirements for future contracts to use this database or (2) provide any new, future data to EAA so it can be imported?* Yes, we will provide templates to future contractors to ensure their data is compatible and formatted for the database.
- *Will all future contractors be required to use this database?* It depends on the study objective and data needs.
- Science Committee sees value in database development and developing naming conventions and data format standards for future contractors and EAHCP biomonitoring research.
- Database development was in response to NAS and Science Committee request. Science Committee is unanimously pleased with the effort.
- Dr. Lamon suggested retain original name and information. *Response:* The original naming has been documented.

Action Items:

- * Thom Hardy will provide historical Comal Drop Net data so it can also be incorporated into the database
- * Thom Hardy will provide vegetation shapefiles that have been recoded for EcoHydraulic Model to ensure they match the new naming convention

8. Discussion of EAHCP Applied Research Program including 2017 projects and future directions of the program (Attachment 5).

Dr. Furl presented a summary of the contractors selected for the 2017 Statistical Analysis Applied Research

- *How did Beaver Creek Consulting in Tennessee hear about the posting?* Based on feedback from the Committee, we have made a concerted effort to ensure our postings are received by a broader audience. This includes using national listing boards per the committee's recommendations, etc.

9. Discussion of Science Committee operation and possible endorsement of changes proposed in the November 3, 2016 memorandum, Operation of the EAHCP Adaptive Management Science Committee

Alicia Reinmund-Martinez facilitated discussion on the roles and responsibilities of the Science Committee based on the Funding and Management Agreement of the HCP.

- *Have any specific subcommittee groups been identified for 2017? No, they will be created as needed based on the topic and scientific needs.*
- *Will professionals not on the Science Committee be allowed to participate in the Subcommittee groups? Yes, other experts and professionals can participate with the subcommittee work groups. It depends on the subject and task of the work group*
- *How does the EAA groundwater modeling fit in with the Adaptive Management framework and this committee? We are building a new Hydrological model to inform the Phase 2 Adaptive Management decisions we must make for discharge at Comal. We will most likely create a modeling subcommittee work group in 2017 to discuss the model and its applications.*
- *Science Committee membership lasts until the member wants or needs to leave. A member can be asked to leave by the sponsor that originally nominated them, but that's unlikely.*
- *Dr. Bush motions to approve the memorandum with the new operational standards, Dr. Duke seconds the motion, all in favor.*

10. Discussion and possible action to nominate and elect a new Chair and Vice-Chair for 2017.

- *Charlie makes motion for Dr. Arsuffi to become the Chair for 2017, Glenn Longley seconds the nomination, all approve.*
- *Dr. Arsuffi makes motion to nominate Butch Weckerly as Vice Chair for 2017, Janis Bush seconds the nomination, all approve.*
- *No other nominations or volunteers for the Vice Chair. If Dr. Weckerly rejects nomination, will nominate and elect alternative Vice Chair at the March meeting.*

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

- *Joint Committee meeting will be held on December 15th at The Edwards Aquifer Authority*
- *Next SC committee meeting March 8, 2017 (Activity Center).*
- *Dr. Duke will not be able to attend the March meeting.*

12. Adjourn. – *Doyle Mosier adjourned the meeting at 12:30 p.m.*