

**Nueces River and Corpus Christi and Baffin Bays
Basin and Bay Expert Science Team (BBEST)**

Friday, March 25, 2011 at 1:00 p.m.
Nueces Delta Preserve Education Center

MINUTES

Members Present: Sam Vaughn, Paul Montagna (SAC liaison), Rocky Freund, Ryan Smith, Tom Arsuffi, Greg Stunz, Ben Hodges, Dave Buzan, David Hoeinghaus, and Ken Dunton.

1) Call to Order, Introductions, and Public Comment

Chairman Sam Vaughn called the meeting to order. There was no public comment at this time.

2) Approval of Minutes from October 22, 2010, December 10, 2010, and January 28, 2011 Meetings

Minutes for the October 22, 2010, December 10, 2010, and January 28, 2011 meetings were approved by consensus.

3) Approval of Draft Meeting Rules

The revised draft meeting rules were distributed for review. The meeting rules were approved by consensus.

4) Science Advisory Committee (SAC) Report (Montagna)

SAC liaison Dr. Paul Montagna noted the SAC was reviewing the Colorado/Lavaca and Guadalupe/San Antonio BBEST reports as well as the work plans submitted for the Trinity/San Jacinto and the Sabine/Neches BBASCs. He noted the improvement in the reporting of the later groups, and encouraged the BBEST to identify needs to be addressed in the work plan as their recommendations are built. He mentioned the work plan guidance document as well as the hydrologic methods guidance document, and urged members to utilize them as resources. Dr. Montagna reiterated the lack of funding after August 31, 2011, and added the SAC had set aside some funds for use by the BBESTs for projects that can be completed by the end of August. However, there are no set plans on how to distribute those funds as of yet. He urged the BBEST to make a proposal for consideration at the April SAC meeting.

5) BBASC Report (Vaughn)

Chairman Vaughn said the BBASC had not met since the last meeting. The BBEST was asked to make a presentation at their next meeting scheduled for April 20, 2011. The BBASC will need to appoint a new member to the BBEST since Wayne Gardner resigned due to other commitments and time constraints. Chairman Vaughn asked BBEST members to provide nominations for consideration. There was a clear consent among members that this slot needs to be filled and potential candidates were discussed. Vaughn will advise the BBASC Chair of BBEST discussions and urge a swift decision by the BBASC regarding member replacement.

6) BBEST Budget Status (TWDB, Vaughn)

Chairman Vaughn presented an update on the BBEST budget. He discussed the budget constraints due to the expected lack of funding next fiscal year, and the BBEST discussed delivery of its recommendations report by the end of August 2011. All members were committed to finishing by the end of the fiscal year.

7) BBEST Recommendations Report & Timeline (Vaugh)

Chairman Vaugh distributed a draft report outline that included changes discussed at the December meeting. Members discussed the different approaches (narrative versus site by site discussions), use of pictures and need to support the final recommended flow regimes. Members were encouraged to review the outline and discuss any changes at the next meeting. Members will investigate possible resources for compiling the final report. Chairman Vaugh will work on a list of writing assignments and requested that members let him know if there is interest in a specific section. A tentative deadline for a completed draft was set by consensus for July 31, 2011 to allow time for any revisions.

Members discussed future meeting dates. Meetings were set for April 29th, May 20th, June 24th, July 8th, July 29th, and August 19th.

8) Hydrology Work Elements and Issues (Vaugh)

Chairman Vaugh distributed several handouts to members including a list of the 20 reference gages chosen by the BBEST. Dr. Dan Opdyke, TWDB, discussed a handout entitled Hydrology Subcommittee update with proposals for members' consideration.

Based on the definition of an intermittent stream as one where the 5th percentile of flows is zero, 9 of the 20 gages selected were determined to be perennial and 11 gages were intermittent. Dr. Opdyke ran HEFR and IHA on the 9 perennial gages using parameters based on the decisions made earlier by the BBEST and presented the preliminary results. For the intermittent gages, members need to determine whether the parameters used in the HEFR and IHA runs will be changed to account for the longer zero flow periods. He noted that members had decided to use a different seasonality pattern for the Edwards Plateau vs the Desert/Coastal areas. He discussed how data is synthesized from nearby gages to fill in data gaps in the period of record. He explained the choice of using a full period of record to determine the magnitude of the thresholds (25th and 75th percentile) which ultimately determine high and low flow pulses. He described how the stage associated with bank full was determined for each gage and how it was used to define inbank high flow pulses and over bank events. He discussed how HEFR uses volume vs peak flow and duration of each event vs peak flow to generate the regression tables, and presented the preliminary HEFR results to the members. For one of the gages, he showed that the results indicated that 85 high flow pulses were identified which is less than the 86 needed for an average of 1 high pulse per season. Members will need to decide whether a pulse needs to be specified or not. He also showed examples of the impact of reservoirs on the results. Dr. Opdyke added that from the hydrologic preliminary flow results, members need to decide what period of record makes the most sense from an ecological perspective.

Chairman Vaugh asked members to go home and look at these examples considering the three periods of record (full, early, and late) to see which may be more consistent with geomorphologic, biologic, and riparian overlays. He added that the SAC is concerned with basing recommendations solely on HEFR and wanted to see how the overlays are used with the HEFR results to support the recommendations.

Dr. Opdyke discussed the options available for handling the intermittent flows and continued discussing the summaries of the HEFR runs on the perennial sites and related them to the matrices shown on the other handouts. Members agreed to retain the gage at Leona Springs as a control point.

Chairman Vaugh added that at the next meeting, there will be a discussion on the hydrologic conditions and how they relate to the base and pulse flows. He asked Cory Horan, TCEQ, to arrange a

presentation by Kathy Alexander, TCEQ, on the new rules for the Sabine/Neches and Trinity/San Jacinto, and how those rules evolved from the regime recommendations. Since members had no objections to the general approach used for the perennial gages, Dr. Opdyke will present preliminary work on the intermittent gages at the next meeting and members can decide how to proceed with those gages. He also said there would be more discussion on filling in the pulse blanks. David Buzan said the instream flow group will discuss the ecological rationale and present a recommendation at the next meeting on whether to fill in those blanks or not. Chairman Vaugh will provide the instream subcommittee the existing available rainfall data for the gage locations in the hill country and upstream of the lakes; and check into the availability of the updated information from the USACE Nueces Feasibility Study.

Future Activities and Deliverables:

- HEFR and IHA runs for intermittent gages: Determine whether the parameters will be changed to account for the longer zero flow periods;
- Period of Record: Determine from the initial HEFR results, what period of record makes the most sense from an ecological perspective.
- Hydrologic Conditions: Discussion on the hydrologic conditions and how they relate to the base and pulse flows at the next meeting;
- New rules: Presentation by Kathy Alexander, TCEQ, at the next meeting on new rules and how the rules evolved from the flow regime recommendations;
- Intermittent gages: Dr. Opdyke will perform preliminary work on the intermittent gages and present the results at the next meeting;
- Instream Flow Subcommittee will present their recommendation on blanks in intermittent flow data at the next meeting
- Rainfall data: Chairman Vaugh will provide the instream subcommittee the existing available rainfall data for the gage locations in the hill country and upstream of the lakes;
- Nueces Feasibility Study: Chairman Vaugh will check into the availability of the updated information from the USACE Nueces Feasibility Study.

9) Instream Work Elements and Issues (Buzan)

Member David Buzan presented the work elements and issues of the instream subcommittee. He said that TPWD had completed the analysis of the available Texas Ecological Classification of Vegetation data at 4 of the selected sites and is willing to provide assistance to the BBEST. Mr. Buzan reported that the USGS had no information about sediment transport upstream of the reservoirs. The subcommittee chose 15 sites which are representative of all the geographic ranges of the basin and the range of EPA level 3 eco-region designations, have substantial flow records that would allow analysis, and potential ecological and water use significance.

Mr. Buzan said members needed to decide whether to use site specific overlays or general descriptions of basins and watersheds. Members agreed by consensus to direct Dr. Nolan Raphelt, TWDB, to begin work of the geomorphology analysis at the following sites: Nueces at Uvalde, Nueces at Three Rivers, Frio at Concan and Frio at Derby. Dr. Raphelt also offered to complete the cross sections. For the special projects, members decided to evaluate a recharge dam on the Nueces at Uvalde as a recharge feature, Frio at Derby as a “run of the river”, and Choke Canyon. Vaugh may suggest refinement of project selections and Opdyke (TPWD) will provide time series analyses using the Flow Regime Application Tool (FRAT). Mr. Buzan discussed the riparian and pulse overlays, soil types and flood frequency analysis, and options available for completing the tasks.

Doyle Mosier, TPWD, used the Fishes of Texas database and the data for the Nueces River to develop a species list summarized by county and ecoregions. He also developed habitat suitability indices using this data. Mr. Buzan said that the instream flow subcommittee will meet to discuss these results, the best methodology to use, and number of sites for further study. The subcommittee will present a recommendation to the group at the next meeting.

Vice chair Rocky Freund compiled all the water quality data requested by the instream flow subcommittee. She presented the results of her compilation including available parameters, date range of the data coverage, and the instantaneous flow data pulled that correlated with the water quality data. Members agreed to direct Chairman Vaughn to review a couple of sites to determine what approach might best be used, compile existing data and report back to the group at the next meeting. Ms. Freund will complete the analysis on the remaining sites. Dr. Paul Montagna agreed to run an analysis using his estuary model since it was already being done.

Chairman Vaughn summarized the future activities and deliverable:

- Geomorphology: Dr. Raphelt will perform analysis at four sites: Nueces at Uvalde, Nueces at Three Rivers, Frio at Concan, and Frio at Derby;
- Example Projects: Dr. Opdyke, Chairman Vaughn, and Nolan Raphelt will evaluate causes of flow changes at the following sites: recharge dam on the Nueces at Uvalde, “run of the river” on the Frio at Derby and Concan, and Choke Canyon;
- Riparian: Dr. Hoeinghaus will check into his availability as a resource for additional work (consideration of soil and wetlands data) on the existing riparian maps;
- Focal Species: Doyle Mosier will complete a species list;
- Instream subcommittee will meet to discuss species, guilds, and habitat data and report back to the committee whether or not to use CCM;
- Water Quality: Chairman Vaughn will evaluate water quality parameters (DO, temperature and nutrients) at a few sites and report back to the committee at the next meeting;

10) Estuary Work elements and Issues (Stunz)

Member Greg Stunz presented an update on the estuary subcommittee. The subcommittee discussed the characteristics of the existing bays (Oso, Nueces, and Corpus Christi) and recommended that the committee focus mainly on the Nueces delta and bay. The subcommittee plans to have a narrative description of the other bay systems and their relationship to freshwater inflows; and for the Nueces Bay/delta, perform a quantitative analysis of freshwater inflow and the ecological effects on the bay. Mr. Stunz felt there was adequate data available for the Nueces Bay/delta since TPWD had been working in that area. Members discussed the net impact of decreased freshwater and increased wastewater inflows to Corpus Christi Bay. Chairman Vaughn reminded members that the BBEST will need justification to show stakeholders and SAC for whatever decision is made. Members agreed by consensus to focus estuarine work on the Nueces Bay/delta, however, Mr. Stunz and Ben Hodges will perform a mass balancing/water budget analysis for review by the estuary subcommittee. The findings will then be presented to the full group.

Members discussed whether or not a sound ecological environment exists under current conditions. Tentatively, members agreed that there was not a sound ecological environment in Nueces Bay based on the absence of oyster and rangia which is perceived to be caused by decreased freshwater and sediment inflow, and the erosion of the front of the delta. They discussed what a sound ecological environment should look like, the need to define the characteristics of a sound ecological environment, and what recommendations are needed to achieve a sound ecological environment.

Key Action Items:

- Water Budget Analysis: Complete the analysis and decide how to proceed with the Corpus Christi Bay;
- Sound Ecological Environment: determine the baseline and indicators, then the methods and analysis;
- Report Writing: Establish a report writing committee and delegate assignments
- Baffin Bay and Upper Laguna: Narrative discussion on freshwater inflows and how they relate to system conditions.

11) Future Meetings

The next BBEST meeting will be held on April 29, 2011 at 9:00 am at TPWD Airport Commerce in Austin. Future meetings are tentatively scheduled for: May 20th, June 24th, July 8th, July 29th and August 19th.

12) Public Comment and Adjourn

There was no public comment.