

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

Friday, June 24, 2011 at 9:00 a.m.

Texas Parks & Wildlife Department, Airport Commerce Facility, Austin, Texas

MINUTES

Members Present: Sam Vaughn, Chair; Rocky Freund, Vice Chair; Tom Arsuffi; Dave Buzan; Ken Dunton; Ben Hodges; David Hoehinghaus; Ryan Smith; Lonnie Stewart; Greg Stunz; Jace Tunnell, and Lance Williams

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 April 29, 2011 and May 20, 2011 Meeting Minutes

The minutes for the April 29, 2011 meeting were reviewed and revised. Minutes for the April 29, 2011 were approved as amended. The minutes for the May 20, 2011 meeting were reviewed and revised. Minutes for the May 20, 2011 were approved as amended.

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

Dr. Paul Montagna gave an update on the last two SAC meetings held on May 11 and June 8, 2011. He reported there were two items of interest at the May meeting; a presentation on sediment transport and whether the geomorphic guidance document should be revisited; and a presentation on the new Trinity-San Jacinto and Sabine-Neches environmental flow rules adopted by the TCEQ and the rulemaking process. Dr. Montagna noted that, at the June Meeting, members discussed the initial review of the Sabine work plan, the basic elements of a work plan and deficiencies seen in the work plan submitted. He mentioned the efforts to obtain additional funding for the Rio Grande and Brazos groups for the next fiscal year. Dan Opdyke, TPWD, noted that the TCEQ is soliciting comments on the implementation of the new rules and the guidance document the TCEQ has been charged with creating on how to implement those rules.

4) Basin and Bay Area Stakeholders Committee (BBASC) Report (Vaughn)

Chairman Vaughn gave a brief update on the BBASC and noted the group had not met since the last meeting. The next BBASC meeting is scheduled for July 20, 2011 in Uvalde and the BBASC has requested a BBEST update at that meeting.

5) BBEST Budget Status (TWDB, Vaughn)

Chairman Vaughn presented an overview of expenditures and remaining funds. He reminded members that they will not be eligible for reimbursements after August 31, 2011 and actual reimbursements are limited to 5 hours per meeting.

6) Recommendations Report & Schedule (Vaugh)

Chairman Vaugh reviewed the revisions made to the recommendation report outline and time schedule noting those items that are due shortly and those that are overdue. Dan Opdyke (TPWD) will post the preliminary HEFR summary tables on the ftp site so members will have access for future reference. Chairman Vaugh reminded members to post their photos to the ftp site.

7) Instream Work Elements and Issues (Buzan)

Dave Buzan reminded members that the BBEST contracted with Trungale Engineering and the Texas River Systems Institute in May to assist the BBEST in understanding the relationship between flow and the availability of habitat. Ryan Smith reported that members of the subcommittee met with Joe Trungale and Thom Hardy on June 3, 2011 to discuss the species of interest and what approach to take for the work. He discussed why the subcommittee decided not to take the guild approach and chose to run individual species through the process, he mentioned the sites being evaluated, and talked about how the species and habitat criteria were chosen.

Joe Trungale and Thom Hardy delivered a powerpoint presentation on the instream flow – habitat relationships supporting flow regime recommendations. They reported that the fieldwork and modeling were done and the documentation report started. They discussed the site selection, desired meso- and micro-habitats, and the work done at each site. They presented an overview of the process used and the three sites evaluated including a selection of graphics and summaries relating flow magnitude to habitat in terms of weighted usable area (WUA), WUA of high quality, and percentage of maximum WUA by species. In discussion of these graphics, the BBEST requested that calculations of percentage of maximum WUA be based the WUA associated with the highest seasonal base flow plus 10 percent in the contractors' report. Dave Buzan noted a need to develop a generic approach to interpreting the information that can be applied to other sites.

Nolan Raphelt, TWDB, gave an update on the geomorphology activities. He reported they are moving forward on the three sites selected. He said some of the data have been collected. However, additional field work is needed. Some of the cross sections and preliminary analyses are complete. Mr. Raphelt is waiting on the group to define existing and future hydrology conditions. Chairman Vaugh directed Mr. Raphelt to use the gage data at the Three Rivers site, and said he will provide data for the other two sites (Cotulla and Laguna).

Dave Buzan stated that for the riparian/vegetation analysis, the subcommittee has all the Texas Ecological Classification Systems data available for four sites and TPWD could provide additional data. Due to the time constraints, Dave proposed using the Texas

Ecological Classification Systems data for a detailed riparian description at the four sites where the data is available. For the other sites, he proposed a general description of riparian communities and relationships.

Chairman Vaughn reported on the water quality component. He is already looking at DO and temperatures at low flows, will look at nutrients, and plans to try to tease out diurnal fluctuations that may affect results. David Hoeinghaus will provide assistance with the data interpretation.

8) Estuary Work Elements and Issues (Stunz)

Greg Stunz gave an overview of the recent activity of the estuary subcommittee. Subcommittee members are making headway with their respective assignments on the report. He said the main focus is focal species and what salinities are needed. He reported on the decisions regarding focal species, talked about the emphasis on benthic infauna, and that Paul Montagna offered to provide his data and use of his staff to the group. Greg said that there will be a lot more to present at the July 8th meeting on fish. He noted that Dr. Montagna was to take a preliminary look at flow and nutrient concentrations for obvious relationships to see if it is worth pursuing.

Paul Montagna updated members on the status of the historical review to support section 1.3 of the draft outline. He distributed a handout showing the extensive bibliography and the continuing work on the review. He talked about the Texas Game & Fish data report and how the data provides anecdotal information on salinity as well as oyster count; and how he is able to relate changes in count to changes due to growth and development. Dr. Montagna also talked about his work on drought criteria methodologies (section 4.3 of the report) and from this data on benthic infauna, he can see the effects of drought on the bays. Members discussed how to relate differing assessments of soundness of the ecological environment in the bay and the river upstream of the bay.

Ken Dunton distributed a handout and discussed his progress on marsh plant ecological indicators. He talked about the different species, the relationship between inflow and freshwater salinity, and the resulting trends. He said the analysis indicates that a natural break point occurs at 25 ppt and a freshwater inflow of 38,000 m³/day (15.5 cfs) that is needed to maintain it. Dr. Dunton noted that the real question is where in the Nueces Delta this value should apply. He said he was encouraged by these preliminary results and his goal is to complete the study by mid-July. Dr. Dunton said they will look at lag time and duration. For *borrichia* and other species, soil moisture is the driving factor, and he is looking at sources of data for soil moisture for further study.

Carla Guthrie, TWDB, provided an update on the TxBLEND model. She distributed semi-final copies of two narratives for the report, on hydrology and TxBLEND. Plans are

to send a pdf of the documents to all the members by the end of next week. She presented a brief review of the hydrology and specific situations unique to this area. She talked about TxBLEND and how it applies to salinity and the Nueces bay. Members discussed the results and whether additional information is needed. Members noted that there is less than a 10% difference between the observed and modeled salinity. Ben Hodges has asked the TWDB for TxBLEND analyses based on alternative hydrology including portions (e.g., Hondo Creek and Gum Hollow) of the ungaged area contributing inflow to Nueces Bay.

Members discussed how to use the results of TxBLEND and decided that, due to the nature of Nueces Bay, the use of the results is limited. Dave Buzan suggested members consider the need for a relationship between salinity targets and the flow needed to meet those targets since for each flow component of the recommendation, there is a need for a quantitative value and frequency of meeting that value.

9) Hydrology Work Elements and Issues (Vaugh)

Dan Opdyke made a presentation regarding thoughts relevant to current HEFR results for intermittent streams. He highlighted some of the issues of concern and presented options for the members to consider. He classified the intermittent streams by percent of dry days (greater than five percent) and proposed approaches for the group's consideration.

Dave Buzan led a discussion of concepts relevant to environmental flow recommendations for intermittent streams. He proposed three flow components for intermittent streams:

- subsistence (maintenance of perennial pools over a period of time);
- overbank flows (occurring at the historical frequency); and
- "in-between" flows (recharging the shallow aquifers which play a major role in maintaining the perennial pools).

Chairman Vaugh observed that recharging of shallow alluvial aquifers is accomplished by overbank flows to a greater degree than by in-channel flows. Dave Buzan presented a review of the hydrology at the gages at W. Nueces at Bracketville and the Nueces at Cotulla for comparison with the results of HEFR. He looked at the results from an ecological perspective to see if there is a meaningful relationship for use in defining the flow components. Dave proposed flow regimes for the 9 stream sites with degrees of intermittence where the streams have less than 10% dry days, and for the 2 stream sites with degrees of intermittence where the streams have less than 40% dry days. He talked about the characteristics of the riparian zones and how the role of the overbank flows differs. From his review of the hydrology, he would not recommend differentiating between base and pulse flows. Members discussed introducing channel width as a variable.

Members considered using 1 cfs to replace HEFR-calculated flows less than 1 cfs for seasonal subsistence or base components for the flow regime. Members agreed by CONSENSUS with the 1 cfs minimum value described above and specifying no change in the frequency of the duration of no flow periods. Members were not comfortable with the three tiers of base, two of which were 1 cfs, and discussed using long period pulses as base flows. Dave Buzan requested additional input from the members and members proposed to continue the discussion on pulse and base flow for intermittent streams at the next meeting of the Instream Subcommittee. Chairman Vaugh said that members should be prepared to make a decision at the next meeting.

Chairman Vaugh talked about the hydrologic conditions. He asked members to consider an upstream-downstream approach and suggested using a 12-month moving average approach at the upstream sites and a reservoir storage approach at the downstream sites with triggers set for both such that 25%, 50%, and 25% of the time would be spent in wet, average, and dry conditions, respectively. Members discussed using a 3-month moving average and weighed the pros and cons of both periods.

Chairman Vaugh did not have anything to report on the time series analyses except that flow matrices (draft flow regime recommendations) are needed for the time series analyses using the Flow Regime Application Tool (FRAT). He also talked about the three sites (Laguna, Cotulla, and Three Rivers) to be evaluated.

10) Future Meetings

The next BBEST meeting will be held on July 8, 2011 in Corpus Christi. Future meetings are tentatively scheduled for: July 29th (Austin) and August 19th (San Antonio).

11) Public Comment and Adjourn

There was no public comment at this time.