

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

Friday, July 29, 2011 at 9:00 a.m.

HDR Engineering, Inc. 4401 West Gate Blvd. Suite 400, Austin, Texas

MINUTES

Members Present: Sam Vaughn, Chair; Rocky Freund, Vice Chair; Tom Arsuffi; Dave Buzan; Ben Hodges; Ryan Smith; Lonnie Stewart; Greg Stunz; Jace Tunnell; Lance Williams; David Hoeinghaus via phone.

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 June 24, 2011 Meeting Minutes

The minutes for the June 24, 2011 meeting will be sent to members on Monday, August 1, 2011 and considered for approval at the next meeting.

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

SAC Chair Robert Huston gave an update on the activities of the SAC. He thanked members for their continued efforts and added that the SAC is looking forward to reviewing the BBEST report. He mentioned the SAC review guidelines that were revised in December 2010 and are posted on the website. The SAC should complete a review of the report within 45 days of receipt and will submit their comments to the Stakeholders. He talked about the interaction of the BBEST and stakeholders during the total SB3 process and how the role of the BBEST has evolved into a resource for the stakeholders to assist them in understanding the issues and to support them in their decision. Chair Huston discussed the funding found for fiscal year 2012. He announced that the EFAG will meet on September 8, 2011 and will hear from the stakeholders for the two basins that recently completed their recommendations; Colorado and Guadalupe/San Antonio. The EFAG also hopes to consider the work plans from the Sabine Basin and also the Trinity Basins if the Trinity work plan is submitted to the SAC for review shortly after their August 3, 2011 meeting. Chair Huston discussed the SAC subcommittee assigned to work with the TWDB in a review of the threshold value used to assess sediment transport in the flow regime process.

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

Chairman Vaughn gave a brief update on the BBASC. He noted the BBASC did not meet in July as planned, but is scheduled to meet on October 19, 2011 in Uvalde.

5) BBEST Budget Status (TWDB, Vaughn)

Chairman Vaugh presented an overview of BBEST expenditures to date and remaining funds. He reminded members to stay within the allotted hours for billing purposes. He stated that he had requested \$22,000 for fiscal year 2012 for support of the BBASC.

6) Recommendations Report & Schedule (Vaugh)

Chairman Vaugh distributed a handout showing the assigned tasks and noted that the September 1, 2011 goal may not be achievable. He reviewed the meetings scheduled and said the October 7, meeting would be to formally adopt the report before submitting the report at the BBASC October 19, 2011 meeting where a brief presentation of the report will be made. Chair Huston said that with the proposed schedule, the SAC would have no trouble in completing their review by December, 2011. However, if the schedule is delayed any further, the SAC would have difficulty completing their review due to the holidays.

Members agreed that the environmental flow regimes should be substantially determined by October 7, 2011 meeting. All decisions, in particular the instream and estuary recommendation, should be made by the September 23, 2011 meeting. Chair Vaugh urged members to try to meet the deadlines as shown on the timeline spreadsheet distributed to members.

7) Estuary Work Elements and Issues (Stunz)

Member Dr. Greg Stunz presented a handout and gave an overview of the recent activities of the estuary subcommittee. He presented the results of a Nueces Estuary Historical Study completed by Cecilia Venable, TAMU-CC Librarian. The study was an attempt to collect additional information of historical estuarine conditions for determining whether Nueces Bay is a sound ecological environment. The study confirmed that the oyster population dropped off in the early 1930s not only in Nueces Bay, but the entire Texas coast. He noted that member Dave Buzan has taken the lead on the Sound Ecological Environment determination and the estuary group will fill in the gaps. He discussed the historical record of overbank flows, how they were delivered during spring and fall “flashy” events, and how major modifications and channelization of the river are preventing overbank flows. The historical record indicated:

- 1958 – after construction of Lake Corpus Christi: there was 1 overbanking per year
- 1982 – after construction of Lake Choke Canyon: there was 1 overbanking per 3 years
- Agreed Order 138,000 acre-feet per year

Dr. Stunz asked members for decisions on what will be looked at for the hydrology to the bay. The estuary subcommittee is tentatively considering an historical inflow graph to show what is happening with the freshwater inflow to the bay for the final report. He

added that the research clearly shows there were historical oyster harvests in the bay. Chair Vaughn noted that the eradication of oysters may be related to over fishing and dredging out of the reefs and not only due to loss of freshwater inflows. He added that the group should consider looking at the trends and whether they support or don't support the stance of the committee, and document those trends in the report.

Dr. Stunz noted that the committee had decided to focus on the freshwater inflow to the Nueces Delta and Bay, and recent work supported that Corpus Christi Bay is a marine system. Dr. Stunz said that the committee received the last of the data needed from TXBlend to complete their work. The subcommittee recommended 2003 and 2004 as wet years, 1997 as an average year, and 1996 as a dry year. These years will be used for further analyses consisting of both monthly plots and a summary plot for each year covering the entire Nueces estuaries including the Upper Laguna Madre. Members added the year 2000 as an additional dry year for analysis. He noted that the groups' recent work supported the 20-25 ppt salinity threshold for benthic infauna and marsh plants previously discussed by SAC liaison Dr. Paul Montagna.

Dr. Stunz presented the groups' tentative flow regime and attainment table and added that it is meshing well with what the instream subcommittee is doing. He said the group is working on making relationships between the delta and the bay and will support the relationships with TxBLEND and real data comparisons. He talked about the hydrology the group chose and their decision to go with the alternate hydrology which includes all the area that contributes to Nueces Bay.

Dr. Stunz presented graphs showing inflow vs. salinity at Salt 01, Salt 03, Aquarium, and Ingleside. Members discussed different ways of graphing the data and concluded that what is happening in the delta is not carrying out to the bay.

Future tasks of the subcommittee are as follows:

- Quantify and finalize relationships between flow and salinity, ecology, etc.
 - o Compare regressions to TxBLEND
 - o Fish and BRTs
- Complete Matrix
 - o Deal with pulses and overbanking
 - o Regime-High and Low flow
 - o Attainment and Frequency
- Integrate with in-stream group – how well does this mesh?
- Report Writing

He showed that the freshwater inflow needs of the Nueces Estuary are in May/June and September/October. He emphasized the need to make sure that the instream and

estuary groups are integrated. Members discussed the flow regime to use for the estuary including looking at the naturalized flows. Chair Vaugh suggested looking at 3 tiers (dry, average, and pulse) and if the science warrants additional levels then add them.

8) Instream Work Elements and Issues (Buzan)

Member Ryan Smith presented an update on the flow habitat suitability work. He announced that final draft of the report was received from the firm that was contracted to perform this work for the BBEST at the end of June. Any comments on the report should be submitted to the instream subcommittee so they can be forwarded to the contractors. Mr. Smith said the main product from the consultants is a tool that will allow the use of fish habitat as a biological component for the fish overlay to evaluate the HEFR based flow regimes.

Mr. Smith gave a presentation on the biological overlay and the use of instream habitat modeling. He discussed decisions regarding parameterization, period of record, and filling in data gaps at needed gages which all contribute to determining whether the base flow recommendations are adequate. He discussed what is needed to consider how much flow is sufficient, how to modify the flow regime, and uncertainties such as habitat suitability criteria, hydraulics, and rating curves. He used the gages at Concan, Laguna, and Three Rivers as examples of the methodology that will be used. Mr. Smith presented a table for each site summarizing the percent maximum habitat for various focal species at each of the 3 base flow ranges using the full period of record by total and each mesohabitat type (riffle, run, and pool).

Members discussed the examples and agreed on the following:

- Extend the x-axis on habitat curves to capture maximums of at least the more important species;
- Calculate total habitat in addition to percent of total
- Run curves and analyses by Dr. Thom Hardy and others for comment

Mr. Buzan presented an update on the flow regime for streams, a brief update on the geomorphological and riparian analysis. He distributed a handout that included a table listing all the sites selected with the HEFR output for each season, flow component and period of record. The table also identifies the sites where habitat suitability analysis will be done as well as the sites chosen for geomorphological analysis. The table also identifies the four sites with riparian tables. He reviewed the issues where the BBEST had reached agreement:

- Subsistence and baseflow values < 1cfs will be rounded to 1 cfs;
- Subsistence and baseflow values > 1cfs will be rounded to 2 significant figures;
- All values <10,000 cfs rounded to two significant figures and values >10,000 cfs rounded to 3 significant figures (suggested). Members AGREED to accept this guideline.

- Continue to show all three tiers of baseflows subsistence flows regardless of the number of values less than 1cfs;
- How to communicate with stakeholders regarding hydrologic conditions and triggers;
 - o Wet – allow diversion down to high base flow
 - o Medium - allow diversion down to medium base flow
 - o Dry - allow diversion down to dry base flow
 - o Very Dry (Subsistence) – allow diversion down to seasonal subsistence flow during extreme or unusual conditions occurring with a frequency of about 5% - 10% of the time

Members AGREED to accept the language proposed by Mr. Buzan for the above issues with specific definition of a Subsistence hydrologic condition to be determined later. A draft definition will be distributed and members will decide at the next meeting what hydrologic condition would be appropriate.

Mr. Buzan proposed ways to simplify the environmental flow regime table by consolidating values within 10% in adjacent seasons. Members AGREED by consensus to adopt this approach.

Members discussed the pulse regression curves, the bias (high and low) often seen in the ranges of interest and the impact on decisions made from these curves regarding volume and duration. Members considered whether to use the central tendency for volume and duration or the upper bound as the requirement, and decided to postpone any decisions until members had an opportunity to look at the sediment transport benefits. How to address the gaps between base and pulse flows at intermittent flow sites will be discussed further at the next instream/hydrology subcommittee meeting which should take place within the next week. The subcommittees will present a recommendation for consideration at the next BBEST meeting.

Chair Vaugh stated , regarding the geomorphology analyses, the monthly flows have been extracted from the WAM for Laguna and Cotulla for Dr. Dan Opdyke, TPWD, and he will also provide him the needed elevation, area, and capacity relationship, conservation storage, and diversion rate (from the river to the off-channel reservoir). He noted that the instream/hydrology subcommittee will also try to agree on a draft regime recommendation structure based on the results of the geomorphology analysis and discuss further the hydrologic conditions.

10) Future Meetings

The next BBEST meeting will be held on August 15, 2011 in Austin. Future meetings are tentatively scheduled for September 23, 2011 and October 7, 2011.

11) Public Comment and Adjourn

There was no public comment at this time.