Colorado and Lavaca Rivers and Matagorda and Lavaca Bays
Basin and Bay Area Stakeholder Committee (BBASC)

Wednesday, May 25, 2011 at 9:30 a.m.
LCRA Riverside Conference Center
1405 Willow Street, Bastrop, Texas

Meeting Minutes

BBASC Members Present: Chair Patrick Brzozowski, Vice-Chair Myron Hess, Bruce Arendale, Jim Dailey, Ronald Gertson, Carroll Hall, David Hill, Deedy Huffman, Joe King, Frank Lewis, Teresa Lutes, Jack Maloney (alternate for Dick Ottis), Bob Pickens, Caroline Runge, Steve Box (alternate for Andrew Sansom), Clarence Schomburg, Haskell Simon, Buddy Treybig, Suzanne Zarling

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1) Call to order and introductions
BBASC chair Patrick Brzozowski called the meeting to order.

2) Discussion and agreement on agenda
Margaret Menicucci went over the meeting agenda and goals. No changes were made.

3) Public comments (limit 3 min.)
None.

4) Administrative business: Approval of minutes from May 13 meeting
The following changes were made to the draft May 13 meeting minutes: Frank Lewis was added to the list of attendees; the answer to the Permit 5731 question in the middle of page 3 was changed to "The standards would apply only to the extent of the re-opener provision."; and the "did" was changed to "may" in the sentence referring to the possible consideration of an ASR project near the top of page 4. With these changes, the minutes were approved.

5) Subcommittee and other updates

- **Facilitator steering subcommittee report** **Brzozowski**
  No update.

- **WAM subcommittee** **Brzozowski**
  Patrick reported that Kirk Kennedy has applied the BBEST instream recommendation numbers to the WAM model at the selected sites. The results will be discussed later in the meeting.

- **Report drafting subcommittee** **King**
  Caroline Runge said that a preliminary report outline should be distributed to the BBASC before the next meeting. She also mentioned that the plan is to have subcommittee members assigned to writing up specific sections of the report.

- **Work plan subcommittee &/or BBEST report on work plan** **Brzozowski**
  Patrick said the subcommittee hasn't yet met, but reminded the group that the BBEST is taking comments and input on work plan items until June 16, the date of the next BBASC meeting.

6) Determine preliminary list of data needs for work plan
The BBASC generated a brainstormed list of data needs that they would like to transmit to the BBEST for possible inclusion in the draft work plan. The list is provided as Attachment 1.

7) Discuss impact of BBEST environmental flow regimes on specific gage locations using FRAT runs **Kennedy**

Kirk Kennedy presented an analysis showing amounts of unappropriated water at four sites previously chosen by the BBASC in the Colorado, Lavaca, and coastal basins under four scenarios:

- without the BBEST recommendations imposed;
- with the BBEST recommendations imposed;
- with the BBEST recommendations imposed but with no high-flow-pulse requirement; and
- with the Lyons recommendations imposed.

Kirk discussed that he used the BBEST climatic triggers for determining when to provide flows for the different levels of subsistence, base and pulse flows. The triggers were seasonally linked to levels of reservoir storage (in Lake Texana) to determine the appropriate base-flows (as recommended in the BBEST report, Section 6). He presented graphs that showed how much of the WAM 3 unappropriated water would be available with and without the BBEST environmental flow regimes. The BBASC discussed that the charts might be useful in the report to show how the BBASC gets to its recommendations. The BBASC clarified that environmental flow standards adopted by TCEQ will apply to new permits. Kirk confirmed that his analysis shows how much water would be protected for environmental flows and reduce availability "if" the BBEST recommendations were used. Kirk answered BBASC questions including:

Q. How is the drought of record brought in?
A. Drought of record shows when water is not available, in conservative numbers. You need to consider drought if you want a firm yield supply. Analysis by TCEQ would look at reliability.

Q. How confident are you that this much water would be available in the future, considering changes in the future such as population, demand, etc.
A. Very confident. The analysis is done with WAM 3, which provides full protection of existing water rights and assumes there are not return flows.

Q. Is it fair to say that one thing that can make things worse is climate change (leading to hydrologic conditions changing)?
A. Yes. It's not the only change possible, but could be a real change.

The second page of the handout reflects average water available over the period of record with and without the environmental flow regimes. The third page of the handout reflects drought, and also is displayed on a different scale. Discussion about impact of pulse components (shown on pages 2 and 3 of the handout):

- All BBEST environmental flow regime recommendations are reflected in the bar chart.
- Could make it look better than it is, since it is not economically feasible to capture all of the very huge flows reflected in pulse flows.
- Could take a project and vary the diversion rate to understand the impact under different scenarios.
- For agricultural use, season will be relevant.
- Impacts of pulse flows done with a test project.

These charts show impact of BBEST recommendations on unappropriated water (average volume).

- Then take a project and test impact. Can look at impact of pulse flows.
- Most of the water leftover (the purple) is pulse as well.
- This bar chart assists with the big picture.

The BBASC discussed what it meant to choose four gages at which they would consider projects and how they would balance needs. Members expressed concern about what it meant for the other gage locations.

- These four gages were chosen (and confirmed by BBASC) because they may have water available for appropriation and would be useful for the BBASC to discuss.
- Other gages in the basin may be addressed by strategies, or may have water available by virtue of "regulated flow" (water moving downstream for senior rights or under contract or for environmental purposes for other rights). At sites where e-flow recommendations may not be met with unappropriated or regulated flows, the BBASC still could discuss strategies to meet those flows.
- The Pedernales gage may be representative of other sites.
- Concern: Other locations where water is not available are a serious concern.
  Response: These are sites where someone would not be able to get a permit. Sites were selected to use the BBEST resources, and are considered representative of the Colorado, Lavaca and Coastal basins.
- Concern expressed about a characterization that new water rights permits would "not be possible" where there is little unappropriated flow.
- Group members continued to discuss their task as it relates to providing water for the environment balanced with water for other needs:
  - Comment - BBEST recommendations protect water for a sound ecological environment
  - Comment - Most water in the system was environmental water and has been allocated for human uses– this group is discussing what is left for environment
  - Comment – BBASC job is to balance needs of people and environment. This would be done at example gages, such as Lavaca near Edna:
    - identify what are the needs of people
    - base/pulse may make it difficult
    - can take some pulse
    - BBEST Q: what is the impact to a sound ecological environment
  - Comment – need the environment for people
  - Comment – pleased to see water available
    - need to balance
    - imperative to have some access to pulse flow, but need to understand impact to the environment

Kirk indicated the BBASC would have to determine what triggers to use for implementation. Triggers allow permit holders and those administering the water rights system to know what flow restrictions would be placed on diversions. He discussed possible hydrologic condition approaches to trigger levels:

- Reservoir storage
- Actual flow at the gage (TWDB-consensus method.) Easy to use
- 12-month look-back at flows
- 3 month look-back. Uses view of historical condition. (This was identified by a BBASC member as a possible best trigger for the upper Colorado.)

Concern: would the flow components be used as the trigger? Stepped approach would need to be smoothed out.

8) Develop preliminary environmental flow standard recommendations including discussion (decisions) on balancing needs **Facilitators**

The BBASC began a discussion of each of the 21 gages in the BBEST report with an understanding that this was a first-round attempt to determine what their flow standards might look like. Members considered the following question posed by the facilitators: Is the BBEST recommendation something you would want to use for the gage?

CONSENSUS: The BBASC agreed, by consensus, that as a preliminary decision on environmental flow recommendations, they would:

BBEST Report	Gage	BBASC Preliminary EFS Recommendation (1)	Special discussion notes
Upper Colorado			
2– 11	Colorado River above Silver	Adopt BBEST EFR beginning with subsistence through one-pulse/year. Develop remaining recommendation on other EFS components after further discussion	Consider prior season for triggers
2– 23	Colorado River at Ballinger	Same as Silver recommendation	Desire to understand downward trend in water over time.
2– 34	Colorado River near San Saba	Same as Silver recommendation	
Colorado Tributaries			
2– 45	Elm Creek at Ballinger	Same as Silver recommendation	
2– 57	Concho River at Paint Rock	Same as Silver recommendation	Desire to understand downward trend in water over time.
2– 67	South Concho River at Christoval	Same as Silver recommendation	Recommendation is specific to current site of the gage. There is potential to move this gage downstream, which will warrant an adjustment to EFS. The downstream change would capture return flows of irrigation districts
2– 77	Pecan Bayou near Mullin	Same as Silver recommendation	
2–87	San Saba River at San Saba	Same as Silver recommendation	
2–98	Llano River at Llano	Same as Silver recommendation	May be impacted by BBEST review of subsistence numbers
2– 108	Pedernales River near Johnson City	Same as Silver recommendation	• Does NOT show decreased water flow • Might be analyzed with potential project
2– 119	Onion Creek near Driftwood	Same as Silver recommendation	• Low flows go to the Edwards Aquifer • Not a good location for a project • Shorter gage period of record
Lower Colorado Decisions for the 3 gages in the Lower Colorado will be impacted by operations under LCRA Permit 5731. LCRA asked for more time to understand the interactions with that permit, and the stakeholders agreed to look at these gages on June 16. See notes below for issues discussed.			
2– 129	Colorado River at Bastrop	Postponed to June 16 meeting	Regime looks different: part of study; sucker habitat
2– 139	Colorado River at Columbus	Postponed to June 16 meeting	
2– 148	Colorado River at Wharton	Postponed to June 16 meeting	Flows at Wharton gage and Bay City might be missing. BBEST has been informed.

Lavaca-Navidad (See notes below for issues discussion)			
2– 158	Lavaca River near Edna	Postponed to June 16 meeting	• May be impacted by BBEST review of subsistence numbers • Flows may be missing in underlying data. BBEST has been informed.
2– 167	Navidad River at Strane Park	Use BBEST for subsistence and base flow. Will consider all pulse flows later	Lake Texana as a possible trigger (see notes below)
2– 175	Sandy Creek near Ganado	Same as Navidad at Strane Park, with further information about return flow	• Lake Texana as a possible trigger • BBEST to look at irrigation return flows
2– 183	East Mustang Creek near Louise	Same as Navidad at Strane Park	• Lake Texana as a possible trigger • Concern with data provided to BBEST
2– 192	West Mustang Creek near Ganado	Same as Navidad at Strane Park	Lake Texana as a possible trigger
Coastal Streams			
2-201	Garcitas Creek near Inez	Use BBEST EFR subsistence through 1 pulse/year	• Goes to Lavaca Bay • Unsure about existence of water rights • Pulses are important as inflow for the bay • Data issue on flows • Possible project location
2-210	Tres Palacios Creek	Use BBEST EFR through 1 pulse/year, with a further look at subsistence numbers	• Data question • Was there an adjustment made to subsistence? What was the thought process? Likely 7Q2 level. Need to look at subsistence flow.

(1) Notes to decisions:

Subsistence Flows numbers for some gages may be changed based on additional BBEST review. Subsistence numbers in the BBEST report are based on the maximum of the Q95 or 7Q2. However, the Science Advisory Committee recommended using the Q95 because of its grounding in science rather than for regulatory purposes, as is the 7Q2.

Discussion on other flow components

Pulse flows: The BBASC discussed and expressed concern about how pulse flows would be tracked and implemented (e.g. how would appropriators know when a five-year pulse flow requirement was in place). They considered whether there should be a minimum permit size for pulse flow conditions to even apply. A BBEST representative clarified that:

- the pulse flow requirement would end when the first of either the required volume or duration was reached;
- duration from BBEST is an upper bound based on statistics
- pulse flows were important for (1) channel maintenance and (2) biological species, by signaling spawning, providing nutrients, etc. Different pulses serve different needs.
- it was important to provide recommendations for pulse flows even if they could not be controlled, because future appropriations should consider such pulses. They expressed concern that not having pulses might cause unintended consequences for the system.
- pulse flows could be changed by on-channel reservoirs.

Caroline expressed a desire to have pulses in place in the Upper Colorado because they have been there historically. They assure flows will remain. Projects are not likely in the Upper Colorado.

BBASC discussed the following proposal:

> All permit applications would be analyzed to see if they impacted environmental flow standards for the following pulse flows: one-pulse per two-years and one-pulse per five-years. A pulse flow requirement would be imposed only on permit applications which could impact such flows.

Myron agreed to write up a proposal for how to handle pulse flows from these categories for the BBASC's consideration at the next meeting.

Explanation of base and pulse flows:

- Pulse, base and high are different approaches and terminology
- Based on studies
- Durations defined differently as done in HEFR
- These numbers are based on site-specific studies in this basin
- HEFR was run.

Channel maintenance:

BBASC members briefly discussed the channel maintenance component of the BBEST EFR. They decided to postpone discussion until June 16. Other comments included:

- Don't suggest standards, but acknowledge their importance in the report.
- On June 16, develop a statement on channel maintenance.
- One view is that pulse flows take the place of channel maintenance

Implementation and Simplification:

Concern: Can the EFS be imposed on current permits? A: No.

Should we use only base high numbers in an attempt to simplify?
Are there ways to simplify?

Q. Must we develop proposed strategies so all gages meet environmental flow standards?
A. BBASC can choose where to develop strategies.

Should we group geographically to have a standard approach in an area?

Discussion of specific geographic gages, locations:

Upper Colorado gages: Additional discussion

In the upper Colorado, it was suggested to use the prior season for the trigger.

Lower Colorado gages: Additional discussion

- Because Permit 5731 limits LCRA diversions below base-high levels, could a subsistence recommendation adopted by the BBASC allow a junior right holder to divert water LCRA cannot?
- Environmental flows requirements in 5731 have been taken into account in WAM 3
- Suggestion to make BBASC recommendations as consistent as possible with 5731
- BBASC wants to understand impact of 5731
- 5731 deals with huge volumes of diversion. What about other sizes of permits?

Lavaca-Navidad gages: Additional discussion

- The Lavaca has been viewed in two segments historically: riverine and tidal
- The Lavaca and Navidad rivers can act differently. They are flashy.
- Lavaca River is a potential site for an off-channel reservoir project. LNRA holds a water right on the Lavaca River for Texana II, which has not been built. Evaluation of the off-channel project would require taking Texana II out of the WAM, since both projects would not be built. The off-channel project would store approximately 25,000 AF of water, and would provide a firm yield of approximately 13,000 AFY
- 120 river miles. Confluence is 8 miles below the gage site. Tidal to 4 miles below gage site.
- Postpone discussion for more data on:
  - Subsistence flow changes
  - What is the effect of diverting some pulse flows? Access to pulse flows are important to yield
  - Should conditions at the Lavaca River near Edna gage be controlling on future upstream diversions? May want another gage site.
- Lake Texana is a possible trigger for the entire basin because of the basin's size and rainfall similarity. The Lake Texana permit has several triggers relating to environmental flows, which were negotiated with Texas Parks and Wildlife Department (and Sierra Club):
  - Permit trigger: When the reservoir level falls below elevation 43.00, upstream rights are cut off except senior rights. Between the top of conservation pool elevation 44.00 and 78.18% capacity, inflows up to historical monthly median flow or monthly average flow are passed for environmental purposes. This could be a high based flow trigger.
  - Permit trigger: When the reservoir contains less than 78.18% conservation storage, all inflows up to the annual median daily flow for the drought period (5 cfs) are passed for environmental purposes. This could be a subsistence and/or low flow trigger.
    - In the BBEST report, subsistence of all 4 sites [Sandy Creek, East Mustang, West Mustang and Garcitas Creek] are from HEFR; together they total 4cfs, which is close to matching the Lake Texana 5 cfs requirement.
  - At 50% capacity, possibly curtail diversions.
- Possibly 2 different sets of triggers because of specific impacts on water rights above them may mean this hydro condition doesn't work on Lavaca
- At 78.18%, subsistence will not be engaged as often
- Why apply to future permits?
- Kirk will analyze existing triggers as it relates to BBEST recommendations
- Garwood Irrigation District return flows (from rice farming) go to Sandy Creek. Changes will impact stream flow.

9) Public comments (limit 3 min.)
None.

10) Meeting wrap-up & adjourn
Next meeting is June 16; and the LCRA Service Center on Montopolis Blvd. is available. Action items were reviewed (see Attachment 2).

Facilitators asked for a short review of the meeting. Stakeholders indicated the following as positives: facilitation, goals accomplished, got a lot done, stayed on track with enough flexibility to explore needed issues, not too rigid, good attendance. No needed changes were identified.

Attachment 1
Work Plan list
Compiled from BBASC meetings of March 30 through May 25, 2011

Bays and estuaries
- Additional data for improving flows on commercial fisheries and a strategy using that as a foundation. Using data from Buddy
- Ungaged inflow
- Salinity monitoring gages: need more

East Matagorda Bay
- Potential influence of groundwater discharge on East Matagorda Bay
- Consider other ways to address concerns about East Matagorda Bay, such as how to increase flow, circulation to East Matagorda Bay
- What is East Matagorda Bay evolving to?
- Sedimentation studies
- Hydrodynamics of East Matagorda Bay, and impacts to Matagorda Bay of any changes
    - Identification of who can fund
    - Include review of recent Corps of Engineers report on West Matagorda Bay
    - Impact of Mitchell's cut
    - Impact on fisheries

Lavaca Bay
- Remap oyster beds
- Circulation, including channel deepening effect on salinity and impact on species
- Impact of vessel wakes on erosion of the bay's banks

Colorado
- Colorado near San Saba and other reaches show steady decline in volume over time.
    - Why?
    - Will the decline continue?
    - Is the more recent period representative of a natural pattern or something different?
- How pulsed operations impact the Colorado system: Dr. Bayani Cardenas at University of Texas is conducting current study
- Need to study changes at Christoval gage

Groundwater/surface water interaction and ecological balance issues
- Impact of groundwater pumping on riverine system: Carrizo Wilcox aquifer near Bastrop, Gulf Coast aquifer, Edwards-Trinity aquifer
- Groundwater: monitoring impacts of
    - relationship of groundwater, surface water
    - relationship of rainfall, groundwater, spring flow
- Long-term impact of reuse (municipal, agricultural, industrial, etc): mass balance impacts
- Possible increases in flows from redistribution of water (e.g. groundwater inputs providing increases in return flows)
- Incentives for reuse/return flows of a quality that support a sound ecological environment
- Impacts of shifts from agricultural to municipal use on recharge of aquifers and subsequent impacts on springs (Ecological mass balance)
- Systematic monitoring of ecological system of changes on species, with an attempt to determine when it is no longer sound. Overall context.

General to multiple sites and/or issues

- Needed gages/funding
- Sediment transport, nutrients, delta information
- Mussels
- Document methodology (QAQC, standards) of BBEST work (example: nitrogen, Ph, DO, chloride, phosphorous). Include field notes, footnote statistics on analog data (ph, DO etc.) and acknowledge limits)
- How to update studies used in the BBEST report and funding for all these items
- Highlight funding issues

Attachment 2:
Report Ideas, Parking Lot, Action Items

Report Ideas:

- The BBASC discussed that the charts from presentations on 5-25 showing unappropriated water available with and without EFR might be useful in the report to show how the BBASC gets to its recommendations.

Parking Lot

- Understanding the mass balance of the Colorado systems – currently – understanding impacts of return flows, delivery commitments. How much water is available to meet environmental needs
- Discussion item for report: value of return flows – positive and negative
- Permits to which pulse flows would apply
- Hydrologic conditions as triggers
- How to implement subsistence flows

Action Items

- Provide to BBASC draft chart by David Buzan of BBASC decisions on environmental flow standards. Chart will be reviewed at next meeting.
- Myron to write up a proposal for how to handle pulse flows from the following categories: one pulse every two years, and one pulse every five years.
- Patrick to write up a summary of hydrologic triggers (existing) for the four streams related to Lake Texana
- Caroline will circulate draft table of contents for report before the June 16 meeting.
- BBEST review of whether flows missing at Wharton and Bay City

Get Lavaca achievement numbers for next meeting bay and estuary item