Colorado and Lavaca Rivers and Matagorda and Lavaca Bays
Basin and Bay Area Stakeholder Committee (BBASC)
Tuesday, August 2, 2011 at 9:30 a.m.
LCRA Riverside Conference Center, Bastrop, TX

Meeting Minutes

Note: Many of the documents circulated at the two-day meeting are posted on the BBASC website.

BBASC Members Present: Chair Patrick Brzozowski, Vice-Chair Myron Hess, Jim Dailey, Neil Hudgins (alternate for Ronald Gertson), Jim Robinson (alternate for Carroll Hall), Andy Hennessey (alternate for David Hill), Deedy Huffman, Joe King, Jeff Fox (alternate for Teresa Lutes), Bob Pickens, Caroline Runge, Steve Box (alternate for Andrew Sansom), Clarence Schomburg, Buddy Treybig, Suzanne Zarling

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

Discussion and agreement on agenda
The facilitators confirmed the meeting agenda and goals with the BBASC. No changes were made.

Public comments (limit 3 min.)
None.

Administrative business: Approval of minutes from July 20 & 21 meetings
Several changes/edits to the draft minutes were suggested. The BBASC approved the minutes as amended.

Bay & Estuary

Myron provided draft language that would serve as a footnote to Matagorda Bay system EFS long-term average for permitting. The note would explain that the permitting long-term averages are based on WAM 3 runs at the time of adoption, and that the BBASC suggested the numbers should change under the following situations:

- When the BBASC revisits the environmental flow standards
- When TCEQ starts to use new WAM numbers for permitting, under very specific situations.

Kathy Alexander of TCEQ expressed concern that since the numbers would be adopted in a rule, she was not sure if the number can change. She suggested making the language very clear and specific – and that it should be intended to direct that TCEQ use new value under the specified circumstances. One specified situation would be a change in the period of record for the WAM. Kathy Alexander noted that TCEQ might change the

period of record if there is a new drought of record that has basin-wide impact, or if something else changes the hydrology.

It was noted that changes to existing rights can impact the WAM. We need to be certain about what kind of changes and amendments to water rights would change the number in the annual frequency column.

Myron and Teresa would work on the footnote for inclusion in the draft report.

Myron also reported about a proposed general structure to follow for the environmental flow standards in the report, using the Matagorda Bay draft. It would have the following sections:

- BBEST recommendations
- Stakeholder consideration of the BBEST recommendation including a comparison with WAM 3, what stakeholder concerns are, how stakeholders made decisions and changes to the BBEST
- EFS language, including definitions

He presented a sample draft, and noted the various components were intended to show BBASC intent in its decisions. He said the proposed structure could be used for each bay system and for each gage

BBASC liked the approach, and information it provided. Members suggested that the report try to highlight any special decisions and recommendations for each gage.

Note: On the Lavaca bay freshwater inflow recommendation: The BBEST table 2.8.9 was referenced in the description of the consensus reached by the BBASC. Bryan Cook explained that there is an updated historical occurrence frequency based on the WAM period of record that should be used.

Upper Colorado Pulse Flows

David Buzan presented the table developed by Kirk Kennedy, which listed all large pulses in the Upper Colorado, Lavaca and Coastal basins, identified a "bank-full" level at each gage, struck out those pulses that were overbank, and, at a few locations, indicated a 3 year and 4 year pulse that was close to bank-full.

The 3rd column of chart "magnitude deemed to be overbank" may mean "magnitude deemed to be bank-full." The number in that column indicates the volume that is just below overbank at flood stage. It was noted that the reality is that bank height may vary along the river so there could be some areas that are overbank.

Note: on August 3rd, the BBASC discussed this column with Kirk Kennedy. He clarified that the number in that column is the amount above which flows were designated as overbank. This will be clarified in the document and provided to the BBASC.

The BBASC discussed why they were looking at overbank and bank-full numbers. Members explained that they do not want to make a recommendation that would require flooding and want to be clear that they are not saying you should make sure floods are met before a diversion occurs. They indicated that they want to protect pulses but not to the point where property is getting flooded.

Dave has asked BBEST opinion/reaction to BBASC request for quantification of bank full on SEE and on need for overbank flows.

- Experts are expected to have different perspectives
- Some will say overbank flows are important to see
- Some will say that bank-full still meets some ecological functions of OB flows

Dave clarified that overbank flows contribute to channel maintenance flows but are not viewed as the critical component of channel maintenance flows.

Comments included:

- From permitting perspective: because of the magnitude these pulses, a diversion won't disrupt ecological functions. At the same time, need to be able to divert during a flood.
- If water is available, these standards set criteria for what and when you can divert.
- We want to say that overbank flows exist but there are controls on them. Don't understand striking it out.
- In the BBEST Lower Colorado environmental flow regime, there is a recognition that overbank occurs over a particular magnitude but it doesn't go into a permit. The overbank only occurs naturally. This was mentioned as a concept for handling the overbank component at the other gages.
- Desires a reflection of the value of overbank flows by having a defined level in the report and say that it is naturally driven.

The members discussed why an overbank value need to be acknowledged in the standard itself and indicated that:

- Strategies won't be used to create overbank flows
- Not clear what role overbank flow would have as a permit condition
- We do not want to protect overbank flows.

The BBASC reviewed where they left the overbank flow discussion at the last meeting. They had recognized that a recommendation would not require protecting overbank flows and had asked the BBEST representatives to calculate bank-full levels for those gages at which the BBEST recommendation resulted in overbank flows.

Consensus:

- The BBASC would acknowledge in the report the ecological value of overbank flows.
- The BBASC would not expect to use strategies to create overbank flows.
- The BBASC would not recommend permit conditions to protect overbank flows.

[*Steve Box displayed a yellow card in the consensus vote to indicate reserving his full support for the overbank flow proposals until he sees how they are worded in the final report.*]

Next, the BBASC had to decide how the revised pulse flows would be developed into a recommendation. Some questions about the recommendation included:

- Do you include the 1 per 3 year and 1 per 4 year pulses that were added to the table? (at locations such as Elm Creek near Ballinger)
- Where overbank pulses occur, do you recognize the importance of the pulse but not recommend any values?
- Do you use a footnote to recognize the overbank flow?

Members explained that they would like to have the 1 per 3 year pulse and 1 per 4 year pulses included in the recommendation because they show up at gages where bank-full is much larger than the 1 per 2 year pulse, but still lower than the next tier (such as the 1 per 5-year pulse).

Members expressed concerns about using a footnote to explain how they were addressing overbank because it may not provide enough clarity. One proposal was to indicate in a table showing flow components NA (not applicable) for those pulses that result in overbank flows with a footnote explaining the BBASC approach.

Another proposal was to indicate in a table showing flow components "overbank flow of X cfs recognized but not recommended" followed by a note reflecting the importance of overbank and explaining why there is no specific recommendation. When a new pulse was provided by the BBEST representatives (the 1 per 3 year and 1 per 4 year pulses), they would be included in the recommendation with a trigger, volume and duration.

It was noted that in the Lavaca, some gages would need additional notation about the 1 per year pulse being reduced to bank-full.

Members raised concerns about that an amount of water needed for the environment is being "ignored" or "given away" on the 1 per year pulse. Could the BBASC just keep the BBEST recommendations and say that they are not promoting or supporting a flood? Other members responded that the perception that stakeholders would be recommending a flooding. This poses difficult problems.

Members recognized that they were trying to balance the environmental needs with practical issues about flooding. Even if the BBASC recommended the overbank flows, TCEQ may not recommend those pulses at all. It was viewed as better to recommend as much as bank-full. This reflected the effort of the BBASC to balance human and environmental needs.

Consensus:
The BBASC would use the chart developed by the BBEST representatives with the 1, 2 and 5 year pulses, but with bank-full values used where overbank occurs.

Lavaca Basin Pulse Flows

The BBASC then addressed the seasonal pulses for the Lavaca (1 pulse per season and 2 pulses for season).

Members asked why the BBEST based the duration for the pulses in the Lavaca on an upper bound, but the duration of pulses in the Colorado was developed differently. It was explained that, for the Lower Colorado, the pulse is expected to be engaged for every date of the duration (example, 8000 cfs for 2 days – each day). The BBEST recommendation for the Lower Colorado was based on the LSWP. The pulses in the Lavaca are engaged based on volume or duration (example 8000 cfs or 2 days). The BBEST recommendation for these gages was based on HEFR data.

The BBASC discussed whether the central tendency value for the duration could be used for the Lavaca gages. There was also an explanation that the longer duration had some ecological value, such as encouraging seed germination. It was noted that higher pulses count for lower pulses if in same season. Concerns expressed included:

- Use of central tendency duration would mean that, half the time, the basin would not get pulses the BBEST recommends.
- Agricultural users are the primary diverters. They will need more time because of their diversion rate, so it is preferable to reduce the duration of the pulse (using the central tendency). Once the pulse passes, it reduces rapidly.
- Would something half-way between the upper tendency and the central tendency meet the BBASC needs. Hard to justify not getting the needed pulses half the time.

Consensus:

For Lavaca Basin and coastal basins: BBASC reached consensus to choose a duration half-way between the upper boundary and the central tendency.

Reasoning:

- this provides more water for users and still preserves as much pulse as possible
- the result tends more toward the upper boundary of the range of pulses possible.

Lower Colorado Pulses and Channel Maintenance Pulse

LCRA provided a suggested flow regime for all three Lower Colorado gages (Bastrop, Columbus, Wharton) to address the BBEST flow regime components of base flow pulse, high flow pulse, and the channel maintenance pulse. The channel maintenance pulses in the Lower Colorado are the equivalent of one-per-three-year pulses. The proposals would be the same for all three gages.

Channel maintenance pulse (1 per 3 year):

Bryan Cook explained that this proposal was based on BBEST recommendation, using a concept previously proposed by Myron to exempt small permit applications, and also considering a condition relating to the LCRA permit No. 5731. An initial question focused on the threshold for exempting a permit application involving an on-channel reservoir of 5,000 acre feet (af). It was explained that this provision was intended to be a

diversion dam, and other numbers could be considered. The group decided to look at the size of the structure at Bay City. A comment was made that it seemed unlikely for a small diversion or impoundment to impact a pulse of this size.

Proposal for channel maintenance pulse: Magnitude - 27,000 cfs; 3-day duration once every 3 years; with a provision that the recommendation would apply only to any permit involving a new on-channel >5000 af reservoir (size could be revised), or to diversion rates >10% of the flow magnitude. A question arose about whether this proposal contemplated a 3-day duration or a 48-hour duration. The members tabled discussion of this proposal to review issues related to duration and the size of exempted on-channel reservoir. *Note: reservoir size was changed to >2500 af at the end of the High Flow Pulse discussion.*

<u>High Flow Pulse</u>
Proposal: BBEST recommendation magnitude of 8,000 cfs; 2-day duration once every 1.5 years; same provision to apply only to new permit applications seeking greater than a 10% diversion rate or a >5000 af reservoir. *Note: reservoir size was changed to >2500 af at the end of discussing this proposal.*

Discussion included:

- Include a footnote about the WAM numbers on which the recommendation is based changing over time. Response: This may not be necessary because there is not a specific WAM number listed as it was in the Matagorda Bay recommendation.
- Revise a typo on the proposal so that the term "Base" used in the text on items 3-5 is substituted with "High."
- In item 7 under the exemption, suggested to use the term "avoid the impairment" rather than "mitigate/reduce the impairment."
- Strive to make language as consistent as possible throughout the report (i.e. in the text of each pulse explanation)

Members asked why the proposed flow structure was so different in the Lower Colorado, as compared to the BBEST pulse recommendations in the Lavaca Basin and Upper Colorado. These concerns focused on different approaches to volume and duration, as well as the number of pulse levels. The group discussed how these recommendations were based on the LSWP studies and calculated differently. It made sense to have differences between regions where justified.

Several members expressed concern about a 2-day rather than 3-day duration. The BBEST report includes 2-3 day range. The facilitators tested separately for agreement to either 2 or 3 days. All members expressed general agreement to use either 2 days or 3 days for duration, although one member noted some concerns about the 2-day duration, and another noted some concerns about the 3-day duration.

Consensus: In crafting the text about applicability of the Lower Colorado pulse flow proposals, the BBASC agreed that it would use a threshold of >2500 af for any new, on-channel reservoir.

Base Flow Pulse:
Proposal: magnitude of 3,000 cfs; 3-day duration 2 per season; same provision to apply only to new permit applications seeking greater than a 10% diversion rate or a >2500 af reservoir.

LCRA explained that the BBEST recommendation includes ranges, rather than single numbers, for magnitude, frequency and duration. Changes in the LCRA proposal include:

- Frequency: BBEST recommended 8-10 occurrences annually; LCRA recommended 2 pulses per season, which equates to 8 occurrences annually. They explained that while this was the low end of the BBEST recommended frequency, it requires that the pulses be spread out over the year. The wording of the BBEST regime could allow the pulses to be satisfied in one season.
- Magnitude: BBEST recommended 2,000 to 3,000 cfs. LCRA recommended 3,000, because they think the higher magnitude is appropriate and a single number is needed operationally.
- Duration: BBEST recommends 3-5 day duration of the pulse. LCRA recommends a 3-day duration, which they see as appropriate given their proposal of a higher magnitude and because a single number is needed operationally.

Discussion:

- This is similar to seasonal pulses in other areas, where BBASC recommend it be imposed as a permit condition. Concerned the WAM analysis is not sufficiently sensitive. LCRA's proposal uses high-end volume and low-end duration.
- Consider seasonality. 2,000 cfs is OK when not in irrigation season, and 3,000 cfs is better during irrigation season.
    - Irrigation component will decline over time
- Don't have small permit exemption. Treat like other basins where there were not exemptions for a similar flow.
- LCRA noted that, in the Lower Colorado, high flows have destroyed habitat and killed species. Better to have pulses throughout the year and not just the really big pulses.

Myron raised a concern that the provisions that would exempt small permit application from pulse flow requirements may result in impairment of the pulses when applied cumulatively. He proposed that the BBASC adopt a cumulative impact concept for all exemptions proposed in the Lower Colorado. The first applications would get the full exemption. At some point, the exemption would be reduced.

The BBASC decided to continue this discussion on Thursday, urging all members to consider the possible approaches to dealing with pulses on the Lower Colorado.

Colorado and Lavaca Rivers and Matagorda and Lavaca Bays
Basin and Bay Area Stakeholder Committee (BBASC)
Wednesday, August 3, 2011 at 8:30 a.m.
LCRA Riverside Conference Center, Bastrop, TX

Meeting Minutes

BBASC Members Present: Chair Patrick Brzozowski, Vice-Chair Myron Hess, Jim Dailey, Ronald Gertson, Jim Robinson (alternate for Carroll Hall), Andy Hennessey (alternate for David Hill), Deedy Huffman, Teresa Lutes, Jack Maloney (alternate for Dick Ottis), Bob Pickens, Caroline Runge, Steve Box (alternate for Andrew Sansom), Clarence Schomburg, Suzanne Zarling

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

Discussion and agreement on agenda
The facilitators confirmed the meeting agenda and goals with the BBASC. No changes were made.

Public comments (limit 3 min.)
None.

Report Drafting – Strategies Chapter

Caroline Runge had circulated an initial draft of the Strategies Chapter for the Report. The BBASC discussed overall concepts as well as specific revisions. These notes include general wording changes that Caroline can use to revise the chapter.

Under Regulatory Strategies:
I.A Consider phrasing as further study of potential net benefits for environmental flows in the context of inter-basin transfers.
I.B. Move this item to the Voluntary Strategies section of the chapter. Consider phrasing to reflect the concept of exploring mechanism for increasing reliability of water for environmental flows.
I.C. Members indicated that this was "probably non-consensus" or "non-consensus." Concerns: some members did not want to be making recommendations on existing water rights and some members did not want to take the idea of addressing existing water rights wholly off the table.
Where items say "seek legislation" change to "consider ways to . . . " .
I.D. Roll into I.B.
I.E Remove as non-consensus.
I.F Possible phasing: consider ways to dedicate cancelled water rights to environmental flows.

I.H Possible phrasing: consider ways to have land developers coordinate with local government to ensure water availability prior to development.

Under Voluntary Strategies; Strategies Applicable Throughout the Basin:

Clarify text to indicate that these strategies are voluntary strategies, authorized under current law.
II.A Take out specific statutory references if it looks like you are seeking a legislative change. Make it applicable to all basins, not just Colorado. Delete bullet about senior water rights.
II.B Add federal funding
II.C Rephrase to "Look for opportunities to participate . . . "
II.D Eliminate brush control in second bullet. Use language broader than landowner. Mention incentive programs with water use rates and ways to improve water availability. Ensure that there is a nexus between conservation concepts and environmental flows. Discuss conservation fees used for support of environmental flows.

II.E Could call gray-water "treated effluent." Take out groundwater. Use phrasing like "exploring the potential of" and "under appropriate circumstances."
II.H Remove as non-consensus.
II.I BBASC discussed how water right uses are enforced. Was there any value to having a watermaster? Comments re: having tighter management of how water rights are used. The BBASC recognized the importance of these concepts but were not ready to have them in the report. Leave II.I as is.
II.J Move this item to below II.E. Eliminate the parenthetical. Take out "permits" as a term.
II.K Remove.

Under Voluntary Strategies: Site Specific:

Item C Lavaca Basin - Add explore state funding for sediment control.
Item F East Matagorda Bay (EMB) - Discussion included:

- Get funding for studying EMB
- Add gages for Coastal Basin creeks
- Create non-boat some channels
- Siphon under the ICC
- Changes to Caney's cut and Brad's cut (notes are unclear on this)
- Study the needs of EMB and how to improve it

Buddy had given Myron specific comments about EMB; were provided to Caroline.

Comment: fresh water infusion to EMB would be good but cuts for circulation may not provide what is needed to help the bay. A concern was raised about ideas for moving water from Matagorda Bay to EMB; this could result in adverse effects on Matagorda Bay. Some members asked to remove suggestions for moving water as non-consensus.

Consider the relationship between the Strategies chapter and the Work Plan. Are some of these items more appropriate as Work Plan items.

Pulse Flows - Lower Colorado

Myron reported to the BBASC that a group of them developed some revisions to the LCRA proposal regarding pulse flows, which LCRA and the City of Austin were able to accept. The BBASC reviewed and discussed these changes. This package was in the form of a red-lined version of the LCRA proposal from the previous day. (**Attachment 1 to these notes includes the proposal in final form –not red-lined**.)
Discussion included:

- The exemption for an on-channel reservoir was proposed at 2,500 af to accommodate the need for a pumping pool, but to minimize impact to the environment (*Note- the BBASC agreed to this volume on August 2nd*).
- Concern that the size for the on-channel reservoir exemption is not large enough, as it is possible that an on-channel reservoir could be built for water supply. But, since this is not a prohibition against such a reservoir, and means that such a reservoir may be subject to conditions, the member expressing concern said he would not stand in the way of consensus.
- The pulse flow labeled as channel maintenance (equivalent to a one-in-three-year pulse) was reduced in duration to make it consistent with the LCRA permit condition, but the base pulse flow was increased to compensate.
- It would be helpful to rename the "channel maintenance" component to make it more consistent with the structure of the other 18 gages for the higher pulse flow recommendations, and to avoid confusion with the concept of channel maintenance standards at those other 18 gages.
- In the report, clarify that the three levels of pulse flows (including channel maintenance) applies to diversion points below the Austin gage. (see BBEST report 3.1)
- Concerns about discrepancies between the Lower Colorado gages and the other 18 gages in the Upper Colorado, Lavaca and Coastal basins, resulting from the use of LSWP for the Lower Colorado and HEFR for the other gages.
- Is the lower Colorado being asked to provide enough; are the other gages being asked to provide too much, or have too many provisions placed on them?
- Concern about the precedential nature of these decisions. While pulse flows are important, setting actual standards that must be met for pulse flows may be closing a door that cannot be re-opened in the future.

Consensus:
The BBASC agreed:

- To rename the EFS called "channel maintenance" in the BBEST report to reflect that it is a one-per-three-year pulse.
- Maintain the link to the concept that these are the same flows being called channel maintenance in the BBEST and the LSWP report, and discuss that this serves the channel maintenance function for the Lower Colorado.
- Consensus is with the caution that the BBASC wants to see the actual language.

The BBASC further agreed:

- To accept the new proposal (**Attachment 1** to these notes) for base low pulses, base high pulses and channel maintenance pulses for the Bastrop, Columbus and Wharton gages.
- Reflect that these environmental flow standards apply only to diversions below the Austin gage.

Lower Colorado Overbank standards:

The BBASC briefly discussed the overbank component of the BBEST environmental flow regime for the Lower Colorado gages.

Consensus:
Treat the overbank flows for the Lower Colorado in the same way as the other 18 gages in the report.

- There will be no specific 4th level of required pulse flows for the Lower Colorado.
- Reflect in the report that the one-in-three-year pulse standards (also known as channel maintenance) provide flows at or close to bank-full for the three Lower Colorado gages.

Hydrologic Condition Triggers

Dave Buzan and Kirk Kennedy from the BBEST reviewed the concepts of hydrologic condition triggers and the data that Kirk had developed on base flow triggers for various parts of the basins. Some points included:

- the percentage expressed for the different base flow levels reflects how often the base flow condition will be in effect, not how often that amount of water would be present
- the base flow hydrologic condition triggers were used to analyze the two proposed projects for the BBASC

The table and graphs developed by Kirk looked at reservoir level and cumulative 12-month flows for the Upper Colorado, and reservoir storage and elevation for the Lower Colorado and Lavaca basins. The BBASC members asked that some of the background technical information about the hydrologic condition triggers be rewritten for clarity since it would be appended to the BBASC report.

Upper Colorado

The members had questions about using WAM run 3 for the analysis. Kirk explained that WAM 3 is used for water availability analysis in the permitting process. The WAM 3 triggers do not need to be used in the permit conditions. In the Upper Colorado, the "real world" is not very different from WAM 3. The BBASC could use the 30-year historical flow numbers for actual implementation (permit conditions) for engaging different base flow levels, but revisit over time. This basin might get to WAM 3 levels at some point.

One member asked if the drought severity index would be appropriate for operating triggers in a permit. Kirk explained that he had not used that mechanism and others thought that the drought severity index was reflected in the historical record.

Consensus:
The BBASC agreed to use the WAM 3 cumulative flows for all gages, both for permitting and implementation. This was subject to receiving data from BBEST which demonstrates using both WAM 3 and historical flows as triggers for the other 9 gages in the Upper Colorado.

- If the historical and WAM 3 do not coincide well, they might want to revisit the need to use other gages as surrogates or to use a different trigger for implementation.
- Kirk will provide his analysis about the other gages to Caroline, who will convey any concerns to the BBASC, as well as any proposed changes to the triggers for the Upper Colorado.

Lower Colorado

Kirk explained that the Lower Colorado will need to be handled somewhat differently from the Upper Colorado gages because there are three levels of non-pulse flows (subsistence, base dry and base average) rather than four levels of non-pulse flows. One approach is to apply the subsistence flow logic from the other gages and then split the base flow percentages over the two base flow levels.

In his analysis, he used WAM run 3 and the combined storage of lakes Buchanan and Travis.

The group discussed identifying a more "real time" way of determining what flow regime you are in. Discussion ensued about using the triggers in the LCRA Water Management Plan (WMP) or using the methodology for developing the WMP triggers. They could adjust this for a period of years. Another option was considering WAM run 8.

Consensus:
The BBASC agreed to have a small group of members meet to develop a proposal for hydrologic condition triggers for the Lower Colorado gages using the following guidance:

- use WAM run 3 for permitting
- use the WMP methodology for permit conditions.

Karen, Myron, Teresa and Steve volunteered to be in this group.

Evaluation of this proposal is scheduled for the August 18 meeting.

Lavaca and Coastal Basins

For the Lavaca basin, there was a discussion of the role of the triggers used in the operation of Lake Texana. Patrick provided information about these triggers before the July 20-21 meetings (provided below).

Elevation	
44 ft. mean sea level (msl)	Top of conservation pool
43 ft. msl	Suspension of diversion upstream of Lake Texana in accordance with a settlement agreement with upstream irrigators. Suspension of interruptible water diversions by LNRA.
39.95 ft. msl	78.18% capacity. Reduction of freshwater releases to historic critical flow equal to 5 CFS in accordance with agreement between LNRA , TWDB and TPWD.
33.58 ft. msl	50% capacity. Implementation of diversion restrictions

The analysis provided by Kirk showed that in WAM run 3, there was an elevation above 44 ft. msl that represented high base flows. The reality is that whenever the lake is at 44 msl, water is released.

Patrick summarized that elevation 44.00 represented full reservoir condition and would allow diversions down to a base high flow rate; between elevations 44.00 and 43.00, diversions would be allowed down to a base medium flow rate. Between 43.00 and 39.95, or to 78.18% capacity, diversions would be allowed down to a base low flow. When the lake level was at or below 39.95 or 78.18% capacity, diversions would be allowed down to subsistence flow.

Consensus:
Kirk will use the LNRA elevations in the triggers chart to determine whether the percentage of time is consistent with BBEST recommendations for base flow engagement frequencies (triggers). Kirk will also analyze using WAM run 8. This analysis will be provided to Patrick and Myron.

Evaluation of these results and a proposal for triggers is scheduled for the August 18th meeting.

Coastal Basins

The BBASC was concerned that the Coastal Basins are too far from Texana to use Texana storage or elevation as a hydrologic condition trigger.

Consensus:
For the gages in the Coastal Basins, Kirk will use WAM run 3 for permits and the cumulative 12-month flows, like what is proposed for the Upper Colorado gages. Kirk will provide the information to Patrick and Ron.

Channel Maintenance

At a prior meeting, Myron had circulated a proposal for a recommendation on channel maintenance flows (a component of flows for the gages in the Upper Colorado, the Lavaca and Coastal Basins), which he provided again for the BBASC. He explained that the BBASC is not in a position to develop specific recommendations for channel maintenance flows, but that the BBEST indicated that there would need to be a site-specific study related to diversions that could impact channel maintenance. Myron recognized that these would typically be large diversions, so the proposal is set up to apply to requests for large diversions or impoundments. There would also be a provision to adjust for the cumulative impacts of permit requests on channel maintenance flows.

Discussion included:

- these are flash-y basins and we don't know enough in this area to propose a channel maintenance standard
- Do not anticipate a permit request in the Colorado of the size that could impact channel maintenance
- Channel maintenance is not just big flows but a whole range of flows. The concept is too broad right now. Consider studying it in the work plan.
- What is an "adverse effect" that a study might try to identify?
- If we don't know what we are dealing with, how can we set a standard?
- Even with the full environmental flow regime, only about 20% of flows are protected. The proposal would allow 15% of average annual flow to be permitted without conducting a channel maintenance study. We don't predetermine that a permit condition is imposed on the others (large permit applications); just seek a site-specific study.
- Channel maintenance is all flows, not just large ones. Agree that not all of the flows are protected by the BBASC proposed recommendations.
- BBEST quantified flows to protect channel maintenance at three sites. Cannot extrapolate to other sites – need more studies. In this way, the proposal looks reasonable.
- 15% proposed threshold for requiring a site-specific study is mid-range of the BBEST findings.

Some additional ideas for addressing these flows included:

- Acknowledge the importance of channel maintenance flows and propose a work plan item to develop a scope of work or process for studying channel maintenance flows
- Use Myron's proposal until the BBASC gets more information from the Science Advisory Committee (SAC). *Response:* do not expect to have information from the SAC that would assist with this decision.

Consensus:
Acknowledge the importance of channel maintenance flows in the BBASC report and create a work plan item to develop a scope and process for site-specific studies on the impact of a permit request on channel maintenance flows

- This provision would apply to the 18 gages for which the BBEST included a recommendation on channel maintenance (not the Lower Colorado gages)
- In developing the work plan item, include an objective metric of whether possible channel changes are positive or negative.

One member expressed some concern about the consensus item and wanted to see how it will be drafted.

Other

The BBASC revisited the cumulative impacts item for the pulse flow proposals. This provision is item 7 in the one-per-two-year and one-per-five–year pulse flow standards implementation. This provision would apply in order to avoid having multiple new permit authorizations just below the 10% or 5% thresholds significantly impair pulses. Once the cumulative impacts provision applied, future applications seeking to divert at 5% of the trigger level (for diversions) or 3% of the volume of the one-per-two-year pulse flow standard upstream of that location would have to be evaluated to consider the impact on pulses.

Consensus:
The BBASC agreed to using the concepts expressed in the text of item number 7 in the pulse flows proposal to address cumulative impacts.

A BBASC member proposed that the BBASC include in the report items that they would like to see changed or improved for future BBASCs- a "lessons learned" section. This was added to the report drafting plan, as indicated below.

Report Drafting

Schedule:

The BBASC reviewed a schedule for completing the report and identified members who are drafting chapters. The schedule is:

By Wednesday, August 10th	Members working on draft chapters will submit the chapters to Joe King, who will compile a single draft of the report and distribute it to the BBASC members*
By Saturday, August 13th	BBASC members will return comments and edits to the authors of the report chapters
By Tuesday, August 16th	A revised draft report will be circulated to the BBASC members for review
Thursday, August 18th	BBASC meeting
Thursday, September 1st	Submission to the TCEQ and Environmental Flows Advisory Group

*In order to manage the size of the electronic document, members agreed that the draft chapters should be text and compatible tables only, with maps and complex graphics indicated in the draft but provided separately. This process will help members who are retrieving the report on personal computers.

BBASC members are encouraged to return their comments to the chapter writers as quickly as possible, to facilitate editing.

Chapter writers will do their best to maintain a list of issues and interests identified in the comments. A redline report and a clean copy will be provided on the 16th.

Drafting Assignments:

This table lists the members responsible for drafting chapters. It corresponds with a draft table of contents circulated by Joe King at the June 16 meeting. Some chapters may not line up exactly with the June 16 draft table of contents; this can be addressed as the report is pulled together.

Chapter	Person(s) Drafting	Resources and Comments
1. Executive Summary and Introduction Statutory Background	Andy Myron	
2. BBASC Consensus Goal	Already drafted	
3. Study Areas	Patrick	Use BBEST report Gregg Easley can provide maps
4. Summary of BBEST Activities and Recommendations	Already drafted by Steve	
5. (and 6) Working subdivisions of Study Areas (suggested change in title – Water Availability Modeling (WAM) Analysis Done to Aid Decision-making) 6. Includes BBASC Environmental Flow Regime Projects	Already drafted by Teresa and Steve. Further input from Patrick and Kirk.	Circulated on August 1. Looks appropriate to combine 5 and 6. Includes Kirk's water availability table. Also tables analyzing the projects at Lavaca at Edna and Pedernales at Johnson City.
7. Final Environmental Flow Recommendations (starting with a description of the flow components) a. Upper Colorado b. Lower Colorado	Flow components - Myron Caroline Karen & Suzanne	BBEST report. Use template developed by Myron for the gages; pulse flows will be added to the template.

c. Lavaca/Navidad d. Coastal Basins e. Bays	Patrick Patrick Myron/Teresa	
8. Strategies	Caroline	Reviewed at Aug. 3 meeting; second draft in process
9. Appendices	Steve	Chapter writers chapter should provide appendices to Steve electronically.
10. Lessons learned	Ron	
Acknowledgements	Myron	
Glossary	Joe	
Stylistic guidelines	Joe	Re: defining terms, etc. Provide to all writers asap.

Report Submission:
The group discussed the submission date of September 1 and the recipients – TCEQ Executive Director Vickery, Environmental Flows Advisory Committee, with a copy to the Science Advisory Committee.

Action Items:

Task	**Who**	**When**
Revise footnote for table including freshwater inflow recommendations	Teresa and Myron	By August 10 for initial draft of the report
Revise table called Overbank Summary of High Flow Pulse Recommendations for CL BBEST Sites (7/28/2011) describing column 3 as amount above which is overbank.	Kirk	By August 10. Send copy to Caroline, Karen, Patrick and Steve
Develop analysis for triggers for baseflows in: • Upper Colorado - 12 month cumulative at 9 gages • Lower Colorado – reservoir storage • Lavaca/Navidad – reservoir storage using levels in Texana permit • Coastal streams – 12 month cumulative	Kirk	By August 10 or sooner. Send to Caroline, Karen, Patrick
Develop stylistic guidelines for the report	Joe	By August 10 or sooner. Send to report writers.
Draft glossary for the report	Joe	By August 10. Send to report writers.
Review report sections that have been drafted and provide comments to Joe and Steve	BBASC	By August 13

Attachment 1

LCRA Proposal on Aug. 3 - Final (not showing mark-up).

Pulse Flow Approach- Bastrop, Columbus, Wharton

Base Flow Pulse

BBEST Recommendation Magnitude (2000 – 3000 cfs); Frequency (8 – 10 annually); Duration (3-5 days)

Proposed Standard 3000 cfs, 2 per Season, Duration 4 Days

1. Applies only if application has a new on-channel dam with reservoir > 2500 acre-feet or diversion rate 500 cfs and greater
2. Engaged when flow is 3000 cfs or more , pumping could occur such that pumping does not reduce streamflow below 3000 cfs
3. Applies as a permit condition to all new permits > 500 cfs

High Flow Pulses

BBEST Recommendation Magnitude (8000 cfs); Frequency (2 Events in 3 years); Duration (2-3 days)

Proposed Standard 8000 cfs, 1 event every 1.5 Years, Duration 2 Days

1. Applies only to a permit involving a new on-channel dam with reservoir > 2500 acre-feet or diversion rate 10% of the magnitude (800 cfs or greater)
2. Engaged when flow is 8000 cfs or more, pumping could occur such that pumping does not reduce streamflow below 8000 cfs
3. Except to the extent required under step 7, permits to which this provision applies would not include a condition spelling out a Base Pulse Flow requirement.
4. Applications to which this provision applies would be evaluated to see if an applicable Base Pulse Flow Standard would be impaired (to be tested in WAM Run 3)
5. The Base Pulse Flow would be considered impaired if the permit, in combination with other permits subject to the standards, impair the Base Flow Pulse (e.g. 10% reduction in volume)
6. The baseline for comparison would be permits in effect at the time of adoption of the standard and the analysis would consider the period of record
7. If an impairment is indicated, any permit issued would be adjusted/conditioned in an appropriate manner to avoid, with option of using mitigation strategies .

Channel Maintenance

BBEST Recommendation Magnitude (27,000 to 30,000 cfs); Frequency (1 event per 3 years); Duration 3 days).

Proposed Standard 27,000, 1 event every 3 years, Duration 2 days

- Would apply to any permit involving a new on-channel dam with reservoir > 2500 acre-feet or diversion rate 10% of the magnitude (2700 cfs or greater)
- Recommended Language for 5731 below:

A qualifying channel maintenance flow event is defined as an event that begins with a flow of at least 27,000 cfs, as measured at USGS Gage 08161000, Colorado River at Columbus, Texas, has a duration of 48 hours, and includes flows below 27,000 cfs that occur within the 48-hour period following the initial 27,000 cfs flow. If a qualifying channel maintenance flow event has not occurred within the last 24 months, and has not been allowed to pass the diversion points, Permittee's diversions during the first 48 hours after the qualifying channel maintenance flow event has reached the diversion point shall not reduce streamflow below the applicable diversion point to less than the equivalent of 27,000 cfs at USGS Gage 08161000, Colorado River at Columbus, Texas.