

**2nd Round - Comment Summary Table for
LEON RIVER BELOW PROCTOR LAKE (SEGMENT 1221) - DRAFT MODELING REPORT**

Comment	Response
<p>(1) What is the methodology for a Bacteria UAA? How do we change the Leon River's designation from contact recreation to non-contact recreation and designate it for wildlife?</p>	<p>There are potentially two processes to address the contact recreation use. One process is to revise the statewide criteria and uses set in the Texas Surface Water Quality Standards. Existing criteria establish an <i>E. coli</i> geometric mean and a single sample maximum that should not be exceeded. Existing uses include contact and non-contact recreation. The U.S. Environmental Protection Agency (EPA) guidance allows states to select the numerical criteria and beneficial uses within certain appropriate boundaries and states may establish how values are applied in our assessment of water quality. The revision process includes the public and is conducted at least every three years. Any Leon watershed stakeholders interested in this process are invited to become involved. The TCEQ has started working on the next revision of the Texas Surface Water Quality Standards and issued an announcement requesting preliminary public comments on January 27, 2006 via the <i>Texas Register</i>. Standards revision is a long and lengthy process, will include a stakeholder committee or work group, and ultimately require Commission and EPA approval. For example, as of January 2006, EPA had acted on most, <i>but not all</i>, portions of the previous Texas revisions from 2000.</p> <p>The second process is to consider preparing a use attainability analysis (UAA). TCEQ would have to demonstrate that contact recreation is not an existing use, as defined in the EPA regulations, and would also have to meet at least one of the six allowable factors to lower a designated use. Changes to the standards would have to meet all requirements for a rule change including a public meeting, adoption by the Commission, and approval by EPA. The EPA must approve a state's water quality standard before it can be implemented in federal Clean Water Act programs like an assessment of the Leon River's water quality.</p> <p>The TCEQ has experienced similar concerns in many TMDL projects where stakeholders have raised issues with the appropriateness of water quality standards. Few TMDLs would ever be completed if we took time out for the processes mentioned above. For these reasons, the TCEQ believes the viability of conducting a UAA would be better considered as we develop a TMDL implementation plan. Ultimately, if a criterion or use were to be revised, the TMDL could then be adjusted.</p>
<p>(2) How much are we spending?</p>	<p>All five (5) segments combined, Upper San Antonio, Salado Creek, Lower San Antonio, Peach Creek, and Leon River have cost approximately ~\$2,000,000.00. This amount also includes costs for the study of several other stream segments that were analyzed and removed from the 303d list.</p>
<p>(3) The contribution from Lake Proctor is approximately 5%, is this greater than or equal to the contribution from municipalities?</p>	<p>The contribution of bacteria factored into the model from Proctor Lake is approximately 5% of the total load. According to the Sensitivity Analysis, variation of the bacteria loading, with</p>

	a range of plus or minus 50% from Proctor Lake, demonstrated a relatively small difference in results.
(4) How does bacteria concentration from Lake Proctor dam as measured approximately one mile downstream at 133 cfu, compare to other lake releases?	<p>Analysis of available data for monitoring station 11934, Leon River at US 67-377, shows a geometric mean fecal coliform of 133 org/100mL. This observed concentration is relatively high for a station relatively close to a reservoir release.</p> <p>Brazos River Authority reports a geometric mean of 9 org 100/mL from 41 samples collected at the release of Proctor Lake. TCEQ has pulled some data from other sites below reservoirs for comparison:</p> <p>Station 13696 (below Lake Possum Kingdom) – 35 org 100/mL (<i>E. coli</i>)</p> <p>Station 12044 (below Lake Whitney) – 69 org 100/mL (<i>E. coli</i>)</p> <p>There is no information available to explain why the counts below Lake Proctor might be higher than expected. The sensitivity analysis indicates that a variation of plus or minus 50% in this source does not have a large effect on model results.</p>
(5) In stream bacteria sampling methodology should be re-visited to reduce variability seen in grab samples. Would it be an improvement in methodology to take three samples at once?	Grab sampling methodology has been in use for almost all water quality constituents for a long period of time. It is a legitimate sampling approach when time and budget constraints exist. For bacteria, grab sampling is the norm, since sterile sampling techniques are needed. It is true that bacteria results can vary substantially over small time and space scales. This potential variability could be taken into consideration during implementation when monitoring protocols are established.
(6) Edge of field studies in literature may not take into account BMPs. This may over predict bacteria concentrations and loads.	A substantial amount of literature was reviewed during development of the draft modeling report, including results of field studies for sampling or bacteria concentrations. These studies generally looked at bacteria runoff from grazed pastures and agricultural operations and the effects of factors such as loading rate, time, rainfall intensity, and distance. Some of these studies did examine BMPs or actions that could be related to BMPs.
(7) Do we have available data that shows contributions from the City of Hamilton and Pecan Creek?	The City of Hamilton, TPDES No. 10492-002, discharges to Pecan Creek. Water Quality Station 17547 (Pecan Creek at SH 22, downstream of Hamilton) had 21 samples collected from 07/09/02 – 01/19/06. The geometric mean of these samples is 144 org 100/mL of <i>E. coli</i> .
(8) Are there accurate wildlife numbers for this watershed?	The estimation of wildlife numbers is always an approximation. Exact counts for any species in the watershed are not available. In addition, even if we had exact numbers for raccoons, deer, etc, there will always be some species of wildlife that we are not explicitly counted, such as mice, sparrows, and many more. For modeling, we need a general estimate of the contribution of wildlife as a whole. Estimates can be modified as better information becomes available.
	Texas A&M-El Paso researchers have developed 95% confidence levels on the BST results.

<p>(9) Uncertainty in BST. Can TCEQ characterize and relate HSPF to BST?</p>	<p>In general, the model results conform reasonable well with the BST numbers. (see attachment at the end of this table)</p>
<p>(10) Can waste application fields WAF 1 and WAF 2 be combined?</p>	<p>The model will be set up with two waste application field (WAF) categories, representing both liquid and solid waste disposal. This will provide the ability to distinguish between the two types of application fields in any subsequent modeling during the implementation phase.</p>
<p>(11) Interaction w/stakeholders on sensitivity analysis is needed prior to the final model report.</p>	<p>The draft sensitivity analysis has been prepared, which will ultimately be included in the final modeling report. This will be discussed in June.</p>
<p>(12) Can BST be collected during high and low flow conditions to improve source characterization?</p>	<p>Further collection of BST samples could occur during implementation to gauge the effectiveness of BMPs. The TCEQ has no plans to collect more BST samples before completion of the TMDL phase.</p>
<p>(13) Does this TMDL and the model consider impacts from the cities of Oglesby and McGregor?</p>	<p>The City of Oglesby is located in the very lowest portion of the Leon watershed, below the impaired reach. Discharges from the municipal wastewater treatment plant were included in the modeling analysis. The City of McGregor does not discharge into the watershed.</p>
<p>(14) Letter from: <i>(Andy J. McMullen – Hamilton County Attorney)</i></p> <p>The results of recent BST testing, which was commissioned by the TCEQ of the <i>E. coli</i>, in segment 1221 of the Leon River, comes from wildlife.</p> <p>The draft modeling report for Segment 1221 of the Leon river should be amended to specifically set out the percentage of wildlife contribution to the <i>E. coli</i> content of the Segment.</p> <p>The BST findings, regarding wildlife contribution to the total <i>E. coli</i> content of Segment 1221 of the Leon River, should be used as the basis for TCEQ or another/other appropriate applicant(s) to seek authorization to apply the noncontact recreation standard for <i>E. coli</i> to Segment 1221 of the Leon River. See 30 TAC §307.7(b) (1) (A) (ii).</p> <p>30 TAC § 307.7 (a) provides</p> <p>Site-specific criteria apply specifically to substances attributed to waste discharges of the activities of man. Site-specific criteria do not apply to those instances in which surface waters exceed criteria due to natural phenomena.</p>	<p>The BST results for the two stations on the Leon River, based upon 10 site visits from February through July 2005, indicated that approximately 19-64% of the <i>E. coli</i> originated from wildlife.</p> <p>Though a majority of <i>E. coli</i> isolates were identified as wildlife in origin, other controllable sources, such as cattle and sewage were also identified and are significant contributors.</p> <p>Wildlife are a source of bacteria and therefore must be factored into the TMDL to determine the maximum amount of bacteria the segment can receive and still meet the water quality standard for contact recreation.</p> <p>For the sake of implementation and control of bacteria sources, wildlife is considered a “background” condition and is a natural phenomenon. The TCEQ has no authority to set policy and expend funds to control wildlife.</p>
<p>(15) Letter from: <i>(Derek Turner – Jacob Martin)</i></p> <p>It appears 4.87% of the fecal contribution is attributable to upstream discharges. Why isn't this being addressed when point sources may be expected to make major reductions in spite of only contributing 0.87 to 1.07%. Much of the upstream contribution may be coming from septic systems around Proctor Lake. Upper Leon MWD is installing a</p>	<p>Bacteria loadings from Lake Proctor are included in the model as a source at the upper end of the study segment of the Leon River. If it is determined during the implementation phase that releases from the reservoir have achieved lower concentrations than those observed historically, this can then be factored into any reductions that are needed. For the present modeling analysis, the releases of bacteria from Lake Proctor are regarded as background</p>

<p>sewer system which may assist in the overall reduction.</p> <p>There is very little grant money available right now. Loan money is relatively easy to find. Either takes a very long time to service (generally 3 to 5 year or longer).</p>	<p>loadings.</p> <p>It has not been determined as necessary to make municipal point source effluent limitations more stringent, as the comment suggests.</p>
<p>(16) Letter from: (Dickey Clary – Hamilton County Commissioner)</p> <p>I would like to see the entire 1221 segment included in the watershed protection plan. It just seems like a good opportunity for all stakeholders to be a part of the solution to water quality issues and could also prevent the need for additional TMDL's for the Leon River.</p> <p>I am concerned about the level of bacteria that is entering section 1221 from Lake Proctor. This situation seems to penalize segment 1221 for non-support of contact recreation when two-thirds of the allowable loading is inherited from upstream sources.</p> <p>I am concerned with sample site selection as it relates to nearby wildlife.</p> <p>I am in favor of keeping the standard for contact recreational use if it can be socially and economically attained.</p> <p>Wildlife agencies need to look more aggressively at wildlife's impact on water quality.</p> <p>It is hard for me to support a TMDL until I understand the effect that the WLA will actually have on CAFO's and Municipal wastewater treatment facilities.</p>	<p>The TCEQ believes that the TMDL should focus upon the reach of segment 1221 that has been designated as impaired on the 303d list. A watershed protection plan is a viable component of implementation of this TMDL.</p> <p>The upstream contribution from releases from Lake Proctor is one of many sources of bacteria in the impaired reach. The sensitivity analysis has indicated that dramatic changes in the assumed contribution from the reservoir have relatively small effect on the model results within the impaired reach.</p> <p>The monitoring stations were all carefully selected to characterize water quality conditions within the study area. Most of the stations have been historical sampling stations. We do not believe that the results at US 67-377 are “distorted”, but as with any of the monitoring stations, we do not necessarily know what specific sources contributed bacteria to any specific sampling result. There is no reason to believe that any of the sampling locations are bad locations; they were selected as part of the Quality Assurance Project Plan with full review by TCEQ and EPA.</p> <p>Wildlife may be contributing to existing bacteria concentrations in stream segments, but this is something that has to be accounted for in the allocation of loads. Because of this and other TMDL processes, further effort to quantify this problem is emerging from other state agencies such as TPWD and TDA.</p> <p>The allocations will be developed during the implementation phase, with participation from the stakeholders. The TCEQ does not think that the wildlife contributions will be ignored, but they will have to be taken into consideration when setting allocations. Other non-wildlife sources of bacteria in the impaired watershed that can be controlled will be the focus.</p>

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Leon BST Results				
Source Category	Library Rates of Random Classification	Library Rates of Correct Classification ERIC-RP Composite	Classification by ERIC-RP Composite	95% Confidence Interval for ERIC-RP Composite
	(%)	(%)	(%)	(%)

Sewage	24	66	18	7-28
Pet	10	23	8	0-19
Cattle	14	47	14	3-27
Avian livestock	6	34	2	1-17
Non-avian livestock	10	29	6	
Wildlife avian	15	45	23	19-64
Wildlife non-avian	16	45	20	
Zoo	5	9		
unidentified			12	