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Mr. Ron Ellis
Texas Commission on Environmental Quality
P.O. Box 13087
MC 160
Austin, Texas 78711-3087

Dear Mr. Ellis,

Thank you for inviting public comment on the TCEQ's proposal for new administrative code for environmental flows for the Sabine and Neches Rivers and Sabine Lake Bay, and the Trinity and San Jacinto Rivers and Galveston Bay in accordance with HB 3/SB 3.

I served on the Sabine and Neches Rivers and Sabine Lake Basin and Bay Expert Science Team (hereafter Sabine/Neches BBEST). Prior to that, I was a member of the committee that reviewed the state's science program for environmental flows under SB2 and which was appointed by the National Academies of Science. I also was a member of the inaugural Science Advisory Committee (SAC) to the state's Environmental Flows Advisory Group (EFAG). During my service on the SAC, I was enlisted by then TCEQ chair, Kathleen White, to chair a science committee to review the state's desktop methods and alternatives for determining environmental flows. I have a long career as an aquatic ecologist, and I've received considerable international recognition for my research and writings on river and estuarine ecology. Last summer I gave an invited plenary address at the annual meeting of the International Society for River Science. This summer I gave invited seminars on river science to two universities in Australia. I recently was invited to give a plenary address to the Brazilian Congress of Ichthyology that will be held in January of next year. Many scientists from other countries have come to my lab to learn scientific methods for investigating river ecology. I provide this brief background with hope that you will view my brief comments from the perspective of an academic scientist with decades of experience working on river, stream and estuarine ecosystems throughout Texas and other regions of the world.

The main point I want to make is that HB 3/SB 3 provided no assurance that BBESTs would be populated with individuals who are able and willing to assess environmental flows in an objective scientific manner. The S/N BBEST had 7 members that I will refer to as the "Consultants", including two individuals employed by the river authorities plus 5 engineering consultants. The S/N BBEST also had 4 academic "Biologists", only one of whom had experience with environmental flows related research. The Consultants made it clear from the first meeting that, in the event that any votes were to be required on flow recommendations, they

held a majority. For most of the year allotted for us to achieve our mission, we engaged in endless debate about the nature of our SB3 directive, listened to irrelevant presentations about infrastructure, and examined and reexamined hydrological records. These things should have been accomplished during the first couple of months in order to have sufficient time to get down to the real business of the BBEST-- which was to work through steps that yield specific flow recommendations to meet the most critical environmental functions. This work requires deep ecological knowledge, knowledge of the state of the science of environmental flows assessment, accumulation of ecological and site-specific information, and extensive ecological analyses. The hydrologists and engineers on our BBEST were not able, nor were they willing, to attempt these analyses. Instead, they delegated this activity to a subgroup consisting of the 4 Biologists with me as chair. It was clear to me that the Consultants operated as a unified block, and their objective was to set environmental flows as low as possible. They contributed very little to discussions concerning ecological factors and processes, aquatic species, riparian plant communities, etc. Their main interests appeared to be the current and future water delivery infrastructure, flood control, and projections of future water needs. Obviously, these issues relate to their expertise and business interests of the river authorities and their engineering consultants. I have read the HB 3/SB 3 text, and it seems to me that these individuals are more suited for service on the Bay and Basin Stakeholder Committee (BBASC).

I do not endorse the S/N BBEST Final Environmental Flows Recommendations Report. I do, however, fully endorse the TPWD Staff's review of that document (dated Feb. 5, 2010). Please note that the S/N Final Recommendations Report document was produced by the S/N BBEST Chair and his coworkers at the Sabine River Authority (SRA). Individual BBEST members contributed suggestions about the document's content and some of the text, but the final document was assembled by the SRA. BBEST members were invited to suggest revisions to the initial draft, but in my case, only minor revisions were accepted by S/N BBEST chair. For example, I had requested deletion of the lengthy section presenting analysis of future flow scenarios (reflecting future diversions and projects modeled with WAM) on the grounds that this violated the HB 3/SB 3 directive for the BBESTs. The BBASCs were supposed to evaluate these issues. It wasn't until the 4 Biologists refused to sign the final document that we were able to open up a last-minute and frantic dialogue that ultimately yielded some modest revisions. In the end, we were able to get some of the in-channel high flow pulses restored as part of our environmental flows recommendation, but we were not successful in reinstating all of these flow components that were derived from our ecological analysis. **THE FINAL S/N BBEST RECOMMENDATIONS REPORT ESSENTIALLY IS A NEGOTIATED SETTLEMENT BETWEEN SCIENTISTS AND THE RIVER AUTHORITIES ENGINEERING CONSULTANTS, AND DOES NOT REPRESENT AN OBJECTIVE SCIENTIFIC ASSESSMENT OF ENVIRONMENTAL FLOWS.** To find something closer to our group's scientific assessment, please consult Appendix XIII of the S/N Final Recommendations Report (Biological Overlay Document, dated Nov. 30, 2009). Among other things, this document describes the basis for our ecological analysis of the flow components derived from our contractor's (Freese and Nichols, Inc.) hydrological separation of flow components for the various gages in the basin. This document also contains brief accounts of alternative viewpoints that preceded the negotiated flow recommendations. In every case, the Consultants requested lower environmental flows than those recommended by the Biologists.

I agree with the TPWD Staff's criticism of how the S/N BBEST employed the HEFR and MBFIT computer programs for separation of flow components. HEFR/MBFIT can separate

flows into any kind of units the programmer requests. The critical step is the inputs for MBFIT-- how many pulses do you want the program to parse out? how big? (the bigger the pulse categories you ask for, the fewer there will be of course, and less water remaining to be partitioned into other categories). We made mistakes. Future BBESTs should take greater care to obtain from the hydrological analysis the flow components needed for examination of key ecological requirements. Unless care is taken, the flow components can be packaged in a manner that constrains the ecological assessments – and biologists likely would not realize how much water may be removed from the system – intentionally or unintentionally. This is what I believe happened in our case. Because of the way the hydrographic separations were done, we had no ability to recommend flow pulses of lower magnitudes and greater natural frequencies. We commented on the ecological functions of small magnitude pulses, but we had no ability to recommend them as part of the environmental flow regime, because they were absent from the flow matrices given by the HEFR analysis. There are other important technical issues, e.g. how the last-minute reductions of the biologists' instream flow regime recommendations reduced the freshwater inflow to Sabine Lake thus invalidating our prior assumptions for meeting the needs of the estuarine ecosystem, and I believe the TPWD Staff's comments cover them very well.

I also would like to comment on an erroneous statement written by the “Conditional” faction of the Trinity/San Jacinto/Galveston BBEST, the T/SJ/G BBASC, and the Sabine/Neches BBASC. Their documents have proposed that no environmental flow analysis is possible or valid unless data and interpretations are provided from extensive and detailed, site-specific studies. These groups further stated that little or no such information currently exists for these basins, and therefore we cannot make sound scientific recommendations at this time. Please note that the basic ecological characteristics of rivers in eastern Texas are not radically different. The life history attributes of plants and animals in this region do not change much from one Texas river basin to the next. When considered over the appropriate scales of space and time, river scientists certainly can extrapolate patterns from one river reach to another reach. Indeed, this must be done at some level, or else we would require extensive and detailed research on every inch of every river and stream in order to make management decisions. To compare the Yukon River in Alaska with the Rio Grande in Texas would be misguided. But to compare key findings about environmental patterns or certain kinds of ecological responses in the Neches, Trinity, and Brazos rivers, for example, is extremely productive and scientifically defensible. There is plenty of scientific literature addressing this topic as well as a host of other conceptually and technically challenging subjects within the arena of environmental risk assessment. A great deal of that literature is referenced in the SAC guidance documents and Appendix XIII (Biological Overlay document) for the S/N BBEST Final Recommendations Report.

Thank you for allowing me to comment on this process. I would be willing to provide additional information if you think it would be helpful as you move forward with rules making.

Sincerely,



Dr. Kirk O. Winemiller
Regents Professor
Texas A&M University and Texas AgriLife Research