

Review of the Instream Flow Study of the Lower San Antonio River and Lower Cibolo Creek Draft Study Design

Reviewer 4

Comments and Suggestions

The review approach consisted of comparing the Lower San Antonio/Lower Cibolo Creek draft study design with the approach and methods described in Texas Instream Flow Studies: Technical Overview, Report 369, May 2008, by Texas Commission on Environmental Quality, Texas Parks and Wildlife, and the Texas Water Development Board. Review comments are primarily limited to sections of the document related to hydrology and hydraulics, physical processes, and water quality.

My primary concern/comment is that the study plan lacks detail concerning the development of a final report(s). Given, the enormous scope of this study, it seems that a number of intermediate reports will be necessary to document all of the data compilation, data collection, and data analysis and modeling tasks that are described in the study plan. Figure 14 in section 4.0 of the study plan shows a flow chart that includes development and review of a final report. Without proper planning to document all of the intermediate, multidisciplinary data collection and evaluation tasks, the final report (and peer review of a final report) is likely to be based on inadequately documented and reviewed data collection and analysis.

Specific comments/questions of a more technical nature are itemized below:

Comment 1. Section 1.1.1, Page 5 and Table 2. Second sentence in first paragraph:

Currently, 12 gages are operational in the sub-basin, ...

Some of these gaging stations listed in table 2, especially on Cibolo Creek, are located upstream of the lower San Antonio River sub-basin, as defined in figure 1.

Comment 2. Page 7. Last sentence on p. 7:

A hydrologic evaluation of the sub-basin, as described in Section 6.1 of the TIFP Technical Overview (TIFP, 2008), will be required ...

Section 6.1.2 of the TIFP Technical Overview describes analysis of Naturalized Flow Data. However, the Study Design document, Section 1.1.1, does not include any discussion of naturalized flows. Will the hydrologic evaluation of the lower San Antonio River and Cibolo Creek include analysis of naturalized flow data? Some responses to comments in Section 6.0 (Appendix) seem to indicate that there will be analysis of naturalized flows. If so, clarification or added discussion should be included in Section 1.1.1.

Comment 3. Page 9. Last sentence of section 1.1.1, top of p. 9:

The TIFP will present study results as annual volumes and seasonal patterns that can be compared to freshwater inflow recommendations for the estuary.

This sentence concludes Section 1.1.1 with a somewhat weak explanation regarding details of the analysis of freshwater inflows and hydrologic conditions. A suggested possible revision follows:

Results of the TIFP hydrologic evaluation will include estimates of freshwater inflows from the San Antonio River to the Guadalupe River (estuary?) during 19xx–20xx. Inflow estimates, based on streamflow measured at the USGS station at Goliad (or, perhaps estimates could be extrapolated from the streamflow record at Goliad to include inflows from the entire basin?) will be provided in the form of mean annual and mean monthly (seasonal) totals.

Also, will analysis include naturalized flow conditions, un-naturalized flows, or both?

Comment 4. Section 1.2.1 Hydrology. Page 23, Ecletto Creek is a larger tributary than Escondido Creek or Ojo de Agua Creek but is not listed as one of the tributaries.

Comment 5. Section 1.3 Conceptual Model, p.27 – table 6. In the table cell relating water-quality and base flows, there is a statement: *Edwards aquifer springs flow contributes to high nitrate levels*. Should this instead be: wastewater treatment discharges to the upper San Antonio River contribute to high nitrate levels?

Comment 6. Section 3.2.3 Physical Processes, Page 57. Evaluation of sediment dynamics. It is not clear what kind of sediment sampling will be done as part of the sediment budgeting task. Will sediment sampling include suspended-sediment? Bed-load? Data-collection to characterize sediment transport at a specific site can be a formidable task, requiring data collection for a wide range of flow conditions. Are historical sediment-load data for the study area available (TWDB or predecessor agencies managed a large suspended-sediment data collection program that mostly ended in the early 1980s)? Will suspended-sediment and bed-load data be collected to help calibrate sediment transport models?