

## Summary of the Meeting of the Brazos BBEST Ecology Subcommittee

July 1, 2011 (11 am – 4 pm)

San Marcos, TX

### In attendance–

Brazos BBEST members: T. Bonner, K. Winemiller, J. Davis, P. Price, D. Gise (via tel.)

TPWD: K. Mayes, C. Robertson, J. Botros

1) The group assessed the current ecological soundness of each river reach. Based mostly on examination of fish collection records over the past 2-3 decades, it was determined that several of the river reaches are ecologically sound (relatively speaking), others were altered but likely not related to flow regulation, and two (middle Brazos River reaches) were likely altered related to flow regulation.

2) The group discussed the kinds of ecological evidence that would be most relevant for setting environmental flows (EFs), and the manner in which this information would be used to define EFs or to adjust flow regime summaries from HEFR. The group discussed key functions of subsistence, base, in-channel high-flow pulse, and overbank high flow pulses. Information accumulated to date was reviewed and discussed in relation to these four EF components. With respect to subsistence flows, the group examined the dissolved oxygen and temperature data in relation to flows that was compiled by Tiffany Morgan. The research conducted by the TWDB and TAMU on oxbow lake connections in relation to discharge was reviewed and compared with preliminary HEFR outputs for the Brazos River Hempstead gage.

The group decided to recommend for protection all of the flow components from HEFR summaries. This assessment recognizes a least three realities: 1) that all components of a "natural" flow regime have critical ecological functions needing protection in order to have a high probability of protecting a sound ecological environment, 2) that site-specific and species-specific studies for fine-resolution assessment of EFs are scant for most EF components and reaches within the Brazos Basin, and 3) that even while targeting these flow components derived from analysis of a historic flow record (of any sort) for protection, in almost all cases there still will be much water available for future appropriations. The amount of water available for appropriation will depend on the details of how flow component protections may be implemented. The group concluded that the BBEST ecological analysis for environmental flows recommendations will be a technical narrative that describes the known ecological functions of the flow regime components, with examples from studies within the basin where available (fully referenced of course).

2) The group discussed Tim Bonner's proposed lists of focal species for stream reaches

within the basin, and also examined the historic records for species in each reach. These were data compiled by Jack Davis and Tim Bonner. We decided that focal species serve primarily as indicators for monitoring and adaptive management. They will not be analyzed in any specific way to set EFs in the Brazos Basin; instead the group proposes the approach described above. Kirk Winemiller had additional data from streams and rivers of the lower basin to be added to the data matrix following the meeting.

3) The group also discussed the pros and cons of commissioning a rapid modeling study of fish-habitat relationships and habitat availability for fish guilds within a reach of the middle Brazos River where base flows appear to have been greatly altered. It was felt that this might provide an improved view of ecological soundness in this stream reach. At the same time, it was recognized that, depending on the study findings, such an effort might or might not yield information useful for adjusting EFs. The group will ask the full BBEST to consider the relative benefits of a habitat modeling study that might cost approximately \$25,000 for a contractor to perform during the fall of this year.