Attachment N

EXECUTIVE SUMMARY

INSE and USFWS mapped the San Marcos River channel in 1997 and developed a hydraulic and habitat assessment model for Fountain Darter and Texas Wild-Rice. Habitat was quantified for flows from 15 cfs (roughly one third the historical low) to 170 cfs (roughly the median flow). A large flow event modified the channel of the San Marcos River in October 1998 and led to the failure or Thornton's (Cape's) Dam. In 2001, INSE and USFWS remapped the portion of the channel downstream of the Spring Lake Dam to the Cape's Dam. In addition the Texas Parks and Wildlife Department updated the curves for habitat suitability indices (SI) for Fountain Darter. Available habitat was analyzed for the changes in existing geometry and hypothetical removal of Thornton's Dam. In addition to the flows examined in 1997, two new flows at 190 and 200 (roughly the bankfull discharge) were modeled. Generally the channel changes had little impact (10% or less) on changes in habitat for the range of flows (135-200 cfs) near the median. For Fountain Darter temperature impacts at low flow had larger impacts on available habitat than changing flow hydraulics. Additionally vegetation is a significant limiter on available Fountain Darter habitat, as it reduces suitable area by as much as 60%. Analysis for the removal of the Thornton Dam shows improved habitat for Wildrice at lower flows (less than or equal to 100 cfs) and limited impact at greater flows. However, for Fountain Darter the loss of the dam results in a reduction of habitat by approximately two thirds at all flows for the modified geometry and existing vegetation distribution.

From Shoemaker, J. and T.B. Hardy. 2004. Development and Application of an Instream Flow Assessment Framework for the Fountain Darter (*Etheostoma fonticola*) and Texas Wild-Rice (*Zizania texana*) in Spring Lake and the San Marcos River System. Institute for Natural Systems Engineering, Utah Water Research Laboratory, Utah State University, Logan, Utah 84322. Click on this text box for online reference to this published report.

This report was co-authored by Thomas B Hardy in 2004 while he was at Utah State University and Assistant Director of the Utah Water Research Laboratory.

How can the fact that a 2004 report stating that the **removal of Capes Dam will cause a *67% reduction* of habitat** for the Fountain Darter, go unacknowledged in subsequent reports? Why have subsequent reports by the same author reached opposing conclusions, and no reference is ever made back to this damning study that should have terminated all plans to remove Capes Dam?

What is it about Capes Dam that has caused one professor to make it his mission to remove it, no matter what the consequences?