

From: "Cindy Loeffler" <Cindy.Loeffler@tpwd.state.tx.us>
To: <bill.roberts@twdb.state.tx.us>
Date: 10/6/2006 11:56:47 AM
Subject: TPWD comments re: draft 2007 State Water Plan

Bill,

Please find attached TPWD's comments on the draft 2007 State Water Plan.
The signed letter was mailed yesterday.

Thanks,

Cindy

CC: "Dan Opdyke" <Dan.Opdyke@tpwd.state.tx.us>



October 5, 2006

Mr. Kevin Ward, Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, TX 78711-3231

Dear Mr. Ward:

Thank you for the opportunity to review and comment on the 2007 Draft State Water Plan (Plan). We commend you and your staff for producing this document and for conducting meetings around the state to inform the public about the Plan. TPWD fully supports the development and implementation of a comprehensive state water plan as the best means of assuring the future economic and environmental health of Texas.

During the fall of 2005, TPWD staff reviewed and filed written comments on the sixteen initially prepared regional water plans. These reviews focused on several key issues: how were environmental issues addressed and were the plans consistent with long term protection of the State's natural resources. TPWD staff has also reviewed the 2007 Draft State Water Plan to determine if review comments previously submitted by this agency have been addressed.

Department concerns regarding impacts from new reservoir construction remain. New reservoirs, particularly in areas rich in bottomland hardwood forests, represent a significant threat to the protection of the State's natural resources and should be considered as new supply options only when all other alternatives have been eliminated. For example, Region C has recommended four new reservoirs to meet future water needs instead of less impacting alternatives such as advanced conservation. In addition, these four reservoirs would provide approximately 20% more water than the region's projected needs. Similarly, Region N has proposed two new reservoirs but no specific municipal water conservation measures.

TPWD remains committed to assisting the RWPGRS by providing technical expertise and information now and in the next round of regional planning to minimize those possibilities. Resolution of environmental issues, is the critical next step to ensure the water future of Texas. Please see attached enclosure for additional comments regarding specific recommendations.

Sincerely,


Robert L. Cook
Executive Director

RLC:LDM:CLL:dh

Enclosures



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hunting or fishing

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To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

Comments on Major Policy Recommendations

Page 11 of Volume I states that "The Legislature should designate all river or stream segments of unique ecological value recommended in the 2006 Regional Water Plans and the 2007 State Water Plan for protection under Texas Water Code, Section 16.051(g) as mitigation for future reservoirs." TPWD has fundamental concerns regarding the expectation that the nominated ecologically unique stream segments could serve as appropriate mitigation for future reservoirs. As stated on page 13: "this designation [i.e., as an ecologically unique stream segment] means that a state agency or political subdivision of the state may not finance the actual construction of a reservoir in a specific river or stream segment that the Legislature has designated as having unique ecological value." Thus, such protection is limited to the state financing of a reservoir at the location. No other protection is given. Such protection is only meaningful if a reservoir could be constructed at the location. Of the seven stream segments proposed by Region E, five are in public land and two are in preserves owned by The Nature Conservancy. Both of The Nature Conservancy preserves are in locations that make them highly impractical as reservoir sites. Of the eight stream segments proposed by Region H, six are wholly within public lands, and the downstream portions of the remaining two (Armand Bayou and Menard Creed) are in public lands. The upstream portions of these two do not appear to have any redeeming characteristics as reservoir sites. To summarize, TPWD is aware of no nominated segments where both ecologically unique designation and a reservoir are contemplated. Thus, protection from state financing of reservoir development would appear to offer little actual benefit to these 15 segments. Even if the legislation offered additional protection for ecologically unique stream segments, their utility as mitigation sites would be questionable because mitigation lands are generally required to reflect the habitat that is affected by reservoir construction. Thus, a high mountain creek in West Texas would not be suitable mitigation lands for a reservoir in the pineywoods of East Texas.

Global Climate Change

TPWD appreciates the discussion of climate change in Section 12.4. However, a more quantitative evaluation of climate change may lead to different conclusions. TPWD is aware of four publications that specifically address the impacts of climate change on Texas water resources. Ward and Valdes (1995; see also Ward 1993) developed a water budget for four regions in Texas. The model used a 2°C increase in temperature and a 5% decrease in precipitation over a 50-year planning horizon. The results indicate a 25% decrease in runoff and a 35% decrease in flow to the coast under normal conditions. Even larger decreases (75% and 85% respectively) were predicted under drought conditions. More recently, Wurbs et al. (2005)¹ linked WRAP with the Soil and Water Assessment Tool (SWAT, developed at the Texas A&M University Blacklands Research Center) to predict the impacts of climate change in the Brazos River basin. Climate change itself was based on the results of the Canadian Center for Climate Modeling and Analysis IS92a simulation. Their results suggest a 3-53% decrease, depending on location, in mean regulated streamflows (i.e., streamflows following diversions for beneficial use) from historical to 2050

¹ Dr. Wurbs is the lead author of the Water Rights Analysis Package, or WRAP, which is the model that Texas uses to predict water availability. The WRAP code with Texas input files is generally referred to as the Texas Water Availability Models, or WAMs.

conditions. From a groundwater standpoint, Loáiciga et al. (2000) studied the possible impacts of climate change on the Edwards-BFZ Aquifer. They evaluated several combinations of climate change scenarios, general circulation models, rainfall-runoff computational methods, and groundwater models. They concluded that the Edwards-BFZ "is very vulnerable to global warming trends" and that "the aquifer's ground water resources are threatened under $2\times\text{CO}_2$ climate scenarios." Chen et al. (2001) also evaluated the potential effects of climate change on the Edwards-BFZ Aquifer and estimated that recharge to the aquifer would decrease between 20% and 40% by 2030 as compared to current conditions. These papers, all co-authored by University of Texas or Texas A&M researchers, suggest greater effects than are anticipated in the draft 2007 State Water Plan. It is important to recognize the implications of the following statement in Ward and Valdes (1995): "The reason for this dramatic impact on water resources is that the physical processes of the water budget act in such a way as to amplify the effects of these changes in temperature and precipitation." Thus, modest changes in precipitation and temperature (as discussed in the draft 2007 State Water Plan) amplify to create greater than expected changes in streamflows. TPWD agrees that the 5-year planning cycle intrinsically allows for future modifications of the state water plan based on new information. However, TPWD respectfully suggests that climate change is not a subject that the individual RWPGs are equipped to handle, nor should the impacts of climate change be addressed substantially differently among the different planning regions. TPWD recommends that the State Water Plan text be expanded to recognize legitimate existing studies that have attempted to predict the impacts of climate change on Texas water resources. TPWD further recommends that in the next 5-year cycle, TWDB place a greater emphasis on climate change issues.

Impacts to the State's Water, Agriculture, and Natural Resources

Sections 10.1.2 (Impacts to the State's Water, Agriculture, and Natural Resources) and 10.1.3 (Impacts on Water Quality) should provide a summary (e.g., a table) of the findings of the regional water plans related to these topics, similar to the water quantity summaries provided in the remainder of Chapter 10.

Water Project Financing

Section 11.1.1 states that of the \$29 billion in estimated municipal water management strategy costs, water providers responded for \$22.8 billion, of which \$2.1 billion was estimated to be needed from the state. This would appear to mean that the total state contribution will be closer to $(29/22.8)*2.1 = \$2.7$ billion than \$2.1 billion. Please consider rephrasing.

References

- Chen, C.C., D. Gillig, and B.A. McCarl. 2001. Effects of Climatic Change on a Water Dependent Regional Economy: A Study of the Texas Edwards Aquifer. *Climatic Change*, 49(4), 397-409.
- Loáiciga, H.A., D.R. Maidment, and J.B. Valdes. 2000. *Climate-Change Impacts in a Regional Karst Aquifer, Texas, USA*. *Journal of Hydrology*, v227, 173-194
- Ward, G.H. and J.B. Valdes. 1995. *Water Resources*, in *The Impact of Global Warming on Texas*. Edited by G. North, J. Schmandt, and J. Clarkson. University of Texas Press, Austin, TX.
- Ward, G.H. 1993. *A Water Budget for the State of Texas with Climatological Forcing*. *The Texas Journal of Science*, 45(3), 249-264.
- Wurbs, R.A., R.S. Muttiah, and F. Felden. 2005. *Incorporation of Climate Change in Water Availability Modeling*. *Journal of Hydrologic Engineering*. 10(5), 375-385.