

TO: Board Members

THROUGH: Kevin Patteson, Executive Administrator
Robert E. Mace, Ph.D., P.G., Deputy Executive Administrator, Water Science and Conservation
Les Trobman, General Counsel

FROM: Ruben S. Solis, Director, Surface Water Resources Division

DATE: December 1, 2015

SUBJECT: Funding for Studies of Environmental Flows in the Trinity and San Jacinto Rivers and Galveston Bay Basin and Bay Area

ACTION REQUESTED

Authorize the Executive Administrator to negotiate and execute contracts in a total amount not to exceed \$300,000 on or before August 31, 2016, for studies of environmental flows in the Trinity and San Jacinto rivers and Galveston Bay basin and bay area.

BACKGROUND

Senate Bill 3 (80th Texas Legislature, 2007) created a stakeholder-driven process for identifying and quantifying flows needed to maintain sound rivers and estuaries in Texas. The process led to the adoption of flow standards between 2011 and 2014 by the Texas Commission on Environmental Quality (TCEQ) for seven major basin and bay areas in Texas. The Senate Bill 3 process contains an adaptive management component which calls for continued studies to validate and refine the environmental flow analyses, recommendations, and standards, and to identify strategies to achieve those standards. The Trinity, San Jacinto Basin and Bay Area Stakeholder Committee submitted its work plan for adaptive management to the Environmental Flows Advisory Group in May 2012. This work plan contains recommended studies and activities that, if implemented, will provide additional information for future rulemaking by the TCEQ.

In 2013, the 83rd Texas Legislature appropriated funds to the Texas Water Development Board (TWDB) for the continued study of environmental flows. In 2014, the Board approved the use of this funding to implement 15 priority work plan studies in five basin and bay areas, including three studies conducted in the Trinity, San Jacinto basin that were completed this year (Attachment A). These studies provided the stakeholder committees with information to better

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define flow-ecology relationships and to identify and evaluate strategies to help meet environmental flow standards.

KEY ISSUES

The 84th Texas Legislature appropriated funds to the TWDB in its baseline budget for the Fiscal Year 2016-2017 biennium in support of Strategy A.1.1 Environmental Information for the purpose of the collection and analysis of environmental flow information to support a sound ecological environment in the state's streams, rivers, bays and estuaries. To support this strategy, TWDB staff sought input from Senate Bill 3 stakeholder committees by requesting that they submit for consideration a prioritized list of studies from work plans developed for their basins. These studies support Strategy A.1.1 by providing both monitoring and analyses of environmental flows information to address priority questions identified in their basins. The Trinity, San Jacinto Basin and Bay Area Stakeholder Committee created a subcommittee to identify specific projects from their work plan to be recommended for funding. The full stakeholder committee approved the subcommittee's recommendations on October 30, 2015, and requested that the TWDB fund these projects. Staff is prepared to provide technical support and to administer the contracting of these funds for the priority projects identified by the Trinity, San Jacinto Basin and Bay Area Stakeholder Committee.

In summary, the Trinity, San Jacinto Basin and Bay Area Stakeholder Committee requests that three projects covering a range of topics are funded for a total amount not to exceed \$300,000. Funds are requested for the following studies:

- (a) Analysis of streamflow and nutrient and sediment concentrations in the Lower Trinity River watershed (\$100,000);
- (b) Continue evaluation of adopted Senate Bill 3 environmental flow standards, (\$110,000); and,
- (c) Continue defining bioindicators for freshwater inflow needs studies (\$90,000).

For more detailed descriptions of all requested studies, please see *Attachment B: Project Descriptions for Proposed Studies for the Trinity, San Jacinto Basin and Bay Area Stakeholder Committee*.

Contracting

The Executive Administrator requests authorization to negotiate and execute contracts with government agencies and universities with whom TWDB has the authority to directly contract through interagency contract, which have subject matter expertise, and in which contracts can be negotiated to represent a cost-savings to the State by eliminating reimbursement for overhead costs. This includes study (a) with the U.S. Geological Survey, study (b) with the Trinity River Authority, and study (c) with Texas A&M University at Galveston with whom the Texas Water Development Board can contract directly through interagency contract. Following contract negotiations, if the contracted amount for any individual study is less than the amount indicated above, the Executive Administrator requests authorization to amend the remaining contract amounts such that the total of all contracts does not exceed \$300,000.

RECOMMENDATION

The Executive Administrator recommends approval of this item.

This recommendation has been reviewed by legal counsel and is in compliance with applicable statutes and Board rules.

Attachment A: Fiscal Year 2014-2015 Work Plan Studies

Attachment B: Project Descriptions for Proposed Studies for the Trinity, San Jacinto Basin and Bay Area Stakeholder Committee

ATTACHMENT A

FISCAL YEAR 2014-2015 SENATE BILL 3 WORK PLAN STUDIES

Study Description	Contractor	Amount
Trinity, San Jacinto Basin and Bay Area		
Defining bioindicators for freshwater inflow needs studies	Texas A&M University at Galveston	\$105,500
Determination of freshwater inflow volume from the Trinity River into Trinity Bay	U.S. Geological Survey	\$95,000
Trinity River evaluation of adopted Senate Bill 3 environmental flow standards	Trinity River Authority	\$112,000
Brazos Basin and Bay Area		
Brazos basin environmental flow standard validation and integration of river flows and Brazos basin estuary response	BIO-WEST, Inc.	\$312,500
Colorado, Lavaca Basin and Bay Area		
Studies to evaluate achievement of freshwater inflow standards and ecological response	Anchor QEA	\$250,000
Evaluation of potential strategies to help provide needed instream flows or freshwater inflows to support an ecologically sound stream or estuary	Meadows Center for the Environment	\$62,500
Guadalupe, San Antonio Basin and Bay Area		
Texas instream flow program studies	San Antonio River Authority	\$200,000
Lower basin/estuarine inflow studies	University of Texas – Center for Research in Water Resources	\$200,000
<i>Rangia</i> clam investigations	San Antonio River Authority	\$150,000
Key estuarine faunal species studies	University of Texas Marine Science Institute	\$150,000
Strategy options for meeting attainment frequencies for the estuaries	San Antonio Bay Partnership	\$50,000
Nueces Basin and Bay Area		
Re-examination of the 2001 Agreed Order monthly targets and safe yield versus current demand evaluations	HDR, Inc.	\$45,000
Improve salinity modeling methods for determining environmental inflow regimes for Nueces Delta and Bay using a 3-D hydrodynamic model	University of Texas – Center for Research in Water Resources	\$80,000
Explore land modifications to Nueces Bay and Nueces Delta	Naismith Engineering	\$95,000
Nueces watershed pre- and post-reservoir nutrient budgets	HDR, Inc.	\$92,500

ATTACHMENT B

PROJECT DESCRIPTIONS FOR PROPOSED FISCAL YEAR 2016-2017 STUDIES FOR THE TRINITY, SAN JACINTO BASIN AND BAY AREA STAKEHOLDER COMMITTEE

Analysis of Streamflow and Nutrient and Sediment Concentrations in the Lower Trinity River Watershed – The Trinity, San Jacinto Basin and Bay Area Stakeholder Committee requests the U.S. Geological Survey or other qualified contractor to continue analysis of river discharge, and sediment and nutrient concentrations in the lower Trinity River, and to evaluate the potential for the Old River portion of the delta to serve as a storage and/or bypass compartment for water heading to Galveston Bay. Funding for the project is anticipated to be \$100,000. The main objective is to gain a better understanding of the inflows and nutrient/sediment concentrations entering Galveston Bay from the lower Trinity River watershed during high flow conditions. To achieve this, efforts will focus on topography of areas adjacent to the main stem in the bayhead delta of the lower Trinity River. Activities will include continued operation of an index-velocity meter (gage #08067252) and water quality sampling at the Trinity River at Wallisville, begun in the previous biennium. During high flows, flow measurements and water quality sampling will be conducted at Old River at I-10 and where Old River meets the main stem of the Trinity River. Finally, a comprehensive analysis of existing river discharge and water quality data for the Trinity River below Lake Livingston will be carried out with additional sampling events included to record high flow or other conditions of hydrologic interest. This project contributes to several priority activities identified in the Trinity, San Jacinto basin and bay area work plan (TSJ BBASC 2012) including *gather water quality data and sediment characterization data*.

Continue Evaluation of Adopted Senate Bill 3 Environmental Flow Standards – The Trinity, San Jacinto Basin and Bay Area Stakeholder Committee requests the Trinity River Authority or other qualified contractor to continue efforts begun in the last biennium to evaluate environmental flow standards for the Trinity River. Funding for the project is anticipated to be \$110,000. As part of this effort, channel data collection and monitoring will continue at three existing monitoring sites (Trinity River downstream of Dallas, near Oakwood, and downstream of Romayor). In addition, data collection efforts will be extended to a fourth site on the West Fork of the Trinity River near Grand Prairie. Riparian surveys will also be completed at all four sites. High flows in the spring and early summer of 2015 prevented riparian surveys from being collected in the previous biennium. This project contributes to several priority activities identified in the Trinity, San Jacinto basin and bay area work plan (TSJ BBASC 2012) including *surveys of long reaches covering TCEQ-adopted flow sites, high flow pulse and overbank assessment, and establishment of long-term riparian monitoring sites*.

Continue Defining Bioindicators for Freshwater Inflow Needs Studies – The Trinity, San Jacinto Basin and Bay Area Stakeholder Committee requests the Texas A&M University at Galveston or other qualified contractor to continue efforts completed in the last biennium to identify bioindicator species suitable for use in freshwater inflow studies of Galveston Bay. Funding for the project is anticipated to be \$90,000. The previous effort identified several candidate species. In this second phase, data for those bioindicator species will be used to define and evaluate the health of the bay. The influence of freshwater inflows and the importance of antecedent conditions and nutrients on bioindicators as well as various definitions of bay health

also will be evaluated. This project contributes to several priority activities identified in the Trinity, San Jacinto basin and bay area work plan (TSJ BBASC 2012) including *test the conclusion that the bioindicators were appropriate for representing the health of Galveston Bay and consider the addition of new species which were previously not recognized.*

References

TSJ BBASC. 2012. *Work Plan Report: Final Submission to the Environmental Flows Advisory Group and the Texas Commission on Environmental Quality*. Prepared by the Trinity and San Jacinto and Galveston Bay Basin and Bay Area Stakeholder Committee with support of the Basin and Bay Expert Science Team, April 2012, 66 p.