ENVIRONMENTAL FLOWS ADVISORY COMMITTEE

Final Report

Governor Rick Perry
Lieutenant Governor David Dewhurst
Speaker of the House of Representatives Tom Craddick

December 2006
Dear Governor, Lieutenant Governor, Speaker of the House, and Members:

For your consideration, the Environmental Flows Advisory Committee (Committee) hereby submits its final report, including recommendations to establish a process that will achieve a consensus-based, regional approach to integrate environmental flow protection with flows for human needs. The report reflects the work of the Committee and the recommendations have support from the majority of the committee members.

Respectfully submitted,

E.G. Rod Pittman, Chairman

Joseph B.C. Fitzsimons

Kathleen Hartnett White

Lori J. Ryerkerk

Jeff Taylor

Jerry Lynn Clark

Richard Chalkley Bartlett

David K. Langford

Ben F. Vaughan IV
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CHAPTER 1 : PREAMBLE

The Executive Order
On October 28, 2005, Governor Perry signed an Executive Order designed to address requirements for instream flows for Texas rivers and streams and freshwater inflows into Texas bays and estuaries. The Executive Order effectively created an Environmental Flows Advisory Committee (Committee) and the following individuals were appointed by Governor Perry on March 1, 2006:

E.G. Rod Pittman of Lufkin (ex-officio), Chairman, Texas Water Development Board, and designated chair of this Committee

Joseph B.C. Fitzsimons of Carrizo Springs (ex-officio), Chairman, Texas Parks and Wildlife Commission

Kathleen Hartnett White of Valentine (ex-officio), Chairman, Texas Commission on Environmental Quality

Lori J. Ryerkerk of Beaumont, Refinery Manager, ExxonMobil Beaumont Refinery

Jeff Taylor of Houston, Deputy Director of the Public Works and Engineering Department for the City of Houston

Jerry Lynn Clark of Buna, Executive Vice President and General Manager, Sabine River Authority of Texas

Richard Chalkley Bartlett of Carrollton, Vice Chairman of the Board, Mary Kay, Inc.

David K. Langford of Comfort, Vice President Emeritus, Texas Wildlife Association

Ben F. Vaughan IV of San Antonio, Associate Professor of Economics, Texas Lutheran University

The Committee was charged to “examine relevant issues and make recommendations for commission action and legislation on methods for making future decisions to protect instream flows and freshwater inflows, while integrating such needs with human needs, including methods to address allocation of flows during drought conditions, using the December 2004 report of the Study Commission as a starting point.” The Committee was also directed to establish a process that will achieve a consensus-based, regional approach to integrate environmental flow protection with flows for human needs. The final report must be submitted no later than December 31, 2006. The full Executive Order is included in Appendix A of this report.
Background
Prior to Governor Rick Perry signing the Executive Order, Senate Bill 1639, 78th Legislature (Appendix B), created the Study Commission on Water for Environmental Flows (Study Commission). The Study Commission was charged to “…study public policy implications for balancing the demands on the water resources of the state resulting from a growing population with the requirements of the riverine, bay, and estuary systems including granting permits for instream flow dedicated to environmental needs of bay and estuary inflows, use of the Texas Water Trust, and any other issues that the study commission determines to have importance and relevance to the protection of environmental flows.”

The Study Commission appointed a Science Advisory Committee, which was charged with analyzing existing hydrologic conditions, evaluating current tools and procedures used to assess environmental flow needs, identifying ecological parameters to be considered when evaluating environmental flow needs, and providing any other technical information of benefit to the Study Commission. The Science Advisory Committee issued its report on October 26, 2004.

The Study Commission’s report to the Legislature was published December 21, 2004 and formed the basis of Senate Bill 3, Article 1, 79th Legislative Session, authored by Senator Kenneth L. Armbrister, and co-sponsored by Representative Robert Puente (Appendix C).

Meetings and testimony
The Committee held several meetings to gather information and obtain an understanding of issues relating to environmental flows. The dates of those meetings and individuals who testified are shown in the table below.

March 20, 2006  Bob Brandes, R.J. Brandes Company
                Barney Austin, Texas Water Development Board
                Myron Hess, National Wildlife Federation
                Greg Rothe, San Antonio River Authority
                Derek Seal, Texas Commission on Environmental Quality
                Bill Mullican, Texas Water Development Board

May 9, 2006     Andrew Purkey, National Fish and Wildlife Foundation
                Terry Anderson, Property and Environmental Research Center
                Mary Kelly, Environmental Defense
                Todd Chenoweth, Texas Commission on Environmental Quality
                Christina Wisdom, Texas Oil and Gas Association
                Tom Ballou, Texas Chemical Council
                Wade Stansell, Association of Electric Companies of Texas
                Dean Robbins, Texas Water Conservation Association
                Bill Mullican, Texas Water Development Board
Handouts, MS-PowerPoint presentations, and letters to the Committee are presented in Appendix D. To help communication and public outreach efforts, the Committee also maintained a web site with meeting dates, agendas, recorded meeting audio and video archives and other material. This information is available at: http://www.twdb.state.tx.us/EnvironmentalFlows/index.html.

**Science Advisory Committee**

To help with the Committee’s deliberations a new Science Advisory Committee (SAC) was appointed at the May 9, 2006, meeting. The new SAC’s charge was defined as follows:

1. Revisit the 78th Legislature, Senate Bill 1639, Study Commission on Water for Environmental Flows Science Advisory Committee report;
2. Provide technical support to the EFAC, as needed; and
3. Coordinate with state agency technical staff to ensure efficient and effective deliberations.

The following individuals were appointed to the new SAC:

- Chair, Bob Brandes, PhD, R. J. Brandes Company
- George H. Ward, Jr., PhD, University of Texas at Austin
- Paul A. Montagna, PhD, University of Texas Marine Science Institute
- Larry Hauck, PhD, Tarleton State University
- Kirk O. Winemiller, PhD, Texas A&M University

The Committee decided unanimously to include the recommendations of the new SAC and they are listed in Chapter 2. The full SAC report is included in Appendix E.
Senate Bill 3, Article 1
Following extensive testimony in the first two meetings, the Committee decided to focus on providing recommendations to reinforce or improve the provisions in House Committee Substitute of Senate Bill 3, Article 1 (hereafter referred to as Senate Bill 3, Article 1), which was considered, but did not pass, during the 79th Legislative Session.

Senate Bill 3, Article 1 called for the creation of a regional/basin-by-basin approach for developing recommendations for environmental flow regimes that the TCEQ would adopt in the form of environmental flow standards. Significant scientific input would be provided and the whole process overseen by a proposed statewide Environmental Flows Commission. The flow standards developed would be utilized in the decision-making process for new water right applications and in establishing an amount of unappropriated water, if available, to be set aside for the environment. The bill would have specifically authorized TCEQ to approve applications to amend existing permits or certificates of adjudication to change the use to or add a use for instream flows dedicated to environmental needs or bay and estuary inflows, and granted those permits equal standing to other permits in the basin.

The proposed bill recognized the fact that “…addressing environmental flow needs should be an ongoing adaptive process that considers and addresses local interests…” and further provided a limited re-opener clause for permits issued after enactment of the bill. Senate Bill 3, Article 1 recognized that implementation of the bill would require more effective water rights and enforcement systems than are available in most areas of the state. A provision to allow deposits into the Texas Water Trust without the need for a permit amendment was also included.

A fairly compressed time schedule was proposed to prioritize particular basins and speed the rulemaking process for those basins where urgent action is needed. A section-by-section summary of the bill follows.

Sec. 1.01 – 1.02. Amends §5.506, TWC, to add emergency suspension of environmental set asides by TCEQ to make water temporarily available for other uses during emergencies.

Sec. 1.03. Amends §5.701(j), TWC, to provide that a fee is not required for a water right that is deposited into the Texas Water Trust.


Sec. 1.05. Amends §11.023(a), TWC, to authorize state water to be appropriated, stored, or diverted for specific uses, to the extent that state water has not been set aside by TCEQ to meet downstream instream flow needs or freshwater inflow needs.

Sec. 1.06. Amends §11.147 TWC to require, in water right permits within 200 river miles of the coast, permit conditions necessary to maintain freshwater inflows to any affected bay and estuary system. Requires the commission to consider studies mandated by §16.059 of the TWC and water quality assessments performed under §11.150, TWC, when considering
permit conditions necessary to maintain instream uses and water quality. Requires the commission to consider assessments performed under §11.152, TWC, when considering permit conditions necessary to maintain fish and wildlife habitats. Requires new permits and amended permits that increase the amount of water appropriated to contain a provision allowing the commission to adjust permit conditions necessary to protect environmental flows with such adjustment limited to no more than 12.5% of the requirement contained in the permit; allows credit toward the adjustment for voluntary contributions to the Texas Water Trust. In basins where unappropriated water is available, the state should establish environmental set-asides, and in basins where sufficient unappropriated water is not available, a variety of market approaches, both public and private, for filling the gap must be explored and pursued. Management of water for environmental flow needs should be regularly evaluated and adapted to reflect both improvements in science and future changes in human water needs. The section also states that protecting environmental flow needs will require more effective water rights administration and enforcement.

Sec. 1.07 – 1.08. Amends §11.0236, TWC, to create and define the Environmental Flows Commission (flows commission), in place of the Study Commission on Water for Environmental Flows (study commission).

Sec. 1.09. Amends Subchapter B, Chapter 11, TWC, by adding §11.02361 and §11.02362 to create the Texas Environmental Flows Science Advisory Committee to advise the flows commission and make recommendations for environmental flows. This section includes requirements including the following:

1. deadlines for the flows commission to prioritize certain basins for developing flow recommendations and environmental standards;
2. the flows commission to appoint the basin and bay area stakeholders’ committees for the river basin and bay systems and establish a timeline for performance of prescribed tasks that will ultimately lead to the adoption of environmental flows standards for that river basin and bay system by TCEQ;
3. each basin and bay area stakeholders committee establish a basin and bay expert science team for the river basin and bay system for which the committee is established;
4. the science advisory committee to appoint one of its members to serve as a liaison to each basin and bay expert science team to facilitate coordination and consistency in environmental flow activities throughout the state;
5. TCEQ, TPWD, and TWDB to provide technical assistance to each basin and bay expert science team including information about the studies conducted under TWC Sections 16.058 (Collection of Bays and Estuaries Data: Conduct of Studies) and 16.059 (Collection of Instream Flow Data: Conduct of Studies), and authorizes them to serve as nonvoting members of the basin and bay expert science team to facilitate the development of environmental flow regime recommendations;
6. each basin and bay expert science team to develop environmental flow analyses and a recommended environmental flow regime for the river basin and bay system for which the team is established through a collaborative process designed to achieve a consensus;
7. requires the science team, in developing the analyses and recommendations, to consider all reasonably available science, without regard to the need for the water for other uses; and
8. the recommendations are to be based solely on the best science available.
9. in recognition of the importance of adaptive management, basin and bay area stakeholders committees should establish a work plan that calls for period review of the environmental flow analyses, prescribes monitoring and studies, and establishes a schedule for continuing the validation or refinement of environmental flow analyses, regime recommendations and flow standards, and the strategies to achieve those standards.

Sec. 1.10. Amends §11.0237(a) and (b), TWC, to authorize TCEQ to approve an application to amend an existing permit or certificate of adjudication to change the use or to add a use for instream flows dedicated to environmental needs or bay and estuary inflows.

Sec. 1.11. Amends §11.082(b), TWC, to authorize the state to seek penalties where the unlawful use [of state water] is alleged to have occurred.

Sec. 1.12. Amends §11.0841, TWC, by adding Subsection (c), that provides that TPWD has the rights of a holder of a water right that is held in the Texas Water Trust, including the right to file suit in a civil court, to prevent the unlawful use of such a right and other rights related to the protection of those water rights.

Sec. 1.13. Amends §11.0842(a), TWC, to authorize TCEQ to assess an administrative penalty for a violation relating to a water division or a river basin or segment of a river basin.

Sec. 1.14. Amends §11.0843(a), TWC, to authorize the executive director of TCEQ, or a person designated by the executive director, to issue an alleged violator a filed citation alleging that a violation has occurred and providing the alleged violator with specific options.

Sec. 1.15. Amends §11.134(b), TWC, to require TCEQ to grant the application only if the proposed appropriation considers any applicable environmental flow standards established under §11.1471, TWC.

Sec. 1.16. Amends §11.147, TWC, to include new permitting requirements for TCEQ for permits issued within 200 river miles of the coast, for new permits or amendments to existing water rights, the amount of pass through increases that may be required as a set aside.

Sec. 1.17. Amends Subchapter D, Chapter 11 of the TWC by adding §11.1471 in order to describe environmental flows set-asides to be established by rule by TCEQ. Also establishes the commission rulemaking procedure for adopting environmental flow standards and set-asides, implementing adjustment of environmental flow permit
conditions and the processes for implementing and revising environmental flow set-asides and standards.

Sec. 1.18 – 1.19. Amends §11.148, TWC, to allow for emergency transfers on a temporary basis for beneficial uses.

Sec. 1.20. Amends §11.1491(a), TWC, to prescribe distribution of reports published under this section.

Sec. 1.21. Amends §11.329(g), TWC, to prohibit TCEQ from assessing costs under this section against a holder of a water right placed in the Texas Water Trust for a term of at least 20 years.

Sec. 1.22. Amends §11.404(e), TWC, to prohibit the court from assessing costs and expenses under this section against a holder of a water right placed in the Texas Water Trust for a term of at least 20 years.

Sec. 1.23. Amends Subchapter I, Chapter 11, TWC by adding §11.4531, to require the executive director of the TCEQ to appoint watermasters advisory committees.

Sec. 1.24. Amends §11.454, TWC, to describe the duties and authority of the watermaster.

Sec. 1.25. Amends §11.455, TWC, to provide for compensation and expenses of watermasters.

Sec. 1.26. Amends Subchapter F, Chapter 15, TWC, by adding §15.4063, to authorize the use of monies in the research and planning fund to be used for specified compensation.

Sec. 1.27. Amends §15.7031, TWC, by amending Subsection (c) and adding Subsection (e), to require that the dedication of any water rights placed in trust to be reviewed and approved by TCEQ, in consultation with TWDB, TPWD, and the flows commission, and prescribes who may provide input. While held in the trust, water rights would be considered authorized for beneficial use under the terms of the water right for environmental uses without the need for a permit amendment.

Sec. 1.28. Amends Section 16.059(d), TWC, to require the priority studies to be completed not later than December 31, 2014, rather than 2010.


Sec. 1.30. Repealer.

Sec. 1.31. Abolishes the Study Commission on Water for Environmental Flows.
Sec. 1.32. Requires the Governor, Lieutenant Governor, and Speaker of the House of Representatives to appoint the initial members of the Environmental Flows Commission as provided by Section 11.0236, TWC and prescribes appointments that the flows commission must make.

Environmental Flow Process
To aid in its deliberations, the Committee appointed a Process Subcommittee to look into ways to improve the process laid out in Senate Bill 3, Article 1. The subcommittee developed a process flowchart and short narrative to help develop recommendations and to navigate the proposed legislation presented in Senate Bill 3, Article 1. The flowchart and narrative are presented below:

Environmental Flow Process Narrative:
- The Texas Legislature shall create the Environmental Flows Committee/Commission (EFC) composed of eleven members to include: the presiding officers of the TWDB, TCEQ, and TPWD; Six members appointed by the Governor; Chair (or their appointed representative) of the Senate Natural Resources Committee; and Chair (or their appointed representative) of the House Natural Resources Committee.
The EFC shall appoint the Texas Science Advisory Committee (SAC) consisting of not less than five or more than nine members. The SAC shall serve to advise the EFC on scientific matters relating to environmental flows, serve as the oversight body for the bay/basin science team activities, and coordinate with the TWDB, TCEQ, and TPWD with regard to consideration and implementation of environmental flow recommendations.

The EFC shall appoint bay/basin stakeholder committees in accordance with the prescribed schedule established for the State’s environmental flows program.

In turn, the bay/basin stakeholder committee shall establish a bay/basin expert science team that will conduct the environmental flow analyses for the appropriate bay/basin system and prepare recommendations for the environmental flow regime of their designated systems.

In collaboration with their respective bay/basin expert science team, each bay/basin stakeholder committee will review the findings and recommendations of the science team and prepare recommendations regarding environmental flow standards and strategies to meet those standards, for submission to the TCEQ. This report, along with the recommendations of the science team will be submitted to the TCEQ for their consideration.

After considering all matters related to the bay/basin flow regimes, the TCEQ shall follow the normal rule making process to adopt appropriate environmental flow standards for each bay/basin system and establish an amount of unappropriated water, if available, to be set aside to satisfy the environmental flow standards to the maximum extent reasonable when considering human water needs.

Recognizing that change is inevitable and the importance of “adaptive management”, the process for establishing environmental flow standards and implementing strategies to meeting those standards shall include steps to assess success/failure of management measures and the ability to adjust strategies as new science becomes available.
CHAPTER 2 : COMMITTEE RECOMMENDATIONS

The Committee members submitted recommendations, including rationale statements which were considered for inclusion in this report. The recommendations in this chapter were approved by the majority of the Committee members; Appendix F includes all recommendations considered by the Committee, including rationale statements as submitted. For better readability, House Committee Substitute of Senate Bill 3, Article 1, 79th Legislative Session is referred to as Senate Bill 3, Article 1 in these recommendations. Where appropriate, reference to specific Senate Bill 3, Article 1 sections is noted in the right-hand column.

<table>
<thead>
<tr>
<th>Rec #</th>
<th>Recommendation</th>
<th>SB3 Article 1 Section</th>
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<tbody>
<tr>
<td>1</td>
<td>Create incentives to attract Texas Water Trust deposits.</td>
<td>1.03 &amp; 1.21</td>
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<tr>
<td>2</td>
<td>The provisions proposed in Article 1 of Senate Bill 3 relating to the Texas Water Trust should be given a chance to work.</td>
<td>1.03 &amp; 1.21</td>
</tr>
<tr>
<td>3</td>
<td>Encourage the legislature to propose legislation that provides market incentives to protecting environmental flows, as opposed to mandates or subsidies.</td>
<td>1.06</td>
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<td>4</td>
<td>The market-based approach used for trading water rights in other western states should be investigated further to see how effective these methods might be in Texas.</td>
<td>1.06</td>
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<td>5</td>
<td>Upon creation of the individual basin and bay area stakeholders committees, each group should establish a basin and bay expert science team as soon as reasonably practicable. The team should serve as local experts in matters associated with the science of environmental flows for their respective study area.</td>
<td>1.09</td>
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<td>6</td>
<td>The basin and bay area stakeholders committee and respective expert science team should work collaboratively on a recommended bay/basin specific environmental flow regime with a goal of submitting a single report to the TCEQ, which includes the basin and bay expert science team report as an attachment.</td>
<td>1.09</td>
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<td>7</td>
<td>Require that each basin and bay area stakeholders committee appoint a liaison for each of the regional planning groups that have overlapping boundaries with the respective basin and bay area stakeholders committee.</td>
<td>1.09</td>
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<tr>
<td>8</td>
<td>A basin and bay area stakeholders committee should be part of the initial process with input from a scientific standpoint.</td>
<td>1.09</td>
</tr>
<tr>
<td>9</td>
<td>A statewide science oversight committee should be included in the process.</td>
<td>1.09</td>
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Establish an Environmental Flows Committee composed of eleven members as follows:

- Presiding officer of the TWDB
- Presiding officer of the TCEQ
- Presiding officer of the TPWD
- Six members appointed by the Governor
- Chair (or their appointed representative) of the Senate Natural Resources Committee
- Chair (or their appointed representative) of the House Natural Resources Committee

Members appointed by the Governor should be knowledgeable regarding issues associated with environmental flows and represent areas of expertise in business industry, cities, agriculture, environmental, water interests, and local interests.

The Environmental Flows Committee should be sunset at a certain date as determined by the legislature with a continuing function left to the discretion of the Texas Legislature.

The Environmental Flows Advisory Committee recommends that the legislature determine the voting status of legislative members of the Environmental Flows Committee.

Each basin and bay area stakeholders committee should include up to 17 members, including representative members as identified in proposed TWC Subsection 11.02362(f). Because of the variety of interests in each bay/basin, it is recommended that the Environmental Flows Committee could name additional stakeholders to ensure adequate representation of environmental and industry groups while maintaining a fair and equitable balance of interests on each basin and bay area stakeholders committee.

The Environmental Flows Committee should appoint the Texas Environmental Flows Science Advisory Committee composed of not less than five nor more than nine members, with expertise as outlined in proposed TWC Subsection 11.02361(b).

Maintain the schedule for appointing the basin and bay stakeholders committee as presented in proposed TWC Subsection 11.02362(f), with establishment of stakeholder groups within six months of bill enactment, allowing for extensions of deadlines by the Environmental Flows Committee for cause.
A more realistic timeframe should be set for the performance of studies in Galveston Bay and Sabine Lake. The dates in §1.09 of Senate Bill 3, Article 1 should be modified as follows:

1. In proposed TWC Subsection 11.02362(a), the date for defining the geographical extent of each river basin and bay system should be changed to November 1, 2007.
2. In proposed TWC Subsection 11.02362(c)(1), the date for appointing the basin and bay area stakeholders committee should be established as November 1, 2007.
3. In proposed TWC Subsection 11.02362(c)(2), the date for establishing the basin and bay expert science team should be changed to March 1, 2008.
4. In proposed TWC, Subsection 11.02362(c)(3), the date for the basin and bay expert science team to finalize the environmental flow recommendation and submit it to the basin and bay area stakeholders committee, the Environmental Flows Committee, and the TCEQ should be changed to March 1, 2009.
5. In proposed TWC, Subsection 11.02362(c)(4), the bay/basin area stakeholder committee shall have six months after receipt of the environmental flow regime recommendation to submit its recommendation to the TCEQ.
6. In proposed TWC Subsection 11.02362(c)(5), the TCEQ should be given one year from the time it receives the comments and recommendations from the basin and bay area stakeholders committee to adopt environmental flow standards as provided by Subsection 11.1471.
7. These deadlines can be extended by the Environmental Flows Committee for cause.

In recognition of the importance of adaptive management, as presented in Senate Bill 3, Article 1, the approach used for environmental flow analyses, TWC Section 11.02362(p), development of environmental flow regimes and subsequent adoption of environmental flow standards should include an adaptive management step for periodic reviews and updates for applicable environmental flow strategies.

The Environmental Flows Committee should use the TWDB’s established program for identifying watershed boundaries for the state’s riverine and estuarine systems as a starting point when designating bay/basin systems for study.
| 17 | The Environmental Flows Committee, with input from the Texas Environmental Flows Science Advisory Committee, should review the environmental flow analyses and environmental flow regime recommendations submitted by each basin and bay expert science team to the TCEQ. Comments should be submitted not later than six months after the date of receipt of the analyses and recommendations. | 1.09 |
| 18 | The Environmental Flows Committee with assistance from the Texas Environmental Flows Science Advisory Committee should provide a definition of “sound ecological environment” as guidance for the basin and bay stakeholder committees and basin and bay expert science teams. | 1.09 |
| 19 | The TCEQ approval of the dedication of water rights into the water trust should be combined with TCEQ approval of any amendment of the underlying water right to add instream use or to change the use purpose of use to instream use. Notice to water right holders in the basin should be required, allowing 30 days from the date of the notice for those persons to make public comment. A contested case hearing on the amendment is not required. | 1.10 |
| 20 | Provide clear language that existing water rights may add instream use or convert to instream use as a purpose of use and that instream use rights be enforced consistently with other water rights, pursuant to the Texas prior appropriation doctrine. Encourage the voluntary conversion of existing water rights to meet environmental flow needs. | 1.10 |
| 21 | Revise Section 1.12 of Article 1, Senate Bill 3 as follows: The TPWD has: (1) the rights of an owner of a water right that is held in the Texas Water Trust, including the right to file suit in civil court to prevent the unlawful use of such a right to prevent the violation of the terms of the instream use of the water right while held in the Trust. | 1.12 |
| 22 | Clarify language regarding Texas Water Trust deposits as credits against adjustment of a water right to meet environmental flow standards. For the credit to be effective in providing water to meet the particular environmental flow standard, the provision should clarify that the Trust deposit must be in the affected water body or segment of the holder’s water right. | 1.16 |
| 23 | Revise Section 1.16 of Article 1 as follows: The adjustment…(3) must be based on appropriate consideration of any volunteer contributions to the Texas Water Trust or water right amendments to quantify an instream use that contribute towards meeting the environmental flow standards. Any water right owner making such a donation or permit amendment shall be entitled to appropriate credit of such benefit against water right pursuant to subdivision. | 1.16 |
| 24 | Provide adequate funding for implementation of environmental flow legislation, the state’s freshwater inflow studies program, and state agencies for technical work that supports the Environmental Flows Committee, Texas Environmental Flows Science Advisory Committee and basin and bay area stakeholders committee processes. | 1.26 |
| 25 | Any funding mechanism proposed to evaluate the current science and continue additional science as needed should be fair and equitable. | 1.26 |
| 26 | Support voluntary land stewardship practices as one of the state’s primary water policy tenets and craft legislation that codifies land stewardship practices to benefit the water in the state. | Article 2 |
| 27 | Encourage responsible land management practices that protect water sources by creating and promoting programs that provide incentives for private landowners. | Article 2 |
| 28 | Simplify procedures for Texas Water Trust deposits by: (1) eliminating the need for an amendment before a water right is placed into the Texas Water Trust; (2) directing the TWDB to set out a simplified application and approval procedures; and (3) eliminate the need for input from the Environmental Flows Committee, the basin and bay stakeholder committees, and the basin and bay expert science team. | n/a |
| 29 | Raise awareness of the Texas Water Trust. | n/a |
| 30 | Add phased deadlines for instream flow studies under TWC Section 16.059 and extend the deadline for final completion of instream flow studies from December 31, 2010 to December 31, 2016. | n/a |
| 31 | TPWD, TCEQ and TWDB should be required to provide a combined progress report on their activities related to the Instream Flow and Freshwater Inflow programs on a biannual basis to the Environmental Flows Committee and the legislature. | n/a |
| 32 | The Environmental Flows Committee, with assistance from the Texas Environmental Flows Science Advisory Committee, should provide a definition of instream use for environmental purposes as guidance for the basin and bay stakeholder committees and basin and bay expert science teams. | n/a |
In addition to the recommendations above, the Committee decided unanimously to adopt the recommendation of the Science Advisory Committee. These eight recommendations are presented below. The full Science Advisory Committee report is presented in Appendix E.

1. If the EFAC determines that a definition for a “sound ecological environment” should be incorporated into legislation, then it is recommended that the following be considered:

A sound ecological environment is one that:

- sustains the full complement of native species in perpetuity,
- sustains key habitat features required by these species,
- retains key features of the natural flow regime required by these species to complete their life cycles, and
- sustains key ecosystem processes and services, such as elemental cycling and the productivity of important plant and animal populations.

2. More extensive review and guidance by stakeholders and the scientific community should be incorporated into the Texas Instream Flow Studies Program.

3. The TCEQ, TWDB and the TPWD should engage as soon as possible the services of qualified professionals to review currently available instream environmental flow assessment tools and to develop one or more desk-top methodologies specifically applicable to Texas river and stream conditions.

4. The significant shortcomings exhibited by the TWDB’s State Methodology and the TPWD’s “verification” process that are used to develop freshwater inflow recommendations for the state’s bays and estuaries must be addressed, and the basic environmental flows process previously set forth in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 provides an appropriate means for addressing these shortcomings.

5. The TCEQ, TWDB and the TPWD should engage as soon as possible the services of qualified professionals to review existing bay and estuary inflow assessment tools and available data and to develop one or more alternative or supplemental methodologies that could be employed with results from the State’s ongoing bay and estuary work as part of the overall process of establishing appropriate interim levels of freshwater inflow requirements for bays and estuaries.

6. The TCEQ, TWDB and the TPWD should take extensive measures to assure that input from stakeholders and water interests are fully incorporated into the State’s environmental
flow programs and that methodologies and results from these programs are subject to rigorous scientific review as part of the programs themselves.

7. Adaptive management and precautionary principle methods should be incorporated into all future phases of environmental flow activities, and the proposed instream flow and freshwater inflow adjustment for new permits or permit amendments, as stipulated in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005, provides an appropriate mechanism for incorporating adaptive management and precautionary principle methods into the TCEQ’s water rights permitting process.

8. Pursuant to provisions of Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005, if considered appropriate by an individual basin and bay area stakeholders committee, the function of the proposed basin and bay expert science team could be incorporated into the individual basin and bay area stakeholders committee, with supplemental technical support and expertise engaged by the individual stakeholders committee as deemed appropriate and necessary.
GLOSSARY OF TERMS AND ACRONYMS

SAC – Science Advisory Committee

TCEQ – The Texas Commission on Environmental Quality

TPWD – The Texas Parks and Wildlife Department

TWC – Texas Water Code

TWDB – The Texas Water Development Board

Flow regime - a schedule of flow quantities that reflects seasonal and yearly fluctuations that typically would vary geographically, by specific location in a watershed, and that are shown to be adequate to support a sound ecological environment and to maintain the productivity, extent, and persistence of key aquatic habitats in and along the affected water bodies.

Flow standard - flow requirements adopted by the TCEQ under Section 11.1471 of the Texas Water Code, as proposed in Article 1, House Committee Substitute Senate Bill 3, 79th Legislative Session.

Land stewardship - the voluntary practice of carefully managing land usage to ensure natural systems are maintained or enhanced for current and future generations. Land stewardship includes voluntary land and habitat management, wildlife conservation, and watershed protection. Land stewardship practices include runoff reduction, prescribed burning, managed grazing, brush management, erosion management, reseeding with native plant species, riparian management and restoration, and spring and creek-bank protection, all of which benefit the water resources of this state.

Regional planning groups – Senate Bill 1, passed in 1997, designated the TWDB as the lead state agency for coordinating a regional water planning process for Texas and developing a comprehensive state water plan. To accomplish these tasks, the TWDB developed planning guidance documents to govern how regional water plans will be developed, delineated planning areas and designated regional planning group representatives.

River segment - A classified segment is a water body or portion of a water body that is individually defined in the TCEQ Texas Surface Water Quality Standards. A segment is intended to have relatively homogeneous chemical, physical, and hydrological characteristics. A segment provides a basic unit for assigning site-specific standards and for applying water quality management programs of the agency.

Texas Water Trust - The Texas Water Trust was created as a program within the Texas Water Bank with the adoption of Senate Bill 1 by the 75th Texas Legislature. The TWDB implements the Trust within the Texas Water Bank. The Trust offers a significant opportunity to acquire, by donation, lease, or purchase, water rights for environmental purposes in accordance with the statute.
October 28, 2005

The Honorable Roger Williams
Secretary of State
State Capitol Room 1E.8
Austin, Texas 78701

Dear Mr. Secretary:

Pursuant to his powers as the chief executive officer and governor of the State of Texas, Rick Perry has issued the following order:

Executive Order No. RP-30 relating to the creation of an environmental flows advisory committee to address requirements for instream flows for Texas rivers and streams and requirements for freshwater inflows into Texas bay and estuary systems.

The official copy of this order is attached to this letter of transmittal.

Respectfully submitted,

[Signature]

Gregory S. Davidson
Executive Clerk to the Governor

GSD/gsd

Attachment

P. O. Box 12131 • Capitol Station • Austin, Texas 78711
Executive Order

BY THE
GOVERNOR OF THE STATE OF TEXAS

Executive Department
Austin, Texas
October 28, 2005

EXECUTIVE ORDER
RP 50

Relating to the creation of an environmental flows advisory committee to address requirements for instream flows for Texas rivers and streams and requirements for freshwater inflows into Texas bay and estuary systems.

WHEREAS, Texas is blessed with abundant water resources including more than 191,000 river miles flowing through 23 major river basins, 9 major and 21 minor aquifers, 7 major estuaries, several minor estuaries, and 3,300 miles of bay and estuary lagoon shoreline; and

WHEREAS, water resources fuel economic development of the state and there is a need to provide certainty in water management and development, including its permitting, to ensure adequate water supplies are available for essential beneficial uses; and

WHEREAS, management strategies addressing environmental flow needs should be based on sound science and emphasize stakeholder involvement, public input, and consideration of local issues; further, such strategies should encourage a variety of market approaches and other voluntary measures, including voluntary land stewardship; and

WHEREAS, Section 11.0235, Texas Water Code recognizes the importance of maintaining the biological soundness of the state’s rivers, lakes, bays, and estuaries to the public’s economic health and general well-being, and expressly requires the Texas Commission on Environmental Quality (“Commission”), while balancing all other interests, to consider and provide for the freshwater inflows necessary to maintain the viability of the state’s bay and estuary systems in the commission’s regular granting of permits for the use of state waters; and

WHEREAS, the National Research Council of the National Academy of Sciences conducted a review of the State’s Instream Flow Program and made important recommendations in its March 2005 report regarding the proposed State methodology and related considerations; and

WHEREAS, the Study Commission on Water for Environmental Flows (“Study Commission”) established under Sec. 11.0236, Texas Water Code, which expired on September 1, 2005, laid important groundwork for establishing a method to integrate the vital issues of economic development and the protection of instream flows and freshwater inflows to bays and
estuaries with specific recommendations in a December 2004 report;

NOW, THEREFORE, I, Rick Perry, Governor of the State of Texas, by virtue of the power and authority vested in me by the constitution and laws of the State of Texas, do hereby order the following:

Creation of Advisory Committee. The Environmental Flows Advisory Committee ("Committee") is hereby created to examine relevant issues and make recommendations for commission action and legislation on methods for making future decisions to protect instream flows and freshwater inflows, while integrating such needs with human needs, including methods to address allocation of flows during drought conditions, using the December 2004 report of the Study Commission as a starting point.

Composition. The Committee shall consist of nine members appointed by the Governor. Three members shall be the respective presiding officers of the Texas Commission on Environmental Quality, Texas Water Development Board, and Texas Parks and Wildlife Commission with the other six members to be chosen from among river authorities; municipalities; environmental, agricultural, industrial, and hunting and fishing interests or others with expertise in environmental flows issues; and the public.

The Governor may designate a member of the Committee to serve as chair of the Committee.

Advisory Councils and Agency Support. As the Committee deems necessary to carry out its duties, the Committee may appoint:

(A) three or four local or regional stakeholder advisory councils prioritized by basin/bay system; and

(B) a science advisory council of five members to provide technical expertise.

The commission, Texas Water Development Board, and the Texas Parks and Wildlife Department shall provide staff support for the Committee.

Recommendations and Report. The Committee shall develop recommendations to establish a process that will achieve a consensus-based, regional approach to integrate environmental flow protection with flows for human needs.

The Committee shall submit a full report, including findings and legislative recommendations, to the Governor, Lieutenant Governor, and Speaker of the House of Representatives no later then December 31, 2006. Subsequent work of the Committee may be addressed in supplementary reports as appropriate.
This executive order supersedes all previous orders on this matter that are in conflict or inconsistent with its terms. Unless extended, this order shall expire on September 1, 2007.

Given under my hand this the 28th day of October, 2005.

Rick Perry  
Governor

Attested by:

Roger Williams  
Secretary of State
APPENDIX B

Senate Bill 1639, 78th Legislative Session
AN ACT

relating to regulating the waters of the state, including the spacing and production of groundwater and the control of instream flows.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Section 36.116, Water Code, is amended by adding Subsections (d) and (e) to read as follows:

(d) For better management of the groundwater resources located in a district or if a district determines that conditions in or use of an aquifer differ substantially from one geographic area of the district to another, the district may adopt different rules for:

(1) each aquifer, subdivision of an aquifer, or geologic strata located in whole or in part within the boundaries of the district; or

(2) each geographic area overlying an aquifer or subdivision of an aquifer located in whole or in part within the boundaries of the district.

(e) In regulating the production of groundwater under Subsection (a)(2), a district:

(1) shall select a method that is appropriate based on the hydrogeological conditions of the aquifer or aquifers in the district; and

(2) may limit the amount of water produced based on
contiguous surface acreage.

SECTION 2. Subchapter B, Chapter 11, Water Code, is amended by adding Sections 11.0235, 11.0236, and 11.0237 to read as follows:

Sec. 11.0235. POLICY REGARDING WATERS OF THE STATE.
(a) The waters of the state are held in trust for the public, and the right to use state water may be appropriated only as expressly authorized by law.
(b) Maintaining the biological soundness of the state's rivers, lakes, bays, and estuaries is of great importance to the public's economic health and general well-being.
(c) The legislature has expressly required the commission while balancing all other interests to consider and provide for the freshwater inflows necessary to maintain the viability of the state's bay and estuary systems in the commission's regular granting of permits for the use of state waters.
(d) The legislature has not expressly authorized granting water rights exclusively for:
   (1) instream flows dedicated to environmental needs or inflows to the state's bay and estuary systems; or
   (2) other similar beneficial uses.
(e) The fact that greater pressures and demands are being placed on the water resources of the state makes it of paramount importance to reexamine the process for ensuring that these important priorities are effectively addressed in clear delegations of authority to the commission.

Sec. 11.0236. STUDY COMMISSION ON WATER FOR ENVIRONMENTAL S.B. No. 1639
S.B. No. 1639

FLOWS. (a) In recognition of the importance that the ecological soundness of our riverine, bay, and estuary systems and riparian lands has on the economy, health, and well-being of the state there is created the Study Commission on Water for Environmental Flows.

(b) The study commission is composed of 15 members as follows:

1. two members appointed by the governor;
2. five members appointed by the lieutenant governor;
3. five members appointed by the speaker of the house of representatives;
4. the presiding officer of the commission or the presiding officer's designee;
5. the chairman of the board or the chairman's designee; and
6. the presiding officer of the Parks and Wildlife Commission or the presiding officer's designee.

(c) Of the members appointed under Subsection (b)(2):

1. one member must represent a river authority or municipal water supply agency or authority;
2. one member must represent an entity that is distinguished by its efforts in resource protection; and
3. three members must be members of the senate.

(d) Of the members appointed under Subsection (b)(3):

1. one member must represent a river authority or municipal water supply agency or authority;
2. one member must represent an entity that is distinguished by its efforts in resource protection; and

3
S.B. No. 1639

(3) three members must be members of the house of representatives.

(e) Each appointed member of the study commission serves at the will of the person who appointed the member.

(f) The appointed senator with the most seniority and the appointed house member with the most seniority serve together as co-presiding officers of the study commission.

(g) A member of the study commission is not entitled to receive compensation for service on the study commission but is entitled to reimbursement of the travel expenses incurred by the member while conducting the business of the study commission, as provided by the General Appropriations Act.

(h) The study commission may accept gifts and grants from any source to be used to carry out a function of the study commission.

(i) The commission shall provide staff support for the study commission.

(j) The study commission shall conduct public hearings and study public policy implications for balancing the demands on the water resources of the state resulting from a growing population with the requirements of the riverine, bay, and estuary systems including granting permits for instream flows dedicated to environmental needs or bay and estuary inflows, use of the Texas Water Trust, and any other issues that the study commission determines have importance and relevance to the protection of environmental flows. In evaluating the options for providing adequate environmental flows, the study commission shall take
notice of the strong public policy imperative that exists in this
state recognizing that environmental flows are important to the
biological health of our parks, game preserves, and bay and estuary
systems and are high priorities in the permitting process. The
study commission shall specifically address ways that the
ecological soundness of these systems will be ensured in the water
allocation process.

(k) The study commission:
   (1) shall appoint an advisory scientific committee
that will:
       (A) serve as impartial scientific advisors and
reviewers for the study commission; and
       (B) have a membership of no fewer than five and no
more than nine total members chosen by the study commission to
represent a variety of areas of relevant technical expertise;
   (2) may appoint additional advisory committees to
assist the study commission; and
   (3) may draft proposed legislation to modify existing
water rights permitting statutes.

(1) Not later than December 1, 2004, the study commission
shall issue a report summarizing:
   (1) any hearings conducted by the study commission;
   (2) any studies conducted by the study commission;
   (3) any legislation proposed by the study commission;
   and
   (4) any other findings and recommendations of the
study commission.
(m) The study commission shall promptly deliver copies of the report to the governor, lieutenant governor, and speaker of the house of representatives.

(n) The study commission shall adopt rules to administer this section.

(o) The study commission is abolished and this section expires September 1, 2005.

Sec. 11.0237. WATER RIGHTS FOR INSTREAM FLOWS DEDICATED TO ENVIRONMENTAL NEEDS OR BAY AND ESTUARY INFLOWS. (a) The commission may not issue a new permit for instream flows dedicated to environmental needs or bay and estuary inflows. This section does not prohibit the commission from issuing an amendment to an existing permit or certificate of adjudication to change the use to or add a use for instream flows dedicated to environmental needs or bay and estuary inflows.

(b) This section does not alter the commission's obligations under Section 11.042(b), 11.046(b), 11.085(k)(2)(F), 11.134(b)(3)(D), 11.147, 11.1491, 16.058, or 16.059.

(c) This section expires September 1, 2005.

SECTION 3. Subsections (d) and (e), Section 11.147, Water Code, are amended to read as follows:

(d) In its consideration of an application to store, take, or divert water, the commission shall include in the permit, to the extent practicable when considering all public interests, those conditions considered by the commission necessary to maintain [consider the effect, if any, of the issuance of the permit on] existing instream uses and water quality of the stream or river to
which the application applies.

(e) The commission shall include in the permit, to the extent practicable when considering all public interests, those conditions considered by the commission necessary to maintain [also consider the effect, if any, of the issuance of the permit on] fish and wildlife habitats.

SECTION 4. This Act takes effect immediately if it receives a vote of two-thirds of all the members elected to each house, as provided by Section 39, Article III, Texas Constitution. If this Act does not receive the vote necessary for immediate effect, this Act takes effect September 1, 2003.
President of the Senate                Speaker of the House

I hereby certify that S.B. No. 1639 passed the Senate on May 1, 2003, by the following vote: Yeas 31, Nays 0; May 29, 2003, Senate refused to concur in House amendments and requested appointment of Conference Committee; May 30, 2003, House granted request of the Senate; June 1, 2003, Senate adopted Conference Committee Report by the following vote: Yeas 31, Nays 0.

Secretary of the Senate

I hereby certify that S.B. No. 1639 passed the House, with amendments, on May 23, 2003, by the following vote: Yeas 145, Nays 0, two present not voting; May 30, 2003, House granted request of the Senate for appointment of Conference Committee; June 1, 2003, House adopted Conference Committee Report by the following vote: Yeas 131, Nays 8, two present not voting.

Chief Clerk of the House

Approved:

Date

Governor
APPENDIX C

Article 1, House Committee Substitute Senate Bill 3, 79th Legislative Session
ARTICLE 1. ENVIRONMENTAL FLOWS

SECTION 1.01. The heading to Section 5.506, Water Code, is amended to read as follows:

Sec. 5.506. EMERGENCY SUSPENSION OF PERMIT CONDITION RELATING TO, AND EMERGENCY AUTHORITY TO MAKE AVAILABLE WATER SET ASIDE FOR, BENEFICIAL INFLOWS TO AFFECTED BAYS AND ESTUARIES AND INSTREAM USES.

SECTION 1.02. Section 5.506, Water Code, is amended by adding Subsection (a-1) and amending Subsections (b) and (c) to read as follows:

(a-1) State water that is set aside by the commission to meet the needs for freshwater inflows to affected bays and estuaries and instream uses under Section 11.1471(a)(2) may be made available temporarily for other essential beneficial uses if the commission finds that an emergency exists that cannot practically be resolved in another way.

(b) The commission must give written notice of the proposed action to the Parks and Wildlife Department before the commission suspends a permit condition under Subsection (a) or makes water available temporarily under Subsection (a-1) [this section]. The commission shall give the Parks and Wildlife Department an opportunity to submit comments on the proposed action for a period of 72 hours from receipt of the notice and must consider those comments before issuing an order implementing the proposed action [imposing the suspension].

(c) The commission may suspend a permit condition under Subsection (a) or make water available temporarily under Subsection (a-1) [this section] without notice except as required by Subsection (b).

SECTION 1.03. Subsection (j), Section 5.701, Water Code, is amended to read as follows:

(j) The fee for other uses of water not specifically named in this section is $1 per acre-foot, except that no political subdivision may be required to pay fees to use water for recharge of underground freshwater-bearing sands and aquifers or for abatement of natural pollution. A fee is not required for a water right that is [This fee is waived for applications for instream-use water rights] deposited into the Texas Water Trust.

SECTION 1.04. Section 11.002, Water Code, is amended by adding Subdivisions (15), (16), (17), (18), and (19) to read as follows:

(15) "Environmental flow analysis" means the application of a scientifically derived process for predicting the response of an ecosystem to changes in instream flows or freshwater inflows.

(16) "Environmental flow regime" means a schedule of flow quantities that reflects seasonal and yearly fluctuations that typically would vary geographically, by specific location in a watershed, and that are shown to be adequate to support a sound ecological environment and to maintain the productivity, extent, and persistence of key aquatic habitats in and along the affected water bodies.

(17) "Environmental flow standards" means those requirements adopted by the commission under Section 11.1471.

(18) "Flows commission" means the Environmental Flows Commission.
"Science advisory committee" means the Texas Environmental Flows Science Advisory Committee.

SECTION 1.05. Subsection (a), Section 11.023, Water Code, is amended to read as follows:
(a) To the extent that state water has not been set aside by the commission under Section 11.1471(a)(2) to meet downstream instream flow needs or freshwater inflow needs, state water may be appropriated, stored, or diverted for:
   (1) domestic and municipal uses, including water for sustaining human life and the life of domestic animals;
   (2) agricultural uses and industrial uses, meaning processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, including the development of power by means other than hydroelectric;
   (3) mining and recovery of minerals;
   (4) hydroelectric power;
   (5) navigation;
   (6) recreation and pleasure;
   (7) public parks; and
   (8) game preserves.

SECTION 1.06. Section 11.0235, Water Code, is amended by amending Subsections (c) and (e) and adding Subsections (d-1) through (d-5), and (f) to read as follows:
(c) The legislature has expressly required the commission while balancing all other public interests to consider and, to the extent practicable, provide for the freshwater inflows and instream flows necessary to maintain the viability of the state's streams, rivers, and bay and estuary systems in the commission's regular granting of permits for the use of state waters. As an essential part of the state's environmental flows policy, all permit conditions relating to freshwater inflows to affected bays and estuaries and instream flow needs must be subject to temporary suspension if necessary for water to be applied to essential beneficial uses during emergencies.
(d-1) The legislature finds that to provide certainty in water management and development and to provide adequate protection of the state's streams, rivers, and bays and estuaries, the state must have a process with specific timelines for prompt action to address environmental flow issues in the state's major basin and bay systems, especially those systems in which unappropriated water is still available.
(1) in those basins in which water is available for appropriation, the commission should establish an environmental set-aside below which water should not be available for appropriation; and
(2) in those basins in which the unappropriated water that will be set aside for instream flow and freshwater inflow protection is not sufficient to fully satisfy the environmental flow standards established by the commission, a variety of market approaches, both public and private, for filling the gap must be explored and pursued.
(d-3) The legislature finds that while the state has pioneered tools to address freshwater inflow needs for bays and estuaries, there are limitations to those tools in light of both scientific and public policy evolution. To fully address bay and estuary environmental flow issues, the foundation of work
accomplished by the state should be improved. While the state's instream flow studies program appears to encompass a comprehensive and scientific approach for establishing a process to assess instream flow needs for rivers and streams across the state, more extensive review and examination of the details of the program, which may not be fully developed until the program is under way, are needed to ensure an effective tool for evaluating riverine environmental flow conditions.

(d-4) The legislature finds that the management of water to meet instream flow and freshwater inflow needs should be evaluated on a regular basis and adapted to reflect both improvements in science related to environmental flows and future changes in projected human needs for water. In addition, the development of management strategies for addressing environmental flow needs should be an ongoing, adaptive process that considers and addresses local issues.

(d-5) The legislature finds that recommendations for state action to protect instream flows and freshwater inflows should be developed through a consensus-based, regional approach involving balanced representation of stakeholders and that such a process should be encouraged throughout the state.

(e) The fact that greater pressures and demands are being placed on the water resources of the state makes it of paramount importance to ensure that these important priorities are effectively addressed by detailing how environmental flow standards are to be developed using the environmental studies that have been and are to be performed by the state and others and specifying in clear delegations of authority how those environmental flow standards will be integrated into the regional water planning and water permitting process.

(f) The legislature recognizes that effective implementation of the approach provided by this chapter for protecting instream flows and freshwater inflows will require more effective water rights administration and enforcement systems than are currently available in most areas of the state.

SECTION 1.07. The heading to Section 11.0236, Water Code, is amended to read as follows:
Sec. 11.0236. [STUDY COMMISSION ON WATER FOR ENVIRONMENTAL FLOWS COMMISSION].

SECTION 1.08. Section 11.0236, Water Code, is amended by amending Subsections (a), (b), (c), (e) through (j), (n), and (o) and adding Subsection (p) to read as follows:
(a) In recognition of the importance that the ecological soundness of our riverine, bay, and estuary systems and riparian lands has on the economy, health, and well-being of the state there is created the [Study Commission on Water for Environmental Flows Commission].
(b) The flows [study] commission is composed of nine [15] members as follows:
   (1) three [two] members appointed by the governor;
   (2) three [five] members of the senate appointed by the lieutenant governor; and
   (3) three [five] members of the house of representatives appointed by the speaker of the house of representatives.

   (4) the presiding officer of the commission or the
(5) the chairman of the board or the chairman's designee; and
(6) the presiding officer of the Parks and Wildlife Commission or the presiding officer's designee.

(c) Of the members appointed under Subsection (b)(1):
(1) one member must be a member of the commission;
(2) one member must be a member of the board; and
(3) one member must be a member of the Parks and Wildlife Commission.

(d) [One member must represent a river authority or municipal water supply agency or authority; [One member must represent an entity that is distinguished by its efforts in resource protection; and [Three members must be members of the senate.

(e) Each member of the flows study commission serves at the will of the person who appointed the member.

(f) The appointed senator with the most seniority and the appointed house member with the most seniority serve together as co-presiding officers of the flows study commission.

(g) A member of the flows study commission is not entitled to receive compensation for service on the flows study commission but is entitled to reimbursement of the travel expenses incurred by the member while conducting the business of the flows study commission, as provided by the General Appropriations Act.

(h) The flows study commission may accept gifts and grants from any source to be used to carry out a function of the flows study commission.

(i) The commission shall provide staff support for the flows study commission.

(j) The flows study commission shall conduct public hearings and study public policy implications for balancing the demands on the water resources of the state resulting from a growing population with the requirements of the riverine, bay, and estuary systems including granting permits for instream flows dedicated to environmental needs or bay and estuary inflows, use of the Texas Water Trust, and any other issues that the flows study commission determines have importance and relevance to the protection of environmental flows. In evaluating the options for providing adequate environmental flows, the flows study commission shall take notice of the strong public policy imperative that exists in this state recognizing that environmental flows are important to the biological health of our public and private lands, streams and rivers, parks, game preserves, and bay and estuary systems and are high priorities in the water management permitting process. The flows study commission shall specifically address:
(1) ways that the ecological soundness of those systems will be ensured in the water rights administration and enforcement and water allocation processes; and
(2) appropriate methods to encourage persons voluntarily to convert reasonable amounts of existing water rights to use for environmental flow protection temporarily or permanently.

(n) The flows study commission may adopt rules, procedures, and policies as needed to administer this section, to implement its responsibilities, and to exercise its authority under Sections 11.02361 and 11.02362.
Chapter 2110, Government Code, does not apply to the size, composition, or duration of the flows commission.

Not later than December 1, 2006, and every two years thereafter, the flows commission shall issue and promptly deliver to the governor, lieutenant governor, and speaker of the house of representatives copies of a report summarizing:

1. any hearings conducted by the flows commission;
2. any studies conducted by the flows commission;
3. any legislation proposed by the flows commission;
4. progress made in implementing Sections 11.02361 and 11.02362; and
5. any other findings and recommendations of the flows commission. [The study commission is abolished and this section expires September 1, 2005.]

SECTION 1.09. Subchapter B, Chapter 11, Water Code, is amended by adding Sections 11.02361 and 11.02362 to read as follows:

Sec. 11.02361. Texas Environmental Flows Science Advisory Committee. (a) The Texas Environmental Flows Science Advisory Committee consists of at least five but not more than nine members appointed by the flows commission.

(b) The flows commission shall appoint to the science advisory committee persons who will provide an objective perspective and diverse technical expertise, including expertise in hydrology, hydraulics, water resources, aquatic and terrestrial biology, geomorphology, geology, water quality, computer modeling, and other technical areas pertinent to the evaluation of environmental flows.

(c) Members of the science advisory committee serve five-year terms expiring March 1. A vacancy on the science advisory committee is filled by appointment by the co-presiding officers of the flows commission for the unexpired term.

(d) Chapter 2110, Government Code, does not apply to the size, composition, or duration of the science advisory committee.

(e) The science advisory committee shall:
1. serve as an objective scientific body to advise and make recommendations to the flows commission on issues relating to the science of environmental flow protection; and
2. develop recommendations to help provide overall direction, coordination, and consistency relating to:
   A. environmental flow methodologies for bay and estuary studies and instream flow studies;
   B. environmental flow programs at the commission, the Parks and Wildlife Department, and the board; and
   C. the work of the basin and bay expert science teams described in Section 11.02362.

(f) To assist the flows commission to assess the extent to which the recommendations of the science advisory committee are considered and implemented, the commission, the Parks and Wildlife Department, and the board shall provide written reports to the flows commission, at intervals determined by the flows commission, that describe:
1. the actions taken by each agency in response to each recommendation; and
2. for each recommendation not implemented, the reason it was not implemented.

Sec. 11.02362. Development of Environmental Flow Regime
RECOMMENDATIONS. (a) For the purposes of this section, the flows commission, not later than November 1, 2005, shall define the geographical extent of each river basin and bay system in this state for the sole purpose of developing environmental flow regime recommendations under this section and adoption of environmental flow standards under Section 11.1471.

(b) The flows commission shall give priority in descending order to the following river basin and bay systems of the state for the purpose of developing environmental flow regime recommendations and adopting environmental flow standards:

(1) the river basin and bay system consisting of the Trinity and San Jacinto Rivers and Galveston Bay and the river basin and bay system consisting of the Sabine and Neches Rivers and Sabine Lake Bay;

(2) the river basin and bay system consisting of the Colorado and Lavaca Rivers and Matagorda and Lavaca Bays and the river basin and bay system consisting of the Guadalupe, San Antonio, and Aransas Rivers and Copano, Aransas, and San Antonio Bays; and

(3) the river basin and bay system consisting of the Nueces River and Corpus Christi and Baffin Bays, the river basin and bay system consisting of the Rio Grande, the Rio Grande estuary, and the Lower Laguna Madre, and the Brazos River and its associated bay and estuary system.

(c) For the river basin and bay systems listed in Subsection (b)(1):

(1) the flows commission shall appoint the basin and bay area stakeholders committee not later than November 1, 2005;

(2) the basin and bay area stakeholders committee shall establish a basin and bay expert science team not later than March 1, 2006;

(3) the basin and bay expert science team shall finalize environmental flow regime recommendations and submit them to the basin and bay area stakeholders committee, the flows commission, and the commission not later than March 1, 2007;

(4) the basin and bay area stakeholders committee shall submit to the commission its comments on and recommendations regarding the basin and bay expert science team's recommended environmental flow regime not later than September 1, 2007; and

(5) the commission shall adopt the environmental flow standards as provided by Section 11.1471 not later than September 1, 2008.

(d) The flows commission shall appoint the basin and bay area stakeholders committees for the river basin and bay systems listed in Subsection (b)(2) not later than September 1, 2006, and shall appoint the basin and bay area stakeholders committees for the river basin and bay systems listed in Subsection (b)(3) not later than September 1, 2007. The flows commission shall establish a schedule for the performance of the tasks listed in Subsections (c)(2)-(5) with regard to the river basin and bay systems listed in Subsections (b)(2) and (3) that will result in the adoption of environmental flow standards for that river basin and bay system by the commission as soon as is reasonably possible. Each basin and bay area stakeholders committee and basin and bay expert science team for a river basin and bay system listed in Subsection (b)(2) or (3) shall make recommendations to the flows commission with regard to the schedule applicable to that river basin and bay system. The
flows commission shall consider the recommendations of the basin and bay area stakeholders committee and basin and bay expert science team as well as coordinate with, and give appropriate consideration to the recommendations of, the commission, the Parks and Wildlife Department, and the board in establishing the schedule.

(e) For a river basin and bay system or a river basin that does not have an associated bay system in this state not listed in Subsection (b), the flows commission shall establish a schedule for the development of environmental flow regime recommendations and the adoption of environmental flow standards. The flows commission shall develop the schedule in consultation with the commission, the Parks and Wildlife Department, the board, and the pertinent basin and bay area stakeholders committee and basin and bay expert science team. The flows commission may, on its own initiative or on request, modify a schedule established under this subsection to be more responsive to particular circumstances, local desires, changing conditions, or time-sensitive conflicts. This subsection does not prohibit, in a river basin and bay system for which the flows commission has not yet established a schedule for the development of environmental flow regime recommendations and the adoption of environmental flow standards, an effort to develop information on environmental flow needs and ways in which those needs can be met by a voluntary consensus-building process.

(f) The flows commission shall appoint a basin and bay area stakeholders committee for each river basin and bay system in this state for which a schedule for the development of environmental flow regime recommendations and the adoption of environmental flow standards is specified by or established under Subsection (c), (d), or (e). Chapter 2110, Government Code, does not apply to the size, composition, or duration of a basin and bay area stakeholders committee. Each committee must consist of at least 17 members. The members must represent appropriate stakeholders, including representatives of:

1. agricultural water users;
2. recreational water users, including coastal recreational anglers and businesses supporting water recreation;
3. municipalities;
4. soil and water conservation districts;
5. industrial water users, including representatives of both the manufacturing and refining sectors;
6. commercial fishermen;
7. public interest groups;
8. regional water planning groups;
9. groundwater conservation districts;
10. river authorities and other conservation and reclamation districts with jurisdiction over surface water; and
11. environmental interests.

(g) Members of a basin and bay area stakeholders committee serve five-year terms expiring March 1. If a vacancy occurs on a committee, the remaining members of the committee by majority vote shall appoint a member to serve the remainder of the unexpired term.

(h) Meetings of a basin and bay area stakeholders committee must be open to the public.

(i) Each basin and bay area stakeholders committee shall establish a basin and bay expert science team for the river basin and bay system for which the committee is established. The basin
and bay expert science team must be established not later than six months after the date the basin and bay area stakeholders committee is established. Chapter 2110, Government Code, does not apply to the size, composition, or duration of a basin and bay expert science team. Each basin and bay expert science team must be composed of technical experts with special expertise regarding the river basin and bay system or regarding the development of environmental flow regimes. A person may serve as a member of more than one basin and bay expert science team at the same time.

(j) The members of a basin and bay expert science team serve five-year terms expiring April 1. A vacancy on a basin and bay expert science team is filled by appointment by the pertinent basin and bay area stakeholders committee to serve the remainder of the unexpired term.

(k) The science advisory committee shall appoint one of its members to serve as a liaison to each basin and bay expert science team to facilitate coordination and consistency in environmental flow activities throughout the state. The commission, the Parks and Wildlife Department, and the board shall provide technical assistance to each basin and bay expert science team, including information about the studies conducted under Sections 16.058 and 16.059, and may serve as nonvoting members of the basin and bay expert science team to facilitate the development of environmental flow regime recommendations.

(l) Where reasonably practicable, meetings of a basin and bay expert science team must be open to the public.

(m) Each basin and bay expert science team shall develop environmental flow analyses and a recommended environmental flow regime for the river basin and bay system for which the team is established through a collaborative process designed to achieve a consensus. In developing the analyses and recommendations, the science team must consider all reasonably available science, without regard to the need for the water for other uses, and the science team's recommendations must be based solely on the best science available. For the Rio Grande below Fort Quitman, any uses attributable to Mexican water flows must be excluded from environmental flow regime recommendations.

(n) Each basin and bay expert science team shall submit its environmental flow analyses and environmental flow regime recommendations to the pertinent basin and bay area stakeholders committee, the flows commission, and the commission in accordance with the applicable schedule specified by or established under Subsection (c), (d), or (e). The basin and bay area stakeholders committee and the flows commission may not change the environmental flow analyses or environmental flow regime recommendations of the basin and bay expert science team.

(o) Each basin and bay area stakeholders committee shall review the environmental flow analyses and environmental flow regime recommendations submitted by the committee's basin and bay expert science team and shall consider them in conjunction with other factors, including the present and future needs for water for other uses related to water supply planning in the pertinent river basin and bay system. For the Rio Grande, the basin and bay area stakeholders committee shall also consider the water accounting requirements for any international water sharing treaty, minutes, and agreement applicable to the Rio Grande and the effects on allocation of water by the Rio Grande watermaster in the middle and
lower Rio Grande. The Rio Grande basin and bay expert science team may not recommend any environmental flow regime that would result in a violation of a treaty or court decision. The basin and bay area stakeholders committee shall develop recommendations regarding environmental flow standards and strategies to meet the environmental flow standards and submit those recommendations to the commission and to the flows commission in accordance with the applicable schedule specified by or established under Subsection (c), (d), or (e). In developing its recommendations, the basin and bay area stakeholders committee shall operate on a consensus basis to the maximum extent possible.

(p) In recognition of the importance of adaptive management, after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each basin and bay area stakeholders committee, with the assistance of the pertinent basin and bay expert science team, shall prepare and submit for approval by the flows commission a work plan. The work plan must:

1. establish a periodic review of the basin and bay environmental flow analyses and environmental flow regime recommendations, environmental flow standards, and strategies, to occur at least once every 10 years;
2. prescribe specific monitoring, studies, and activities; and
3. establish a schedule for continuing the validation or refinement of the basin and bay environmental flow analyses and environmental flow regime recommendations, the environmental flow standards adopted by the commission, and the strategies to achieve those standards.

(q) In accordance with the applicable schedule specified by or established under Subsection (c), (d), or (e), the flows commission, with input from the science advisory committee, shall review the environmental flow analyses and environmental flow regime recommendations submitted by each basin and bay expert science team. If appropriate, the flows commission shall submit comments on the analyses and recommendations to the commission for use by the commission in adopting rules under Section 11.1471. Comments must be submitted not later than six months after the date of receipt of the analyses and recommendations.

(r) In the event the commission, by permit or order, has established an estuary advisory council, that council may continue in full force and effect.

SECTION 1.10. Subsections (a) and (b), Section 11.0237, Water Code, are amended to read as follows:

(a) The commission may not issue a new permit for instream flows dedicated to environmental needs or bay and estuary inflows. The [This section does not prohibit the] commission may approve [from issuing] an application to amend [amendment to] an existing permit or certificate of adjudication to change the use to or add a use for instream flows dedicated to environmental needs or bay and estuary inflows.

(b) This section does not alter the commission's obligations under Section 11.042(b), 11.042(c), 11.046(b), 11.085(k)(2)(F), 11.134(b)(3)(D), 11.147, 11.1471, 11.1491, 11.150, 11.152, 16.058, or 16.059.

SECTION 1.11. Subsection (b), Section 11.082, Water Code, is amended to read as follows:
(b) The state may recover the penalties prescribed in Subsection (a) [of this section] by suit brought for that purpose in a court of competent jurisdiction. The state may seek those penalties regardless of whether a watermaster has been appointed for the water division, river basin, or segment of a river basin where the unlawful use is alleged to have occurred.

SECTION 1.12. Section 11.0841, Water Code, is amended by adding Subsection (c) to read as follows:

(c) For purposes of this section, the Parks and Wildlife Department has:

(1) the rights of a holder of a water right that is held in the Texas Water Trust, including the right to file suit in a civil court to prevent the unlawful use of such a right;

(2) the right to act in the same manner that a holder of a water right may act to protect the holder's rights in seeking to prevent any person from appropriating water in violation of a set-aside established by the commission under Section 11.1471 to meet instream flow needs or freshwater inflow needs; and

(3) the right to file suit in a civil court to prevent the unlawful use of a set-aside established under Section 11.1471.

SECTION 1.13. Subsection (a), Section 11.0842, Water Code, is amended to read as follows:

(a) If a person violates this chapter, a rule or order adopted under this chapter or Section 16.236 [of this code], or a permit, certified filing, or certificate of adjudication issued under this chapter, the commission may assess an administrative penalty against that person as provided by this section. The commission may assess an administrative penalty for a violation relating to a water division or a river basin or segment of a river basin regardless of whether a watermaster has been appointed for the water division or river basin or segment of the river basin.

SECTION 1.14. Subsection (a), Section 11.0843, Water Code, is amended to read as follows:

(a) Upon witnessing a violation of this chapter or a rule or order or a water right issued under this chapter, the executive director or a person designated by the executive director, including a watermaster or the watermaster's deputy, [as defined by commission rule,] may issue the alleged violator a field citation alleging that a violation has occurred and providing the alleged violator the option of either:

(1) without admitting to or denying the alleged violation, paying an administrative penalty in accordance with the predetermined penalty amount established under Subsection (b) [of this section] and taking remedial action as provided in the citation; or

(2) requesting a hearing on the alleged violation in accordance with Section 11.0842 [of this code].

SECTION 1.15. Subsection (b), Section 11.134, Water Code, is amended to read as follows:

(b) The commission shall grant the application only if:

(1) the application conforms to the requirements prescribed by this chapter and is accompanied by the prescribed fee;

(2) unappropriated water is available in the source of supply;

(3) the proposed appropriation:

(A) is intended for a beneficial use;
(B) does not impair existing water rights or vested riparian rights;
(C) is not detrimental to the public welfare;
(D) considers any applicable environmental flow standards established under Section 11.1471 and, if applicable, the assessments performed under Sections 11.147(d) and (e) and Sections 11.150, 11.151, and 11.152; and
(E) addresses a water supply need in a manner that is consistent with the state water plan and the relevant approved regional water plan for any area in which the proposed appropriation is located, unless the commission determines that conditions warrant waiver of this requirement; and

(4) the applicant has provided evidence that reasonable diligence will be used to avoid waste and achieve water conservation as defined by [Subdivision (8)(B),] Section 11.002(B) [11.002].

SECTION 1.16. Section 11.147, Water Code, is amended by amending Subsections (b), (d), and (e) and adding Subsections (e-1), (e-2), and (e-3) to read as follows:

(b) In its consideration of an application for a permit to store, take, or divert water, the commission shall assess the effects, if any, of the issuance of the permit on the bays and estuaries of Texas. For permits issued within an area that is 200 river miles of the coast, to commence from the mouth of the river thence inland, the commission shall include in the permit any conditions considered necessary to maintain freshwater inflows to any affected bay and estuary system, to the extent practicable when considering all public interests and the studies mandated by Section 16.058 as evaluated under Section 11.1491[those conditions considered necessary to maintain beneficial inflows to any affected bay and estuary system].

(d) In its consideration of an application to store, take, or divert water, the commission shall include in the permit, to the extent practicable when considering all public interests, those conditions considered by the commission necessary to maintain existing instream uses and water quality of the stream or river to which the application applies. In determining what conditions to include in the permit under this subsection, the commission shall consider among other factors:

(1) the studies mandated by Section 16.059; and
(2) any water quality assessment performed under Section 11.150.

(e) The commission shall include in the permit, to the extent practicable when considering all public interests, those conditions considered by the commission necessary to maintain fish and wildlife habitats. In determining what conditions to include in the permit under this subsection, the commission shall consider any assessment performed under Section 11.152.

(e-1) Any permit for a new appropriation of water or an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted must include a provision allowing the commission to adjust the conditions included in the permit or amended water right to provide for protection of instream flows or freshwater inflows. With respect to an amended water right, the provision may not allow the commission to adjust a condition of the amendment other than a condition that applies only to the increase in the amount of water to be stored, taken, or
diverted authorized by the amendment. This subsection does not
affect an appropriation of or an authorization to store, take, or
divert water under a permit or amendment to a water right issued
before September 1, 2005. The commission shall adjust the
conditions if the commission determines, through an expedited
public comment process, that such an adjustment is appropriate to
achieve compliance with applicable environmental flow standards
adopted under Section 11.1471. The adjustment:
(1) in combination with any previous adjustments made
under this subsection may not increase the amount of the
pass-through or release requirement for the protection of instream
flows or freshwater inflows by more than 12.5 percent of the
annualized total of that requirement contained in the permit as
issued or of that requirement contained in the amended water right
and applicable only to the increase in the amount of water
authorized to be stored, taken, or diverted under the amended water
right;
(2) must be based on appropriate consideration of the
priority dates and diversion locations of any other water rights
granted in the same river basin that are subject to adjustment under
this subsection; and
(3) must be based on appropriate consideration of any
voluntary contributions to the Texas Water Trust that contribute
toward meeting the environmental flow standards.
(e-2) Any water right holder making a contribution
described by Subsection (e-1)(3) is entitled to appropriate credit
of such benefits against adjustments of the holder’s water right
pursuant to Subsection (e-1)(1).
(e-3) Notwithstanding Subsections (b)-(e), for the purpose
of determining the environmental flow conditions necessary to
maintain freshwater inflows to an affected bay and estuary system,
existing instream uses and water quality of a stream or river, or
fish and aquatic wildlife habitats, the commission shall apply any
applicable environmental flow standard, including any
environmental flow set-aside, adopted under Section 11.1471
instead of considering the factors specified by those subsections.
SECTION 1.17. Subchapter D, Chapter 11, Water Code, is
amended by adding Section 11.1471 to read as follows:
Sec. 11.1471. ENVIRONMENTAL FLOW STANDARDS AND SET-ASIDES.
(a) The commission by rule shall:
(1) adopt appropriate environmental flow standards
for each river basin and bay system in this state that are adequate
to support a sound ecological environment, to the maximum extent
reasonable considering other public interests and other relevant
factors;
(2) establish an amount of unappropriated water, if
available, to be set aside to satisfy the environmental flow
standards to the maximum extent reasonable when considering human
water needs; and
(3) establish procedures for implementing an
adjustment of the conditions included in a permit or an amended
water right as provided by Sections 11.147(e-1) and (e-2).
(b) In adopting environmental flow standards for a river
basin and bay system under Subsection (a)(1), the commission shall
consider:
(1) the definition of the geographical extent of the
river basin and bay system adopted by the flows commission under
(a) The recommended environmental flow regime developed by the applicable basin and bay expert science team under Section 11.02362(m); (b) the recommendations regarding environmental flow standards and strategies to meet the flow standards developed by the applicable basin and bay area stakeholders committee under Section 11.02362(o); (c) economic factors; (d) all reasonably available scientific information, including any scientific information provided by the science advisory committee; and (e) any other appropriate information.

(c) Environmental flow standards adopted under Subsection (a)(1) must consist of a schedule of flow quantities, reflecting seasonal and yearly fluctuations that may vary geographically by specific location in a river basin and bay system.

(d) As provided by Section 11.023, the commission may not issue a permit for a new appropriation or an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted if the issuance of the permit or amendment would impair an environmental flow set-aside established under Subsection (a)(2). A permit for a new appropriation or an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted that is issued after the adoption of an applicable environmental flow set-aside must contain appropriate conditions to ensure protection of the environmental flow set-aside.

(e) An environmental flow set-aside established under Subsection (a)(2) for a river basin and bay system other than the middle and lower Rio Grande must be assigned a priority date corresponding to the date the commission receives environmental flow regime recommendations from the applicable basin and bay expert science team and be included in the appropriate water availability models in connection with an application for a permit for a new appropriation or for an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted.

(f) An environmental flow standard or environmental flow set-aside adopted under Subsection (a) may be altered by the commission in a rulemaking process undertaken in accordance with a schedule established by the commission. The commission's schedule may not provide for the rulemaking process to occur more frequently than once every 10 years unless the applicable work plan approved by the flows commission under Section 11.02362(p) provides for a periodic review under that section to occur more frequently than once every 10 years. In that event, the commission may provide for the rulemaking process to be undertaken in conjunction with the periodic review if the commission determines that schedule to be
appropriate.

SECTION 1.18. The heading to Section 11.148, Water Code, is amended to read as follows:

Sec. 11.148. EMERGENCY SUSPENSION OF PERMIT CONDITIONS AND EMERGENCY AUTHORITY TO MAKE AVAILABLE WATER SET ASIDE FOR ENVIRONMENTAL FLOWS.

SECTION 1.19. Section 11.148, Water Code, is amended by adding Subsection (a-1) and amending Subsections (b) and (c) to read as follows:

(a-1) State water that is set aside by the commission to meet the needs for freshwater inflows to affected bays and estuaries and instream uses under Section 11.1471(a)(2) may be made available temporarily for other essential beneficial uses if the commission finds that an emergency exists that cannot practically be resolved in another way.

(b) Before the commission suspends a permit condition under Subsection (a) or makes water available temporarily under Subsection (a-1) of this section, it must give written notice to the Parks and Wildlife Department of the proposed action [suspension]. The commission shall give the Parks and Wildlife Department an opportunity to submit comments on the proposed action [suspension] within 72 hours from such time and the commission shall consider those comments before issuing its order implementing the proposed action [imposing the suspension].

(c) The commission may suspend the permit condition under Subsection (a) or make water available temporarily under Subsection (a-1) without notice to any other interested party other than the Parks and Wildlife Department as provided by Subsection (b) of this section. However, all affected persons shall be notified immediately by publication, and a hearing to determine whether the suspension should be continued shall be held within 15 days of the date on which the order to suspend is issued.

SECTION 1.20. Subsection (a), Section 11.1491, Water Code, is amended to read as follows:

(a) The Parks and Wildlife Department and the commission shall have joint responsibility to review the studies prepared under Section 16.058 of this code, to determine inflow conditions necessary for the bays and estuaries, and to provide information necessary for water resources management. Each agency shall designate an employee to share equally in the oversight of the program. Other responsibilities shall be divided between the Parks and Wildlife Department and the commission to maximize present in-house capabilities of personnel and to minimize costs to the state. Each agency shall have reasonable access to all information produced by the other agency. Publication of reports completed under this section shall be submitted for comment to [both] the commission, [and] the Parks and Wildlife Department, the flows commission, the science advisory committee, and any applicable basin and bay area stakeholders committee and basin and bay expert science team.

SECTION 1.21. Subsection (g), Section 11.329, Water Code, is amended to read as follows:

(g) The commission may not assess costs under this section against a holder of a non-priority hydroelectric right that owns or operates privately owned facilities that collectively have a capacity of less than two megawatts or against a holder of a water right placed in the Texas Water Trust for a term of at least 20
years. [This subsection is not intended to affect in any way the
fees assessed on a water right holder by the commission under
Section 1.29(d), Chapter 626, Acts of the 73rd Legislature, Regular
Session, 1993. For purposes of Section 1.29(d), Chapter 626, Acts
of the 73rd Legislature, Regular Session, 1993, a holder of a
non-priority hydroelectric right that owns or operates privately
owned facilities that collectively have a capacity of less than two
megawatts shall be assessed fees at the same rate per acre-foot
charged to a holder of a non-priority hydroelectric right that owns
or operates privately owned facilities that collectively have a
capacity of more than two megawatts.]}

SECTION 1.22. Subsection (e), Section 11.404, Water Code,
is amended to read as follows:

(e) The court may not assess costs and expenses under this
section against:

(1) a holder of a non-priority hydroelectric right
that owns or operates privately owned facilities that collectively
have a capacity of less than two megawatts; or

(2) a holder of a water right placed in the Texas Water
Trust for a term of at least 20 years.

SECTION 1.23. Subchapter I, Chapter 11, Water Code, is
amended by adding Section 11.4531 to read as follows:

Sec. 11.4531. WATERMASTER ADVISORY COMMITTEE. (a) For
each river basin or segment of a river basin for which the executive
director appoints a watermaster under this subchapter, the
executive director shall appoint a watermaster advisory committee
consisting of at least nine but not more than 15 members. A member
of the advisory committee must be a holder of a water right or a
representative of a holder of a water right in the river basin or
segment of the river basin for which the watermaster is appointed.
In appointing members to the advisory committee, the executive
director shall consider:

(1) geographic representation;

(2) amount of water rights held;

(3) different types of holders of water rights and
users, including water districts, municipal suppliers, irrigators,
and industrial users; and

(4) experience and knowledge of water management
practices.

(b) An advisory committee member is not entitled to
reimbursement of expenses or to compensation.

(c) An advisory committee member serves a two-year term
expiring August 31 of each odd-numbered year and holds office until
a successor is appointed.

(d) The advisory committee shall meet within 30 days after
the date the initial appointments have been made and shall select a
presiding officer to serve a one-year term. The committee shall
meet regularly as necessary.

(e) The advisory committee shall:

(1) make recommendations to the executive director
regarding activities of benefit to the holders of water rights in
the administration and distribution of water to holders of water
rights in the river basin or segment of the river basin for which
the watermaster is appointed;

(2) review and comment to the executive director on
the annual budget of the watermaster operation; and

(3) perform other advisory duties as requested by the
Executive director regarding the watermaster operation or as requested by holders of water rights and considered by the committee to benefit the administration of water rights in the river basin or segment of the river basin for which the watermaster is appointed.

SECTION 1.24. Section 11.454, Water Code, is amended to read as follows:

Sec. 11.454. DUTIES AND AUTHORITY OF THE WATERMASTER. Section 11.327 applies to the duties and authority of a watermaster appointed for a river basin or segment of a river basin under this subchapter in the same manner as that section applies to the duties and authority of a watermaster appointed for a water division under Subchapter G [A watermaster as the agent of the commission and under the executive director's supervision shall:

[(1) divide the water of the streams or other sources of supply of his segment or basin in accordance with the authorized water rights;

[(2) regulate or cause to be regulated the controlling works of reservoirs and diversion works in time of water shortage, as is necessary because of the rights existing in the streams of his segment or basin, or as is necessary to prevent the waste of water or its diversion, taking, storage, or use in excess of the quantities to which the holders of water rights are lawfully entitled; and

[(3) perform any other duties and exercise any authority directed by the commission].

SECTION 1.25. Section 11.455, Water Code, is amended to read as follows:

Sec. 11.455. COMPENSATION AND EXPENSES OF WATERMASTER [ASSESSMENTS]. (a) Section 11.329 applies to the payment of the compensation and expenses of a watermaster appointed for a river basin or segment of a river basin under this subchapter in the same manner as that section applies to the payment of the compensation and expenses of a watermaster appointed for a water division under Subchapter G.

(b) The executive director shall deposit the assessments collected under this section to the credit of the watermaster fund.

(c) Money deposited under this section to the credit of the watermaster fund may be used only for the purposes specified by Section 11.3291 with regard to the watermaster operation under this subchapter with regard to which the assessments were collected [The commission may assess the costs of the watermaster against all persons who hold water rights in the river basin or segment of the river basin under the watermaster's jurisdiction in accordance with Section 11.329 of this code].

SECTION 1.26. Subchapter F, Chapter 15, Water Code, is amended by adding Section 15.4063 to read as follows:

Sec. 15.4063. ENVIRONMENTAL FLOWS FUNDING. The board may authorize the use of money in the research and planning fund:

(1) to compensate the members of the Texas Environmental Flows Science Advisory Committee established under Section 11.02361 for attendance and participation at meetings of the committee and for transportation, meals, lodging, or other travel expenses associated with attendance at those meetings as provided by the General Appropriations Act;

(2) for contracts with cooperating state and federal agencies and universities and with private entities as necessary to
provide technical assistance to enable the Texas Environmental Flows Science Advisory Committee and the basin and bay expert science teams established under Section 11.02362 to perform their statutory duties;

(3) to compensate the members of the expert science teams created pursuant to Section 11.02362(i) for attendance and participation at meetings of the teams and for transportation, meals, lodging, or other travel expenses associated with attendance at those meetings as provided by the General Appropriations Act; and

(4) for contracts with political subdivisions designated as representatives of stakeholder committees established pursuant to Section 11.02362 to fund all or part of the administrative expenses for conducting meetings of the stakeholder committee or the associated expert science team.

SECTION 1.27. Section 15.7031, Water Code, is amended by amending Subsection (c) and adding Subsection (e) to read as follows:

(c) The dedication of any water rights placed in trust must be reviewed and approved by the commission, in consultation with the board, the Parks and Wildlife Department, and the Environmental Flows Commission. In addition, the Department of Agriculture and the basin and bay area stakeholders committee and basin and bay expert science team established under Section 11.02362 for the river basin and bay system to which the water right pertains may provide input to the commission, as appropriate, during the review and approval process for dedication of water rights.

(e) While a water right is held in the trust, the water authorized for beneficial use under the terms of the water right is considered to be held for instream flows, water quality, fish and wildlife habitat, bay and estuary inflows, or other environmental uses without the need for a permit amendment. After the water right is withdrawn in whole or in part from the trust, the use of the water right or portion of the water right withdrawn must be in accordance with the terms of the water right.

SECTION 1.28. Subsection (d), Section 16.059, Water Code, is amended to read as follows:

(d) The priority studies shall be completed not later than December 31, 2014. The Parks and Wildlife Department, the commission, and the board shall establish a work plan that prioritizes the studies and that sets interim deadlines providing for publication of flow determinations for individual rivers and streams on a reasonably consistent basis throughout the prescribed study period. Before publication, completed studies shall be submitted for comment to the commission, the board, and the Parks and Wildlife Department.

SECTION 1.29. Subsection (h), Section 26.0135, Water Code, as amended by Chapters 234 and 965, Acts of the 77th Legislature, Regular Session, 2001, is reenacted and amended to read as follows:

(h) The commission shall apportion, assess, and recover the reasonable costs of administering the water quality management programs under this section from users of water and wastewater permit holders in the watershed according to the records of the commission generally in proportion to their right, through permit or contract, to use water from and discharge wastewater in the watershed. Irrigation water rights, non-priority
hydroelectric rights of a water right holder that owns or operates privately owned facilities that collectively have a capacity of less than two megawatts, and water rights held in the Texas Water Trust for terms of at least 20 years will not be subject to this assessment. The cost to river authorities and others to conduct water quality monitoring and assessment shall be subject to prior review and approval by the commission as to methods of allocation and total amount to be recovered. The commission shall adopt rules to supervise and implement the water quality monitoring, assessment, and associated costs. The rules shall ensure that water users and wastewater dischargers do not pay excessive amounts, that program funds are equitably apportioned among basins, that a river authority may recover no more than the actual costs of administering the water quality management programs called for in this section, and that no municipality shall be assessed cost for any efforts that duplicate water quality management activities described in Section 26.177 [of this chapter]. The rules concerning the apportionment and assessment of reasonable costs shall provide for a recovery of not more than $5,000,000 annually. Costs recovered by the commission are to be deposited to the credit of the water resource management account and may be used only to accomplish the purposes of this section. The commission may apply not more than 10 percent of the costs recovered annually toward the commission's overhead costs for the administration of this section and the implementation of regional water quality assessments. The commission, with the assistance and input of each river authority, shall file a written report accounting for the costs recovered under this section with the governor, the lieutenant governor, and the speaker of the house of representatives on or before December 1 of each even-numbered year.

SECTION 1.30. Subsections (d), (k), (l), and (m), Section 11.0236, Subsection (c), Section 11.0237, and Subsection (b), Section 11.1491, Water Code, are repealed.

SECTION 1.31. The Study Commission on Water for Environmental Flows is abolished on the effective date of this Act.

SECTION 1.32. (a) The governor, lieutenant governor, and speaker of the house of representatives shall appoint the initial members of the Environmental Flows Commission as provided by Section 11.0236, Water Code, as amended by this article, as soon as practicable on or after the effective date of this Act.

(b) As soon as practicable after taking office, the initial members of the Environmental Flows Commission shall appoint the initial members of the Texas Environmental Flows Science Advisory Committee as provided by Section 11.02361, Water Code, as added by this article. The terms of the initial members of the committee expire March 1, 2010.

(c) The Environmental Flows Commission shall appoint the members of each basin and bay area stakeholders committee as provided by Section 11.02362, Water Code, as added by this article. The terms of the initial members of each committee expire March 1 of the fifth year that begins after the year in which the initial appointments are made.

(d) Each basin and bay area stakeholders committee shall appoint the members of the basin and bay expert science team for the river basin and bay system for which the committee is established as provided by Section 11.02362, Water Code, as added by this article. The terms of the initial members of each team expire April 1 of the
fifth year that begins after the year in which the initial appointments are made.

(e) The executive director of the Texas Commission on Environmental Quality shall appoint the members of the watermaster advisory committee under Section 11.4531, Water Code, as added by this article, for each river basin or segment of a river basin for which the executive director appoints a watermaster under Subchapter I, Chapter 11, Water Code. The terms of the initial members of each committee expire August 31 of the first odd-numbered year that begins after the year in which the initial appointments are made.

SECTION 1.33. The changes in law made by this article relating to a permit for a new appropriation of water or to an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted apply only to:

(1) water appropriated under a permit for a new appropriation of water the application for which is pending with the Texas Commission on Environmental Quality on the effective date of this article or is filed with the commission on or after that date; or

(2) the increase in the amount of water authorized to be stored, taken, or diverted under an amendment to an existing water right that increases the amount of water authorized to be stored, taken, or diverted and the application for which is pending with the Texas Commission on Environmental Quality on the effective date of this article or is filed with the commission on or after that date.
APPENDIX D

Public Comment
This appendix contains all handouts provided by individuals who testified at the
Environmental Flows Advisory Committee meetings. Electronic copies of these materials
as well as audio recording of the presentations may be downloaded at the following
location: http://www.twdb.state.tx.us/EnvironmentalFlows/index.html
All letters sent to the Committee are also included in this appendix.
Mr. Chairman, Committee Members, my name is Bob Brandes. I want to report today on the activities and findings of the Science Advisory Committee that was created by the previous Study Commission on Water for Environmental Flows. Senate Bill 1639 of the 78th Legislature established the Study Commission on Water for Environmental Flows to address ways to help protect environmental flows for rivers and streams and for bays and estuaries, while taking into consideration and balancing the demands on the water resources of the State resulting from a growing population.

The Science Advisory Committee, or SAC, was appointed by the Study Commission at its first meeting in February of 2004 to serve as advisors and reviewers with regard to matters dealing with environmental flows. It was comprised of nine members with technical expertise in a broad range of disciplines relevant to the consideration of environmental flow issues, including hydrology, water resources, biology, climatology, statistics, tidal mechanics, computer modeling, resource economics, water marketing, and environmental management. The SAC included the following members:

- Dr. George Ward, Center for Research in Water Resources
  University of Texas at Austin
- Dwight Shellman, Caddo Lake Institute
- Dr. Larry Hauck, Texas Institute for Applied Environmental Research
  Tarleton State University
- Dr. Paul Montagna, Marine Science Institute, University of Texas
- Dr. Bill Harris, Texas Water Resources Institute
  Texas A & M University
- Jeff Taylor, Water Utilities, City of Houston
- Clay Landry, WestWater Research
- Dr. Mitch Mathis, Houston Advanced Research Center
- Dr. Robert J. Brandes, R. J. Brandes Company

I served as chairman of the Committee.
At the outset, the Study Commission presented this Science Advisory Committee with four charges, which provided the general framework for the various activities undertaken by the SAC. The four charges were:

1. Describe the current hydrologic conditions and streamflow and freshwater inflow patterns of the State relative to historical and existing environmental flows.

2. Evaluate the analytical tools and procedures used or available for assessing the flow requirements for preservation, maintenance, or enhancement of aquatic resources and riparian habitat.

3. Identify ecological parameters or ecosystem characteristics to be considered in determining environmental flow needs and identification of implementation options.

4. Provide any other technical information the Committee felt would be beneficial to the Study Commission.

Over the course of eight months, the Science Advisory Committee held three public meetings and convened via teleconferences on numerous occasions. At its first meeting, the SAC developed an outline of topics and issues that were to be addressed in its report to the Study Commission in response to the specific charges from the Commission. Considerable effort went into compiling information, reviewing documents, and discussing various aspects of environmental flows with State agency staff and among Committee members.

Staff from the Texas Commission on Environmental Quality, the Texas Water Development Board and the Texas Parks and Wildlife Department presented information to the SAC regarding: (1) the State’s general hydrologic and climatic conditions and the aquatic biological resources of the State as they relate to environmental flows; (2) TCEQ’s water rights permitting processes, particularly as they involve consideration of environmental flows; (3) various methodologies and procedures currently utilized by the State agencies to determine environmental flow needs; and (4) the different programs currently underway in the State to examine and evaluate environmental flow requirements for rivers and streams and for bays and estuaries. Staff from the State agencies also provided initial drafts for several sections of the SAC report. The SAC members reviewed and refined these sections, wrote new sections, and finally organized the documents into a comprehensive final report that was submitted to the Study Commission on October 26, 2004.

In its final report, the Science Advisory Committee attempted to provide the information specifically required to fulfill the Study Commission’s charges. Undoubtedly, with more time and effort, more extensive information could have been assembled and reviewed and broader aspects of environmental flows could have been considered, but it was the Committee’s opinion at the time and mine today that the conclusions of the SAC still would be essentially the same. It is believed that the information presented in the final SAC report provides the essential scientific basis for proceeding with an effort to improve the State’s environmental flow methodologies and programs so that more effective means for protecting environmental flows across the State can be structured and implemented.
It is important to understand that the issues surrounding the science of determining appropriate environmental flow regimes for both riverine systems and estuarine systems are extremely complex and involve a number of interrelated natural hydrologic, biological, chemical, ecological and physiographic processes. It is not an easy problem to solve and is subject to wide variations in answers that are perceived to be based on sound science. Indeed, the State agencies have been dealing with this complex problem for many years, and they are to be commended for the pioneering work that has been done and the wealth of information that has been assembled. Still, it has been the opinion of the Science Advisory Committee that there are improvements to be made and that environmental flow issues are deserving of more in-depth analyses in order for the State to achieve and implement more effective and responsive environmental flow protection measures.

Chapter 8 of the SAC report provides a summary of the Committee’s observations and findings and lists key points the Committee wanted to convey related to the four charges issued by the Study Commission. In closing, I would like to briefly review the Committee’s primary observations:

1. **A “one-size-fits-all” answer is not appropriate for Texas.** - The drastic variations in climate, hydrology and aquatic environments across the State must be recognized and considered when recommending appropriate levels of environmental flows. Still, uniformity and consistency among methods for determining environmental flow needs in the different systems are important. In the future, as in the past, basin and subbasin scientific studies of environmental flow requirements must be devised and then implemented.

2. **Future scientific studies need to focus in more detail on the specific relationships between sound ecological environment and streamflows.** - Scientific efforts should be directed toward defining what constitutes a sound ecological environment and what relationships are important between streamflows and the biology and physical conditions of riverine and estuarine systems. It is only from such scientifically established relations that the environmental flows necessary to maintain a sound ecological environmental can be determined. More comprehensive management of aquatic ecosystems, including habitat, is needed.

3. **Completion of the Texas Instream Flow Studies program and improvement of the bays and estuaries freshwater inflow studies are essential.** – The State’s ongoing programs addressing environmental flow issues and needs for riverine systems and for estuarine systems are critical elements in the overall effort to achieve appropriate environmental flow protection across the State, but they need to be improved and completed.

4. **Participation by stakeholders and water interests in the State’s environmental flow programs and rigorous scientific review are of paramount importance to achieving acceptable environmental flows.** - Only through a transparent process can appropriate scientific methods be employed and scientific results be formulated.

5. **For evaluating environmental flows for rivers and streams, statistical desk-top methods and associated analyses must be enhanced to facilitate regulatory permitting actions until such time as the Texas Instream Flow Studies program is completed.** - Current desk-top methods used by the State in permitting and planning when extensive
field studies are not warranted, specifically the Lyons Method and the Consensus Planning Criteria Method, have limitations as currently applied. Enhanced desk-top methods specifically tailored and adapted to Texas conditions are needed prior to the completion of the Texas Instream Flow Studies program. A body of professionals should be charged with assisting the State in conducting a review of currently available assessment tools and developing more appropriate alternative methodologies for riverine conditions.

6. The TWDB’s State Methodology and the TPWD’s “verification” process that are used to develop freshwater inflow recommendations for the State’s bays and estuaries exhibit scientific shortcomings that must be addressed. - The measure of species abundance used is commercial harvest (except for some of the more recent inflow recommendations), which has a poor relation to ecological soundness; the various statistical methods employed are questionable, including regression forms and definition of independent variables; the resulting “optimum” inflow regime is mainly determined by constraints, which are arbitrarily specified; and the optimum solution bears no relation to actual harvests, nor do the optimum patterns of inflow occur in natural hydrology. The TPWD’s verification process is actually a comparative analysis between different inflow solutions, and favors the optimal solution with the greater inflow to the bay. One of the most important questions relating to management of inflows to the Texas bays is unanswered by the State Methodology and the TPWD verification analysis, namely under drought conditions what inflows must a bay receive to maintain its ecosystem over the long term. This is especially important with respect to water rights permitting and planning, both of which are based on drought conditions. The State’s B&E freshwater inflow programs need to satisfactorily address these issues.

7. Adaptive management and precautionary principle methods must be incorporated into the scientific study, management strategy implementation, and regulatory permitting phases of future environmental flow activities. - Present science is complex, inexact, and subject to varying levels of uncertainty. Adaptive management procedures offer a means for accommodating change as future improved science becomes available. Such procedures could be incorporated into existing permitting practices, but reasonable and scientifically-determined boundaries on future changes also must be considered to limit risks to both the public’s water supply and the need for environment flows.

8. There are both regulatory strategies and market-based strategies that can be used to provide for environmental flows. The State currently has mechanisms for both. Special conditions in water rights permits provide for minimum levels of flow that must be passed for environmental purposes before water can be diverted or impounded for human use. The Texas Water Trust provides a means for dedicating existing water rights for environmental flow needs for a specific term without the threat of cancellation. Further evaluation of existing and alternative regulatory and market-based approaches should be explored to provide for a more comprehensive and effective environmental flow program that addresses both riverine and estuarine needs for the State.

This concludes my remarks today. I will be happy to address questions at the appropriate time.
Current Status of the Instream Flow and Bays and Estuaries Programs

Barney Austin, TWDB

Environmental Flows

B&E - Legislative Mandates

- ...monitor effects of freshwater inflows on the bays and estuaries (TWC 16.012)
- ...determine bay conditions necessary to support a sound ecological environment (TWC 16.058)
- Maintenance of economically important and ecologically characteristic fisheries productivity (TWC 11.147(a))

The Process of Developing FWI Recommendations

Objectives & Constraints

Verification

Nutrient Analysis

Fisheries Analysis

Hydrology

Sediment Analysis

Hydrographic Survey

TxBLEND

TxEEMP

Optimization Model

Wetlands

TxEEMP MinQ and MaxH Solutions

TPWD Recommendation
Ongoing Activities

- Minor Estuaries
  - Monitoring and evaluation
- Matagorda Bay Health Evaluation
  - Water to San Antonio
  - Working with consultants

Instream Flows - Legislative Mandates

The Texas Legislature directed three natural resource agencies to (TWC 16.059):

- Jointly establish and continuously maintain an instream flow data collection and evaluation program, and
- Develop methodologies to determine flow conditions in Texas rivers and streams necessary to support a sound ecological environment.

Comparison of Model Solutions to Historical Inflows

Ongoing Activities

- Galveston Bay Stakeholder Process
  - Science is evolving and improving
  - New data available
  - Concern from some stakeholders
  - Technical subcommittee

Joint Study Accomplishments:

- Interagency MOA (Executed: Oct 17, 2002)
- Programmatic Work Plan (Final: Dec 19, 2002)
- Technical Overview (Draft: August 8, 2003)
Ongoing Activities

- Revise Instream Flow Methodology
  - Present to stakeholders for input
  - Workshops
  - Finalize
- Geomorphology workshop
- Texas Rivers

Questions?

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Texas Water Development Board
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(512) 463-8856
Columbia Basin Water Transactions Program
CBWTP
Environmental Flows Advisory Committee, May 9th, 2006

“Whiskey’s for drinking, water’s for fightin’ over.”
– Mark Twain

Discussing Water Rights

A New Dialogue
Andrew Purkey
Program Director, NFWF, Since 2003
Executive Director, OWT, 1994-2002

Grassroots Progress

“The winners in this situation are the wildlife, the fish, the stream condition, me, the economics of the community - everybody wins.”
– Delbert Hawkins, Montana rancher

Guiding Frameworks

NOAA Fisheries
Northwest Power and Conservation Council

Established in 2002

CBWTP
The Partnership Approach

QLE = “Qualified Local Entity”
Three agencies and seven non-profits in Idaho, Montana, Oregon and Washington
1) Idaho Department of Water Resources
2) Trout Unlimited – Montana Water Project
3) Montana Water Trust
4) Bonneville Environmental Foundation
5) Deschutes River Conservancy
6) Oregon Water Resources Department
7) Oregon Water Trust
8) Walla Walla Watershed Alliance
9) Washington Department of Ecology
10) Washington Water Trust

State Agency Collaboration

State Agency QLEs: IDWR + OWRD + WDOE = Support

Communities are Key Partners

QLEs + Producers + Water Managers + Citizens = Success

Columbia Basin: The Big Picture

7,000,000 irrigated acres = 1 irrigated acre/person

The Challenge: Over Appropriation

Average August flow versus total water rights
Low Stream Flows + High Temperatures = Water Quality Concerns

The Problem: Low Flow

The Solution

Find Balance in the Basin

Improve fish & wildlife habitat: more water instream

The Solution

Respect private property rights & irrigated agriculture

The Solution

Work locally with market-based strategies

Program Objectives in the Basin

Sustaining an Agricultural Economy
Restoring Fish & Wildlife

1) Innovative and ecologically significant transactions
2) Awareness and support
3) Capacity to implement and monitor
Priority Sub-basins

Stream Prioritization

Water Transactions: Key Factors Considered by CBWTP

- Salmonid stock status and species diversity
- Off-Channel habitat diversity and condition
- Riparian Conditions
- Substrate Conditions
- Passage Conditions
- Extent that flow limits salmonids
- Mean monthly flow of the stream during summer months

Transaction Review Process

1. QLEs propose transactions
2. CBWTP Advisory Committee reviews
3. CBWTP submits recommendations to BPA and NPCC
4. BPA makes final decisions on NPCC approved projects
5. Invoice and payment process

2005 Significant Transactions

FY2005 Water Transaction Summary
- 42 deals
- 873 miles of streams enhanced

Water Instream
- 303 cubic feet per second (136,027 gallons per minute)
- 65,997 acre feet of water (1,657,993 longterm)
- 19,154 acre feet of additional water from FY 03 and 04

FY2005 Transaction Funding
- Total water cost: $2,176,536
- BPA water funding: $1,204,772
- Water cost share: $974,575

So What?

Imagine water...for tributaries that need it
More Flow!

Water in appropriate times and places to produce the greatest benefits

More elasticity for producers and for biological systems

Transaction Highlights

Taneum Creek

Washington Water Trust
- 28.8 cfs of winter stock water instream
- Source switch to groundwater

Austin Ranch/Middle Fork John Day

Oregon Water Trust
- 10 cfs enhances 70-mile Middle Fork and $10 million restoration
- Shorten late-season irrigation

Lemhi River

Idaho Dept. of Water Resources
- Multi-partner transaction
- Lease agreement for early and late-season

Painted Rocks Reservoir-Bitterroot River

Trout Unlimited-Montana Water Project
- 10,000 af of water increases base flows/reduces temp
- Permanent acquisition of stored water
Deschutes River Conservancy
• More than doubled average summer flow of Middle Deschutes
  • AWLP, conserved water, permanent acquisition

Montana Water Trust
• Flows for a stream dewatered 9 of every 10 years
  • Six year storage release agreement

Awareness & Support
QLE meetings with field trips build capacity and track progress

Building Capacity in Partners
Monitoring and Evaluation

Challenges of an Emerging Water Market
Economics
Measuring Success
Cost of Doing Business

$1 institutional investments for every $1 in water transactions

Categories of Expense

Building Social Capital
Navigating State Water Law
Valuing Water
Monitoring Results

Measuring Success

Compliance
Hydrology
Biology

Future: Changes in Demand

Warming = Spring snowpack reduction and lower Summer streamflows.

Future: Changes in Supply

Contact CBWTP

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Legislative background regarding environmental flows for bays and estuaries and instream flows

- In 1967, the Texas Water Development Board initiated a cooperative program with the U.S. Geological Survey to collect data on the estuaries of Texas.

- The development of the Texas Water Plan, adopted in 1969, recognized the need for a comprehensive data base and a reliable set of techniques and criteria for measuring the response of estuarine ecosystems to varying amounts and regimes of freshwater inflows in order to understand the dynamics of the natural systems.

- Although there were several limited programs underway in 1968, none filled the bill as truly comprehensive. Therefore, through an interagency cooperative effort, a program was designed and implemented to assess the effects of freshwater inflows on the bays and estuaries.

- In 1973, the Texas Senate passed a Concurrent Resolution 101, declaring that: “a sufficient inflow of freshwater is necessary to protect and maintain the ecological health of Texas estuaries and related marine resources.”

- In 1975, the 64th TX Leg. Enacted SB 137, a mandate for comprehensive studies of “the effects of freshwater inflow upon the bays and estuaries of Texas.”

- Established public policy stated in the TX Water Code (Section 1.003 as amended, Acts 1975) provides for the conservation and development of the State’s natural resources, including “the maintenance of a proper ecological environment of the bays and estuaries of Texas and the health of living marine resources.” Senate Resolution 267 (64th Legislature, 1975) echoed the 1973 Senate Concurrent Resolution declaring that: “a sufficient inflow of freshwater is necessary to protect and maintain the ecological health of Texas estuaries and related living marine resources.”

- In 1975, the 64th Legislature amended Chapter 344 of the Water Code to include §5.145-Effects of Permits on Bays and Estuaries. This section stated: “In its consideration of an application for a permit to store, take, or divert water, the commission shall assess the effects, if any, of the issuance of such permit upon the bays and estuaries of Texas.”

- In 1977, the 65th Legislature revised Title 2 of the Water Code and §5.145 became §11.147.

- In 1977, the 65th Legislature amended the Water Code to add §16.058-Collection of Bays and Estuaries Data: Conduct of Studies, which directed TPWD and TWDB, in cooperation with other appropriate governmental agencies, “to establish and maintain on a continuous basis a bay and estuary data collection and evaluation program and conduct studies and analyses to determine bay conditions necessary to support a sound ecological environment.”

- In 1977, the 65th Legislature amended the Water Code to add §16.195-Emergency Releases
of Water, which provided for the release of "...unappropriated water and other water of the state stored in any facility acquired by and under the control of the board..." to relieve any emergency condition arising from drought, severe water shortage, or public calamity, if the commission first determines the existence of the emergency and requests the board to release water.

- In 1985, the 69th Legislature amended the Water Code to add §16.1331-Reservation and Appropriation for Bays and Estuaries and Instream Uses, which provided for 5% of the firm yield of a reservoir constructed within 200 river miles of the coast and with state financial participation, be assigned to TPWD as an appropriation for use to make releases to bays and estuaries and for instream uses.

- In 1985, the 69th Legislature expanded to §11.147 to define "beneficial inflows", provide for permit conditions to maintain beneficial inflows, and guidance for making determinations for permit conditions. In addition, the Legislature added consideration of "existing instream uses", "water quality", and "fish and wildlife habitats."

- The 69th Legislature also added additional Sections... §11.148-Emergency Suspension of Permit Conditions; §11.149-Collection of Bays and Estuaries Data; §11.150-Effects of Permits on Water Quality; and §11.152-Effects of Permits on Fish and Wildlife Habitats. Section 11.149 provided that TPWD and the TWC would have joint responsibility to review the studies prepared under §16.058, and "...to determine inflow conditions necessary for the bays and estuaries, and to provide information necessary for water resources management."

- In 1985, the 69th Legislature, passed HB 2, which directed the TPWD and TWDB to establish and maintain a continuous data collection and analytical study program and to complete a second series of bay and estuary inflow studies by December 31, 1989 (§16.058, TX Water Code).

- In 1987, the 70th Legislature, passed SB 683, adding clarifying amendments to §16.058 and amended Water Code Sections 11.149 to renumber (it became 11.1491) and substitute a new section heading (Substituted "Evaluation" for "Collection".)

- In 1997, the 75th Legislature, passed SB 1, a comprehensive water resource management bill establishing, in part, the Regional Water Planning Process, and providing additional guidance on the use of state waters for recognized beneficial uses. Of note were the provisions included to weigh the effect of amendments to water rights on the environment, reuse, interbasin transfers, and water right cancellation.

- In 2001, the 77th Legislature, passed SB 2, a follow-up to SB 1 (1997), which included, in part, the creation of the TX Water Advisory Council and a new section for the Water Code (16.059) entitled: Collection of Instream Flow Data; Conduct of Studies. The instream flow provisions were tailored similar to the Water Code provisions for the Bay and Estuary Studies.
In 2003, the 78th Legislature passed **SB 1639**, relating to the waters of the state. The bill included a section on policy regarding waters of the state, and established the Study Commission on Water for Environmental Flows. The Study Commission was charged to: “...conduct public hearings and study public policy implications for balancing the demands on the water resources of the state resulting from a growing population with the requirements of the riverine, bay, and estuary systems including the granting of permits for instream flows dedicated to environmental needs or bay and estuary inflows...” The bill also contained a provision stating the TCEQ could not issue a (stand-alone) new permit for instream flows or for freshwater inflows to the estuaries.
By 9/1/05, Flows Commission defines geographical extent of the basin/bay systems for which environmental flow recommendations and standards will be defined.

Environmental Flows Commission

Flows Commission appoints BBASC

Texas Environmental Flows Science Advisory Committee

Flows Commission appoints BBASC for other priority basins and, in consultation with them, develops schedule for following the new process. Other areas of the state may proceed with voluntary consensus efforts.

Bay/Basin Area Stakeholder Committee (BBASC)

BBASC appoints

BBASC appoints BBASC for other priority basins and, in consultation with them, develops schedule for following the new process. Other areas of the state may proceed with voluntary consensus efforts.

Bay/Basin Expert Science Team (BBEST)

TWDB, TPWD, and TCEQ provide information, data, and technical assistance for process

TWDB, TPWD and TCEQ continue joint B&E and instream studies as provided under current law.

Member of state science advisory committee serves as liaison to BBEST

BBEST develops science-based environmental flow regime recommendations

TCEQ

BBASC Comments and Recommendations

BBASC Comments and Recommendations

TCEQ adopts environmental flow standards (including set-aside).

Public input to rulemaking

BBEST, TCEQ, based on adaptive management principles.
TWCA Environmental Flow Policy Statement

1. TWCA supports legislation confirming that Texas Commission on Environmental Quality (TCEQ) currently lacks authority to issue new water rights for instream uses or bays and estuaries.

2. TWCA supports usage of the Water Trust as the mechanism for dedication of existing water rights through purchase or donation, whether permanent or temporary, to satisfy environmental flow needs. Dedication, whether permanent or temporary, of an existing water right to the Water Trust requires a water right amendment consistent with the provisions of Section 11.122(b). The Texas Water Development Board should administer the Trust.

3. TWCA continues to oppose legislation, TCEQ rules or any action by the TCEQ to involuntarily impose upon existing water rights requirements for environmental flows except to the extent such requirement(s) were imposed in the existing water right as a permit condition. (TWCA General Policy #23)

4. TWCA supports the TCEQ’s application of the “no injury rule” as set forth in Section 11.122(b) in its consideration of whether requirements for environmental flows may be imposed on an applicant seeking to amend an existing water right.

5. TWCA supports use of a regional planning process (referred to as the Basin Environmental Flows Plan) as the appropriate mechanism to determine instream and bay and estuary needs on a basin-by-basin basis, and to recommend strategies for meeting those needs as well as those for water quality. TWCA envisions a process much like that followed under SB 1 to integrate the basin-wide review of environmental flow needs, record recommendations into regional plans, as appropriate, and subsequently incorporate those plans into the State Water Plan.

6. TWCA strongly emphasizes that environmental flow needs must be defined not only in terms of desired water quantities, but also in terms of the quality, seasonality, and frequency with which such quantities must be available to ensure the long-term health and welfare of species dependent upon instream flows and freshwater inflows to bays and estuaries. Basin Environmental Flow Plans and other means of ensuring environmental flows must include appropriate drought contingency provisions consistent with the Texas climate and maintaining balance between competing demands for economical water supply and environmental flows.

7. Environmental flow recommendations in an approved Basin Environmental Flows Plan shall be more formally established through TCEQ rulemaking with recognition that environmental flow recommendations may be met, in part or in full, through existing terms or conditions in existing water rights, through water rights held, either permanently or temporarily, in the Water Trust, and through reservations from future appropriations.
8. TWCA believes that the existing Regional Water Plan enabling legislation provides an excellent framework for basin environmental planning and the development of environmental flow recommendations on a basin-by-basin basis. The Legislature should consider the delineation of planning areas based upon the seven major bay and estuary systems along the Texas coast.

9. TWCA supports legislation that would adopt a process to identify and prioritize the order in which applicable basins should develop a Basin Environmental Flows Plan. The process should require consultation among the environmental agencies, environmental groups, water right holders, river authorities and districts and other stakeholders.

10. TWCA supports legislation confirming a permit holder’s right to seek TCEQ review of any permit condition requiring environmental flows for consistency with the approved Basin Environmental Flows Plan.

11. TWCA supports Statewide funding of water related infrastructure projects consistent with the State Water Plan, including funding as may be necessary for the State to acquire water rights for environmental needs consistent with the approved Basin Environmental Flows Plan. (TWCA Policy #25).

12. TWCA supports continued State funding of data collection and scientific studies necessary to improve the understanding of diverse factors affecting the long-term health and welfare of species dependent upon instream flows and freshwater inflows to bays and estuaries. TWCA further recognizes that diligence in these efforts is essential to measure the effectiveness of Basin Environmental Flow Plans and validate commitments to meeting environmental flow needs.

13. TWCA supports the creation of watermaster operations in areas which have historically experienced a significant number of compliance issues during drought conditions. Water rights placed in the Texas Water Trust should be subject to watermaster fees. Planning groups may make recommendations regarding the creation of watermaster operations in their planning areas, as well as recommendations for an equitable distribution of costs among water right holders.

14. TWCA supports the current statutory framework for water rights cancellation. The TCEQ should provide holders of water rights subject to cancellation a reasonable opportunity to market the rights or to convert them to environmental flows through the Texas Water Trust.
ENVIRONMENTAL FLOWS: IMPROVING THE PROCESS  
A proposal offered by the Texas Water Conservation Association

The Texas Water Conservation Association (TWCA) is proposing improvements to the environmental flow protection elements of the planning and permitting processes for new water resource projects in Texas. New law will be required to implement these improvements.

Under current State law the Texas Commission on Environmental Quality (TCEQ) regulates the uses of surface water. This regulatory activity includes a responsibility to ensure that conditions are incorporated into water rights permits that give due consideration of the needs of the environment. Typically, this is accomplished when the TCEQ includes conditions in water rights permits that limit diversion under a permit unless minimum streamflows are first met. These minimum streamflow conditions are set on a permit by permit basis. This ad hoc process is not conducive to the orderly development of new surface water supplies or a comprehensive approach to protection of the environment. Some of the problems with the current process are:

- Planning for new projects lacks certainty. The environmental flow conditions eventually included in a permit can be much different from those projected when a project is initially selected for inclusion in a regional water plan.

- The permitting process is time consuming, expensive, usually contested and often litigated. The process can take five to ten years for a major project.

- Lack of agreement among the parties on the science used to determine the flows required for the environment results in a “negotiated” solution that may not be adequate to protect the environment.

- The minimum streamflow conditions included in a permit are often site specific, focus only on the permit in question and do not take a basin-wide view of environmental protection. Most river basins lack management plans that set out specific basin-wide objectives for protection of flows for the environment.

TWCA’s proposal provides that basin-specific environmental flow criteria be established by the TCEQ through rule-making. These criteria could then be consistently applied to each new permit issued by the TCEQ in the applicable river basin. Rule-making would be initiated by the TCEQ
after consideration of recommendations for environmental flow protection that would be
developed through a new element in the regional water planning process established by SB-1.

Environmental flow criteria established through rule-making will provide TCEQ with a process
that is consistent but flexible with regard to addressing environmental aspects of water rights
permitting. It will provide certainty in the planning process for new projects. It will provide
opportunities for modification of existing water management strategies to meet basin
environmental flow objectives. It will promote agreement on utilization of the science relating to
environmental flows. It will also ensure that the regional water plans are consistent with the
appropriate allocation of water to environmental needs. This proposal uses the SB-1 water
planning structure to begin the process of balancing the environment’s need for water with
human needs. In addition, it proposes that some form of continuing legislative oversight of the
rule-making process be created.

In addition to a better process for protecting flows for the environment, this proposal clarifies and
improves the operation of the Texas Water Trust to promote its use for the conversion of existing
water rights to environmental purposes. For example, the law could be clarified to allow for the
conversion of existing water rights to environmental purposes without amendment and to exempt
water rights placed in the Trust from certain fees.

**Major Features of TWCA Proposal**

- Use the SB-1 regional planning process to foster a better understanding of existing
  science, to provide insight and input on competing demands for water within each
  basin/region and to develop recommendations for environmental flow protection for the
  TCEQ rulemaking process.

- Use TCEQ rulemaking to establish environmental criteria for future permitting decisions
  on flow restrictions to protect the environment, instead of the current system of
  permanent ad hoc decisions on a case by case basis.

- Create a legislative oversight committee to monitor the process for addressing
  environmental flows.
For permits issued after new legislation is passed, but before TCEQ adopts applicable environmental flow criteria, provide for adjustment of these permits, with some limitations, to address environmental flow criteria established through rule-making.

Improve the system for conversion of existing water rights to environmental needs.

Major Benefits of TWCA Proposal

- Provides a more consistent yet flexible approach to protecting the environment through rule-making as new water supply projects are considered for permitting by TCEQ. Rule-making also provides for broader public participation than is achieved through a contested case hearing.

- Reduces the time and expense for obtaining authorizations for surface water projects.

- Uses the structure and integrity of the SB-1 planning process to develop consensus on recommendations to TCEQ on balancing water supply and environmental needs.

- Creates an opportunity to manage all of the water related activities in a basin to accomplish the desired environmental protection.

- Provides more certainty between the planning and permitting processes, thus providing better decision-making on project selection and project design.

- Makes the Water Trust more attractive as a means of addressing environmental needs.
Proposed Strategy for Protecting Environmental Flows

79th Legislative Session

Draft

Following is a draft proposal for addressing the protection of environmental flows to be presented to the Study Commission on Water for Environmental Flows established by the 79th Legislature. It was developed by an informal group of stakeholders which includes representatives of both the Water Development and Environmental Communities, some of whom are members of the Commission. While the proposal does reflect consensus of this group, its members wish to qualify it by noting that input from the remainder of the Commission is essential, along with that of other stakeholders, particularly agricultural and municipal interests.

1. It is recommended that the Flows Commission remain in place during the following process:

1. The Flows Commission (or The Texas Water Development Board (TWDB)) would appoint a Special Advisory Group made up of appropriate stakeholders (agriculture, municipal, Regional Planning Groups, environmental interests and industry, etc.) for each bay/basin ecological area.

2. A priority system would be established to manage the pace of determining environmental flows on a temporal and geographic basis.

3. Each SAG would establish a unique Science Advisory Committee (SAC) for its bay/basin ecological area.

4. The SAC would develop flow regime recommendations, through a collaborative process, considering all available science, based on the best available ecosystem science alone. These recommendations would be submitted to the SAG and the Flows Commission, the latter of which would review and submit them with comments, if appropriate, to the Texas Commission on Environmental Quality (TCEQ). Neither the SAC nor the Flows Commission would be empowered to change the SAC Recommendations.

5. The SAG would review the SAC flow regime recommendations and consider them in conjunction with other factors including future needs and economics related to water supply planning in the bay/basin and make a recommendation to TCEQ on environmental flows and strategies to meet those flow needs.

6. In a rule-making process, the TCEQ would receive the recommendations from the Flows Commission and the SAG. Based on the flow regime recommendations from the SAC and the SAG and taking into account each bay/basin, economics, and other appropriate input, TCEQ would determine the environmental flow requirements for that bay/basin. This
determination would be manifest in a rule for each basin that, among other actions, would establish a "floor" below which water could not be appropriated. This set aside of water would be included in the appropriate Water Availability Model (WAM) and used to consider the availability of water for permitting. The set aside would be enforced by granting Texas Parks and Wildlife and the Texas Water Development Board authority to act with respect to the set aside in the same manner that water rights holders may protect their rights. The set aside could only be altered by emergency drought conditions as established by law or through changes in the rules as part of a periodic review. It is recommended that set aside be reviewed every ten years in order to consider improvements in science related to environmental flows and projected human needs.

7. This process would allow local issues to be considered and local solutions for environmental flow requirements to be developed.

8. Adequate funding, including core funding from the State and funding from other appropriate and available sources would be necessary to implement this process effectively.

II. It is recommended that this proposed process be implemented according to the following suggested schedule: This schedule was not developed in consultation with representatives from all of the affected bay/basins. Therefore, adjustment may be necessary. It is, however, imperative that appropriate deadlines be established by statute.

1. The recommended schedule for priority bay/basins is:

   First Round: Galveston, Sabine
   Second Round: Colorado, Guadalupe
   Third Round: Nueces, Rio Grande, Brazos

   a. September 1, 2006: Special Advisory Groups are appointed for First Round bay/basins.

   b. November 1, 2006: Appointments made to the Scientific Advisory Committees (SAC) for First Round Bay/Basins. An alternate name for these bodies is Scientific Expert Collaborative Team (SECT).

   c. October 31, 2006: SAC recommendations finalized and submitted to SAG, the Flows Commission, and TCEQ for First Round Bay/Basins.

   d. February 28, 2007: SAG comments/recommendations finalized and submitted to TCEQ for First Round Bay/Basins.

   e. December 31, 2007: TCEQ adopts environmental flow targets for First Round Bay/Basins and formal "set-asides" to meet some or all of those targets.
2. Timelines would be established for remaining bay/basins designed to result in "set-asides" for those bay/basins as soon as is reasonably possible.

The proposed implementation process presented above assumes that the Flows Commission would remain in place, that environmental flows include a full flow regime for both instream and freshwater inflows, a priority ranking of bay/basins is established, and the determination of environmental flows is adaptive based on evolving science or other factors to be reviewed on a regular basis every ten years.

III. It is recommended that a specific process be established to address currently pending and future permit applications during the implementation process.

1. For permits issued before a set-aside is adopted for a particular bay/basin by TCEQ, permit conditions for environmental flow protection should be based on current law and existing practices as they may be refined. If, after a permit is issued, new science produced through the above-designated process indicates that more water is needed, the TCEQ may increase the flow requirement by no more than (10%, 15%) as an annualized percentage of the environmental flow needs established by existing methodology. (Note: The parties to this discussion are still negotiating about the specific percentage increase allowable to TCEQ.)

IV. In view of the over-appropriation of water in some bay/basin systems, The Water Code should allow for a full range of options to meet environmental flow needs, including strengthening the Water Trust, facilitating and encouraging market mechanisms, mitigation measures and more.

V. Issues related to permit amendments and other procedures falling under "Four Corners" are not addressed here but left to the separate discussion on that topic.
Proposed Strategy for Protecting Environmental Flows

This document is an annotated version of the portion of the report from the Study Commission on Water for Environmental Flows that sets out the recommendations for a proposed strategy for protecting environmental flows. References, shown in brackets, have been added to highlight provisions of Article 1 of S.B. 3 that specifically relate to various portions of the Study Commission report. All references in brackets are to C.S.S.B. 3 as it was voted out of the House Natural Resources Committee. SECTION * refers to the SECTION of the bill where the provision is found and the Water Code reference is to the specific provision of the Water Code where the change would have been made. The page and line numbers refer to the page and line where the relevant language begins in the attached version of C.S.S.B. 3. This version of C.S.S.B. 3 was copied from the online Texas Legislature website and page and line numbers have been added. Proposed changes to existing statutory language are shown with underlining (for additions) and strikethrough (for deletions).

The Study Commission on Water for Environmental Flows (Flows Commission) submits to the 79th Legislature this report outlining a proposed strategy to address the protection of environmental flows. This strategy is based upon a consensus proposal that was developed by a stakeholder working group comprised of representatives of the water development and environmental communities, including members of the Flows Commission.

The Flows Commission notes that this proposed strategy provides a general policy framework, and emphasizes that this conceptual framework would require extensive and detailed development for statutory and/or regulatory implementation. [C.S.S.B. 3, Article 1, generally]. Additionally, implementation of this proposal would require more effective water rights administration and enforcement systems than are currently available in most areas of the State. [C.S.S.B. 3, SECTION 1.06, Water Code Section 11.0235 (f) (page 3, line 51); SECTION 1.11, Water Code Section 11.082 (b) (page 10, line 18); SECTION 1.13, Water Code Section 11.0842 (a) (page 10, line 40); SECTION 1.14, Section 11.0843 (a) (page 10, line 51)].
Nothing in this proposed strategy would diminish the current jurisdiction or authority of the Texas Commission on Environmental Quality (TCEQ), the Texas Parks and Wildlife Department (TPWD), or the Texas Water Development Board (TWDB). Nor would this proposal conflict with any current statutory provisions relating to bays and estuaries (B&E) studies or instream flow studies.

RECOMMENDATIONS:

A. Reauthorize the Study Commission on Water for Environmental Flows (Flows Commission) to continue its efforts to address environmental flow issues, including those listed below, as identified in the October 26, 2004 Science Advisory Committee Report on Water For Environmental Flows,

"While the State of Texas has pioneered tools to address freshwater inflow needs for bays and estuaries, there are limitations to these tools in light of both scientific and public policy evolution. To fully address bay and estuary environmental flow issues, the foundation of work accomplished by the state should be improved. While the Texas Instream Flow Studies program appears to encompass a comprehensive and scientific approach for establishing environmental flow needs for rivers and streams across the state, more extensive review and examination of the details of the program, which may not be fully developed until the program is underway, are needed to ensure an effective tool for evaluating riverine environmental flow conditions."

[C.S.S.B. 3, SECTIONS 1.07, 1.08, Water Code Section 11.0236 (page 3, line 56)].

The Flows Commission will designate a statewide science advisory committee, the Texas Science Advisory Committee (TSAC), to advise and make recommendations to the Flows Commission, and to help provide overall direction, coordination and consistency relating to:

- environmental flow methodologies for B&E studies and instream flow studies;
- environmental flow programs at the TCEQ, TPWD, and TWDB; and
- the work of the Bay/Basin Expert Science Teams described in A(3) below.

[C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02361 (page 5, line 37)].
The TCEQ, TPWD and TWDB will provide written responses to recommendations received from the TSAC through the Flows Commission, with such responses describing the agencies’ actions regarding each recommendation including justification for any recommendation not implemented. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02361 (f) (page 6, line 9)].

1. The Flows Commission will appoint a Bay/Basin Area Stakeholders (BBAS) group for each bay/basin ecological area of the State as defined by the Flows Commission. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(a) (page 6, line 19)]. Each BBAS will consist of appropriate environmental flow stakeholders, including but not limited to representatives from agriculture, recreational users, municipalities, soil and water conservation districts, industry, public interest groups, regional water planning groups, groundwater and surface water districts and authorities, and environmental interests. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(f), (g) (page 7, line 44)].

2. A priority system is established herein (in Section B(1)) to prioritize the initial determinations of environmental flow needs on a temporal and geographic basis. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(b) (page 6, line 26)].

3. Each BBAS will establish a unique Bay/Basin Expert Science Team (BBEST) for its bay/basin ecological area, to be comprised of qualified experts in the fields of hydrology/hydraulics, water resources, aquatic and terrestrial biology, geomorphology, geology, water quality, computer modeling, and other technical areas relevant to the evaluation of environmental flows. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(i), (j) (page 8, line 17)]. In addition, the Texas Science Advisory Committee (TSAC) will appoint one of its members to serve as a liaison member of each BBEST, to facilitate coordination and consistency in environmental flow activities throughout the State. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (k) (page 8, line 34)]. The TCEQ, TWDB and TPWD will provide technical assistance to the BBESTs. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (k) (page 8, line 37)].
4. Each Bay/Basin Expert Science Team (BBEST) will develop environmental flow regime recommendations for its bay/basin ecological area through a collaborative process, considering all available science and based solely on the best available science. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(m) (page 8, line 46)]. Each BBEST will submit the science-based recommendations to its associated BBAS and to the Flows Commission. Neither the BBAS nor the Flows Commission are empowered to change the BBEST’s recommendations. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(n) (page 8, line 57)].

The Flows Commission, with input from the Texas Science Advisory Committee (TSAC), will review the BBEST’s science-based environmental flow regime recommendations and will submit them, with comments if appropriate, to the TCEQ. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(q) (page 9, line 49)].

5. The Bay/Basin Area Stakeholders (BBAS) group will review the BBEST’s science-based flow regime recommendations and will consider them in conjunction with other factors, including future needs and economics related to water supply planning in the bay/basin. The BBAS will develop its own recommendations regarding environmental flows and strategies to meet those flow needs, and will submit these recommendations to the TCEQ and to the Flows Commission. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(o) (page 9, line 9)].

6. After submitting its environmental flows and strategies recommendations to the TCEQ, the BBAS, with the assistance of the BBEST, will prepare, and submit for the Flows Commission’s approval, a Work Plan outlining specific monitoring, studies, activities, and a schedule for the continuing validation and/or refinement
of the bay/basin environmental flow recommendations. The schedule is to
include a periodic review of the bay/basin environmental flow needs and
strategies at least every 10 years. [C.S.S.B. 3, SECTION 1.09, Water Code
Section 11.02362(p) (page 9, line 31)].

7. Upon receiving the environmental flow recommendations from the Flows
Commission and from the BBAS, the TCEQ will initiate a rule-making process to
determine the environmental flow requirements for that bay/basin, based on the
flow regime recommendations from the BBEST and the BBAS. The TCEQ will
independently determine the environmental flow requirements for the bay/basin
ecological area taking into account the specific bay/basin characteristics,
economics, all available scientific information, including any developed science
from the Flows Commission, and other appropriate input. [C.S.S.B. 3, SECTION
1.17, Water Code Section 11.1471 (page 12, line 56)].

This determination will be manifest in a rule for each basin that, among other
actions, will establish a “floor” or environmental flow set-aside below which
water could not be appropriate[d]. [C.S.S.B. 3, SECTION 1.05, Water Code
Section 11.023 (a) (page 2, line 22); SECTION 1.17, Water Code Section
11.1471(d) (page 13, line 45)]. This environmental flow set-aside would consist
of a flow regime of different flow requirements that could vary spatially and/or
temporally. [C.S.S.B. 3, SECTION 1.04, Water Code Section 11.002 (16) (page
2, line 9); SECTION 1.17, Water Code Section 11.1471(c) (page 13, line 41)].
This environmental flow set-aside will be included in the appropriate Water
Availability Model (WAM) and used by the TCEQ to evaluate the availability of
water for permitting. [C.S.S.B. 3, SECTION 1.17, Water Code Section
11.1471(e) (page 13, line 56)].

As with existing water rights, the TCEQ will have primary enforcement authority
with respect to all environmental flow set-asides. The TPWD will be granted the
authority to act with respect to the set-asides in the same manner that water rights holders may protect their rights. [C.S.S.B. 3, SECTION 1.12, Water Code Section 11.0841(c) (page 10, line 26)]. The set-asides can only be altered by emergency conditions as established by law [C.S.S.B. 3, SECTIONS 1.01, 1.02, Water Code Section 5.506 (page 1, line 22); SECTION 1.06, Water Code Section 11.0235 (c) (page 2, line 48); SECTIONS 1.18, and 1.19, Water Code Section 11.148 (page 14, line 23)] or through changes promulgated through the TCEQ rule-making process as part of the periodic review stipulated in A(6) for each bay/basin ecological area. Set-asides will be reviewed at least every ten years in order to consider improvements in science related to environmental flows and projected human needs. [C.S.S.B. 3, SECTION 1.17, Water Code Section 11.1471(f) (page 14, line 9)].

8. The overall environmental flow process outlined herein will allow local issues to be considered and local solutions for environmental flow requirements to be developed. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362(o) (page 9, line 9)].

9. Adequate funding, including core funding from the State and funding from other appropriate and available sources, will be necessary to implement this process effectively. [C.S.S.B. 3, SECTION 1.26, Water Code Section 15.4063 (page 17, line 8) (other funding provisions temporarily in the bill were removed with fee provision)].

B. The environmental flow process as outlined herein will be implemented for priority bay/basin ecological areas according to the following suggested schedule. This schedule was not developed in consultation with representatives from all of the affected bay/basins. Therefore, adjustments may be necessary. It is, however, imperative that appropriate deadlines be established by statute for the priority
bay/basin ecological areas. [C.S.S.B. 3, SECTION 1.06, Water Code Section 1.0235 (d-1) (page 2, line 54)].

1. The recommended schedule for priority bay/basins is:

First Round: Galveston, Sabine
Second Round: Colorado, Guadalupe
Third Round: Nueces, Rio Grande, Brazos [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (b) (page 6, line 26)].

a. September 1, 2005: Bay Basin Area Stakeholders (BBAS) are appointed for First Round Bay/Basins. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (c)(1) (page 6, line 46) (date changed to November 1, 2005)].

b. November 1, 2005: The Bay Basin Expert Science Teams (BBEST) are established for First Round Bays/Basins. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (c)(2) (page 6, line 48) (changed to March 1, 2006)].

c. October 31, 2006: BBEST recommendations finalized and submitted to BBAS, the Flows Commission, and TCEQ for First Round Bays/Basins. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (c)(3) (page 6, line 51) (date changed to March 1, 2007)].

d. February 28, 2007: BBAS comments/recommendations finalized and submitted to TCEQ for First Round Bays/Basins. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (c)(4) (page 6, line 55) (date changed to September 1, 2007)].

e. December 31, 2007: TCEQ adopts environmental flow “set-asides” for the First Round Bays/Basins. [C.S.S.B. 3, SECTION 1.09, Water Code Section 11.02362 (c)(5) (page 7, line 2) (date changed to September 1, 2008)].

2. Timelines will be established for remaining bay/basin ecological areas designed to result in environmental flow set-asides for those bay/basin ecological areas as soon as is reasonably possible. These timelines will be initially developed by the
respective BBAS and BBEST for each bay/basin ecological area and then finalized through coordination with the TCEQ, TPWD and TPWD under the overall direction of the Flows Commission. \textit{[C.S.S.B. 3, \textbf{SECTION 1.09, Water Code Section 11.02362 (d), (e) (page 7, line 5)}].}

The proposed environmental flow process presented above assumes that the Flows Commission will remain in place, that environmental flow recommendations for a particular bay/basin ecological area will include a full flow regime for both instream flows and bay and estuary freshwater inflows, that an initial priority ranking of bay/basins is established, and that the determination of environmental flows is adaptive based on evolving science or other factors to be reviewed at least every ten years.

\textbf{C.} This proposed strategy assumes that specific procedures will be established during implementation to address currently pending and future permit applications within a bay/basin ecological area prior to the establishment of an environmental flow set-aside as provided for in A.(7).

For such applications, permit conditions for environmental flow protection should be based on current law and existing practices as they may be refined, including use of newly developed instream flow desktop methods and/or revised bay and estuary inflow methodologies recommended by the TSAC. If, after a permit is issued, it is determined through TCEQ rule-making as outlined in Section A, that more water is needed for environmental flow protection, the TCEQ may increase the environmental flow requirement stipulated in the permit by no more than 10% to 15% of the total annual environmental flow amount. \textit{[\textbf{SECTION 1.16, Water Code Section 11.147 (e-1), (e-2) (page 12, line 11)}].}

\textbf{D.} In view of the over-appropriation of water in some bay/basin systems, the Water Code should allow for a full range of options to meet environmental flow needs, including strengthening the Water Trust, facilitating and encouraging market
mechanisms, mitigation measures and voluntary conversions of water rights. [SECTION 1.06, Water Code Section 11.0235 (d-2)(2) (page 3, line 9); SECTION 1.10, Water Code Section 11.0237 (a) (page 10, line 7); SECTION 1.22, Water Code Section 11.404 (e) (page 15, line 31); SECTION 1.27, Water Code Section 15.7031 (e) (page 17, line 48); SECTION 1.29, Water Code Section 26.0135 (h) (page 18, line 10)]. The Flows Commission will explore options relating to private non-profit water trusts, with incentives for private investment, as a means to help protect environmental flows. [SECTION 1.07, 1.08, Water Code Section 11.0236 (j) (page 4, line 50)].
Watersheds for the Future of Texas

Neal Wilkins
Texas A&M Institute of Renewable Natural Resources

Texas Surface Water
32,013 miles of Rivers & Streams
2.2 million acres of Major Reservoir

Private Farms, Ranches and Forestlands
143.9 Million acres
83.7% of the State

Population
Metro – 19.2 Million (+33% since 1990)
Non-Metro – 2.9 Million (+12% since 1990)

14 of the 17 major rivers in Texas run through metropolitan areas
Trinity Basin Headwater counties

What Works?

- Locally-led Projects.
- Non-regulatory Approaches.
- Focus Resources in the right areas with the right people.

Taking Strategic Action

- New Planning Tools
- New Methods for Valuing Ecosystem Services
- New Carrots & Sticks: Incentivizing Land Conservation

Watersheds for the Future of Texas
A Needed Effort
Development of planning tools for sustaining quality and quantity of watershed-related natural resources while enhancing economic development.

Specific Program Elements
- Define and evaluate existing impacts to watershed condition and function in areas undergoing and likely to undergo urbanization
- Assess the existing values of riparian areas, rivers, streams, and other aquatic resources in urban and near-urban growth areas

Specific Program Elements
- Create projection tools (i.e., models) that incorporate:
  - the use of GIS
  - remote sensing
  - and stakeholder input

  for projecting hydrology, wildlife habitats, recreation, and scenic amenities as the product of watershed-level management planning

Specific Program Elements
- Prioritize and rank watersheds and subwatersheds according to projected urbanization
- Evaluate existing projects that seek to preserve watersheds and water quality, including the use of new technologies

Specific Program Elements
- Collaborate with agencies to develop projects that demonstrate restoration strategies in urbanizing areas that also consider needs such as:
  - flood control
  - water quality and
  - recreational open space

Specific Program Elements
- Develop tools for all impacted levels of government and other organizations that will provide guidance for ensuring that water, land, and other resources are maintained in a high quality as urbanization occurs
**Justification**

Without these planning tools,
- Urbanization will continue to degrade watersheds
- Prospects for desirable development will be reduced in many regions
- Future economic development will ultimately be limited

**Benefits to the State**

- Technologies, planning tools, and policy guidance for better planning, managing, and conserving watersheds
- Organizations, agencies, and groups will have greater ability to sustain economic development

**Benefits to the State**

- Agriculture will directly benefit because agricultural lands help provide:
  - open space
  - land area for water recharge
  - land area for watershed quality
  - wildlife habitat
  - and many other values.
Healthy and Abundant Waters

The Role of Land Stewardship on Private Rangelands

**Land Stewardship:**
A deeply held inner conviction that motivates landowners and land managers to take good care of the land, not merely for personal gain, but for future generations and for the benefit of society.

**Land Stewardship:**
A deeply held inner conviction that motivates landowners and land managers to take good care of the land, not merely for personal gain, but for future generations and for the benefit of society.

**Land Stewardship is, by definition, Voluntary**
Caretaker
Conservationist
Husbandry
Custodian

**Land stewardship is critical:**
Water knows no ownership boundaries
The relationship of Land Stewardship and Water is not a new concept:

“In the primitive state of the country, the mountains and hills were covered with soil and there was an abundance of timber. The plains were full of rich earth, bearing an abundance of food for cattle.”

Moreover, the land reaped the benefit of the annual rainfall, having an abundant supply of water in all places; receiving the rainfall into herself and storing it up in the soil. The land let off the water into the hollows which it absorbed from the heights, providing everywhere abundant fountains and rivers.”

“A description of Ancient Greece
Plato, 400 B.C.

Key Points:

- Good Soil
- Good Timber
- Good Grasslands
- Good Water
- Good Husbandry (Stewardship)

“In comparison of what then was, there now remain only the bones of the wasted body. All the richer and softer parts of the soil have fallen away... a single night of excessive rain now washes away the earth and lays bare the rock. Now the land is loosing the water, which flows off the bare earth into the sea.”
Key Points:

• A lapse in stewardship
• A loss of vegetation
• A loss of soil
• A degradation of waters

"Saving the water and the soil must start where the first raindrop falls"

Lyndon B. Johnson, 1947

The essence of Land Stewardship:

Keeping a healthy cover of desirable vegetation on the ground

Minimizing bare ground

Sparse vegetation:

Poor infiltration
High runoff
High erosion

Down-cutting
Channel erosion
Degraded water quality
Diminished base flow
Two critical facets of Stewardship

Water Catchments

Riparian Areas

Water Shed

Water Catchment

Healthy Riparian Areas:
- Dissipate floodwaters
- Stabilize banks
- Riparian Sponge
- Sustain base-flow

Large tracts in native vegetation
Private ownership
Good stewardship
Economically sustainable

Unhealthy Riparian Areas

Quantifying the Social Benefits of Land Stewardship
Bear Creek – Riparian Stewardship

Central Oregon
3500’ Elevation
12” Precipitation

Wayne Elmore,
National Riparian Service Team
Full Stream Consulting

Intermittent flow – No fish
Accelerated erosion - Sediment loss
100 years of poor grazing stewardship
Poor vegetation
Riparian sponge = 4 acres/ mile
Water storage = 1.5 ac ft/ mile

A Change in Land Stewardship

1977 – 1984: No grazing / Reduced grazing to jump-start recovery

1985 – Present: Rotational grazing during late winter to maintain adequate riparian vegetation
Bear Creek: Change in Channel Profile (1977 – 2001)

- Sediment Captured = 7400 CY/Mile
- Riparian “Sponge” = 12 Ac/Mile
- Water Storage = 2,100,000 Gal/Mile (net gain of 4.9 ac ft of storage/mile)
- Perennial flow; prime aquatic habitat

A 10 fold increase in forage production
10 Years of Stewardship

1977

1986

Key Principle of Land Stewardship:

Slow the movement of water as it flows downhill.

Land Stewardship helps process and protect the water of Texas:

- Absorbs the rainfall
- Stores the water
- Releases the water in moderation
- A more even distribution over time
- Prolongs base flows
- Maintains high quality water

How can more land owners be motivated to become land stewards?

Education
Encouragement
Assistance
Incentive

We can’t make it rain, but...
...we can manage the land in a way that helps sustain healthy and abundant waters.

What happens on private land ... impacts the waters of Texas
Wastewater Return Flows: Implications for Environmental Flows

presentation to the Environmental Flows Advisory Committee
June 12, 2006
by
Norman D. Johns, PhD
National Wildlife Federation

Water source for Environmental Flows:
- especially important during dry years.
- Instream Flows
- Bay and Estuary Inflows

Benefits of Return Flows:
Water supply:
Reused return flows could eliminate need for other environmentally damaging infrastructure projects (permits for ~1.7 million ac-ft/yr at TCEQ)

Water Availability Model (WAM)

WAM = Hydrology Accounting Tool
- predict streamflows / estuary inflows
- differing scenarios:
  - Natural Conditions
  - Current Conditions
  - Full Use Water Permits
  - various return flow scenarios

Galveston Bay and Rivers that Nourish It

Water Use Characteristics for Rivers Draining to Galveston Bay

Notes: * excludes hydropower and passes through cooling
** includes groundwater based return flows

Future: Full Use
same proportion return flows
Summary

- Potential for environmental flow impacts due to loss of return flows is significant, especially during dry periods.
- Guarantee of return flows is one avenue to securing environmental flow protection, especially in fully appropriated areas.
to be continued

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512-476-9805
Table 1: Transaction Summary 2003-2005

<table>
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<tr>
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<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Lease Expenditures</td>
<td>$45,453,496</td>
<td>$54,351,466</td>
<td>$49,191,877</td>
<td>$148,996,839</td>
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<tr>
<td>Purchase Expenditures</td>
<td>$8,439,376</td>
<td>$955,905</td>
<td>$2,647,394</td>
<td>$12,042,675</td>
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<tr>
<td>Quantity Leased</td>
<td>414,399.98 AF + 10.382 cfs</td>
<td>957,344.22 AF + 10.382 cfs</td>
<td>608,386.554 AF + 10.382 cfs</td>
<td>1,980,130.754 AF + 10.382 cfs</td>
</tr>
<tr>
<td>Quantity Permanently Acquired</td>
<td>2,099.1 AF + 450 cfs</td>
<td>1,779.108 AF + 3.99 cfs</td>
<td>11,285.49 AF + 0.817 cfs</td>
<td>15,163.698 AF + 454.807 cfs</td>
</tr>
</tbody>
</table>


Table 2: Water Acquired Under Donations 2003-2005

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Donations</td>
<td>0</td>
<td>23,168.94 AF + 5.0888 cfs</td>
<td>74,002.019 AF</td>
<td>97,170.959 AF + 5.0888 cfs</td>
</tr>
<tr>
<td>Permanent Donations</td>
<td>1236 AF</td>
<td>20.28 AF + 0.55 cfs</td>
<td>549.08 AF + 0.817 cfs</td>
<td>1805.36 AF + 1.367 cfs</td>
</tr>
<tr>
<td>Total Donations</td>
<td>1236 AF</td>
<td>23,189.22 AF + 5.6388 cfs</td>
<td>74,551.099 AF + 0.817 cfs</td>
<td>98,976.319 AF + 6.4558 cfs</td>
</tr>
</tbody>
</table>


Table 3: Market Price Summary

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
<th>Typical Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Price ($/af)</td>
<td>$19,000</td>
<td>$111</td>
<td>$111-$190</td>
</tr>
<tr>
<td>Lease Price ($/af)</td>
<td>$260</td>
<td>$0.21</td>
<td>$7-$100</td>
</tr>
</tbody>
</table>

Table 4: Water Acquisition Program Summary for Water Years 1994-2003

<table>
<thead>
<tr>
<th>Water Year</th>
<th>Total Spent</th>
<th>Contract Quantity (acre feet)</th>
<th>Delivery Quantity (acre feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>$14,060,688.20</td>
<td>218,500</td>
<td>125,453</td>
</tr>
<tr>
<td>2002-2003</td>
<td>$15,659,910.10</td>
<td>233,890</td>
<td>153,495</td>
</tr>
<tr>
<td>2001-2002</td>
<td>$15,180,064.24</td>
<td>216,600</td>
<td>172,790</td>
</tr>
<tr>
<td>2000-2001</td>
<td>$12,265,880.00</td>
<td>216,500</td>
<td>176,628</td>
</tr>
<tr>
<td>1999-2000</td>
<td>$13,920,223.47</td>
<td>282,678</td>
<td>268,116</td>
</tr>
<tr>
<td>1998-1999</td>
<td>$4,163,308.69</td>
<td>98,800</td>
<td>86,300</td>
</tr>
<tr>
<td>1997-1998</td>
<td>$8,595,050.00</td>
<td>234,800</td>
<td>225,783</td>
</tr>
<tr>
<td>1996-1997</td>
<td>$2,324,885.00</td>
<td>57,150</td>
<td>52,556</td>
</tr>
<tr>
<td>1995-1996</td>
<td>$3,211,124.00</td>
<td>88,009</td>
<td>88,009</td>
</tr>
<tr>
<td>1994-1995</td>
<td>$4,862,603.72</td>
<td>116,933</td>
<td>105,856</td>
</tr>
<tr>
<td>Total</td>
<td>$94,243,737.42</td>
<td>1,763,860</td>
<td>1,454,986</td>
</tr>
</tbody>
</table>


1 Totals for the 2003-2004 water year are as of November 2003.
Buy that Fish a Drink

Presentation to TX Environmental Flows Advisory Comm.
by Terry L. Anderson
Executive Dir., PERC
Senior Fellow, Hoover Institution
9 May 2006

“Whiskey is for drinkin’
and Water is for fightin’!”

Why so much fightin’?
- Existing claims are not always adjudicated
- Complexity resulting from use and reuse
- No place in prior appropriation doctrine for instream flows
- Groups believe they can take rather than trade

Property rights are the basis for trade, so why so much fightin’?
- Existing claims are not always adjudicated
- Complexity resulting from use and reuse
- No place in prior appropriation doctrine for instream flows
- New demands call for reallocation

Joseph Sax, UC Berkeley Law Professor
Problems in the West are the result of “a change in terms of society’s priorities and a need to figure out how to adapt people with traditional uses and expectations to that change.”

How do we get people to adapt?
- Regulations
  - Minimum stream flows
- Grant new rights
  - San Marcos River Foundation
- Public Trust Doctrine
  - Mono Lake in CA
- Water Marketing
  - Oregon Water Trust
**Advantages of water marketing**

- EXPEDIENT!!!!
- Less costly in terms of money and acrimony
- Gets the incentives right

**Before**

**After**

*Blue Ribbon Trout Stream?*

**Environmental Water Trades**

Acquisition Expenditures and Quantity

**What are the impediments to water markets for instream flows?**

- Hydrology is not well understood
- Connections between surface and groundwater
- Return flows
- Enforcement costs for water rights and contracts
- Free rider problems
The state can help lower those costs.
- Help with the science
- Clarify property rights
  - This means protecting the rights of others
  - Clean water may be a right, but it must be clearly defined
- Overcome the free rider problem
  - Charge people for public goods—fees for recreation and water quality
  - Taxation
  - Put the revenues to work public goods

“Conservation will ultimately boil down to rewarding the private landowner [and I would add, water owner] who conserves the public interest.”

Aldo Leopold

“Savings our Streams II”

Property and Environment Research Center

2048 Analysis Drive, Suite A
Bozeman, Montana 59718
Tele: (406) 587-9591  Fax: (406) 586-7555
www.perc.org
Good afternoon, my name is Tom Ballou. I am Environmental Manager with Sherwin Alumina. I am here today to offer testimony on behalf of Texas Chemical Council (TCC). TCC appreciates the invitation to appear before the committee today to assist the committee in fulfilling its objectives.

TCC is a trade association representing about 85 chemical manufacturers in Texas that result in the employment of over 450,000 Texans with a total annual payroll of more than $15 billion. The chemical industry has invested more that $40 billion in Texas production facilities. The Texas chemical industry generates about 25% of the state's manufacturing value added and accounts for a similar percentage of manufacturing shipments.

Texas Chemical Council members have long been participants in discussions concerning Texas water policy. Some of our member companies have large facilities that are independent water rights holders. Some of our members purchase water. Some of our members depend on groundwater produced by themselves or others. All of our members share an abiding interest in the conservation of our natural resources in this state.

After all, we are Texans too. And what is in the best interest of Texas is in the interest of our member companies' facilities in Texas.

TCC has always supported a stable regulatory climate as essential for planning purposes. This includes our ability to secure water for process and cooling purposes on a predictable basis.

We appreciate all the hard work that went into the environmental flows language last session. We participated with the Senate Natural Resources Committee during the development of SB 3, and we are generally supportive of both the concept and the language of the bill that ultimately created this committee.

Put simply, we support environmental flows that help protect the existing in-stream uses, water quality and aquatic habitats of our and rivers, as well as the health of our bays and estuaries. Many of our members’ facilities are waterside activities that depend on access to our rivers, bays and estuaries for commerce and water supplies. So, we are very interested in the health of those bodies, and we understand that requires a realistic
minimum stream flow in rivers and freshwater inflow regime at the terminal estuary.

Last session, we commented on parts of Article 1 that concerned us. Thanks to the additional time we’ve all had to look at the language, we have narrowed our concerns to 2 items—industrial input and re-opening permits.

First, the Environmental Flows Commission is authorized to appoint a Basin and Bay Area Stakeholders Committee for each river basin and bay system in the state. For each of these river basins or bay systems a schedule for the development of environmental flow regime recommendations and standards is specified. The committees must have at least 17 members with categories of stakeholders identified.

TCC is concerned that this is a confusing duplication of existing groups that are perfectly capable of handling this challenge. In fact, some may have addressed it already. Our two largest bay and estuary systems have functioning National Estuary Programs. These programs have sought and received extensive and continuing stakeholder involvement. TCC member companies have been active participants in both the Galveston Bay Program in the Houston area, and the Coastal Bend Bays and Estuaries Program in the Corpus Christi area. No one has been excluded from participation in either. Both have addressed freshwater inflow issues in their areas and are capable of bringing appropriate stakeholders together for further discussion of these issues. In addition, in the Corpus Christi area, the Nueces Estuary Advisory Council, a multi-agency and public stakeholder group exists for the sole purpose of advising TCEQ on the lone issue of freshwater inflows to the Nueces–Corpus Christi Bays system.

Beyond the National Estuary Programs, in basins where these do not exist, the Legislature previously established the Regional Water Planning Groups (RWPGs) to address the full spectrum of water availability issues. These groups already exist, with appropriate appointed representatives of the various sectors and public participation. They would appear to be capable of working this issue. Their experience should enable these groups to do so where the National Estuary Programs do not exist.

If the Committee desires to create its own stakeholder groups, we are concerned about the statutory representation. Of the 11 categories of
members for 17 positions named by the language in Article 1, there is one category for industrial users. We have discovered, through participation in the RWPGs, that this is insufficient. The category "industry" covers an enormous segment of the Texas economy and cannot adequately be addressed by a single representative. We are concerned that competition for the 17 slots by others in the 11 categories could result in less than adequate industrial representation.

If this Committee decides that a new group of stakeholder advisory groups is necessary, TCC strongly encourages the expansion of representation to include categories of industrial users similar to the structure utilized by the Texas Water Development Board for the membership of the Regional Water Planning Groups. Industrial users are not one homogeneous group. There are different categories of industrial users, all with different types of needs.

Second, we are concerned with new Subsection (e)(1) proposed to be added to Section 11.147, Water Code, contained in Section 1.16 of the Article. Our concern with Subsection (e)(1) is that we believe it is critical that any such provision remain focused on new water rights or increases in existing water rights. Any proposal to allow existing water rights to be reopened should be rejected.

**Here's why.** Texas is a Western state whose water law is based on the Western water law doctrine of Prior Appropriation. This is a time—tested method of allocating water in time of shortage. It has operated reliably for more than 300 years in Western States. It is a system designed to make the availability of water resources during a drought predictable and has enabled the American West to grow by making water security a cornerstone of any and every industrial and municipal development west of the 100th meridian as well as the portion of Texas east of that line. It is time tested law in Texas and has served us well. It in no way inhibits water from seeking its highest and best use.

Again, ———we appreciate the invitation to present testimony today and look forward to working with the committee to produce its recommendations.
Testimony of Texas Oil & Gas Association  
Environmental Flows Advisory Committee  
May 9, 2006

Good afternoon, my name is Christina Wisdom. I am an attorney with 
Brown McCarroll and am here today to offer testimony on behalf of the 
Texas Oil and Gas Association ("TXOGA"). TXOGA appreciates the 
invitation to appear before the committee today to discuss the significance of 
maintaining and protecting sufficient environmental flows in Texas.

TXOGA is a multi-purpose trade association representing all 
segments of the oil and gas industry operating in Texas. The over 2,000 
members of TXOGA produce approximately 92% of Texas' crude oil and 
natural gas, operate a vast majority of the state's pipeline mileage, and for 
purposes of today's meeting, our members are responsible for over 95% of 
the state's refining capacity. Our latest data indicates that there are 25 active 
refineries in Texas. This represents approximately 4,627,760 barrels per day 
operating capacity. This translates to: Texas refineries produce nearly 100% 
of all motor fuels consumed in Texas and approximately 25% of the nation's 
fuels.

As important members of the Texas economy, TXOGA recognizes the 
importance of protecting the state's instream flows and supports policy that 
protects existing in-stream uses and the health of our bays and estuaries. As 
you know, particularly with today's high gas prices, there is a great need for 
refineries to operate at high capacity, and there is a need for the expansion of 
many of our existing refineries. While there are refineries located all over 
Texas, some of which are dependent on groundwater, the vast majority of 
Texas refineries are located along Texas waterways in the coastal zone and 
are highly dependent on sufficient instream flows for their processes and 
barge traffic. TXOGA recognizes the importance and significance behind 
the work that went into drafting the environmental flows legislation from 
last session and very much wants to continue to be a part of whatever going-
forward solution best protects and manages the state's water resources.

That said, TXOGA has two primary concerns with Article 1 from last 
session's SB 3. The first is the level of industry input within the Basin and 
Bay Area Stakeholders Committees that the bill establishes for each river 
basin and bay system in the state for which the development of
environmental flow regime recommendations is required. According to the legislation, each committee was to have at least 17 members from an identified 11 different categories. There is only one category established for industrial users, and TXOGA very much supports an expansion of the category of industrial users that allows for the specific participation of different categories of industrial users. For example, refineries, chemical manufacturing companies and power generation facilities are all industrial users. As you can see, the category “industry” covers an enormous segment of the Texas economy and cannot adequately be addressed by a single representative. The different categories of industrial users all have different types of needs, and industry as a whole needs to have adequate representation.

Second, we are concerned with the proposed addition of Subsection (e)(1) to Texas Water Code § 11.147. Our concern with Subsection (e)(1) is that we believe that any legislation that allows the commission to adjust conditions included in a permit or amended water right should be limited strictly to new water rights or increases in existing water rights. Any proposal to allow existing water rights to be reopened should be rejected.

Again, TXOGA appreciates the invitation to present testimony today and looks forward to working with the committee to develop sound environmental flows policy that reflects the adequate participation of water users all around the State of Texas and protects existing water rights. Thank you.
September 7, 2006

E.G. Rod Pittman, Chairman
Environmental Flows Advisory Committee
Texas Water Development Board
P.O. Box 12321
Austin, Texas 78711

Re: Comments to Environmental Flows Advisory Committee

Dear Chair Pittman:

The Texas Water Conservation Association appreciates the opportunity to submit these written comments in response to the various proposals we have reviewed for modifications to the environmental flows legislation considered last year by the Texas Legislature (Article 1 of C.S.S.B. 3). As this Committee is well aware, the bulk of Article 1, as introduced, represented a deliberate and delicate compromise largely between the water suppliers in this state and environmental interests. While TWCA continues to support Article 1, as drafted, the organization also recognizes that improvements to the bill will result from a careful consideration of the input that has been provided during this Committee’s efforts. From TWCA’s perspective, it is important to remain mindful of the more critical aspects of the compromise that was struck in developing Article 1, as discussed more fully below.

Greater Certainty in Permitting

Through its rulemaking process, Article 1 offers water rights holders the opportunity for greater certainty in the permitting process, while at the same time providing some allowance for adaptive management in the future as better science is developed. This certainty coupled with the flexibility to address better science does not exist today in the case-by-case, costly and protracted contested case environment where these issues are now resolved.

Expert and Stakeholder Processes

The process envisioned by Article 1 was designed to ensure that both the science and the stakeholder interests are fully considered. The best available science must be carefully analyzed by recognized experts in light of the particular and unique characteristics of the bay or basin that is affected. TCEQ will have the benefit of receiving not only this independent expert input but also the input from a wide range of stakeholders who have considered the experts recommendations in light of the
practical, environmental, social, economic and other implications for that bay or basin. The original Study Commission recommended that this stakeholder group be comprised of “appropriate environmental flow stakeholders, including but not limited to representatives from agriculture, recreational users, municipalities, soil and water conservation districts, industry, public interest groups, regional water planning groups, groundwater and surface water districts and authorities, and environmental interests.” The size and composition of the stakeholder group as contained in Article 1 may be improved provided the representation of interests is balanced and comprehensive.

In TWCA’s view, this stakeholder process is absolutely critical to the success of any revamp of how we address environmental flows in water rights permitting. TWCA believes that it is important for the bay/basin experts to continue to be available to these stakeholders to evaluate various alternatives under consideration by the stakeholders even after the experts develop their independent scientific recommendations. This would help stakeholders more fully understand the impacts of their policy recommendations from a scientific perspective.

Schedule for Studies and Rulemaking

TWCA believes that reasonable deadlines must be established and followed for this process to work. TWCA would note, however, that the Study Commission’s report set forth suggested deadlines with the express recognition that the deadlines were not developed in consultation with representatives from all of the affected bay/basins and that “adjustments may be necessary.” All of the parties recognized that ongoing studies could provide new and better science, but agreed to move forward with whatever information is available.

Defining “Sound Ecological Environment”

TWCA believes that it is problematic to adopt a statewide definition for this term. To do so would run the risk of altering “the playing field” in a manner that runs contrary to the agreement of those involved in development of the Article 1 process by failing to recognize the incredible diversity of our bays and basins and the varying need for water within the different regions of the state.

Membership of Environmental Flows Commission

TWCA continues to support a composition of the Environmental Flows Commission that mirrors that of the original Study Commission. Representation of the legislative and executive branches, as well as members of the public, will help ensure that the broad and diverse interests of Texas are fully represented in this ongoing effort.
Voluntary Transfers
TWCA supports voluntary mechanisms for converting water rights for use in meeting environmental flow needs, including placement of these rights into the Texas Water Trust, and Article 1 contains provisions to facilitate conversions. A special process for amending water rights for this purpose, however, is unnecessary and would instead serve only to exacerbate ongoing disputes related to water rights amendments. Rather, to ensure fair treatment of all water rights holders, a better approach is to apply the same standards and process for any amendments that do not involve a new appropriation of water, including any amendments to add or change the authorized use to include environmental flow protection.

Again, TWCA appreciates the opportunity to provide these comments. If you have any questions, we would welcome the opportunity to discuss these comments with you further at your convenience.

Sincerely,

[Signature]

Gregory E. Rothe
President, Texas Water Conservation Association
October 10, 2006

EFAC Chairman and Members

c/o Barney N. Austin
Texas Water Development Board
1700 North Congress Ave.
Austin, TX 78711
Sent via: barney.austin@twdb.state.tx.us

Re: “Groundwater flows”
“Interim” adaptive management

Dear Chairman Pittman and Committee Members:

As the work of the committee is coming to completion there are two topics that I would like to see considered.

1. The first relates to clarification of terms – Are environmental flows from aquifers into rivers and streams by way of springs, seeps and other flows (known in hydrology as “lateral” and “vertical flows”) adequately specified as being included in “environmental flows” or should they be separately indicated as “groundwater flows”? It does not seem appropriate that these flows are contemplated as a part of “instream flows” since they are flows between groundwaters and surface waters. As such, should the definition of “Environmental flow analysis” include a term such as “groundwater flows”? Should the definition of “Environmental flow” include “… watershed or aquifer, …”? I am especially concerned the impact that over pumping and/or mining of aquifers might have on flows into river basins. These are natural flows that need to be protected along with other environmental flows yet they seem not to be clearly contemplated.

Though these are concepts that are recognized in such documents as Texas Instream Flow Studies: Technical Overview, May 22, 2006 Draft, it is not clear that they have been adequately recognized in the legislation that is being crafted. For example the following proposed amendments to Texas Water Code: Article 1, Section 1.04 (15) and (16) might be revised as follows:
(15) "Environmental flow analysis" means the application of a scientifically derived process for predicting the response of an ecosystem to changes in groundwater flows, instream flows or freshwater inflows.
(16) "Environmental flow regime" means a schedule of flow quantities that reflects seasonal and yearly fluctuations that typically would vary geographically, by specific location in a watershed or aquifer, and that are shown to be adequate to support a sound ecological environment and to maintain the productivity, extent, and persistence of key aquatic habitats in and along the affected water bodies.

2. My second concern is that “interim” adaptive management be encouraged prior to deadlines set by this proposed legislation: 2010, 2016 and later. Though recommendation 20 contemplates adaptive management in the future (mostly after the above dates are effective) it should be extended to address the interim period.

The state of Texas, through its agencies, has been conducting sound scientific studies on many aspects of our basins, bays, and estuaries that need to be incorporated into management practices before damage is done or while it can be mitigated. An example in my region is the “Matagorda Bay Freshwater Inflow Needs Study” (MBFINS) completed by the LCRA, TPWD, TCEQ and TWDB in July 2006.
To quote the study: “The primary purpose of this study is to reassess the freshwater inflow needs for Matagorda Bay based on more than eight years of new data collected since the completion of the 1997 Freshwater Inflow Needs Study. The earlier study was based on five years of data collected after the U.S. Army Corps of Engineers (USACE) opened a diversion channel in 1991 from the Colorado River into Matagorda Bay to increase freshwater inflows entering into the bay. The current study also reviews and modifies some of the 1997 study methodologies and assumptions. The results of this study indicate that higher freshwater inflows are needed to achieve the Target and Critical inflow needs than indicated in the 1997 study. This is largely due to the availability of additional, more variable data collected over a longer period of time.” “Based on additional data and analysis, Critical inflow needs for the Colorado River increase from 14,260 acre-feet of water per month to 36,000 acre-feet of water per month over those calculated in the 1997 study” (MBFINS - emphasis added).

The LCRA Water Management Plan provides that: “Bays and estuary needs will be met by releasing monthly storable inflows otherwise available for storage in Lakes Buchanan and Travis to meet target inflow needs of 1.03 million acre-feet per year if January 1 storage level in Lakes Buchanan and Travis combined is greater than 1.7 million acre-feet. Critical inflow needs of 171,120 acre-feet per year will be met in all years with releases of monthly storable inflows otherwise available for storage in Lakes Buchanan and Travis” (LCRA 2003 Water Management Plan).

The latest recommendation of three agencies and the river authority indicate that an additional 260,880 acre-feet per year is need to meet CRITICAL freshwater inflow needs of Matagorda Bay (432,000 acre-feet per year – 171,200 acre-feet per year = 260,880 acre-feet per year).

This situation is made more urgent by the fact that the above cited LCRA 2003 Water Management Plan has not yet been accepted by TCEQ. If the 2003 is adopted without incorporating the new flow requirements recommended by these Texas State agencies it will be many more years before the bay gets the freshwater inflows needed to maintain a sound ecological environment. The latest recommended freshwater inflows need to be immediately incorporated into the LCRA Water Management Plan and approved by TCEQ in order to mitigate further damage to Matagorda Bay.

As such, I strongly encourage the members of this committee to pass a recommendation that would encourage or direct agencies and river authorities to take such “interim” adaptive management as are necessary to preserve, protect, and enhance environmental flows. In this way the good work of the committee and the legislature can immediately start making a positive difference in protecting and managing our valuable water resources to the mutual benefit of the citizens of this state and the environment that sustains them.

Sincerely,

[Signature]

Steve Box
Environmental Steward
Bastrop, Texas
EFAC Chairman and Members

c/o Barney N. Austin  
Texas Water Development Board  
1700 North Congress Ave.  
Austin, TX 78711  
Sent via: barney.austin@twdb.state.tx.us

Re: Recommendation 40

Dear Chairman Pittman and Committee Members:

I have watched the deliberations of this important committee since its inception and have been overall very pleased with the work of the committee. The recommendations you send forward to the legislature relative to environmental flows (instream and freshwater inflows) have crucial policy implications relative to the future health of Texas; its environment, economy, and the quality of life availed to Texans.

Texas is a state that values the individual. Texas respects the rights of individuals and has placed a wealth of trust in their hands regarding the management of the land and water resources. With over 90% of Texas land in private hands, and with a vast majority of Texas water in existing water rights, it is imperative that both the public and private sectors be given the opportunity and incentives to protect the land and water resources of this great state by being able to add or convert existing rights to instream use as a purpose of use and to place the oversight of those rights in the hands of those they most trust to protect that interest … whether that be a public or private individual or institution.

I strongly encourage the members to pass recommendation 40 and thereby give the good work of the committee the life it needs to forever make a positive difference in protecting and managing our valuable water resources to the mutual benefit of the citizens of this state and the environment that sustains them.

Sincerely,

Steve Box  
Environmental Steward  
Bastrop, Texas
Interaction of Stakeholder Groups and Expert Science Teams
One of the fundamental components of the compromise that led to Article 1 of Senate Bill 3 was the idea that expert scientists, relying primarily on existing data and a specialized understanding of specific bay/basin systems, would first gather to lay out what environmental flow targets the science indicates are required to achieve a sound ecological environment. Then, once that task was complete, a bay/basin stakeholder committee would review the results and, taking into consideration the existing infrastructure and economic, social and other factors, make recommendations about the degree to which those targets can be met and how best to do it. In essence, the scientific work serves as a starting point for the policy discussion. This means letting the scientists do their work first.

Another fundamental component of the compromise is that the TCEQ and Environmental Flows Commission receive the intact science product as well as the bay/basin stakeholder recommendations. The scientific analysis and recommendations need to be transmitted to TCEQ intact so that TCEQ and the public can see and appreciate the policy tradeoffs that are made.

In our opinion, the compromise will not survive without the retention of both of these fundamental concepts.

Deadlines for Action
There is broad agreement that time is of the essence with respect to addressing environmental flow needs in Texas. This is true both for basins which still have some significant amounts of unappropriated water, but where large diversion and impoundment requests are pending, and for basins where all or most of the water has been appropriated, at least on paper. Article 1 of SB 3 had two approaches to meet this urgent need: (1) a relatively aggressive, basin-by-basin timetable for setting environmental flow standards and establishing environmental flow set-asides and (2) provisions to ensure the ability to voluntarily convert existing water rights to environmental flow protection purposes and to enhance the Texas Water Trust for the entire state.

For the basin-by-basin approach to setting environmental flow standards and establishing appropriate set-asides, the longer we wait, the more difficult the task becomes. Aggressive timelines were incorporated into Article 1 of Senate Bill 3 as a compromise. Short timelines were recommended because it was not possible to reach agreement on any form of moratorium on consideration of new water rights. Again, prompt action, based on firm deadlines, is a fundamental aspect of the compromise.

We have attached a brief description of the proposed process as set out in Article of Senate Bill 3, as we understand it, that we believe helps to illustrate how the process will work and why an aggressive timeline is achievable. It was not anticipated that the expert science teams will be collecting new data or conducting new studies. As acknowledged
by the Science Advisory Committee, science is subject to constant revision based on new information. This process is designed to produce the best decision possible based on what we know now, while acknowledging the need to use adaptive management concepts to make reasonable adjustments as we learn more.

**Interaction of Environmental Flow Standards and Instream Flow Studies**

As noted above, there is a critical need for moving forward promptly on developing environmental flow standards based on the best information available. The instream flow study program, created pursuant to Senate Bill 2 in 2001, simply has not been adequately funded and is not likely to produce study results for many more years. In fact, the Environmental Flows Advisory Committee is considering recommending an extension of the deadline for those studies to 2016.

Any preliminary results from those studies can, and should, be taken into account in developing flow regime recommendations and environmental flow standards. However, they are two separate processes and should remain separate. Through the adaptive management aspect of the Article 1 process, information from completed studies will be incorporated into making necessary adjustments, if any, as the stakeholder groups and TCEQ revisit initial recommendations and decisions.

**Size of Stakeholder Groups**

Although we acknowledge the concerns about creating unduly large stakeholder groups, we believe it is critically important to have a balance of interests involved and to have a sufficient number of seats to ensure that all major interest groups are fairly represented. Article 1 of Senate Bill 3, particularly as it was voted out of the House Natural Resources Committee, attempted to strike such a balance.

If any one interest group gets additional seats, then fairness dictates that all interest groups be expanded proportionately. Conversely, if the overall number of seats is limited, then each interest group must lose representation in a proportionate fashion.

This process can only succeed if the stakeholder process is reasonably perceived as fair and balanced.

**Environmental Needs v. Human Needs**

Article 1 of SB 3 was carefully crafted to balance human and environmental needs. It provides that environmental flow set asides, along with environmental flow conditions in permits, are subject to emergency suspension when necessary to meet other essential uses of water. In addition, as testimony during the session and in other forums indicates, maintaining adequate environmental flows has significant economic implications: for commercial and recreational fishing dependent on healthy bays and estuaries and for hunting and nature tourism dependent on healthy rivers and streams. Thus, there is a balance of interests to be struck and Article 1 was particularly mindful of that balance.

**Defining “sound ecological environment”**

We do not believe it is necessary or appropriate to attempt to define “sound ecological environment” in the statute. First, as the science groups have all acknowledged, the specific characteristics of different basins and bays make it likely that “soundness will
vary among the aquatic systems of the state, with local stakeholders playing an important role in assessing the value of what specifically is to be protected with respect to environmental flows.” This makes it difficult, if not impossible, to define the term in statute. An alternative approach would be for the three agencies (TCEQ, TPWD, and TWDB), working with the statewide science advisory committee, to adopt a common operational definition as guidance. This would help to ensure consistency, while also maintaining the flexibility necessary to determine the parameters that constitute a “sound ecological environment” for a particular bay, basin or river/stream system.

**Adjustments to Voluntary Transfer Concepts**

Voluntary mechanisms to convert existing water rights to environmental flow protection purposes are critically important and should be encouraged. However, there are many contentious issues related to amendments of water rights. It would be extremely unfortunate if the environmental flow provisions got entangled in those controversies.

We believe the placement of water rights in the Texas Water Trust should be made as simple as possible, with a streamlined agency review process. That is consistent with the Study Commission recommendations. We also agree that credit against the limited reopener provision for new permits should be available for any voluntary permanent commitment of water rights for environmental flow protection, regardless of whether the commitment is made through the Texas Water Trust.

With respect to amendments of existing water rights to add a use for, or change the use to include, environmental flow protection that do not involve new appropriations, we believe the law should be crystal clear that such amendments are authorized. We also support the inclusion of a clear policy statement acknowledging the importance and availability of flexibility in achieving such use changes, including through short-term leases, and declaring legislative intent to have TCEQ use its existing authorities to facilitate them. We are concerned that any changes beyond that may have serious unintended consequences.

The most important aspect of voluntary transfers is the creation of incentives for them to occur. Ideally, this would include funding to help publicize the existence of those incentives and to help facilitate transfers.

**Land Stewardship**

We remain supportive of the voluntary language that was included in Article 2 of Senate Bill 3 as it was voted out of the House Natural Resources Committee.

**Funding**

As many Committee members have stressed, this process must be adequately funded in order for it to succeed.
APPENDIX E

Science Advisory Committee Charge and Report
At the May 9, 2006 meeting, the Committee created a Science Advisory Committee (SAC) to help with the Committee’s deliberations. The SAC’s charge was as follows:

1. Revisit the 78th Legislature Senate Bill 1639 Study Commission on Water for Environmental Flows SAC report.

2. Provide technical support to the EFAC, as needed; and

3. Coordinating with state agency technical staff to ensure efficient and effective deliberations.

The following individuals were appointed:

Bob Brandes, PhD, R. J. Brandes Company
George H. Ward, Jr., PhD, University of Texas at Austin
Paul A. Montagna, PhD, University of Texas Marine Science Institute
Larry Hauck, PhD, Tarleton State University
Kirk O. Winemiller, PhD, Texas A&M University

A final report was developed by the SAC and is included in this appendix.
At the request of the Environmental Flows Advisory Committee (“EFAC”), the Science Advisory Committee (“SAC”) offers the following recommendations regarding the scientific aspects of establishing appropriate levels of environmental flows for protecting instream uses and the bay and estuary resources of the State of Texas.

1. If the EFAC determines that a definition for a “sound ecological environment” should be incorporated into legislation, then it is recommended that the following be considered:

A sound ecological environment is one that:

- sustains the full complement of native species in perpetuity,
- sustains key habitat features required by these species,
- retains key features of the natural flow regime required by these species to complete their life cycles, and
- sustains key ecosystem processes and services, such as elemental cycling and the productivity of important plant and animal populations.

**Rationale:** The State agencies have been charged by the Texas Legislature to establish and maintain data collection and evaluation programs and to conduct studies and analyses for the state’s bays and estuaries (Texas Water Code §§16.058) and its rivers and streams (Texas Water Code §§16.059) for the specific purpose of determining appropriate levels of flow necessary to support a sound ecological environment. The success of these efforts is entirely dependent upon adoption of an operational definition of sound ecological environment. The above definition is suggested as a means for establishing the key factors that must be considered relative to determining what constitutes a sound ecological environment. It is likely that interpretation of the meaning of the term “sound” will vary among the aquatic systems of the state, with local stakeholders playing an important role in identifying and assessing the value of what specifically is to be protected with respect to environmental flows.
In practice, ecological status is assessed by determining whether or not indicators of ecological conditions lie within acceptable ranges that reflect a sound ecological environment, or ecosystem. Indicators are metrics of ecological state that are quantitative and based upon (or extracted from) observations of organisms in the aquatic system and the magnitudes of hydrological, geological, chemical, or hydrographic parameters that influence these organisms. The utility of an indicator requires that sufficient information exists, ranging from fairly natural to severely degraded conditions, such that an acceptable range of responses can be established for the ecosystem. Long-term, historical information is especially important to establish acceptable ranges.

Ecological condition should be assessed using a combination of metrics for ecological functions, integrity, and sustainability. Ecological functions are considered acceptable when the ecosystem provides important ecological processes. Ecological integrity is considered acceptable when the ecosystem has a community of organisms with biological diversity, species composition, structural redundancy, and functional processes comparable to that of natural habitats in the same region. Ecological sustainability is acceptable when an ecosystem maintains a desired state of ecological integrity over time.

2. More extensive review and guidance by stakeholders and the scientific community should be incorporated into the Texas Instream Flow Studies Program.

**Rationale:** The Texas Instream Flow Studies program is being undertaken jointly by the Texas Water Development Board (“TWDB”), the Texas Commission on Environmental Quality (“TCEQ”) and the Texas Parks and Wildlife Department (“TPWD”), and as currently structured, this program appears to encompass a comprehensive and scientific approach for establishing environmental flow needs for rivers and streams across the state. It is essential, however, that in order for this program to provide acceptable results, it must take into consideration and reflect guidance and direction from stakeholders and be subject to rigorous scientific review, including input on methodologies and the selection of adopted environmental flow regimes.

3. The TCEQ, TWDB and the TPWD should engage as soon as possible the services of qualified professionals to review currently available instream environmental flow assessment tools and to develop one or more desk-top methodologies specifically applicable to Texas river and stream conditions.

**Rationale:** Statistical desk-top methods and associated technical analyses, i.e., those that can be applied using generally readily-available data and information without conducting site-specific field studies, ultimately may offer the most effective approach for evaluating and establishing appropriate levels of environmental flows for rivers and streams across the state, and the answer to this question should be resolved through the ongoing Texas Instream Flow Studies Program. However, results from this Program are years away, and the desk-top methods currently being employed by the State agencies for permitting and planning purposes have not been validated for Texas streamflow and ecological conditions and may not be providing appropriate environmental flow information. For these reasons, these methods should be thoroughly examined relative to Texas river and stream conditions and should be enhanced or replaced with more appropriate methods to facilitate regulatory permitting actions and planning activities until such time as the
Texas Instream Flow Studies program provides more specific guidance. The resulting enhanced methodologies indeed may evolve to become the principal instream environmental flow assessment tools in the long term, if investigations such as those being undertaken through the Texas Instream Flow Studies program prove to be too resource intensive for most situations. These studies will be useful, of course, in providing the site-specific information necessary to ultimately refine the desk-top methodologies to better reflect conditions across the state.

4. **The significant shortcomings exhibited by the TWDB’s State Methodology and the TPWD’s “verification” process that are used to develop freshwater inflow recommendations for the state’s bays and estuaries must be addressed, and the basic environmental flows process previously set forth in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 provides an appropriate means for addressing these shortcomings.**

**Rationale:** The shortcomings of the TWDB’s State Methodology and the TPWD’s “verification” process that are used to develop freshwater inflow recommendations for the state’s bays and estuaries have been articulated in the SAC report of 2004. The measure of abundance used is commercial harvest (except for the recent Sabine Lake recommendations), which has a poor relation to ecological soundness; the various statistical methods employed are questionable, including regression forms and definition of independent variables; the resulting “optimum” inflow regime is mainly determined by constraints, which are arbitrarily specified; and the optimum solution bears no relation to actual harvests, nor do the optimum patterns of inflow occur in the natural hydrology. The TPWD’s verification process is actually a comparative analysis between the \( \text{minQ} \) and \( \text{maxH} \) solutions, and favors the optimal solution with the greater inflow to the bay. One of the most important questions relating to management of inflows to the Texas bays is unanswered by the State Methodology and the TPWD verification analysis, namely under drought conditions what inflows must a bay receive to maintain its ecosystem over the long term. The environmental flows process set forth in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 provides the framework and structure for addressing these shortcomings through the proposed Environmental Flows Commission and the Texas Environmental Flows Science Advisory Committee, with case-specific input from the Basin and Bay Area Stakeholders Committees and Basin and Bay Expert Science Teams.

5. **The TCEQ, TWDB and the TPWD should engage as soon as possible the services of qualified professionals to review existing bay and estuary inflow assessment tools and available data and to develop one or more alternative or supplemental methodologies that could be employed with results from the State’s ongoing bay and estuary work as part of the overall process of establishing appropriate interim levels of freshwater inflow requirements for bays and estuaries.**

**Rationale:** Considering that significant time will be required to modify or improve the State’s procedures for establishing appropriate freshwater inflow requirements for bays and estuaries (“B&E”) and that even under the previously proposed environmental flows legislation in Article 1 of Senate Bill 3 answers regarding B&E inflow requirements would not be available for several years, there is an immediate need to develop an interim
approach to facilitate regulatory permitting actions. For this interim approach, strong consideration should be given to examining the present State Methodology and TPWD’s verification process and refining these procedures to the extent possible using available data to more effectively represent estuarine behavior. Special attention should be given to evaluating the validity of existing relationships between estuarine biological resources and inflow and modifying these or other relationships to specifically address B&E inflow needs during drought conditions. Drought conditions are not specifically addressed under the current procedures, and these are the most important with regard to sustaining estuarine resources because of the competing demands for river flows during these periods. In this regard, consideration should be given to evaluating the characteristics and variability of historical inflows, particularly those reflecting stressed estuarine conditions during droughts.

6. **The TCEQ, TWDB and the TPWD should take extensive measures to assure that input from stakeholders and water interests are fully incorporated into the State’s environmental flow programs and that methodologies and results from these programs are subject to rigorous scientific review as part of the programs themselves.**

**Rationale:** Participation by stakeholders and water interests in the State’s environmental flow programs and rigorous scientific review are of paramount importance to achieving acceptable environmental flow results. Only through a transparent process can appropriate scientific methods be employed and scientific results be formulated and accepted. The environmental flows process set forth in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 provides the framework and structure for assuring such stakeholder participation and scientific review, beginning with the Basin and Bay Area Stakeholders Committees and Basin and Bay Expert Science Teams that are proposed specifically to address individual basin/bay environmental flow issues and needs. Oversight to assure coordination and consistency among basin/bay environmental flow activities and advice and direction to the State agencies are incorporated in Article 1 through the proposed Environmental Flows Commission and the Texas Environmental Flows Science Advisory Committee. As a means to empower greater stakeholder participation in the overall process to determine appropriate environmental flow levels, the State should consider making more data available to the public via the internet.

7. **Adaptive management and precautionary principle methods should be incorporated into all future phases of environmental flow activities, and the proposed instream flow and freshwater inflow adjustment for new permits or permit amendments, as stipulated in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005, provides an appropriate mechanism for incorporating adaptive management and precautionary principle methods into the TCEQ’s water rights permitting process.**

**Rationale:** History proves that the present science of environmental flows is complex, inexact and subject to varying levels of uncertainty, and is constantly revised in the light of new information. These shortcomings identify a need for an overall environmental flow strategy that facilitates change as future information becomes available. Any future adaptive management approach must consider the need for assuring dependable water
supplies for human use and must provide reasonable and scientifically-determined boundaries that limit supply risk while also recognizing scientific uncertainty and erring on the side of caution if the risks of environmental damage are high. Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 provides for appropriate revisions to Section 11.150 of the Texas Water Code that require the TCEQ to consider adjustments to environmental flow requirements in new water rights permits or permit amendments if such adjustments are deemed appropriate to achieve compliance with applicable environmental flow standards previously adopted by the TCEQ.

8. **Pursuant to provisions of Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005,** if considered appropriate by an individual Basin and Bay Area Stakeholders Committee, the function of the proposed Basin and Bay Expert Science Team could be incorporated into the individual Basin and Bay Area Stakeholders Committee, with supplemental technical support and expertise engaged by the individual Stakeholders Committee as deemed appropriate and necessary.

**Rationale:** Technical resources available within the state with respect to the specific disciplines required to effectively evaluate all aspects of environmental flows are limited. Consequently, it may not be possible to adequately implement the structure proposed in Article 1 of Senate Bill 3 as it was considered by the 79th Texas Legislature in 2005 for establishing a separate Basin and Bay Expert Science Team for each basin and bay system in the environmental flows assessment process. As an alternative, the function of the proposed Basin and Bay Expert Science Teams could be performed by supplemental technical support and expertise engaged directly by the individual Basin and Bay Area Stakeholders Committees. Under these circumstances, the state-level Texas Environmental Flows Science Advisory Committee would have to play a more active role in the deliberations of the individual Basin and Bay Area Stakeholders Committees to provide an acceptable level of scientific competency and to assure consistency among the environmental flow evaluations and recommendations for all regions of the state.
APPENDIX F

Recommendations Submitted by Committee Members
This appendix contains all recommendations and rationales as originally submitted by Committee members and Subcommittees. However, some recommendations were altered by the Committee, and the original rationales may not reflect the Committee's deliberations nor the ultimate rationale behind the members' votes. Committee deliberations recorded at EFAC meetings may be found at http://www.twdb.state.tx.us/EnvironmentalFlows/index.html

1. **Recommendation:** Upon creation of the individual bay/basin stakeholder groups, the Subcommittee recommends each group establish an expert science team as soon as reasonably practicable. The team should serve as local experts in matters associated with the science of environmental flows for their respective study area.

   **Rationale:** Recommendations for developing specific bay/basin environmental flow regimes should be based on a sound scientific approach, using the best available information. The process should be a collaborative effort between the stakeholder group and the science team to ensure the stakeholders’ goals are supported by sound technical analysis and the best available science.

   **Status:** Approved with edits

2. **Recommendation:** The Subcommittee recommends the bay/basin stakeholder group and respective expert science team work collaboratively on the bay/basin specific environmental flow regime recommendation with a goal of submitting a consensus report to the TCEQ.

   **Rationale:** Section 11.02362, Senate Bill 3, Article 1 (C.S.S.B.) calls for the bay-basin expert science teams independently to “…submit its environmental flow analyses and flow regime recommendations…” to the stakeholder group, environmental flows commission and the TCEQ. The Subcommittee recommends a more collaborative approach. The stakeholder group and the expert science team should work together on a single submission.

   **Status:** Approved with changes – considered with #3

3. **Recommendation:** Reword the language discussing the “collaborative effort between the (Bay/Basin) stakeholder group(s) and the science group(s) with a single submission to TCEQ.” This statement is subject to misinterpretation, and may result in TCEQ’s not seeing the specific recommendations of the Bay/Basin Science Advisory Committee.

   **Rationale:** Although there can be a “single submission” to TCEQ, this submission must be comprehensive, and specifically include the Bay/Basin Science Committee’s work. TCEQ may well be in a position of striking a balance between the science and stakeholder perspectives, under the guidelines provided for in Article 1. This was an absolutely critical part of the original consensus, which we have all agreed to maintain. Of course, TCEQ will also have available to it the opinion of the statewide Science Advisory committee, as well as its own science staff, both of which may be called upon to assure that the “single submission” does in fact achieve the goal.

   **Status:** Approved with changes – considered with #2
4. **Recommendation:** Require that each bay/basin stakeholder group appoint a liaison for each of the regional planning groups which have overlapping boundaries with the respective bay/basin group.

**Rationale:** To ensure coordination between water resource planning and the development of strategies to meet environmental flow recommendations, lines of communication must be established between the two (or more) groups.

**Status:** Approved with edits

5. **Recommendation:** A basin stakeholder committee should be part of the initial process with input from a scientific standpoint.

**Rationale:** The process has always been based on a bottom-up process, much like the regional water planning process. The process must include independent science and technical input either from a basin science committee or a consultant hired by the stakeholder group. Independent, scientific input is vital to the process. This basic stakeholder process should also culminate in a Texas Commission on Environmental Quality (“TCEQ”) rulemaking which would establish environmental flow regimes and set asides for every bay basin complex. The current case-by-case permitting scheme does not allow for this type of crucial stakeholder and scientific input.

**Status:** Approved

6. **Recommendation:** A statewide science oversight committee should also be included in the process.

**Rationale:** Much like our science advisory committee, the statewide oversight committee will need advisors to provide technical assistance as well as oversight of the science developed for the process by the Bay/Basin groups and the state agencies to ensure consistency.

**Status:** Approved

7. **Recommendation:** The Texas Legislature should evaluate the necessity of an Environmental Flows Commission (“EFC”).

**Rationale:** The purpose of the proposed EFC is to conduct public hearings and study public policy implications for balancing the demands of state water resources. In Article I, the proposed EFC is instructed to specifically address the following: 1) ways that the ecological soundness of the state’s river, bay and estuary systems will be ensured in the water rights administration and enforcement and water allocation processes; and 2) appropriate methods to encourage persons voluntarily to convert reasonable amounts of existing water rights to use for environmental flow protection temporarily or permanently.
Texas already has a state agency, the Texas Commission on Environmental Quality (“TCEQ”), established and equipped to carry out the functions intended for the EFC as proposed in Article I. Ultimately, in all the suggested processes for an EFC discussed to date, TCEQ has final rulemaking authority with respect to any proposed environmental flow standards that will be subject to public comment and stakeholder involvement. Furthermore, the science necessary to determine proposed environmental flow standards for the state’s river, bay and estuary systems is currently being conducted and, to the extent necessary, can continue to be mandated in any legislation that is eventually proposed. Opting not to create an EFC while ensuring coordination between the three governing state agencies through a Memorandum of Understanding, legislating that continued science be conducted as necessary, and continuing to place sole rulemaking authority with the TCEQ (that is based on the science developed) could simultaneously streamline and fast-track the process of establishing environmental flow standards and will ultimately be a better use of the state’s resources.

Status: Not Approved – considered with # 8, 9, 10 & 11

8. **Recommendation:** Establish an Interim Environmental Flows Committee (IEFC) composed of nine (eleven) members composed as follows:

- Presiding officer of the TWDB
- Presiding officer of the TCEQ
- Presiding officer of the TWDB
- Four (Six) members appointed by the Governor
- Chair (or their appointed representative) of the Senate Natural Resources Committee
- Chair (or their appointed representative) of the House Natural Resources Committee

Members appointed by the Governor should be knowledgeable regarding issues associated with environmental flows and represent areas of expertise in business industry, cities, agriculture, environmental, water interests, and local interests.

The IEFC should be established for a two-year period, with a continuing function left to the discretion of the Texas Legislature.

**Rationale:** Establishment of the environmental flows committee would provide the mechanism for creation, administration and oversight of the state science advisory panel and the bay/basin stakeholder groups. By establishing the flows committee on an interim basis, the TX Legislature would be provided the opportunity to evaluate the progress of the initiatives and to determine if there is a need to continue the committee and make adjustments as needed.

Status: Approved – considered with # 7, 9, 10 & 11

9. **Recommendation:** Add the Chairmen of both the House and Senate Natural Resource Committees to the proposed Environmental Flows Interim Commission as ex-officio members.
Rationale: This would give the Commission an “automatic” liaison to both this key Committee, which would thereby facilitate the work of the Commission, its legislative reporting process, funding issues, et al.

Status: Not Approved – considered with # 7, 8, 10 & 11

10. Recommendation: The process should include a statewide oversight committee made up of both stakeholders and representatives of the three agencies.

Rationale: Representation from a balanced perspective outside of elected and appointed officials is crucial to the process of developing meaningful standards for environment flows. Stakeholders should be included in the process in order for this process to work, and to be credible in the eyes of environmental and regulated communities.

Status: Not Approved – considered with # 7, 8, 9 & 11


Rationale: CSSB 3, Section 1.08 amending Water Code Section 11.0236 sets out the membership of the Environmental Flows Commission. Concerns and questions have been raised regarding the makeup of the membership including whether to have legislator members and whether appropriate interests (such as water development, local government, agriculture, recreation, commercial fishing, public interest, environmental protection and industry) are represented in the membership. Ensuring that the membership can carry out the goals of the Flows Commission charges is critical to the success of the Commission.

Status: Not Approved – considered with # 7, 8, 9 & 10

12. Recommendation: The Subcommittee recommends that each bay/basin stakeholder group include, at a minimum, representative members as identified in Senate Bill 3, Article 1, and Section 11.02362(f). The Subcommittee also recommends a provision be included to name additional stakeholders, at the discretion of the IEFC, and as deemed appropriate and necessary to ensure all interests are represented and will contribute to achieving the overall goals of the group.

Rationale: Each bay/basin within the state is unique and exhibit characteristics that may vary from region to region. To ensure that all issues are represented and addressed during the development of the environmental flow analyses and subsequent environmental flow regime recommendations, the membership of the bay/basin groups may require additional local resources to achieve overall consensus.

Status: Approved – considered with # 13 & 14
13. **Recommendation:** Review the membership of the basin and bay area stakeholder committees.

**Rationale:** CSSB 3, Section 1.09 amending Water Code Section 11.02362(f) provides that basin and bay area stakeholder committees must have at least 17 members. In order to keep the committee membership to a reasonable size, the Committee should consider placing an upper cap on the number of members. The proposed membership covers 11 named interests for representations; a membership of 11 may be a more manageable than a group of 17.

**Status:** Not Approved – considered with # 12 & 14

14. **Recommendation:** In the event the Legislature decides that an EFC is necessary, I recommend streamlining and simplifying the process and restructuring the composition of the proposed Basin and Bay Stakeholder Committees.

**Rationale:** As proposed, the process in Article I would eventually require the involvement of over 390 Texans to serve on the Basin and Bay Stakeholder Committees alone. This does not include the Texans that will be asked to participate in the EFC, the Texas Environmental Science Advisory Committee, as well as, in the proposed local science committees. Creating a workable and efficient structure to coordinate between these committees seems almost impossible, and any process that is eventually proposed should be as efficient as possible with respect to coordination, funding and time constraints. I also support Kathleen White’s recommendation that any EFC created should have a sunset date upon adoption of the rules pertaining to environmental flows.

Furthermore, the composition of the proposed Basin and Bay Stakeholder Committees does not adequately represent the diversity of industry groups that are critical to this process and to the state’s economy. I offer the following suggestions for restructuring the committees:

- Establish representation per basin/bay based on permit holders. For example, not all representatives listed in Article I are present in every basin/bay. In order for representation of each basin/bay to be optimal, narrowly tailor the structure of the committees based on which permitted entities are using the basin/bay.

- Create a more equal balance of representation between permit holders and public interest groups. For example, each committee could be represented by 6 permit holders representing industry, municipalities, etc. and 6 non-permit holders intended to represent the public.

- To the extent that industry representation is required, where applicable, there should be one required industry representative from each of the following four categories: 1) refineries; 2) chemical manufacturing; 3) electric generators; and 4) paper products/timber.

- Consider having current members of the Regional Water Planning Groups serve on the committees.
In the interest of maintaining efficiency of time and resources, cap the size of the committees to a smaller number, as opposed to having a 17-member Basin and Bay Stakeholder Committee for every basin/bay.

Status: Not Approved – considered with # 12 & 13

15. **Recommendation:** The environmental flows committee should appoint the state science advisory panel composed of not less than five nor more than nine members, with expertise as outlined in Section 11.02361(b) of Senate Bill 3, Article 1 (C.S.S.B.).

**Rationale:** The state advisory panel will provide expert advice to the flows committee on matters relating to technical issues associated with environmental flows, and will provide scientific oversight for the bay/basin studies to ensure consistency among the many efforts.

Status: Approved with edits

16. **Recommendation:** The Subcommittee recommends accepting the schedule for appointing the bay/basin stakeholder committees as presented in Section 11.02362 of Senate Bill 3, Article 1, subparagraph (f) (C.S.S.B.), with a goal of establishing stakeholder groups for the top priority areas within six months of bill enactment.

**Rationale:** Considerable discussions and deliberations took place when setting the schedule for creation of the bay/basin stakeholder groups, and were based on many criteria, including but not limited to, the level of activities (i.e. permitting, development, wetland impacts…), and environmental issues associated with the specific bay or basin. Rather than set a date certain for a specific action, it was suggested that a date be establish as a target, with a goal of achieving that step of the process.

Status: Approved with edits

17. **Recommendation:** Maintain the original deadline for the Environmental Flows Commission to appoint the first set of Bay/Basin Stakeholder (November 30, 2007). Add language that would allow no more than a 30-day extension as a contingency.

**Rationale:** Although the Process Subcommittee headed by Chairman White recommended a later date, I now believe extending this deadline beyond a brief “contingency” period would be a mistake. Firm dates, mandated by legislation, drive the entire process, which could easily be dragged out to the detriment of achieving the environmental flows objectives. As a former Fortune 500 company president, I can assure you that all progress towards any goal requires discipline with respect to achievements against timelines.

Status: Not approved – consolidated with #16.
18. **Recommendation:** A more realistic timeframe should be set for the performance of studies in the Galveston Bay and Sabine Lake Studies.

It is proposed that the dates in § 1.09 of Article I of Senate Bill 3 be modified as follows:

1. In proposed Water Code Subsection 11.02362(a), the date for defining the geographical extent of each river basin and bay system should be changed to November 1, 2007.
2. In proposed Subsection 11.02362(c)(1), the date for appointing the Bay and Basin Area Stakeholder Committee should be established as November 1, 2007.
3. In proposed Subsection 11.02362(c)(2), the date for establishing the Bay Basin Expert Science Team should be changed to March 1, 2008.
4. In proposed Water Section Code, Subsection 11.02362(c)(3), the date for the Bay and Basin Expert Science Team to finalize the environmental flow recommendation and submitting it to the Bay and Basin Area Stakeholder Committee, the Flows Commission, and the TCEQ should be changed to a goal of March 1, 2009.
5. In proposed Water Code Subsection 11.02362(c)(4), the Bay and Basin Area Stakeholder Committee shall have six months after receipt of the environmental flow regime recommendation to submit its recommendation to the TCEQ.
6. In proposed Water Code Subsection 11.02362(c)(5), the TCEQ should be given one year from the time it receives the comments and recommendations from the Bay and Bay Areas Stakeholder Committee to adopt environmental flow standards as provided by Subsection 11.1471.

**Rationale:** Every effort should be made to begin the process of formulating an environmental flow and regime in recommendation for the first priority bay and basin systems (Galveston Bay and Sabine Lake). A goal is more appropriate than setting a deadline for the formulation of the environmental flow regime and recommendation by the Bay Basin science committee. At this point, nobody really knows how to formulate an environmental flow regime and recommendation. With respect to the fresh water inflow issue, Texas Parks and Wildlife Department and Texas Water Development Board (“TWDB”) have made freshwater inflow recommendations for both Sabine Lake and Galveston Bay, but the recommendations are in the nature of an optimum value rather than an inflow regime that can be used in water rights permitting. The Texas Instream Flow Program (“TIFP”) is in its infancy. A second draft of the technical overview document was released in May. At this point, the document has a lot of the field measurement techniques described but the process of integrating the data collected into an instream flow recommendation has not been developed. From the comments of agency staff at a recently held workshop, it is not clear how the TIFP established by Senate Bill 2 would relate to an environmental flow program if legislation similar to Senate Bill 3, Article 1 is adopted. In summary, there is a lot of uncertainty, not just regarding the numbers and the environmental flow regimes that will be developed, but considerable effort will need to be employed to develop the methodology for calculating fresh water inflow and instream flow values that will be useful in setting environmental flow standards.

**Status:** Approved with edits

19. **Recommendation:** Shorten the timeframe for the Environmental Flows Commission comments to TCEQ regarding environmental analyses and flow regime recommendations.
Rationale: CSSB 3, Section 1.09 amending Water Code Section 11.02362(q) provides that the flows commission shall, if appropriate, submit comments on the environmental analyses and flow regime recommendations to the commission no later than six months after the receipt of the analyses and recommendations. Relative to the timeframes upon which the analyses and recommendations must be drafted, six months appear to be a disproportionate amount of time in an otherwise expedited process.

Status: Tabled – to be considered at November 13, 2006 meeting

20. Recommendation: In recognition of the importance of adaptive management, as presented in Senate Bill 3, Article 1, Section 11.02362(p), the Subcommittee recommends the approach used for environmental flow analyses, development of environmental flow regimes and subsequent adoption of environmental flow standards, include an adaptive management step for periodic reviews and updates for applicable environmental flow strategies.

Rationale: The concept of “adoptive management” assumes that continual improvement in environmental flow analysis and continual expansion of data may warrant modification in recommended environmental flow regime and regulatory adopted environmental flow standard. To ensure a means for “adoptive management” modifications, the Article 1 process should include a feedback loop which provides water resource planners and managers with the best available information for informed decision-making.

Status: Approved with edits

21. Recommendation: Plainly indicate the “adaptive management” module linked to TCEQ on the diagram showing how the environmental flows process will work.

Rationale: At our last EFAC meeting, it became clear that there is some resistance to the concept of adaptive management within certain regional water planning groups. We must not enter into this extended process without this basic concept being incorporated and acted upon ---forever. The environmental flows and all other water needs in Texas will never not be under terrific pressure in any conceivable future scenario. The only way to meet all the conflicting water needs of both our population and the ecological health of our 80,000 miles of rivers and streams is by committing to a process that can respond to change.

Status: Not approved – combined with #20.

22. Recommendation: The Subcommittee recommends using the TWDB’s established program for identifying watershed boundaries for the state’s riverine and estuarine systems.

Rationale: The TWDB currently delineates watershed boundaries for their on-going water monitoring and studies programs, and for state water planning purposes. By using the existing information and methods for bay/basin delineation, the flows committee can minimize any duplication of efforts, reduce the need for resources, and ensure consistency between their efforts.
and those of the state resource agencies charged with planning, monitoring, and the study of the state’s surface water resources.

**Status: Approved with edits**

**23. Recommendation:** Craft language that establishes the support of voluntary land stewardship practices as one of the state’s primary water policy tenets and craft legislation that codifies land stewardship practices to benefit the water in the state.

**Rationale:** Voluntary land stewardship affects rainfall where it hits the ground, allowing water managers to focus on supply as well as demand. Making the most of rainfall through a variety of land stewardship practices is one of the most cost-efficient water management options available; currently, the vast majority of land stewardship occurs at no cost to the state. Plus, the effects of voluntary land stewardship complement perfectly any other water management strategies the state might implement because voluntary land stewardship helps ensure that both the quantity and quality of the state’s water is improved. Finally, voluntary land stewardship not only affects water quality and quantity, it provides a host of other societal benefits including improving wildlife habitat and conserving open space land.

**Status: Approved**

**24. Recommendation:** Encourage responsible land management practices that protect water sources by creating, promoting, and funding programs that provide financial incentives for private landowners.

**Rationale:** Voluntary land stewardship plays an integral role in sustaining environmental flows. Without private land stewardship, environmental flows in Texas streams and rivers, especially those necessary to our bays and estuaries, would be significantly reduced. Yet Texas loses millions of acres of watershed lands each year to fragmentation. According to a 2003 Texas A&M study, land fragmentation leads to water quality problems caused by increased erosion and run-off. Better use of financial incentives, such as the USDA’s Farm & Ranch Protection Program, the Grasslands Reserve Program, or the Texas Farm & Ranch Lands Conservation Program, would enable land stewards to stay on the land and continue to provide the public benefits of water quantity and quality.

**Status: Approved with changes**

**25. Recommendation:** It is imperative that the legislature provide continued funding to make sure this process continues to work in a positive manner.

**Rationale:** All of the processes required by this legislation—the stakeholder processes, scientific support, and rulemaking processes, will require funding if this environmental flows process is to work.

**Status: Approved – considered with # 26, 27 & 28**
26. **Recommendation:** Provide adequate funding for implementation of environmental flow legislation.

**Rationale:** In order for any legislation to be successfully implemented, the stakeholder process, scientific peer review, technical evaluations and agency support all require adequate funding to support the process.

**Status:** Not Approved – considered with # 25, 27 & 28

27. **Recommendation:** Provide funding for state agencies for technical work that supports the Flows Commission and Science Advisory Committee and bay and basin area stakeholder processes.

**Rationale:** CSSB 3, Section 1.26 adding Water Code Section 15.4063 authorizes the use of money in the research and planning fund for compensating the Texas Environmental Flows Science Advisory Committee (SAC), for funding contracts with entities to provide technical assistance to the SAC and basin and bay science teams, to compensate science team members and to fund administrative costs for conducting stakeholder and science team meetings. This provision does not direct funding for the state agencies; however, EFAC members have expressed the expectation that the state will be providing a high level of support for groups participating in developing environmental flow regimes.

**Status:** Not Approved – considered with # 25, 26, & 28

28. **Recommendation:** Provide funding for the state's freshwater inflow studies program.

**Rationale:** CSSB 3, Section 1.06 amending Water Code Section 11.0235(d-3) finds that the state must improve the foundation of freshwater inflow work accomplished by the state, however the bill does not provide any supporting funding for additional work. If additional freshwater inflow studies, assessments and updates are necessary, adequate funding must be provided.

**Status:** Not Approved – combined with # 25, 26 & 27

29. **Recommendation:** Any funding mechanism proposed to evaluate the current science and continue additional science as needed should be fair and equitable.

**Rationale:** It is evident in testimony provided by many interested parties, including the Texas Water Development Board, that any additional science that is undertaken will require a significant amount of funding. To the extent a funding mechanism is included in any legislation eventually proposed, any fees assessed to promote the science required by environmental flows legislation should be fair and equitable. For example, the Legislature could impose an equally nominal, yet
adequate, tap fee on all residential, commercial and industrial users in order to obtain the funding necessary to complete the scientific studies. As opposed to the fee structure originally proposed in Article III of S.B. 3, the Legislature should propose only a balanced fee structure. The Legislature should not propose a disproportionate tax that would unjustly make industrial, commercial and/or municipal users fund the scientific studies while exempting other sectors, such as residential and agricultural users, from paying the fee.

Status: Approved

30. Recommendation: Create incentives to attract Texas Water Trust deposits.

Rationale: With the growing demand for water and the rising cost of securing water rights, the Trust has few assets to compete with other market players. For the Trust to function better than it has historically, financial incentives need to be provided to water right holders willing to dedicate their water rights for environmental needs. Possible funding sources for incentives may include donations, state water use fees, supplemental environmental project funds collected during water related enforcement proceedings or a fee on persons who use state water for recreation and who would benefit by increased protection of fish and wildlife. Trust funding may allow qualified trustees, such as Texas Parks and Wildlife Department, to buy or lease water rights for deposit in the Trust.

All barriers to the Trust should be eliminated. The process to deposit a right into the Trust should be free of any fees. For a deposit in perpetuity, all fees associated with maintaining and enforcing a water right should be waived. For a temporary deposit, all fees associated with maintaining and enforcing a water right should be deferred; when the right is removed from the Trust, all deferred fees shall be due.

In order to build confidence in the Trust and to assure that donated funds are invested only in maintaining environmental flows, it should be made clear that deposits in perpetuity cannot be removed from the Trust or reclaimed by the state for appropriation for other purposes.

Status: Approved

31. Recommendation: Encourage the Legislature to propose legislation that provides market incentives to protecting environmental flows, as opposed to mandates or subsidies.

Rationale: Consistent with the original charge to the EFC, the Legislature should continue to develop market incentives that encourage Texans to voluntarily convert existing water rights to use for environmental flow protection. This could be accomplished through tax incentives or credits given for environmental flow donations through the Texas Water Trust or other such mechanisms, the intent of which would ultimately preserve all existing water rights while promoting an economical, fair and market-based solution to maintaining the state’s necessary environmental flows. In all cases, bias should be given to equitable treatment and use of market forces to the highest degree possible.

Status: Approved
32. **Recommendation:** The market-based approach used for trading water rights in other western states should be investigated further to see how effective these methods might be in Texas.

**Rationale:** As the state’s supply of unappropriated water decreases, the trading of water rights through markets will likely increase. An active water market that fairly values water may be a vehicle to identify and acquire water rights for environmental flow purposes. Voluntary water market transactions in states such as Oregon, Washington and Colorado have led to improved environmental flows. Studying the experiences of other states can assist Texas as its water markets grow.

**Status:** Approved

33. **Recommendation:** Simplify procedures for Texas Water Trust deposits by: (1) eliminating the need for an amendment before a water right is placed into the Water Trust; (2) directing the Texas Water Development Board (TWDB) to set out a simplified application and approval procedures; and (3) eliminate the need for input from the Environmental Flows Committee, the bay/basin stakeholders, and the bay/basin expert science team.

**Rationale:** The current dual process of amending a water right for conversion to instream uses through TCEQ approval and applying to the TWDB for deposit into the Texas Water Trust is ambiguous and unwieldy. Language put forward in CSSB 3, Section 1.27(e) eliminates the need for an amendment to a water right before it can be placed into the Trust; this provision streamlines placement of water rights into the Trust and should be retained in any new bill. A rulemaking directive to TWDB to set out a simplified Trust deposit application and approval procedures may be necessary. In order to maintain accurate records of water rights, upon deposit of a water right in the Trust, the TCEQ would perform the ministerial act of re-issuing the water right permit to reflect the deposit and the authorization to use the water for environmental needs.

CSSB 3, Section 1.27(c) provided that, before a water right could be placed into the Water Trust, consultation with the Environmental Flows Committee, and an opportunity for input by the bay/basin stakeholders and the bay/basin expert science team was required. The present approval of water rights going into the Trust by the TCEQ serves the same purpose, and therefore the process set out in CSSB 3 1.27(c) can be streamlined.

**Status:** Approved

34. **Recommendation:** Clarify language regarding Texas Water Trust deposits as credits against adjustment of a water right to meet environmental flow standards.

**Rationale:** CSSB 3, Section 1.16 provides that any water right holder making a contribution to the Texas Water Trust that contributes toward meeting an environmental flow standard is entitled to appropriate credit of such benefits against adjustment of the holder’s water right pursuant to Subsection (e-1)(1). For the credit to be effective in providing water to meet the particular
environmental flow standard, the provision should clarify that the Trust deposit must be in the
affected water body of the holder’s water right.

Status: Approved with edits.

35. Recommendation: Revise Section 1.16 of Article 1 as follows: The adjustment...(3) must be
based on appropriate consideration of any volunteer contributions to the Texas Water Trust or
water right amendments to quantify an instream use that contribute towards meeting the
environmental flow standards. Any water right owner making such a donation or permit
amendment shall be entitled to appropriate credit of such benefit against water right pursuant to
subdivision.

Rationale: This would have the effect of not limiting the flow improvement that can be recognized
in any water right reopener or adjustment to flow standards, to flow improvement via the Texas
Water Trust.

Status: Approved

36. Recommendation: Revise Section 1.27 of Article 1 as follows: The terms or other
quantifications of instream use approved by the Commission shall be equivalent to a permit
amendment while the water right is held in the Texas Water Trust. After the water right is
withdrawn in whole or in part from the trust, the terms of the instream use shall expire and the
use of the water right or portion of the water right withdrawn must be in accordance with the
original terms of the water right

Rationale: This would avoid separate TCEQ approval of the deposit of a water right into the Trust
from any TCEQ approval of the amendment of its permit needed to specify all parameters of the
instream use of the right. This would enable meaningful specification of the instream use, in the
same approval for any deposit into the Trust.

Status: Tabled – to be considered at November 13, 2006 meeting

37. Recommendation: Revise Section 1.12 of Article 1 as follows: The TPWD has: (1) the rights
of an owner of a water right that is held in the Texas Water Trust, including the right to file suit
in civil court to prevent the unlawful use of such a right to prevent the violation of the terms of
the instream use of the water right while held in the Trust.

Rationale: This wording makes it clear that TPWD can enforce the terms of any dedication of water
rights to the Trust for instream use as if the terms were included in a permit amendment, and as if
TPWD owned the water rights. The EFAC members should note that the existing TPWD
enforcement language in Art 1, SB 3 was negotiated language in reaching our hard earned
consensus. The Water Rights Subcommittee should consult with the TWCA if this revision is
deemed essential to TPWD enforcement.

Status: Approved
38. Recommendation: The provisions proposed in Article 1 of Senate Bill 3 relating to the Texas Water Trust should be given a chance to work.

Rationale: At the Environmental Flow Advisory Committee Meetings and in the first round of written suggestions, many of the comments pertain to the Texas Water Trust. I believe the provisions proposed in Article I of Senate Bill 3 regarding the Water Trust will have a beneficial effect. The proposed language alleviates the necessity of obtaining an amendment to use water rights deposited in the Water Trust for environmental purposes. There is a provision that allows Texas Parks & Wildlife Department (“TPWD”) to enforce a water right that is deposited into the Water Trust. The proposed language also exempted water rights deposited in the Water Trust from all of the fee provisions in the Water Code. These provisions were the result of a consensus-based approach and should be given a chance to work before wholesale revisions are adopted.

Status: Approved


Rationale: In its nine years of existence, the Trust has been utilized only twice, with both of the deposits being guided by TPWD. The fact that water right holders can seek the assistance of TPWD to facilitate the paperwork required to process the associated water right amendments and deposit their water rights into the trust should be clarified. Information regarding the Trust may be found in the Texas Water Code and on the TCEQ and TPWD websites, but no outside advertising or public awareness campaign has been created to publicize the Trust. A campaign should be developed to target those water right holders who are attracted the idea of dedicating their water rights to meet environmental needs.

Status: Approved

40. Recommendation: Provide clear language that existing water rights may add instream use or convert to instream use as a purpose of use and that instream use rights have equal standing with other water rights. Encourage the voluntary conversion of existing water rights to meet environmental flow needs.

Rationale: Plain language can eliminate any confusion regarding instream use permits and their equal standing with water rights for other purposes. Public policy statements expressing the state’s support for voluntary conversions of existing water rights to environmental flow purposes may provide assurance to water right holders that their actions are beneficial to the state and appreciated for protecting the state’s natural resources. Language is needed to support the facilitation, protection and enforcement of instream use permits to the maximum extent possible, including the retention of original priority dates. It should be clear that amending or converting a water right to instream uses is a minor amendment requiring no notice.

Status: Tabled – to be considered at November 13, 2006 meeting
41. **Recommendation:** Provide clear language that water rights may be leased for instream uses without the need for a water right amendment.

**Rationale:** Leasing water rights for periods critical to environmental needs may be an attractive option for certain water right holders. In order to keep leasing transactions simple but still allow a water right to be put to instream uses, a permitting exemption or an expedited process should be authorized to temporarily add instream use as a purpose of use for the leased water.

**Status:** Approved

42. **Recommendation:** Expand the concept put forward in CSSB 3, Section 1.16 regarding credit toward meeting environmental flow standards via an adjustment to permit conditions to include and allow credit for voluntary conversions of appropriate existing water rights to environmental flow protection purposes.

**Rationale:** The language put forward in CSSB 3, Section 1.16 entitles a water right holder making a contribution to the Texas Water Trust to receive credit toward meeting an environmental flow standard imposed through an adjustment to permit conditions. To encourage non-Trust instream use water rights (that achieve the same goal of the Trust in providing water for environmental needs), this concept should be amended to allow a water right holder making a permanent voluntary conversion to instream use of an appropriate existing water right to receive credit toward meeting an environmental flow standard imposed through an adjustment to permit conditions. If the voluntary instream use conversion is part of a multi-use water right, the instream use portion must be clearly quantified and committed solely to instream use purposes.

**Status:** Withdrawn

43. **Recommendation:** Expand TCEQ authority in adjusting environmental flow permit provisions and issuing permit amendments.

**Rationale:** CSSB 3, Section 1.16 adding Water Code Section 11.147 (e-1) provides that the TCEQ may not adjust an environmental flow condition of an amendment other than a condition that applies only to the increase in the amount of water to be stored, taken or diverted authorized by the amendment. This provision should be expanded to include permit amendments that increase the diversion rate. This change would be consistent with the current Water Code Section 11.122(b).

**Status:** Withdrawn

44. **Recommendation:** Expand TCEQ authority in issuing permit amendments.

**Rationale:** CSSB 3, Section 1.17 adding Water Code Section 11.1471 (d) provides that the TCEQ may not issue an amendment that increases the amount of water to be stored, taken or diverted if the
issue of the amendment would impair an environmental flow set-aside and that any amendments issued that increased the amount of water to be stored, taken or diverted must contain appropriate conditions to ensure protection of the set-aside. This provision should be expanded to include permit amendments that increase the diversion rate. This change would be consistent with the current Water Code Section 11.122 (b).

**Status: Withdrawn**

45. Recommendation: Develop statutory definition of instream use for water rights permitting purposes.

**Rationale:** "Instream use" is the term commonly applied to water rights that are authorized to protect environmental flows, however, there is no statutory definition of instream use in Texas Water Code Chapter 11. A definition of the term by TCEQ rule can be found at 30 Texas Administrative Code Section 297.1 (23) and maybe appropriate for a statutory definition.

**Status: Tabled – to be considered at November 13, 2006 meeting**

46. Recommendation: Add phased deadlines for instream flow studies under Section 16.059.

**Rationale:** Chairman Pittman’s recommendation to extend the instream flow studies completion date from 2010 to 2016 is understandable, given TWDB’s lack of funding for such studies. However, it would seem that some priority studies could be completed before 2016, so a better approach might be to propose a phased schedule, rather than delay all priority studies until 2016. This would inspire more confidence from the legislature that any appropriated funding for such studies will be used efficiently.

**Status: Approved – considered with # 48**

47. Recommendation: The Senate Bill 2 instream flow program should be integrated with the environmental flow program.

**Rationale:** It is currently not clear how the ongoing Senate Bill 2 instream flow program will integrate with the environmental flow program. As proposed in Article I of Senate Bill 3, the environmental flows process would result in the promulgation of environmental flow standards for Bay/Basin Systems. These Bay/Basin standards would be derived through a combination of policy decisions by a Bay/ Basin Stakeholder Committee to establish management objectives for a Bay/ Basin and technical evaluations by a Bay Basin technical committee to decide the flows needed to support the management objectives. This combination of technical and policy information would be the input to the TCEQ’s promulgation of a Bay/ Basin environmental flow standard.

The Senate Bill 2 instream flow program has a lot of similarities to the process in Article I of Senate Bill 3. There will be a stakeholder process to establish the management objectives for a stream segment. Technical evaluations will then be used to synthesize an instream flow
recommendation. There does not seem to be any reason for doing virtually the same thing twice. For example, there will be a Senate Bill 2 flow stakeholder group and an environmental flow Bay/Basin stakeholder group. If they recommend the same management objectives for a stream reach, obviously the same result could have been reached by only having one of the stakeholder groups. If the two stakeholder groups adopt incompatible management objectives for the same stream reach, how will the conflict be resolved? Does the recommendation of the second stakeholder group to address the issues prevail? If that is the case, the efforts of the first stakeholder group are wasted.

A more efficient path would be to better integrate the Senate Bill 2 instream flow program into the proposed legislation that was formerly Article 1 of Senate Bill 3. The stakeholder groups and the technical groups could then be consolidated where appropriate. The objectives of the Senate Bill 2 instream flow program should be made consistent with the environmental flow process. Namely, the instream flow program should be focused on determining the instream flows necessary to support the management objectives of a particular stream segment. These would be incorporated in the environmental flow standard.

Status: Not approved

48. Recommendation: Extend the deadline for completion of Senate Bill 2 instream flow studies from December 31, 2010 to December 31, 2016.

Rationale: Since passage of Senate Bill 2, authorizing the instream flow program, there have been a number impediments to full implementation, most notably the lack of funding provided. The desire to fully integrate stakeholders in the process and rigorous peer review of the methodology developed, while adding integrity to the program, have resulted in further delays. Delaying the due date for completion of priority studies (Texas Water Code, Section 16.059(d)) to December 31, 2016, would allow the agencies and stakeholders sufficient time to complete their work.

Status: Not approved – considered with # 46

49. Recommendation: Texas Parks and Wildlife Department, Texas Commission on Environmental Quality and Texas Water Development Board to provide progress reports on their activities related to the Instream Flow and Freshwater Inflow programs on a biannual basis.

Rationale: For any process established related to environmental flows, it is important that they have the latest information from the state agencies on the progress made on the instream flow and bays and estuaries freshwater inflow studies. Regular updates of this information would ensure that any established committee or the agencies’ legislative oversight committees remain fully apprised of all environmental flow activities in the state.

Status: Approved with changes
**50. Recommendation:** Define "technical assistance" of the state agencies to the bay and basin area expert science teams and stakeholder committees.

Rationale: CSSB 3, Section 1.09 amending Water Code Section 11.02362(k) requires TCEQ, TPWD and TWDB to provide technical assistance to each bay and basin expert science team. The proposed legislation does not define the "technical assistance" role of the agencies in the process of developing the bay and basin expert science team's environmental flow analysis and recommended environmental flow regimes. In order to provide adequate assistance, agencies need to understand the expected level of staff support and resources that must be committed to this work.

Additionally, it must be recognized that TPWD has a statutory responsibility to protect the state's fish and wildlife resources and to make recommendations for fish and wildlife protection in water rights permitting. (See Texas Parks & Wildlife Code Section 12.024 and Water Code Section 11.147.) The proposed language should not be seen as limiting TPWD's role to only technical suggestions; TPWD will continue to present its opinions on environmental flow protection during the opportunities available in TCEQ rulemaking and water rights permitting.

Status: Not approved

**51. Recommendation:** Establish the Science Advisory Committee’s definition of “sound ecological environment” for the purpose of providing structure to the state’s instream flow program and giving context to the individual instream flow studies.

Rationale: In its Preliminary Report dated June 12, 2006, the Science Advisory Committee (“SAC”) noted that the rationale behind establishing and maintaining data collection and conducting studies of the state’s bays, estuaries, rivers and streams is for the purpose of determining appropriate levels of flows necessary to support a “sound ecological environment.” However, there is not a statutory definition of this term, and there should be one established in order to maintain consistency between all the different groups, lawmakers and regions involved in this process. This recommendation is consistent with the National Academies of Sciences 2005 Report titled, “The Science of Instream Flows: A Review of the Texas Instream Flow Program.” Specifically, the Report stated the following: “A clear definition of ‘sound ecological environment’ will provide structure to the state’s instream flow program and give context to the individual instream flow studies.”

First, I recommend the Legislature adopt an environmental flows policy that clearly places human needs ahead of the needs of the environment. Second, I recommend the Legislature adopt the SAC’s conservative definition of “sound ecological environment,” which states the following: “A sound ecological environment is one that: sustains the full complement of native species in perpetuity; sustains key habitat features required by these species; retains key features of the natural flow regime required by these species to complete their life cycles, and sustains key ecosystem processes and services, such as elemental cycling and the productivity of important plant and animal populations.”

Status: Not approved