Prepared Remarks to December 12, 2018 Hearing
Texas Sunset Advisory Commission
Re: Lower Colorado River Authority (LCRA) Sunset Review
Steve Box, Executive Director, Environmental Stewardship
December 17, 2018

EXECUTIVE SUMMARY

A fundamental change in the direction of the LCRA has occurred over the last fourteen years. Initially the LCRA teamed with volunteer organizations and concerned individuals to solve problems and protect the river. However, in the past few years communications between the LCRA and its constituents has deteriorated. In some ways the LCRA has become an adversary to its constituents.

These comments demonstrate an example of how the LCRA has avoided issues of concern to its stakeholders even as they have been asked to engage in a process to understand, evaluate and solve critical issues.

As early as September of 2014, as the previous water management plan revisions were being adopted by the LCRA Board Environmental Stewardship provided written and oral comments to the Water Operations Committee regarding declining inflows into the Highland Lakes. Subsequently a report commissioned by the TWDB identified activities that could have impacted the observed flows, including groundwater use and aquifer water level declines.

Despite the evidence provided by the report, the reduced flows demonstrated by historically low inflows in 2018, and requests urging that a program be initiated to identify, understand and seek solutions to the changing hydrology, the LCRA has refused to recognize this situation as a threat to the Water Management Plan and the basin. To the contrary, the LCRA has declared that interactions between groundwater and surface water are outside the scope of the WMP revision.

Environmental Stewardship requests that the Sunset Advisory Commission encourage the Legislature to 1) take legislative action to stop the LCRA from entering into groundwater marketing business, 2) take legislative action to direct the LCRA to fulfill its responsibility to conserve and protect all inflows into the Colorado and its tributaries, 3) take legislative action to bring about a review of the LCRA's water and electric utility operations, and 4) require the LCRA to come back before the Sunset Commission in two years for a full review.

PREPARED REMARKS
Steve Box, Executive Director, Environmental Stewardship

I have watched as a fundamental change in the direction of the LCRA has occurred over the last 14 years that I have been working as an environmental advocate in Texas. At first the LCRA teamed with volunteer organizations and concerned individuals to solve problems and protect the river. However, in the past few years as the LCRA has become more autocratic, such efforts rarely occur … or follow a divisive format. Communications between the LCRA and its constituents — landowners and residents, volunteer organizations concerned with the river's health, and groundwater conservation districts — has deteriorated. In some ways the LCRA has become an adversary to its constituents.

After Tom Mason and his management team were forced out and new leadership installed, the

I have participated in the Water Management Plan revision process from 2011- Present. In 2011-12 the LCRA's Water Management Plan Advisory Committee of interested stakeholders spent a year in an intense program of public engagement where we built a consensus on how the water from the Highland Lakes was to be managed to the benefit of all stakeholders throughout the basin.

I have participated along with the LCRA in the work of the Colorado-Lavaca Basin and Bay Stakeholder Committee (BBASC) from its original inception, when its Basin and Bay Expert Science Team (BBEST) reviewed the science regarding the environmental flow needs of the Colorado and Lavaca Rivers, Matagorda and Lavaca Bays, and made recommendations that were modified by the BBASC, adopted by the TCEQ, and now guide our efforts to ensure those flows during times of extreme drought, dry periods, and otherwise “normal” conditions.

Throughout all of this, I have watched as LCRA’s stance changed from one of concern for the health and prosperity of the basin … to one of building a portfolio of FIRM water available for sale.

In the most recent revisions of the water management plan the water dedicated to environmental flows has been incrementally diminished through a series of accelerated processes where some of the answers we seek to understand the implications -- much less propose alternatives -- have been shrouded in secrecy or ruled as being “out of scope” and marginalized. The following is an example of how the LCRA has avoided issues of concern to its stakeholders even as they have been asked to engage in a process to understand, evaluate and solve critical issues.

HIGHLAND LAKE INFLOWS EXAMPLE

In September of 2014, as the water management plan revisions were being adopted by the LCRA Board I provided written and oral comments[1] to the Water Operations Committee on the then surfacing concerns regarding declining inflows into the Highland Lakes (Attachment 1). "*If we have learned anything from this process, it is that we have changing hydrological conditions in the basin*," I told the Committee.

Based on a study that had just been released[2], and along with other observations regarding rainfall and inflows during the just completed drought -- which now has become the new drought of record -- is was clear that, along with changing hydrology which was resulting in deceased inflows to the Highland Lakes, a different story was starting to appear; *"something has significantly changed in the contributing watershed besides climate. Whatever has changed needs to be identified and understood before we can find a solution to the changing hydrology."*

[1] Steve Box, Environmental Stewardship. September 14, 2014. Comments to LCRA Water Operations Committee.

[2] Rodica Gelca, Katharine Hayhoe, and Ian Scott-Fleming. Observed trends in air temperature, precipitation, and water quality for Texas reservoirs: 1960-2010. Texas Water Resources Institute. Texas Water Journal, Volume 5, Number 1, pages 36-54.

In January of 2015 I made more extensive comments[3] to the Texas Commission on Environmental Quality regarding the LCRA Water Management Plan "*urging the TCEQ and LCRA to jointly provide the leadership necessary to recognize, understand and address the critical issues facing Central Texas and the basin by taking [five] steps*". (Attachment 2)

Though neither LCRA nor TCEQ heeded our warning, Environmental Stewardship, working through the Colorado-Lavaca BBASC, developed the scope of work that funded a $75,000 review project through Senate Bill 3 funding from the legislature to have the recently completed study commissioned to evaluate rainfall/runoff patterns in the upper Colorado River basin[4,5]".

The report identified the following activities that could have impacted the observed flows over time that are not accounted for in the naturalized flow database. Several of these activities were investigated, with the following four believed to have had some impact on the trend of observed and naturalized flows over the study period:

(1) The proliferation of noxious brush.
(2) The construction of small reservoirs, not accounted for in naturalized flows.
(3) Groundwater use and aquifer water level declines.
(4) Changes in average temperatures and drought conditions.

Despite the evidence provided by the Kennedy report that there have been serious changes in the upper basin that are causing reduced inflows to the Highland Lakes, and the evidence of these reduced flows demonstrated by 2018 inflow being at historically low levels (Figure 1) the LCRA has refused to recognize this situation as a threat to the Water Management Plan and the basin.

We have returned to rainfall - runoff patterns for the Highland Lakes that have never been experienced before.

As described in comments submitted by the City of Austin for the September 6, 2018, LCRA Water Management Plan meeting:

> *"the City highlights a serious concern that, as a basin, with regard to drought, we have returned to a level of low historic inflows that until very recent years had never been experienced (see Figure 1). Last year, 2017, finished as the 8th lowest year for historical inflows to the Highland Lakes. In this year, 2018, the hydrology thus far has worsened. The cumulative historical inflows for the first seven months of 2018 currently rank 2018 as the 3 lowest in cumulative historical inflows when compared to the first seven months of all other years in the period of record. At this point, 2018 is worse than either 2013 or 2014, which on an annual basis rank as the second (2014) and third (2013) lowest years for historical inflows to the lakes. The past twelve months from August 1, 2017 through July 31, 2018 stand as the third lowest historical inflows for this August through July period. The basin for the past year has been experiencing the same type of extraordinary drought hydrology in terms of inflows that established the new critical period for the basin"* (see page 27 of consolidated Participant's Comments from LCRA WMP website.

[3] Steve Box, Environmental Stewardship. January 7, 2015. Comments regarding LCRA Water Management Plan (WMP) to Kathy Alexander, TCEQ (Attachment 2).
[4] Kennedy Resources Company. August 2017. Evaluation of Rainfall/Runoff Patterns in the Upper Colorado River Basin. Report to TWDB Contract No. 1600012011.
[5] Environmental Stewardship, working through the Colorado-Lavaca BBASC and TWDB has helped commission a follow-up project: Evaluation of Rainfall-Runoff Trends in the Upper Colorado River Basin (Phase Two).

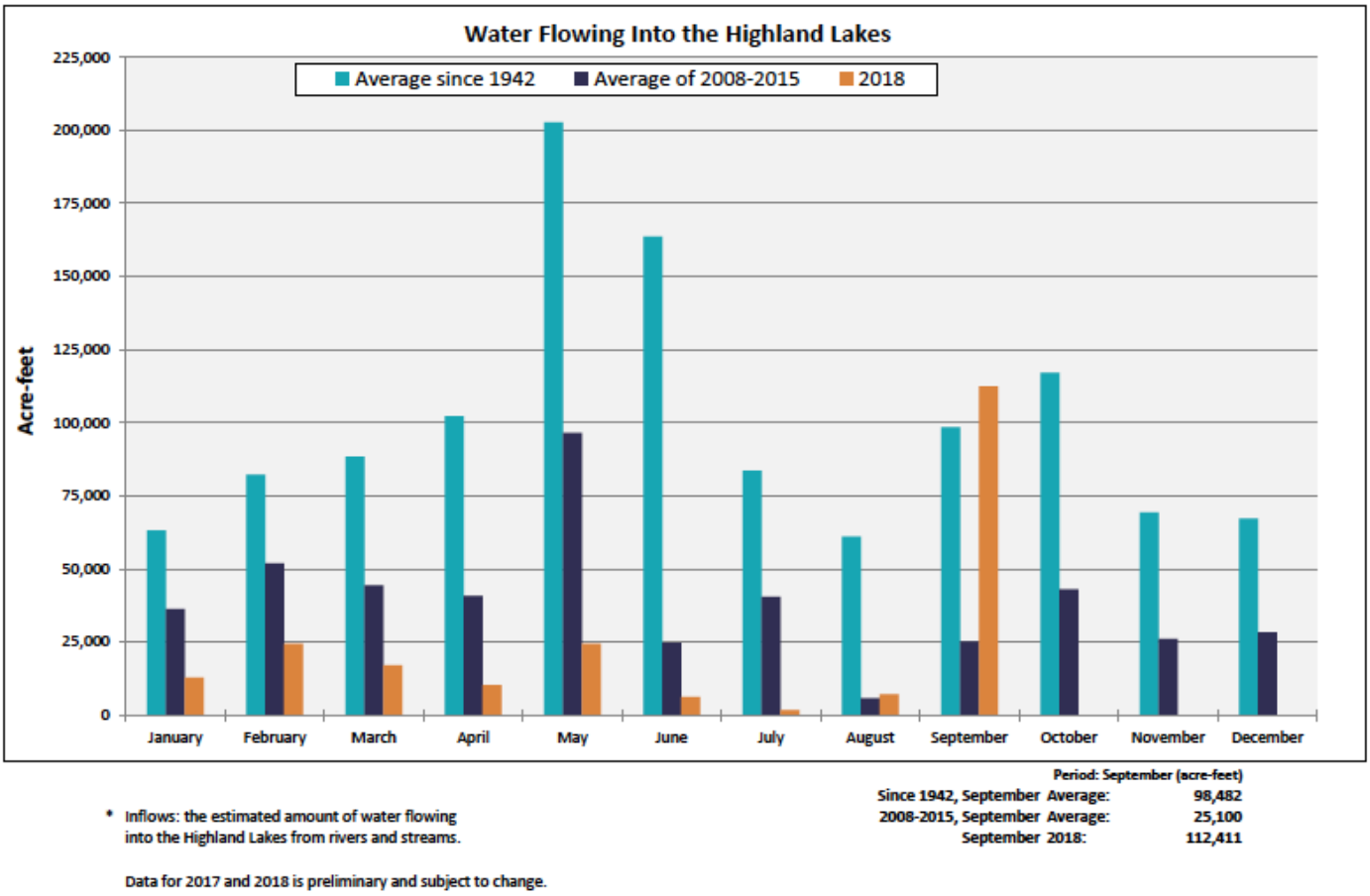


Figure 1. Water Flowing into the Highland Lakes.

Once again, despite requests from the Central Texas Water Coalitions, the City of Austin and Environmental Stewardship, the LCRA continues to avoid confronting this important issue. The following responses by LCRA demonstrate their lack of transparency as they avoid engagement on tough issues by downplaying and marginalizing stakeholders and their concerns. The truth here seems to be that the LCRA has made a policy decision to avoid groundwater-surface water interactions at all costs because acknowledgement implicates the LCRA as being complicit with groundwater marketers in diminishing inflows to the river while avoiding their duty to conserve and protect the Colorado River, its tributaries and the basin from the deleterious impacts of groundwater over-pumping. Were the LCRA confident that groundwater pumping does not damage the river they would embrace these recommendations and launch a program to develop the data to inform their policy decisions and WMP revisions.

Though groundwater use and aquifer water level declines are cited as issues that could have impact inflows, the LCRA refuses to consider the impact of groundwater pumping on the Colorado River in either the upper or lower basin responding to our questions as follows[6]:

[Comments abbreviated by LCRA (See Attachment 3 for original comments submitted to LCRA)[7]].

[6] LCRA. LCRA Water Management Plan Update Process: Participant comments through Aug. 31, 2018, and LCRA response. LCRA_responses_to_comments_received_as_of_Aug_31_2018.pdf: https://www.lcra.org/water/water-supply/water-management-plan-for-lower-colorado-river-basin/Documents/2015-wmp-update/LCRA_responses_to_comments_received_as_of_Aug_31_2018.pdf

[7] Environmental Stewardship. July 31, 2018. Comments on to Lower Colorado River Authority (LCRA) regarding revisions to the 2015 Water Management Plan for the Highland Lakes: Evaluation of RAINFALL/RUNOFF PATTERNS IN THE UPPER COLORADO RIVER BASIN ("Patterns")(Attachment 3).

1. Environmental Stewardship requests that the LCRA use the improved GMA-12 GAM to better estimate the impacts of groundwater pumping in the Simsboro Aquifer on the Colorado River and it tributaries in the Austin-Bastrop-Smithville reach to inform the current water management planning process on the potential impacts of such pumping on the overall Highland Lakes system.

LCRA's response*: Interactions between groundwater and surface water are outside the scope of the WMP revision.*

ES' Reply: 1) Subsistence flows at Bastrop and gauges downstream are established in the Texas Water Code. LCRA seeks to achieve these standards through the LCRA Water Management Plan (WMP) but is not mandated to achieve these environmental flow standards (environmental water is included in "interruptible water"). As such, during drought conditions, when inflows to the river above and below the Highland Lakes are negligible, the LCRA often releases water from the Highland Lakes to meet the standard. However, during the latest drought the LCRA twice sought and TCEQ Granted an emergency exemption from providing interruptible water. Since groundwater inflows to the river provide 20-50% of baseflows (groundwater inflows) during dry and drought conditions, the flow and health of the river are at greater risk as groundwater pumping diminishes the quantity of baseflows. To conserve water in the Highland Lakes while also ensuring adequate subsistence flows during dry and drought conditions, these baseflows need to be measured and protected.

2) In the current revisions to the WMP LCRA requested a change in their water operations regarding the Wharton subsistence flows standard because the River Operations Center (ROC) has a difficult time meeting that requirement operationally. It appears that because ROC supplements baseflows to meet the requirement, and since baseflows do not appear to be reliable, the ROC has to over-release water to meet the standard. The "improved GMA-12 GAM" is a recent tool that is available to LCRA and is designed to better estimate groundwater-surface water interaction. Use of this model would better inform the ROC of changing conditions over time in order to better target releases to supplement base flows and improving their ability to meet the standard.

For the reasons cited above, it is appropriate that the LCRA consider and better understand the groundwater-surface water interaction in this segment of the Colorado River in order to better manage releases from the Highland Lakes and protect the instream flows in the lower basin.

2. Environmental Stewardship requests that the LCRA prepare the hydrographic separation as described above for the period January 2011 through December 2013 for the Bastrop and Wilbarger gages of the Colorado River to gain insights on the quantity of groundwater that was being contributed to river flow for this extraordinary drought period.

LCRA's response*: Determining the amount of groundwater that may have contributed to base flows in the Colorado River is outside the scope of the WMP revision. Environmental Stewardship may wish to review the naturalized flows for the Colorado River, which include numerous dry periods over the period of record, including recent drought years.*

ES' Reply: As a first step in quantifying the baseflows (groundwater inflows) that enter the Colorado River in the named segments of the river and its tributary described in our request, it is a standard practice to use the hydrographic separation tools available to LCRA to estimate the baseflow that were present during the extraordinary drought period cited above to inform operational policies related to dry and drought conditions. Rather than refer ES to the naturalized flows, a more appropriate response would be to acknowledge the need to better understand these conditions and relate LCRA's knowledge of naturalized flows to the situation.

3. To what extent, in the modeling tools (WAM) or other management practices, is LCRA considering and using the information from the rainfall/runoff report to adapt its management practices to better predict and improve inflows to the Highland Lake system? Solving the inflow problem is a critical function to improving management of the river and Highland Lakes system.

LCRA's response*: This WMP revision uses a hydrologic period of record of 1940-2016. That period includes the years studied in the rainfall/runoff report, including the recent drought years, which included low inflows. The WMP revision will include curtailment curves for providing interruptible stored water to agricultural customers and levels of environmental flow criteria that allow LCRA to meet the demands of its firm water customers while maintaining a minimum combined storage in lakes Buchanan and Travis of at least 600,000 acre-feet through a repeat of the entire period of record.*

ES' Reply: 1) LCRA skirts the question that relates to "other management practices". LCRA does not answer the question regarding other water management practices to predict and improve inflows to the Highland Lakes. The WAM is a tool to manage the inflows that actually enter the Highland Lakes and are not practices that measure or protect against land and groundwater management practices that cause inflows to diminish. The straightforward answer to this question is that the LCRA does not have management practices that are designed to identify, manage and mitigate the impact of a changing hydrology resulting from the changing land and agricultural practices in the upper basin.

2) Curtailment curves do only what the name implies, define the conditions when LCRA will curtail interruptible water (including environmental flows) to the lower basin. Curtailment curves do not manage or inform regarding diminishing inflows.

4. To what extent is the LCRA using its Operations Model or other tools to measure and predict the quantity of groundwater outflows to surface waters available to satisfy environmental flows (especially subsistent flows during extraordinary drought)? Could the Operations Model (RiverWare) take data from a Surface Water-Ground Water monitoring system that interfaces with the improved GMA-12 GAM? Would this improve the predictive function of the model for delivering water down-river to users and to meet environmental needs?

LCRA's response*: Groundwater-surface water interaction is outside the scope of the WMP revision.*

ES' Reply: ES was trying to encourage the LCRA to use the tools they have available to better understand the impact that groundwater pumping has on the river and river operations in order to better inform revisions to the WMP. To claim that such modeling or practices are outside the scope of the WMP is very shortsighted.

It appears to ES that the primary reason the LCRA shuns considerations regarding groundwater-surface water interactions are based on their ill-conceived foray into groundwater development and marketing. LCRA seeks to avoid acknowledging that groundwater pumping diminishes baseflows (groundwater inflows) into the river and its tributaries and that their participation in such practices makes them complicit in diminished river flows during dry and drought conditions as well as reducing surface water available to its service area during normal conditions. The LCRA should be protecting all inflows, including groundwater inflows (baseflows), into the river and its tributaries.

5. Are groundwater outflows in "gaining" stream segments, and surface water losses in "losing" stream segments accounted for and considered in decisions to release stored water from the Highland Lakes or to allow storable water to pass through the system? Are there policy questions/decisions that need to be considered or adapted in making such decisions?

LCRA's response*: Groundwater-surface water interaction is outside the scope of the WMP revision.*

ES' Reply: Again, the LCRA is simply avoiding taking responsibility for understanding and managing the impact of groundwater pumping on the river and its tributaries, especially during dry and drought conditions. The answer to the policy question is clear; the LCRA wants to be in the groundwater development and marketing business and does not want to take responsibility for protecting inflows to the river system that are otherwise diminished by groundwater pumping.

6. In what ways and to what extent is the LCRA taking active measures to manage and protect

groundwater inflows from being diminished through groundwater pumping of aquifers that intersect and influence the Colorado River and tributaries?

***LCRA's response**: Groundwater-surface water interaction is outside the scope of the WMP revision.*

ES' Reply: The simple answer to the question is that LCRA DOES NOT want to actively measure or protect groundwater inflows because they seek to be a player in groundwater exploitation.

7. In what ways and to what extent is the LCRA taking active measures to protect historic interactions between groundwater, the Colorado River and its tributaries from unreasonable impacts resulting from groundwater pumping?

***LCRA's response**: Groundwater-surface water interaction is outside the scope of the WMP revision.*

ES' Reply: The question is based on "gain/loss" studies conducted by the LCRA and others that document the historical interactions between groundwater and surface water. Again, the simple answer to the question is that LCRA DOES NOT want to actively measure or protect groundwater-surface water interactions because they seek to be a player in groundwater exploitation.

LCRA's LEGISLATIVE AND CONSTITUTIONAL MANDATE

LCRA's enabling legislation was conceived under the umbrella of the Conservation Amendment of the Texas Constitution that charges the LCRA with the duty and responsibility to conserve and protect our water resources -- both surface water and groundwater.

The LCRA Board of Directors should take this opportunity to review its mission and return to the greater responsibility charged to it to both develop *and* conserve the waters of the Colorado river basin in a way that protects the environment and prosperity of the river basin, Matagorda Bay and the communities that depend on these waters.

As such we have asked[8] that LCRA withdraw its application with Lost Pines Groundwater Conservation District for groundwater to be added to its portfolio of water for supposed beneficial use in your service area … a claim that is shrouded in secrecy and vague propositions.

We have asked that the LCRA withdraw its application that seeks to take Carrizo-Wilcox groundwater and distribute it downstream by conveyance through a bed and banks authorization that the Lost Pines Groundwater Conservation District and Environmental Stewardship oppose.

We have asked that the LCRA withdraw its application and get back into the business of conserving and protecting the surface waters and groundwaters of the basin from exploitation.

Carlos Rubenstein — who I am sure most of you know because of his extensive service to the state over many years as a rivermaster, director at TCEQ and TWDB — recently testified before the House Natural Resources Committee hearing on Interim charges. Key to his testimony **"we must improve our communications and cooperation among river authorities, groundwater conservation districts, and the Texas Water Development Board to improve the simulation of surface water-groundwater interactions. Communication and cooperation benefit all"**.

In his remarks, Mr. Rubenstein referenced the cooperation that has recently occurred with updating the GMA-12 Carrizo-Wilcox Groundwater Availability Model (GAM) as being an example of the type

[8] Oral and written testimony of eight individuals, including Steve Box of Environmental Stewardship, to the Water Operations Committee. November 14, 2018.

of communication and cooperation he was advocating for. Appreciable funding (about $300,000) was contributed by LCRA, BRA, Post Oak GCD, Brazos Valley GCD, and the Colorado-Lavaca BBASC[9] to specifically address SW-GW interactions in the GAM. INTERA and Environmental Stewardship collaborated in organizing the effort to include a robust upgrade in the model to that enables the model to be used for both regional and local predictions. This jointly funded project clearly shows that proper modeling is a concern and an interest for both river authorities and GCDs.

We have asked that the LCRA, as a first step in renewing its dedication to the duties of conservation and development to withdraw its application with Lost Pines and reach out to them as a partnering agency. To continue the process that has been started by GMA-12 in updating the GAM by developing the science and understanding that will allow both the LCRA and the District to accomplish the legislative challenge of Section 36.113 of the water code -- to consider the impact of groundwater pumping on the surface water, groundwater and other permits before issuing groundwater permits.

We have urged the LCRA to change its course and become the leadership that encourages such cooperation throughout the river and bay system for the benefit of the environment and the communities that rely on a healthy and interconnected system of surface and groundwater by withdrawing your application and reaching out to Lost Pines and other groundwater districts throughout the basin as a partner in achieving this higher goal.

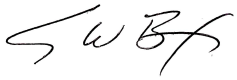
ENVIRONMENTAL STEWARDSHIP'S REQUEST

Environmental Stewardship requests that the Sunset Commission encourage the Legislature to:

- Take legislative action to stop the LCRA from entering into groundwater marketing business,
- Take legislative action to direct the LCRA to fulfill its responsibility to conserve and protect all inflows into the Colorado and its tributaries,
- Take legislative action to bring about a review of the LCRA's water and electric utility operations, and
- Require the LCRA to come back before the Sunset Commission in two years for a full review.

Thank you for the opportunity to provide written remarks about our concerns with regard to the LCRA's management of our precious surface and groundwater resources.

Respectfully submitted,



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[9] Environmental Stewardship worked with the BBASC Work Plan Committee to get $60,000 of SB3 funding to upgrade the surface water-groundwater interaction package to a robust model that is suitable for both local and regional modeling. ES worked with INTERA to scope and cost the proposal that was adopted by the BBASC. The updated GMA-12 GAM is now available for use.

Environmental-Stewardship.org

cc: Senator Kirk Watson
Representative John Cyrier, District #
Judge Paul Pape, Bastrop County
Judge Paul Fischer, Lee County

Environmental Stewardship fall under the following categories: Public Policy - Aiming to protect, conserve, restore, and enhance the earth's natural resources in order to meet current and future needs of the environment and humans; Science & Ecology - Gathering and using scientific information to restore and sustain ecological services provided by environmental systems; and Outreach & Education - Providing environmental education and outreach that encourages public stewardship. We are a Texas nonprofit 501(c) (3) charitable organization. For more information visit our website at http://www.environmental-stewardship.org/.