texaswaterjournal.org

An online, peer-reviewed journal
published in cooperation with the
Texas Water Resources Institute

Texas Water Journal

Volume 13 Number 1 | 2022

Texas Water Journal

Volume 13, Number 1
2022
ISSN 2160-5319

texaswaterjournal.org

THE TEXAS WATER JOURNAL is an online, peer-reviewed journal devoted to the timely consideration of Texas water resources management, research, and policy issues. The journal provides in-depth analysis of Texas water resources management and policies from a multidisciplinary perspective that integrates science, engineering, law, planning, and other disciplines. It also provides updates on key state legislation and policy changes by Texas administrative agencies.

For more information on on the Texas Water Journal as well as our policies and submission guidelines, please visit texaswaterjournal.org. As a 501(c)(3) nonprofit organization, the Texas Water Journal needs your support to provide Texas with an open-accessed, peer-reviewed publication that focuses on Texas water. Please consider donating.

The Texas Water Journal is indexed by Scopus, Google Scholar, and the Directory of Open Access Journals.

The Texas Water Journal is published in cooperation with the Texas Water Resources Institute, part of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, and the College of Agriculture and Life Sciences at Texas A&M University.

Texas Water Resources Institute
make every drop count

Cover photo: A view of the Milky Way over Phoinix Ranch in Jim Wells and Live Oak counties.

Texas Water Resources Institute
Texas Water Journal
Volume 13, Number 1, April 20, 2022
Pages 13-26

Beyond Senate Bill 3: How to Achieve Environmental Flows in Texas Under Prior Appropriation

Carlos Rubinstein*[1], Curtis Seaton[1], and Robert E. Mace[2]

Abstract: In 2007, the 80th Texas Legislature enacted Senate Bill 3 on the 140th and last day of session. This bill was the third far-reaching piece of water legislation after Senate Bill 1 passed in 1997 and Senate Bill 2 passed in 2001. Collectively, these bills changed how Texas plans for future water needs, regulates groundwater, promotes conservation, studies the need for environmental flows balanced with population needs, and establishes environmental flow standards for Texas' rivers, bays, and estuaries. Senate Bill 3 created a process through which scientists, stakeholders, and ultimately the Texas Commission on Environmental Quality set environmental flow standards. Over 15 years have passed since Senate Bill 3 became law, allowing us to consider the efficacy of the enabling legislation and the resulting rules. In short, identifying and securing water for the environment has been difficult due to little, if any, unappropriated water in the state's river basins and limitations in Senate Bill 3 and the Texas Water Code. We identified seven options for stakeholders and the state to consider to increase the protection of environmental flows while respecting private property rights: (1) protecting water right owners who participate in forbearance agreements from water right cancellation; (2) pursuing cancellations and affirming abandonments; (3) requiring that cancelled or abandoned water be set aside to meet environmental flow standards; (4) modernizing how surface-water use and diversions are tracked; (5) requiring water right holders to demonstrate the pursuit of other water supplies before suspending environmental flows; (6) studying how environmental flows can coexist and be protected within a prior appropriation system; and (7) studying how dedications of water under existing water rights can be considered for tax credit or deductions to further incentivize transactions for environmental benefit. If implemented, these options could allow Texas and Texans to more closely achieve the outcomes many hoped for from Senate Bill 3.

Keywords: environmental flows, instream flows, surface water, groundwater, water rights, water code

[1] $RSAH_2O$, LLC
[2] Meadows Center for Water and the Environment, Texas State University
* Corresponding author: carlos@rsah2o.com
Received 19 May 2020, Accepted 10 February 2022, Published online 20 April 2022.

Citation: Rubinstein C, Seaton C, Mace RE. 2022. Beyond Senate Bill 3: How to Achieve Environmental Flows in Texas Under Prior Appropriation. Texas Water Journal. 13(1):13-26. Available from: https://doi.org/10.21423/twj.v13i1.7115.

Terms used in paper

Acronym/Initialism	Descriptive Name
BBASC	Basin and Bay Area Stakeholder Committees
BBEST	Basin and Bay Expert Science Team
EFAG	Environmental Flows Advisory Group
HB	House Bill
IRS	Internal Revenue Service
SAC	Environmental Flows Science Advisory Committee
SB	Senate Bill
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TWC	Texas Water Code

INTRODUCTION

When it comes to providing and protecting water for the environment in Texas, the path has been anything but timely or easy. If measured by the volume of reliable and protected water set aside for the environment, the path to success remains elusive at best. Texas' experience in this regard is not unique. We note similar difficulties among other western states.

While the consideration of environmental water needs has been codified in Texas for 35 years, the fashion in which that end has been pursued means little water was available for environmental flows preservation. This paper offers potential solutions to that problem assuming the maintenance of the statutory status quo.

Between 1967 and 2007, Texas undertook a statewide surface-water adjudication process called for by the Water Rights Adjudication Act (Gervais 2015). The adjudication process allowed the state to validate and quantify the volumes of water authorized under various other instruments (such as previously issued water rights or similar documents to include permits and certified filings) and practices prior to the Water Rights Adjudication Act. Except for the middle and lower Rio Grande (TCEQ 2019), water rights in Texas operate under the prior appropriation doctrine or "first in time first in right" (TWC § 11.027 2019). The middle and lower Rio Grande water rights (below the International Amistad Reservoir) were separately adjudicated and are managed on a priority of use doctrine with municipal, domestic, and industrial uses having superior priority (TCEQ 2019). Neither the prior appropriation adjudication nor the priority of use processes considered water necessary for environmental quality.

In 1985, the Texas Legislature amended the Texas Water Code (TWC) to require the *consideration* of environmental permit conditions in future water rights, consistent with other permit requirements, to protect instream uses (Alexander 2019). However, by 1985, Texas had been issuing water rights for over 100 years. Therefore, pre-1985 rights, which are the substantial majority of issued rights to surface water in Texas, do not contain protective language for instream flows (Hess 2005). The 1985 amendments added additional substantive requirements for reservoirs within 200 river miles of the coast. These mandated that instream flows for the protection of Texas' bays and estuaries and associated marine life be protected by allocating 5% of the annual firm yield of such reservoirs permitted after 1985. The 5% allocation is dedicated to Texas Parks and Wildlife Department (TPWD) to make releases for instream flows (Roach 2013).

The state issues water rights for beneficial purposes as enumerated in Chapter 11 of the TWC. Environmental flows are not specifically listed among recognized beneficial uses for which water may be appropriated, although the statute recognizes that "other beneficial uses" may exist (TWC § 11.024 2019). Amendments to the TWC due to passage of Senate Bill (SB) 3 in 2007 prohibited the Texas Commission on Environ-

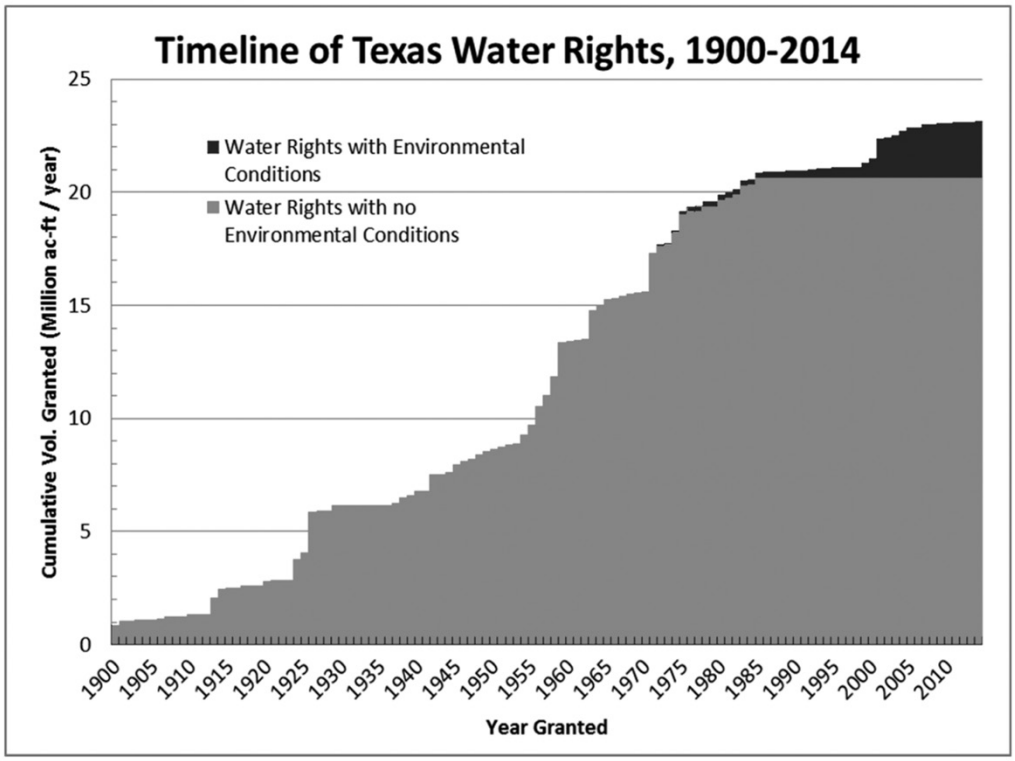

Figure 1. Timeline of Texas water rights, 1900–2014 (Wells and Barron Bradsby 2018).

mental Quality (TCEQ) from allocating unappropriated water under a new water right specifically for instream flows dedicated to environmental needs or bay and estuary inflows environmental use (TWC § 11.0237 2019). Under the same section of the water code, TCEQ and owners of water rights are allowed to amend existing water rights to add a use or to change a use to "instream flows dedicated to environmental needs or bay and estuary inflows" (TWC § 11.0237 2019).

Passage of SB 3 in 2007 was anything but easy. SB 3 followed previous omnibus water bills enacted by the Legislature: SB 1 passed in 1997, followed by SB 2 in 2001. These bills brought substantial changes to Texas water laws governing water planning and groundwater regulation and providing additional funding considerations and processes for Texas water projects (Rochelle 2007).

The Texas Constitution limits regular legislative sessions to 140 days. Legislative calendars and rules severely limit action in the Texas House of Representatives and the Texas Senate during the last days of the session. For example, the 86th session 2019 calendar mandated that the 122nd day of the session was the last day for the House to consider house bills and joint resolutions on second reading. The deadline for the House to include in its daily calendar senate bills was the 132nd day of the session. The 140th day was reserved to consider only corrections in the House and the Senate (Dates of Interest 86th Legislature 2019). Provisions of SB 3 in 2007 were so contested that while SB 3 passed without much difficulty in the Senate, House adoption required an unprecedented two-thirds vote on the very last day of the session to concur with the SB 3 Conference Committee Report. The final bill included modifications increasing the number of articles from four to 13, many of which were added language from local bills of interest in the final days of the session (Rochelle 2007). Proposed legislation similar to that enacted under portions of SB 3 had previously failed to pass in 2005 (Roach 2013).

SB 3 provided for the identification of flow regimes and water volumes adequate to support a sound environment. It also required that TCEQ balance scientist and stakeholder process recommendations with the needs of the public in establishing environmental set asides for priority basins. The language mandated that these set asides originate from unappropriated water that may be identified within a specific basin. Water appropriated under water rights issued prior to 2007 could not be taken to satisfy environmental needs (Puig-Williams 2013).

Consequently, for water rights issued prior to 2007, when SB 3 was enacted, water for the environment was never even close to being first in time—and certainly not first in right.

By the time TCEQ was directed in 1985 to consider permit conditions protective of the environment, the state had already allocated over 20,000,000 acre-feet of water without protective language for instream flows (Figure 1; Hess 2005; Wells and Barron Bradsby 2018). While some water rights have since been amended to provide water for environmental flows, many of these limitations (such as standards applicable only to post-

2007 water rights and consideration limited to unappropriated water) continue to hinder the identification, dedication, and protection of water of sufficient volume necessary to provide for a sound environment.

Our paper is premised on a realistic acceptance of the status quo as it relates to enacted legislation and authorization with the aforementioned limitations granted to state agencies for the protection of instream flows. Our paper offers options that are either policy decisions or activities already authorized in the TWC that, if pursued, would enhance voluntary market-based transactions dedicating portions of already-appropriated water for the environment.

We took care in choosing these options so as to not infringe on property interests and rights of water-right holders. Where we felt that a potential option would result in a property right infringement or a potential takings claim, we did not include the recommendation in this document. For example, one might suggest that the Legislature revisit SB 3 and authorize TCEQ to reopen all existing water rights, including those issued before 2007, to add permit provisions to protect environmental flows. Such a recommendation would not likely hold up to court challenges, nor do we see any viable political path now or in the future where the Legislature would entertain and/or enact this idea. Thus, we did not recommend those types of actions. In some limited instances we did offer recommendations for discussion and possible consideration in future legislative sessions of amendments to the TWC that could further enhance the ability to reach, in part, the desired outcomes of SB 3 while protecting property rights to water.

PREVIOUS WORK

In the interest of time and space, this paper will not include a detailed narrative of actions that led to the enactment of SB 3. As previously stated, our premise is that the narrative can best serve future interests by accepting as a starting point the status quo relative to TWC provisions governing instream flows and associated rules adopted by TCEQ to implement the same and offer recommendations from that as a starting point.

History is important. We do rely on several excellent existing works, many of which are cited in this paper, to understand the thought process that informed the vision and desired outcome of SB 3. Our literature review identified works that can be aggregated into five distinct classes:

1. Documents that provide a historical perspective of conditions that led to the enactment of SB 3;
2. Documents that explain the regulatory process implemented under SB 3 to identify science-based flow recommendations and how these informed in part TCEQ adopted standards;
3. Documents that take issue with either the modeling and/or process implemented to arrive at recommended flow regimes (or lack thereof);
4. Documents that comment on what has been undertaken to try to implement SB 3; and
5. Documents that review and compare instream flow regulations in the West.

As one would expect, several of the citations in this document include works that touch on any one or combination of the categories listed above.

An excellent primer can be found within the fifth edition (2018) of the State Bar of Texas' *Essentials of Texas Water Resources,* particularly chapter 11, which focuses on environmental flows (Wells and Barron Bradsby 2018). This chapter and its subsequent editions outline in great detail the many aspects, actions, and considerations the Legislature and state agencies have undertaken through time as it relates to water administration and environmental flow legislation.

As a follow-up to the chapter on environmental flows noted above, we encourage readers to review *The Rise of Water Conservation and Efforts to Protect Environmental Flows* (Alexander 2019). In this article, Alexander (2019) takes a focused view of how water conservation and concerns relative to the need to protect water for the environment have played a role in major water legislation in Texas. A reassuring conclusion in this article, which we echo herein, states that "[t]he progression of major initiatives…led to a 2017 Texas State Water plan that is the first state plan to include a significant share of capital costs associated with municipal conservation and to directly consider the adopted environmental flow standards in the evaluation of future water development strategies" (Alexander 2019).

For a comparison of differences between science-based recommendations and final standards adopted by TCEQ in rules, we recommend *Implementing SB 3: Adopting Environmental Flows in Texas* (Puig-Williams 2013). In particular, we note a conclusion of that paper that we share: "…it remains to be seen whether the standards will, in actuality, protect the ecology of the river and bays" (Puig-Williams 2013).

The *Texas Environmental Flows Initiative Final Report* outlines recent actions of the first organized effort taken to try to identify and execute a market-based transaction resulting in dedication of fresh water for the environment in Texas and associated challenges (Ducks Unlimited et al. 2019).

Roach's (2013) *Texas water wars: How politics and scientific uncertainty influenced environmental flow decision-making in the Lone Star State* opines on how final rules adopted by the TCEQ for the first two basins "did not mimic a natural flow regime…" and how the process was "derailed for these basins" due in part to the makeup and interests represented in the stakeholder committees charged with considering recommendations from their respective science committee and making

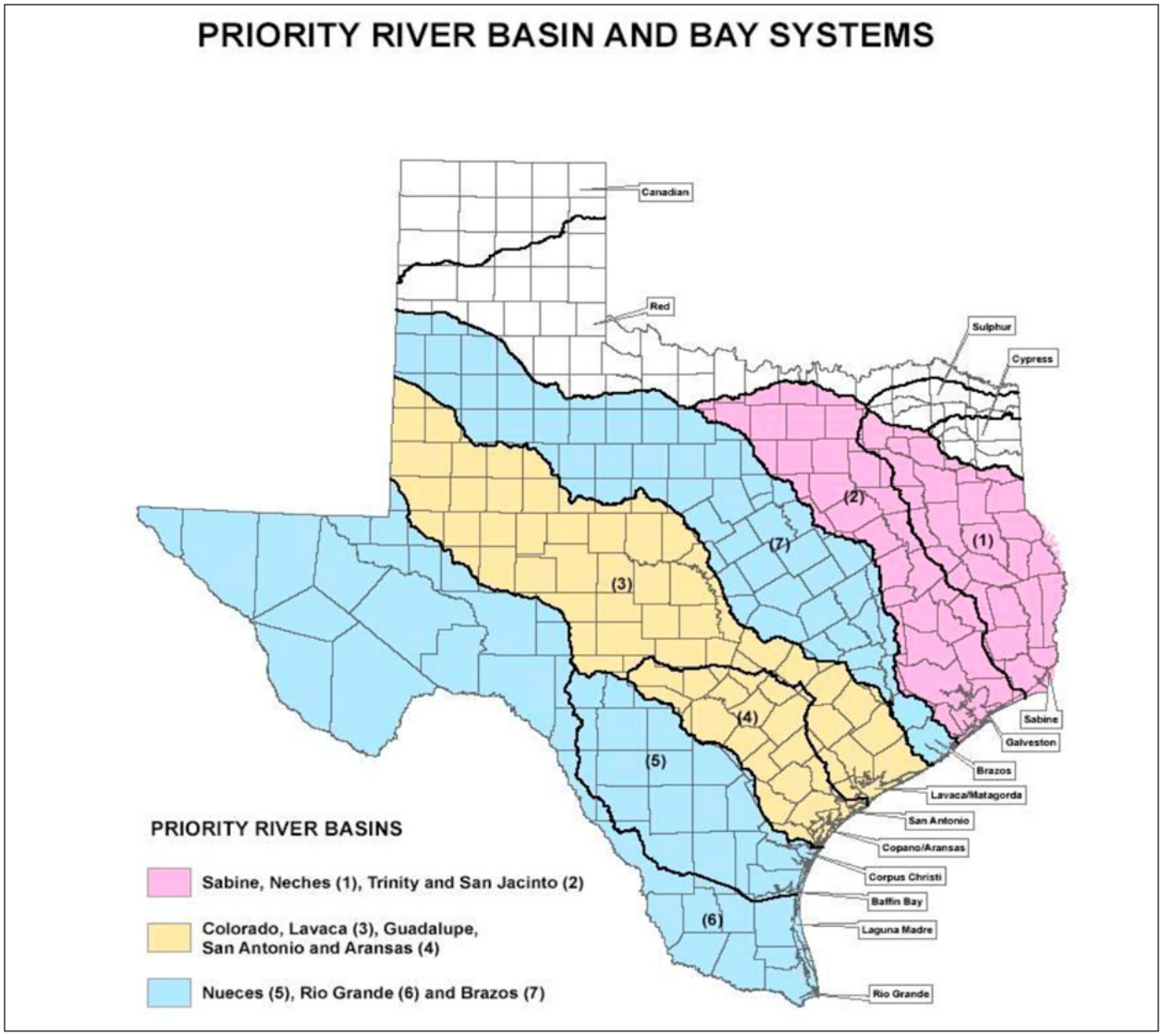

Figure 2. Senate Bill 3 map (Puig-Williams 2013).

final recommendations to TCEQ (Roach 2013). One inescapable fact remains, as noted in this work: "In the end, TCEQ set environmental flow rules at levels lower than those recommended for protection of environmental benefits by the science teams" (Roach 2013). While we find the statement to be true, we also acknowledge that the SB 3 process specifically provided that bay and basin area stakeholder committees (BBASCs) were to review the analyses and regime recommendations of their respective bay and basin expert science teams (BBESTs) and "consider them in conjunction with other factors, **including the present and future needs for water for other uses** [emphasis added] related to water supply planning in the pertinent river basin and bay system" (TWC § 11.02362(o)).

Water in the West's *Environmental Water Rights Transfers: A Review of State Laws* provides an excellent summary of the elements in common or lacking in the western states that regulate instream flows (Szeptycki et al. 2015).

For a more extensive list of reference material considered in the development of this document, please see the references section at the end.

SB 3 REQUIREMENTS AND RULE IMPLEMENTATION

In order to evaluate and consider the recommendations that follow later in this document, let us first take a few moments to recall what SB 3 called for and how TCEQ implemented these legislative mandates in rule.

SB 3 amendments to the TWC include §11.0236, which created a statewide Environmental Flows Advisory Group

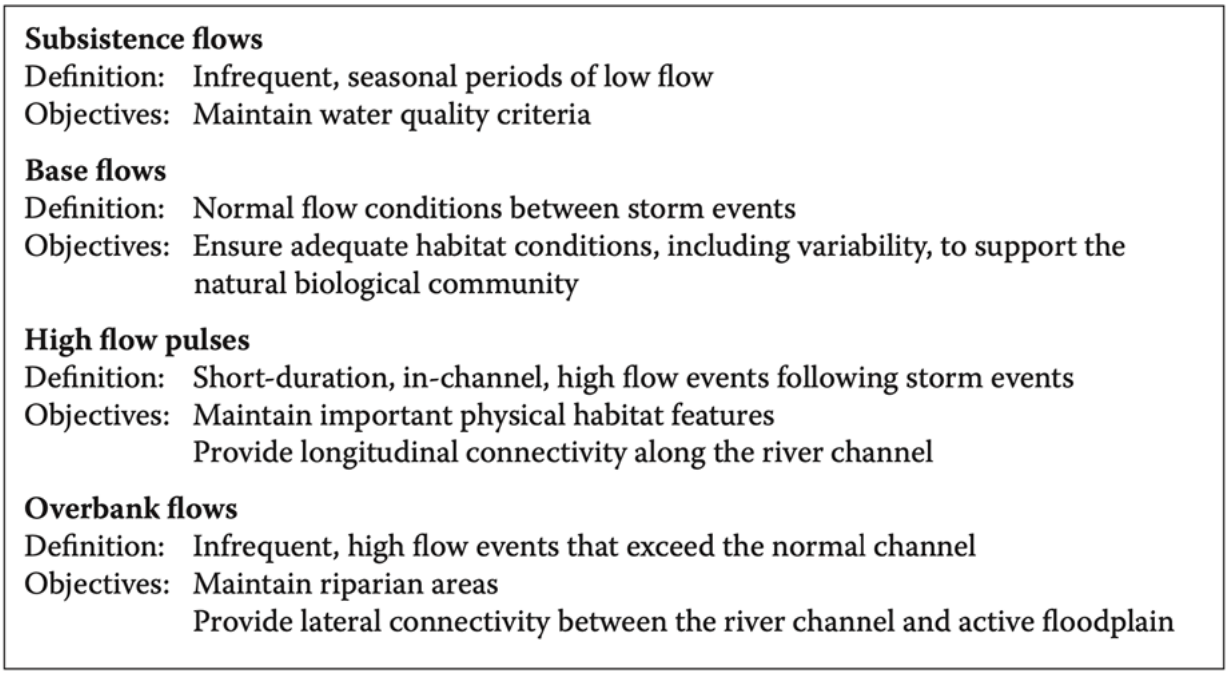

Figure 3. Definitions and objectives for instream flow components (TWDB 2008).

(EFAG) consisting of nine members, three of which come from the Texas House of Representatives, three from the Texas Senate, and three appointed by the governor. The speaker of the house appoints members from the House, and the lieutenant governor appoints members from the Senate. Governor appointments must come from TPWD, the Texas Water Development Board (TWDB), and TCEQ (Wells and Barron Bradsby 2018).

SB 3 under TWC §11.02361 also called for the establishment of a Science Advisory Committee (SAC) to provide input to the EFAG and make recommendations to help guide the work of developing science-based flow recommendations (Wells and Barron Bradsby 2018).

The priority by which Texas basins were to be addressed and for which environmental flow standards were to be developed was also dictated by SB 3 (Figure 2; TWC §11.02362(b); Puig-Williams 2013).

For each priority basin, the EFAG appointed a BBASC, which in turn appointed a BBEST per TWC §11.2362(f) and (i) (Wells and Barron Bradsby 2018).

The BBEST for each priority basin was charged with developing environmental flow regimes solely based on best available science without regard to the need for water for other uses (see TWC §11.02362). These flow regimes, as defined in TWC §11.02(16) (2019) had to "reflect seasonal and yearly fluctuations that typically would vary geographically, by location in the 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" (TWC §11.02(16) 2019). These recommendations were in turn submitted by the BBEST to the EFAG, BBASC, and TCEQ. Changes to these recommendations by the EFAG and BBASC were prohibited as per TWC §11.02362(n) (Wells and Barron Bradsby 2018).

The Texas Instream Flow Program was established in 2001 pursuant to SB 2 and jointly administered by the TCEQ, TPWD, and TWDB. The program was charged with performing scientific and engineering studies to determine flow conditions necessary for supporting a sound ecological environment (TWDB 2008). Texas Instream Flow Studies: Technical Overview provides us with definitions of key concepts instructive in the deliberation and development of environmental flow regimes. Among these definitions are:

- Subsistence flows: Infrequent, seasonal periods of low flow to maintain water quality criteria;
- Base flows: Normal flow conditions between storm events to ensure adequate habitat conditions, including variability, to support the natural biological community;
- High flow pulses: Short-duration, in-channel, high-flow events following storm events, which maintain important physical habitat features; and
- Overbank flows: Infrequent, high-flow events that exceed the normal channel and maintain riparian areas (Figure 3).

The BBASCs were mandated to consider the BBESTs' recommendations and, together with other factors such as current and future water needs, make recommendations to TCEQ and

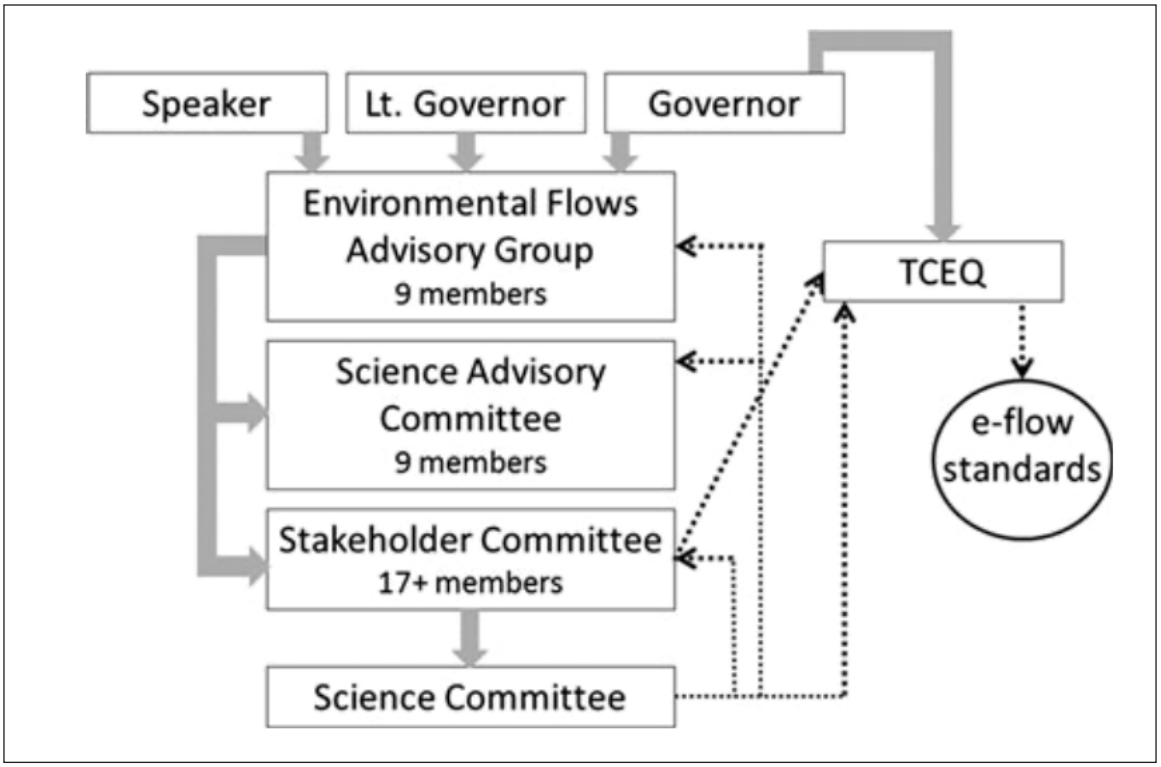

Figure 4. Texas Senate Bill 3 process for establishing environmental flows (e-flows). Grey arrows indicate appointment of agency or committee members, and black dotted arrows indicate submital of e-flow recommendations or standards (Roach 2013).

EFAG. TCEQ was required under SB 3 to then adopt by rule environmental flow standards for the priority basins. In setting these standards, TCEQ, as required by TWC §11.1471, had to take into account the aforementioned BBEST recommendations, BBASC and EFAG comments and recommendations, existing competing uses and needs within the basins, as well as economic impacts and any other appropriate information (Figure 4; Roach 2013; Wells and Barron Bradsby 2018).

As previously mentioned, SB 3 limited action for the establishment of environmental flow set-asides for the protection of environmental flows from water within a basin that had not yet been appropriated to anyone else under a water right (Wells and Barron Bradsby 2018). As compared with firm yield availability within a basin, minus water already allocated for other uses, little if any unappropriated water was found either during the BBASC deliberation or in TCEQ rule development. Certainly, there was not enough unappropriated water to meet the science-based recommendations of the BBEST. This is not a fault of the process or by action or lack thereof from TCEQ—it is simply an inherited legislative limitation and a reality. This is best captured by the following statement from Wells and Barron Bradsby (2018):

One item of note is that, after the adoption of the third set of rules relating to the priority basins, the commission has not established any set-asides as part of the environmental flows rules adopted thus far. For example, with respect to the Nueces, Brazos, and Rio Grande bay and basin areas, the commission, in response to comments critical of the decision, stated that set-asides were not reasonable because of limited water availability (Wells and Barron Bradsby 2018).

Based on this reality, it appears to us that we are left with two options:

1. Identify how more water can be made available within a basin to count towards the unappropriated water bucket that can then be considered for set-aside to meet desired benefits of environmental flows; and
2. Incentivize and add value to market-based transactions from already allocated water for environmental flow benefits.

Put another way, 15 years after the passage of SB 3, identifying and securing water for the environment has been as difficult, if not more so, than the actual passage of SB 3 in 2007.

Table 1. Western states comparison of the 10 elements identified by Szeptycki et al. 2015.

	AZ	CA	CO	ID	MT	NV	NM	OR	TX	UT	WA	WY
Environmental Use as a Beneficial Use Specifically Recognized	X	X	X	X	X	X	X	X	X	X	X	X
Transfer of Water Right for Environmental Uses Allowed	X	X	X	X	X	X	X	X	X	X	X	X
Transfer of Water Right for Environmental Use Recognized in Statute	X	X	X	X	X			X	X	X	X	X
Private Ownership of Instream Right Allowed		X			X	X			X	X		
Permanent Transfers Allowed	X	X	X		X	X	X	X	X	X	X	X
Short-term Leases Recognized in Statute		X	X	X	X	X		X		X	X	
Limitations Specific to Transfers for Instream Uses		X	X		X			X	X		X	
Conserved Water Dedicated to Instream Use in Statute		X			X		X	X	X		X	
Environmental Use Allowed in a Multiuse Right		X							X			
Protection of Water Right for Forbearance and Short-term Agreements			X	X			X			X	X	

Note: An X denotes that the element or a portion of the element exists in the noted state (Szeptycki et al. 2015).

WESTERN STATES COMPARISON

Szeptycki et al. (2015) examined statutes relative to environmental flows among 12 western states, identifying ten factors "to evaluate the effect of administrative review and approval processes on the past and near-term future ease and certainty of environmental rights transfers in each state." These factors, which are shown in Table 1, include:

1. Whether state law explicitly recognizes fisheries habitat, recreation, or other environmental purposes as beneficial uses.
2. Whether transfers of existing diversionary rights to instream or other environmental uses are allowed by state law (whether by statute, court opinion, or agency opinion).
3. Whether transfers of water rights for environmental purposes are explicitly recognized by statute.
4. Whether private parties can hold instream flow rights.
5. Whether permanent transfers of diversionary rights to instream or other environmental uses are allowed.
6. Whether state law explicitly recognizes short-term leases and provides some form of expedited review for their approval.
7. Whether transfers of rights for environmental uses are subject to significant limitations that do not apply to other water rights transfers, including geographic limitations, limitations as to purpose, or more stringent procedural requirements.
8. Whether the state has a conserved water statute that explicitly allows some portion of water saved by irrigation efficiency improvements to be dedicated to environmental purposes.
9. Whether the state allows the instream uses to be added to a water right, along with diversionary uses, so that the holder of the right may "stack" instream and diversionary uses on a single water right and allocate water between the two uses each year without the need for additional state review or approval.
10. Whether the state's law provides some mechanism for protecting informal short-term private transactions, such as split season agreements or forbearance agreements, from any risk of forfeiture or abandonment. (Szeptycki et al. 2015)

Texas compares favorably to other western states, but some elements (recognizing and expediting short-term leases and protecting informal short-term private transactions from forfeiture or abandonment) are not currently available for Texas water rights.

OPTIONS

As previously noted, this paper is premised on the fact that SB 3 prevented direct action against pre-2007 water rights for identification and reallocation of water for environmental flows. SB 3 limited the origin of set-asides of water for the environment from unappropriated water and conditioned post-2007 new appropriations of water to such environmental flow criteria. At face value, this can be viewed by many as an opportunity lost or, at a minimum, a legal impediment. Neither is necessarily true in its entirety.

Pre-2007 rights issued before SB 3 hold a similar condition true of all issued water rights including those being issued today: that they are usufructuary rights. Simply put, surface-water rights in Texas grant the use of the water, not own-

ership of the water. Surface water is owned by the state. Holders of water rights may use state water in a particular place, from a particular diversion point, with any applicable volume and diversion rates for a particular beneficial use. Once this water has been diverted under the issued water right and put to beneficial use, the permit authorizing the same has been "perfected" and thus a vested property right (Caroom and Maxwell 2018). For this reason, pre-2007 water rights were excluded by SB 3. But that does not mean that this appropriated water is lost from the system or for future consideration for environmental flows forever. Water appropriated under a previously issued permit, irrespective of when the right was issued, can be dedicated for environmental flows (Wells and Barron Bradsby 2018). Water appropriated under a previously issued permit, irrespective of the issued date, can be subject to cancellation in whole or in part or to abandonment (TWC Chapter 11 subchapter E 2019).

TWC §§ 11.171-186 grants authority to TCEQ to cancel a water right in total or in part for nonuse over 10 consecutive years immediately before the cancellation process is undertaken. TWC § 11.173(b) grants specific exemptions from cancellation:

- for owners who participated in the Conservation Reserve Program authorized by the Food Security Act;
- if a significant portion of a water right was used as a recommended strategy to meet a water need included in the regional water plan;
- if the right was obtained to meet demonstrated long-term public water supply or electric generation needs consistent with projections for need in the state water plan;
- if the water under the right was allocated as the result of a reservoir constructed and funded in whole or in part by the water right holder;
- if the nonuse resulted from the implementation of water conservation measures as per applicable water conservation plans;
- if the nonuse resulted from a suspension or other restriction on the use of water under an order issued by the executive director of the TCEQ; or
- the demonstration of inability to appropriate the water authorized under a water right due to drought conditions.

TWC § 11.177 provides other critical findings of fact that the commissioners of TCEQ must determine prior to issuing a cancellation order:

- whether the permit, certified filing, or certificate of adjudication has been deposited into the Texas Water Bank (limited to a one-time exemption from cancellation as per TWC § 15.174);
- whether the water right or water available under the water right is being made available for purchase through private marketing efforts; or
- whether the water right has been reserved to provide for instream flows or bay and estuary inflows (TWC Chapter 11 subchapter E 2019).

Additionally, as specified by TWC § 11.030, an owner of a water right that willfully abandons the use of state water previously appropriated under a water right during any three successive years can forfeit the right to use the water and associated permit (Caroom and Maxwell 2018).

Water previously appropriated under a water right that is subsequently cancelled or abandoned is again subject to appropriation. Thus, cancellations and/or abandonments could result in additional unappropriated water within a basin.

Our **first** and **second** options are that (1) the Legislature amend the exemptions in TWC § 11.173(b) by adding protection from cancellation for owners of water rights that participate in documented forbearance agreements (where the owner of the water right chooses not to divert water under a water right and allows the same quantity to remain in the stream for environmental benefit); and (2) TCEQ, either by its own initiative or by legislative directive, exercise its existing legislative authority and pursue cancellations and affirm abandonments.

House Bill (HB) 2710 from the 87th legislative session would have achieved one of these recommendations—forbearance protection from cancellation. Unfortunately, HB 2710 did not see final action in the Texas Senate.

Cancellations, abandonments, and the basis to pursue either is based on the same set of facts: water under a previously issued water right has gone unused for at least 3 years for voluntary abandonments and 10 years for cancellation. We note that while this water has gone unused by the existing owner and may contribute to some environmental flows in discrete segments, it is neither dedicated for the environment or protected from other downstream diversions and uses.

Pursuit of cancellations and affirmation of abandonment can also incentivize market-based transactions that could result in a dedication for environmental flows. Such proceedings could also result in increased deposits into the Texas Water Trust. The Texas Water Trust, created by the Legislature in 1997, provides an opportunity to acquire—by donation, lease, or purchase—water rights for environmental purposes. Existing water right holders can choose to donate or place their water right in the Texas Water Trust. Either voluntary abandonment or deposit of the water right into the Texas Water Trust could benefit the environment and add value to water appropriated under a water right and available for market-based transactions.

Our **third** option would require a legislative modification. Recognizing that the goal of SB 3 to have water identified and specifically set aside for the environment has not materialized,

the Legislature could consider amending TWC Chapter 11 to add a provision that all water previously appropriated under a water right that is cancelled or abandoned and returned to the system as unappropriated water is to be reflected by TCEQ as set-aside for compliance with the adopted environmental flow standards. Put another way, allocated water that is cancelled or abandoned should not be made available for appropriation to uses other than environmental flows.

These options do not threaten a private interest to water under a previously issued water right. The water would become unappropriated due to a cancellation proceeding that is already protective of an owner's interest to water (see Texas Supreme Court decision Texas Water Rights Commission v. Wright, 464 S.W.2d 642 [Tex. 1971]; Caroom and Maxwell 2018).

Supporting the option for cancellation proceedings is the additional consideration that such actions result in a partial desirable resolution of an existing problem: addressing the over-appropriation of Texas rivers and streams. Coupled with the decline in sources of water availability in Texas as noted in the 2017 state water plan (TWDB 2017), projected to be 11% less than existing levels, not pursuing cancellations and affirming abandonments can augment the projected negative impacts due to declining water supplies for all uses—including the environment.

Cancellations and legislative action to call for increased use of already existing legislative authority for the same would likely be opposed by water right holders and regulators. The burden of proof for such action rests with TCEQ. The last action by TCEQ to cancel water rights in moderate to substantial numbers was January 2003 for the middle and lower Rio Grande (TCEQ 2003).

Our **fourth** option is for the Legislature to enact legislation that modernizes the way in which surface water use and diversions are tracked.

Among the data sets available to TCEQ to meet its burden of proof to undertake cancellation proceedings are the annual water use reports required of all water right holders in accordance with TWC § 11.031. Such reports are required to be submitted no later than March 1 (TWC § 11.031 2019). Within watermaster areas, the diversion of water under a water right is typically pre-approved by the watermaster and verified by metered diversion points and verified by assigned watermaster staff. For the remainder of the state, information submitted by the owners of water rights representing annual water use is largely on an honor system. Unless specifically called for in an individual water right, there is no metering requirement outside of watermaster areas nor is there currently a requirement for a filing of intent to divert water or similar notification prior to an owner of a water right diverting water as authorized by a water right. The same is true for permit exempt diversions for domestic and livestock uses.

To implement this option, the Legislature would need to modify TWC § 11.031 in four ways:

1. Remove the annual honor system-based water use report requirement.
2. Provide funding for TCEQ to develop an easy-to-use web-based application to capture diversion reporting by water users. This would be a reporting action and not a request for permission to divert, as those diversions should already be authorized under an issued water right.
3. Require that diversion reporting be more real-time in nature—for example, require that an owner of a water right report their diversion immediately prior to and no less than one week after the diversion or change in diversion rate. Where metering is not used, the pump's maximum diversion rate or other similar way of computing volume diverted and placed to beneficial use could be accepted.
4. Charge TCEQ that in the development of this online notification process, that data be captured relative to amount diverted, purpose of use, water right exercised, priority date of the water, and either consumptive or non-consumptive uses of the water diverted. Such data would allow TCEQ to better track water use against issued water rights and provide TWDB and regional water planners with better data representative of current actual uses of surface water.

Such action could also assist in ensuring that only authorized amounts of water under a right are diverted and placed towards their intended use irrespective of whether those are occurring within or outside of a watermaster area. Obviously, this increased verification would also allow water not authorized for diversion to remain in the watercourse and benefit the environment.

An additional benefit of implementing this option is that, as droughts have shown of late and senior calls are filed due to water shortages, a more real-time accounting of actual water use to date by TCEQ would allow it to better assess and implement use restrictions and impacts to other users and the environment while responding to such calls for water.

We take note of and commend TCEQ's actions to automate water rights data through an effective tool they developed as a water rights viewer. We believe that this option is in keeping with such current advancements.

Our **fifth** option is for the Legislature to modify the drought exemption allowing for suspension of environmental flows to make it clear that before TCEQ suspends provisions relative to environmental flows, persons or entities who will benefit from such suspension of environmental flow requirements would first have to demonstrate pursuit of water via provisions enumerated under TWC§ 11.139.

SB 3 requires that during times of drought, the environmental flow criteria established by TCEQ under the required rules could be temporarily suspended. This is codified in TWC § 5.506 (2019):

> 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. (a) The commission by emergency or temporary order may suspend a permit condition relating to beneficial inflows to affected bays and estuaries and instream uses if the commission finds that an emergency exists that cannot practicably be resolved in another way.
>
> (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** [emphasis added].
>
> (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). 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.
>
> (c) The commission may suspend a permit condition under Subsection (a) or make water available temporarily under Subsection (a-1) without notice except as required by Subsection (b).
>
> (d) The commission shall notify all affected persons immediately by publication (TWC §5.506 2019).

Under separate authority, emergency orders for water can be issued by TCEQ as prescribed in TWC § 11.139 (2019):

> Sec. 11.139. EMERGENCY AUTHORIZATIONS. (a) Except as provided by Section 11.148 of this code, the commission may grant an emergency permit, order, or amendment to an existing permit, certified filing, or certificate of adjudication after notice to the governor for an initial period of not more than 120 days if the commission finds that emergency conditions exist which present an imminent threat to the public health and safety and which override the necessity to comply with established statutory procedures **and there are no feasible practicable alternatives to the emergency authorization** [emphasis added]. Such emergency action may be renewed once for not longer than 60 days.
>
> (b) A person desiring to obtain an emergency authorization under this section shall submit to the commission a sworn application containing the following information:
>
> (1) a description of the condition of emergency justifying the granting of the emergency authorization;
>
> (2) a statement setting forth facts which support the findings required under this section;
>
> (3) an estimate of the dates on which the proposed authorization should begin and end;
>
> (4) a description of the action sought, and the activity proposed to be allowed, mandated, or prohibited; and
>
> (5) any other statements or information required by the commission.
>
> …
>
> (h) The commission may grant an emergency authorization under this section for the temporary transfer and use of all or part of a permit, certified filing, or certificate of adjudication for other than domestic or municipal use to a retail or wholesale water supplier for public health and safety purposes. In addition to the requirements contained in Subsection (b) of this section, **the commission may direct that the applicant will timely pay the amounts for which the applicant may be potentially liable under Subsection (j)** [emphasis added] of this section and to the extent authorized by law will fully indemnify and hold harmless the state, the executive director, and the commission from any and all liability for the authorization sought. The commission may order bond or other surety in a form acceptable to the commission as a condition for such emergency authorization. The commission may not grant an emergency authorization under this section which would cause a violation of a federal regulation.
>
> (i) In transferring the amount of water requested by the applicant, the executive director or the commission shall allocate the requested amount among two or more permits, certified filings, or certificates of adjudication for other than domestic or municipal use.
>
> (j) **The person granted an emergency authorization under Subsection (h) of this section is liable to the owner and the owner's agent or lessee from whom the use is transferred for the fair market value of the water transferred as well as for any damages caused by the transfer of use** [emphasis added]. If, within 60 days of the termination of the authorization, the parties do not agree on the amount due,

> or if full payment is not made, either party may file a complaint with the commission to determine the amount due. The commission may use dispute resolution procedures for a complaint filed under this subsection. After exhausting all administrative remedies under this subsection, an owner from whom the use is transferred may file suit to recover or determine the amount due in a district court in the county where the owner resides or has its headquarters. The prevailing party in a suit filed under this subsection is entitled to recover court costs and reasonable attorney's fees.
>
> …
>
> (l) An emergency authorization does not vest in the grantee any right to the diversion, impoundment, or use of water and shall expire and be cancelled in accordance with its terms (TWC §11.139 2019).

Adding pursuit for emergency authorization of use of water under TWC § 11.139 as a precondition to temporarily suspending environmental flow requirements would assist TCEQ in making a finding that there are no other alternatives to alleviate an emergency. Such action would also add value to water—both for emergency use under TWC § 11.139 as well as recognizing the value of water for the environment.

Our **sixth** option is for the Legislature to study ways in which water dedicated for environmental flows can coexist and be protected within our prior-appropriation system. A key disincentive for the pursuit of market-based transactions and dedication of water for the environment is the fact that such flows are not protected from downstream diversion and use. Water in the stream is available for diversion in accordance with issued water rights based on priority date or by permit-exempt domestic and livestock uses.

In an ideal world, and if we could turn back the clock 120 years or so, it would have been better if environmental flows had received superior rights to water as permit exempt domestic and livestock uses continue to enjoy today. That is not the case.

However, we should explore the intent of an environmental flow set-aside. If the intent was to exclude this water from further consideration for appropriation for uses other than the environment, and if such set-asides were in fact established in rule (Wells and Barron Bradsby 2018), how would environmental flow set-asides be protected from diversion? The same holds true for water dedicated for the environment or diversion flow restrictions, particularly for post-2007 water rights.

This issue requires further study and consideration and may in the end be incompatible within a prior appropriation system in as much as existing senior water right holders can today exercise their right to divert this water.

Our **seventh** option is for the Legislature and interested parties to study how dedications of water under existing water rights can be considered for tax credit or deductions or buyback so as to further incentivize transactions for environmental benefit.

While there are examples of legislative action and/or donations of water and dedication of the same for instream or environmental benefits that have successfully resulted in Internal Revenue Service (IRS) accepted tax credit (Hicks 2011), we were unable to identify clear IRS guidance or ruling on the issue. We noted state-specific actions like Colorado's attempt under HB 15-1159 in 2015 and Washington state's efforts under the Washington Water Trust program that may have tax benefits from in-state tax considerations among others. Clearly, states that impose various tax schemes can offer more flexibility than those that do not. In Texas, a mechanism that perhaps results in some property tax relief for dedications of water for the environment may incentivize market-based transactions. From a federal perspective, more flexible tax credit for charitable donations or dedications of water for the environment under IRS Code 26 § 170 could serve as a powerful incentive for such transactions.

INFORMAL ACTIONS

In closing, we recognize that while this paper focused on providing options of formal or regulatory actions that could be undertaken to further incentivize the identification, acquisition, dedication, and protection of environmental flows, there are proven examples across the West and in Texas of informal activities (not necessarily requiring regulatory action) with various degrees of success that, in part, achieve the same desired goals. These include:

- Establishment of a public, private, or public-private-partnership water trust to serve as a recipient or holder of water rights for the environment or leased water under a market-based transaction (King 2004).
- Establishment of public or private entities to serve as clearinghouses or to act in the marketplace for the acquisition of water for the environment. This includes the buyback of water rights by state agencies. Transactions can be outright purchases, leases, and donations of water for instream flows (Landry 1998).
- Non-governmental organizations' collaborative efforts with stakeholders and owners of water rights for the establishment of System Conservation Pilot Programs to promote funding for actions that include leaving water in the streams for environmental benefit (Szeptycki 2018). An added benefit of this type of effort is that by identifying within a targeted river reach or segment interested parties that agree to participate in a conservation pro-

gram, including fallowing of fields and commitments to divert less water, such actions result in the protection of environmental flows that can be studied for intended benefits within these same targeted river reaches.

- Related to incentivizing water conservation and reduced water demand, we note the interest in New Mexico to allocate funds in their state budget for implementation of a pilot program to incentivize and compensate reduced use of water on the Rio Grande by fallowing fields. In this case, the cause of action appears to be the ongoing Texas v. New Mexico Rio Grande Compact dispute (Nott 2020). While the outcome in this case is to make available additional water for compact compliance, it is ironic and inescapable that such actions result in leaving more water in the stream.

These types of actions relate to both surface and groundwater rights. Such actions can assist in addressing and in part reversing negative impacts in areas where groundwater and surface-water interactions are evident.

CONCLUSION

Texas, like other western states, came to the realization that its water adjudication processes had not provided protections through time for instream flows providing environmental benefits. The prior appropriation system and property right interest it conveys, which governs most all western water law, is at a minimum incompatible with post-adjudication attempts to address the lack of reservation and protection of water for environmental flows. But this partial incompatibility has not deterred legislators, regulators, and stakeholders from pursuing transactions and dedications of water for the environment. Meeting environmental flow needs and addressing the associated water issues are complex. The issue remains unresolved—but progress has been made. Continued creative efforts to address the issue are needed if we are to achieve the goals we strived for—water for the environment that is protected for such use and benefit.

REFERENCES

Alexander K. 2019. The rise of water conservation and efforts to Protect environmental flows. Water Resources IMPACT. 21(4):16-19. Available from: https://aquadoc.typepad.com/files/awras_awras0419final.pdf.

Caroom DG, Maxwell SM. 2018. Chapter 9: Surface water rights permitting. In: Sahs M, editor. Essentials of Texas water resources. Austin (Texas): State Bar of Texas. p. 9-1–9-15.

Ducks Unlimited, Texas A&M University Corpus Christi Harte Research Institute, The Meadows Center for Water and the Environment, The Nature Conservancy, National Wildlife Federation. 2019. Texas environmental flows initiative final report. Austin (Texas): Texas Commission on Environmental Quality. Available from: https://gato-docs.its.txstate.edu/jcr:5580662d-e40c-439c-9b76-687f0abc862d.

Dates of Interest 86th Legislature. 2019. Austin (Texas): Texas Legislative Commission. Available from: https://lrl.texas.gov/whatsNew/client/index.cfm/2018/8/7/Dates-of-Interest-for-the-86th-Regular-Session.

Gervais B. 2015. Primer on Texas water law. Houston (Texas): Olson & Olson, LLP. 10 p. Available from: http://www.law.uh.edu/faculty/thester/courses/Environmental%20Law%20in%20Oil%20and%20Gas/Primer%20on%20Texas%20Water%20Law%20by%20Gervais.pdf.

Hess MJ. 2005. Instream flows – an environmental perspective of Texas laws. Austin (Texas): Texas Water Law Institute. 15 p. Available from: https://texaswater.tamu.edu/readings/ef_plicy/instreamflows.hess.pdf.

Hicks T. 2011. An interpretation of the internal revenue code and treasury regulations supporting the tax deductibility of the voluntary charitable contribution in perpetuity of a partial interest in an appropriative or riparian water right transferred instream for conservation purposes (with an emphasis on Calfornia water law). West Northwest Journal of Environmental Law and Policy. 17(2):93-162. Available from: https://repository.uchastings.edu/hastings_environmental_law_journal/vol17/iss2/1/.

King MA. 2004. Getting our feet wet: An introduction to water trusts. Harvard Environmental Law Review. 28(2):495-534. Available from: https://heinonline.org/HOL/LandingPage?handle=hein.journals/helr28&div=15.

Landry CJ. 1998. Saving our streams through water markets: a practical guide. Bozeman (Montana): Public Economy Research Center.

Nott R. 2020 Jan 26. New Mexico budget holds funding that could alleviate water problem. Santa Fe New Mexican. Available from: https://www.santafenewmexican.com/news/legislature/new-mexico-budget-holds-funding-that-could-alleviate-water-problem/article_4875117a-3ef5-11ea-abf3-6f7d87f2b3a5.html.

Puig-Williams V. 2013. Implementing SB 3: adopting environmental flows in Texas. Austin (Texas): University of Texas School of Law. Available from: https://repositories.lib.utexas.edu/bitstream/handle/2152/27572/sb3_environmental_flows.pdf.

Roach KA. 2013. Texas water wars: How politics and scientic uncertainty influenced environmental flow decision-making in the lone Star state. Biodiversity and Conservation. 22:545-565. Available from: https://doi.org/10.1007/s10531-013-0443-2.

Rochelle MC. 2007. From the capitol: the 80th Texas Legislature. Austin (Texas): Lloyd Gosselink Blevins Rochelle & Townsend, P.C.

Szeptycki LF, Forgie J, Hook E, Lorick K, Womble P. 2015. Environmental water rights transfers: a review of state laws. Stanford (California): Water in the West for the National Fish and Wildlife Foundation. Available from: https://waterinthewest.stanford.edu/sites/default/files/WITW-WaterRightsLawReview-2015-FINAL.pdf.

Szeptycki L, Pilz D, O'Connor R, Gordon B. 2018. Environmental water transactions in the Colorado River Basin: a closer look. Stanford (California): Stanford Woods Institute for the Environment. Available from: https://stacks.stanford.edu/file/druid:tx230zb7767/2018%20Woods%20Water%20Scorecard%20v13%20FINAL%20WEB.pdf.

[TCEQ] Texas Commission on Environmental Quality. 2003. Marked agenda January 23, 2003 TCEQ. Austin (Texas): Texas Commission on Environmental Quality. Available from: https://www.tceq.texas.gov/assets/public/comm_exec/agendas/comm/marked/2003/030123.html.

[TCEQ] Texas Commission on Environmental Quality. 2019. Chapter 303 – Operation of the Rio Grande. Austin (Texas): Texas Commission on Environmental Quality. 4 p. Available from: https://www.tceq.texas.gov/assets/public/legal/rules/rules/pdflib/303a.pdf.

[TWC] Texas Water Code § 5.506. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.5.htm.

[TWC] Texas Water Code § 11.02(16). 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code § 11.02362. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code § 11.0237. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code § 11.024. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm#11.3271.

[TWC] Texas Water Code § 11.027. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code § 11.031. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code § 11.139. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWC] Texas Water Code Chapter 11 subchapter E. 2019. Available from: https://statutes.capitol.texas.gov/Docs/WA/htm/WA.11.htm.

[TWDB] Texas Water Development Board. 2017. Water for Texas. Austin (Texas): Texas Water Development Board. 150 p. Available from: https://www.twdb.texas.gov/waterplanning/swp/2017/index.asp.

[TWDB] Texas Water Development Board. 2008. Texas instream flow studies: technical overview. Austin (Texas): Texas Water Development Board. Report 369. 147 p. Available from: https://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R369_InstreamFlows.pdf.

Wells H, Barron Bradsby C. 2018. Chapter 11: Environmental flows. In: Sahs M, editor. Essentials of Texas water resources. Austin (Texas): State Bar of Texas. p. 11-1–11-29.