

The Texas Commission on Environmental Quality (TCEQ, agency, or commission) adopts new §§298.400, 298.405, 298.410, 298.415, 298.425, 298.430, 298.435, 298.440, 298.450, 298.455, 298.460, 298.465, 298.470, 298.475, 298.480, 298.485, 298.490, 298.500, 298.505, 298.510, 298.515, 298.520, 298.525, 298.530, 298.535, and 298.540.

Sections 298.400, 298.405, 298.455, 298.460, 298.470, 298.475, 298.480, 298.510 and 298.530 are adopted *with changes* to the proposed text as published in the September 20, 2013, issue of the *Texas Register* (38 TexReg 6176). Sections 298.410, 298.415, 298.425, 298.430, 298.435, 298.440, 298.450, 298.465, 298.485, 298.490, 298.500, 298.505, 298.515, 298.520, 298.525, 298.535, and 298.540 are adopted *without changes* to the proposed text and will not be republished.

Background and Summary of the Factual Basis for the Adopted Rules

In 2007, the 80th Legislature passed House Bill 3 (HB 3), relating to the management of the water resources of the state, including the protection of instream flows and freshwater inflows; and Senate Bill 3 (SB 3), relating to the development, management, and preservation of the water resources of the state. Both of these bills amended Texas Water Code (TWC), §11.1471, which requires the commission to adopt rules related to environmental flow standards and set-asides. The commission is proposing to implement the environmental flow provisions of HB 3, Article 1, and SB 3, Article 1, and

adopts environmental flow standards for the Brazos River and its associated bay and estuary system, the Nueces River and Corpus Christi and Baffin Bays, and the river basin and bay system consisting of the Rio Grande, the Rio Grande estuary, and the Lower Laguna Madre.

Prior to HB 3/SB 3, the commission had authority to protect environmental interests as it permitted state surface water. The commission had authority to maintain: existing instream uses under TWC, §11.147(d); water quality under TWC, §11.147(d) and §11.150; fish and wildlife habitat under TWC, §11.147(e) and §11.152; and freshwater inflows to bay and estuary systems under TWC, §11.147(a) - (c). TWC, §11.147(b) - (e) and §11.152 required that these environmental considerations be included only to the extent practicable or reasonable and required that environmental considerations be considered along with other factors of public welfare. HB 3/SB 3 did not make major changes to this commission authority.

The commission also retains its ability, granted prior to HB 3/SB 3, to place special conditions in water right permits to protect environmental interests. Before HB 3/SB 3, TWC, §11.134(b)(3)(D), required consideration of environmental interests for new appropriations of water, including amendments that granted an increase in the amount of water that could be diverted, and TWC, §11.085, required consideration of environmental interests for interbasin transfers. Permits for water projects that call for

the re-diversion of wastewater or return flows to a watercourse, so called "indirect reuse" projects, were also subject to special conditions to protect environmental uses under TWC, §11.042 and §11.046. Amendments that were not new appropriations were required to be authorized if, among other criteria, the amendment would not cause adverse impact to the environment of greater magnitude than under the original permit under TWC, §11.122(b). As a practical matter, if any adverse impact to the environment was noted in an application for an amendment, then special conditions were crafted to remove the adverse impact so that the amendment might be granted.

HB 3/SB 3 changed the process by which the state would decide the flow that needed to be preserved in the watercourse for the environment and the balancing of environmental interests along with other public interests. HB 3/SB 3 created a statewide Environmental Flows Advisory Group (Advisory Group). The Advisory Group was given the responsibility to appoint Basin and Bay Area Stakeholder Committees (the stakeholder committee) for each of the state's river basin, bay, and estuary systems. The stakeholder committees, in turn, appointed a Basin and Bay Expert Science Team (the science team). The science teams were to develop a recommended environmental flow regime, or schedule of flow quantities adequate to support a sound ecological environment. The stakeholders were to take the science team's recommendations and consider those recommendations in conjunction with other factors, including the present and future needs for water for other uses. The stakeholders were also to report

their recommendations to the commission. Both the science teams and the stakeholder committees were to reach their recommendations on a consensus basis to the maximum extent possible. The commission, in turn, is to take the recommendations from the science team, the stakeholder committees, the Advisory Group, and a statewide Science Advisory Committee (SAC), and consider that information along with other information and by rule adopt environmental flow standards for each basin and bay system. At the same time the commission is to 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. Once the environmental flow standards are adopted, the commission's objective or goal will be to protect the standards, along with the interests of senior water right holders, in its water rights permitting process for new appropriations and amendments that increase the amount of water to be taken, stored, or diverted. Under HB 3/SB 3, the commission may use the set-aside or use its existing authority to place special conditions in permits to protect the environmental flow standards.

The commission received the Nueces River and Corpus Christi and Baffin Bays science team report on October 28, 2011, and the stakeholder committee report on August 22, 2012. The commission received the Brazos River and its associated bay and estuary system science team report on March 1, 2012, and the stakeholder committee report on August 31, 2012. The commission received the Rio Grande, the Rio Grande estuary, and

the Lower Laguna Madre science team reports on July 12, 2012 and July 25, 2012; however, the stakeholders for this basin and bay system did not submit a report.

Copies of the Nueces River and Corpus Christi and Baffin Bays reports are available on the following Web site:

http://www.tceq.texas.gov/permitting/water_rights/eflows/nueces-river-and-corpus-christi-and-baffin-bays-stakeholder-committee-and-expert-science-team.

Copies of the Brazos River and its associated bay and estuary system reports are available on the following Web site:

http://www.tceq.texas.gov/permitting/water_rights/eflows/brazos-river-and-associated-bay-and-estuary-system-stakeholder-committee-and-expert-science-team.

Copies of the Rio Grande, the Rio Grande estuary, and the Lower Laguna Madre science team reports are available on the following Web site:

http://www.tceq.texas.gov/permitting/water_rights/eflows/rio-grande-rio-grande-estuary-and-lower-laguna-madre.

The commission adopts Subchapter F to cover the Nueces River and Corpus Christi and Baffin Bays. The commission adopts Subchapter G to cover the Brazos River and its associated bay and estuary system. The commission adopts Subchapter H to cover the

Rio Grande, the Rio Grande estuary, and the Lower Laguna Madre.

Section by Section Discussion

Subchapter F: Nueces River and Corpus Christi and Baffin Bays

The commission adopts new Subchapter F to contain all of the environmental flow standards and rules specific to the basin and bay system composed of the Nueces River and Corpus Christi and Baffin Bays. The science team delivered its report to the commission on October 28, 2011. The stakeholder committee delivered its recommendations to the commission on August 22, 2012. As required under TWC, §11.02362(d), the commission must adopt environmental flow standards. This adopted new subchapter would implement the schedule established by the Advisory Group under TWC, §11.02362, and environmental flow standards required of the commission in TWC, §11.1471.

§298.400, Applicability and Purpose

The commission adopts new §298.400 to describe the purpose of Subchapter F and under what circumstances it applies. In response to comments, the commission added the sentence "This subchapter 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, 2007." to clarify that Subchapter F does not apply to new appropriations of water issued before September 1, 2007.

§298.405, Definitions

The commission adopts new §298.405. The adopted section has definitions of terms that will apply only to this subchapter. The commission acknowledges that overbank flows are considered to be a component of a flow regime for a sound ecological environment. However, these flows result from naturally occurring large rainfall events, which will likely continue to occur. Therefore, the commission is not including overbank flows as a component of the adopted standards. In §298.405(1), (6), (8), and (11) the commission adopts definitions for "Fall," "Spring," "Summer," and "Winter" because the adopted environmental flow standards for the Nueces River and its associated tributaries, and rivers and tributaries in the Nueces-Rio Grande Coastal Basin, vary by season. The definitions are the same as the definitions of the seasons in the recommendations of the science team, which were subsequently used by the stakeholders to develop their recommendations. In §298.405(2) the commission adopts a definition for "Inflow regime" because the adopted freshwater inflow standards for Nueces Bay and Delta vary by season and year. In §298.405(3), (9), and (10) the commission adopts definitions for "Modeled permitting frequency," "Target volume," and "Target frequency." These frequencies and quantities are used for water rights permitting and for the purpose of providing additional freshwater inflows to Nueces Bay and Delta through voluntary strategies. In response to comment the commission added the phrases "specified in §298.430(a)(3)" and "water rights permitting and to establish

targets for" and deleted the word "sole" to clarify the definition of "Target volume" and how it applies. In response to comment the commission added the phrase "at the time the first water right application subject to this subchapter is processed" to the definition of "Modeled permitting frequency" in §298.405(3) to clarify the point in time at which the baseline will be determined. In §298.405(4) and (5) the commission adopts definitions for "Nueces Bay," and "Nueces Delta" to set out the geographical extent of the area to be supported by the adopted freshwater inflow standards, and to specify areas of interest for §298.410. In response to comment, the commission clarified the definition for "Nueces Delta" in §298.405(5) by deleting the proposed definition and substituting the following definition "a complex array of channels, pools, marshes, and tidal flats in the upper end of Nueces Bay that lies generally to the north of the Nueces River and includes area receiving inflows from the Rincon Bayou and overflow channels from the river." Finally, in §298.405(7) the commission adopts a definition for "Sound ecological environment" for this basin and bay system. This adopted definition is based on the definition recommended by the stakeholders.

§298.410, Findings

The commission adopts new §298.410 regarding findings related to sound ecological environments. The adopted finding regarding the ecological environment is consistent with the stakeholder report. Information on the commission's reasoning for the adopted schedule of flow quantities and environmental flow standards can be found in this

preamble under the analyses for §298.425 and §298.430. This adopted new section would implement TWC, §11.1471.

§298.415, Set-Asides and Standards Priority Date

The commission adopts new §298.415 establishing the priority date for any set-asides and any modeling of the environmental flow standards in the commission's water availability models (WAMs) as the date the commission received the report from the science team for the basin and bay system, which was October 28, 2011. The commission protects high flow pulse standards from being permitted to smaller applicants for new appropriations because, under adopted §298.435(b), some of the high flow pulse standards would not be included in some water right permits for new appropriations. In addition, the commission needs to ensure that new appropriations, or amendments to add a new appropriation, will not affect downstream flow standards at measurement points that may not be applicable to those new appropriations or amendments. The commission also adds these changes to ensure consistency with adopted §298.20, which establishes the priority date for environmental flow standards and set-asides as the date the commission received the environmental flow regime recommendations from the science team.

§298.425, Schedule of Flow Quantities

The commission adopts new §298.425 regarding the schedule of flow quantities. The

commission adopts this section to explain the implementation of the environmental flow standards in the following section. The commission does not necessarily intend to use the exact wording of this section as the wording in water right permits issued after the adoption of these rules. However, this section describes how the commission intends to implement the adopted environmental flow standards in water right permit or amendment applications for new appropriations.

Subsistence flows are the minimum flows below which the commission will not allow diversions or storage of water. Therefore, the water right holder may not divert or store water if the flow at an applicable measurement point is below the subsistence flow standard. The adopted rule provides that if the flow at an applicable measurement point is above the subsistence flow standard but below the applicable base flow standard, the water right holder must allow the applicable subsistence flow, plus 50% of the difference between measured streamflow and the applicable subsistence flow, to pass a measurement point, and any remaining flow may be diverted or stored. The commission's adopted rule provides that the subsistence flow standard can be variable depending on the season, and that only the subsistence flow for a particular season limits diversions by a water right subject to the standards, in that season.

Once the flow at an applicable measurement point is above the base flow standard for the season, the water right holder may store or divert water according to its permit as

long as the flow at the measurement point does not fall below the applicable base flow standard for that season.

The commission's adopted rule provides that pulse flows be allowed to pass if streamflows are above the base or subsistence flow standard for the season, subject to the pulse flow exemption as described in §298.435(b), and if the pulse flow trigger level is reached at an applicable measurement point. Once the pulse flow trigger conditions are met, the water right holder may not store or divert water until either the applicable pulse volume passes the applicable measurement point or the applicable pulse duration has occurred.

The adopted rule does not require that the water right holder produce a pulse flow, because pulses occur when there are high rainfall events. The commission's adopted rule does provide that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. The commission's adopted rule provides that a water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse. Under the adopted rule, a water right holder can divert water in excess of the applicable pulse requirement so long as those diversions do not prevent the occurrence of the pulse flow trigger level of the applicable pulse and as long as the duration or volume requirement is met for the applicable pulse.

If, in a particular season, only one of the small, medium, or large seasonal high flow pulses or annual pulses identified in the commission's adopted rule is generated, there would be no need to "catch up" or allow more than the applicable number of high flow pulses to pass in the following season. The adopted rule provides that pulse flows not be tied to a hydrologic condition. In addition, the adopted rule provides that if the pulse requirements for a medium or large seasonal high flow pulse event or an annual pulse event are satisfied and therefore this high flow pulse is allowed to pass, the requirements for one of each of the applicable smaller high flow pulse events during that season or year would be considered to be satisfied at the applicable measurement point.

The commission's adopted rule provides that if a water right owner stored water at a previous time and complied with the applicable environmental flow requirements at that time, the water right owner would not need to comply with any environmental flow requirements in effect when subsequent use of that stored water occurs.

§298.430, Environmental Flow Standards

The commission adopts new §298.430 to provide the environmental flow standards of TWC, §11.1471, for the basin and bay system composed of the Nueces River and Corpus Christi and Baffin Bays. The commission based its decision on consideration of the recommendations of stakeholders, sound science, and other public interests and

relevant factors.

The adopted freshwater inflow standards for Nueces Bay and Delta generally track the recommendations of the stakeholders. The commission recognizes that freshwater inflows to Nueces Bay and Delta are currently provided through a commission approved Agreed Order. The commission further recognizes the role of environmental flow standards in both water rights permitting and in establishing targets for purposes of providing additional freshwater inflows through voluntary strategies. Based on this, the commission adopts a dual set of recommendations for freshwater inflows to Nueces Bay and Delta. The commission does not adopt specific frequencies for use in water availability determinations in the adopted rule because WAMs change as new permits and amendments are added. The adopted rule provides that new permits or amendments to increase the amount of water stored, taken, or diverted shall not impair the frequency at which specific inflow regime levels occur by more than the values set out in §298.430(a)(3)(A) - (C), as compared to the baseline values in the commission's WAMs in effect at the time the first application for a water right permit or amendment subject to this subchapter is considered. The commission adopts new §298.430(a)(1) and (2) to set out how the allowable impairment will be calculated and applied in water availability determinations for new water rights or amendments subject to this subchapter. The commission adopts new §298.430(a)(3)(A) - (C) to set out how the allowable impairment will be calculated for each specific inflow regime. Finally, the

commission adopts new §298.430(a)(3)(D) to provide that the target volumes for each season and year are independent of the preceding and subsequent seasons and years.

The stakeholders proposed that the environmental flow standards for this basin and bay system include a provision allowing the Nueces Estuary Advisory Council (NEAC) the opportunity to review and provide recommendations to the commission on applications for new appropriations of water in excess of 500 acre-feet per year. The stakeholders stated purpose for this provision is so that the NEAC could recommend approval of an application violating specified attainment frequencies, but providing significant benefits to the bay and estuary through operations, permit conditions, or adaptive management.

The stakeholders' request is not allowable under TCEQs procedures for the public to become involved in water rights applications. If the NEAC wishes to be a party to any contested case matter on applications in the Nueces River Basin, the NEAC would have to follow the procedure in TWC, §5.115 and TCEQ's rules in 30 TAC Chapter 55.

However, the NEAC, or its individual members, may be on the mailing list for any application and may file comments during the comment period. The stakeholders stated that NEAC needs to review and provide recommendations to the commission on applications for new appropriations of water so that the NEAC could recommend changes to the environmental flow standards adopted in the rules. The commission cannot change the environmental standards in the rules as part of a proceeding on a

water rights application. Under TWC, §11.1471(f), the commission may only change environmental flow standards through another rulemaking, after a stakeholder process, and no more often than every ten years (unless the stakeholder group recommends a more frequent basis). Therefore, the commission did not include provisions allowing the NEAC to participate in the water rights permitting process in the adopted rule because other rules and statutes govern the water rights permitting process and because changes to adopted standards can only occur via a rulemaking process.

The commission's adopted rule further provides that if strategies are implemented through a water right permit to provide additional freshwater inflows to Nueces Bay and Nueces Delta, any subsequent new permits or amendments for new appropriations of water not be allowed to reduce the frequency at which inflow regime levels occur below the levels that would occur in the commission's WAM with the permitted strategy or strategies in place.

The measurement points and the adopted base flow and subsistence flow standards for the Nueces River Basin and the Nueces-Rio Grande Coastal Basin are generally those recommended by the stakeholders. However, the stakeholders recommended an environmental flow standard at Leona Springs near Uvalde. The commission notes that, when it adopted this rule, daily discharge information for this location was not publically available. The lack of readily accessible daily data could create

implementation issues for specific water right holders who could be subject to an environmental flow standard at this location; therefore, the commission has not adopted environmental flow standards at this location.

The adopted high flow pulse standards are generally based on recommendations of the stakeholders. The commission did not include high flow pulses with trigger levels above the action stage level to ensure that application of the standards would not cause flooding. The action stage level is defined by the National Weather Service as the stage which, when reached by a rising stream, represents the level where the National Weather Service or a partner/user needs to take some type of mitigation action in preparation for possible significant hydrologic activity. At some locations, the stakeholders recommended pulse flows with durations in excess of one month. There was little site-specific information supporting specific high flow pulses, including pulses with long durations. Therefore, the commission did not include pulse flows with durations longer than 30 days in the adopted rule. The stakeholders also proposed pulse flow trigger levels that were either below or very close to the base flow values at some measurement points in some seasons. The commission did not include these pulses in the adopted rule because they would likely not represent high flows within the watercourse in the context of the environmental flow standards proposed by the stakeholders. The number of applicable high flow pulses was also adjusted based on the impacts of pulse flows on remaining unappropriated water as discussed further.

The stakeholders performed an analysis of the impacts of the adopted standards on future water supply needs and considered the results of these analyses in their recommendations. The executive director (ED) reviewed the information provided by the stakeholders. The ED also performed his own analysis to address the issue of balancing human and other competing needs for water in the basin and bay system. The ED's analysis is not intended as a finding that water is available for specific projects. When applications for projects are evaluated, water availability is based on specific facts in those applications.

The ED analyzed the impacts of the adopted standards on the remaining unappropriated water at representative measurement points in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin. The ED based his analysis on results from the WAM used for his water availability determinations for new permits or amendments that request a new appropriation of water. The ED calculated both the amount of unappropriated water at selected measurement points and the impact of the adopted standards on unappropriated water. The remaining unappropriated water in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin, before application of the adopted standards, varied from less than 1% of the time to approximately 47% of the time, and averages 10% overall for these basins. Unappropriated water in these basins generally occurs during times of higher flow; therefore, increasing pulse volumes and frequencies

during wetter periods reduces the remaining unappropriated flow. The ED evaluated the freshwater inflow standards recommended by the stakeholders and found that application of the standards resulted in some water available for appropriation during higher flow events. Copies of the WAMs used in this analysis are available at:

<http://www.tceq.texas.gov/goto/eflows/rulemaking>.

The ED performed water quality analyses to evaluate relationships between streamflow and the water quality parameters identified by the science team and to look for trends and criteria excursions. These analyses did not identify areas of concern that need to be addressed through this rulemaking process. The ED also reviewed the amount of unappropriated water at the adopted measurement points and considered whether reduction of the adopted standards would result in a significant increase in unappropriated water in these basins and found that it did not. Based on the results of the analysis of unappropriated flow and the water quality analysis, the ED determined that there would be no significant impact from implementation of the adopted standards.

The adopted rule does not set aside any unappropriated water to protect the adopted environmental flow standards. Any unappropriated water that is available in these river basins is available only during relatively wet conditions. The commission determines that the environmental flow standards may be adequately protected by special

conditions in water right permits or amendments for new appropriations of water in these basins. Special conditions are a more effective method to maximize the use of water by allowing water to be used for dual purposes. Special conditions to protect environmental flows may allow water permitted to downstream senior water rights, as well as return flows and permitted but unused water, to satisfy the special conditions. This adopted new section would implement TWC, §11.1471.

§298.435, Water Right Permit Conditions

The commission adopts new §298.435 relating to water right permit conditions. The adopted provision would require the commission to place special conditions in water right permits for new appropriations and amendments that would add additional appropriations to existing permits. The special conditions would be to protect the environmental flow standards established by the subchapter. Consistent with the recommendations of the stakeholders, the adopted rule provides that, for water right permit applications where the diversion rate is less than 20% of a pulse flow trigger requirement, the water right permit or amendment would not include special conditions relative to that high flow pulse. This adopted new section would implement TWC, §11.134(b)(3)(D) and §11.1471.

§298.440, Schedule for Revision of Standards

The commission adopts new §298.440 to provide the schedule for re-examination of the

environmental flow standards. The adopted rule requires that the commission take up a possible rulemaking to change the standards ten years from the effective date of the rules, unless the stakeholder committee submits a work plan approved by the Advisory Group that calls for a more frequent review. The commission notes that it is prohibited from providing that the rulemaking process occurs more frequently than once every ten years unless the stakeholders' work plan approved by the Advisory Group under TWC, §11.02362(p), calls for a more frequent schedule. The commission notes that, as of the time of proposal of these rules, it has not received an approved work plan from the stakeholder committee. Should the commission receive an approved work plan after final adoption of this rule package, the commission may consider an amendment to this section and change the schedule more often than once every ten years. The adopted new section would implement TWC, §11.1471(f).

Subchapter G: Brazos River and Its Associated Bay and Estuary System

The commission adopted new Subchapter G to contain all of the environmental flow standards and rules specific to the basin and bay system composed of the Brazos River and its associated tributaries, and its bay and estuary system, and the Brazos-Colorado Coastal Basin. The science team delivered its report to the commission on March 1, 2012. The stakeholder committee delivered its recommendations to the commission on August 31, 2012. The commission adopts environmental flow standards as required under TWC, §11.02362(d). This adopted new subchapter would implement the schedule

established by the Advisory Group under TWC, §11.02362, and environmental flow standards required of the commission in TWC, §11.1471.

§298.450, Applicability and Purpose

The commission adopts new §298.450 to describe the purpose of Subchapter G and under what circumstances it applies.

§298.455, Definitions

The commission adopts new §298.455. The adopted section has definitions of terms that will apply only to this subchapter. A definition for overbank flows is not included in this section. The commission acknowledges that overbank flows are considered to be a component of a flow regime for a sound ecological environment. However, these flows result from naturally occurring large rainfall events, which will likely continue to occur. Therefore, the commission is not including overbank flows as a component of the adopted standards. In §298.455(1), (3), and (12) the commission adopts definitions for "Average condition," "Dry condition," and "Wet condition" because the adopted environmental flow standards vary according to hydrologic condition. A range of flow conditions - average, dry, and wet - is defined as the stakeholders recommended. In §298.455(2), the commission adopts a definition of "Climatic division" to be used solely for the purpose of calculating the Palmer Hydrologic Drought Index (PHDI) value, as set out in §298.470. In §298.455(4), (5), and (11) the commission adopts definitions for

"Lower basin," "Middle basin," and "Upper basin," to describe geographic areas of the Brazos River Basin and the Brazos-Colorado Coastal Basin for purposes of calculating and applying the hydrologic conditions set out in §298.470. In §298.455(6) and (7), the commission adopts definitions for "PHDI" and "PHDI Index" which is a regionalized PHDI to set out the method for calculating those hydrologic conditions. In §298.455(8), (10), and (13) the commission adopts definitions for the seasons "Spring," "Summer," and "Winter" because the adopted environmental flow standards for this basin and bay system vary by season. The definitions are the same as the definitions of the seasons in the recommendations of the science team, which were subsequently used by the stakeholders to develop their recommendations. Finally, in §298.455(9) the commission adopts a definition for "Sound ecological environment" for this basin and bay system. This adopted definition is based on the definition recommended by the science team. In response to comments, the commission added the word "assemblages" to adopted §298.455(9) to correct a typographical error.

§298.460, Findings

The commission adopts new §298.460 regarding findings related to sound ecological environments. In response to comment the commission deleted the word "subsistence" from §298.460(b) to clarify that subsistence is not a hydrologic condition. The adopted finding regarding the ecological environment is consistent with the science team and stakeholder reports. The commission's reasoning for the adopted schedule of flow

quantities and environmental flow standards is described in this preamble under the discussion for §§298.470, 298.475, and 298.480. This adopted new section would implement TWC, §11.1471.

§298.465, Set-Asides and Standards Priority Date

The commission adopts new §298.465 establishing the priority date for any set-asides and any modeling of the environmental flow standards in the commission's WAMs as the date the commission received the report from the science team for the basin and bay system, which was March 1, 2012. The commission protects high flow pulse standards from being permitted to applicants for smaller new appropriations because under adopted §298.485(b) and (c), some of the high flow pulse standards would not be included in some water right permits for new appropriations. In addition, the commission needs to ensure that new appropriations, or amendments to add a new appropriation, will not affect downstream flow standards at measurement points that may not be applicable to those new appropriations or amendments. If all adopted standards downstream of a new appropriation are in the WAM for a river basin, water availability for the new appropriation would be limited by those downstream standards. The commission also adds these provisions to ensure consistency with adopted §298.20, which establishes the priority date for environmental flow standards and set-asides as the date the commission received the environmental flow regime recommendations from the science team.

§298.470, Calculation of Hydrologic Conditions

The commission adopts new §298.470 to explain the determination of hydrologic conditions for implementation and application of the standards to water right permits to which the adopted standards apply. The hydrologic conditions are based on the recommendations of the stakeholders. The commission adopts new §298.470(a) to describe how the hydrologic condition for a season will be determined for new water rights and amendments which are subject to the adopted standards.

The National Weather Service divides Texas into ten climatic divisions. The Brazos River Basin is included within eight of these divisions. The stakeholder report includes a calculation of the percentage of each climate division in each of the three basin geographic areas - Upper basin, Middle basin, and Lower basin, as these geographic areas are described in §298.455. The commission adopts new §298.470(b) to set out the percentage of each climate division within each geographic area.

The commission adopts new §298.470(c) to explain the calculation of hydrologic conditions for water rights permits or amendments to which hydrologic conditions apply. Consistent with the recommendation of the stakeholders, the commission adopts a PHDI Index that determines which base and pulse flow conditions would apply to a water right holder subject to the environmental flow standards in this subchapter. The

percentage of each climate division within each geographic area, as set out in §298.470(b), is used to calculate a PHDI value for each month of the historic record (1895 - 2010). The PHDI values were then ranked and used to create the PHDI Index where the 25th percentile value was used to describe the dry hydrologic condition and the 75th percentile value was used to describe the wet hydrologic condition. PHDI Index values between the 25th percentile value and the 75th percentile value were used to describe the average hydrologic condition. The commission also adopts new §298.470(d) to provide for ongoing, periodic revisions of the hydrologic conditions.

§298.475, Schedule of Flow Quantities

The commission adopts new §298.475 regarding the schedule of flow quantities. The commission adopts this section to explain the implementation of the environmental flow standards in the following section. The commission may not use the exact wording of this section as the wording in water right permits issued after the adoption of these rules. However, this section describes how the commission will implement the adopted environmental flow standards in water right permits or amendments for new appropriations.

Subsistence flows are the minimum flows below which the commission will not allow diversions or storage of water. Therefore, the water right holder may not divert or store water if the flow at an applicable measurement point is below the subsistence flow

standard. During dry hydrologic conditions, if the flow at an applicable measurement point is above the subsistence flow standard but below the applicable dry base flow standard, the water right holder must allow the applicable subsistence flow, plus 50% of the difference between measured streamflow and the applicable subsistence flow, to pass its measurement points, and any remaining flow may be diverted or stored. The commission's adopted rules provide that the subsistence flow standard can be variable depending on the season, and that only the subsistence flow for a particular season limits diversions by a water right subject to the standards, in that season.

During dry, average, or wet hydrologic conditions, a water right holder may not divert water when the flow is below the base flow standard for that season, except as discussed in the paragraph above. Once the flow at an applicable measurement point is above the base flow standard for the season, the water right holder may store or divert water according to its permit as long as the flow at the measurement point does not fall below the applicable base flow standard for that season and in accordance with the applicable hydrologic condition as set out in §298.470. In response to comments the phrase "except during dry conditions as described in subsection (b) of this section" was added to §298.475(c) to clarify that a water right holder subject to the adopted standards cannot divert water during average and wet conditions when streamflow at an applicable measurement point is below the base flow standard. In response to comments the phrase "for that season" was added to §298.475(d)(5) to clarify that if a

large pulse occurs, that pulse can satisfy the requirement for a smaller pulse within the same season.

The commission's adopted rules provide that pulse flows be allowed to pass if streamflows are above the base flow standard for the season and if the pulse flow trigger level is reached at a measurement point. The commission's adopted rules provide that once the pulse flow trigger conditions are met, the water right owner may not store or divert water unless the streamflow at an applicable measurement point is at or above the pulse flow trigger level and the applicable pulse duration has occurred. Once the pulse flow trigger conditions are met, the water right holder may not store or divert water until either the applicable pulse volume passes the applicable measurement point or the applicable pulse duration has occurred.

The stakeholders recommended additional implementation requirements for high flow pulses based on the science team's recommendations. The stakeholders recommended that in addition to allowing a water right holder to store or divert water after either the applicable pulse volume passes the applicable measurement point or the applicable pulse duration has occurred, a water rights holder could also store or divert water when the mean daily streamflow recedes to at or below a specific minimum pulse flow value, or, the mean daily streamflow recedes to at or below a specific maximum base flow value and decreases by 5% or less in a day. These additional requirements were based on the

science team's proposed pulse flow implementation scheme in which pulse flows were not tied to hydrologic condition. However, the stakeholders recommended a different implementation scheme that tied pulses to a hydrologic condition. The stakeholders' additional implementation recommendations are not consistent with their proposed implementation scheme. Therefore, the commission did not include the stakeholders' additional implementation requirements in either the proposed rule or the adopted rule.

The adopted rule does not require that a water right holder produce a high flow pulse because pulses occur when there are high rainfall events. The commission's adopted rule does provide that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. The commission's adopted rule provides that a water right holder can divert water in excess of the applicable pulse flow trigger requirement as long as those diversions do not prevent the occurrence of the pulse flow trigger level of the applicable pulse and as long as the duration or volume requirement is met for the applicable pulse.

If, in a particular season, fewer than the required number of seasonal high flow pulses identified in the commission's adopted rule is generated, there would be no need to "catch up" or allow more than the applicable number of high flow pulses to pass in the following season. Based on the recommendation of the stakeholders, pulses are tied to the hydrologic conditions set out in §298.470. For measurement points set out in

§298.480(7) and (8), the adopted rule provides that if streamflows are above the smaller high flow pulse trigger level, and subsequently rise to the larger high flow pulse trigger level, the pulse flow trigger level for the larger pulse event would govern diversions and storage by a water right holder. In addition, once the pulse requirements for the larger seasonal high flow pulse event are satisfied and therefore this high flow pulse is allowed to pass downstream, the requirements for the smaller seasonal high flow pulse event during that season would be considered to be satisfied at the applicable measurement point.

The commission's adopted rule provides that if a water right owner stored water at a previous time and complied with the applicable environmental flow requirements at that time, the water right owner would not need to comply with any environmental flow requirements in effect when subsequent use of that stored water occurs.

§298.480, Environmental Flow Standards

The commission adopts new §298.480 to provide the environmental flow standards of TWC, §11.1471, for the basin and bay system composed of the Brazos River and its associated tributaries and bay and estuary system and the Brazos-Colorado Coastal Basin. The commission based its decision on consideration of the recommendations from the stakeholders, sound science, and other public interests and relevant factors.

The measurement points and the adopted base flow and subsistence flow standards are generally based on the stakeholders' recommendation. The commission received additional scientific information for the Clear Fork Brazos River. Based on this information, which was not available at the time the science team and stakeholders considered their recommendations, the commission substituted environmental flow standards at United States Geological Survey (USGS) gage 08084200, Clear Fork Brazos River at Lueders, for the stakeholders' recommended USGS gage 08085500, Clear Fork Brazos River at Fort Griffin based on impacts on remaining unappropriated water. In response to comment, the Figure in §298.480(5) was modified to correct typographical errors.

The adopted high flow pulse standards are based on the recommendations of the majority of the stakeholders. The commission's adopted rule corrects a typographical error in the stakeholders' recommendation for the 4 per season pulses for the Brazos River at Glen Rose for the average and wet seasons.

The stakeholders performed an analysis of the impacts of the adopted standards on future water supply needs and considered the results of these analyses in their recommendations. The ED reviewed the information provided by the stakeholders, including information considered by the stakeholders for the Clear Fork Brazos River, and also performed his own analysis of the Double Mountain Fork Brazos River. The

ED's analysis is not intended as a finding that water is available for specific projects.

When applications for projects are evaluated, water availability is based on specific facts in those applications.

The ED's selected scenario for the balancing analysis is based on a hypothetical diversion of a large amount of water from the Double Mountain Fork of the Brazos River. This amount of water, 10,000 acre-feet, is less than the amount identified in the Regional Water Plan as necessary for future human water needs. For this evaluation, the ED used the commission's WAM for the Brazos River Basin and modified it by adding the selected scenario. The ED performed analyses to estimate water availability under four conditions: 1) no environmental flow requirements; 2) application of the commission's current default methodology; 3) application of the minority recommendation; and, 4) application of the adopted environmental flow standards. This analysis is intended to address the impacts of different environmental flow conditions on diversions of water from the river and therefore does not include a storage component. The ED received comments regarding the WAMs and carefully considered those comments. Based on those comments, the ED revised the water availability analysis, which resulted in changes to the annual availabilities for the scenarios from those in the proposal. These minor changes did not result in changes to the adopted rule. Applying either no instream flow requirement or the default methodology produces an annual availability of 66%. Application of the recommendation of the minority

stakeholders produces an annual availability of 28%. Finally, application of the stakeholders' recommendation produces an annual availability of 33%. Annual availability is the percentage of time that the annual diversion requirement is met from river diversions.

Unappropriated water in the Brazos River Basin generally occurs during times of higher flow; therefore, as the ED's analysis indicates, increasing pulse volumes and frequencies reduces the remaining unappropriated flow that could be available for future human needs. Copies of the WAM used in this analysis are available at:

<http://www.tceq.texas.gov/goto/eflows/rulemaking>.

The ED performed water quality analyses to evaluate relationships between streamflow and the water quality parameters identified by the science team and to look for trends and criteria excursions. These analyses did not identify any areas of concern that need to be addressed through this rulemaking process. The ED also considered whether reduction of the adopted standards would result in a significant increase in unappropriated water in the Brazos River Basin and found that it did not.

The adopted rule does not set aside any unappropriated water to protect the adopted environmental flow standards. Any unappropriated water that is available in these river basins is available only during relatively wet conditions. The commission determines

that the environmental flow standards may be adequately protected by special conditions in water right permits or amendments for new appropriations of water in these basins. Special conditions are a more effective method to maximize the use of water by allowing water to be used for dual purposes. Special conditions to protect environmental flows may allow water permitted to downstream senior water rights, as well as return flows and permitted but unused water, to satisfy the special conditions. This adopted new section would implement TWC, §11.1471.

§298.485, Water Right Permit Conditions

The commission adopted new §298.485, relating to water right permit conditions. The adopted provision would require the commission to place special conditions in water right permits for new appropriations and amendments that would add additional appropriations to existing permits. The special conditions would be to protect the environmental flow standards established by the subchapter. Consistent with the recommendations of the stakeholders, the adopted rule provides that, for water right permit applications where the diversion rate is less than 20% of a pulse flow trigger requirement, the water right permit or amendment would not include special conditions relative to that high flow pulse. The adopted rule also provides an exemption from pulse flow requirements for certain new water right applications in the Palo Pinto Creek watershed that increase the amount of authorized storage by less than 15%. This adopted new section would implement TWC, §11.134(b)(3)(D) and §11.1471.

§298.490, Schedule for Revision of Standards

The commission adopts new §298.490 to provide the schedule for re-examination of the environmental flow standards. The commission proposes to take up a possible rulemaking to change the standards ten years from the effective date of the rules, unless the stakeholder committee submits a work plan approved by the Advisory Group that calls for a more frequent review. The commission notes that it is prohibited from providing that the rulemaking process occurs more frequently than once every ten years unless the stakeholders' work plan approved by the Advisory Group under TWC, §11.02362(p), calls for a more frequent schedule. The commission notes that, as of the time of adoption of these rules, it has not received an approved work plan from the stakeholder committee. Should the commission receive an approved work plan after final adoption of this rule package, the commission may consider an amendment to this section and change the schedule more often than once every ten years. The adopted new section would implement TWC, §11.1471(f).

Subchapter H: Rio Grande, Rio Grande Estuary, and Lower Laguna Madre

The commission adopts new Subchapter H to contain all of the environmental flow standards and rules specific to the basin and bay system composed of the Rio Grande, Rio Grande estuary, and Lower Laguna Madre. There were two science teams for this basin and bay system, one for the lower portion of the basin and one for the upper

portion of the basin. The science teams delivered their reports to the commission on July 12, 2012 and July 25, 2012. The stakeholder committee did not submit a recommendation. As required under TWC, §11.02362(d), the commission must adopt environmental flow standards. This adopted new subchapter would implement the schedule established by the Advisory Group under TWC, §11.02362, and environmental flow standards required of the commission in TWC, §11.1471.

§298.500, Applicability and Purpose

The commission adopts new §298.500 to describe the purpose of Subchapter H and under what circumstances it applies.

§298.505, Definitions

The commission adopts new §298.505. The adopted section has definitions of terms that will apply only to this subchapter. The commission acknowledges that overbank flows are considered to be a component of a flow regime for a sound ecological environment. However, these flows result from naturally occurring large rainfall events, which will likely continue to occur. Therefore, the commission is not including overbank flows as a component of the adopted standards. In §298.505(1), (2), (6), and (7) the commission adopts definitions for "Average condition," "Dry condition," "Subsistence condition," and "Wet condition" because the adopted environmental flow standards vary according to hydrologic condition. A range of flow conditions - average, dry, subsistence,

and wet - is defined as the science team recommended. In §298.505(3), (4), and (7), the commission adopted definitions for "Fall," "Spring," and "Winter," because the adopted environmental flow standards for the Rio Grande and its associated tributaries vary by season. The definitions are the same as the definitions of the seasons in the recommendations of the science team. Finally, in §298.505(5) the commission adopts a definition for "Sound ecological environment" for the Rio Grande, and its associated tributaries in Texas. This adopted definition is based on the definition recommended by the science team.

§298.510, Findings

The commission adopts new §298.510 regarding findings related to sound ecological environments. The adopted finding regarding the ecological environment is consistent with the Upper Rio Grande science team report. In response to comments, the commission included a reference to hydrologic conditions in the finding and clarified that the finding applies to locations where there are adopted standards. Information on the commission's reasoning for the adopted schedule of flow quantities and environmental flow standards can be found in this preamble under the analyses for §298.525 and §298.530. This adopted new section would implement TWC, §11.1471.

§298.515, Set-Asides and Standards Priority Date

The commission adopts new §298.515 establishing the priority date for any set-asides

and any modeling of the environmental flow standards in the commission's WAMs as the latest date the commission received a report from the science teams for the basin and bay system, which was July 25, 2012. The commission protects high flow pulse standards from being permitted to smaller applicants for new appropriations. In addition, the commission needs to ensure that new appropriations, or amendments to add a new appropriation, will not affect downstream flow standards at measurement points that may not be applicable to those new appropriations or amendments. The commission also adds these changes to ensure consistency with adopted §298.20, which establishes the priority date for environmental flow standards and set-asides as the date the commission received the environmental flow regime recommendations from the science team.

§298.520, Calculation of Hydrologic Conditions

The commission adopts new §298.520 to explain the determination of hydrologic conditions for implementation and application of the standards to water right permits to which the adopted standards apply. The method for determining hydrologic conditions, for water right permits to which hydrologic conditions are applicable, for use as special conditions in those water right permits, is based on the recommendations of the Upper Rio Grande science team. Implementation of hydrologic conditions in the commission's WAMs, used in the availability determination for water rights permitting for the Rio Grande, and its associated tributaries in Texas, may result in different cumulative

streamflows than those derived for the purposes of developing special conditions for a water right permit to which those hydrologic conditions are applicable. To address this issue, the commission's adopted rule provides that, for purposes of water availability determinations, hydrologic conditions used in the commission's WAMs will be calculated based on the period of record for the applicable WAM and using the applicable frequencies for hydrologic conditions recommended by the Upper Rio Grande science team applied to the WAM simulated flows.

§298.525, Schedule of Flow Quantities

The commission adopts new §298.525 regarding the schedule of flow quantities. The commission adopts this section to explain the implementation of the environmental flow standards in the following section. The commission does not necessarily intend to use the exact wording of this section as the wording in water right permits issued after the adoption of these rules. However, this section describes how the commission intends to implement the adopted environmental flow standards in water right permit or amendment applications for new appropriations.

Subsistence flows are the minimum flows below which the commission will not allow diversions or storage of water. Therefore, the water right holder may not divert or store water if the flow at an applicable measurement point is below the subsistence flow standard. The commission's adopted rule provides that, during subsistence hydrologic

conditions, if the flow at an applicable measurement point is above the subsistence flow standard but below the applicable high flow pulse flow trigger level, the water right holder must allow the applicable subsistence flow to pass a measurement point, and any remaining flow may be diverted or stored. The commission's adopted rule also provides that the subsistence flow standard can be variable depending on the season, and that only the subsistence flow for a particular season limits diversions by a water right subject to the standards, in that season.

Once the flow at an applicable measurement point is above the base flow standard for the season, the water right holder may store or divert water according to its permit as long as the flow at the measurement point does not fall below the applicable base flow standard for that season.

The commission's adopted rule provides that pulse flows be allowed to pass if streamflows are above the base or subsistence flow standard for the season, and if the pulse flow trigger level is reached at an applicable measurement point. Once the pulse flow trigger conditions are met, the water right holder may not store or divert water until either the applicable pulse volume passes the applicable measurement point or the applicable pulse duration has occurred.

The adopted rule does not require that the water right holder produce a pulse flow,

because pulses occur when there are high rainfall events. The commission's adopted rule requires that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. Under the commission's adopted rule, a water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse. The commission's adopted rule also provides that a water right holder can divert water in excess of the applicable pulse requirement so long as those diversions do not prevent the occurrence of the pulse flow trigger level of the applicable pulse and as long as the duration or volume requirement is met for the applicable pulse.

If, in a particular season, only one of the seasonal high flow pulses or annual pulses identified in the commission's adopted rule is generated, there would be no need to "catch up" or allow more than the applicable number of high flow pulses to pass in the following season. Under the commission's adopted rule pulse flows are not tied to a hydrologic condition. In addition, the adopted rule provides that if the pulse requirements for an annual high flow pulse event are satisfied and therefore this high flow pulse is allowed to pass, the requirements for one of the applicable smaller high flow pulse event during that season would be considered to be satisfied at the applicable measurement point.

The commission's adopted rule provides that if a water right owner stored water at a

previous time and complied with the applicable environmental flow requirements at that time, the water right owner would not need to comply with any environmental flow requirements in effect when subsequent use of that stored water occurs.

§298.530, Environmental Flow Standards

The commission adopts new §298.530 to provide the environmental flow standards of TWC, §11.1471, for the basin and bay system composed of the Rio Grande, and its associated tributaries in Texas. The commission based its decision on consideration of the recommendations of the science teams, sound science, and other public interests and relevant factors.

TWC, §11.02362 recognizes that the Rio Grande is unique. Under TWC, §11.02362(m), the science team could not consider Mexico's water use. This section of the statute also requires the stakeholders to consider the water accounting requirements of any international water sharing treaty, minutes, and agreement applicable to the Rio Grande and effects on water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande. Under TWC, §11.02362(o) the science team could not make an environmental flow regime recommendation that violates a treaty or court decision. Although the commission received reports from the science teams, it did not receive a report from the stakeholders. Therefore, the commission considered the science team's recommendations, the water accounting requirements of international water sharing

treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande in developing the adopted rule.

The science team for the lower Rio Grande, Rio Grande estuary, and Lower Laguna Madre proposed freshwater inflow requirements for the Rio Grande estuary and the Lower Laguna Madre. For the Lower Laguna Madre, the science team recommended dry and wet season freshwater inflows that were not intended to support development of environmental flow standards that would provide more freshwater inflows to the Lower Laguna Madre. The science team stated that the recommendations were intended to be used by the stakeholders to develop strategies. Therefore, the commission did not include freshwater inflow recommendations for the Lower Laguna Madre in the adopted rule.

Regarding the Rio Grande estuary, the science team recommended freshwater inflow requirements. The United States' share of river water is administered by the Rio Grande Watermaster and is based in storage in the Amistad/Falcon reservoir system. In addition, as recognized by the science team, all of the United States' share of the water in the main stem of the Rio Grande is committed to existing users. Any water that is released from the storage and not diverted by existing users would flow to the estuary. Additional water may also be available to the estuary as a result of very large rainfall

events that occur below the reservoirs and is in excess of the amount of water needed by existing users under the treaty. After considering the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande, the commission did not include freshwater inflow standards for the Rio Grande estuary in the adopted rule.

For the Rio Grande above the Amistad/Falcon reservoir system, the commission adopts standards for four measurement points, two on the main stem of the Rio Grande and the remaining two on tributaries to the Rio Grande within Texas. For the tributary measurement points, the adopted base flow and subsistence flow standards are generally those recommended by the science team. The adopted high flow pulse standards are also generally based on recommendations of the science team. The science team also recommended pulse flow trigger levels that were either below or very close to the base flow values at some measurement points in some seasons. The commission did not include these pulses in the adopted rule because they would likely not represent high flows within the watercourse in the context of the suite of environmental flow standards proposed by the science team. The number of applicable high flow pulses was also adjusted where the values recommended by the science team were inconsistent with the flow regime, for example, where a higher tier pulse flow trigger level was lower than a lower tier pulse flow trigger level. In response to comments, the winter subsistence flow

value in the figure in §298.530(1) was changed to 15 cubic feet per record (cfs) and the 1 per season pulse was removed from the figure in §298.530(3) based on the errata sheet submitted by the science team.

The science team included overbank flows in its recommended flow regime. The commission acknowledges that overbank flows are considered to be a component of a flow regime for a sound ecological environment. However, these flows result from naturally occurring large rainfall events, which will likely continue to occur. Therefore, the commission is not including overbank flows as a component of the adopted standards.

For the adopted measurement points on the main stem of the Rio Grande, the commission considered the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande. The commission reduced the science team's flow regime to 38% of the recommended value so that the adopted standards would be based on the United States' estimated average share of the water flowing in the main stem of the Rio Grande.

The stakeholders did not submit a recommendation; therefore the ED performed his own analysis to address the issue of balancing human and other competing needs for water in the basin and bay system. The ED reviewed the remaining unappropriated

water at the measurement points in the adopted rule. The ED based his review on results from the WAM used for his water availability determinations for new permits or amendments that request a new appropriation of water. The ED determined that unappropriated water was available at these locations in five months out of a 732-month period of record and therefore it is unlikely that any new permits could be granted.

Copies of the WAM used in this analysis are available at: <http://www.tceq.texas.gov/goto/eflows/rulemaking>.

The ED performed water quality analyses to evaluate relationships between streamflow and the water quality parameters identified by the science team and to look for trends and criteria excursions. These analyses did not identify areas of concern that need to be addressed through this rulemaking process. Based on the results of the ED's review of unappropriated flow and the water quality analysis, the ED determined that there would be no significant impact from implementation of the adopted standards.

The adopted rule does not set aside any unappropriated water to protect the adopted environmental flow standards. Unappropriated water is extremely limited in the Rio Grande. In addition, under 30 TAC §303.23(a) all waters that cannot be used by water right holders in the Upper Rio Grande shall be made available to the Lower and Middle Rio Grande system. The commission determines that the environmental flow standards may be adequately protected by special conditions in water right permits or

amendments for new appropriations of water in these basins. Special conditions are a more effective method to maximize the use of water by allowing water to be used for dual purposes. Special conditions to protect environmental flows may allow water permitted to downstream senior water rights, as well as return flows and permitted but unused water, to satisfy the special conditions. This adopted new section would implement TWC, §11.1471.

§298.535, Water Right Permit Conditions

The commission adopts new §298.535, relating to water right permit conditions. The adopted provision would require the commission to place special conditions in water right permits for new appropriations and amendments that would add additional appropriations to existing permits. The special conditions would be to protect the environmental flow standards established by the subchapter. This adopted new section would implement TWC, §11.134(b)(3)(D) and §11.1471.

§298.540, Schedule for Revision of Standards

The commission adopts new §298.540 to provide the schedule for re-examination of the environmental flow standards. The adopted rule requires that the commission take up a possible rulemaking to change the standards ten years from the effective date of the rules, unless the stakeholder committee submits a work plan approved by the Advisory Group that calls for a more frequent review, in which case the commission will consider

the schedule in the workplan. The commission notes that it is prohibited from providing that the rulemaking process occurs more frequently than once every ten years unless the stakeholders' work plan approved by the Advisory Group under TWC, §11.02362(p), calls for a more frequent schedule. The commission notes that, as of the time of adoption of these rules, it has not received an approved work plan from the stakeholder committee. Should the commission receive an approved work plan in the future, the commission may consider an amendment to this section and change the schedule more often than once every ten years. The adopted new section would implement TWC, §11.1471(f).

Final Regulatory Impact Determination

The commission evaluated these adopted rules and performed an analysis of whether these adopted rules require a regulatory impact analysis under Texas Government Code, §2001.0225. The purpose of these rules is to establish environmental flow standards, set-asides, and procedures for implementing an adjustment of these standards required in a permit or amendment for the Nueces River and Corpus Christi and Baffin Bays, the Rio Grande, the Rio Grande estuary, the Lower Laguna Madre, and the Brazos River and its associated bay and estuary system, under TWC, §11.1471(a).

These amendments are not a "major environmental rule" under Texas Government Code, §2001.0225 because although the specific intent of the rulemaking is to protect

the environment, these rules do not potentially adversely affect in a material way the economy, or a sector of the economy. New appropriations and other water rights that can potentially impact instream flows or bays and estuaries issued by the commission have been reviewed for environmental impact since 1985 and the water rights contain environmental conditions. This rule package will require that environmental impact will now be done by rule. This should not adversely impact the economy.

Also, the purpose of these rules is not to exceed a standard set by federal law, exceed an express requirement of state law, exceed a requirement of a delegation agreement or contract between the state and an agency of the federal government to implement a state and federal program, or to adopt rules solely under the general powers of the agency instead of specific state law. This rulemaking is specifically required by TWC, §11.1471. Therefore, no regulatory impact analysis is required under Texas Government Code, §2001.0225, for this rulemaking.

The commission invited public comment regarding the draft regulatory impact analysis determination during the public comment period. The commission did not receive any comments regarding the draft regulatory impact analysis determination.

Takings Impact Assessment

The commission evaluated these adopted rules and performed analysis of whether these

adopted rules constitute a takings under Texas Government Code, Chapter 2007. The specific purpose of these rules is to establish environmental flow standards, set-asides, and procedures for implementing an adjustment of these standards required in a permit or amendment for the Nueces River and Corpus Christi and Baffin Bays, the Rio Grande, the Rio Grande estuary, the Lower Laguna Madre, and the Brazos River and its associated bay and estuary system, as required by TWC, §11.1471(a).

Promulgation and enforcement of these adopted rules would be neither a statutory nor a constitutional taking of private real property. Specifically, because under TWC, §11.147(e-1), these rules cannot be retroactively applied to water rights issued before September 1, 2007, the subject adopted regulations do not affect those water right holder's rights in private real property. For those new water rights issued after September 1, 2007, but before these environmental standards were adopted, these water rights contain environmental conditions, if necessary, and a provision stating that the water right could be reopened to add the environmental standards. This amendment to the permit to add the rule may not increase the amount of pass-through or release for the environment in the existing water right by more than 12.5% of the annualized total of the existing requirement in the permit. Also, this amendment will not change the amount of water authorized for diversion in the permit, but only affects when the permittee can take the water. The provision was intended to protect the yield of water rights granted after 2007 and before the adoption of a standard.

Thus, this rulemaking does not burden (constitutionally); nor restrict or limit the owner's right to existing property and reduce its value by 25% or more beyond that which would otherwise exist in the absence of the regulations.

Consistency with the Coastal Management Program

The commission reviewed the adopted rulemaking and found that the proposal is subject to the Texas Coastal Management Program (CMP) in accordance with the Coastal Coordination Act, Texas Natural Resources Code, §§33.201 *et. seq.*, and, therefore, must be consistent with all applicable CMP goals and policies. The commission conducted a consistency determination for the adopted rules in accordance with Coastal Coordination Act Implementation Rules, 31 TAC §505.22, and found the adopted rulemaking is consistent with the applicable CMP goals and policies.

CMP goals applicable to the adopted rules include: 1) to protect, preserve, restore, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas; and, 2) to ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone. CMP policies applicable to the adopted rules include those contained in 31 TAC §501.33. The adopted rules implement HB 3/SB 3, which established the environmental flows process to provide certainty in water management and development and to provide adequate

protection of the state's streams, rivers, bays, and estuaries. Since one of the purposes of the adopted rules is to protect coastal natural resources, the rules are consistent with CMP goals and policies.

Promulgation and enforcement of these rules will not violate or exceed any standards identified in the applicable CMP goals and policies, because the adopted rules are consistent with these CMP goals and policies, because these rules do not create or have a direct or significant adverse effect on any coastal natural resource areas, and because one of the purposes of the adopted rules is to protect coastal natural resources.

The commission invited public comment regarding the consistency with the coastal management program during the public comment period. The commission did not receive any comments regarding the coastal management program.

Public Comment

The commission held a public hearing on October 15, 2013, in Austin, Texas. The comment period closed on October 21, 2013. The commission received comments from the: Brazos River Authority (BRA), Celanese, Chisholm Trail Ventures (Chisholm Trail), City of Abilene (Abilene), City of Corpus Christi (Corpus Christi), City of Three Rivers (Three Rivers), Friends of the Brazos River Alliance (FBR), Lake Granbury Coalition (Lake Granbury), National Wildlife Federation (NWF), Nueces County Water Control

and Improvement District #3 (WCID #3), Nueces County Water Control and Improvement District #4 (WCID#4), Nueces River Authority (NRA), Palo Pinto County Municipal Water District (Palo Pinto), San Patricio Municipal Water District (San Patricio), Sierra Club (Sierra Club), South Texas Water Authority (STWA), Texas Chemical Council (TCC), Texas Parks and Wildlife Department (TPWD), West Central Texas Municipal Water District (WCTMWD), and two thousand and forty nine individuals.

Generally, Abilene, Palo Pinto, WCTMWD, TCC, Corpus Christi, NRA, San Patricio, STWA, WCID #3, WCID #4, Celanese, and Three Rivers supported the rule. Generally, TPWD and FBR supported portions of the rule. Generally, NWF, Sierra Club, and two thousand and forty nine individuals were against the rule. BRA, Chisholm Trail, and Lake Granbury provided limited comments related to the issue of including a transition rule in this rulemaking. Abilene, BRA, NWF, Sierra Club, Corpus Christi, NRA, San Patricio, STWA, WCID #3, WCID #4, Celanese, and Three Rivers suggested specific changes to the rulemaking as noted in the Response to Comment section of this preamble.

Response to Comments

General

One commenter thanked the commission for their attention to this matter. TPWD

comments that it recognizes the complexity of the science involved in determining environmental flow regimes adequate to support a sound ecological environment and the challenges posed in balancing environmental and human needs. TPWD comments that it appreciates the efforts of TCEQ in preparing the proposed rules and in meeting statutory deadlines. TCC comments that it greatly appreciates the continuous and vigorous work by TCEQ in evaluating the recommendations of the local stakeholder committees and science teams and in compiling rules that appropriately address both environmental and industry needs.

The commission acknowledges these comments. The rule was not changed in response to these comments.

Two thousand, forty-nine individuals commented that the commission should not adopt the proposed rules. Two thousand, forty-nine individuals commented that the TCEQ-proposed rules for flow standards in the Nueces, Brazos, and Rio Grande rivers basins and bays must not be adopted as written. Sixty individuals commented that our rivers and bays are the lifeblood of a healthy Texas and requested that the commission adopt stronger rules so these natural treasures might sustain us and wildlife populations for generations to come. One individual commented that the rules as written are inadequate for our environment. One individual commented that the rules need a lot of work. One individual urged the commission to strengthen the rules before they are adopted and

urged the commission to recommend standards that would be protective. One individual commented that correcting the rules before they are adopted is the only reasonable thing to do. One individual asked that TCEQ do it right the first time or allow others in the near future to redo all of the work properly. One individual is asking the commission to add an addendum to the proposal to include rivers, bays, and estuary protection. One individual asked that TCEQ change the standards presently proposed to reflect the needs of the Rio Grande, Nueces, and Brazos rivers for freshwater to remain within them to allow the estuaries and bays to thus receive the water they require. This individual also asked that TCEQ write standards that will address the present short fall of freshwater into not only Nueces Bay, but also our other Texas estuaries.

Three individuals commented on protection of natural resources. One individual commented that they are disappointed the state agency charged with protecting Texas's natural resources is not doing enough to put policies in place to accomplish that goal. One individual commented that the commission should stop sacrificing our future as a planet for money. One individual commented that they are tired of seeing the surrounding beauty destroyed for money.

The comments are very general in nature and do not provide any specific recommendations for the commission to consider. The commission does not agree that the proposed rules are inadequate to protect the

environment. The commission followed its instructions in TWC, §11.1471, to determine these flow standards. It considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including commission staff's water availability analyses, when drafting the adopted rules. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows, and also include freshwater inflow standards for Nueces Bay and Delta. The numerical values for these flow regime components are based on the values in the stakeholder reports. Under SB3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. No change has been made in response to these comments.

Twenty three individuals requested that the commission protect rivers, bays, and estuaries. Three individuals urged the commission to ensure that enough water flows into the Nueces, Rio Grande, and Brazos rivers. One individual asked the commission to pay attention to this set of draft rules and protect the Nueces, Brazos, and Rio Grande river basin and bays, ensuring they survive for Texas future. One individual requested that the commission protect environmental flows. Seven individuals commented that our bays need to be protected and receive enough water to keep them viable for wildlife.

One individual urged the commission to protect Texas's wetlands. One individual commented that the bays fed by the rivers covered in the rules are already under stress from the Gulf side, and cannot afford to lose the freshwater from the land side, as well. One individual commented that water which should flow naturally should be allowed to. One individual commented that we cannot allow these important streams to dwindle to mere trickles.

The commission agrees that instream flows and inflows to bays and estuaries are important to the health of river and bay systems. Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission believes that the adopted rules are sufficiently protective of the environment because they include an adequate flow regime with subsistence, base, and pulse flows, and also include freshwater inflow standards for Nueces Bay and Delta. SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management and provided that after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each stakeholder committee prepare and submit a work plan. Issues related to wetlands and

the connectedness of rivers and bays can be considered by the stakeholders in their development of a work plan. The rules were not changed in response to these comments.

Twenty individuals expressed concerns about fish and wildlife protection due to limited flow. Ten individuals expressed concern about the brown pelican. One individual expressed concern about the whooping crane. One individual commented that we need to protect Texas species and avoid federal intervention. One individual commented that wildlife and people need water. One individual commented that commercial fisheries and sports depend on the entire ecosystem.

The commission acknowledges the importance of Texas's natural resources, including fish and wildlife, and that healthy bay systems are important for ecological reasons. The commission believes that the adopted standards are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows, and also include freshwater inflow standards for Nueces Bay and Delta. The rules were not changed in response to these comments.

One individual is concerned about a lack of clean freshwater.

The commission responds that the adopted rules are sufficiently protective of water quality because they include a flow regime with subsistence, base, and pulse flows. In addition, the ED performed water quality analyses to evaluate relationships between streamflow and the water quality parameters identified by the science team and to look for trends and criteria excursions. These analyses did not identify areas of concern that need to be addressed through this rulemaking process. The rules were not changed in response to this comment.

One individual is concerned about lack of flow contributing to more zebra mussels. One individual suggested that to ensure adequate flows, reporting of all water use by homeowners, ranchers, and businesses should be required. This individual also suggested that catchment systems could be used and that moving water into Texas from other parts of the United States should be made part of the Texas plan. Two individuals were concerned about the impact of global warming on flow. One individual asked that TCEQ take a proactive stance on reducing global warming which allows excess greenhouse gases to affect our climate and increase the drought conditions. One individual commented that our climate is changing and getting drier and that TCEQ needs to stop denying global warming and wake up or things that make Texas a wonderful place to live will be gone forever. Four individuals commented on water conservation. One of these individuals commented that other states have made the

mistake of adopting rules that fail to provide inflow protections and are still working to resolve the problems that resulted at a high cost in money and conservation. One individual is concerned about water the rice farmers get and letting them grow something sustainable. One individual is concerned about new housing permits being issued when there is a perpetual drought in Texas, and is concerned about where these new people will be getting their water from.

The commission responds that this rulemaking adopts environmental flow standards that will be used in water rights permitting for new appropriations of water to protect the environment, and does not address zebra mussels, water use by homeowners, ranchers and businesses, catchment systems, interbasin transfers, global warming, water conservation, rice farming, or new housing permits. While those may be considerations for water planning, the purpose of this rulemaking is to provide flows for environmental uses in water rights permitting. The rules were not changed in response to these comments.

Five individuals stated that we are called to be faithful stewards of this wonderful world God has provided us and that means protecting all life and admonished the commission to be a faithful steward. One individual wants the commission to act responsibly in caring for the gift of creation. One individual asked that we do the correct thing for

Texas and our environment. One individual asked that we protect the health of our rivers and bays for future wildlife and children.

The commission acknowledges the comments and responds that the adopted rulemaking applies to environmental flow standards for new water right applications to store, take, or divert surface water. The commission believes that the adopted standards are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows, and also include freshwater inflow standards for Nueces Bay and Delta. The rules were not changed in response to these comments.

One individual commented that the proposed rules will allow additional water allocations on already inadequate water flows and cause irreparable harm to our human habitat and those local stakeholders (home and land owners).

These flow standards are for the purpose of protecting the environment. They do not allow additional water allocations. The commission followed its instructions in TWC, §11.1171, to determine these flow standards. The commission is required to balance needs for the environment with other needs, including human water needs. The adopted standards are sufficiently protective of the environment because they include a flow

regime consisting of subsistence flows, base flows, and pulse flows, but also allow for some future permitting. The rules were not changed in response to this comment.

TPWD comments that the proposed rules do not include overbank flow events.

Overbank and high flow pulse events are important components of an environmental flow regime that serve to flush and transport sediments, maintain stream channels, and provide longitudinal connectivity for species migration along a river. TPWD acknowledges the potential for overbank events to cause damage to private property and threaten human safety in some instances; however, there are circumstances where these events can safely occur and provide significant environmental benefit. TPWD recommends that the rules address the ecological function of high flow events as part of an environmental flow regime and tailor the environmental flow standards to include these events where they can safely occur.

The commission acknowledges that overbank flows are a component of a flow regime for a sound ecological environment. However, the flows the commission is protecting in the adopted rules are not calculated to result in water flowing out of the banks of the river. The commission also notes that there was little scientific information tying specific overbank flow values to environmental water needs. To the extent that additional information

becomes available through monitoring and studies as part of adaptive management, the science team and stakeholders could consider that information in future deliberations and recommend different flow values for consideration during future rulemaking. The commission further responds that leaving some water available for new permits will not prevent these larger flood events from occurring because they will occur naturally. The rules were not changed in response to this comment.

TPWD comments that the proposed rules do not include set-asides of water to meet environmental flows. TPWD comments that while most of the water in the Brazos, Nueces, and Rio Grande bay basin areas is already appropriated, sufficient water may exist in some areas to provide an environmental flow set-aside. TPWD supports environmental flow set-asides as a means of providing ecologically important instream flows and freshwater inflows. TPWD recommends that the rule package include technical analyses of the availability of water as a set-aside and analyses of the impact of a set-aside on environmental flows and water availability.

The commission respectfully disagrees that set-asides are mandated if the commission finds that there is any amount of water available at any time. Even assuming that water is available for a set-aside, TWC, §11.1471(a)(2), qualifies the requirement for a set-aside as "to the maximum extent

reasonable when considering human water needs." In these basins the commission has determined that set-asides are not reasonable because of limited water availability. Because of water availability issues in these basins, special conditions placed in a permit are a more effective method to protect flows in the stream when new appropriations of water are granted while providing water for future human needs. This is because if special conditions are used there are other sources of water in a stream that could be used to meet environmental flow requirements in a permit; for example, water appropriated to downstream water right holders, water appropriated to another but not used, or return flows. The ability of special conditions to meet the environmental flow standard while at the same time allowing water to be available for appropriation makes the use of special conditions a more reasonable approach to protecting the environmental flow standards considering human water needs.

The results of the commission's water availability analyses can be found in the Section by Section Discussion Section for §§298.430, 298.480, and 298.530 in this preamble. The commission is only determining to not establish set- asides at this time for these basins. After gaining further experience with implementation of environmental flows standards, as part of the adaptive management process, the commission is willing to revisit

the issue. However, because of the necessity of leaving the ability to utilize some of the remaining unappropriated water in the basin for human water needs, the commission declines to establish any set-asides. No change was made in response to this comment.

BRA proposed a transitional rule to be included in §§298.400, 298.450, and 298.500. BRA's proposed transitional rule would provide that adopted SB 3 standards would not be applicable to permit applications pending before the effective date of the adopted standards and for which a draft permit has been prepared and noticed in accordance with TCEQ rules. FBR, Chisholm Trail, NWF, and Lake Granbury oppose the inclusion of a transitional rule in the adopted standards.

The commission is not adopting a transitional rule for the basin and bay systems covered in this rulemaking. The commission is concerned that such a rule would violate TWC, §11.147(e-3), which requires that adopted SB 3 rules be applied to new appropriations. Also, the commission has not included a transition rule for other applicants for new appropriations of water. Therefore, the rulemaking was not changed in response to these comments.

General

Two thousand forty one individuals commented that the proposed rules fail to provide inflow protections that Nueces Bay clearly needs. Already deemed an "unsound environment," it would be unreasonable to adopt less than stakeholders recommended. NWF and Sierra Club comment that they support the recommendations of the Nueces stakeholders and urge TCEQ to implement these recommendations to the maximum extent possible. TPWD recommends adopting the stakeholder recommendations in their entirety and recommended that the stakeholders' strategies and options be acknowledged in the adopted rules.

The commission responds that it considered the science team recommendations, the SAC's review of those recommendations, and the stakeholder recommendations. However, the commission respectfully disagrees that it had to adopt the stakeholder recommendations in their entirety because SB 3 clearly provides that the commission perform its own review of the stakeholders' recommendations. As provided in TWC, §11.02362(o), the stakeholders develop recommendations, not final environmental flow standards, and send their recommendations to the commission. Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering

other public interests and other relevant factors." The commission is required to perform its own review based on several factors, including human needs. The commission did not adopt all of the stakeholders' recommendations in an effort to achieve the appropriate balance between environmental interests and other public interests and relevant factors. An explanation of the commission's analysis regarding preserving some unappropriated flows for future human needs is set out in more detail elsewhere in this preamble. The commission did adopt many of the stakeholders' recommendations in this basin. The rules were not changed in response to these comments.

Two individuals expressed concerns about Nueces Bay and one individual expressed concern about the federal government stepping in to protect the bay. One individual commented that the rules are not stringent enough to protect the Nueces Bay because the bay is already at a tipping point in maintaining the ecosystems present. This individual further commented that in the rules as currently written, more water will be removed from the river than is currently done which will further decrease the freshwater inflow into the bay and further undermine the bay's ecosystem.

The commission included freshwater inflow standards in the adopted rules for the protection of bays and estuaries. Under TWC, §11.1471, the

commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." The commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, when drafting the adopted rules. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows and also include freshwater inflow standards. The numerical values for these flow regime components are based on the values in the stakeholder reports. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission notes that it has adopted many of the stakeholders' recommendations for this basin and bay system. No change was made in response to this comment.

Corpus Christi supports the proposed rules and commends TCEQ for its efforts to incorporate the intent of SB 3 by attempting to develop a balanced standard that considers the needs of the environment along with the needs for surface water for other uses.

The commission acknowledges the comment. The rule was not changed in response to the comment.

§298.400, Applicability and Purpose

Corpus Christi, NRA, San Patricio, STWA, WCID #4, Celanese, WCID #3, and Three Rivers comment that SB 3 was not intended to alter existing water rights in a river basin (TWC, §11.147(e-1)). These commenters expressed concerns regarding the proposed rules and request that TCEQ add the following to §298.450 to expressly confirm the applicability of Subchapter F: "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, 2007."

The commission agrees that SB 3 does not apply to water rights issued before September 1, 2007. Commission rules in §298.10 also state that Chapter 298 only applies to a new appropriation of water or an amendment to an existing permit for a new appropriation of water which was pending on September 1, 2007 or which was filed after that date. There is nothing in the adopted Subchapter F which would conflict with §298.10. However, for clarity, the commission modified §298.400 to address these comments.

§298.405, Definitions

NWF and Sierra Club comment that the proposed definition lacks specificity because it fails to set a particular point in time for determining the baseline for the modeled permitting frequency. NWF and Sierra Club request that the rule include additional language similar to "at the time the first water right application subject to this subchapter is processed."

The commission agrees and §298.405(3) was modified to include this change.

NWF and Sierra Club comment that the definition of Nueces Delta is unduly narrow and inaccurate because it fails to acknowledge the important portions of the delta that are located along Rincon Bayou and above the area where the Nueces River currently flows into the bay. NWF and Sierra Club request that the definition be expanded to include the following language: "Nueces Delta is a complex array of channels, pools, marshes, and tidal flats of approximately 20,000 acres in size in the upper end of Nueces Bay that lies generally to the north of the Nueces River and includes area receiving inflows from the Rincon Bayou and overflow channels from the river."

The commission agrees that the definition could be clarified. Therefore, in response to these comments the commission modified §298.405(5) to further specify the geographic location and define Nueces Delta.

NWF and Sierra Club comment that the proposed definition of sound ecological environment is so general that it is basically meaningless and that the proposed definition fails to comply with the statutory directive of TWC, §11.1471(a)(1). NWF and Sierra Club further comment that the proposed definition does not match the definition from the stakeholders and note that the stakeholders described a desire to return the Nueces Bay and Delta to ecological conditions existing prior to construction of Choke Canyon Reservoir. NWF and Sierra Club urges TCEQ to adopt the science team's definition "an acceptably sound ecological environment is where the flow regime maintains important physical, chemical, and biological characteristics of a water body as well as the native species dependent on these characteristics."

The commission responds that the adopted rules comply with the statute. TWC, §11.1471(a)(1) requires the commission to adopt rules for environmental flow standards that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors. The commission followed its instructions in TWC, §11.1471, to determine these flow standards. The rule was not changed in response to this comment.

NWF and Sierra Club comment that target volumes play a critical role in the

determination of changes to modeled permitting frequencies and unless they are used in that context they do not provide any inflow protection. NWF and Sierra Club request that the adopted rule be modified to state "volumes of freshwater inflows specified in §298.430(a)(3) which are used for the purpose of protecting inflows for the Nueces Bay and Delta and providing additional freshwater inflows to Nueces Bay and Delta through voluntary strategies."

The commission agrees that the definition applies to the target volumes in §298.430(a)(3) and that these volumes determine the modeled permitting frequencies. However, the adopted freshwater inflow standards in §298.430(a)(3) will be used in water rights permitting for new appropriations of water. The definition was modified to reference §298.430(a)(3) and to clarify that the target volumes would be used in water rights permitting.

§298.410, Findings

NWF and Sierra Club comment that the finding in §298.410(a) is unjustified and unsupported because the science team found, and the stakeholder committee generally acknowledged, that the Nueces Bay portion of the system is unsound. NWF and Sierra Club further comment that the proposed definitions establish that Nueces Bay and Delta are part of the Corpus Christi Bay system and the proposed finding is contradicted by

the findings of the science team and the goals of the stakeholders. NWF and Sierra Club request that the Nueces Bay and Delta be removed from §298.410(a). TPWD comments that §298.410 includes a finding that Nueces Bay is substantially sound. However, the science team and stakeholders determined that Nueces Bay is not a sound ecological environment.

The finding in §298.410(a) is that the basin and bay system as a whole are substantially sound ecological environments. The commission acknowledges that the science team found that a portion of that system, Nueces Bay and Delta, was not a sound environment. The science team based this determination, in part, on their view that hydrologic alterations caused salinities in Nueces Delta to be higher than those in Nueces Bay which results in a loss of salinity gradient that influences zonation found in an ecologically sound estuary. The Texas Environmental Flows SAC review of the science team recommendations notes that in addition to hydrologic changes such as precipitation, it is possible that factors other than altered inflow play a role in increased salinities. The stakeholders, with their broader mandate, adopted a statement that their goal was to return the Nueces Bay and Delta to ecological conditions prior to construction of Choke Canyon Reservoir to the extent possible (emphasis added) while preserving existing water rights and yield of the reservoir system. The

stakeholders' further stated that they would recommend freshwater inflow regimes that would improve but not diminish the existing ecological condition and would address strategies to enhance the ecological condition in its workplan. The commission believes that the finding is consistent with information from the SAC and the recommendations of the stakeholders. The rule was not changed in response to this comment.

NWF and Sierra Club comment that the finding in §298.410(c) is unjustified and unsupported because TCEQ has provided no basis for the finding. NWF and Sierra Club comment that the proposed standards are not adequate to support a sound ecological environment because they are arbitrary and fail to provide even close to the level of protection recommended by the science team or the reduced level of protection recommended by the stakeholders. NWF and Sierra Club further comment that although the stakeholders did recommend inflow regimes designed to avoid any diminishment of existing conditions, TCEQ's proposed rules explicitly allow substantial diminishment below existing conditions. NWF and Sierra Club state that the contention that the standards may improve and will not diminish existing ecological conditions is wholly without merit because the proposed standards expressly allow for additional reductions in freshwater inflows and in the frequency of meeting the inflow amounts identified as appropriate to support a sound ecological environment. TPWD comments that the proposed rules significantly reduce frequency attainment goals for freshwater

inflows so it is not clear how the proposed rules will maintain or improve conditions in the bay.

The commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including commission staff's water availability analyses, when drafting the adopted rules. The science team considered the available science as of this date and there is no evidence that the adopted standards would not support a sound ecological environment. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows and also include freshwater inflow standards. The numerical values for these flow regime components are based on the values in the stakeholder reports, which took into account future human water needs. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. No change has been made in response to these comments.

§298.425, Schedule of Flow Quantities

TPWD comments that it is concerned about potential impacts to flows between base

flows and subsistence flows when multiple permits are granted within a stream segment with the provisions in §298.425(b). This could allow for an accelerated decline of flows between base and subsistence flows and it is not clear how this provision will be implemented. TPWD recommends that an implementation guidance document be developed to add clarity to this and other implementation issues affecting all basin and bay areas.

The commission responds that staff is working on implementation and this document will be made available to the public when completed. No change has been made in response to this comment.

NWF and Sierra Club comment that there is no justification for not including overbank pulses in the proposed rule and urge the TCEQ to include them in the adopted rule to the maximum extent possible. NWF and Sierra Club comment that overbank flows will only continue to occur in the absence of diversions or structures that are capable of impounding or drawing down these flows.

The commission acknowledges that overbank flows are a component of a flow regime for a sound ecological environment. However, these flows have the potential to inundate low-lying areas. The flows the commission is protecting in the adopted rule are not calculated to result in water flowing

out of the banks of the river. As noted elsewhere in this preamble, overbank flows are the result of naturally occurring large rainfall events which will likely continue to occur. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the language in §298.425(d)(5) should provide a more generally applicable description of how larger pulses can satisfy smaller pulses and be revised to state: "If a pulse requirement for a larger seasonal pulse or annual pulse is satisfied during a particular season or year, one of the applicable smaller pulse requirements for the same season is also considered to be satisfied."

The commission responds that under the adopted rules this provision would apply to pulses at measurement points in §298.430(c) which are greater than the small pulse; i.e. medium, large, and annual pulses. If a pulse requirement for a medium pulse is satisfied, one of the small pulse requirements is considered to be satisfied in that season. The rule was not changed in response to this comment.

§298.430, Environmental Flow Standards

NWF and Sierra Club comment that there are immense differences between the stakeholders' recommended attainment frequencies and the frequencies resulting from

application of §298.430(a)(1) - (3) and state that the proposed allowable reductions in attainment frequency below current permits are fundamentally inconsistent with the stakeholders' recommendations and are inconsistent with TCEQ's responsibilities under TWC, §11.147(a)(1) because they undermine the currently unsound ecological environment of Nueces Bay and Nueces Delta. The absolute minimum level of protection that could be justified would be for the rules to avoid any further reduction in attainment frequencies by not authorizing any reductions below the current modeled permitting frequencies. NWF and Sierra Club further comment that the TCEQ seems to be taking the position that it is unwilling to ever stop granting new water rights permits as long as there is any unappropriated water and regardless of the impacts to the environment and to the economic activities that are dependent on a sound ecological environment. NWF and Sierra Club request that §298.430(a) be revised to state: "For purposes of this subsection, impairment would occur if the granting of the application, when considered in combination with any authorizations subject to this subchapter, which were issued prior to the application under consideration, would impair the modeled permitting frequency of any inflow regime." NWF and Sierra Club also comment that §298.430(a)(2) should be deleted in its entirety.

Under TWC, §11.1471, the commission must adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering

other public interests and other relevant factors." Among the factors it considers are the impacts of the adopted standards on future permitting. Using the stakeholder recommendations would not leave a water availability window for future permitting as discussed elsewhere in this preamble. The commission believes that the adopted standards are sufficiently protective of the environment because they include a flow regime and freshwater inflow standards. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The rule was not changed in response to this comment.

TPWD comments that the proposed rule is not clear in specifying how the acceptable frequency deviations were selected. TPWD recommends that additional information be included regarding the studies, analyses, and reports relied upon in determining acceptable frequencies of freshwater inflows. TPWD also comments that the proposal did not include specific frequencies for use in water availability determinations because the WAMs change but also included specific frequencies in §298.430(a)(1) - (3). TPWD requests additional information and clarification on the role of WAMs, water right permitting, and future reductions in freshwater inflows. NWF and Sierra Club comment that the proposed rules do not include any rationale, explanation, or justification for the

allowable percentage declines in attainment frequencies nor do the proposed rules include an explanation or justification of the decision to allow all seasonal and annual values to decline by the same percentage. NWF and Sierra Club comment that the §298.430(a)(3)(A) - (C) be modified to state: "(A) The modeled permitting frequencies for the target volumes for Level 1, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased. (B) The modeled permitting frequencies for the target volumes for Level 2, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased. (C) The modeled permitting frequencies for the target volumes for Level 3, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased."

Under TWC, §11.1471, the commission must adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." The commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including balancing human and other competing needs for water, when drafting the adopted rules.

Among the factors the commission considers are the impacts of the adopted standards on future permitting. Using either the science team or the stakeholder recommendations would not leave a water availability window for future permitting. Therefore, the commission proposed up to either a 10%, 25%, or 50% change in attainment frequencies to be applied during the water availability determination for new appropriations to allow for some potential future permitting. The commission did not include specific frequencies for use in the water availability determination because WAMs could change prior to consideration of the first application for a new appropriation subject to these rules. In response to other comments, the commission modified §298.405(3) to clarify that the baseline frequencies would be determined using the WAM in effect at the time the first application subject to the subchapter is processed.

The balancing analysis performed by commission staff is detailed in the preamble to this adopted rule. The statute requires the commission to adopt rules that will apply to the evaluation of applications for new appropriations of water. When applying the adopted standards in determining availability for applications for new appropriations of water, staff will use its WAMs. Therefore, when performing its balancing analysis

to develop the allowable impairment, staff used these same WAMs.

The WAM used for staff's balancing analysis is available on the TCEQ's public Web site on the Environmental Flows Rulemaking Web page. The model and the discussion of the model application in the Section by Section Discussion section of this preamble for §298.430 provide the rational basis for staff's conclusions.

Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission believes that the adopted standards are sufficiently protective of the environment. The rule was not changed in response to these comments.

NWF and Sierra Club comment that clarification of the appropriate geographic point in §298.430(a)(1) is needed.

The commission responds that the adopted rule identifies the geographic point in the model as the point which represents inflows to Nueces Bay and Delta. This point is sufficiently specific and the rule was not changed in

response to these comments.

NWF and Sierra Club comment that they support and appreciate the inclusion of target frequencies for strategies in Figure: §298.430(a)(3). However, NWF and Sierra Club comment that the proposed target frequencies do not conform to the commission's practice in Subchapters D and E for using the science team's frequencies instead of the stakeholder frequencies. NWF and Sierra Club suggest that the commission use the target frequencies established by the science team in Figure: §298.430(a)(3).

The commission followed its instructions in TWC, §11.1471, to determine these flow standards. The commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including balancing human and other competing needs for water, when drafting the adopted rules. The stakeholders modified the frequency goals in an effort to balance environmental and water supply needs so that water supply projects might be permitted. The commission deferred to the stakeholders on the issue of appropriate frequencies. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the stakeholders recommended an appropriate balance between environmental protection and competing human uses and other

factors.

The commission acknowledges these comments. The rule was not changed in response to the comment.

NWF and Sierra Club comment that §298.430(b) should be modified to avoid any limitation on the method for implementing voluntary strategies because if the strategy has been implemented through any means, a water right application should not be allowed to impair it. NWF and Sierra Club recommend revising §298.430(b) to state: "To the extent that strategies are implemented to help meet the freshwater inflow standards for Nueces Bay and Delta, a water right application in the Nueces River Basin, which increases the amount of water authorized to be stored, taken or diverted as described in §298.10 of this title, shall not reduce the modeled permitting frequency for any inflow regime level, listed in the figure located in subsection (a)(3) of this section, below the level that would occur with the permitted strategy or strategies in place."

The commission responds that adopted §298.430(b) provides protections for voluntary strategies to meet the standards that are included in water rights permits. This is because evaluation of whether or not a new permit would impair the adopted standards and whether or not a new permit impaired a voluntary permitted strategy would be based on impairment of

the modeled permitting frequency as set out in §298.430(a) and calculated using the WAM. The WAM only includes water rights permits. The rule was not changed in response to these comments.

TPWD comments that although the proposed standards are based on the stakeholder recommendations, the proposed standards do not include all of the high flow pulses recommended by the stakeholders. TPWD is concerned about potential adverse impacts to instream and riparian resources due to the lack of larger annual pulses known to provide critical ecological functions, as stated in the science team report. TPWD further comments that the proposed rules note that there was little site-specific information supporting specific high flow pulse recommendations, including pulses with long durations, but do not provide or identify the evidence relied upon to alter the stakeholder recommendations.

The commission responds that it did not include many of these higher pulses in the adopted rule. In some instances, the commission did not include these high flow pulses because the trigger levels were above the action stage level. This should ensure that application of the standards would not cause flooding. The action stage level is defined by the National Weather Service as the stage which, when reached by a rising stream, represents the level where the National Weather Service or a partner/user

needs to take some type of mitigation action in preparation for possible significant hydrologic activity. While this was not specified in the proposal preamble, the commission has clarified this in the adoption preamble. In addition to modifications to the stakeholder recommendations to address potential flooding concerns, the commission also calculated both the amount of unappropriated water at selected measurement points and the impact of the adopted standards on unappropriated water as discussed in the preamble. Unappropriated water generally occurs during times of higher flow; therefore, increasing pulse volumes and frequencies during wetter periods reduces the remaining unappropriated flow.

The commission followed its instructions in TWC, §11.1471, to determine these flow standards. The commission believes that the adopted rules are sufficiently protective of the environment because they include an adequate flow regime with subsistence, base, and pulse flows and also include freshwater inflow standards. The commission further responds that it does not have to adopt the stakeholders' recommendations in their entirety because SB 3 clearly provides that the commission perform its own review of the stakeholders' recommendations. As provided in TWC, §11.02362(o), the stakeholders develop recommendations, not final environmental flow standards, and send their recommendations to the commission. The

commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including balancing human and other competing needs for water, when drafting the adopted rules.

Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission notes that it has adopted many of the stakeholders' recommendations for this basin and bay system. No change was made in response to this comment.

NWF and Sierra Club comment that pulse flows with durations in excess of 30 days should not be excluded. NWF and Sierra Club recognize that these pulses present a modeling challenge when working with WAMs with a one-month time step and may limit diversions for extended periods. However, NWF and Sierra Club comment that the commission must provide for the protection of key aspects of the ecological functions of these large pulses. NWF and Sierra Club comment that the commission should revise the proposed rule to include these longer duration pulses by reducing the stakeholders' duration time to 30 days in those instances where it exceeds 30 days.

The commission reviewed information from the science team, including the hydrographic separation which formed the basis for the science team's recommendations. The commission also reviewed actual gage flow records. In many instances, these large pulses with long durations appear to be comprised of one or more pulses connected by intervening periods of high base flows. This creates uncertainty regarding the calculation of these pulses because the identified pulses likely represent more than one pulse flow event. The commission did not base this decision on whether or not it would be a challenge to model these pulses, although the fact that diversions would be limited for long periods of time would reduce water availability. Further analyses and studies may need to be performed in the future to determine appropriate magnitudes, volumes and durations of these larger pulse events.

SB 3 contemplates that these types of studies can be considered through adaptive management via the work plan for this basin and bay system. To the extent that additional information becomes available through monitoring and studies undertaken under the work plan, the science team could consider that information in future deliberations. The rule was not modified in response to these comments.

TPWD comments that it is concerned because the proposed rules do not include small seasonal high flow pulses. TPWD recommends that the interpretation of the stakeholders' proposed standards regarding small seasonal pulse events be clarified.

NWF and Sierra Club comment that the standards should include protection for smaller-sized high flow pulses that are close in value to the base flow values. NWF and Sierra Club comment that the difference in flow levels between those omitted pulses and base flows is highly variable and the commission's proposed rule also omits pulses with peak flow values significantly larger than base flow levels. NWF and Sierra Club comment that these pulses provide an ecological benefit and the commission failed to provide a reasoned justification for excluding these pulses.

The commission responds that it did not adopt pulses with trigger levels very close to the base flow values for the reasons discussed elsewhere in this preamble. The science team for this basin and bay system developed a recommended environmental flow regime, or schedule of flow quantities adequate to support a sound ecological environment. The stakeholders for this basin took the science team's recommendations and considered those recommendations in conjunction with other factors, including the present and future needs for water for other uses. The commission considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, including commission staff's water

availability analyses, when drafting the adopted rules. Therefore, the adopted standards are not based solely on scientific information. The commission followed its instructions in TWC, §11.1471, by balancing human and other competing needs for water with the scientific recommendations.

The commission takes very seriously its charge from the legislature to provide to the extent practicable for instream flows necessary to maintain the viability of the state's streams and rivers. The legislature has recognized that these environmental interests must be balanced by the commission with "all other public interests." It is not possible or practicable to catalog a precise weighing of countervailing interests that went into the commission's decision, nor is this required by statute. However, as discussed elsewhere in this preamble, one of the important factors for the commission was to preserve the ability to permit at least some future surface water projects for human needs. The commission has provided a more complete explanation of its decision in this preamble. In addition, the information used by the ED in performing his balancing analysis is available on the commission's Environmental Flows Rulemaking Web site. The rule was not changed in response to these comments.

NWF and Sierra Club comment that §298.430(c) should be modified to: include the

stakeholders' recommended 1 per year and the 1 per 2-year high flow pulse in §298.430(c)(1)(3), (6) - (8), (10), and (11) but reduce the duration time to 30 days if the recommended duration time was over 30 days. NWF and Sierra Club also comment that §298.430(c)(10) and (13) - (17), should be modified to include the stakeholders' recommended 3 and/or 4 per season pulses. NWF and Sierra Club further comment that §298.430(c)(18) - (20), should be modified to include the stakeholders' recommended 2 per season pulses.

The commission responds that it did not include these additional pulses in the adopted rule for the reasons discussed elsewhere in this preamble. See response to comment above. The rule was not changed in response to these comments.

§298.435, Water Right Permit Conditions

TPWD comments that it is concerned about potential adverse ecological impacts related to high flow pulse protection in proposed §298.435(b). TPWD acknowledges that the provision is consistent with the stakeholder recommendations but is concerned about the cumulative effect of the exemption on high flow pulse events. TPWD recommends that limits on simultaneous diversions or accumulations of diversion rates in excess of the 20% limit, or other strategies to protect high flow pulses be identified and highlighted in an implementation document.

The commission believes that the adopted rules are sufficiently protective of the environment because they include an adequate flow regime with subsistence, base, and pulse flows and also include freshwater inflow standards. Staff is working on implementation and this document will be made available to the public when completed. The rule was not changed in response to this comment.

Subchapter G: Brazos River and Its Associated Bay and Estuary System

General

Abilene comments that it appreciates the significant time and effort that has been invested by TCEQ staff in developing the proposed rules and appreciates the work of TCEQ staff to incorporate key aspects of the reports of the Brazos stakeholders in the proposed rules.

The commission acknowledges the comment. The rule was not changed in response to the comment.

FBR commented that they support the proposed rules as they affect segments of the Brazos River downstream of Lake Possum Kingdom. TPWD comments that overall, it supports the stakeholders' recommendations for those locations where the stakeholders

reached consensus.

The commission acknowledges these comments. The rule was not changed in response to these comments.

NWF and Sierra Club and an individual commented that the proposed rules do not include specific inflow standards for the Brazos and San Bernard estuaries. The commenters expressed concerns that failing to include freshwater inflow standards would allow diversions below the Richmond and Boling gages. These commenters further states that the science team based their recommendations on the fact that inflows to the estuary would equal the science team recommendation at Richmond. NWF and Sierra Club also comment that the adopted standards should expressly provide that, in the reach from below the Rosharon gage to the confluence of the Brazos River and the Gulf of Mexico, no storage or diversion can occur except to the extent that flows at the relevant location equal or exceed levels at which they could have been diverted at the Richmond gage. A comparable protection of flows all the way to the Gulf of Mexico should be provided for the San Bernard estuary based on the standards at the Boling gage. NWF and Sierra Club also comment that the adopted rules should include voluntary strategy targets for the Brazos and San Bernard estuaries consistent with the science team recommendations for the downstream gage locations in those estuaries. Attainment frequencies for the science team's recommended subsistence, base, and

pulse flows should be used, with compliance assessed as a long-term average below the most downstream diversion point. The individual requests TCEQ to include a narrative in the adopted rules stating that the standards at the Richmond and Boling gages would be used in lieu of specific inflow recommendations for the Brazos and San Bernard estuaries.

The commission did not include freshwater inflow standards for the Brazos and San Bernard estuaries because the stakeholders did not recommend freshwater inflow standards for these estuaries. In their report, the stakeholders note that unless additional reservoir storage is developed on the main stem of the Brazos River or its major tributaries, some pulses will continue to occur and sufficient sediment and nutrient delivery will be available into the foreseeable future. The commission gave deference to the stakeholders' recommendations. Further analyses and studies can be performed in the future to evaluate these estuaries and the stakeholders recommend that a long-term study for these estuaries be performed. SB 3 contemplates that these types of studies can be considered through adaptive management via the work plan for this basin and bay system. To the extent that additional information becomes available through monitoring and studies undertaken under the work plan, the science team and stakeholders could consider that information in future deliberations. The rules were not

modified in response to this comment.

Palo Pinto comments that TCEQ has appropriately incorporated key aspects of the stakeholders' work in its proposed standards.

The commission acknowledges the comment. The rule was not changed in response to the comment.

TCC comments that it supports the proposed rules for the Brazos River Basin and its associated bay and estuary system in new Chapter 298, Subchapter G. TCC comments that it supports protections of high flow pulses through set-asides, the schedule of flow quantities, and hydrologic conditions.

The commission acknowledges the comment. The rule was not changed in response to the comment.

TCC comments that it supports the use of special permit conditions rather than set-asides of unappropriated water to protect the adopted standards and agrees that water is only available during relatively wet conditions. TCC further comments that setting aside additional water to meet the standards would limit the amount of water available for future human use and that use of permit special conditions would allow TCEQ to

maintain control over the amount of water necessary for environmental flows as well as allow additional users to obtain permits.

The commission acknowledges the comment. The rule was not changed in response to the comment.

NWF and Sierra Club comment that they acknowledge the complexity of the challenge involved in some aspects of establishing set-asides of unappropriated flows, but they do not believe that the commission's failure to set-aside water for environmental flow protection purposes has been adequately justified. In the absence of a demonstration that special conditions can reliably satisfy applicable environmental flow standards, environmental flow set asides are needed. NWF and Sierra Club comment that they disagree with the flexibility argument because it ignores the legislative directive to set aside unappropriated flows and because the claimed flexibility is illusory. NWF and Sierra Club acknowledge that not all aspects of needed environmental flows would be met through set-asides and regulated flows can help meet those needs; however, for key components of flow protections, the claimed flexibility masks a failure to implement statutory directives to protect needed flows. One value of environmental flow set-asides is that they establish a priority date that would allow the TPWD to act in the role of a water right holder to enforce the right and to make a priority call for that water. If the commission does not establish environmental flow set-asides at this time, it will be

critical for the commission to acknowledge and respect the availability determinations noted in the proposed rules in future water rights permitting decisions in order to retain and protect its ability to meaningfully revisit the issue of establishing environmental flow set-asides during the first revision process for these standards.

The commission respectfully disagrees that set-asides are required if the commission finds that there is any amount of water available at any time. Even assuming that water is available for a set-aside, TWC, §11.1471(a)(2), qualifies the requirement for a set-aside as "to the maximum extent reasonable when considering human water needs." In the Brazos River Basin and the Brazos-Colorado Coastal Basin, the commission has determined that set-asides are not reasonable because of limited water availability. Because of water availability issues in these basins, special conditions placed in a permit are a more effective method to protect flows in the stream when new appropriations of water are granted while providing water for future human needs. This is because if special conditions are used there are other sources of water in a stream that could be used to meet environmental flow requirements in a permit; for example, water appropriated to downstream water right holders, water appropriated to another but not used, or return flows. Water appropriated to downstream water right holder, water appropriated to another but not

used, and return flows would not be considered in the availability determination for a set-aside. The ability of special conditions to meet the environmental flow standard while at the same time allowing water to be available for appropriation makes the use of special conditions a more reasonable approach to protecting the environmental flow standards considering human water needs.

The results of the commission's water availability analyses can be found in the Section by Section Discussion section of this preamble for §298.480. The commission is only determining in this rulemaking to not establish set-asides at this time for these basins. After the implementation of environmental flows standards, and the adaptive management process, the commission is willing to revisit the issue. However, because of the necessity of leaving the ability to utilize some of the remaining unappropriated water in the basin for human water needs, the commission declines to establish any set-asides. No change was made in response to these comments.

§298.455, Definitions

NWF and Sierra Club comment that the PHDI is based on a period of record from 1895 to present and that a new index is to be calculated on the last day of the month before the start of a new season based on updated monthly PHDI values.

The commission responds that the PHDI Index is based on the long-term record. The PHDI value on the last day of the month of the preceding season for the geographic area as determined by the percentage of each climate division within the geographic area, as those areas are described in §298.470(b) will be compared to the PHDI Index to determine hydrologic condition for that season. Under §298.470(d), the PHDI Index will be recalculated no less frequently than once every ten years. No change was made in response to these comments.

NWF and Sierra Club comments that the stakeholder report incorrectly identifies the time period for this season as April through June and the proposed rule correctly includes a time period of March through June.

The commission acknowledges these comments. The rule was not changed in response to the comment.

NWF and Sierra Club comments that the proposed definition is very incomplete and imprecise and misses critical aspects of the SAC definition adopted by the science team. NWF and Sierra Club request that the definition be modified to state: "(9) Sound ecological environment-an environment that is characterized by fish,

macroinvertebrate, and riparian vegetation species that remain relatively intact compared to historical records; that sustains key habitat features required by those species; that 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."

The science team adopted the SAC's basic definition to develop its environmental flow regime recommendations. The science team also states that it determined that a sound ecological environment within stream and river reaches of the Brazos Basin would be characterized by fish, macroinvertebrate, and riparian vegetation species assemblages that remain relatively intact compared to historical records. This is the definition used by the commission. The commission added the word "assemblages" to the definition in §298.455(9) to correct a typographical error.

§298.460, Findings

NWF and Sierra Club comment that §298.460(b) refers to subsistence conditions, which suggests there is a subsistence hydrologic condition. Subsistence flows are a flow level that is only applicable during dry hydrologic conditions, but they are not properly referred to as a flow condition.

The commission agrees and the rule was modified in response to this comment to clarify that subsistence is not a hydrologic condition.

§298.465, Set-Asides and Standards Priority Date

FBR commented that they support the proposal to limit new permits based on water being available to meet all downstream flow requirements.

The commission acknowledges the comment and notes that the limitation in this subsection is a consideration during the water availability determination for a new appropriation of water. The rule was not changed in response to the comment.

NWF and Sierra Club comment that statements in the preamble relating to how the commission would include the standards in its WAMs in order to protect those standards are unclear.

The commission responds that, as stated in the Section by Section discussion section of this preamble for adopted §298.465, the standards will be in the WAM with the priority date being the date the commission received the environmental flow regime recommendations from the science

team. If all adopted standards downstream of a new appropriation are in the WAM for a river basin, water availability for the new appropriation would be limited by those downstream standards.

§298.470, Calculation of Hydrologic Conditions

Abilene, Palo Pinto, and TCC support the inclusion of hydrologic conditions in the proposed rule. Abilene and Palo Pinto comment that use of the structure recommended by the stakeholders to include hydrologic conditions for base flows and high flow pulses is a key aspect of achieving balance between the needs of the environment and the provision of water supply. The inclusion of hydrologic conditions in the adopted standards allows for protection of water supply when flows are depleted by drought and is critical for future water supply in the Brazos Basin. Reducing base and high flow pulse passage requirements during drier times can significantly improve the yield of water supply projects while still providing flows that are adequate to support a sound ecological environment. TCC comments that tying pulse standards to hydrologic conditions rather than using the additional standard recommended by the stakeholders provides assurance of a single measurable standard that will provide certainty to water users.

The commission acknowledges these comments. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the words "and pulse" be added to the third paragraph of the preamble discussion because hydrologic conditions also apply to pulse flows.

The commission agrees and these words were added to the Section by Section discussion for §298.470.

NWF and Sierra Club comment that the sentence: "PHDI Index values between the 25th and 75th percentile were used to describe the average hydrologic condition," should be added to the preamble discussion to describe the average hydrologic condition.

The commission agrees and this sentence was added to the Section by Section discussion for §298.470.

§298.475, Schedule of Flow Quantities

NWF and Sierra Club comment that overbank flows should be protected because they can be diminished by new projects. NWF and Sierra Club comment that they disagree with the commission's use of the National Oceanic and Atmospheric Administration's Action Stage for constraining the upper limit of high flow pulse events because it unduly limits protection of bankfull flows. NWF and Sierra Club urge the commission to include

and protect these large pulses.

The commission acknowledges that overbank flows are a component of a flow regime for a sound ecological environment. However, flows at or above the Action Stage level have the potential to inundate low-lying areas.

The flows the commission is protecting in the adopted rule are not calculated to result in water flowing out of the banks of the river at or near the applicable measurement point. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the phrase "and that only the subsistence flow for a particular season limits diversions by a water right subject to the standards, in that season" from the last sentence of the second paragraph in the preamble be deleted because the phrase seems incorrect. NWF and Sierra Club comment that base flows and pulse flows would also limit diversions by a water right subject to the standards.

The commission agrees that base flows and pulse flows could also limit diversions by a water right subject to the standard. However, the reference in this comment is to a discussion of subsistence flows. Subsequent paragraphs in the Section by Section discussion for §298.475 discuss base flows and pulse flows. No changes were made in response to these

comments.

NWF and Sierra Club comment that the third paragraph of the preamble should be revised to read: "During average or wet hydrologic conditions, a water right holder may not divert water when the flow is below the base flow standard for that season. During dry hydrologic conditions, diversions when flows are below the base flow standard may occur as described in the previous paragraph."

The commission clarified the Section by Section discussion for §298.475 in response to this comment by adding a reference to the third paragraph in the preamble referencing the discussion of diversions during dry hydrologic conditions in the preceding paragraph.

NWF and Sierra Club comment that they agree with the commission's decision not to include the complex procedures for determining pulse compliance because these procedures were developed for a more comprehensive set of pulse flows that would be implemented without regard to hydrologic condition and the would be unduly difficult to apply and enforce.

The commission acknowledges these comments. The rule was not changed in response to these comments.

NWF and Sierra Club comment that either §298.475(b) or (c) should be revised to reflect that diversions cannot occur below the base flow values during average and wet conditions.

The commission agrees and §298.475(c) was modified in response to these comments.

NWF and Sierra Club comment that the phrase "for that season" should be added to §298.475(d)(5).

The commission agrees and §298.475(d)(5) was modified in response to these comments.

§298.480, Environmental Flow Standards

Two thousand and thirty nine individuals commented that the Brazos River flow protections are too weak. Pulse flows must be set to protect the flow needs of two fish - the sharpnose shiner and smalleye shiner - both proposed for the Endangered Species List by United States Fish and Wildlife. Adopting standards that don't protect these species invites federal intervention on an issue that could be addressed right here in Texas. One individual is concerned the Brazos River flow protections are too weak and

fail to protect the flow needs of two types of fish proposed for the endangered species list. Changes made now can help these fish rebound.

The commission responds that under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The commission notes that in its standards for the Brazos River Basin, it is adopting environmental flow standards for the Brazos River and its tributaries that include a subsistence flow, multiple levels of base flows and high flow pulses. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any specific changes as a result of these comments.

Abilene supports the decision to not include the Clear Fork Brazos River near Fort Griffin because the proposed standards for the Clear Fork Brazos River near Lueders provide adequate protection for the environment.

The commission acknowledges the comment. The rule was not changed in response to the comment.

WCTMWD congratulates the commission for adopting the stakeholders' recommendations for target flows and for not adding additional large flow requirements above the stakeholders' recommendations such as annual pulses.

The commission acknowledges the comment. The rule was not changed in response to this comment.

An individual comments that TCEQ's decision to substitute the stakeholders' consensus gage, Clear Fork Brazos River at Fort Griffin with the Clear Fork Brazos River at Lueders is unjustified and unsubstantiated. The commenter expressed concerns regarding the scientific information TCEQ used to develop the proposed rule. The commenter specifically notes inconsistencies in the information transmitting the report and the report, the high flow pulse event studied in 2012 had a higher peak value than the recommendation, and that it is unclear why the observed pulse is recommended as a Wet season spring pulse when it occurred during dry conditions in the fall. TPWD comments that it appears that the additional data was gathered during dry conditions and that high flow pulse recommendations based on limited data would not be sufficient.

The commission responds that, as discussed in the preamble, it received additional scientific information for the Clear Fork Brazos River. This information was based on a site specific study, which was not available at the time the science team and stakeholders considered their recommendations. The commission made this information available to the public on the Environmental Flows Rulemaking Web site. High flow pulses are intended to provide connectivity and support the maintenance of water quality. Based on the information in the site specific study, this pulse performed those functions. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The rule was not changed in response to these comments; however, in response to other comments, the commission modified the Figure in §298.480(5) to correct typographical errors.

An individual comments that the proposed flow standards for the three gages in the upper Brazos Basin are not adequate to protect the sharpnose and smalleye shiners because they do not include an adequate number of high flow pulses.

The commission responds that under the state environmental flow process,

as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The commission notes that in its standards for these three gages, it is adopting environmental flow standards for the Brazos River and its tributaries that include a subsistence flow, multiple levels of base flows and high flow pulses. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any specific changes as a result of this comment.

An individual commented that the stakeholder recommendations for the upper three gages are based on flawed assumptions because the analysis assumed water would be passed downstream for existing water rights. The commenter states that if projects are developed in this area they would involve subordination agreements where water does not have to be passed to honor downstream water rights. NWF and Sierra Club comment that the analysis used to develop the majority recommendations assumed that water would be passed downstream to honor all existing rights, even in the absence of protective flow standards. However, if projects are developed, they will very likely

involve subordination agreements, whereby water does not have to be passed to fully meet downstream water rights. Such agreements are commonplace in the upper reaches of the Brazos. Accordingly, assuming that water will be passed downstream to honor all downstream water rights is not an appropriate starting point for evaluating the importance of protective flow standards. NWF and Sierra Club comment that TCEQ staff indicated that the minority report incorrectly assumes water rights with subordination agreements would only have to pass water to meet environmental flows, rather than other senior water rights. NWF and Sierra Club acknowledge the clarification that some amount of water may have to be passed to honor downstream water rights that are not included in the subordination agreement, which means that an assumption that no flows will be passed to honor existing rights also is not appropriate. NWF and Sierra Club comment that they are not aware of any standard approach for accurately characterizing an appropriate assumption about the volume of water that might have to be passed to honor some downstream rights under a specific subordination scenario. The amount of water that needed to be passed would be less than the amount assumed in developing the majority recommendations and likely more than the amount assumed in the minority report analysis. To the extent that flows would have to be passed downstream to protect existing water rights, having a protective environmental flow standard that also would independently require the flows to be passed would not have an adverse effect on water availability. Conversely, not having a protective environmental flow standard would result in additional adverse

environmental impacts if the amount required to be passed downstream for senior rights is not as great as assumed in the majority analyses.

The commission responds that a subordination agreement between two water right holders does not relieve a junior water right holder from the requirements to pass water downstream to other water rights senior to it. In evaluating an application for a new appropriation of water which includes a subordination agreement, the commission will evaluate that application in accordance with TWC, §11.134, and commission rules which state that an application cannot impair existing water rights. The volume of water that might need to be passed to downstream water rights would be based on that analysis and the specific facts in the application. This analysis would also take into account any environmental flow requirements. The rule was not changed in response to these comments.

TCC comments that it agrees with the ED's water availability analysis and its use as a basis in proposing adoption of the stakeholders' recommendation. The stakeholder recommendation provides for a proper balancing of interests between the environmental and industry stakeholders, thus attaining the goal of the environmental flows process.

The commission acknowledges the comment. The rule was not changed in response to the comment.

NWF and Sierra Club comment that the additional scientific information the commission received for the Lueders gage was a comment letter with a recommended flow regime that was selectively based on a December 2012 scientific report prepared by Bio-West, Inc entitled, "*Aquatic Habitat Modeling Relating to the Cedar Ridge Reservoir Project.*" NWF and Sierra Club comment that there are inconsistencies in the application of findings and disregard for specific caveats regarding the use of the data. The proposed flow regime ignores the site-specific information available for base flows, and rather, relies on Hydrology-Based Environmental Flow Regime generated flows. A high-flow pulse event on September 30th of last year is referenced as the source of the recommendation for a Wet season spring pulse of 355 cfs for the Lueders gage. However, this pulse occurred during fall and during dry conditions, so a defensible rationale for equating it to a spring pulse during wet hydrologic conditions is lacking. For example, the pulse was only observed on the descending limb. It was characterized as exhibiting a daily mean discharge of 373 cfs and a peak flow of about 500 cfs. The proposed rules recommend a wet condition spring pulse trigger level of 355 cfs, apparently based on this single, only partially-observed, pulse event. However, the basis for assuming that essential functions, such as connecting to major side channels and inundation of most islands and gravel bars, would be achieved by a peak flow of 355 cfs

rather than the actual 500 cfs peak flow for the specific event is far from obvious. NWF and Sierra Club support the use of site-specific information when it is available and accurately characterized. However, the proposed use of site-specific information here is not supported by, or consistent with, the underlying information. The subsistence flow provisions in the proposed rules for Lueders appear to match the Bio-West study results, but neither the base flow values nor the pulse flow values in the proposed standards are supported by that study.

In developing the adopted standards for this gage, the commission considered the stakeholders' consensus recommendations for base and subsistence flows for gages on the Clear Fork of the Brazos River as well as the pulse flow information provided in the study. The adopted standards include a drainage area ratio adjustment to the stakeholders' recommended values for base flows. The study was not performed at the Lueders gage so the pulse flow values for the study area were translated to the Lueders gage, resulting in a pulse flow recommendation of 355 cfs. High flow pulses are intended to provide connectivity and support the maintenance of water quality. Based on the information in the site specific study, this pulse performed those functions. The adopted standards are protective of the environment and allow for some future permitting. Under SB 3's adaptive management provisions, further analyses and studies will be performed in

the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any specific changes as a result of these comments.

TPWD comments that the Lueders gage does not provide an adequate substitution for the Nugent gage and that the Lueders gage should also not replace the Fort Griffin gage. NWF and Sierra Club comment that the decision to substitute USGS gage 08085500, Clear Fork Brazos River at Fort Griffin with USGS gage 08084200, Clear Fork Brazos River near Lueders is unjustified and unsubstantiated and there is no obvious basis for this decision. HDR Engineering, Inc. sent an informal comment letter that only recommended the substitution of flow standards at the Lueders gage for flow standards at the Nugent gage. NWF and Sierra Club comment that that substitution appears logical because the Lueders and Nugent gages are quite close to one another. The Fort Griffin gage is about 83 river miles downstream from the Lueders gage, resulting in a very large downstream reach without a measurement point. In addition, the Fort Griffin gage has a contributing watershed of 3,988 square miles compared to 2,546 square miles for the Lueders gage. Flow regimes suitable for the study site may not be appropriately transferrable downstream to reaches around Fort Griffin which are underlain by different geology and are located in a different ecoregion. NWF and Sierra Club comment that since 2008, which has been a very dry period, numerous pulse flows have occurred that exceed the highest pulse flow recommendation of the stakeholder

group (1,230 cfs) for this gage. The stakeholders' pulse recommendations have greatly reduced pulse magnitudes and frequencies from the levels that the science team recommended as being adequate to support a sound ecological environment. Those unanimous stakeholder committee recommendations were based on much discussion of a balance between flow protection and water availability for new projects and already reflect major concessions to enhance water availability. NWF and Sierra Club comment that the flow standards unanimously recommended by the stakeholder committee for the Fort Griffin gage should be included in the adopted rule.

The commission responds that it considered the stakeholder recommendations and in most instances gave deference to those recommendations. However, the commission respectfully disagrees that it had to adopt the stakeholder recommendations in their entirety because SB 3 clearly provides that the commission perform its own review of the stakeholders' recommendations. As provided in TWC, §11.02362(o), the stakeholders develop recommendations, not final environmental flow standards, and send their recommendations to the commission. Under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors."

The commission is adopting standards with the appropriate balance between those interests. The balancing process in areas with demonstrated future human needs, such as on the Clear Fork of the Brazos River, can result in more consideration being given to those needs. However, the commission further responds that the adopted standards are protective of the Clear Fork of the Brazos River and allow for some future permitting.

The commission notes that in its standards for the Brazos River Basin, it is adopting protective environmental flow standards for the Brazos River and its tributaries, including the Clear Fork of the Brazos River, that include a subsistence flow, multiple levels of base flows and high flow pulses. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any changes to the rule as a result of these comments; however, the Section by Section discussion for §298.480 of the ED's water availability analysis was modified to clarify that information considered by the stakeholders was reviewed as part of the ED's analysis.

Abilene supports establishing environmental flow standards at USGS gage 08084200, Clear Fork Brazos River near Lueders because the proposed standards at this location

are based on eight years of site-specific environmental studies performed on the Clear Fork downstream of the gage and provide a more biologically-based standards for this reach. Abilene further comments that the proposed standard is adequate to provide for the needs of the aquatic species within this reach of the Clear Fork and for the flow requirements of juvenile Brazos River Water Snakes in late summer and early fall.

The commission acknowledges the comment. The rule was not changed in response to the comment.

Abilene comments that the environmental flow standards at the Clear Fork Brazos River at Lueders appear to be transposed.

The commission agrees and the Figure in §298.480(5) was modified in response to this comment.

FBR commented that they support the recommendations of NWF for the rivers and tributaries upstream of Lake Possum Kingdom.

The commission acknowledges the comment. The rule was not changed in response to the comment.

An individual commented that the proposed rules do not mention the minority report, except in the analysis of a hypothetical water supply project and that TCEQ fails to provide reasons for rejecting the report. The commenter requests that TCEQ propose and adopt rules consistent with the minority report so that the adopted standards include key components of a healthy ecosystem rather than adopting standards which increase the likelihood of federal intervention. NWF and Sierra Club comment that, with the exception of the Balancing Analysis referencing impacts on annual availability for a hypothetical project, the preamble to the proposed rules fails even to mention the minority report and recommendations. NWF and Sierra Club comment that the commission must provide a rationale for rejecting those recommendations beyond a simple conclusion that protecting more flow for the environment would reduce water availability. That will, of course, be true, but provides no reasoned basis for striking a particular balance. The environmental flow regime presented in the minority report provides a reasonable approach for improving environmental protections, lessening the likelihood of the Federal Endangered Species Act complications for future water supply development, and doing so with a minimal impact on potential project cost.

The commission responds that it specifically invited comments on the minority report at the time the rules were proposed and received several comments on this report which are addressed in this response to comment. In addition, the commission considered the recommendations of the

minority report in its water availability analysis. The results of the water availability analysis indicate that less water is available for new projects under the minority report recommendations. Under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The balancing process in areas with demonstrated future human needs can result in more consideration being given to those needs. However, the commission further responds that the adopted standards are protective of the environment because they include a flow regime consisting of subsistence flows, base flows, and high flow pulses, and allow for some future permitting. The rules were not changed in response to these comments.

FBR comments that the use of an unrealistic hypothetical direct diversion and errors in the evaluation of the impacts of such a diversion do not justify rejection of the minority report and the healthier environmental flow recommendations for the upper portion of the river.

The commission responds that the amount of water considered in its water availability analysis, 10,000 acre-feet, is less than the amount identified in the Regional Water Plan as necessary for future human water needs. The commission did not intend for its balancing analysis to be a finding that water was available for a specific project. The commission notes that it adopted the recommendations of the majority of the stakeholders for gages on the Salt Fork Brazos River, the Double Mountain Fork Brazos River and the main stem Brazos River above Lake Possum Kingdom. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime consisting of adequate subsistence flows, base flows, and high flow pulses. The rule was not changed in response to this comment. In response to other comments, the commission revised the Section by Section Discussion section of this preamble for §298.480 to reflect modified annual availabilities for the modeling scenarios.

NWF and Sierra Club comment that, after reviewing the proposal WAMs, the reliabilities are different than those stated in the proposal. The new annual reliability for the minority recommendation is 28%, the same value stated in the proposed rule for the majority recommendation. The majority recommendation has an annual reliability of 33% and the Lyons scenario and the "no environmental flows" scenario have annual

reliabilities of 66%.

The commission agrees and the Section by Section Discussion section of this preamble for §298.480 was revised to reflect modified annual availabilities for the modeling scenarios.

NWF and Sierra Club comment that, based on their modeling, the relative difference between the annual availabilities based on the minority and majority recommendations are less than assumed in the rule proposal.

The commission agrees that the relative difference is less. However, the results of the water availability analysis indicate that less water is available for new projects under the minority report recommendations. This smaller difference represents 15% less water, on average, for future permitting. Under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The balancing process in areas with demonstrated future human needs can result in more consideration being given to those

needs. However, the commission further responds that the adopted standards are protective of the environment and allow for some future permitting. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the commission's evaluated scenario is just a hypothetical scenario employed to assist in balancing competing benefits and only evaluates potential impacts on water supply rather than providing an evaluation of impacts to environmental flow protection between the competing recommendations. NWF and Sierra Club further comment that because the hypothetical scenario is not a firm-yield project or a project with any assumed storage, the evaluation provides very limited insight on potential impacts to realistic water supply projects. The project was assumed to be able to divert up to the full yearly amount in a single month, which often occurred in the modeling exercise. A project without storage would have no capacity to store or make use of such a large amount of water taken in such a brief period. NWF and Sierra Club believe this approach is quite unrealistic and unlike actual projects included in regional water plans or that might be pursued. A more realistic approach is to have off-channel reservoir storage facilities to handle large diversions when available. Storage then provides the capacity to use the diverted water on a metered basis through more modestly-sized, long-distance transport facilities.

The commission did not intend for its balancing analysis to be a finding that

water was available for a specific project. The ED did not include a storage component in the modeling to support the balancing analysis because simply adding storage does not increase the amount of water a water right could divert from the river or the reliability of that diversion. Permitting decisions for an off-channel project would be based on the amount of water an applicant could divert from the river and there would need to be a reasonable amount of water available in the river that meets the criteria in the commission's statutes and rules. If the reliability of the river diversion is low, it could be difficult to recommend granting a permit. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime consisting of subsistence flows, base flows, and high flow pulses. The rule was not changed in response to these comments.

NWF and Sierra Club comment that they evaluated a project with off-channel storage and developed yield sensitivity and cost analyses to examine tradeoffs of the two recommendations of the stakeholders. NWF and Sierra Club comment that they used the standard template utilized in regional water planning for developing costs for infrastructure components such as off-channel reservoirs. NWF and Sierra Club comment that under their evaluation, the off-channel reservoir storage size had to be increased above that needed under the Lyons scenario or the "no environmental flow"

scenario to get the same project firm yield with either the majority or minority stakeholder recommendations. The reservoir sizes were 39,500 acre-feet and 43,000 acre-feet, for the majority and minority recommendations, respectively. NWF and Sierra Club commented that their analysis showed that under the base case of no environmental flow condition the water supply cost is \$4.69 per thousand gallons, under the majority recommendations, the unit cost increases to \$5.32, and under the minority recommendations, the unit cost increases to \$5.51.

The commission acknowledges the comments. The commission did not intend for its balancing analysis to be a finding that water was available for a specific project. The ED did not include a storage component in the modeling to support the balancing analysis because simply adding storage does not increase the amount of water a water right could divert from the river or the reliability of that diversion. The water available to a new permit would be based on the amount of water that can be diverted from the river. The commission responds that the results of its water availability analysis indicate that 15% less water is available for appropriation for new projects under the minority report recommendations. Under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable

considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The balancing process in areas with demonstrated future human needs can result in more consideration being given to those needs. However, the commission further responds that the adopted standards are protective of the environment and allow for some future permitting. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the minority recommendations represent a compromise level of protection greatly below the levels recommended by the science team, but with more pulse flow protection than was included in the majority stakeholder recommendation. NWF and Sierra Club comment that a primary concern underlying the minority stakeholder recommendation is the presence in this reach, characterized by three gage locations (USGS gage 08080500, Double Mountain Fork Brazos River near Aspermont; USGS gage 08082000, Salt Fork Brazos River near Aspermont; USGS gage 08082500, Brazos River at Seymour), of two fish species that have recently been proposed for listing under the Federal Endangered Species Act. One of the key threats to the continued existence of the species, which have already been extirpated from other portions of the Brazos Basin and are currently found only in this reach, is reduced flows. The majority stakeholder recommendations and the commission's proposed standards fail to protect adequate high flow pulses to support reproductive success for these

species. NWF and Sierra Club comment that increasing the likelihood and extent of federal involvement in water management decisions because of a failure to provide reasonable levels of protection under state law is not in the best interest of Texas.

The commission responds that under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The commission notes that in its standards for these three gages, it is adopting environmental flow standards for the Brazos River and its tributaries that include a subsistence flow, multiple levels of base flows and high flow pulses. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any specific changes as a result of these comments.

NWF and Sierra Club comment that the commission must give full consideration to the flow regimes recommended in the minority report and, if it chooses not to accept them, must justify that decision. The failure to adopt full protections at least as protective of a

sound ecological environment as those recommended in the minority report is not justified by competing considerations. Water users in the Brazos basin will have *greater certainty* and predictability if the state's flow standards for these three gages include key components of what is needed to maintain a healthy ecosystem.

The commission responds that it specifically invited comments on the minority report and considered the recommendations in the minority report in its water availability analysis. The commission followed the process created by the legislature in TWC, §11.1471, to determine these flow standards. It considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, when drafting the adopted rules. Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." The commission is required to perform its own review based on several factors, including human needs. The commission's water availability analysis demonstrates that less water would be available for future permitting under the minority recommendations than would be available under the recommendation of the majority of the stakeholders. The commission's adopted standards are protective of the environment and

allow for some future permitting. The rule was not changed in response to these comments.

TPWD comments that the Brazos River reaches where the stakeholders were unable to develop a consensus essentially describe the current range of two Texas endemic fish species, the sharpnose shiner and the smalleye shiner. Both species have been proposed for listing as endangered species by the United States Fish and Wildlife Service whom also proposed critical habitat for those species which includes much of the Brazos River Basin upstream of Lake Possum Kingdom. TPWD comments that mean summer discharge levels of at least 228 cfs at the Brazos River at Seymour are necessary to ensure long-term persistence of the smalleye shiner and that seasonal pulses are an essential addition to stream volumes in order to achieve the 228 cfs. TPWD comments that the science team recommended more and higher pulses. TPWD further comments that the proposed standards for the Salt Fork Brazos River, Double Mountain Fork Brazos River, and the main stem Brazos River above Lake Possum Kingdom may not ensure adequate protection for fish and wildlife resources, including endemic prairie fishes in the Salt Fork Brazos River. One individual commented that adopting standards that do not protect the sharpnose shiner and the smalleye shiner is wrong.

The commission responds that under the state environmental flow process, as set out in TWC, §11.1471, the commission must adopt environmental flow

standards that are "adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors." The commission is adopting standards with the appropriate balance between those interests. The commission notes that in its standards for the Brazos River Basin, it is adopting environmental flow standards for the Salt Fork Brazos River, the Double Mountain Fork Brazos River, and the main stem Brazos River above Lake Possum Kingdom that include a subsistence flow, multiple levels of base flows, and high flow pulses. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. The commission declines to make any specific changes as a result of these comments.

TPWD comments that TCEQ's modeling approach for the balancing analysis may be unrealistically conservative given that situations where annual totals of large diversion rights were diverted in a single month are not practical without some form of storage. TPWD recommends an alternative approach to compare the maximum amount that could be permitted under the four balancing scenarios and include a fifth scenario using the science team's recommendations.

The commission responds that it did not intend for its balancing analysis to be a finding that water was available for a specific project. The ED did not include a storage component in the modeling to support the balancing analysis because simply adding storage does not increase the amount of water a water right could divert from the river or the reliability of that diversion. Permitting decisions for an off-channel project would be based on the amount of water an applicant could divert from the river and there would need to be a reasonable amount of water available in the river that meets the criteria in the commission's statutes and rules. If the reliability of the river diversion is low, it could be difficult to recommend granting a permit. The commission notes that the science team's recommendations include additional pulse flows throughout the Brazos River Basin. As stated in the preamble, unappropriated water in the Brazos River Basin generally occurs during times of higher flow; therefore, as the ED's analysis indicates, increasing pulse volumes and frequencies reduces the remaining unappropriated flow that could be available for future human needs. Modeling the science team's recommendations is also not necessary because those recommendations were modified by the stakeholders. The commission believes that the adopted rules are sufficiently protective of the environment because they include a flow regime consisting of subsistence flows, base flows, high flow pulses, and a freshwater inflow standard and

allow for some future permitting. The rule was not changed in response to this comment.

§298.485, Water Right Permit Conditions

Palo Pinto comments that TCEQ has appropriately incorporated §298.485(c) exempting permits that increase storage by up to 15% in the Palo Pinto Creek watershed from high flow pulse requirements based on site-specific environmental studies.

The commission acknowledges the comment. The rule was not changed in response to this comment.

WCTMWD comments that the geometry of most existing and new dams would preclude the discharge of large flow rates below the crest of the service spillway. WCTMWD comments that, in the western part of the Brazos Basin, reservoirs stay below that threshold a good bit of the time and discharges through the dam are limited to the service outlet below the service spillway crest. WCTMWD comments that the proposed standards are problematic for both new reservoirs where enlarged outlets are tremendously expensive and for existing reservoirs that were not designed to accommodate the environmental flow standards. WCTMWD comments that TCEQ should add an additional provision to §298.485 stating that "Reservoirs are exempted from Seasonal Pulse Flow Trigger releases any time the actual storage volume of the

reservoir is less than 50% of the permitted capacity."

SB 3 does not apply to water rights issued before September 1, 2007.

Commission rules in §298.10 also state that Chapter 298 only applies to a new appropriation of water or an amendment to an existing permit for a new appropriation of water which was pending on September 1, 2007 or which was filed after that date. The commission followed the process created by the legislature in TWC, §11.1471, to determine these flow standards. It considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, when drafting the adopted rules. Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." The commission is required to perform its own review based on several factors, including human needs. The commission's adopted standards are protective of the environment and allow for some future permitting. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. Additionally, under these adaptive management provisions, the stakeholders will have

future opportunities to re-evaluate the issue of balancing human and other competing needs for water in the bay and basin systems. The rule was not changed in response to this comment.

WCTMWD comments that the decrease in reliability under the proposed rules means that the benefit of any proposed project would be cut in half doubling the unit cost of the diverted water and could impact a proposed reservoir to the point where it is no longer a viable option. WCTMWD comments that TCEQ should limit the potential impact of the standards on a proposed reservoir by adding an additional provision to §298.485 stating "TCEQ shall not establish a special condition which diminishes the time a diversion quantity is available, or the yield of a proposed reservoir, by 50% or greater."

The commission responds that it followed the process created by the legislature in TWC, §11.1471, to determine these flow standards. It considered all of the recommendations provided by the science team and the stakeholder groups and other relevant factors, when drafting the adopted rules. Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." The commission is required to perform its own review based on several factors,

including human needs. The commission's adopted standards are protective of the environment and allow for some future permitting. Under SB 3's adaptive management provisions, further analyses and studies will be performed in the future to determine whether the adopted standards, once implemented, continue to protect the environment. Additionally, under these adaptive management provisions, the stakeholders will have future opportunities to re-evaluate the issue of balancing human and other competing needs for water in the bay and basin systems. The rule was not changed in response to this comment.

Subchapter H: Rio Grande, Rio Grande Estuary, and Lower Laguna Madre

General

Two thousand and forty individuals commented that the Rio Grande flow standards need improvement. As the rules note, the Rio Grande is already over-appropriated, so no new permits to withdraw water will be granted. Therefore, the standards should be set as a target, or goal, to work towards - the flows that the rivers and estuary need. One individual is concerned the Rio Grande is currently over-appropriated for water withdrawal. The standards of water flow for the Rio Grande should be the goal and adjustments to the rules must be made to meet the flow standard.

The commission responds that it considered the science team's

recommendations, the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande in developing the adopted rules. All of the United States' share of the water in the main stem of the Rio Grande, and on tributaries to the Rio Grande within Texas, is committed to existing users. Therefore, water availability for new permits in the Rio Grande is extremely limited as noted in the Section by Section Discussion section of this preamble for §298.530, in the preamble. This rulemaking adopts environmental flow standards that will be used in water rights permitting for new appropriations of water. The commission believes that the adopted standards are sufficiently protective of the environment because they include a flow regime with subsistence, base, and pulse flows. The rules were not changed in response to these comments.

TPWD comments that it agrees with TCEQ's decision to use the science team recommendations as guidance, and overall, believes that the Rio Grande science teams met their charge and provided a suite of environmental flow regime recommendations adequate to support a sound ecological environment.

The commission acknowledges the comment. The rule was not changed in

response to this comment.

NWF and Sierra Club comment that SB 3 contemplates adoption of flow standards whether or not there are stakeholder recommendations and that it is appropriate to propose and adopt flow standards.

The commission agrees and acknowledges the comment. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the Statutory Authority section of the proposed Subchapter H preamble refers to amendments to the rulemaking rather than to new sections.

The commission agrees and the preamble was changed in response to these comments.

§298.510, Findings

NWF and Sierra Club comment that the findings should be revised to acknowledge that implementation of voluntary strategies will be needed in many locations in the basin to achieve a sound ecological environment, even with the highly qualified definition of sound ecological environment. There is not an adequate basis for a finding that a sound

ecological environment will be protected, to the maximum extent reasonable, by the standards as currently proposed or that a sound ecological environment actually exists at all locations. NWF and Sierra Club comment that the science teams expressly found the absence of a sound ecological environment at a number of locations, including the Rio Grande in the Big Bend area (upstream of La Linda), the Arroyo Colorado, and the upper portions of the Pecos. Furthermore, neither the science team recommendations nor the standards address large portions of the basin so no finding about the adequacy of the standards to support a sound ecological environment is appropriate, or supportable, for those portions. The text should also acknowledge the incorporation of hydrologic condition into the flow standards. The finding is justified only if the flow standards are revised consistent with the changes recommended here. NWF and Sierra Club comment that §298.510 should be revised to state: "For the Rio Grande, and its associated tributaries located within Texas, the commission finds that the environmental flow standards in this subchapter, which acknowledge the need for implementation of voluntary strategies to help restore flows, are appropriate environmental flow standards that, based on currently available information, are adequate to support a sound ecological environment in the portions of the basin addressed by the flow standards to the maximum extent reasonable considering other public interests and other relevant factors. The commission finds that a sound ecological environment, at the locations where it currently exists, can best be maintained by a set of flow standards consisting of a schedule of flow quantities that contain subsistence

flow, base flows, and high flow pulses at defined measurement points. Minimum flow levels for these components will vary by season and by year since the amount of precipitation and, therefore, whether a system is in subsistence or base flow conditions and whether a system is in subsistence, dry, average, or wet hydrologic condition, will vary from year to year and within a year from season to season, and the number of pulses will also vary with the amount of precipitation."

The commission agrees in part and §298.510 was modified to clarify that the finding applies to the locations specified in the adopted rule and to include a reference to hydrologic condition. The adopted rule does not include voluntary strategies or strategy targets. The commission has not received a stakeholder report with recommendations for environmental flow standards and strategies to meet the environmental flow standards; however, as discussed elsewhere in this preamble, the commission did receive recommendations from the science teams. SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management and provided that after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each stakeholder committee prepare and submit a work plan. The work plan is to establish, among other things, a periodic review of the environmental flow standards and strategies. Should

the stakeholders develop strategies in the future, the commission could consider those strategies in future rulemaking. Therefore, the commission did not include this acknowledgement in §298.510.

Under TWC, §11.1471, the commission is to adopt appropriate environmental flow standards "that are adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." In the Rio Grande those relevant factors include the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande.

§298.525, Schedule of Flow Quantities

NWF and Sierra Club comment that §298.525(d)(1) should be modified to incorporate annual pulses and to add language to address pulses for the Rio Grande estuary, which are characterized by a 24-hour average flow, as follows: "One or two pulses per season and an annual pulse are to be passed (i.e., no storage or diversion by an applicable water right holder), if applicable, and as described in §298.530 of this title, if the flows are above the applicable subsistence or base flow standard, and if the applicable high flow pulse trigger level is met at the applicable measurement point. The water right holder

shall not divert or store water except during times that streamflow at the applicable measurement point exceeds the applicable high flow pulse trigger level and until either the applicable volume amount has passed the measurement point or the applicable duration time has passed since the high flow pulse trigger level occurred. A water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse. For high flow pulses that are characterized by a 24-hour average flow, a water right holder shall not divert or store water after flows initially reach, on an instantaneous basis, the level of the applicable 24-hour average flow until either 24 hours have passed since the flow level was reached or compliance with the applicable 24-hour average flow level has been assured."

The commission did not include annual pulses or pulses characterized by a 24-hour average flow in the adopted rule, as discussed in its responses to comments for §298.530. The rule was not changed in response to these comments.

NWF and Sierra Club comment that §298.525(d)(5) should be modified to account for two levels of pulse flows at some locations and to clarify how satisfaction of larger season pulses relates to satisfaction of smaller season pulse requirements, as follows:

"(d)(5) If a pulse flow requirement for an annual pulse is satisfied during a particular

season, one of each of the applicable smaller pulse requirements is also considered to be satisfied in that season. Similarly, when there is more than one applicable level of seasonal pulse requirement, if a larger seasonal pulse requirement is satisfied during a season one of any smaller pulse requirement is also considered to be satisfied in that season."

As discussed in its Response to Comments section of this preamble for §298.530, the commission did not include additional levels of pulse flows or annual pulses. The rule was not changed in response to these comments.

§298.530, Environmental Flow Standards

TPWD comments that it supports the recommendations of the lower Rio Grande science team regarding freshwater inflow standards as well as the development of strategies to reduce inflows and associated nutrient loadings for the Lower Laguna Madre. TPWD comments that identifying and implementing strategies to meet environmental flow standards is an essential part of SB 3, and the science team's recommendations for the Laguna Madre and lower Rio Grande estuary and recommends that these strategies and recommendations be incorporated into the final environmental flow rules.

The commission has not received a stakeholder report with recommendations for environmental flow standards and strategies to meet

the environmental flow standards. However, SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management and provided that after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each stakeholder committee prepare and submit a work plan. The work plan is to establish, among other things, a periodic review of the environmental flow standards and strategies. Should the stakeholders develop strategies in the future, the commission could consider those strategies in future rulemaking. The rule was not changed in response to this comment.

TPWD comments that the Upper Rio Grande science team proposed nine additional locations for environmental flow standards which were not included in the proposed rule. TPWD comments that these streams are geographically, and sometimes hydrologically distinct from each other. TPWD comments that additional information would assist in understanding the basis for the deviation from the science team's recommendations for measurement points and high flow pulses.

The commission responds that it considered the science team's recommendations, the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio

Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande in developing the adopted rule. All of the United States' share of the water in the main stem of the Rio Grande, and on tributaries to the Rio Grande within Texas, is committed to existing users. The adopted environmental flow standards apply to new appropriations and amendments issued after September 1, 2007. Based on water availability, there would be few, if any, new permits issued in the Rio Grande to which the standards would apply. Based on limited water availability and consideration of the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande as required by statute, the measurement points in the adopted rule are reasonably representative of the geographical extent of the basin.

As stated in the Section by Section Discussion for section of this preamble §298.530, there were also technical issues with many of the science team's pulse flow recommendations. In addition, as the Texas Environmental Flows SAC notes in its review of the Upper Rio Grande science team report "...few, if any, scientific investigations or monitoring efforts to date have been designed to relate physical or biological processes to flow in the Upper

Rio Grande." Regarding multiple levels of high flow pulses, the SAC also notes that the science team report did not demonstrate that all components of the flow regime, including multiple levels of high flow pulses, are necessary to protect a sound ecological environment. Based on water availability, technical issues, and a lack of sufficient scientific data tying multiple levels of high flow pulses to a sound ecological environment, the commission did not include additional measurement points or high flow pulses in its adopted rule.

NWF and Sierra Club comment that §298.530(a)(1) and should be modified to remove the 38% reduction, or a strategy flows target table should be added to the adopted rule because there are no significant competing considerations that would justify failing to establish a standard adequate to protect a sound ecological environment. These commenters state that because there is an almost complete lack of unappropriated water in the Rio Grande, flow standards will function as targets for voluntary strategies rather than limits on new appropriations. If the standards were actually going to be used in a regulatory setting, consideration of water accounting requirements and treaty obligations would be relevant factors as acknowledged in TWC, §11.02362(m), dealing with expert science team recommendations, and TWC, §11.02362 (o), dealing with stakeholder recommendations. However, because strategy targets will only inform voluntary measures or strategies, it is important to have targets that, if met, would

actually be expected to support a sound ecological environment. Voluntary measures may involve water belonging to the United States and/or water belonging to Mexico. Because the standards should establish appropriate strategy targets that, if met, would be likely to support a sound ecological environment they should reflect the expert science team recommendations. The strategy targets could be expressly designated as serving only for the purpose of guiding voluntary strategies. When adopting standards to be voluntarily implemented in a strategy context, there is no potential to run afoul of water accounting requirements for any international water sharing treaty, minutes, and agreement applicable to the Rio Grande. Nor will any United States or Texas water right holder be unfairly burdened.

The commission respectfully disagrees that the only time it must consider water accounting requirements and treaty obligations is if the standards would be used in a regulatory setting. Under TWC, §11.02362(m), the science team could not consider Mexico's water use. TWC, §11.02362(o), requires the stakeholders to consider the water accounting requirements of any international water sharing treaty, minutes, and agreement applicable to the Rio Grande and effects on water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande when adopting standards. In addition, the science team could not make an environmental flow regime recommendation that violates a treaty or court decision. These

sections would apply regardless of whether the standards were regulatory or functioned as strategy targets.

In previous a rulemaking the commission did include strategy targets in the adopted rule. However, these targets were used to provide a benchmark for future permits and amendments as well as for voluntary permitted strategies. Because of water availability, it is unlikely that new permits would be granted in this basin.

Regarding use of the science team's recommendations, these recommendations were modified based on water availability, technical issues, a lack of sufficient scientific data tying multiple levels of high flow pulses to a sound ecological environment, and the requirements of TWC, §11.02362. The commission has not received a stakeholder report with recommendations for environmental flow standards and strategies to meet the environmental flow standards. However, SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management. Should the stakeholder committee develop recommendations for strategies to meet the standards in the future, the commission could consider those strategies in future rulemaking. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the winter subsistence flow value in §298.530(a)(1) should be 40 cfs based on information in the science team report.

The commission agrees and the rule was modified in response to this comment. However, the 40 cfs value for winter subsistence flow in §298.530(a)(1) was adjusted by 38%, consistent with the adjustment to other flow values in this reach.

NWF and Sierra Club comment that §298.530(a)(2) should be modified to include an annual pulse as recommended by the science team with the typographical correction to the volume proposed by these commenters.

The commission responds that the Texas Environmental Flows SAC noted in its review of the Upper Rio Grande science team report "... few, if any, scientific investigations or monitoring efforts to date have been designed to relate physical or biological processes to flow in the Upper Rio Grande." Regarding multiple levels of high flow pulses, the SAC also notes that the science team report did not demonstrate that all components of the flow regime, including multiple levels of high flow pulses, are necessary to protect a sound ecological environment. Based on water availability,

technical issues, and a lack of sufficient scientific data tying multiple levels of high flow pulses to a sound ecological environment, the commission did not include additional measurement points or high flow pulses in its adopted rule.

NWF and Sierra Club comment that the adopted rule should include a measurement point and environmental flow standards for the Rio Grande below Rio Conchos near Presidio that would include a subsistence flow, base flow, and annual pulse. These commenters state that their proposed standard at this location should be adopted for all purposes, or, at a minimum, for the purpose of guiding implementation of voluntary strategies.

The commission responds that it considered the science team's recommendations, the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande in developing the adopted rule. All of the United States' share of the water in the main stem of the Rio Grande is committed to existing users. The adopted environmental flow standards apply to new appropriations and amendments issued after September 1, 2007. Based on water availability, there would be few, if any, new permits

issued in the Rio Grande to which the standards would apply. The commission has not received a stakeholder report with recommendations for environmental flow standards and strategies to meet the environmental flow standards. However, SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management. Should the stakeholder committee develop recommendations for strategies to meet the standards in the future, the commission could consider those strategies in future rulemaking. The rule was not changed in response to these comments.

NWF and Sierra Club comment that the proposed standards for the Pecos River near Girvin should be modified to include the science team's 1 per 2 season pulse value for the winter seasonal pulse and adding an annual pulse, consistent with the science team's report as modified by the errata sheet.

The commission modified the Figure in §298.530(3) to reflect the values in the errata sheet for the 1 per 2 season pulse. Regarding multiple levels of high flow pulses, the SAC noted that the science team report did not demonstrate that all components of the flow regime, including multiple levels of high flow pulses, are necessary to protect a sound ecological environment. Based on water availability, technical issues with the science

team recommendations, and a lack of sufficient scientific data tying multiple levels of high flow pulses to a sound ecological environment, the commission did not include additional high flow pulses in its adopted rule.

NWF and Sierra Club comment that the adopted rules should include a measurement point and environmental flows standards for the Pecos River near Langtry which would include a subsistence flow, base flow, 2 per season pulse, 1 per season pulse, and an annual pulse. The science team found that a sound ecological environment existed in this area and the river exhibits changed characteristics between Girvin and Langtry. These commenters also request that the adopted rules include a measurement point and environmental flows standards for Independence Creek near Sheffield, which would include a subsistence flow, base flow, and a 1 per season pulse. Independence Creek is a key ecological stream system that merits strong recognition of the key role its springflow-based flow contributions play in helping to sustain a sound ecological environment in the Lower Pecos River.

The commission responds that it considered the science team's recommendations, the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande in developing the adopted rule. All of the

United States' share of the water in the main stem of the Rio Grande, and on tributaries to the Rio Grande within Texas, is committed to existing users. The adopted environmental flow standards apply to new appropriations and amendments issued after September 1, 2007. Based on water availability, there would be few, if any, new permits issued on the Pecos River or Independence Creek to which the standards would apply. SB 3 also added TWC, §11.02362(p), which recognized the importance of adaptive management and provided that after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each stakeholder committee prepare and submit a work plan. The work plan is to establish a periodic review of the basin and bay environmental flow analyses and environmental flow regime recommendations, environmental flow standards, and strategies, prescribe specific monitoring, studies, and activities; and, 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. The commission acknowledges that further analyses and studies may need to be performed in the future to determine whether the adopted standards, once implemented, are protective. SB 3 contemplates that data

and new studies can be considered through adaptive management via the work plan. To the extent that additional information becomes available through monitoring and studies undertaken under the work plan, the science team and stakeholders could consider that information in future deliberations. The rule was not changed in response to these comments.

NWF and Sierra Club comment that a flow regime is needed for the estuarine, or tidal, portion of the Rio Grande. As reflected in the expert science team report, such a flow regime is designed to help maintain reasonable salinity conditions in the tidal segment and to maintain an opening between the Gulf of Mexico and the Rio Grande.

Maintaining an open connection between the Rio Grande and the Gulf of Mexico is essential for allowing organisms to move between the estuary and the Gulf of Mexico. In recent times, low flow levels caused by a combination of drought and high levels of diversions resulted in the mouth of the Rio Grande silting up for an extended period of time. Certainly the recommended flow regime, even if fully implemented through voluntary strategies, would not restore natural hydrology to this highly modified system, a point the expert science team acknowledged. However, it would give the ecosystem a fighting chance of maintaining some reasonable level of productivity. NWF and Sierra Club also recommend that the flow standard be adopted for all purposes, but, at a minimum, as a target for voluntary strategies that acknowledges the importance of maintaining a functional estuary. These commenters propose that the adopted

standards include the following: "The flow regime for the Rio Grande Tidal segment, as measured at the Brownsville gage and maintained down to the confluence with the Gulf of Mexico, consists of a subsistence flow of 60 cfs to be met at all times regardless of hydrological condition; a bi-monthly seasonal pulse flow, to be met once every 60 days, characterized by a 24-hour average flow of at least 175 cfs; and an annual pulse flow characterized by a 24-hour average flow of at least 880 cfs."

The commission responds that the United States' share of river water is administered by the Rio Grande Watermaster and is based in storage in the Amistad/Falcon reservoir system. In addition, as recognized by the science team, all of the United States' share of the water in the main stem of the Rio Grande is committed to existing users. Any water that is released from storage and not diverted by existing users would flow to the estuary. Additional water may also be available to the estuary as a result of very large rainfall events that occur below the reservoirs and is in excess of the amount of water needed by existing users under the treaty. After considering the water accounting requirements of international water sharing treaties, minutes, and agreements applicable to the Rio Grande, as well as water allocation by the Rio Grande Watermaster in the Middle and Lower Rio Grande, the commission did not include freshwater inflow standards for the Rio Grande estuary in the adopted rule. The rule was not

changed in response to these comments.

**SUBCHAPTER F: NUECES RIVER AND CORPUS CHRISTI AND BAFFIN
BAYS**

§§298.400, 298.405, 298.410, 298.425, 298.430, 298.435, 298.440

Statutory Authority

The new sections are adopted under Texas Water Code (TWC), §5.102, concerning General Powers; TWC, §5.103, concerning Rules; and TWC, §5.105 concerning General Policy, which authorize the commission to adopt rules as necessary to carry out its power and duties under the TWC. The new sections are also adopted under TWC, §11.0235, concerning Policy Regarding Waters of the State; TWC, §11.147, concerning Effects of Permit on Bays and Estuaries and Instream Uses; and TWC, §11.1471, concerning Environmental Flow Standards and Set-Asides.

The adopted new sections implement TWC, §§11.0235, 11.147, and 11.1471.

§298.400. Applicability and Purpose.

This subchapter contains the environmental flow standards for the Nueces River, its associated tributaries, the Nueces-Rio Grande Coastal Basin, and Corpus Christi and Baffin Bays. This subchapter 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, 2007. The provisions of this subchapter will prevail over any provisions of Subchapter A of this chapter (relating to General Provisions) that are inconsistent with this subchapter relating to environmental flow standards and regulation in the Nueces River, its associated tributaries, the Nueces-Rio Grande Coastal Basin, and Corpus Christi and Baffin Bays.

§298.405. Definitions.

The following words or phrases have the following meanings in this subchapter unless the context clearly indicates otherwise:

(1) Fall--for the measurement points listed in §298.430(c)(3) - (5), (9), and (12) - (19) of this title (relating to Environmental Flow Standards), the period of time September through October, inclusive and for all other measurement points, the period of time October through November, inclusive.

(2) Inflow regime--a freshwater inflow pattern, at the most downstream point on the Nueces River where the river enters the Nueces Bay and Delta, that includes quantities and frequencies that vary throughout the year.

(3) Modeled permitting frequency--the frequencies at which specific

volumes of freshwater inflows occur in the commission's water availability models for the Nueces river basin at the time the first water right application subject to this subchapter is processed.

(4) Nueces Bay--a secondary bay of Corpus Christi Bay.

(5) Nueces Delta-- a complex array of channels, pools, marshes, and tidal flats in the upper end of Nueces Bay that lies generally to the north of the Nueces River and includes area receiving inflows from the Rincon Bayou and overflow channels from the river.

(6) Spring--the period of time April through June, inclusive.

(7) Sound ecological environment--maintains, to some reasonable level, the physical, chemical, and biological attributes and processes of the natural system.

(8) Summer-- for the measurement points listed in §298.430(c)(3) - (5), (9), and (12) - (19) of this title (relating to Environmental Flow Standards), the period of time July through August, inclusive and for all other measurement points, the period of time July through September, inclusive.

(9) Target frequency--the frequency at which specific target volumes of freshwater inflows occur, and which are used for the sole purpose of providing additional freshwater inflows to Nueces Bay and Nueces Delta through voluntary strategies.

(10) Target Volume--volumes of freshwater inflows specified in §298.430(a)(3) of this title (relating to Environmental Flow Standards which are used for water rights permitting and to establish targets for the purpose of providing additional freshwater inflows to Nueces Bay and Delta through voluntary strategies.

(11) Winter--for the measurement points listed in §298.430(c)(3) - (5), (9), and (12) - (19) of this title (relating to Environmental Flow Standards), the period of time November through March, inclusive and for all other measurement points, the period of time December through March, inclusive.

§298.410. Findings.

(a) The Nueces River and its associated tributaries, tributaries in the Nueces Rio Grande Coastal Basin, and Corpus Christi and Baffin Bays are substantially sound ecological environments.

(b) For the Nueces River and its associated tributaries, and tributaries in the Nueces-Rio Grande Coastal Basin, the commission finds that these sound ecological environments can best be maintained by a set of flow standards that implement a schedule of flow quantities that contain subsistence flow, base flow, and high flow pulses at defined measurement points. Minimum flow levels for these components will vary by season and by year since the amount of precipitation and, therefore, whether a system is in subsistence or base flow conditions, will vary from year to year and within a year from season to season, and the number of pulses protected will also vary with the amount of precipitation.

(c) For Nueces Bay and Nueces Delta, the commission finds that the freshwater inflow standards in this subchapter are appropriate environmental flow standards that are adequate to support a sound ecological environment to the maximum extent reasonable considering other public interests and other relevant factors. The existing ecological condition of Nueces Bay and Nueces Delta may be improved, but will not be diminished, by the freshwater inflow standards in this subchapter.

§298.415. Set-Asides and Standards Priority Date.

The priority date for the environmental flow standards and set-asides established by this subchapter is October 28, 2011. The priority date for the environmental flow

standards will be used in the water availability determination 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 and has no other purpose.

§298.425. Schedule of Flow Quantities.

(a) Schedule of flow quantities. The environmental flow standards proposed in this subchapter constitute a schedule of flow quantities made up of subsistence flow, base flow, and high flow pulses. Environmental flow standards are established for 19 measurement points in §298.430 of this title (relating to Environmental Flow Standards) and this section.

(b) Subsistence flow. The applicable subsistence flow standard varies depending on the seasons as described in §298.405 of this title (relating to Definitions). For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, the water right holder may not store or divert water, unless the flow at the measurement point is above the applicable subsistence flow standard for that point. If the flow at the applicable measurement point is above the subsistence flow standard but below the base flow standard, then the water right holder must allow the applicable subsistence flow, plus 50% of the difference between measured streamflow and the applicable subsistence flow, to pass its measurement point and any remaining flow may be diverted or stored, according to its permit, subject

to senior and superior water rights, as long as the flow at the measurement point does not fall below the applicable subsistence flow standard.

(c) Base flow. The applicable base flow level varies depending on the seasons as described in §298.405 of this title. For a water right holder, to which an environmental flow standard applies, at a measurement point that applies to a water right, the water right holder is subject to a base flow standard. For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, when the flow at the applicable measurement point is above the applicable base flow standard, but below any applicable high flow pulse trigger levels, the water right holder may store or divert water according to its permit, subject to senior and superior water rights, as long as the flow at the applicable measurement point does not fall below the applicable base flow standard.

(d) High flow pulses. High flow pulses are relatively short-duration, high flows within the watercourse that occur during or immediately following a storm event.

(1) Two or three pulses per season are to be passed (i.e., no storage or diversion by an applicable water right holder), if applicable, and as described in §298.430 of this title, if the flows are above the applicable subsistence or base flow standard, and if the applicable high flow pulse trigger level is met at the applicable

measurement point. The water right holder shall not divert or store water except during times that streamflow at the applicable measurement point exceeds the applicable high flow pulse trigger level and until either the applicable volume amount has passed the measurement point or the applicable duration time has passed since the high flow pulse trigger level occurred. A water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse.

(2) If the applicable high flow pulse flow trigger level does not occur in a season, then the water right holder need not stop storing or diverting water to produce a high flow pulse. The water right holder is not required to release water lawfully stored to produce a high flow pulse.

(3) Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.

(4) High flow pulses are applicable under both subsistence and base flow conditions.

(5) If a pulse flow requirement for a medium or large seasonal pulse or an annual pulse is satisfied for a particular season or year, one of each of the applicable

smaller pulse requirements is also considered to be satisfied.

(e) Stored water. A water right owner that has stored water in accordance with the terms and conditions of its water right, including any applicable environmental flow requirement in effect at the time the water was stored, may divert, release, or use this water, even if the applicable environmental flow requirement is not met at the time of the subsequent diversion, release, or use of that stored water.

§298.430. Environmental Flow Standards.

(a) A water right application in the Nueces River Basin, which increases the amount of water authorized to be stored, taken, or diverted as described in §298.10 of this title (relating to Applicability), shall not cause or contribute to an impairment of the inflow regimes as described in the figure in this subsection. Impairment of the inflow regime shall be evaluated as part of the water availability determination for a new water right or amendment that is subject to this subchapter. For purposes of this subsection, impairment would occur if the application, when considered in combination with any authorizations subject to this subchapter, which were issued prior to this application, would impair the modeled permitting frequency of any inflow regime by more than the values set out in paragraph (3)(A) - (C) of this subsection.

(1) Impairment to the modeled permitting frequency shall be calculated individually for each inflow regime level in the figure located in paragraph (3) of this subsection for which a specific frequency is identified, at the point in the water availability model which represents inflows to Nueces Bay and Nueces Delta.

(2) Impairment is calculated by subtraction of the values set out in paragraph (3)(A) - (C) of this subsection.

(3) Bay and Estuary Freshwater Inflow Standards for Nueces Bay and Nueces Delta.

Figure: 30 TAC §298.430(a)(3)

Bay and Estuary Freshwater Inflow Standards for Nueces Bay and Delta

Inflow Regime	Target Volume November - February (Target Frequency)	Target Volume March - June (Target Frequency)	Target Volume July - October (Target Frequency)	Target Volume Annual Inflow Target (Target Frequency)
Level 1	125,000 af (11%)	250,000 af (11%)	375,000 af (12%)	750,000 af (16%)
Level 2	22,000 af (23%)	88,000 af (30%)	56,000 af (40%)	166,000 af (47%)
Level 3	5,000 af (69%)	10,000 af (88%)	15,000 af (74%)	30,000 af (95%)

af = acre-feet

(A) The modeled permitting frequencies for the target volumes for Level 1, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased by more than 50%.

(B) The modeled permitting frequencies for the target volumes for Level 2, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased by more than 25%.

(C) The modeled permitting frequencies for the target volumes for Level 3, as described in the figure located in paragraph (3) of this subsection, and calculated as a percentage of total months or years, as applicable, shall not be decreased by more than 10%.

(D) Each season and year is independent of the preceding and subsequent seasons and years with respect to the calculation of the Target Volume, as described in the figure located in paragraph (3) of this subsection.

(b) To the extent that strategies are implemented through a water rights permit or amendment to help meet the freshwater inflow standards for Nueces Bay and Delta, a

water right application in the Nueces River Basin, which increases the amount of water authorized to be stored, taken or diverted as described in §298.10 of this title, shall not reduce the modeled permitting frequency for any inflow regime level, listed in the figure located in subsection (a) (3) of this section, below the level that would occur with the permitted strategy or strategies in place.

(c) The following environmental flow standards are established for the following described measurement points:

(1) Nueces River at Laguna, Texas, generally described as United States Geological Survey (USGS) gage 08190000, and more particularly described as Latitude 29 degrees, 25 minutes, 42 seconds; Longitude 99 degrees, 59 minutes, 49 seconds.

Figure: 30 TAC §298.430(c)(1)

United States Geological Survey Gage 08190000, Nueces River at Laguna

	Winter	Spring	Summer	Fall
Subsistence Flow	14 cfs	18 cfs	16 cfs	14 cfs
Base Flow	65 cfs	65 cfs	48 cfs	65 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 99 cfs Volume: 1,560 af Duration: 9 days	N/A	N/A
Large Seasonal Pulse (1 per season)	N/A	Trigger: 390 cfs Volume: 6,070 af Duration: 17 days	Trigger: 170 cfs Volume: 3,100 af Duration: 14 days	N/A

Annual Pulse (2 per year)	Trigger: 590 cfs Volume: 11,300 af Duration: 26 days
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cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(2) West Nueces River near Bracketville, Texas, generally described as USGS gage 08190500, and more particularly described as Latitude 29 degrees, 28 minutes, 51.9 seconds; Longitude 100 degrees, 14 minutes, 21 seconds.

Figure: 30 TAC §298.430(c)(2)

United States Geological Survey Gage 08190500, West Nueces River near Bracketville

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	1 cfs	1 cfs	1 cfs	1 cfs
Large Seasonal Pulse (1 per season)	N/A	Trigger: 5 cfs Volume: 76 af Duration: 10 days	Trigger: 5 cfs Volume: 84 af Duration: 13 days	N/A
Annual Pulse (2 per year)	Trigger: 25 cfs Volume: 360 af Duration: 16 days			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(3) Nueces River below Uvalde, Texas, generally described as USGS gage 08192000, and more particularly described as Latitude 29 degrees, 7 minutes, 25 seconds; Longitude 99 degrees, 53 minutes, 40 seconds.

Figure: 30 TAC §298.430(c)(3)

United States Geological Survey Gage 08192000, Nueces River below Uvalde

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	21 cfs	21 cfs	17 cfs	19 cfs
Large Seasonal Pulse (1 per season)	N/A	Trigger: 110 cfs Volume: 1,280 af Duration: 11 days	N/A	Trigger: 50 cfs Volume: 690 af Duration: 11 days
Annual Pulse (2 per year)	Trigger: 510 cfs Volume: 8,240 af Duration: 26 days			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(4) Nueces River at Cotulla, Texas, generally described as USGS gage 08194000, and more particularly described as Latitude 28 degrees, 25 minutes, 34 seconds; Longitude 99 degrees, 14 minutes, 23 seconds.

Figure: 30 TAC §298.430(c)(4)

United States Geological Survey Gage 08194000, Nueces River at Cotulla

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	6 cfs	10 cfs	7 cfs	15 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 190 cfs Volume: 2,370 af Duration: 17 days	N/A	Trigger: 35 cfs Volume: 360 af Duration: 14 days

Large Seasonal Pulse (1 per season)	Trigger: 96 cfs Volume: 1,570 af Duration: 20 days	N/A	Trigger: 100 cfs Volume: 1,030 af Duration: 16 days	N/A
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cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(5) Nueces River near Tilden, Texas generally described as USGS gage 08194500, and more particularly described as Latitude 28 degrees, 18 minutes, 31 seconds; Longitude 98 degrees, 33 minutes, 25 seconds.

Figure: 30 TAC §298.430(c)(5)

United States Geological Survey Gage 08194500, Nueces River near Tilden

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	1 cfs	3 cfs	1 cfs	12 cfs
Small Seasonal Pulse (3 per season)	N/A	Trigger: 89 cfs Volume: 930 af Duration: 14 days	N/A	Trigger: 29 cfs Volume: 250 af Duration: 10 days
Medium Seasonal Pulse (2 Per season)	Trigger: 87 cfs Volume: 1,260 af Duration: 18 days	Trigger: 280 cfs Volume: 3,360 af Duration: 18 days	Trigger: 11 cfs Volume: 96 af Duration: 10 days	Trigger: 220 cfs Volume: 2,390 af Duration: 16 days
Large Seasonal Pulse (1 per season)	Trigger: 300 cfs Volume: 4,610 af Duration: 22 days	Trigger: 880 cfs Volume: 12,200 af Duration: 22 days	Trigger: 320 cfs Volume: 4,390 af Duration: 21 days	Trigger: 840 cfs Volume: 10,900 af Duration: 23 days

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(6) Frio River at Concan, Texas, generally described as USGS gage 08195000, and more particularly described as Latitude 29 degrees, 29 minutes, 18 seconds; Longitude 99 degrees, 42 minutes, 16 seconds.

Figure: 30 TAC §298.430(c)(6)

United States Geological Survey Gage 08195000, Frio River at Concan

	Winter	Spring	Summer	Fall
Subsistence Flow	11 cfs	10 cfs	10 cfs	10 cfs
Base Flow	61 cfs	61 cfs	47 cfs	55 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 120 cfs Volume: 1,320 af Duration: 8 days	N/A	N/A
Large Seasonal Pulse (1 per season)	Trigger: 89 cfs Volume: 2,100 af Duration: 12 days	Trigger: 300 cfs Volume: 3,550 af Duration: 12 days	Trigger: 240 cfs Volume: 2,990 af Duration: 13 days	Trigger: 79 cfs Volume: 900 af Duration: 5 days
Annual Pulse (2 per year)	Trigger: 540 cfs Volume: 9,430 af Duration: 24 days			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(7) Dry Frio River near Reagan Wells, Texas, generally described as USGS gage 08196000, and more particularly described as Latitude 29 degrees, 30 minutes, 16 seconds; Longitude 99 degrees, 46 minutes, 52 seconds.

Figure: 30 TAC §298.430(c)(7)

United States Geological Survey Gage 08196000, Dry Frio River near Reagan Wells

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	12 cfs	9 cfs	8 cfs	12 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 30 cfs Volume: 370 af Duration: 9 days	N/A	N/A
Large Seasonal Pulse (1 per season)	Trigger: 32 cfs Volume: 650 af Duration: 13 days	Trigger: 120 cfs Volume: 1,470 af Duration: 16 days	Trigger: 81 cfs Volume: 1,100 af Duration: 15 days	Trigger: 35 cfs Volume: 620 af Duration: 13 days
Annual Pulse (2 per year)	Trigger: 210 cfs Volume: 3,500 af Duration: 26 days			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(8) Sabinal River near Sabinal, Texas, generally described as USGS gage 08198000, and more particularly described as Latitude 29 degrees, 29 minutes, 27 seconds; Longitude 99 degrees, 29 minutes, 33 seconds.

Figure: 30 TAC §298.430(c)(8)

United States Geological Survey Gage 08198000, Sabinal River near Sabinal

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	21 cfs	21 cfs	13 cfs	21 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 64 cfs Volume: 750 af Duration: 10 days	N/A	N/A

Large Seasonal Pulse (1 per season)	Trigger: 62 cfs Volume: 1,530 af Duration: 17 days	Trigger: 180 cfs Volume: 2,210 af Duration: 15 days	Trigger: 100 cfs Volume: 1,180 af Duration: 12 days	Trigger: 53 cfs Volume: 840 af Duration: 12 days
Annual Pulse (2 per year)	Trigger: 330 cfs Volume: 5,420 af Duration: 24 days			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(9) Sabinal River at Sabinal, Texas, generally described as USGS gage 08198500, and more particularly described as Latitude 29 degrees, 18 minutes, 51.5 seconds; Longitude 99 degrees, 28 minutes, 49.7 seconds.

Figure: 30 TAC §298.430(c)(9)

United States Geological Survey Gage 08198500, Sabinal River at Sabinal

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	2 cfs	1 cfs	1 cfs	2 cfs
Large Seasonal Pulse (1 Per season)	Trigger: 21cfs Volume: 310 af Duration: 11 days	Trigger: 56 cfs Volume: 430 af Duration: 9 days	N/A	Trigger: 20 cfs Volume: 150 af Duration: 6 days
Annual Pulse (2 per year)	Trigger: 230 cfs Volume: 2,680 af Duration: 17 days			
Annual Pulse (1 per year)	Trigger: 1,070 cfs Volume: 6,690 af Duration: 29 days			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(10) Hondo Creek near Tarpley, Texas, generally described as USGS gage

08200000, and more particularly described as Latitude 29 degrees, 34 minutes, 12.11 seconds; Longitude 99 degrees, 14 minutes, 51.68 seconds.

Figure: 30 TAC §298.430(c)(10)

United States Geological Survey Gage 08200000, Hondo Creek near Tarpley

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	6 cfs	5 cfs	9 cfs	8 cfs
Small Seasonal Pulse (2 per season)	Trigger: 16 cfs Volume: 200 af Duration: 8 days	Trigger: 91 cfs Volume: 950 af Duration: 12 days	Trigger: 24 cfs Volume: 220 af Duration: 7 days	N/A
Large Seasonal Pulse (1 Per season)	Trigger: 61 cfs Volume: 1,020 af Duration: 15 days	Trigger: 290 cfs Volume: 3,360 af Duration: 18 days	Trigger: 90 cfs Volume: 890 af Duration: 12 days	Trigger: 50 cfs Volume: 580 af Duration: 11 days
Annual Pulse (2 per year)	Trigger: 330 cfs Volume: 4,530 af Duration: 22 days			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(11) Seco Creek at Miller Ranch near Utopia, Texas, generally described as USGS gage 08201500, and more particularly described as Latitude 29 degrees, 34 minutes, 23 seconds; Longitude 99 degrees, 24 minutes, 10 seconds.

Figure: 30 TAC §298.430(c)(11)

United States Geological Survey Gage 08201500, Seco Creek at Miller Ranch near Utopia

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	4 cfs	3 cfs	3 cfs	4 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 33 cfs Volume: 360 af Duration: 12 days	N/A	N/A
Large Seasonal Pulse (1 Per season)	Trigger: 21 cfs Volume: 290 af Duration: 12 days	Trigger: 91 cfs Volume: 1,140 af Duration: 17 days	Trigger: 38 cfs Volume: 360 af Duration: 11 days	Trigger: 23 cfs Volume: 270 af Duration: 11 days
Annual Pulse (2 per year)	Trigger: 120 cfs Volume: 1,710 af Duration: 21 days			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(12) Frio River near Derby, Texas, generally described as USGS gage 08205500, and more particularly described as Latitude 28 degrees, 44 minutes, 11 seconds; Longitude 99 degrees, 08 minutes, 40 seconds.

Figure: 30 TAC §298.430(c)(12)

United States Geological Survey Gage 08205500, Frio River near Derby

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	17 cfs	11 cfs	7 cfs	12 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 210 cfs Volume: 1,810 af Duration: 14 days	N/A	N/A
Large Seasonal Pulse (1 Per season)	Trigger: 87 cfs Volume: 1,450 af Duration: 20 days	Trigger: 900 cfs Volume: 7,940 af Duration: 17 days	Trigger: 58 cfs Volume: 510 af Duration: 13 days	Trigger: 350 cfs Volume: 4,340 af Duration: 24 days

Annual Pulse (2 per year)	Trigger: 1,670 cfs Volume: 18,800 af Duration: 25 days
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cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(13) Frio River at Tilden, Texas, generally described as USGS gage 08206600, and more particularly described as Latitude 28 degrees, 28 minutes, 02 seconds; Longitude 98 degrees, 32 minutes, 50 seconds.

Figure: 30 TAC §298.430(c)(13)

United States Geological Survey Gage 08206600, Frio River at Tilden

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	12 cfs	7 cfs	2 cfs	3 cfs
Small Seasonal Pulse (2 per season)	Trigger: 86 cfs Volume: 1,070 af Duration: 13 days	Trigger: 460 cfs Volume: 4,470 af Duration: 14 days	Trigger: 36 cfs Volume: 280 af Duration: 9 days	Trigger: 120 cfs Volume: 1,080 af Duration: 12 days
Large Seasonal Pulse (1 per season)	Trigger: 390 cfs Volume: 5,320 af Duration: 20 days	N/A	Trigger: 270 cfs Volume: 2,440 af Duration: 14 days	Trigger: 960 cfs Volume: 10,400 af Duration: 20 days

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(14) San Miguel Creek near Tilden, Texas, generally described as USGS gage 08206700, and more particularly described as Latitude 28 degrees, 35 minutes, 14 seconds; Longitude 98 degrees, 32 minutes, 44 seconds.

Figure: 30 TAC §298.430(c)(14)

United States Geological Survey Gage 08206700, San Miguel Creek near Tilden

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	2 cfs	2 cfs	1 cfs	2 cfs
Small Seasonal Pulse (2 per season)	Trigger: 45 cfs Volume: 470 af Duration: 16 days	Trigger: 220 cfs Volume: 1,560 af Duration: 14 days	Trigger: 16 cfs Volume: 110 af Duration: 10 days	Trigger: 44 cfs Volume: 310 af Duration: 12 days
Large Seasonal Pulse (1 per season)	Trigger: 160 cfs Volume: 1,580 af Duration: 19 days	Trigger: 690 cfs Volume: 4,940 af Duration: 16 days	Trigger: 160 cfs Volume: 1,040 af Duration: 13 days	Trigger: 300 cfs Volume: 2,010 af Duration: 15 days
Annual Pulse (2 per year)	Trigger: 990 cfs Volume: 7,310 af Duration: 18 days			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(15) Atascosa River at Whitsett, Texas, generally described as USGS gage 08208000, and more particularly described as Latitude 28 degrees, 37 minutes, 19 seconds; Longitude 98 degrees, 16 minutes, 52 seconds.

Figure: 30 TAC §298.430(c)(15)

United States Geological Survey Gage 08208000, Atascosa River at Whitsett

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	9 cfs	5 cfs	4 cfs	4 cfs
Small Seasonal Pulse (2 per season)	Trigger: 230 cfs Volume: 1,960 af Duration: 14 days	Trigger: 600 cfs Volume: 4,280 af Duration: 13 days	Trigger: 37 cfs Volume: 280 af Duration: 7 days	Trigger: 100 cfs Volume: 720 af Duration: 9 days

Large Seasonal Pulse (1 per season)	Trigger: 730 cfs Volume: 5,720 af Duration: 18 days	Trigger: 1,770 cfs Volume: 12,500 af Duration: 16 days	Trigger: 250 cfs Volume: 1,960 af Duration: 12 days	Trigger: 620 cfs Volume: 4,320 af Duration: 14 days
Annual Pulse (2 per year)	Trigger: 1,990 cfs Volume: 14,800 af Duration: 19 days			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(16) Nueces River near Three Rivers, Texas, generally described as USGS

gage 08210000, and more particularly described as Latitude 28 degrees, 25 minutes, 38 seconds; Longitude 98 degrees, 10 minutes, 40 seconds.

Figure: 30 TAC §298.430(c)(16)

United States Geological Survey Gage 08210000, Nueces River near Three Rivers

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	37 cfs	37 cfs	30 cfs	37 cfs
Small Seasonal Pulse (2 per season)	Trigger: 720 cfs Volume: 8,460 af Duration: 13 days	Trigger: 1,660 cfs Volume: 22,200 af Duration: 16 days	Trigger: 280 cfs Volume: 2,520 af Duration: 9 days	Trigger: 710 cfs Volume: 7,920 af Duration: 13 days
Large Seasonal Pulse (1 per season)	Trigger: 2,050 cfs Volume: 26,800 af Duration: 18 days	Trigger: 4,090 cfs Volume: 64,600 af Duration: 22 days	Trigger: 1,100 cfs Volume: 13,600 af Duration: 15 days	Trigger: 2,420 cfs Volume: 34,200 af Duration: 19 days

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(17) Nueces River near Mathis, Texas, generally described as USGS gage

08211000, and more particularly described as Latitude 28 degrees, 02 minutes, 17 seconds; Longitude 97 degrees, 51 minutes, 36 seconds.

Figure: 30 TAC §298.430(c)(17)

United States Geological Survey Gage 08211000, Nueces River near Mathis

	Winter	Spring	Summer	Fall
Subsistence Flow	37 cfs	37 cfs	37 cfs	37 cfs
Base Flow	96 cfs	120 cfs	140 cfs	110 cfs
Small Seasonal Pulse (2 per season)	Trigger: 590 cfs Volume: 6,270 af Duration: 9 days	Trigger: 420 cfs Volume: 5,090 af Duration: 9 days	N/A	Trigger: 240 cfs Volume: 2,670 af Duration: 7 days
Large Seasonal Pulse (1 per season)	Trigger: 1,120 cfs Volume: 14,200 af Duration: 12 days	Trigger: 2,540 cfs Volume: 49,400 af Duration: 19 days	Trigger: 370 cfs Volume: 4,970 af Duration: 10 days	Trigger: 1,550 cfs Volume: 24,700 af Duration: 15 days

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(18) Oso Creek at Corpus Christi, Texas, generally described as USGS gage 08211520, and more particularly described as Latitude 28 degrees, 42 minutes, 40 seconds; Longitude 97 degrees, 30 minutes, 06 seconds.

Figure: 30 TAC §298.430(c)(18)

United States Geological Survey Gage 08211520, Oso Creek at Corpus Christi

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	2 cfs	2 cfs	2 cfs	2 cfs
Small Seasonal Pulse (2 per season)	Trigger: 59 cfs Volume: 450 af Duration: 13 days	Trigger: 48 cfs Volume: 330 af Duration: 9 days	N/A	Trigger: 64 cfs Volume: 450 af Duration: 11 days
Large Seasonal	N/A	N/A	Trigger: 21 cfs Volume: 160 af	N/A

Pulse (1 Per season)		Duration: 8 days	
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cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(19) San Fernando Creek at Alice, Texas, generally described as USGS gage 08211900, and more particularly described as Latitude 27 degrees, 46 minutes, 20 seconds; Longitude 98 degrees, 02 minutes, 00 seconds.

Figure: 30 TAC §298.430(c)(19)

United States Geological Survey Gage 08211900, San Fernando Creek at Alice

	Winter	Spring	Summer	Fall
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	2 cfs	2 cfs	1 cfs	1 cfs
Small Seasonal Pulse (2 per season)	N/A	Trigger: 14 cfs Volume: 100 af Duration: 7 days	N/A	N/A
Large Seasonal Pulse (1 Per season)	Trigger: 14 cfs Volume: 170 af Duration: 12 days	Trigger: 65 cfs Volume: 470 af Duration: 11 days	Trigger: 17 cfs Volume: 140 af Duration: 9 days	Trigger: 28 cfs Volume: 240 af Duration: 10 days
Annual Pulse (2 per year)	Trigger: 170 cfs Volume: 1,490 af Duration: 17 days			

cfs = cubic feet per second
 af = acre-fee
 N/A = not applicable

§298.435. Water Right Permit Conditions.

(a) For water right permits with an authorization to store or divert water in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin, to which the environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter.

(b) For water right permits with an authorization to divert water in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin at a rate less than 20% of the pulse trigger level requirements of an applicable high flow pulse at a measurement point, as described in §298.430(c) of this title (relating to Environmental Flow Standards), and to which the environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter; however, no special conditions are necessary to preserve or pass that applicable high flow pulse.

§298.440. Schedule for Revision of Standards.

The environmental flow standards or environmental flow set-asides adopted in

this subchapter for the Nueces River Basin and the Nueces-Rio Grande Coastal Basin, their associated tributaries, Corpus Christi and Baffin Bays may be revised by the commission through the rulemaking process. The final revised rules shall be effective no sooner than ten years from the effective date of this rule, unless the Nueces River and Corpus Christi and Baffin Bay Area Stakeholder Committee submits a work plan approved by the advisory group under Texas Water Code, §11.02362(p), that provides for a periodic review to occur more frequently. The rulemaking process shall include participation by a balanced representation of stakeholders having interests in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin, their associated tributaries, Corpus Christi and Baffin Bays.

**SUBCHAPTER G: BRAZOS RIVER AND ITS ASSOCIATED BAY AND
ESTUARY SYSTEM**

**§§298.450, 298.455, 298.460, 298.465, 298.470, 298.475, 298.480,
298.485, 298.490**

Statutory Authority

The new sections are adopted under Texas Water Code (TWC), §5.102, concerning General Powers; TWC, §5.103, concerning Rules; and TWC, §5.105 concerning General Policy, which authorize the commission to adopt rules as necessary to carry out its power and duties under the TWC. The new sections are also adopted under TWC, §11.0235, concerning Policy Regarding Waters of the State; TWC, §11.147, concerning Effects of Permit on Bays and Estuaries and Instream Uses; and TWC, §11.1471, concerning Environmental Flow Standards and Set-Asides.

The adopted new sections implement TWC, §§11.0235, 11.147, and 11.1471.

§298.450. Applicability and Purpose.

This subchapter contains the environmental flow standards for the Brazos River and its associated bay and estuary system. The provisions of this subchapter will prevail over any provisions of Subchapter A of this chapter (relating to General Provisions) that

are inconsistent with this subchapter relating to environmental flow standards and regulation in the Brazos River Basin and the Brazos-Colorado Coastal Basin.

§298.455. Definitions.

The following words or phrases have the following meanings in this subchapter unless the context clearly indicates otherwise:

(1) Average condition--for all measurement points, the hydrologic condition that would occur approximately 50% of the time.

(2) Climatic division--a geographic area defined by the National Weather Service.

(3) Dry condition--for all measurement points, the hydrologic condition that would occur approximately 25% of the time and that is intended to represent the driest periods.

(4) Lower Basin--the geographic area of the Brazos River Basin which includes all watersheds below Lake Whitney Dam, and the San Bernard River and coastal watersheds, and which is defined for the purpose of calculating hydrologic

conditions as described in §298.470 of this section (relating to Calculation of Hydrologic Conditions).

(5) Middle Basin--the geographic area of the Brazos River Basin which includes all watersheds draining into the Brazos River and its tributaries downstream of Possum Kingdom Dam and upstream of Lake Whitney Dam, and which is defined for the purpose of calculating hydrologic conditions as described in §298.470 of this section (relating to Calculation of Hydrologic Conditions).

(6) PHDI--the Palmer Hydrological Drought Index, based on a scale from -6.0 to 6.0, and representing the severity of moisture conditions from extremely dry to extremely wet.

(7) PHDI Index--a regional PHDI, calculated for the Lower Basin, Middle Basin, and Upper Basin, based on ranked values for a period of record from 1895 through 2010, and which is defined for the purpose of calculating hydrologic conditions as described in §298.470 of this title (relating to Calculation of Hydrologic Conditions).

(8) Spring--the period of time March through June, inclusive.

(9) Sound ecological environment--characterized by fish, macroinvertebrate, and riparian vegetation species assemblages that remain relatively intact compared to historical records.

(10) Summer--the period of time July through October, inclusive.

(11) Upper Basin--the geographic area of the Brazos River Basin which includes all watersheds upstream of and draining into Possum Kingdom Lake, and which is defined for the purpose of calculating hydrologic conditions as described in §298.470 of this title (relating to Calculation of Hydrologic Conditions).

(12) Wet condition--for all measurement points, the hydrologic condition that would occur approximately 25% of the time and that is intended to represent the wettest conditions.

(13) Winter--for all measurement points, the period of time November through February, inclusive.

§298.460. Findings.

(a) The Brazos River and its associated tributaries and bay and estuary system

and the San Bernard River and its associated tributaries are healthy and sound ecological environments.

(b) The commission finds that these sound ecological environments can best be maintained by a set of flow standards that implement a schedule of flow quantities that contain subsistence flow, base flow, and high flow pulses at defined measurement points. Minimum flow levels for these components will vary by season and by year since the amount of precipitation and, therefore, whether a system is in dry, average, or wet base flow conditions, will vary from year to year and within a year from season to season, and the number of pulses protected will also vary with the amount of precipitation and hydrologic conditions.

§298.465. Set-Asides and Standards Priority Date.

The priority date for the environmental flow standards and set-asides established by this subchapter is March 1, 2012. The priority date for the environmental flow standards will be used in the water availability determination 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, and has no other purpose.

§298.470. Calculation of Hydrologic Conditions.

(a) For new water right authorizations which increase the amount of water authorized to be stored, taken, or diverted as described in §298.10 of this title (relating to Applicability), the determination of the hydrologic condition for a particular season shall be determined once per season. The Palmer Hydrologic Drought Index (PHDI) value present on the last day of the month of the preceding season, as reported by the National Weather Service, and calculated for the geographic area as described in subsection (b) of this section, will determine the hydrologic condition for the following season. For each measurement point specified in this section, the PHDI Index will determine the hydrologic condition, as described in subsection (c) of this section.

(b) The percentage of each climatic division within each geographic area, as defined in §298.455 of this title (relating to Definitions), are:

Figure: 30 TAC §298.470(b)

Percentage of Climatic Division Within Each Geographic Area

CLIMATIC DIVISION	PERCENTAGE LOCATED IN UPPER BASIN	PERCENTAGE LOCATED IN MIDDLE BASIN	PERCENTAGE LOCATED IN LOWER BASIN
High Plains	2.7%	N/A	N/A
Low Rolling Plains	64.7%	N/A	N/A
North Central	32.6%	100%	61.9%

East Texas	N/A	N/A	14.7%
Trans Pecos	N/A	N/A	N/A
Edwards Plateau	N/A	N/A	5.7%
South Central	N/A	N/A	13.2%
Upper Coast	N/A	N/A	4.5%

N/A = not applicable

(c) For all measurement points, based on the geographic area in which the measurement point is located, as defined in §298.455 of this title, the PHDI Index and the corresponding hydrologic conditions are:

Figure: 30 TAC §298.470(c)

PHDI Index for Calculating Hydrologic Conditions for all Measurement Points on the Brazos River and its associated tributaries and the San Bernard River and its associated tributaries

GEOGRAPHIC AREA	DRY	AVERAGE	WET
UPPPER BASIN	less than -1.78	-1.78 - 2.18	greater than 2.18
MIDDLE BASIN	less than -1.95	-1.95 - 2.39	greater than 2.39
LOWER BASIN	less than -1.73	-1.73 - 2.13	greater than 2.13

(d) The PHDI Index for the hydrologic conditions, as set out in subsection (b) of

this section govern the operations of permits subject to this subchapter during the initial period, not longer than ten years, until the environmental flow standards in this subchapter are reevaluated. The PHDI Index was calculated to achieve compliance with the percentages of time for dry, average, and wet conditions of 25%, 50%, and 25%, respectively. The PHDI Index set out in subsection (c) of this section will be recalculated, no less frequently than once every ten years, in order to achieve, to the greatest extent possible, compliance with the percentages of time for dry, average, and wet conditions of 25%, 50%, and 25%, respectively.

§298.475. Schedule of Flow Quantities.

(a) Schedule of flow quantities. The environmental flow standards adopted by this subchapter constitute a schedule of flow quantities made up of subsistence flow, base flow, and high flow pulses. Environmental flow standards are established at 20 separate measurement locations in §298.480 of this title (relating to Environmental Flow Standards).

(b) Subsistence flow. The applicable subsistence flow standard varies depending on the seasons as described in §298.455 of this title (relating to Definitions). For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, the water right holder may not store or divert water

unless the flow at the measurement point is above the applicable subsistence flow standard for that point. If the flow at the applicable measurement point is above the subsistence flow standard but below the applicable dry condition base flow standard, then the water right holder must allow the applicable subsistence flow, plus 50% of the difference between measured streamflow and the applicable subsistence flow, to pass its measurement point and any remaining flow may be diverted or stored, according to its permit, subject to senior and superior water rights, as long as the flow at the measurement point does not fall below the applicable subsistence flow standard.

(c) Base flow. The applicable base flow level varies depending on the seasons as described in §298.455 of this title and the hydrologic condition described in §298.470 of this title (relating to Calculation of Hydrologic Conditions). For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, the water right holder is subject to the base flow standard for the hydrologic condition prevailing at that time. For all measurement points, the water right will be subject to one of the following: a dry, an average, or a wet base flow standard. For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, when the flow at the applicable measurement point is above the applicable base flow standard, but below any applicable high flow pulse levels, the water right holder may store or divert water according to its permit, subject to senior and superior water rights, as long as the flow at the applicable measurement

point does not fall below the applicable base flow standard for that hydrologic condition except during dry conditions as described in subsection (b) of this section.

(d) High flow pulses. High flow pulses are relatively short-duration, high flows within the watercourse that occur during or immediately following a storm event.

(1) For all measurement points, one, two, three, or four pulses per season are to be passed (i.e., no storage or diversion by an applicable water right holder), if applicable, and as described in §298.480 of this title, if streamflows are above the applicable subsistence or base flow standard, and if the applicable high flow pulse trigger level is met at the applicable measurement point. The water right holder shall not divert or store water until either the applicable volume amount has passed the applicable measurement point or the duration time has passed since the high flow pulse trigger level occurred except during times that streamflow at the applicable measurement point exceeds the applicable high flow pulse trigger level. A water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse.

(2) If the applicable high flow pulse trigger level does not occur in a season, then the water right holder need not stop storing or diverting water to produce a

high flow pulse. The water right holder is not required to release water lawfully stored to produce a high flow pulse.

(3) Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.

(4) High flow pulses at the applicable measurement point are dependent on the hydrologic conditions set out in §298.470 of this title.

(5) For measurement points in the Brazos River Basin described in §298.480(7) - (8) of this title, if a pulse flow requirement for the large seasonal pulse is satisfied for a particular season, one of the smaller pulse requirements is also considered to be satisfied for that season.

(e) Stored water. A water right owner that has stored water in accordance with the terms and conditions of its water right, including any applicable environmental flow requirement in effect at the time the water was stored, may divert, release, or use this water, even if the applicable environmental flow requirement is not met at the time of the subsequent diversion, release, or use of that stored water.

§298.480. Environmental Flow Standards.

The following environmental flow standards are established for the following described measurement points:

(1) Double Mountain Fork Brazos River near Aspermont, Texas, generally described as United States Geological Survey (USGS) gage 08080500, and more specifically described as Latitude 33 degrees, 00 minutes, 29 seconds; Longitude 100 degrees, 10 minutes, 49 seconds.

Figure: 30 TAC §298.480(1)

United States Geological Survey Gage 08080500, Double Mountain Fork Brazos River near Aspermont

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	1 cfs	N/A	N/A	N/A
		Average	4 cfs			
		Wet	15 cfs			
Spring	1 cfs	Dry	1 cfs	1 per season Trigger: 280 cfs Volume: 1,270 af Duration: 10 days	2 per season Trigger: 280 cfs Volume: 1,270 af Duration: 10 days	1 per season Trigger: 570 cfs Volume: 2,600 af Duration: 12 days
		Average	3 cfs			
		Wet	8 cfs			
Summer	1 cfs	Dry	1 cfs	1 per season Trigger:	2 per season Trigger:	1 per season Trigger:

		Average	2 cfs	230 cfs Volume: 990 af	230 cfs Volume: 990 af	480 cfs Volume: 2,160 af
		Wet	7 cfs	Duration: 9 days	Duration: 9 days	Duration: 12 days

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(2) Salt Fork Brazos River near Aspermont, Texas, generally described as USGS gage 08082000, and more specifically described as Latitude 33 degrees, 20 minutes, 2 seconds; Longitude 100 degrees, 14 minutes, 16 seconds.

Figure: 30 TAC §298.480(2)

United States Geological Survey Gage 08082000, Salt Fork Brazos River near Aspermont

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	1 cfs	N/A	N/A	N/A
		Average	4 cfs			
		Wet	9 cfs			
Spring	1 cfs	Dry	1 cfs	1 per season Trigger: 160 cfs Volume: 720 af Duration: 10 days	2 per season Trigger: 160 cfs Volume: 720 af Duration: 10 days	1 per season Trigger: 300 cfs Volume: 1,350 af Duration: 11 days
		Average	2 cfs			
		Wet	5 cfs			
Summer	1 cfs	Dry	1 cfs	1 per season Trigger:	2 per season Trigger:	1 per season Trigger:

		Average	1 cfs	140 cfs Volume: 560 af	140 cfs Volume: 560 af	260 cfs Volume: 1,090 af
		Wet	3 cfs	Duration: 8 days	Duration: 8 days	Duration: 10 days

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(3) Brazos River at Seymour, Texas, generally described as USGS gage 08082500, and more specifically described as Latitude 33 degrees, 34 minutes, 51 seconds; Longitude 99 degrees, 16 minutes, 02 seconds.

Figure: 30 TAC §298.480(3)

United States Geological Survey Gage 08082500, Brazos River at Seymour

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	10 cfs	N/A	N/A	N/A
		Average	25 cfs			
		Wet	46 cfs			
Spring	1 cfs	Dry	7 cfs	1 per season Trigger: 560 cfs Volume: 2,960 af Duration: 10 days	2 per season Trigger: 560 cfs Volume: 2,960 af Duration: 10 days	1 per season Trigger: 1,040 cfs Volume: 5,870 af Duration: 12 days
		Average	19 cfs			
		Wet	35 cfs			
Summer	1 cfs	Dry	4 cfs	1 per season Trigger: 370 cfs Volume: 1,870	2 per season Trigger: 370 cfs Volume:	1 per season Trigger: 800 cfs Volume:
		Average	13 cfs			

		Wet	32 cfs	af Duration: 8 days	1,870 af Duration: 8 days	4,290 af Duration: 11 days
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cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(4) Clear Fork Brazos River at Nugent, Texas, generally described as USGS gage 08084000, and more specifically described as Latitude 32 degrees, 41 minutes, 24 seconds; Longitude 99 degrees, 40 minutes, 09 seconds.

Figure: 30 TAC §298.480(4)

United States Geological Survey Gage 08084000, Clear Fork Brazos River at Nugent

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	5 cfs	N/A	N/A	1 per season Trigger: 26 cfs Volume:160 af Duration: 9 days
		Average	8 cfs			
		Wet	13 cfs			
Spring	1 cfs	Dry	3 cfs	1 per season Trigger: 180 cfs Volume: 860 af Duration: 9 days	2 per season Trigger: 180 cfs Volume: 860 af Duration: 9 days	1 per season Trigger: 590 cfs Volume: 2,800 af Duration: 12 days
		Average	6 cfs			
		Wet	12 cfs			
Summer	1 cfs	Dry	1 cfs	1 per season Trigger: 100 cfs Volume: 460	2 per season Trigger: 100 cfs Volume: 460	1 per season Trigger: 390 cfs Volume:
		Average	4 cfs			

		Wet	9 cfs	af Duration: 8 days	af Duration: 8 days	1,890 af Duration: 12 days
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cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(5) Clear Fork Brazos River at Lueders, Texas, generally described as USGS gage 08084200, and more specifically described as Latitude 32 degrees, 47 minutes, 33.9 seconds; Longitude 99 degrees, 36 minutes, 43.30 seconds.

Figure: 30 TAC §298.480(5)

United States Geological Survey Gage 08084200, Clear Fork Brazos River at Lueders

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	7 cfs	N/A	N/A	1 per season Trigger: 26 cfs Volume:158 af Duration: 9 days
		Average	10 cfs			
		Wet	16 cfs			
Spring	1 cfs	Dry	4 cfs	1 per season Trigger: 18 cfs Volume: 74 af Duration: 2 days	2 per season Trigger: 37 cfs Volume: 148 af Duration: 2 days	1 per season Trigger: 355 cfs Volume: 2,054 af Duration: 9 days
		Average	7 cfs			
		Wet	15 cfs			
Summer	1 cfs	Dry	1 cfs	1 per season Trigger: 18 cfs Volume: 74 af	2 per season Trigger: 37 cfs Volume: 148	1 per season Trigger: 170 cfs Volume: 779
		Average	5 cfs			

		Wet	11 cfs	Duration: 2 days	af Duration: 2 days	af Duration: 5 Days
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cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(6) Brazos River near South Bend, Texas, generally described as USGS gage 08088000, and more specifically described as Latitude 33 degrees, 01 minutes, 27 seconds; Longitude 98 degrees, 38 minutes, 37 seconds.

Figure: 30 TAC §298.480(6)

United States Geological Survey Gage 08088000, Brazos River near South Bend

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	36 cfs	N/A	N/A	N/A
		Average	73 cfs			
		Wet	120 cfs			
Spring	1 cfs	Dry	29 cfs	1 per season Trigger: 1,260 cfs Volume: 7,280 af Duration: 10 days	2 per season Trigger: 1,260 cfs Volume: 7,280 af Duration: 10 days	1 per season Trigger: 2,480 cfs Volume: 15,700 af Duration: 13 days
		Average	60 cfs			
		Wet	100 cfs			
Summer	1 cfs	Dry	16 cfs	1 per season Trigger: 580 cfs Volume: 3,140 af Duration: 8 days	2 per season Trigger: 580 cfs Volume: 3,140 af Duration: 8 days	1 per season Trigger: 1,180 cfs Volume: 7,050 af Duration: 11 days
		Average	46 cfs			
		Wet	95 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(7) Brazos River near Palo Pinto, Texas, generally described as USGS gage 08089000, and more specifically described as Latitude 32 degrees, 51 minutes, 45 seconds; Longitude 98 degrees, 18 minutes, 08 seconds.

Figure: 30 TAC §298.480(7)

United States Geological Survey Gage 08089000, Brazos River near Palo Pinto

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	17 cfs	Dry	40 cfs	2 per season Trigger: 850 cfs Volume: 3,690 af Duration: 5 days	4 per season Trigger: 850 cfs Volume: 3,690 af Duration: 5 days	4 per season Trigger: 850 cfs Volume: 3,690 af Duration: 5 days
		Average	61 cfs			
		Wet	100 cfs			
Spring	17 cfs	Dry	39 cfs	2 per season Trigger: 1,400 cfs Volume: 6,600 af	4 per season Trigger: 1,400 cfs Volume: 6,600 af	4 per season Trigger: 1,400 cfs Volume:

		Average	75 cfs	Duration: 6 days	Duration: 6 days 2 per season Trigger: 3,370 cfs Volume: 20,200 af Duration: 10 days	6,600 af Duration: 6 days 3 per season Trigger: 3,370 cfs Volume: 20,200 af Duration: 10 days
		Wet	120 cfs			
Summer	17 cfs	Dry	40 cfs	2 per season Trigger: 1,230 cfs Volume: 5,920 af Duration: 6 days	4 per season Trigger: 1,230 cfs Volume: 5,920 af Duration: 6 days	4 per season Trigger: 1,230 cfs Volume: 5,920 af Duration: 6 days
		Average	72 cfs		2 per season Trigger: 2,260 cfs Volume: 13,000 af Duration: 9 days	3 per season Trigger: 2,260 cfs Volume: 13,000 af Duration: 9 days
		Wet	120 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(8) Brazos River near Glen Rose, Texas, generally described as USGS gage 080891000, and more specifically described as Latitude 32 degrees, 15 minutes, 32 seconds; Longitude 97 degrees, 42 minutes, 08 seconds.

Figure: 30 TAC §298.480(8)

United States Geological Survey Gage 080891000, Brazos River near Glen Rose

Season	Subsistence	Hydrologic Condition	Base	Dry Condition	Average Condition	Wet Condition
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				Seasonal Pulse	Seasonal Pulse	Seasonal Pulse
Winter	16 cfs	Dry	42 cfs	2 per season Trigger: 930 cfs Volume: 5,400 af Duration: 8 days	4 per season Trigger: 930 cfs Volume: 5,400 af Duration: 8 days	4 per season Trigger: 930 cfs Volume: 5,400 af Duration: 8 days
		Average	77 cfs			
		Wet	160 cfs			
Spring	16 cfs	Dry	47 cfs	2 per season Trigger: 2,350 cfs Volume: 14,300 af Duration: 10 days	4 per season Trigger: 2,350 cfs Volume: 14,300 af Duration: 10 days	4 per season Trigger: 2,350 cfs Volume: 14,300 af Duration: 10 days
		Average	92 cfs			
		Wet	170 cfs			
Summer	16 cfs	Dry	37 cfs	2 per season Trigger: 1,320 cfs Volume: 7,830 af Duration: 8 days	4 per season Trigger: 1,320 cfs Volume: 7,830 af Duration: 8 days	4 per season Trigger: 1,320 cfs Volume: 7,830 af Duration: 8 days
		Average	70 cfs			
		Wet	160 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(9) North Bosque River near Clifton, Texas, generally described as USGS gage 08095000, and more specifically described as Latitude 31 degrees, 47 minutes, 09 seconds; Longitude 97 degrees, 34 minutes, 04 seconds.

Figure: 30 TAC §298.480(9)

United States Geological Survey Gage 08095000, North Bosque River near Clifton

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	5 cfs	N/A	N/A	2 per season Trigger: 120 cfs Volume: 750 af Duration: 10 days
		Average	12 cfs			
		Wet	25 cfs			
Spring	1 cfs	Dry	7 cfs	1 per season Trigger: 710 cfs Volume: 3,490 af Duration: 12 days	3 per season Trigger: 710 cfs Volume: 3,490 af Duration: 12 days	3 per season Trigger: 710 cfs Volume: 3,490 af Duration: 12 days
		Average	16 cfs			
		Wet	33 cfs			
Summer	1 cfs	Dry	3 cfs	N/A	N/A	2 per season Trigger: 130 cfs Volume: 500 af Duration: 6 days
		Average	8 cfs			
		Wet	17 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(10) Brazos River at Waco, Texas, generally described as USGS gage 08096500, and more specifically described as Latitude 31 degrees, 32 minutes, 09 seconds; Longitude 97 degrees, 04 minutes, 23 seconds.

Figure: 30 TAC §298.480(10)

United States Geological Survey Gage 08096500, Brazos River at Waco

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	56 cfs	Dry	120 cfs	1 per season Trigger: 2,320 cfs Volume: 12,400 af Duration: 7 days	3 per season Trigger: 2,320 cfs Volume: 12,400 af Duration: 7 days	2 per season Trigger: 4,180 cfs Volume: 25,700 af Duration: 9 days
		Average	210 cfs			
		Wet	480 cfs			
Spring	56 cfs	Dry	150 cfs	1 per season Trigger: 5,330 cfs Volume: 32,700 af Duration: 10 days	3 per season Trigger: 5,330 cfs Volume: 32,700 af Duration: 10 days	2 per season Trigger: 13,600 cfs Volume: 102,000 af Duration: 14 days
		Average	270 cfs			
		Wet	690 cfs			
Summer	56 cfs	Dry	140 cfs	1 per season Trigger: 1,980 cfs Volume: 10,500 af Duration: 7 days	3 per season Trigger: 1,980 cfs Volume: 10,500 af Duration: 7 days	2 per season Trigger: 4,160 cfs Volume: 26,400 af Duration: 10 days
		Average	250 cfs			
		Wet	590 cfs			

cfs = cubic feet per second
 af = acre-feet

N/A = not applicable

(11) Leon River at Gatesville, Texas, generally described as USGS gage 08100500, and more specifically described as Latitude 31 degrees, 26 minutes, 05 seconds; Longitude 97 degrees, 45 minutes, 30 seconds.

Figure: 30 TAC §298.480(11)

United States Geological Survey Gage 08100500, Leon River at Gatesville

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	9 cfs	N/A	N/A	2 per season Trigger: 100 cfs Volume: 540 af Duration: 6 days
		Average	20 cfs			
		Wet	52 cfs			
Spring	1 cfs	Dry	10 cfs	1 per season Trigger: 340 cfs Volume: 1,910 af Duration: 10 days	3 per season Trigger: 340 cfs Volume: 1,910 af Duration: 10 days	2 per season Trigger: 630 cfs Volume: 4,050 af Duration: 13 days
		Average	24 cfs			
		Wet	54 cfs			
Summer	1 cfs	Dry	4 cfs	1 per season Trigger: 58 cfs Volume: 220 af Duration: 4 days	3 per season Trigger: 58 cfs Volume: 220 af Duration: 4 days	2 per season Trigger: 140 cfs Volume: 600 af Duration: 6 days
		Average	12 cfs			
		Wet	27 cfs			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(12) Lampasas River near Kempner, Texas, generally described as USGS gage 08103800, and more specifically described as Latitude 31 degrees, 04 minutes, 45 seconds; Longitude 98 degrees, 00 minutes, 59 seconds.

Figure: 30 TAC §298.480(12)

United States Geological Survey Gage 08103800, Lampasas River near Kempner

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	10 cfs	Dry	18 cfs	1 per season Trigger: 78 cfs Volume: 430 af Duration: 8 days	3 per season Trigger: 78 cfs Volume: 430 af Duration: 8 days	2 per season Trigger: 190 cfs Volume: 1,150 af Duration: 11 days
		Average	27 cfs			
		Wet	39 cfs			
Spring	10 cfs	Dry	21 cfs	1 per season Trigger: 780 cfs Volume: 4,020 af Duration: 13 days	3 per season Trigger: 780 cfs Volume: 4,020 af Duration: 13 days	2 per season Trigger: 1,310 cfs Volume: 6,860 af Duration: 16 days
		Average	29 cfs			
		Wet	43 cfs			
Summer	10 cfs	Dry	16 cfs	1 per season Trigger: 77 cfs Volume: 270 af Duration: 4 days	3 per season Trigger: 77 cfs Volume: 270 af Duration: 4 days	2 per season Trigger: 190 cfs Volume: 680 af Duration: 6 days
		Average	23 cfs			
		Wet	32 cfs			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(13) Little River near Little River, Texas, generally described as USGS gage 08104500, and more specifically described as Latitude 30 degrees, 57 minutes, 59 seconds; Longitude 97 degrees, 20 minutes, 45 seconds.

Figure: 30 TAC §298.480(13)

United States Geological Survey Gage 08104500, Little River near Little River

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	55 cfs	Dry	82 cfs	1 per season Trigger: 520 cfs Volume: 2,350 af Duration: 5 days	3 per season Trigger: 520 cfs Volume: 2,350 af Duration: 5 days	2 per season Trigger: 1,600 cfs Volume: 11,800 af Duration: 11 days
		Average	110 cfs			
		Wet	190 cfs			
Spring	55 cfs	Dry	95 cfs	1 per season Trigger: 1,420 cfs Volume: 9,760 af Duration: 10 days	3 per season Trigger: 1,420 cfs Volume: 9,760 af Duration: 10 days	2 per season Trigger: 3,290 cfs Volume: 32,200 af Duration: 17 days
		Average	150 cfs			
		Wet	340 cfs			
Summer	55 cfs	Dry	84 cfs	1 per season Trigger: 430 cfs Volume: 1,560 af Duration: 4 days	3 per season Trigger: 430 cfs Volume: 1,560 af Duration: 4 days	2 per season Trigger: 1,060 cfs Volume: 5,890 af Duration: 8 days
		Average	120 cfs			
		Wet	200 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(14) Little River near Cameron, Texas, generally described as USGS gage 08106500, and more specifically described as Latitude 30 degrees, 50 minutes, 06 seconds; Longitude 96 degrees, 56 minutes, 47 seconds.

Figure: 30 TAC §298.480(14)

United States Geological Survey Gage 08106500, Little River near Cameron

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	32 cfs	Dry	110 cfs	1 per season Trigger: 1,080 cfs Volume: 6,680 af Duration: 8 days	3 per season Trigger: 1,080 cfs Volume: 6,680 af Duration: 8 days	2 per season Trigger: 2,140 cfs Volume: 14,900 af Duration: 10 days
		Average	190 cfs			
		Wet	460 cfs			
Spring	32 cfs	Dry	140 cfs	1 per season Trigger: 3,200 cfs Volume: 23,900 af Duration: 12 days	3 per season Trigger: 3,200 cfs Volume: 23,900 af Duration: 12 days	2 per season Trigger: 4,790 cfs Volume: 38,400 af Duration: 14 days
		Average	310 cfs			
		Wet	760 cfs			
Summer	32 cfs	Dry	97 cfs	1 per season Trigger: 560 cfs Volume: 2,860 af Duration: 6 days	3 per season Trigger: 560 cfs Volume: 2,860 af Duration: 6 days	2 per season Trigger: 990 cfs Volume: 5,550 af Duration: 8 days
		Average	160 cfs			
		Wet	330 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(15) Brazos River at SH 21 near Bryan, Texas, generally described as USGS gage 08108700, and more specifically described as Latitude 30 degrees, 37 minutes, 36 seconds; Longitude 96 degrees, 32 minutes, 38 seconds.

Figure: 30 TAC §298.480(15)

United States Geological Survey Gage 08108700, Brazos River at SH 21 near Bryan

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	300 cfs	Dry	540 cfs	1 per season Trigger: 3,230 cfs Volume: 21,100 af Duration: 7 days	3 per season Trigger: 3,320 cfs Volume: 21,100 af Duration: 7 days	2 per season Trigger: 5,570 cfs Volume: 41,900 af Duration: 10 days
		Average	860 cfs			
		Wet	1,760 cfs			
Spring	300 cfs	Dry	710 cfs	1 per season Trigger: 6,050 cfs Volume: 49,000 af Duration: 11 days	3 per season Trigger: 6,050 cfs Volume: 49,000 af Duration: 11 days	2 per season Trigger: 10,400 cfs Volume: 97,000 af Duration: 14 days
		Average	1,260 cfs			
		Wet	2,460 cfs			
Summer	300 cfs	Dry	630 cfs	1 per season Trigger: 2,060 cfs Volume: 12,700 af Duration: 7 days	3 per season Trigger: 2,060 cfs Volume: 12,700 af Duration: 7 days	2 per season Trigger: 2,990 cfs Volume: 20,100 af Duration: 8 days
		Average	920 cfs			
		Wet	1,470 cfs			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(16) Navasota River near Easterly, Texas, generally described as USGS gage 08110500, and more specifically described as Latitude 31 degrees, 10 minutes, 12 seconds; Longitude 96 degrees, 17 minutes, 51 seconds.

Figure: 30 TAC §298.480(16)

United States Geological Survey Gage 08110500, Navasota River near Easterly

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	1 cfs	Dry	9 cfs	1 per season Trigger: 260 cfs Volume: 1,610 af Duration: 9 days	3 per season Trigger: 260 cfs Volume: 1,610 af Duration: 9 days	2 per season Trigger: 800 cfs Volume: 5,440 af Duration: 12 days
		Average	14 cfs			
		Wet	23 cfs			
Spring	1 cfs	Dry	10 cfs	1 per season Trigger: 720 cfs Volume: 4,590 af Duration: 11 days	3 per season Trigger: 720 cfs Volume: 4,590 af Duration: 11 days	2 per season Trigger: 1,340 cfs Volume: 8,990 af Duration: 13 days
		Average	19 cfs			
		Wet	29 cfs			
Summer	1 cfs	Dry	3 cfs	N/A	N/A	2 per season Trigger: 49 cfs Volume: 220 af Duration: 5 days
		Average	8 cfs			
		Wet	16 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(17) Brazos River near Hempstead, Texas, generally described as USGS gage 08111500, and more specifically described as Latitude 30 degrees, 07 minutes, 44 seconds; Longitude 96 degrees, 11 minutes, 15 seconds.

Figure: 30 TAC §298.480(17)

United States Geological Survey Gage 08111500, Brazos River near Hempstead

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	510 cfs	Dry	920 cfs	1 per season Trigger: 5,720 cfs Volume: 49,800 af Duration: 10 days	3 per season Trigger: 5,720 cfs Volume: 49,800 af Duration: 10 days	2 per season Trigger: 11,200 cfs Volume: 125,000 af Duration: 15 days
		Average	1,440 cfs			
		Wet	2,890 cfs			
Spring	510 cfs	Dry	1,130 cfs	1 per season Trigger: 8,530 cfs Volume: 85,000 af Duration: 13 days	3 per season Trigger: 8,530 cfs Volume: 85,000 af Duration: 13 days	2 per season Trigger: 16,800 cfs Volume: 219,000 af Duration: 19 days
		Average	1,900 cfs			
		Wet	3,440 cfs			
Summer	510 cfs	Dry	950 cfs	1 per season Trigger: 2,620 cfs Volume: 17,000 af Duration: 7 days	3 per season Trigger: 2,620 cfs Volume: 17,000 af Duration: 7 days	2 per season Trigger: 5,090 cfs Volume: 40,900 af Duration: 9 days
		Average	1,330 cfs			
		Wet	2,050 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(18) Brazos River at Richmond, Texas, generally described as USGS gage 08114000, and more specifically described as Latitude 29 degrees, 34 minutes, 56 seconds; Longitude 95 degrees, 45 minutes, 27 seconds.

Figure: 30 TAC §298.480(18)

United States Geological Survey Gage 08114000, Brazos River at Richmond

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	550 cfs	Dry	990 cfs	1 per season Trigger: 6,410 cfs Volume: 60,600 af Duration: 11 days	3 per season Trigger: 6,410 cfs Volume: 60,600 af Duration: 11 days	2 per season Trigger: 12,400 cfs Volume: 150,000 af Duration: 16 days
		Average	1,650 cfs			
		Wet	3,310 cfs			
Spring	550 cfs	Dry	1,190 cfs	1 per season Trigger: 8,930 cfs Volume: 94,000 af Duration: 13 days	3 per season Trigger: 8,930 cfs Volume: 94,000 af Duration: 13 days	2 per season Trigger: 16,300 cfs Volume: 215,000 af Duration: 19 days
		Average	2,140 cfs			
		Wet	3,980 cfs			
Summer	550 cfs	Dry	930 cfs	1 per season Trigger: 2,460 cfs Volume: 16,400 af Duration: 6 days	3 per season Trigger: 2,460 cfs Volume: 16,400 af Duration: 6 days	2 per season Trigger: 5,430 cfs Volume: 46,300 af Duration: 10 days
		Average	1,330 cfs			
		Wet	2,190 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(19) Brazos River near Rosharon, Texas, generally described as USGS gage 08116650, and more specifically described as Latitude 29 degrees, 20 minutes, 58 seconds; Longitude 95 degrees, 34 minutes, 56 seconds.

Figure: 30 TAC §298.480(19)

United States Geological Survey Gage 08116650, Brazos River near Rosharon

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	430 cfs	Dry	1,140 cfs	1 per season Trigger: 9,090 cfs Volume: 94,700 af Duration: 12 days	3 per season Trigger: 9,090 cfs Volume: 94,700 af Duration: 12 days	2 per season Trigger: 13,600 cfs Volume: 168,000 af Duration: 16 days
		Average	2,090 cfs			
		Wet	4,700 cfs			
Spring	430 cfs	Dry	1,250 cfs	1 per season Trigger: 6,580 cfs Volume: 58,500 af Duration: 10 days	3 per season Trigger: 6,580 cfs Volume: 58,500 af Duration: 10 days	2 per season Trigger: 14,200 cfs Volume: 184,000 af Duration: 18 days
		Average	2,570 cfs			
		Wet	4,740 cfs			
Summer	430 cfs	Dry	930 cfs	1 per season Trigger: 2,490 cfs Volume: 14,900 af Duration: 6 days	3 per season Trigger: 2,490 cfs Volume: 14,900 af Duration: 6 days	2 per season Trigger: 4,980 cfs Volume: 39,100 af Duration: 9 days
		Average	1,420 cfs			
		Wet	2,630 cfs			

cfs = cubic feet per second
 af = acre-feet
 N/A = not applicable

(20) San Bernard River near Boling, Texas, generally described as USGS gage 08117500, and more specifically described as Latitude 29 degrees, 18 minutes, 48 seconds; Longitude 95 degrees, 53 minutes, 37 seconds.

Figure: 30 TAC §298.480(20)

United States Geological Survey Gage 08117500, San Bernard River near Boling

Season	Subsistence	Hydrologic Condition	Base	Dry Condition Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition Seasonal Pulse
Winter	11 cfs	Dry	23 cfs	1 per season Trigger: 510 cfs Volume: 3,710 af Duration: 8 days	3 per season Trigger: 510 cfs Volume: 3,710 af Duration: 8 days	2 per season Trigger: 1,060 cfs Volume: 9,370 af Duration: 12 days
		Average	43 cfs			
		Wet	73 cfs			
Spring	11 cfs	Dry	32 cfs	1 per season Trigger: 350 cfs Volume: 2,360 af Duration: 7 days	3 per season Trigger: 350 cfs Volume: 2,360 af Duration: 7 days	2 per season Trigger: 680 cfs Volume: 5,300 af Duration: 10 days
		Average	53 cfs			
		Wet	85 cfs			
Summer	11 cfs	Dry	64 cfs	1 per season Trigger: 300 cfs Volume: 2,480 af Duration: 9 days	3 per season Trigger: 300 cfs Volume: 2,480 af Duration: 9 days	2 per season Trigger: 470 cfs Volume: 4,050 af Duration: 10 days
		Average	98 cfs			
		Wet	140 cfs			

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

§298.485. Water Right Permit Conditions.

(a) For water right permits with an authorization to store or divert water from the Brazos River and its associated tributaries, and from the Brazos-Colorado Coastal Basin, and to which the environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter.

(b) For water right permits with an authorization to divert water in the Brazos River Basin and the Brazos-Colorado Coastal Basin at a rate less than 20% of the pulse trigger level requirements of an applicable high flow pulse at a measurement point, as described in §298.480 of this title (relating to Environmental Flow Standards), and to which the environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter; however, no special conditions are necessary to preserve or pass that applicable high flow pulse.

(c) For water right permit applications that request only to increase authorized storage by up to 15%, in the Palo Pinto Creek watershed, and to which the

environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter; however, no special conditions are necessary to preserve or pass any otherwise applicable high flow pulses.

§298.490. Schedule for Revision of Standards.

The environmental flow standards or environmental flow set-asides adopted in this subchapter for the Brazos River and its associated tributaries and its associated bay and estuary system and the Brazos-Colorado Coastal Basin may be revised by the commission through the rulemaking process. The final revised rules shall be effective no sooner than ten years from the effective date of this rule, unless the Brazos River and Associated Bay and Estuary System Stakeholder Committee submits a work plan approved by the Environmental Flows Advisory Group under Texas Water Code, §11.02362(p), that provides for a periodic review to occur more frequently. The rulemaking process shall include participation by a balanced representation of stakeholders having interests in the Brazos River and its associated tributaries and its associated bay and estuary system and the Brazos-Colorado Coastal Basin.

**SUBCHAPTER H: RIO GRANDE, RIO GRANDE ESTUARY, AND LOWER
LAGUNA MADRE**

**§§298.500, 298.505, 298.510, 298.515, 298.520, 298.525, 298.530, 298.535,
298.540**

Statutory Authority

These new sections are adopted under Texas Water Code (TWC), §§5.102, concerning General Powers; TWC, 5.103, concerning Rules; and TWC, 5.105 concerning General Policy, which authorize the commission to adopt rules as necessary to carry out its power and duties under the TWC. These new sections are also adopted under TWC, §11.0235, concerning Policy Regarding Waters of the State; TWC, §11.147, concerning Effects of Permit on Bays and Estuaries and Instream Uses; and TWC, §11.1471, concerning Environmental Flow Standards and Set-Asides.

The adopted new sections implement TWC, §§11.0235, 11.147, and 11.1471.

§298.500. Applicability and Purpose.

This subchapter contains the environmental flow standards for the Rio Grande and its associated tributaries. The provisions of this subchapter will prevail over any provisions of Subchapter A of this chapter (relating to General Provisions) that are

inconsistent with this subchapter relating to environmental flow standards and regulation in the Rio Grande basin.

§298.505. Definitions.

The following words or phrases have the following meanings in this subchapter unless the context clearly indicates otherwise:

(1) Average condition--the hydrologic condition that would occur approximately 50% of the time and that is intended to represent periods that are neither dry nor wet.

(2) Dry condition--the hydrologic condition that would occur approximately 15% of the time and that is intended to represent conditions that are dry but are above the subsistence condition.

(3) Fall--the period of time July through October, inclusive.

(4) Spring--the period of time March through June, inclusive.

(5) Sound ecological environment--an environment that sustains the full complement of the current suite of native species in perpetuity, or at least supports the

introduction of extirpated species, 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.

(6) Subsistence condition--the hydrologic condition that would occur approximately 10% of the time and that is intended to represent the driest periods.

(7) Wet condition--the hydrologic condition that would occur approximately 25% of the time and that is intended to represent the wettest conditions.

(8) Winter--the period of time November through February, inclusive.

§298.510. Findings.

For the Rio Grande, and its associated tributaries located within Texas, the commission finds that the environmental flow standards in this subchapter are appropriate environmental flow standards that are adequate to support a sound ecological environment at the locations specified in this subchapter to the maximum extent reasonable considering other public interests and other relevant factors. The commission finds that the sound ecological environment can best be maintained by a set

of flow standards consisting of a schedule of flow quantities that contain subsistence flow, base flows, and high flow pulses at defined measurement points. Minimum flow levels for these components will vary by season and by year since the amount of precipitation and, therefore, whether a system is in subsistence, dry, average, or wet hydrologic conditions, will vary from year to year and within a year from season to season, and the number of pulses will also vary with the amount of precipitation.

§298.515. Set-Asides and Standards Priority Date.

The priority date for the environmental flow standards and set-asides established by this subchapter is July 25, 2012. The priority date for the environmental flow standards will be used in the water availability determination 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, and has no other purpose.

§298.520. Calculation of Hydrologic Conditions.

(a) For new water right authorizations in the Rio Grande Basin which increase the amount of water authorized to be stored, taken, or diverted as described in §298.10 of this title (relating to Applicability), the determination of the hydrologic condition for a particular season shall be determined once per season. The conditions present on the

last day of the month of the preceding season will determine the hydrologic condition for the following season for the applicable measurement point. For each measurement point, cumulative streamflow for the previous 12 months will determine the hydrologic condition.

(b) For purposes of permit special conditions related to hydrologic conditions, for water right applications in the Rio Grande Basin, which increase the amount of water to be stored, taken, or diverted, the hydrologic condition shall be calculated using the full period of record for the United States Geological Survey (USGS) gage or the International Boundary and Water Commission (IBWC) gage, as applicable, at each measurement point such that subsistence conditions occur approximately 10% of the time, dry conditions occur approximately 15% of the time, average conditions occur approximately 50% of the time, and wet conditions occur approximately 25% of the time.

(c) For purposes of water availability determinations, for water right permit applications in the Rio Grande Basin, which increase the amount of water to be stored, taken, or diverted, hydrologic conditions used in the commission's water availability model shall be calculated such that subsistence conditions occur approximately 10% of the time, dry conditions occur approximately 15% of the time, average conditions occur approximately 50% of the time, and wet conditions occur approximately 25% of the

time, based on the period of record and simulated flows of the water availability model.

§298.525. Schedule of Flow Quantities.

(a) Schedule of flow quantities. The environmental flow standards proposed in this subchapter constitute a schedule of flow quantities made up of subsistence flow, base flows, and high flow pulses. Environmental flow standards are established for five measurement points in §298.530 of this title (relating to Environmental Flow Standards) and this section.

(b) Subsistence flow. The applicable subsistence flow standard varies depending on the seasons as described in §298.505 of this title (relating to Definitions) and hydrologic conditions, as described in §298.520 of this title (relating to Calculation of Hydrologic Conditions). For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, the water right holder may not store or divert water under subsistence hydrologic conditions, unless the flow at the measurement point is above the applicable subsistence flow standard for that point. During subsistence hydrologic conditions, if the flow at the measurement point is above the subsistence flow standard but below the applicable dry condition base flow standard, then the water right holder may divert or store water according to its permit, subject to senior and superior water rights, as long as the flow at the measurement point

does not fall below the applicable subsistence flow standard.

(c) Base flow. The applicable base flow standard varies depending on the seasons, as described in §298.505 of this title, and the hydrologic conditions, as described in §298.520 of this title. For a water right holder, to which an environmental flow standard applies, at a measurement point that applies to a water right, the water right holder is subject to a base flow standard for the hydrologic conditions prevailing at the time, i.e., the water right holder will be subject to one of the following: a subsistence, a dry, an average, or a wet base flow standard. For a water right holder to which an environmental flow standard applies, at a measurement point that applies to the water right, when the flow at the applicable measurement point is above the applicable base flow standard, but below any applicable high flow pulse trigger levels, the water right holder may store or divert water according to its permit, subject to senior and superior water rights, as long as the flow at the applicable measurement point does not fall below the applicable base flow standard.

(d) High flow pulses. High flow pulses are relatively short-duration, high flows within the watercourse that occur during or immediately following a storm event.

(1) One or two pulses per season are to be passed (i.e., no storage or diversion by an applicable water right holder), if applicable, and as described in

§298.530 of this title, if the flows are above the applicable subsistence or base flow standard, and if the applicable high flow pulse trigger level is met at the applicable measurement point. The water right holder shall not divert or store water except during times that streamflow at the applicable measurement point exceeds the applicable high flow pulse trigger level and until either the applicable volume amount has passed the measurement point or the applicable duration time has passed since the high flow pulse trigger level occurred. A water right holder can divert water in excess of an applicable pulse flow trigger requirement as long as its diversions do not prevent the occurrence of the pulse flow trigger level of an applicable larger pulse.

(2) If the applicable high flow pulse flow trigger level does not occur in a season, then the water right holder need not stop storing or diverting water to produce a high flow pulse. The water right holder is not required to release water lawfully stored to produce a high flow pulse.

(3) Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.

(4) High flow pulses are independent of the hydrologic conditions set out in §298.520 of this title.

(5) If a pulse flow requirement for an annual pulse is satisfied for a particular season or year, one of the applicable smaller pulse requirements is also considered to be satisfied in that season.

(e) Stored water. A water right owner that has stored water in accordance with the terms and conditions of its water right, including any applicable environmental flow requirement in effect at the time the water was stored, may divert, release, or use this water, even if the applicable environmental flow requirement is not met at the time of the subsequent diversion, release, or use of that stored water.

§298.530. Environmental Flow Standards.

The following environmental flow standards are established for the following described measurement points:

(1) Rio Grande at Johnson Ranch near Castolon, Texas and Santa Elena, Chihuahua, Mexico generally described as International Boundary and Water Commission (IBWC) gage 08-3750.00, and more particularly described as Latitude 29 degrees, 02 minutes, 05 seconds; Longitude 103 degrees, 23 minutes, 25 seconds.

Figure: 30 TAC §298.530(1)

International Boundary and Water Commission Gage 08-3750.00, Rio Grande at Johnson

Ranch

Season	Hydrologic Condition	Subsistence	Base	Annual Pulse (1 per year)
Winter	Subsistence	15 cfs	129 cfs	Trigger: 3,990 cfs Volume: 103,891 af Duration: 5 days
Winter	Dry	N/A	129 cfs	
Winter	Average	N/A	193 cfs	
Winter	Wet	N/A	299 cfs	
Spring	Subsistence	15 cfs	64 cfs	
Spring	Dry	N/A	64 cfs	
Spring	Average	N/A	98 cfs	
Spring	Wet	N/A	178 cfs	
Fall	Subsistence	15 cfs	87 cfs	
Fall	Dry	N/A	87 cfs	
Fall	Average	N/A	154 cfs	
Fall	Wet	N/A	244 cfs	

cfs = cubic feet per second
 af = acre-feet
 N/A = Not Applicable

(2) Rio Grande at Foster Ranch near Langtry, Texas and Rancho Santa Rosa, Coahuila, Mexico generally described as IBWC gage 08-3772.00, and more particularly described as Latitude 29 degrees, 46 minutes, 50 seconds; Longitude 101 degrees, 45 minutes, 30 seconds.

Figure: 30 TAC §298.530(2)

International Boundary and Water Commission Gage 08-3772.00, Rio Grande at Foster Ranch

Season	Hydrologic Condition	Subsistence	Base	Seasonal Pulse
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				(1 per season)
Winter	Subsistence	126 cfs	205 cfs	N/A
Winter	Dry	N/A	205 cfs	
Winter	Average	N/A	259 cfs	
Winter	Wet	N/A	336 cfs	
Spring	Subsistence	114 cfs	171 cfs	Trigger: 2,335 cfs Volume: 38,146 af Duration: 9 days
Spring	Dry	N/A	171 cfs	
Spring	Average	N/A	228 cfs	
Spring	Wet	N/A	313 cfs	
Fall	Subsistence	110 cfs	201 cfs	Trigger: 4,427 cfs Volume: 98,150 af Duration: 16 days
Fall	Dry	N/A	201 cfs	
Fall	Average	N/A	279 cfs	
Fall	Wet	N/A	371 cfs	

(3) Pecos River near Girvin, Texas, generally described as USGS gage 08446500, and more particularly described as Latitude 31 degrees, 06 minutes, 47 seconds; Longitude 102 degrees, 25 minutes, 02 seconds.

Figure: 30 TAC §298.530(3)

United States Geological Survey Gage 08446500, Pecos River near Girvin

Season	Hydrologic Condition	Subsistence	Base	Seasonal Pulse (1 per season)
Winter	Subsistence	8.7 cfs	22 cfs	N/A
Winter	Dry	N/A	22 cfs	

Winter	Average	N/A	27 cfs	
Winter	Wet	N/A	32 cfs	
Spring	Subsistence	6.8 cfs	14 cfs	Trigger: 72 cfs Volume: 1,199 af Duration: 6 days
Spring	Dry	N/A	14 cfs	
Spring	Average	N/A	19 cfs	
Spring	Wet	N/A	25 cfs	
Fall	Subsistence	6.3 cfs	13 cfs	Trigger: 100 cfs Volume: 1,419 af Duration: 7 days
Fall	Dry	N/A	13 cfs	
Fall	Average	N/A	18 cfs	
Fall	Wet	N/A	27 cfs	

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

(4) Devils River at Pafford Crossing near Comstock, Texas, generally described as IBWC gage 08-4494.00, and more particularly described as Latitude 29 degrees, 40 minutes, 35 seconds; Longitude 101 degrees, 00 minutes, 00 seconds.

Figure: 30 TAC §298.530(4)

International Boundary and Water Commission Gage 08-4494.00, Devils River at Pafford Crossing near Comstock

Season	Hydrologic Condition	Subsistence	Base	Seasonal Pulse (1 per season)	Annual Pulse (1 per year)
Winter	Subsistence	84 cfs	175 cfs	N/A	
Winter	Dry	N/A	175 cfs		
Winter	Average	N/A	200 cfs		

Winter	Wet	N/A	243 cfs		Trigger: 3,673 cfs Volume: 34,752 af Duration: 13 days
Spring	Subsistence	91 cfs	160 cfs	Trigger: 558 cfs	
Spring	Dry	N/A	160 cfs	Volume: 17,374 af	
Spring	Average	N/A	207 cfs	Duration: 7 days	
Spring	Wet	N/A	253 cfs		
Fall	Subsistence	87 cfs	166 cfs	Trigger: 1,872 cfs	
Fall	Dry	N/A	166 cfs	Volume: 27,781 af	
Fall	Average	N/A	206 cfs	Duration: 9 days	
Fall	Wet	N/A	238 cfs		

cfs = cubic feet per second

af = acre-feet

N/A = not applicable

§298.535. Water Right Permit Conditions.

For water right permits with an authorization to store or divert water in the Rio Grande Basin, to which the environmental flow standards apply, that are issued after the effective date of this subchapter, the water right permit or amendment shall contain flow restriction special conditions that are adequate to protect the environmental flow standards of this subchapter.

§298.540. Schedule for Revision of Standards.

The environmental flow standards adopted in this subchapter for the Rio Grande, and its associated tributaries in Texas, may be revised by the commission through the

rulemaking process. The final revised rules shall be effective no sooner than ten years from the effective date of this rule, unless the Rio Grande Basin, Rio Grande estuary, and Lower Laguna Madre Stakeholder Committee submits a work plan approved by the advisory group under Texas Water Code, §11.02362(p), that provides for a periodic review to occur more frequently. The rulemaking process shall include participation by a balanced representation of stakeholders having interests in the Rio Grande, its associated tributaries, Rio Grande estuary and Lower Laguna Madre.