

The Texas Commission on Environmental Quality (TCEQ or commission) proposes 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.

### **Background and Summary of the Factual Basis for the Proposed 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 proposes 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](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](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](http://www.tceq.texas.gov/permitting/water_rights/eflows/rio-grande-rio-grande-estuary-and-lower-laguna-madre)*.

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

adopt environmental flow standards as required under TWC, §11.02362(d). This proposed 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. The commission specifically invites commenters to provide any relevant information that may differ from its proposed standards, which in the commenter's opinion would assist the commission in deciding on final environmental flow standards. The final environmental flow standards may either be higher or lower than the environmental flow standards in this proposed rule and may include additional components consistent with the recommendations of the stakeholder committee report. The commission invites comments on all aspects of the stakeholder committee report.

*§298.400, Applicability and Purpose*

The commission proposes new §298.400 to describe the purpose of Subchapter F and under what circumstances it applies.

*§298.405, Definitions*

The commission proposes new §298.405. The proposed 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 proposed standards. In §298.405(1), (6), (8), and (11) the commission proposes definitions for "Fall," "Spring," "Summer," and "Winter" because the proposed 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 proposes a definition for "Inflow regime" because the proposed freshwater inflow standards for Nueces Bay and Delta vary by season and year. In §298.405(3), (9), and (10) the commission proposes definitions for "Modeled permitting frequency," "Target volume," and "Target frequency." These frequencies and quantities are used for the sole purpose of providing additional freshwater inflows to Nueces Bay and Delta through voluntary strategies. In §298.405(4) and (5) the commission proposes definitions for "Nueces Bay," and "Nueces Delta" to set out the geographical extent of the area to be supported by the proposed freshwater inflow standards, and to specify areas of interest for §298.410, Findings. Finally, in §298.405(7) the commission proposes a definition for "Sound ecological environment" for this basin and bay system. This proposed definition is based on the definition recommended by the stakeholders.

*§298.410, Findings*

The commission proposes new §298.410 regarding findings related to sound ecological environments. The proposed finding regarding the ecological environment is consistent with the stakeholder report. Information on the commission's reasoning for the proposed schedule of flow quantities and environmental flow standards can be found in this preamble under the analyses for §298.425 and §298.430. This proposed new section would implement TWC, §11.1471.

*§298.415, Set-Asides and Standards Priority Date*

The commission proposes 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 proposed §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 proposes new §298.425 regarding the schedule of flow quantities. The commission proposes 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 proposed 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 proposes 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 proposed 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 proposed 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 proposed rule does not require that the water right holder produce a pulse flow, because pulses occur when there are high rainfall events. The commission does propose that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. The commission's proposed 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. The commission also proposes 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 small, medium, or large seasonal high flow pulses or annual pulses identified in the commission's proposed 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 commission proposes that pulse flows not be tied to a hydrologic condition. In addition, the proposed 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 proposed 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 proposes 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 proposed 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 proposes a dual set of recommendations for freshwater inflows to Nueces Bay and Delta. The commission does not propose specific frequencies for use in water availability determinations in the proposed rule because WAMs change as new permits and amendments are added. The proposed 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 proposes 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 proposes 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 proposes 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 TCEQ's 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 proposed 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 proposed 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 proposed 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 proposed this rule, daily discharge information 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 proposed environmental flow standards at this location.

The proposed high flow pulse standards are generally based on recommendations of the stakeholders. 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 proposed 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 proposed 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 proposed 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 proposed 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 proposed standards on unappropriated water. The remaining unappropriated water in the Nueces River Basin and the Nueces-Rio Grande Coastal Basin, before application of the proposed 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](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 considered whether reduction of the proposed 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 proposed standards.

The proposed rule does not set aside any unappropriated water to protect the proposed 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 proposed new section would implement TWC, §11.1471.

*§298.435, Water Right Permit Conditions*

The commission proposes new §298.435 relating to water right permit conditions. The proposed 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 proposed 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 proposed new section would implement TWC, §11.134(b)(3)(D) and §11.1471.

*§298.440, Schedule for Revision of Standards*

The commission proposes new §298.440 to provide the schedule for re-examination of the environmental flow standards. The proposed 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 before 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 proposed new section would implement TWC, §11.1471(f).

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

The commission proposed 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 proposes environmental flow standards as required under TWC, §11.02362(d). This proposed 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. The commission

specifically invites commenters to provide any relevant information that may differ from its proposed standards, which in the commenter's opinion would assist the commission in deciding on final environmental flow standards. The final environmental flow standards may either be higher or lower than the environmental flow standards in this proposed rule and may include additional components consistent with either the recommendations of the full stakeholder committee or the recommendations included in the minority report. The commission invites comments on all aspects of the full stakeholder committee report, which includes the minority report.

*§298.450, Applicability and Purpose*

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

*§298.455, Definitions*

The commission proposes new §298.455. The proposed 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 §298.455 (1), (3), and (12) the commission proposes definitions for "Average condition," "Dry condition," and "Wet

condition" because the proposed environmental flow standards vary according to hydrologic condition. A range of flow conditions - average, dry, and wet - is proposed to be defined as the stakeholders recommended. In §298.455(2), the commission proposes a definition of "Climatic division" to be used solely for the purpose of calculating the PHDI value, as set out in §298.470. In §298.455 (4), (5), and (11) the commission proposes 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 proposes definitions for "PHDI" or Palmer Hydrologic Drought Index 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 proposes definitions for the seasons "Spring," "Summer," and "Winter" because the proposed 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.

*§298.460, Findings*

The commission proposes new §298.460 regarding findings related to sound ecological environments. The proposed finding regarding the ecological environment is consistent with the science team and stakeholder reports. The commission's reasoning for the proposed 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 proposed new section would implement TWC, §11.1471.

*§298.465, Set-Asides and Standards Priority Date*

The commission proposes 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 smaller applicants for new appropriations because under proposed §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. 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.

*§298.470, Calculation of Hydrologic Conditions*

The commission proposes new §298.470 to explain the determination of hydrologic conditions for implementation and application of the standards to water right permits to which the proposed standards apply. The hydrologic conditions are based on the recommendations of the stakeholders. The commission proposes 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 proposed 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, Definitions. The commission proposes new §298.470(b) to set out the percentage of each climate division within each geographic area.

The commission proposes 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

proposes a PHDI Index that determines which base 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. The commission also proposes new §298.470(d) to provide for ongoing, periodic revisions of the hydrologic conditions.

*§298.475, Schedule of Flow Quantities*

The commission proposes new §298.475 regarding the schedule of flow quantities. The commission proposes 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 proposed 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 proposed 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. 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.

The commission's proposed 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 proposed 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 also 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 the proposed rule.

The proposed 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 proposed rule does provide that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. The commission's proposed 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 proposed 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 proposed 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 proposed 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 proposed 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 proposes to substitute 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. The proposed high flow pulse standards are based on the recommendations of the majority of the stakeholders. The commission's proposed rule corrects a typographical error in the stakeholders' recommendation for the four 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 proposed 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 and also performed his own analysis. 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 North Fork 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 proposed 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. Applying either no instream flow requirement or the default methodology produces an annual availability of 54%. Application of the recommendation of the minority stakeholders produces an annual availability of 19%. Finally, application of the stakeholders' recommendation produces an annual availability of 28%. 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](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 proposed standards would result in a significant increase in unappropriated water in the Brazos River Basin and found that it did not.

The proposed rule does not set aside any unappropriated water to protect the proposed 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 proposed new §298.485 relating to water right permit conditions. The proposed 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 proposed 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 proposed new section would implement TWC, §11.134(b)(3)(D) and §11.1471.

*§298.490, Schedule for Revision of Standards*

The commission proposes 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 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 proposed new section would implement TWC, §11.1471(f).

*Subchapter H: Rio Grande, Rio Grande Estuary, and Lower Laguna Madres*

The commission proposes 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. The commission must now adopt environmental flow standards as required under TWC, §11.02362(d). This proposed 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. The commission specifically invites commenters to provide any relevant information that may differ from its proposed standards, which in the commenter's opinion would assist the commission in deciding on final environmental flow standards. The final environmental flow standards may either be higher or lower than the environmental flow standards in this proposed rule and may include additional components consistent with the recommendations of the science team reports or any stakeholder recommendations that may be submitted. The commission invites comments on all aspects of the science team reports or any stakeholder report that may be submitted.

*§298.500, Applicability and Purpose*

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

*§298.505, Definitions*

The commission proposes new §298.505. The proposed 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 proposed standards. In §298.505(1), (2), (6), and (7) the commission proposes definitions for "Average condition," "Dry condition," "Subsistence condition," and "Wet condition" because the proposed environmental flow standards vary according to hydrologic condition. A range of flow conditions - average, dry, subsistence, and wet - is proposed to be defined as the science team recommended. In §298.505(3), (4), and (7), the commission proposed definitions for "Fall," "Spring," and "Winter," because the proposed 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 proposes a definition for "Sound ecological environment" for the Rio Grande, and its associated tributaries in Texas. This proposed definition is

based on the definition recommended by the science team.

*§298.510, Findings*

The commission proposes new §298.510 regarding findings related to sound ecological environments. The proposed finding regarding the ecological environment is consistent with the Upper Rio Grande science team report. Information on the commission's reasoning for the proposed schedule of flow quantities and environmental flow standards can be found in this preamble under the analyses for §298.525 and §298.530. This proposed new section would implement TWC, §11.1471.

*§298.515, Set-Asides and Standards Priority Date*

The commission proposes 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 proposes new §298.520 to explain the determination of hydrologic conditions for implementation and application of the standards to water right permits to which the proposed 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. The commission's proposed 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 proposes new §298.525 regarding the schedule of flow quantities. The commission proposes 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 proposed 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 proposes 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 proposed 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 proposed 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 proposed rule does not require that the water right holder produce a pulse flow, because pulses occur when there are high rainfall events. The commission does propose that during these high rainfall events, the applicable high flow pulse be allowed to pass downstream. Under the commission's proposed 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 also proposes 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 proposed 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 commission proposes that pulse flows not be tied to a hydrologic condition. In addition, the proposed 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 proposed 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 proposes 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 proposed 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 proposed 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 proposed rule.

For the Rio Grande above the Amistad/Falcon reservoir system, the commission proposes 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 proposed base flow and subsistence flow standards are generally those recommended by the science team. The proposed 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 proposed 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.

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 proposed standards.

For the proposed 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 proposed 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 proposed 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 proposed standards.

The proposed rule does not set aside any unappropriated water to protect the proposed 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 proposed new section would implement TWC, §11.1471.

*§298.535, Water Right Permit Conditions*

The commission proposes new §298.535 relating to water right permit conditions. The proposed 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 proposed new

section would implement TWC, §11.134(b)(3)(D) and §11.1471.

*§298.540, Schedule for Revision of Standards*

The commission proposes new §298.540 to provide the schedule for re-examination of the environmental flow standards. The proposed 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 before 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 proposed new section would implement TWC, §11.1471(f).

**Fiscal Note: Costs to State and Local Government**

Nina Chamness, Strategic Planning and Assessment Section Analyst, has determined that for the first five-year period the proposed rules are in effect, no significant fiscal implications are anticipated for the agency or for other units of state or local

government as a result of administration or enforcement of the proposed rules.

The proposed rulemaking implements SB 3 and HB 3 from the 80th Legislative Session by adopting appropriate environmental flow standards for the Brazos and Nueces River and for the Rio Grande Basin. Any governmental entity that applies for a new appropriation of water could potentially be affected by the environmental flow standards, including river authorities, cities, and water districts.

The rulemaking does not propose any new fees nor does it change existing ones. The proposed rulemaking does propose specific standards that will be applied by TCEQ staff during the technical review of applications for new appropriations of water. These proposed standards are the result of stakeholder recommendations and will replace the methodology currently used to determine streamflow requirements. Once the environmental flow standards are adopted, the standards will be a part of the commission's water rights permitting process.

The proposed standards may reduce the number of new appropriations and permit amendments that would increase the amount of water to be taken, stored, or diverted, and therefore could result in an applicant having to secure an additional source of water. However, under existing practice streamflow restrictions are currently applied to new appropriations of water. The environmental flow standards as proposed in the rules are

expected to function similarly to current streamflow restrictions. Any effect of the proposed rules on an application for new appropriations would depend upon the type of application, the location of the application in the river basin, bay and estuary inflow requirements, and the overall water availability in that basin. In the Brazos and Nueces River Basins, staff's preliminary analysis indicates that the impacts may be greater for applications for direct diversions than for applications that include storage. In addition, for applications for new water in the Nueces River Basin, bay and estuary inflow requirements would be considered in availability determinations. No impacts are expected for the Rio Grande Basin since all available water has been appropriated and none is available for new permits.

Because the proposed standards are expected to function similarly to current streamflow restrictions for applications, the proposed standards are not expected to have significant fiscal implications for units of state or local government including river authorities, cities, or water districts.

### **Public Benefits and Costs**

Ms. Chamness has also determined that for each year of the first five years the proposed new rules are in effect, the public benefit anticipated from the changes seen in the proposed rules will be to provide certainty for the state's water management and development as well as adequate protection of the state's streams, rivers, bays, and

estuaries.

The proposed rules are not anticipated to have significant fiscal implications for businesses or individuals. The proposed rules will provide appropriate environmental flow standards for the river and bay systems of the Brazos and Nueces River Basins, and the Rio Grande River Basin. However, any business or individual who applies for a new appropriation of water could potentially be affected by the proposed environmental flow standards. The effect of the proposed rules on an applicant would depend on the type of application, the location in the river basin, bay and estuary inflow requirements, and the overall water availability in that basin.

In the Brazos and Nueces River Basins, staff's preliminary analysis indicates that the impacts may be greater for applications for direct diversions than for applications that include storage. In addition, for applications for new water in the Nueces River Basin, bay and estuary inflow requirements would be considered in availability determinations. No impacts are expected for the Rio Grande Basin since all available water has been appropriated and none is available for new permits.

Because the proposed rules may affect new appropriations and amendments that increase the amount of water to be taken, stored, or diverted, an applicant may have to secure an additional source of water. If a business is a water supplier and applies for a

new appropriation of water and the availability for the appropriation is reduced, then individual water customers may see an increase in costs for water. However, streamflow restrictions are currently applied to new appropriations of water and the proposed standards are expected to function similarly to current streamflow restrictions for applications. Therefore, the proposed standards are not expected to have significant fiscal implications for businesses and individuals.

#### **Small Business and Micro-Business Assessment**

No adverse fiscal implications are anticipated for small or micro-businesses as a result of the administration or implementation of the proposed rules. The proposed rules will provide appropriate environmental flow standards for the river and bay systems of the Brazos and Nueces River Basins as well as the Rio Grande River Basin. The proposed rules may affect new appropriations and amendments that increase the amount of water to be taken, stored, or diverted, which could result in an applicant having to secure an additional source of water. However, because streamflow restrictions are currently applied to new appropriations of water under existing practice and the proposed environmental flow standards would function similarly to current streamflow restrictions, no adverse fiscal implications are anticipated for small or micro-businesses.

#### **Small Business Regulatory Flexibility Analysis**

The commission has reviewed this proposed rulemaking and determined that a small

business regulatory flexibility analysis is not required because the proposed rules are not expected to adversely affect small or micro-businesses for the first five years that they are in effect. In addition, the proposed rules are required in order to implement state law and are necessary to protect public health, safety, and the environment.

### **Local Employment Impact Statement**

The commission has reviewed this proposed rulemaking and determined that a local employment impact statement is not required because the proposed rules do not adversely affect a local economy in a material way for the first five years that the proposed rules are in effect.

### **Draft Regulatory Impact Analysis Determination**

The commission evaluated these proposed rules and performed an analysis of whether these proposed 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, and 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 agency 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 a 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.

Written comments on the draft regulatory impact analysis determination may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

### **Takings Impact Assessment**

The commission evaluated these proposed rules and performed analysis of whether these proposed 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, and 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 proposed 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 proposed 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 environmental 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 proposed rules in accordance with Coastal Coordination Act Implementation Rules, 31 TAC §505.22, and found the proposed rulemaking is consistent with the applicable CMP goals and policies.

CMP goals applicable to the proposed 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 proposed rules include those contained in 31 TAC §501.33.

The proposed 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 proposed 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 proposed 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 proposed rules is to protect coastal natural resources.

Written comments on the consistency of this rulemaking may be submitted to the contact person at the address listed under the Submittal of Comments section of this preamble.

### **Announcement of Hearing**

The commission will hold a public hearing on this proposal in Austin on October 15, 2013 at 10:00 a.m. in Building E, Room 201S, at the commission's central office located at 12100 Park 35 Circle. The hearing is structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called

upon in order of registration. Open discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes prior to the hearing.

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Sandy Wong, Office of Legal Services at (512) 239-1802. Requests should be made as far in advance as possible.

### **Submittal of Comments**

Written comments may be submitted to Charlotte Horn, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. Electronic comments may be submitted at: <http://www5.tceq.texas.gov/rules/ecomments/>. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference Rule Project Number 2013-009-298-OW. The comment period closes October 21, 2013. Copies of the proposed rulemaking can be obtained from the commission's Web site at [http://www.tceq.texas.gov/nav/rules/propose\\_adopt.html](http://www.tceq.texas.gov/nav/rules/propose_adopt.html). For further information, please contact Ron Ellis, Water Rights Permitting and Availability Section, at 512/239-1282.

**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 proposed 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 proposed 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 proposed 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. 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.

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

(5) Nueces Delta--an area of vegetated marshes, mud flats, and open water formed where the Nueces River flows into Nueces Bay.

(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 which are used for the

sole 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

<b>Inflow Regime</b>	<b>Target Volume November - February (Target Frequency)</b>	<b>Target Volume March - June (Target Frequency)</b>	<b>Target Volume July - October (Target Frequency)</b>	<b>Target Volume Annual Inflow Target (Target Frequency)</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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			

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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
Subsistence Flow	11 cfs	10 cfs	10 cfs	10 cfs
Base Flow	61 cfs	61 cfs	47 cfs	55 cfs
Small	N/A	Trigger: 120 cfs	N/A	N/A

Seasonal Pulse (2 per season)		Volume: 1,320 af Duration: 8 days		
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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	Trigger: 61 cfs Volume: 1,020 af	Trigger: 290 cfs Volume: 3,360 af	Trigger: 90 cfs Volume: 890 af	Trigger: 50 cfs Volume: 580 af

Pulse (1 Per season)	Duration: 15 days	Duration: 18 days	Duration: 12 days	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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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			

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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
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 Pulse (1 Per season)	N/A	N/A	Trigger: 21 cfs Volume: 160 af Duration: 8 days	N/A

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

	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>	<b>Fall</b>
Subsistence Flow	1 cfs	1 cfs	1 cfs	1 cfs
Base Flow	2 cfs	2 cfs	1 cfs	1 cfs
Small	N/A	Trigger: 14 cfs	N/A	N/A

Seasonal Pulse (2 per season)		Volume: 100 af Duration: 7 days		
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-foot  
 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 proposed 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 proposed 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 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 subsistence, 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 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.

(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.

(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
--	--	-----	--------	---------------------------	---------------------------------	----------------------------------

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
--	--	-----	-------	---------------------------	---------------------------	----------------------------------

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	1 cfs	N/A	N/A	1 per season Trigger: 26 cfs Volume:158 af Duration: 9 days
		Average	4 cfs			
		Wet	7 cfs			
Spring	1 cfs	Dry	5 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	10 cfs			
Summer	1 cfs	Dry	11 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	15 cfs			

		Wet	16 cfs	Duration: 2 days	af Duration: 2 days	af Duration: 5 Days
--	--	-----	--------	------------------	------------------------	------------------------

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 Seasonal Pulse	Average Condition Seasonal Pulse	Wet Condition 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		3,090 cfs Volume: 21,200 af Duration: 12 days	3,090 cfs Volume: 21,200 af Duration: 12 days
--	--	-----	---------	--	---	---

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:

		Average	8 cfs			130 cfs Volume: 500 af Duration: 6 days
		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:	3 per season Trigger: 1,980 cfs Volume:	2 per season Trigger: 4,160 cfs Volume:
		Average	250 cfs			

		Wet	590 cfs	10,500 af Duration: 7 days	10,500 af Duration: 7 days	26,400 af Duration: 10 days
--	--	-----	---------	----------------------------------	----------------------------------	-----------------------------------

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	3 per season Trigger: 58 cfs Volume: 220 af Duration: 4	2 per season Trigger: 140 cfs Volume: 600 af Duration: 6
		Average	12 cfs			
		Wet	27 cfs			

				days	days	days
--	--	--	--	------	------	------

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 proposed 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 proposed 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 proposed 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 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 or base flow 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	1 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
--------	----------------------	-------------	------	----------------

				<b>(1 per season)</b>
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

<b>Season</b>	<b>Hydrologic Condition</b>	<b>Subsistence</b>	<b>Base</b>	<b>Seasonal Pulse (1 per season)</b>
Winter	Subsistence	8.7 cfs	22 cfs	Trigger:

Winter	Dry	N/A	22 cfs	231 cfs Volume: 1,581 af Duration: 6 days
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		Trigger: 3,673 cfs Volume: 34,752 af Duration: 13 days
Winter	Average	N/A	200 cfs		
Winter	Wet	N/A	243 cfs		
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.