
MEMORANDUM

TO: SABINE AND NECHES RIVERS AND SABINE LAKE BAY BASIN AND BAY AREA STAKEHOLDER COMMITTEE (SABINE-NECHES BBASC)

FROM: JERRY L. CLARK, CHAIRMAN

SUBJECT: MATERIALS FOR 30 NOVEMBER 2010 SABINE-NECHES BBASC MEETING

DATE: 11/19/2010

CC: SABINE-NECHES BBEST, TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

INTRODUCTION

The purpose of this memorandum is to follow-up on the 4 November 2010 email to the Sabine-Neches BBASC regarding BBASC assignments to the Sabine and Neches Rivers and Sabine Lake Bay Basin and Bay Expert Science Team (Sabine-Neches BBEST), in preparation for our 30 November 2010 BBASC meeting.

BACKGROUND

- The Sabine-Neches BBASC in its May 2010 Recommendations Report recommended that neither environmental flow standards nor environmental flow set-asides should be established until more information is available regarding the amount of water needed to support a sound ecological environment.
- The TCEQ in issuing its draft proposed §298 rules utilized the flow regime recommendations from the Sabine-Neches BBEST that were developed without regard to the needs for water for other purposes, including man's needs.
- In light of the proposed rules publication, which doesn't adequately consider the present and future needs for water for other purposes, including man's needs, the Sabine-Neches BBASC decided to submit a flow regime that considers the need for water for other uses related to water supply planning. A strong consideration for this proposed regime is its impact on water supply strategies for the State of Texas.
- The BBASC is also charged with development of the Work Plan related to specific monitoring, studies, and activities needed to perform analyses to determine flows which are needed to support a sound ecological environment as defined by the Sabine-Neches BBASC to reflect balancing the needs of Texas citizens with that of the environment.

TASKS ASSIGNED TO THE SABINE-NECHES BBEST

At the 27 October 2010 Sabine-Neches BBASC Meeting, the BBASC directed the BBEST to assist them with two specific work task assignments to accomplish the task of submitting a balanced flow regime and develop an environmental flows draft work plan. Specifically, the two assignments by the BBASC are as follows:

1. Determine the impacts upon water supply strategies of a proposed BBASC flow regime for TCEQ standards that balances the Sabine-Neches BBEST HEFR¹-based environmental flow recommendations that are in the current proposed standards with the need for other uses, including the needs of man.
2. Provide assistance to the BBASC for development of the draft Work Plan related to specific monitoring, studies, and activities needed to perform analyses to determine flows which are needed to support a sound ecological environment as defined by the Sabine-Neches BBASC to reflect balancing the needs of Texas citizens with that of the environment.

The two Sabine-Neches BBEST subcommittees (BBASC Flow Regime Review Subcommittee and Work Plan Monitoring, Studies, and Activities Subcommittee) have completed their respective tasks, as described in *italics* below.

TASK 1: SABINE-NECHES BBASC FLOW REGIME

BBASC Flow Regime Review Subcommittee – A S-N BBEST subcommittee consisting of Jack Tatum and Scott Hall, co-chairs, Gary Graham, Roger Kelley, David Parkhill, and Sam Vaughn were requested to evaluate flow regimes of interest to the SN-BBASC at eleven measurement points (USGS gages) to provide needed assistance to the S-N BBASC in fulfillment of their charge to consider them in conjunction with other factors, including the present and future needs for water for other uses related to water supply planning. Note that the measurement location, Attoyac Bayou near Chireno, Texas (USGS gage 08038000) is not recommended for further definition.

TASK 2: DRAFT WORK PLAN (11/19/2010)

Work Plan Monitoring, Studies, and Activities Subcommittee – A S-N BBEST subcommittee consisting of Jack Tatum and Scott Hall, co-chairs, Dr. Richard Harrel, Rex Hunt, Dr. Matthew McBroom, Dr. Jack McCullough, and Dr. Kirk Winemiller are requested to provide assistance to the S-N BBASC for the draft Work Plan related to specific monitoring, studies and activities needed to perform analyses to determine flows which are needed to support a sound ecological environment as defined by the S-N BBASC.

¹ The Hydrology-Based Environmental Flow Regime (HEFR) methodology consists of statistical calculations of hydrologic data for the purpose of populating a preliminary flow regime matrix. See for example, TCEQ, http://www.tceq.state.tx.us/permitting/water_supply/water_rights/eflows/resources.html (accessed 11/17/2010)

TASK EVALUATION PROCESS

TASK 1: SABINE-NECHES BBASC FLOW REGIME

- The Sabine-Neches BBASC, in developing a flow regime, began with the recommendations in the Sabine-Neches BBEST Recommendations Report.
- The Sabine-Neches BBASC selected from the Sabine-Neches BBEST flow regimes a schedule of flow quantities representing subsistence, base, and high flow pulses which reflect seasonal and yearly fluctuations that vary geographically by the eleven specific locations in the Sabine and Neches River Basins chosen by the Sabine-Neches BBEST.
- The Sabine-Neches BBASC selected flow regimes are presented in the tables for the Sabine and Neches River Basins on page 4 and page 5 respectively.
- The BBASC directed a BBASC Flow Regime Review Subcommittee of the BBEST to determine the impacts upon water supply strategies of the selected BBASC flow regimes, and to determine how the selected regimes balance the Sabine-Neches BBEST HEFR-based environmental flow recommendations that are in the current proposed standards with the need for other uses, including the needs of man.
- The Bon Wier historic hydrologic dataset presented some problems for the BBEST analysis developed during the recommendations phase of the SB3 program. In the HEFR analyses for Sabine-Neches BBEST, the Bon Wier gage appeared to have discrepancies and counter-intuitive flow measurements when compared to the downstream Ruliff gage. Because of these discrepancies, the Bon Wier gage should not be used as a measuring point for environmental flows for the lower Sabine River at this time.
- To determine the impacts upon water supply strategies of the proposed BBASC flow regime, an analysis was run comparing the environmental flow recommendations in the proposed TCEQ standards with the proposed BBASC flow regime in the Sabine and Neches River Basins at representative locations. (See the graphs for the Sabine and Neches River Basins on page 6 and page 7 respectively).

TASK 2: DRAFT WORK PLAN (11/19/2010)

The Sabine-Neches BBASC has prepared a revised Draft Work Plan as a stand alone document for review and consideration at the 30 November 2010 BBASC meeting. As requested, the BBEST Work Plan Monitoring, Studies, and Activities Subcommittee as requested has provided assistance to the Sabine-Neches BBASC for the Draft Work Plan related to specific monitoring, studies, and activities needed to perform analyses to determine flows which are needed to support a sound ecological environment as defined by the Sabine-Neches BBASC.

| | | Table 1 Sabine River and Tributaries | | | | | |
|---------------|--------------------|--|---|---|--|---|--|
| | | BBASC Recommended E-flow (cfs) by location, season, and flow status | | | | | |
| Season | Flow Status | BSBS | SRGW | SRBE | SRBW* | n/a** | SRRL |
| | | Big Sandy Creek near Big Sandy, TX | Sabine River near Gladewater, TX | Sabine River near Beckville, TX | Sabine River near Bon Wier, TX | Big Cow Creek near Newton, TX | Sabine River near Ruliff, TX |
| Winter | Subsistence | 20 cfs | 45 cfs | 66 cfs | 479 cfs | 28 cfs | 949 cfs |
| Jan-Feb-Mar | Base | 66 cfs | 277 cfs | 438 cfs | 1,460 cfs | 56 cfs | 1,520 cfs |
| | Pulse | None Required | None Required | None Required | None Required | None Required | None Required |
| Spring | Subsistence | 9 cfs | 22 cfs | 28 cfs | 279 cfs | 20 cfs | 436 cfs |
| Apr-May-Jun | Base | 30 cfs | 119 cfs | 232 cfs | 857 cfs | 38 cfs | 1,208 cfs |
| | Pulse 1 per season | Trigger: 313 cfs Duration: 13 days Volume: 5,062 ac-ft | Trigger: 1,580 cfs Duration: 16 days Volume: 51,150 ac-ft | Trigger: 2,160 cfs Duration: 15 days Volume: 72,092 ac-ft | Trigger: 6,700 cfs Duration: 12 days Volume: 151,163 ac-ft | Trigger: 350 cfs Duration: 7 days Volume: 2,545 ac-ft | Trigger: 3,250 cfs Duration: 8 days Volume: 42,883 ac-ft |
| Summer | Subsistence | 8 cfs | 14 cfs | 22 cfs | 241 cfs | 20 cfs | 396 cfs |
| Jul-Aug-Sep | Base | 14 cfs | 34 cfs | 51 cfs | 478 cfs | 28 cfs | 670 cfs |
| | Pulse | None Required | None Required | None Required | None Required | None Required | None Required |
| Fall | Subsistence | 8 cfs | 17 cfs | 22 cfs | 241 cfs | 20 cfs | 396 cfs |
| Oct-Nov-Dec | Base | 20 cfs | 49 cfs | 75 cfs | 478 cfs | 36 cfs | 735 cfs |
| | Pulse 1 per season | Trigger: 130 cfs Duration: 9 days Volume: 2,189 ac-ft | Trigger: 380 cfs Duration: 11 days Volume: 1,098 ac-ft | Trigger: 628 cfs Duration: 9 days Volume: 7,245 ac-ft | Trigger: 2,590 cfs Duration: 7 days Volume: 40,957 ac-ft | Trigger: 322 cfs Duration: 7 days Volume: 2,232 ac-ft | Trigger: 2,020 cfs Duration: 5 days Volume: 17,662 ac-ft |

*Due to uncertainties related to HEFR flow regime values at Bon Wier, it is recommended for consideration by the BBASC that the Bon Wier gage not be used as a measuring point at this time.

**No control point is established within the WAM for this gage.

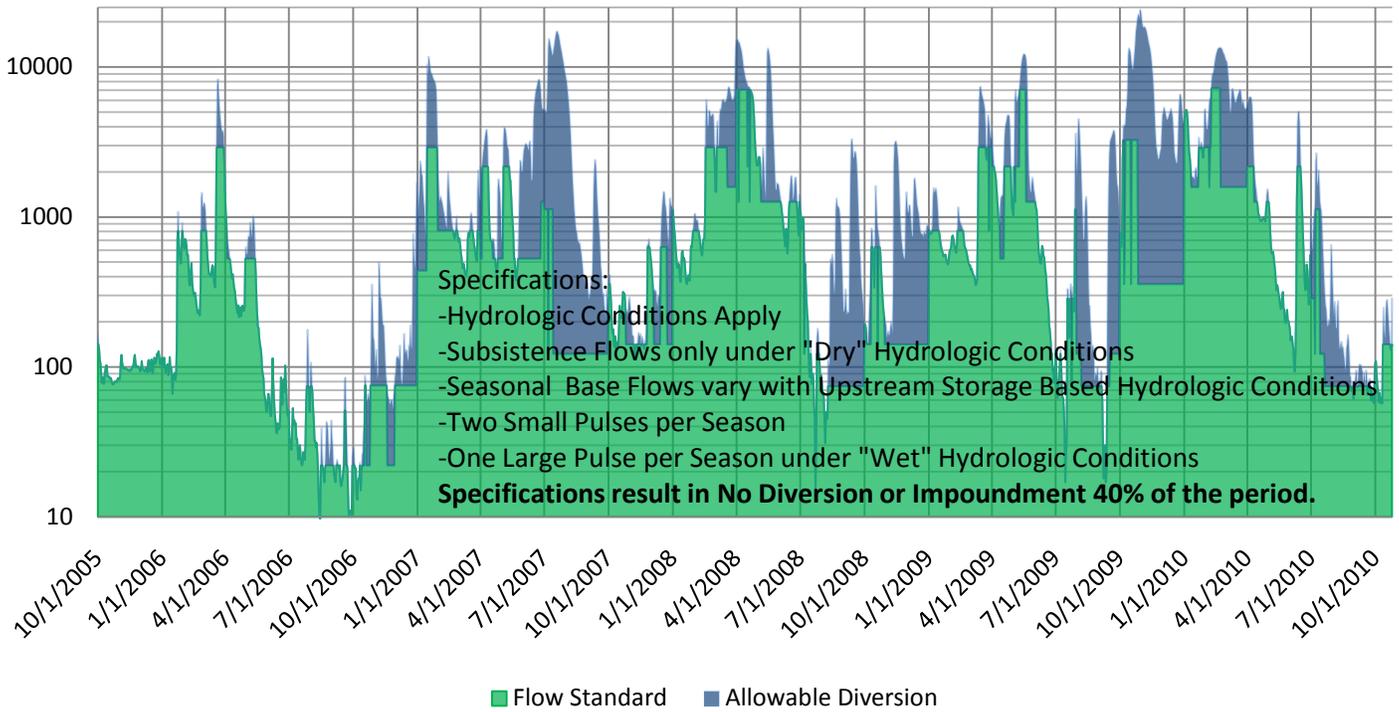
4 All designated flow rates shown in this table represent average daily values in units of cubic feet per second.

| | | Table 2 Neches River and Tributaries | | | | |
|---------------------|--------------------------|--|---|---|---|---|
| | | BBASC Recommended E-flow (cfs) by location, season, and flow status | | | | |
| Season | Flow Status | NENE Neches River near Neches, TX | NERO Neches River near Rockland | ANAL Angelina River near Alto, TX | NEEV Neches River near Evadale, TX | VIKO Village Creek near Kountze, TX |
| Winter | Subsistence | 51 cfs | 67 cfs | 55 cfs | 228 cfs | 83 cfs |
| Jan- Feb- Mar | Base | 178 cfs | 548 cfs | 252 cfs | 1,750 cfs | 240 cfs |
| | Pulse | None Required | None Required | None Required | None Required | None Required |
| Spring | Subsistence | 21 cfs | 29 cfs | 18 cfs | 266 cfs | 49 cfs |
| | Base | 87 cfs | 382 cfs | 82 cfs | 1,640 cfs | 106 cfs |
| Apr- May- Jun | Pulse 1 per season | Trigger: 820 cfs Duration: 12 days Volume: 20,405 ac-ft | Trigger: 1,720 cfs Duration: 12 days Volume: 39,935 ac-ft | Trigger: 1,100 cfs Duration: 14 days Volume: 24,117 ac-ft | Trigger: 3,830 cfs Duration: 12 days Volume: 68,784 ac-ft | Trigger: 1,380 cfs Duration: 13 days Volume: 23,093 ac-ft |
| Summer | Subsistence | 12 cfs | 21 cfs | 11 cfs | 288 cfs | 41 cfs |
| Jul- Aug- Sep | Base | 42 cfs | 61 cfs | 36 cfs | 527 cfs | 70 cfs |
| | Pulse | None Required | None Required | None Required | None Required | None Required |
| Fall | Subsistence | 13 cfs | 21 cfs | 16 cfs | 228 cfs | 41 cfs |
| | Base | 73 cfs | 82 cfs | 47 cfs | 465 cfs | 89 cfs |
| Oct- Nov- Dec | Pulse 1 per season | Trigger: 345 cfs Duration: 8 days Volume: 5,391 ac-ft | Trigger: 515 cfs Duration: 8 days Volume: 8,172 ac-ft* | Trigger: 588 cfs Duration: 12 days Volume: 12,038 ac-ft | Trigger: 1,570 cfs Duration: 7 days Volume: 17,815 ac-ft | Trigger: 712 cfs Duration: 9 days Volume: 11,426 ac-ft |

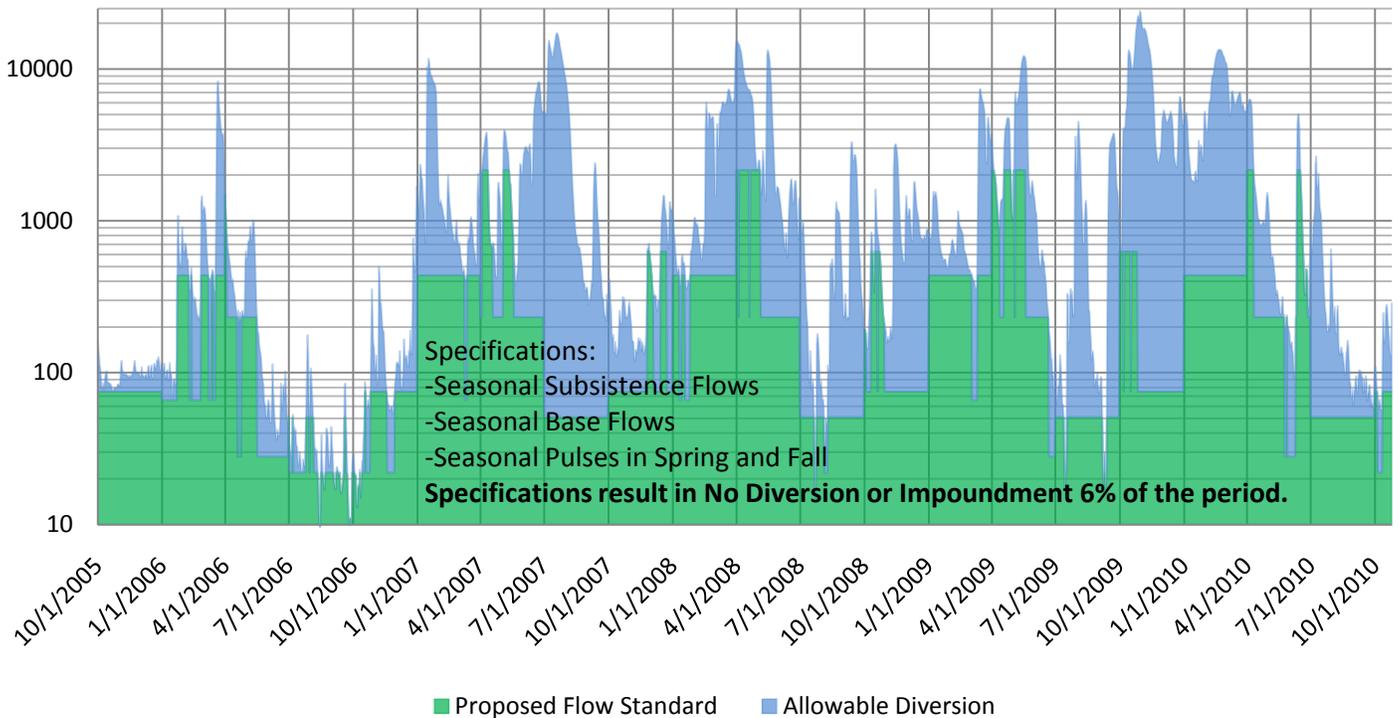
* 8,172 ac-ft is calculated based on trigger flow rate and duration as TCEQ/BBEST published number of 649 ac-ft is obvious error.

All designated flow rates shown in this table represent average daily values in units of cubic feet per second.

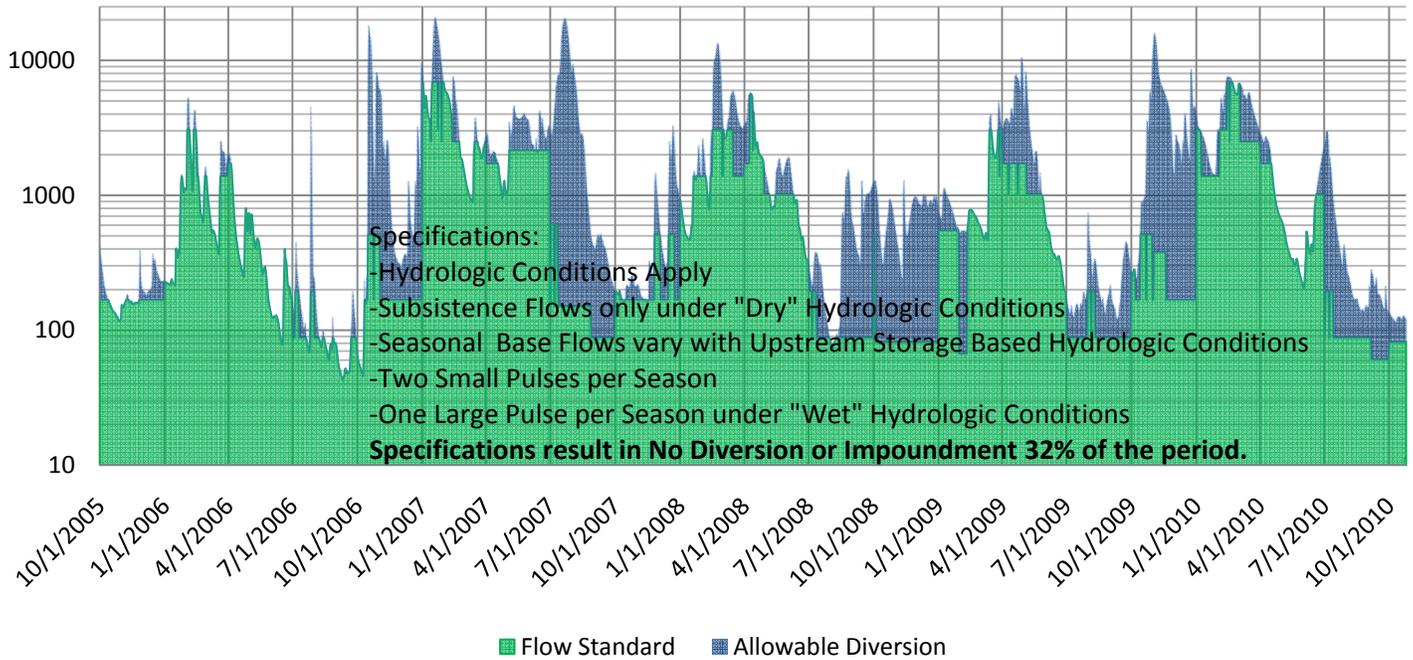
Proposed TCEQ Standards applied to last 5 years Sabine River at Beckville, TX (Gauge SRBE)



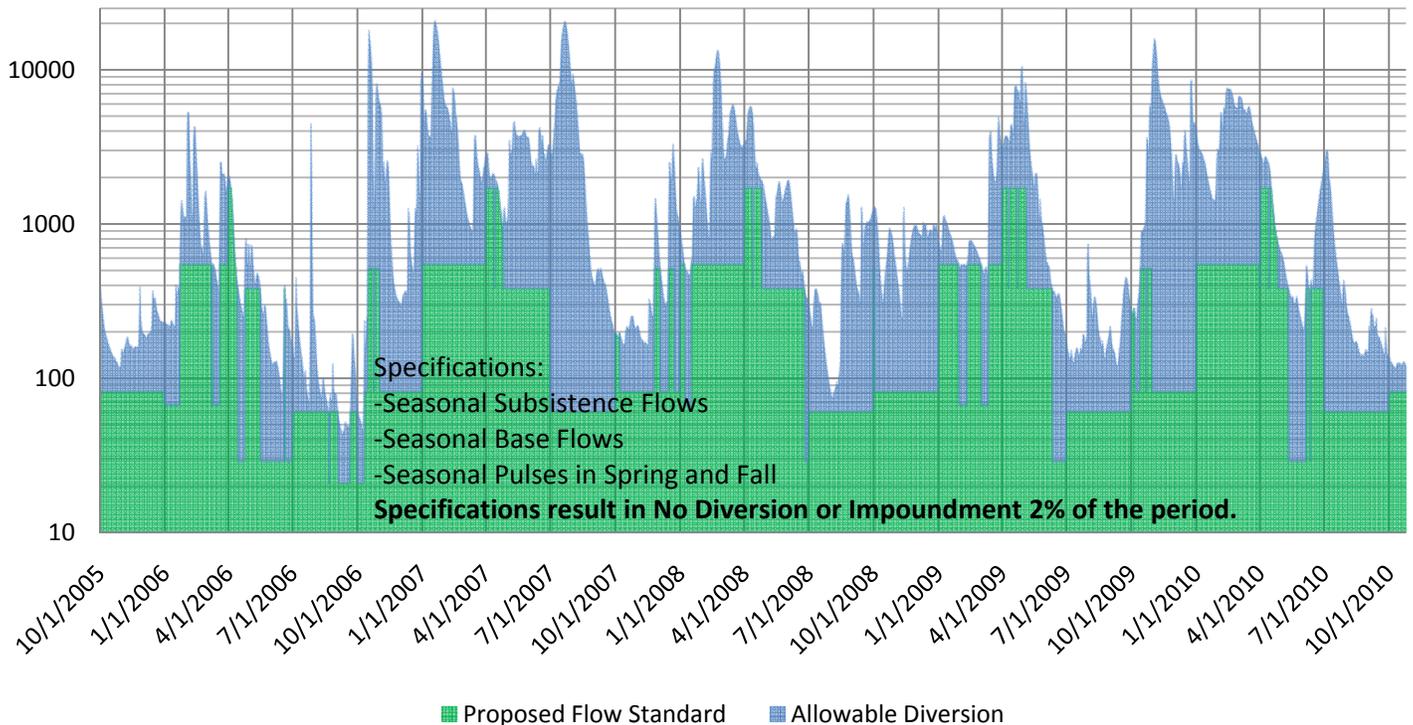
BBASC Recommended Standards applied to last 5 years Sabine River at Beckville, TX (Gauge SRBE)



TCEQ Proposed Standards applied to last 5 years Neches River at Rockland, TX (Gauge NERO)



BBASC Recommended Standards applied to last 5 years Neches River at Rockland, TX



In conclusion, I want to thank the science team members for their assistance and support with their assigned tasks. I look forward to seeing you again at the 30 November 2010 Sabine-Neches BBASC meeting.

Sincerely,

A handwritten signature in black ink that reads "Jerry Clark". The signature is written in a cursive style with a large, sweeping initial "J".

Jerry L. Clark
Sabine-Neches BBASC Chairman