
SABINE RIVER AUTHORITY OF TEXAS

TO: INTERESTED PARTIES
FROM: ENVIRONMENTAL SERVICES DIVISION
RE: DECEMBER 2002 MONTHLY WATER QUALITY REPORT

This is the Sabine River Authority Water Quality Report for December 2002. Water quality sampling was performed December 10th through December 12th. Recent weather in the Basin was cool with daytime high air temperatures from the 40's to the 50's at Lake Tawakoni and Lake Fork, and ranging from 40's to the 60's at Toledo Bend Reservoir and Orange. Lows were mostly in the 20's and 30's at Lake Tawakoni and Lake Fork, 20's through 40's at Toledo Bend, and 30's through 40's in Orange. The Upper Basin received 3.04 – 2.14 inches of rainfall during the 28 days since the previous sample run as recorded at Lake Tawakoni and Lake Fork respectively. All but a few 100ths of an inch was during the previous seven days. Toledo Bend and Orange recorded 3.82 and 10.71 inches respectively during the 28 days preceding the sample run. Reservoir profiles indicated complete mixing of the water column in Lake Tawakoni, Lake Fork and Toledo Bend reservoirs.

UPPER SABINE BASIN ABOVE TOLEDO BEND INCLUDING LAKE FORK AND LAKE TAWAKONI

For the December sample run, most of the parameter's values seen at the Upper Basin sites were consistent with water of high quality. The most recent significant rain was 0.33 inches at Lake Tawakoni and 0.30 inches at Lake Fork within 24 hours of sampling. Lake Tawakoni and Lake Fork recorded an additional 0.5 to 1 inch of rain the previous day. SR22 was significantly influenced by locally heavy rainfall and resulting runoff. This site exceeded numeric criteria for the stream standards for *E. coli*, and had elevated turbidity and total organic carbon. Field notes indicated this site had high flow, a lot of flotsam, and appeared very muddy. The next site downstream, SR21, appeared normal and had not yet been impacted by runoff from upstream. SR21, SR19, SR15, and SR14 also exceeded the numeric criteria for the stream standards for *E. coli*. Surface water temperatures were between 7.1 and 10.6°C at river and reservoir sites. LT23A and LT23D at Lake Tawakoni were slightly over 100% saturated with oxygen indicating a possible moderate algal growth. The nitrate/nitrite level at LF2 exceeded reservoir screening criteria. No stream standards exist for nitrate/nitrite, so screening values are used as a guide. Chloride levels at SR16 exceeded river/stream screening criteria. Stream Standards for Chloride are for annual averages. Screening criteria are used as warning limits. Surface water temperatures near the dams at Lake Tawakoni and Lake Fork were 9.75 and 10.6°C respectively.

SABINE RIVER AUTHORITY OF TEXAS: DECEMBER 2002 MONTHLY WATER QUALITY REPORT

Bottom temperatures at the same sites were essentially the same as their surface temperatures. Lake Tawakoni and Lake Fork were completely mixed.

LOWER SABINE BASIN INCLUDING TOLEDO BEND TO MORGAN BLUFF

The December monthly sampling results were indicative of water of high quality at most sites. The area received heavy rainfall five days prior to the sample run. During that rain event the area received just over three inches of rain over two days. The level of Toledo Bend Reservoir was recorded at 168.36 feet with no gates discharging from the spillway, but the powerhouse was generating at the time of sampling. All lake sites were very well mixed with similar readings throughout the water column at all sites. Several sites displayed high bacterial results, but this is not uncommon following a large rain event like the areas recently experienced. The sites with high results were TB6N, TB6J, TB6F, BA4, BCC1, and SR2.

TIDAL SECTION OF THE SABINE BASIN BELOW MORGAN BLUFF

Stations sampled in the tidal portion of the Sabine Basin had values that were consistent with water of high quality at most sites. The area received very heavy rains seven days prior to the sample event. The southern sections of the area received around four inches of rain during a two-day period, but some sites in northern Orange County received up to seven inches over the same two days. Most sites in this section of the Basin were well mixed with only slight oxygen differences throughout the water column. No recordable salinities were found at any site at any depth. All of the tidal stations had high bacterial results, which could be directly related to the very heavy rains the area received.

This Report and additional data for these monitoring stations are available on our World Wide Web site (www.sra.dst.tx.us). If you have any questions or comments concerning this report, please contact:

- *Upper Sabine Basin*
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SABINE RIVER AUTHORITY OF TEXAS

Monthly Water Quality Report

December 2002

Table of Contents

Upper Sabine Basin

FY2003 Fixed Monitoring Stations.....	1
Surface Report.....	2
Profile Report	9
<i>Lake Tawakoni (near the dam)</i>	10
<i>Lake Fork (near the dam)</i>	11
Weather, River, and Reservoir Data.....	12
<i>Lake Tawakoni</i>	12
<i>Lake Fork</i>	14

Lower Sabine Basin

FY2003 Fixed Monitoring Stations.....	17
Surface Report.....	18
Profile Report	25
<i>Toledo Bend (at Pendleton Bridge)</i>	26
<i>Toledo Bend (above the dam)</i>	27
Weather, River, and Reservoir Data.....	28
<i>Toledo Bend</i>	28
<i>Burkeville</i>	30
<i>Bon Wier</i>	32
<i>Ruliff</i>	34

Tidal Sabine Basin

FY2003 Fixed Monitoring Stations.....	37
Surface Report.....	38
Profile Report	42
Weather, River, and Reservoir Data.....	43
<i>Orange</i>	43

Appendix

FY 2003 Fixed Monitoring Station Maps	
Upper Basin.....	45
Lower Basin	46

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FY2003 Fixed Monitoring Stations

Upper Sabine Basin

<i>SW</i>	<i>Segment Station</i>	<i>Location</i>
7.00	0507 10440 (LT23C)	LAKE TAWAKONI NR WIND POINT PARK
7.00	0507 10435 (LT23D)	LAKE TAWAKONI IN KITSEE INLET NEAR WHITE POINT CAUSEWAY
7.00	0507 10434 (LT23A)	LAKE TAWAKONI IN THE MAIN LAKE NEAR THE DAM
6.12	0512 10461 (LF3)	LAKE FORK RESERVOIR MID-ARM IN CANEY CREEK ARM AT FM 515
6.12	0512 10462 (LF4)	LAKE FORK RESERVOIR MID-COVE IN LAKE FORK CREEK ARM AT FM515
6.12	0512 10458 (LF2)	LAKE FORK RESERVOIR NEAR DAM IN CREEK CHANNEL
6.10	0515 10469 (LF20)	LAKE FORK CREEK AT US 80
6.02	0514 10468 (BS1)	BIG SANDY CREEK AT SH 155
6.00	0506 17065 (SR22)	SABINE RIVER AT FM 17 (SR22)
6.00	0506 10430 (SR21)	SABINE RIVER AT US 69
6.00	0506 10429 (SR19)	SABINE RIVER AT SH 14 S. OF HAWKINS
5.00	0505 10428 (SR17)	SABINE RIVER AT US 271
5.00	0505 10427 (SR16)	SABINE RIVER AT SH 42
5.00	0505 10426 (SR15)	SABINE RIVER AT US 259
5.00	0505 10423 (SR14)	SABINE RIVER AT SH 149
5.00	0505 13628 (SR11)	SABINE RIVER AT US 59
5.00	0505 10415 (SR10)	SABINE RIVER AT FM 2517

SABINE RIVER AUTHORITY OF TEXAS

Upper Sabine Basin Report

December 2002

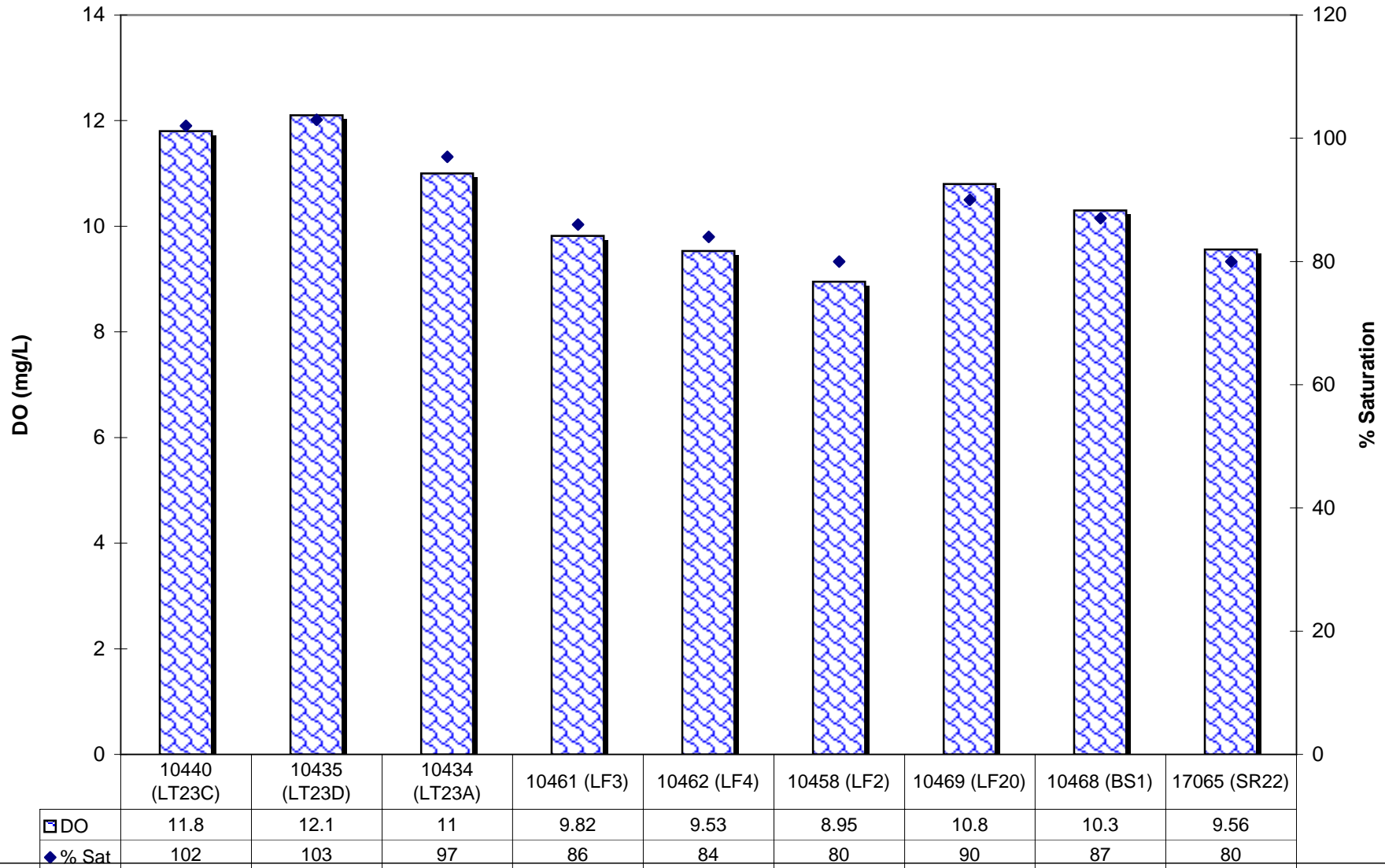
Date	SW ID	Station	Temperature °C 00010	pH Units 00400	DO mg/L 00300	% Saturation 00301	Conductivity µS/cm 00094	Salinity ppt 00480	Secchi Meters 00078	Turbidity NTU 82079	<i>E. coli</i> mpn/100ml 31699	Chlorophyll a µg/L 32211	Nitrate & Nitrite 00630	Ortho- Phosphate 00671	TOC mg/L 00680	Total Alkalinity 00410	Total Hardness 00900	Chloride mg/L 00940	Sulfate mg/L 00945
12/10/02 11:29 AM	7.00	10440 (LT23C)	8.86	8.82	11.8	102	167	*	0.6	12.9	3	*	0.08	< 0.04	6	*	*	< 10	< 10
12/10/02 10:45 AM	7.00	10435 (LT23D)	8.45	8.97	12.1	103	168	*	0.52	14.6	3	*	0.07	< 0.04	6	*	*	< 10	< 10
12/10/02 10:00 AM	7.00	10434 (LT23A)	9.75	8.42	11	97	169	*	0.94	7.16	4	*	0.18	< 0.04	6	*	*	< 10	< 10
12/10/02 9:02 AM	6.12	10461 (LF3)	9.29	7.3	9.82	86	142	*	1.23	4.26	41	*	0.14	< 0.04	6	*	*	< 10	14
12/10/02 9:17 AM	6.12	10462 (LF4)	9.97	7.3	9.53	84	144	*	1.42	4.54	3	*	0.3	< 0.04	6	*	*	< 10	13
12/10/02 8:23 AM	6.12	10458 (LF2)	10.6	7.32	8.95	80	148	*	1.94	2.5	4	*	0.35	< 0.04	6	*	*	< 10	12
12/10/02 1:45 PM	6.10	10469 (LF20)	7.34	7.1	10.8	90	235	*	> 0.59	13	44	*	0.09	< 0.04	6	*	*	29	28
12/11/02 7:51 AM	6.02	10468 (BS1)	7.8	6.59	10.3	87	162	*	1.12	7.54	111	*	0.12	< 0.04	6	*	*	23	16
12/10/02 12:21 PM	6.00	17065 (SR22)	7.8	7.17	9.56	80	237	*	0.15	135.2	> 2420	*	0.19	0.07	12	*	*	17	32
12/10/02 12:51 PM	6.00	10430 (SR21)	7.69	7.28	10.8	91	326	*	0.38	29.1	185	*	0.08	< 0.04	8	*	*	41	35
12/10/02 2:02 PM	6.00	10429 (SR19)	7.64	7.43	11.4	96	280	*	0.42	30.1	210	*	0.12	< 0.04	7	*	*	34	26
12/11/02 8:20 AM	5.00	10428 (SR17)	7.35	7.19	11.1	92	344	*	0.49	24	35	*	0.16	< 0.04	7	*	*	54	35
12/11/02 8:45 AM	5.00	10427 (SR16)	7.1	7.19	11.5	95	576	*	0.5	23.9	55	*	0.17	< 0.04	6	*	*	129	31
12/11/02 9:06 AM	5.00	10426 (SR15)	7.08	7.24	11.4	94	233	*	0.4	27.3	411	*	0.14	< 0.04	7	*	*	32	19
12/11/02 9:36 AM	5.00	10423 (SR14)	7.32	7.19	11.2	93	243	*	0.46	27.4	687	*	0.56	< 0.04	6	*	*	36	19
12/11/02 10:20 AM	5.00	13628 (SR11)	7.47	7.36	11.2	94	249	*	0.44	29.7	44	*	0.35	< 0.04	7	*	*	31	26
12/11/02 10:50 AM	5.00	10415 (SR10)	7.42	7.46	11.4	95	251	*	0.46	25.5	39	*	0.31	< 0.04	7	*	*	30	28

*: Not sampled on this run

SABINE RIVER AUTHORITY OF TEXAS

December 2002

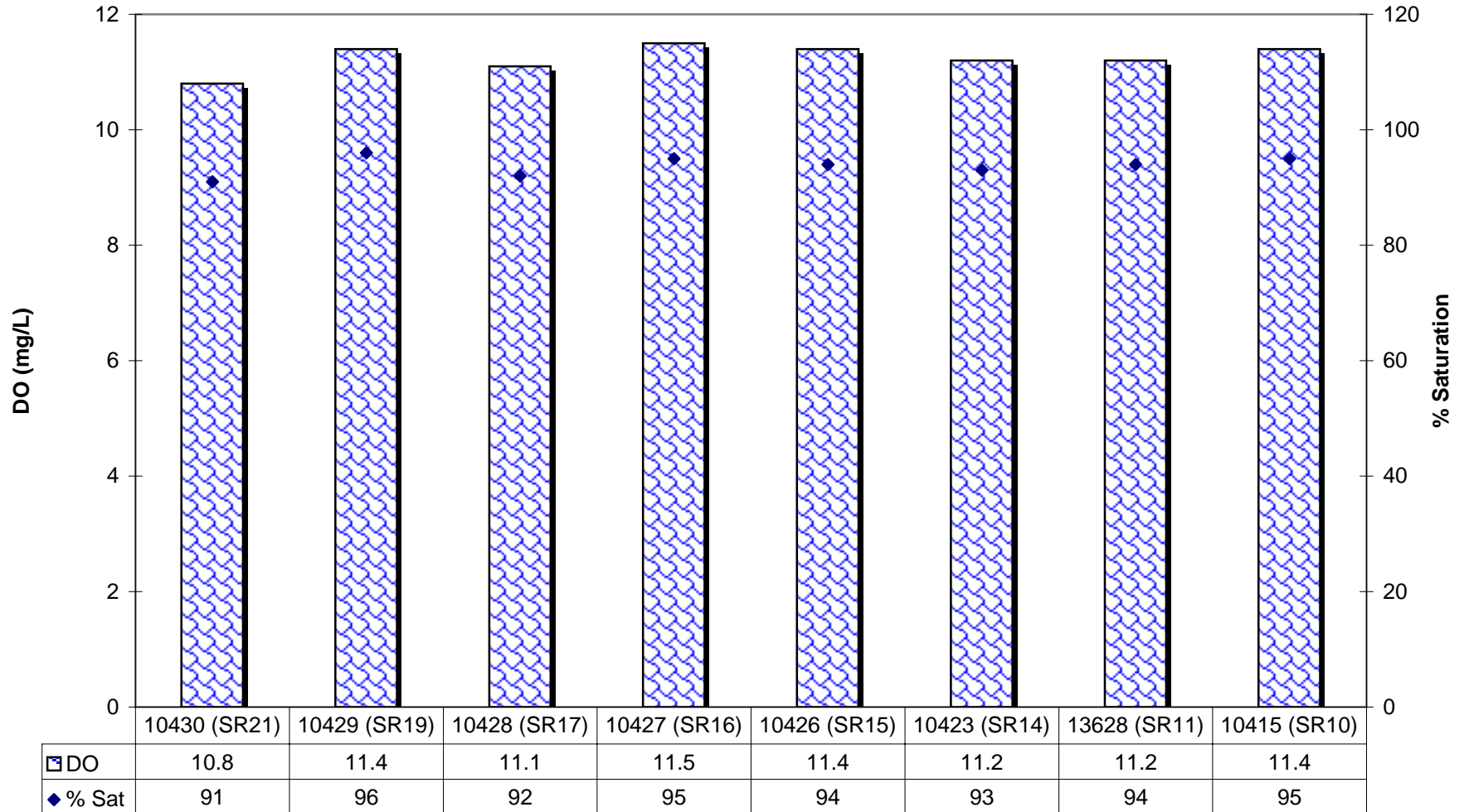
Upper Sabine Basin DO / % Saturation (1 of 2)



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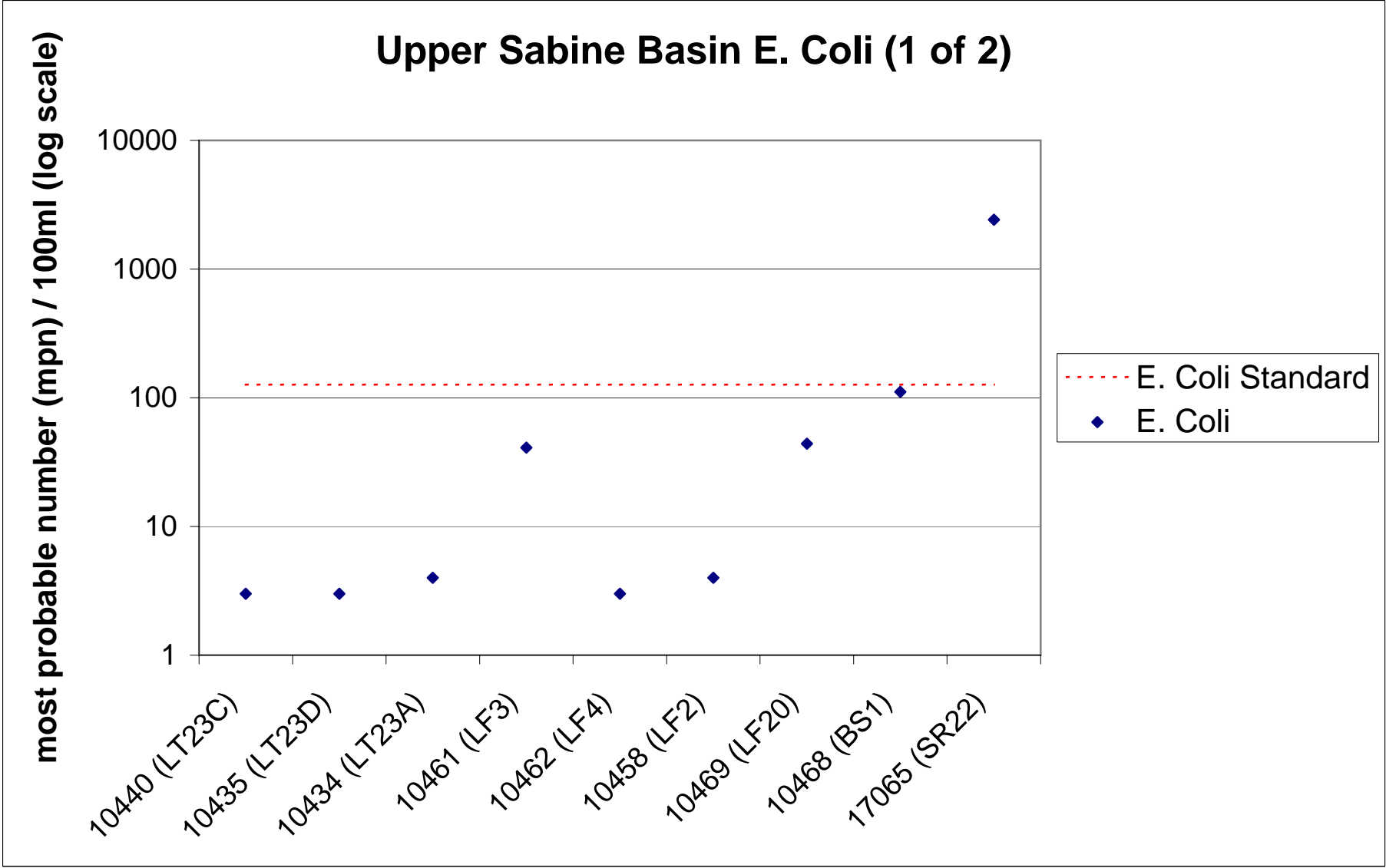
December 2002

Upper Sabine Basin DO / % Saturation (2 of 2)



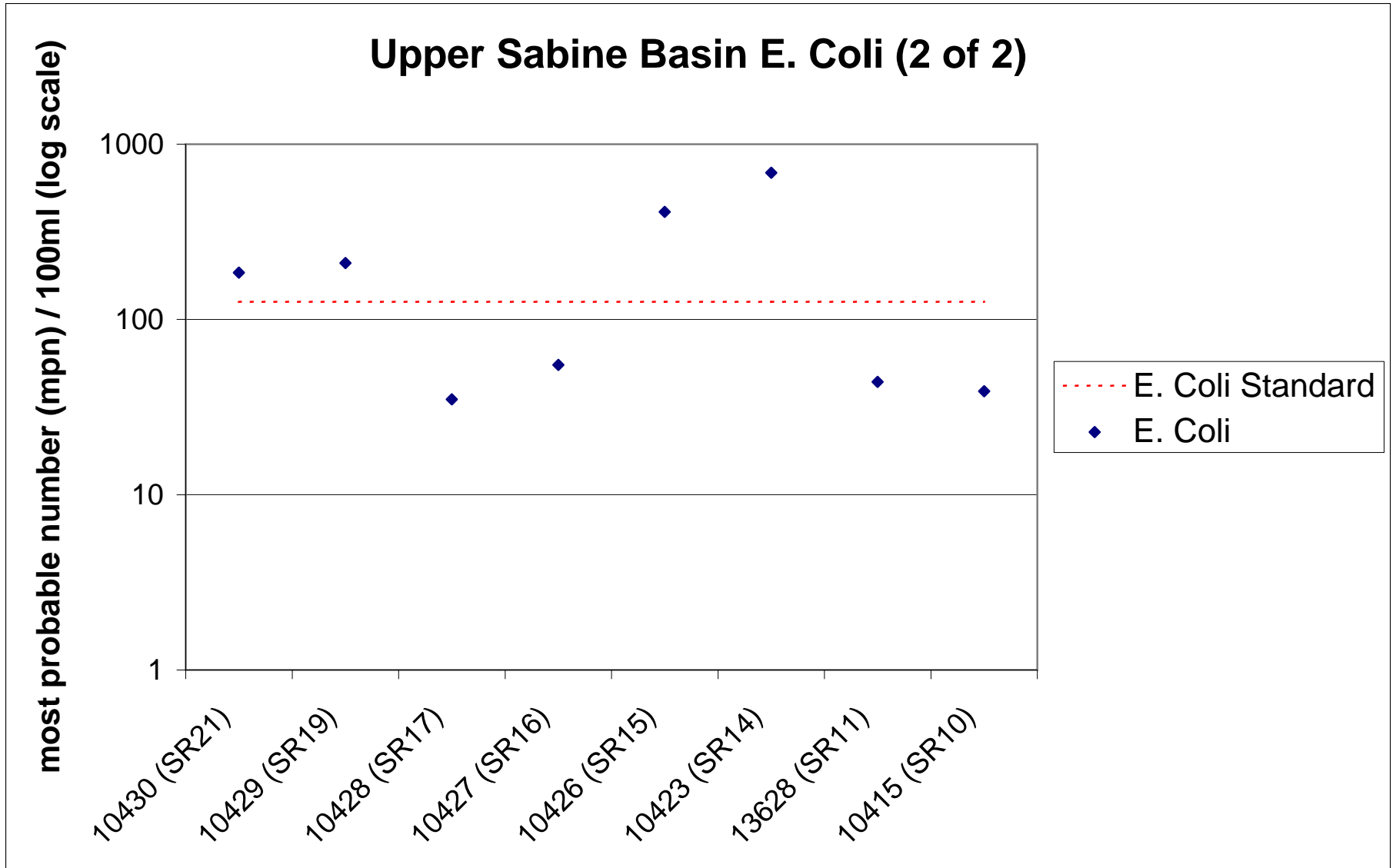
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December 2002



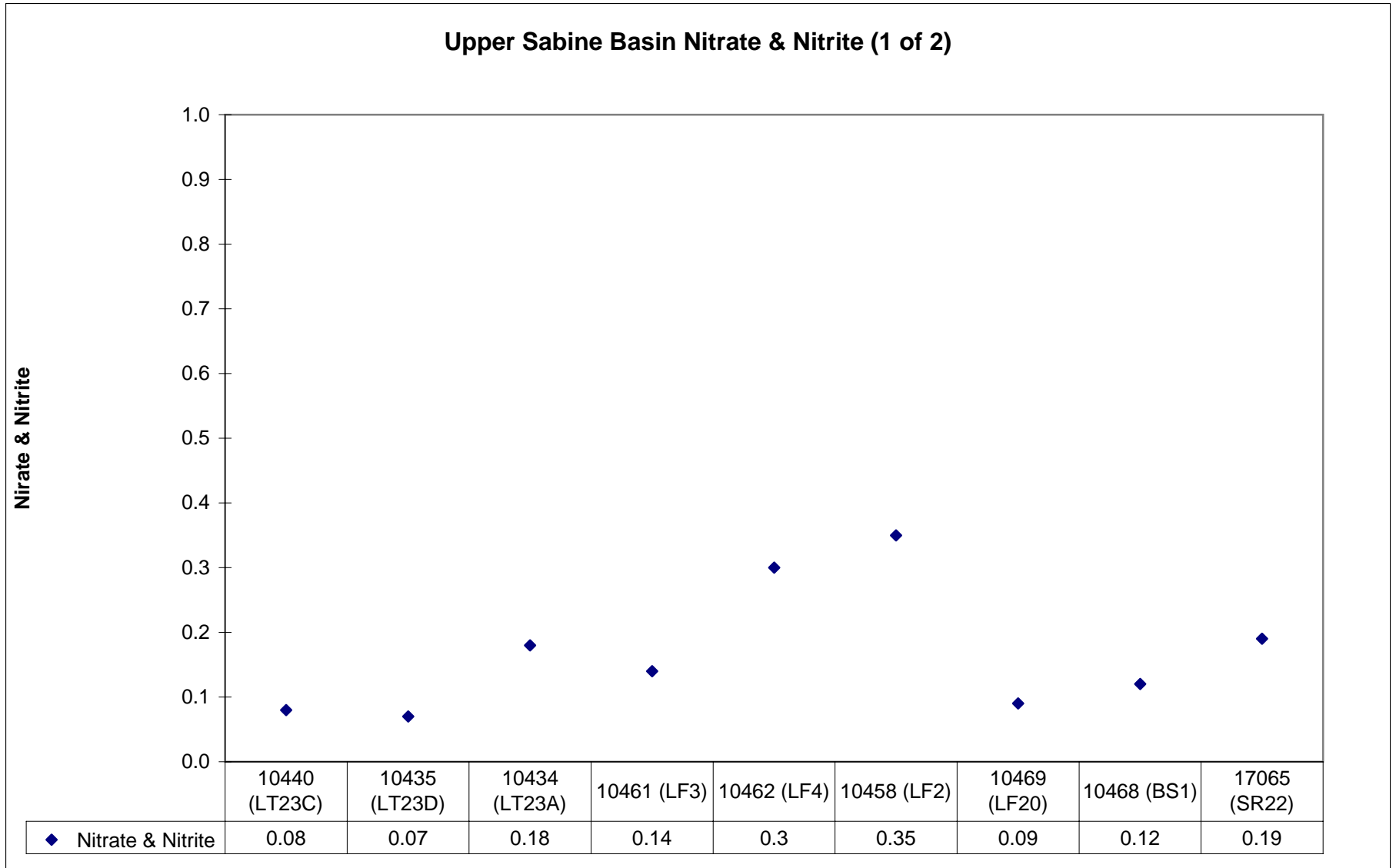
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December 2002



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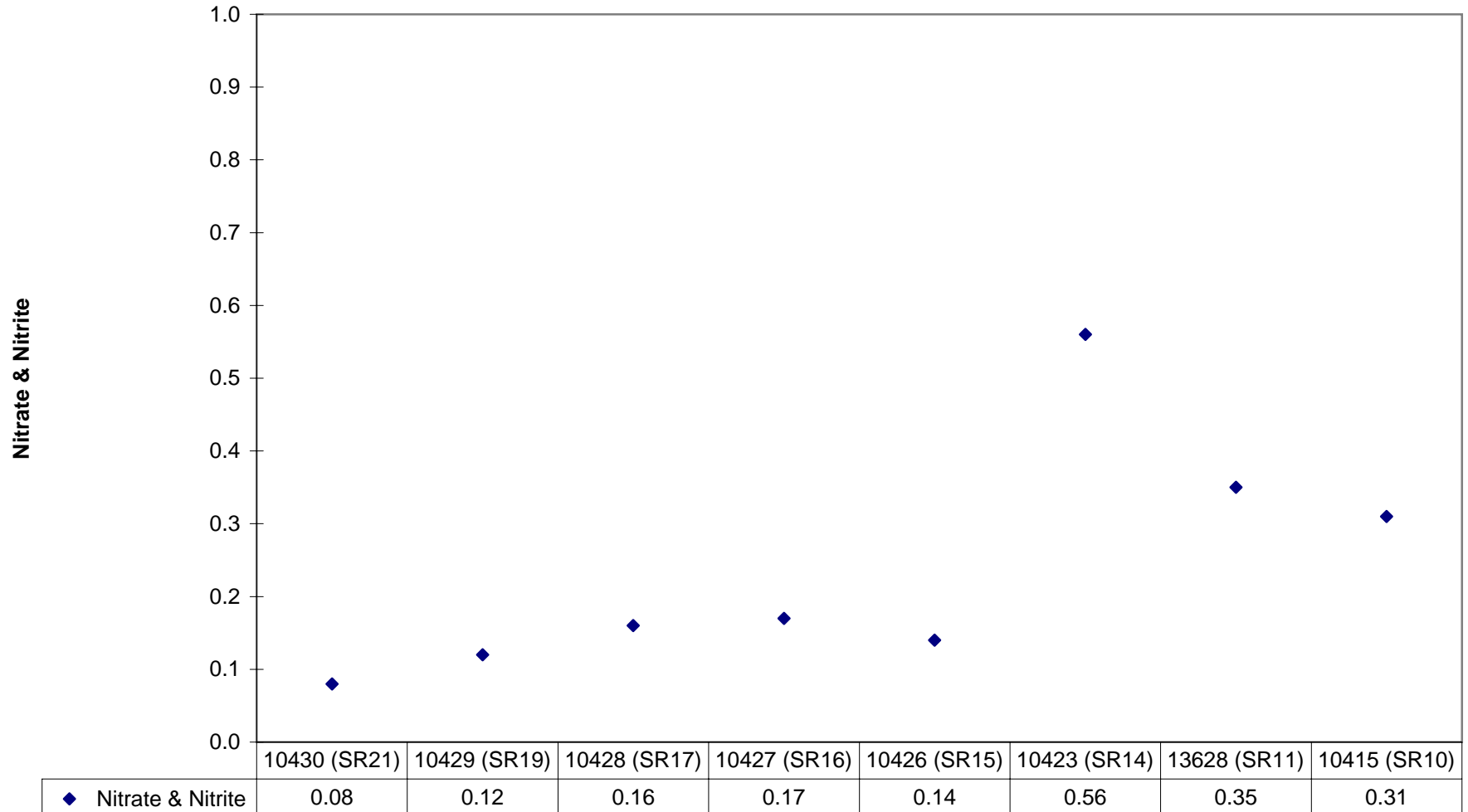
December 2002



SABINE RIVER AUTHORITY OF TEXAS

December 2002

Upper Sabine Basin Nitrate & Nitrite (2 of 2)



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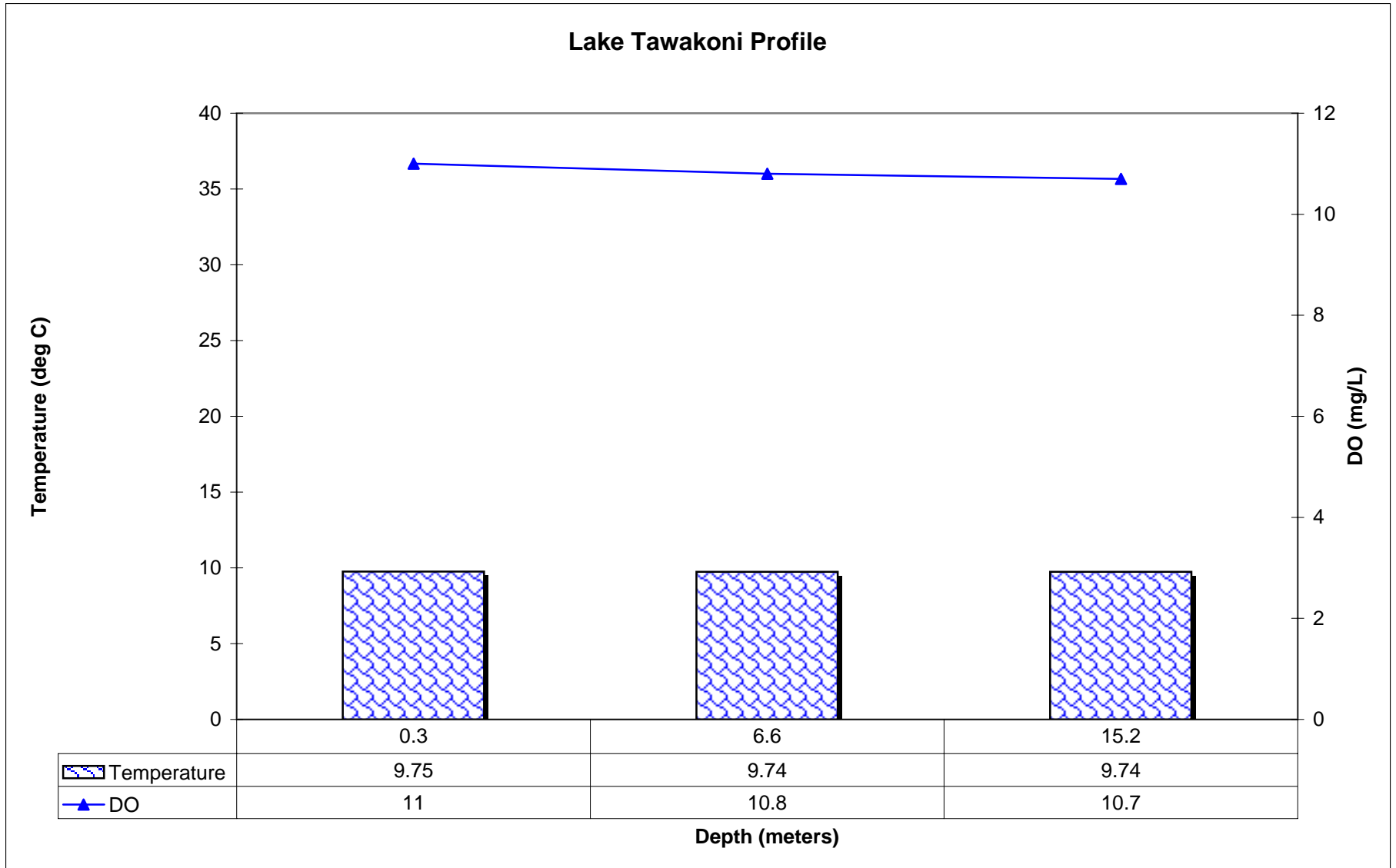
Upper Basin Profiles

December 2002

Date	SW ID	Station	Depth Meters	Temperature	pH	DO	%	Conductivity
				°C 00010	Units 00400	mg/L 00300	Saturation 00301	μS/cm 00094
12/10/02 11:29 AM	7.00	10440 (LT23C)	0.3	8.86	8.82	11.8	102	167
			4.06	8.61	8.7	11.4	98	166
12/10/02 10:45 AM	7.00	10435 (LT23D)	0.3	8.45	8.97	12.1	103	168
			3.14	8.37	8.99	12.1	103	168
			6.17	7.72	9	11.9	100	166
12/10/02 10:00 AM	7.00	10434 (LT23A)	0.3	9.75	8.42	11	97	169
			6.6	9.74	8.36	10.8	95	169
			15.2	9.74	8.35	10.7	95	169
12/10/02 9:02 AM	6.12	10461 (LF3)	0.3	9.29	7.3	9.82	86	142
			6.24	9.3	7.32	9.77	85	142
			9.37	9.3	7.34	9.66	84	142
12/10/02 9:17 AM	6.12	10462 (LF4)	0.3	9.97	7.3	9.53	84	144
			6.24	9.98	7.3	9.42	83	144
			11.2	9.95	7.28	9.11	81	144
12/10/02 8:23 AM	6.12	10458 (LF2)	0.3	10.6	7.32	8.95	80	148
			8.47	10.6	7.35	8.9	80	148
			18.1	10.6	7.49	8.79	79	148

SABINE RIVER AUTHORITY OF TEXAS

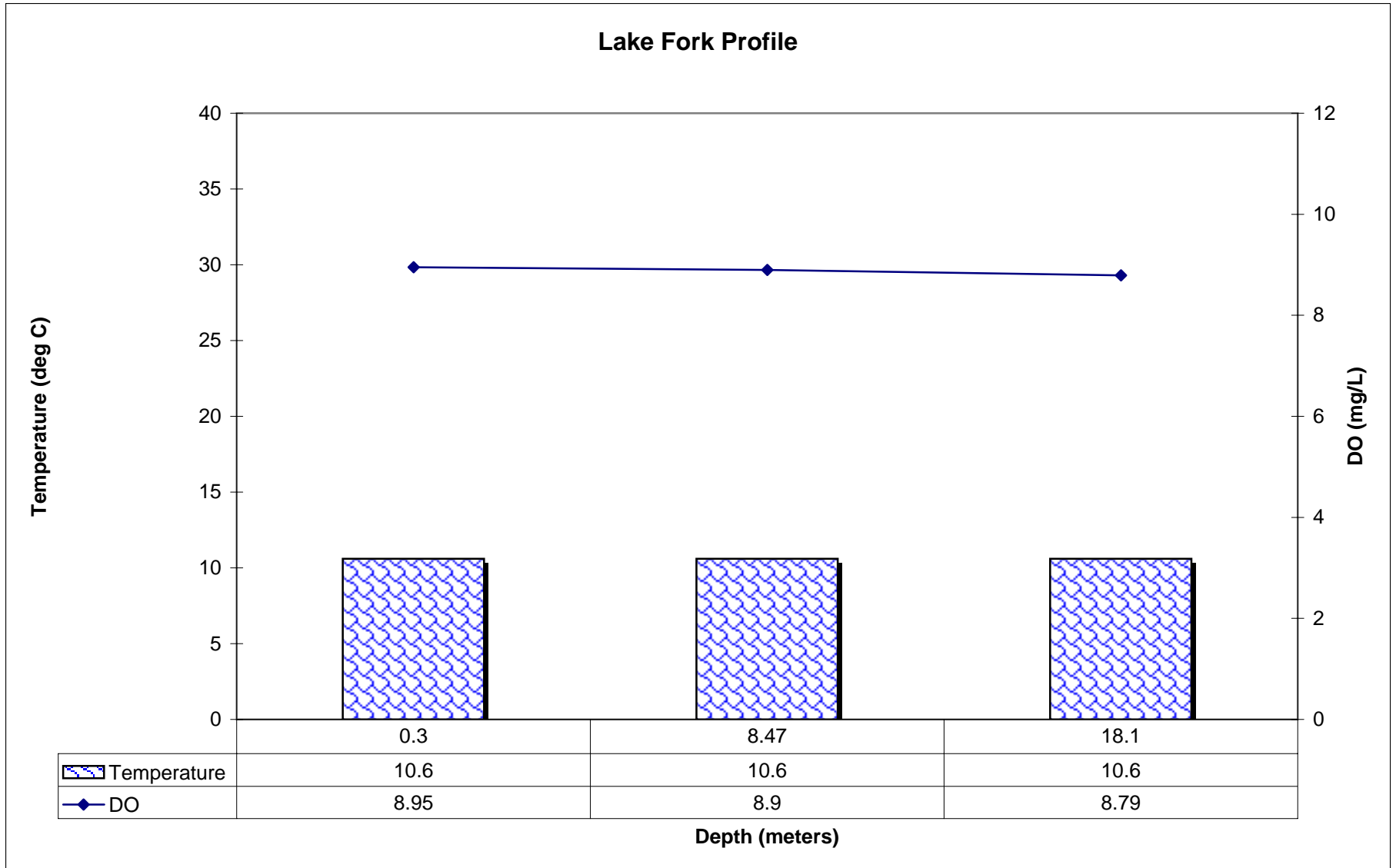
December 2002



For Station 10434 (LT23A): LAKE TAWAKONI IN THE MAIN LAKE NEAR THE DAM IN THE OLD RIVER CHANNEL

SABINE RIVER AUTHORITY OF TEXAS

December 2002



SABINE RIVER AUTHORITY OF TEXAS

Lake Tawakoni Weather and Reservoir Data

December 2002

Date	Lake Elev	LE - TOP	Releases inst	Max Temp	Min Temp	Rainfall	Evap
12/1/2002	437.18	(0.32)	5	62	30	0.00	0.20
12/2/2002	437.14	(0.36)	5	58	31	0.00	0.25
12/3/2002	437.14	(0.36)	5	70	45	0.00	0.05
12/4/2002	437.23	(0.27)	5	55	37	1.57	0.00
12/5/2002	437.24	(0.26)	5	41	31	0.05	0.04
12/6/2002	437.16	(0.34)	5	42	25	0.00	0.03
12/7/2002	437.13	(0.37)	5	52	26	0.00	0.10
12/8/2002	437.12	(0.38)	5	58	32	0.00	0.10
12/9/2002	437.19	(0.31)	5	50	44	1.09	0.00
12/10/2002	437.34	(0.16)	5	42	33	0.33	0.00
12/11/2002	437.48	(0.02)	5	57	41	0.03	0.06
12/12/2002	437.56	0.06	45	50	41	0.00	0.07
12/13/2002	437.64	0.14	45	50	43	0.35	0.00
12/14/2002	437.59	0.09	45	52	30	0.00	0.02
12/15/2002	437.58	0.08	45	62	30	0.00	0.08
12/16/2002	437.56	0.06	45	67	44	0.00	0.13
12/17/2002	437.55	0.05	25	68	54	0.00	0.09
12/18/2002	437.55	0.05	25	75	62	0.00	0.23
12/19/2002	437.56	0.06	45	70	51	0.05	0.06
12/20/2002	437.55	0.05	45	60	42	0.00	0.18
12/21/2002	437.54	0.04	25	62	38	0.00	0.07
12/22/2002	437.52	0.02	25	68	30	0.00	0.18
12/23/2002	437.44	(0.06)	5	59	42	0.34	0.10
12/24/2002	437.66	0.16	65	46	36	1.06	0.00
12/25/2002	437.69	0.19	125	36	24	0.05	0.02
12/26/2002	437.67	0.17	125	44	26	0.00	0.30
12/27/2002	437.66	0.16	125	50	29	0.00	0.01
12/28/2002	437.65	0.15	125	55	29	0.00	0.06
12/29/2002	437.63	0.13	45	64	34	0.00	0.12
12/30/2002	437.61	0.11	45	67	43	0.00	0.00
12/31/2002	438.02	0.52	505	71	43	2.83	0.00
Avg or Tot	437.47	(0.03)	53	57	37	7.75	2.55

	Avg	Avg	Avg	Avg	Avg	Tot	Tot
Units	Feet M.S.L.	Feet	cfs	Deg F	Deg F	Inches	Inches
			Instantaneous appx. 8 a.m.				

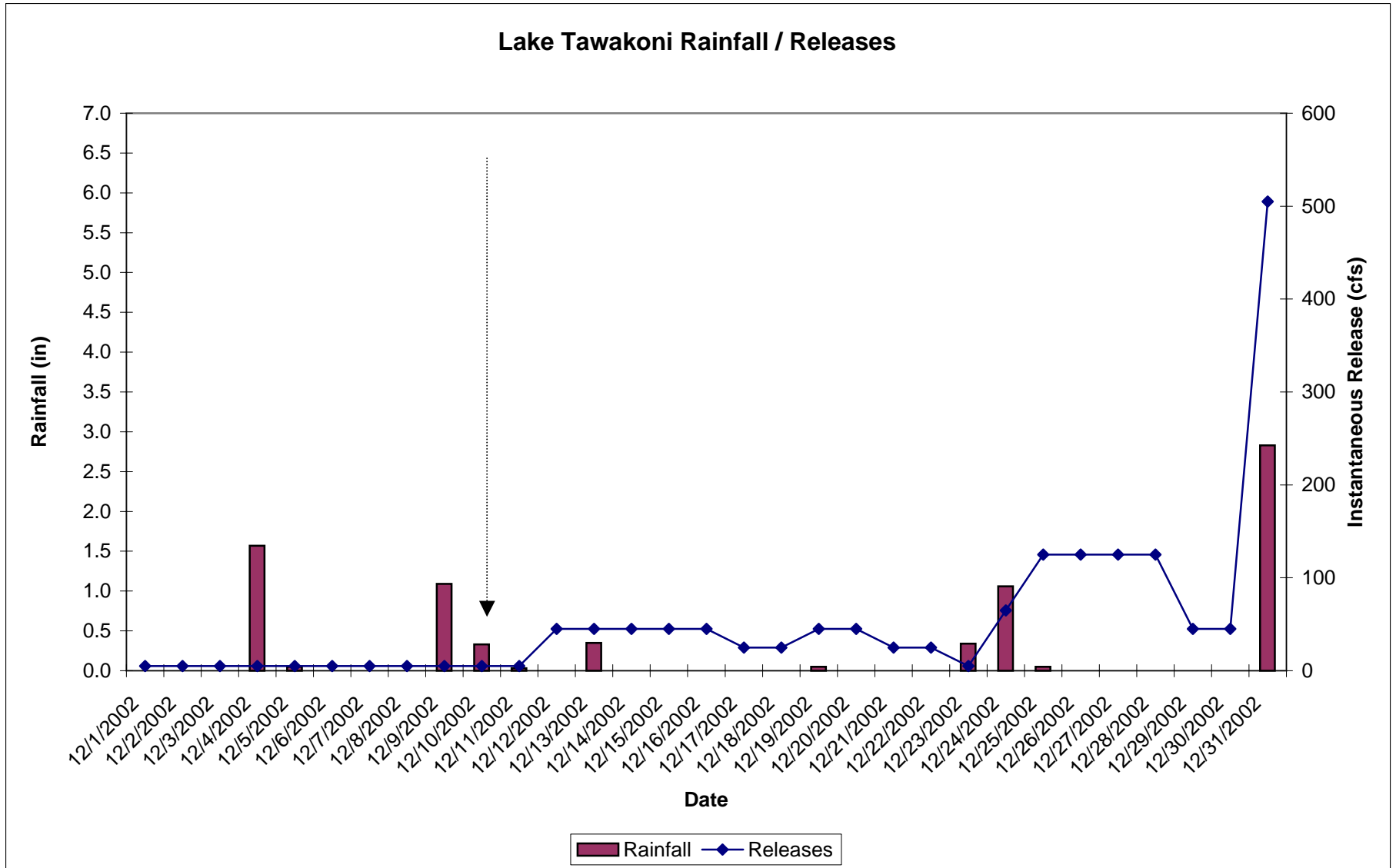
TOP: Top of Pool = 437.5 Feet M.S.L.

NR: No Reading

Lake Tawakoni Sampled on 12/10/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Please Note : Lake Tawakoni has an uncontrolled spillway.

SABINE RIVER AUTHORITY OF TEXAS

Lake Fork Weather and Reservoir Data

December 2002

Date	Lake Elev	LE - TOP	Releases avg	Releases cur	Max Temp	Min Temp	Rainfall	Evap
12/1/2002	402.21	(0.79)	8	8	65	21	0.00	0.17
12/2/2002	402.21	(0.79)	8	8	59	29	0.00	0.09
12/3/2002	402.19	(0.81)	8	8	70	43	0.01	0.17
12/4/2002	402.34	(0.66)	8	8	59	37	1.20	0.00
12/5/2002	402.39	(0.61)	8	8	43	33	0.02	0.03
12/6/2002	402.34	(0.66)	8	8	47	25	0.00	0.11
12/7/2002	402.34	(0.66)	8	8	54	26	0.00	0.08
12/8/2002	402.31	(0.69)	8	8	59	32	0.00	0.07
12/9/2002	402.34	(0.66)	8	8	55	43	0.56	0.00
12/10/2002	402.39	(0.61)	8	8	46	41	0.30	0.01
12/11/2002	402.44	(0.56)	8	8	50	41	0.01	0.08
12/12/2002	402.49	(0.51)	8	8	53	44	0.00	0.03
12/13/2002	402.54	(0.46)	8	8	53	42	0.50	0.00
12/14/2002	402.54	(0.46)	8	8	54	30	0.01	0.00
12/15/2002	402.56	(0.44)	8	8	65	29	0.00	0.10
12/16/2002	402.59	(0.41)	8	8	70	41	0.00	0.10
12/17/2002	402.54	(0.46)	8	8	72	57	0.00	0.11
12/18/2002	402.59	(0.41)	8	8	76	62	0.00	0.23
12/19/2002	402.59	(0.41)	8	8	73	50	0.08	0.12
12/20/2002	402.59	(0.41)	8	8	63	38	0.00	0.11
12/21/2002	402.59	(0.41)	8	8	63	37	0.00	0.09
12/22/2002	402.57	(0.43)	8	8	69	36	0.00	0.16
12/23/2002	402.59	(0.41)	8	8	62	33	0.15	0.14
12/24/2002	402.91	(0.09)	8	8	45	38	1.65	0.03
12/25/2002	403.04	0.04	8	693	40	28	0.02	0.05
12/26/2002	402.95	(0.05)	693	693	48	27	0.00	0.03
12/27/2002	402.86	(0.14)	693	693	53	29	0.00	0.07
12/28/2002	402.74	(0.26)	693	693	59	31	0.00	0.07
12/29/2002	402.64	(0.36)	693	693	67	42	0.00	0.11
12/30/2002	402.54	(0.46)	693	8	68	43	0.00	0.02
12/31/2002	403.12	0.12	8	2,780	63	44	2.00	0.00
Avg or Tot	402.55	(0.45)	118	208	59	37	6.51	2.38

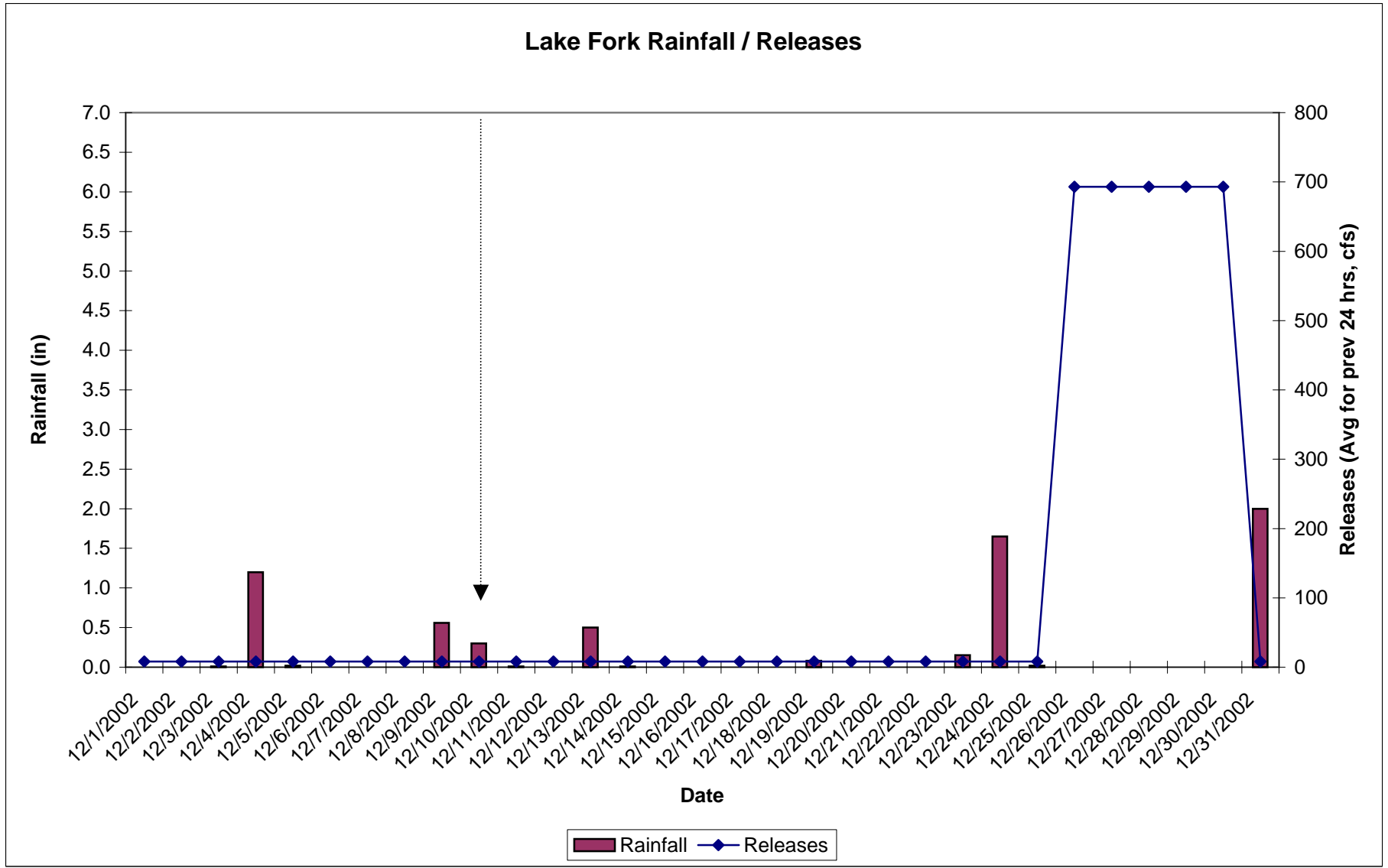
	Avg	Avg	Avg		Avg	Avg	Tot	Tot
Units	Feet M.S.L.	Feet	cfs Previous 24 hrs	cfs	Deg F	Deg F	Inches	Inches

TOP: Top of Pool = 403 Feet M.S.L.

Lake Fork Sampled on 12/10/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



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FY2003 Fixed Monitoring Stations

Lower Sabine Basin

<i>SW</i>	<i>Segment Station</i>	<i>Location</i>
4.10	0504 15658 (TB6N)	BAYOU SCIE AT LA SH 191
4.00	0504 10403 (TB8)	TOLEDO BEND RESERVOIR AT US 84
4.00	0504 15657 (TB6M)	TOLEDO BEND RESERVOIR SAN PATRICIA ARM AT LA SH191
4.00	0504 15656 (TB6L)	TOLEDO BEND RESERVOIR SAN MIGUEL ARM AT LA SH191
4.00	0504 15655 (TB6J)	TOLEDO BEND RESERVOIR PATROON BAYOU ARM AT SH 276
4.00	0504 15659 (TB6K)	TOLEDO BEND RESERVOIR LANANA ARM AT LA SH191
4.00	0504 10402 (TB6H)	TOLEDO BEND RESERVOIR AT SH 21
4.00	0504 10411 (TB6F)	TOLEDO BEND RESERVOIR IN SUNSHINE BAY AT FM 3121
4.00	0504 10407 (TB6CN)	TOLEDO BEND RESERVOIR IN SIX MILE BOAT LANE AT SH 87
4.00	0504 10404 (TB6A)	TOLEDO BEND RESERVOIR NEAR DAM IN RIVER CHANNEL
3.03	0503 10340 (BA4)	ANACOCO BAYOU AT LOUISIANA HWY 111
3.00	0503 10401 (TB6S)	SABINE RIVER BELOW TOLEDO BEND SPILLWAY
3.00	0503 10400 (TB6)	TAIL RACE CHANNEL AT FM 692 TB6
3.00	0503 10399 (SR5)	SABINE RIVER AT SH 63
3.00	0503 10398 (SR3)	SABINE RIVER AT US 190
2.05	0513 10465 (BCC1)	BIG COW CREEK AT FM 1416
2.00	0503 10397 (SR2)	SABINE RIVER AT SH 12

SABINE RIVER AUTHORITY OF TEXAS

Lower Basin Report

December 2002

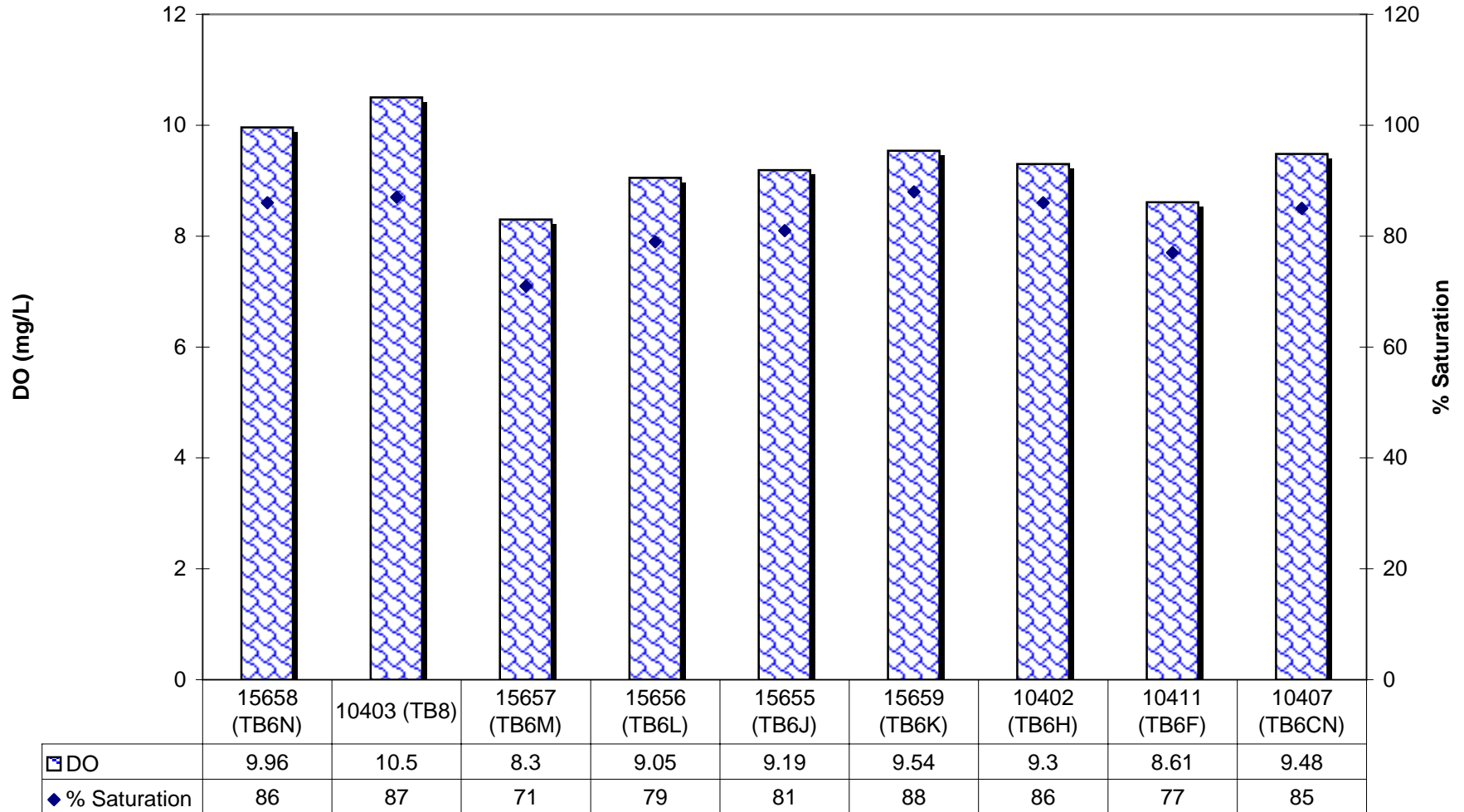
Date	SW ID	Station	Temperature °C 00010	pH Units 00400	DO mg/L 00300	% Saturation 00301	Conductivity µS/cm 00094	Salinity ppt 00480	Secchi Meters 00078	Turbidity NTU 82079	<i>E. coli</i> mpn/100ml 31699	Chlorophyll a µg/L 32211	Nitrate & Nitrite 00630	Ortho- Phosphate 00671	TOC mg/L 00680	Total Alkalinity 00410	Total Hardness 00900	Chloride mg/L 00940	Sulfate mg/L 00945
12/10/02 1:10 PM	4.10	15658 (TB6N)	8.8	7.62	9.96	86	65	*	0.3	32.9	276	*	0.07	< 0.04	10	*	*	13	22
12/11/02 11:24 AM	4.00	10403 (TB8)	7.3	7.2	10.5	87	261	*	0.34	43.9	75	*	0.22	< 0.04	10	*	*	32	33
12/10/02 1:35 PM	4.00	15657 (TB6M)	8.6	7.16	8.3	71	127	*	0.41	28.6	108	*	0.06	< 0.04	13	*	*	13	16
12/10/02 1:20 PM	4.00	15656 (TB6L)	9.4	7.47	9.05	79	99	*	0.37	33.9	84	*	0.12	< 0.04	12	*	*	< 10	11
12/10/02 10:40 AM	4.00	15655 (TB6J)	9.8	7.32	9.19	81	123	*	0.36	31.3	291	*	0.14	< 0.04	11	*	*	< 10	16
12/10/02 12:40 PM	4.00	15659 (TB6K)	11.8	7.75	9.54	88	104	*	0.62	12.7	3	*	0.07	< 0.04	8	*	*	< 10	< 10
12/10/02 11:40 AM	4.00	10402 (TB6H)	12	7.64	9.3	86	162	*	1.6	3.38	< 1	*	0.13	< 0.04	7	*	*	13	13
12/10/02 11:15 AM	4.00	10411 (TB6F)	10.5	7.39	8.61	77	81	*	0.42	31.6	179	*	0.06	< 0.04	7	*	*	< 10	< 10
12/10/02 10:00 AM	4.00	10407 (TB6CN)	10.7	7.08	9.48	85	40	*	0.86	7.61	23	*	0.08	< 0.04	9	*	*	< 10	11
12/11/02 11:15 AM	4.00	10404 (TB6A)	13.8	7.58	9.35	90	144	*	1.86	1.57	< 1	*	0.1	< 0.04	6	*	*	12	13
12/11/02 1:10 PM	3.03	10340 (BA4)	10.8	7.4	10.4	94	54	*	0.38	43.7	435	*	0.05	< 0.04	8	*	*	< 10	< 10
12/11/02 10:35 AM	3.00	10401 (TB6S)	13.7	7.83	11.3	109	141	*	*	1.68	1	*	0.1	< 0.04	6	*	*	12	13
12/11/02 10:55 AM	3.00	10400 (TB6)	13.4	7.8	9.8	94	146	*	*	16.5	1	*	0.19	< 0.04	6	*	*	12	13
12/11/02 12:40 PM	3.00	10399 (SR5)	13.4	7.55	9.98	96	144	*	1.4	3.8	5	*	0.12	< 0.04	6	*	*	12	14
12/11/02 1:35 PM	3.00	10398 (SR3)	12.6	7.38	10.1	95	122	*	0.83	14.1	71	*	0.09	< 0.04	6	*	*	< 10	10
12/11/02 9:20 AM	2.05	10465 (BCC1)	9.9	6.75	10.1	90	49	*	0.54	19.4	276	*	0.05	< 0.04	10	*	*	< 10	< 10
12/11/02 8:45 AM	2.00	10397 (SR2)	10.8	6.74	9	81	88	*	0.5	22.8	127	*	0.05	< 0.04	9	*	*	< 10	< 10

*: Not sampled on this run

SABINE RIVER AUTHORITY OF TEXAS

December 2002

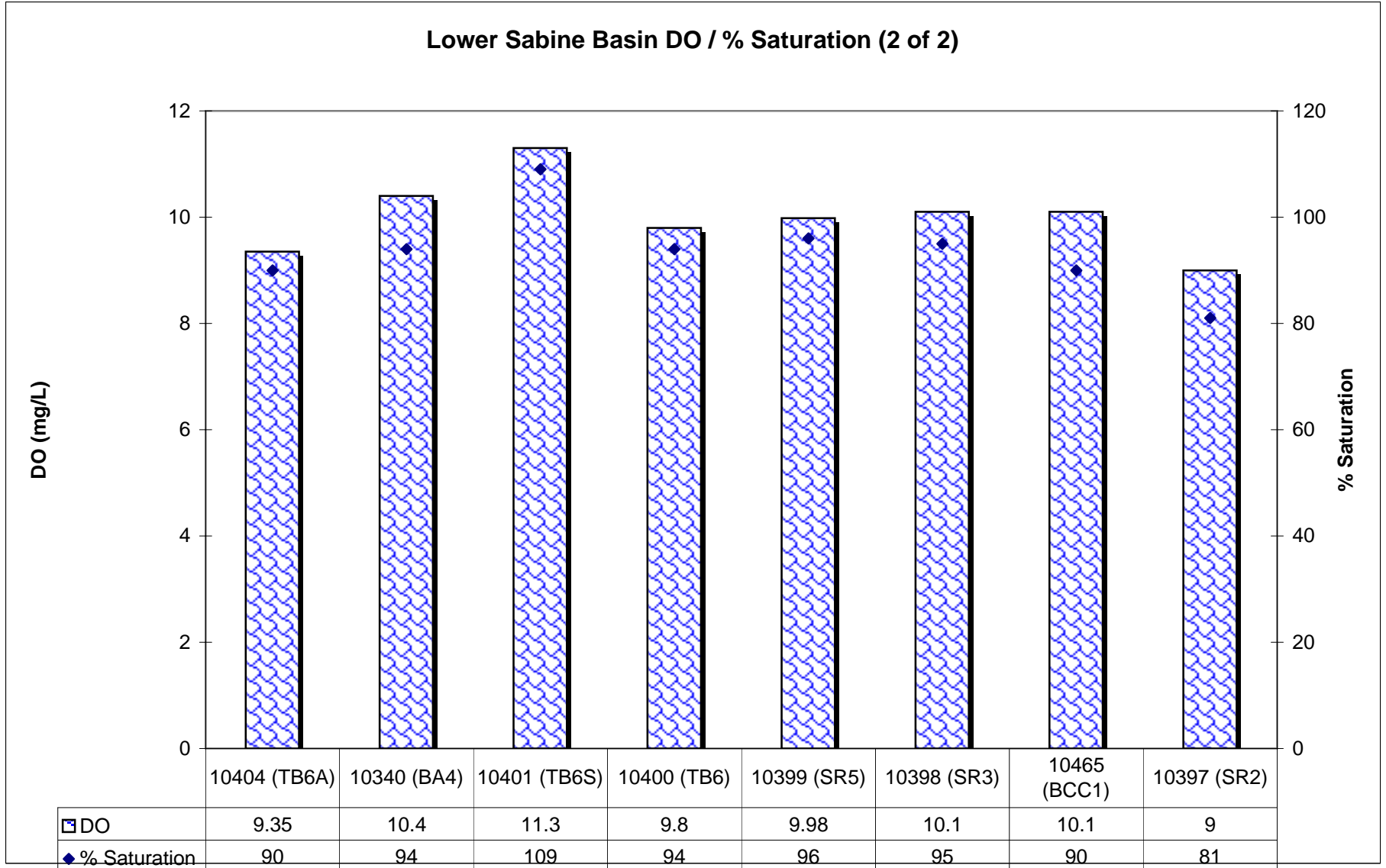
Lower Sabine Basin DO / % Saturation (1 of 2)



SABINE RIVER AUTHORITY OF TEXAS

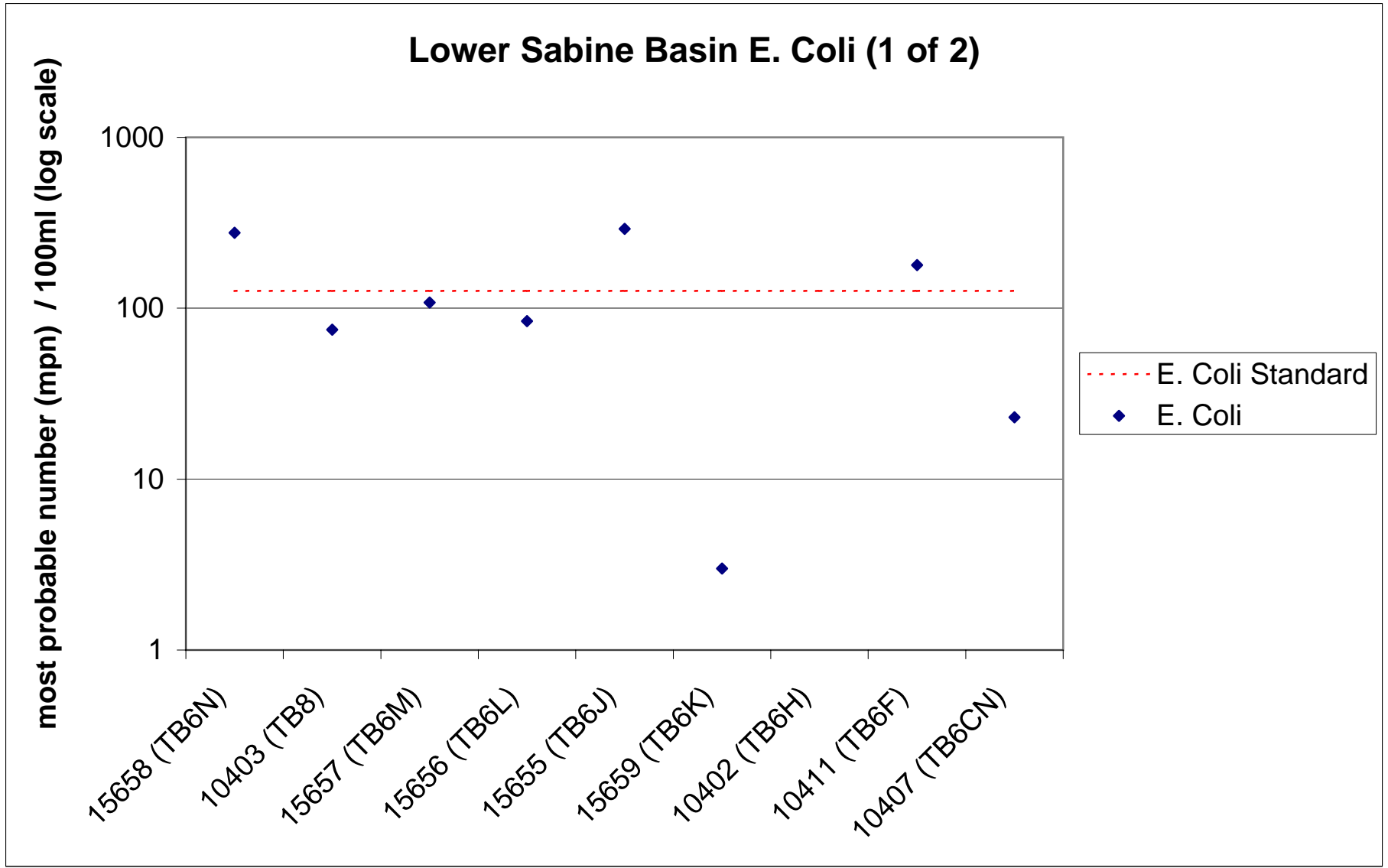
December 2002

Lower Sabine Basin DO / % Saturation (2 of 2)



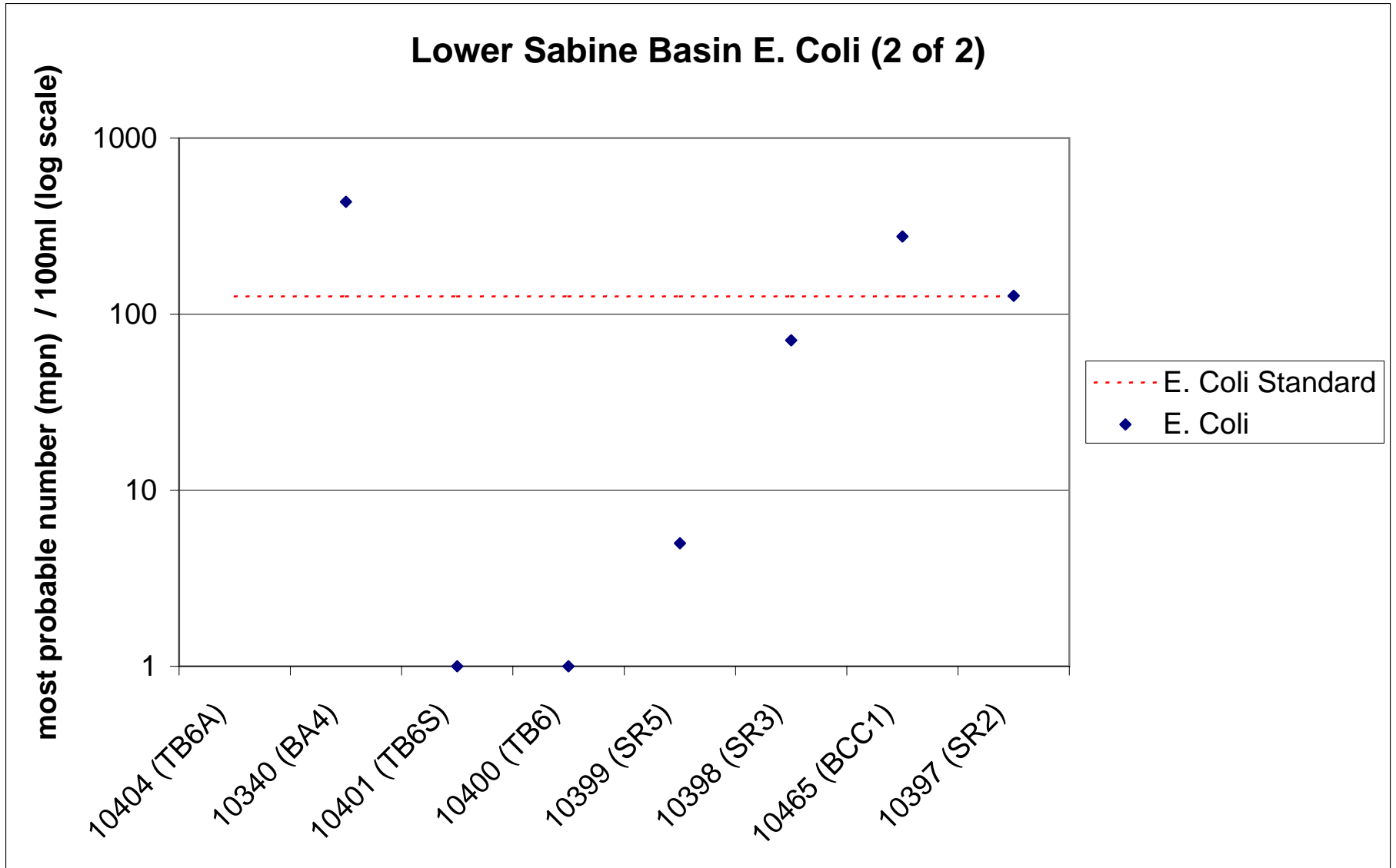
SABINE RIVER AUTHORITY OF TEXAS

December 2002



SABINE RIVER AUTHORITY OF TEXAS

December 2002

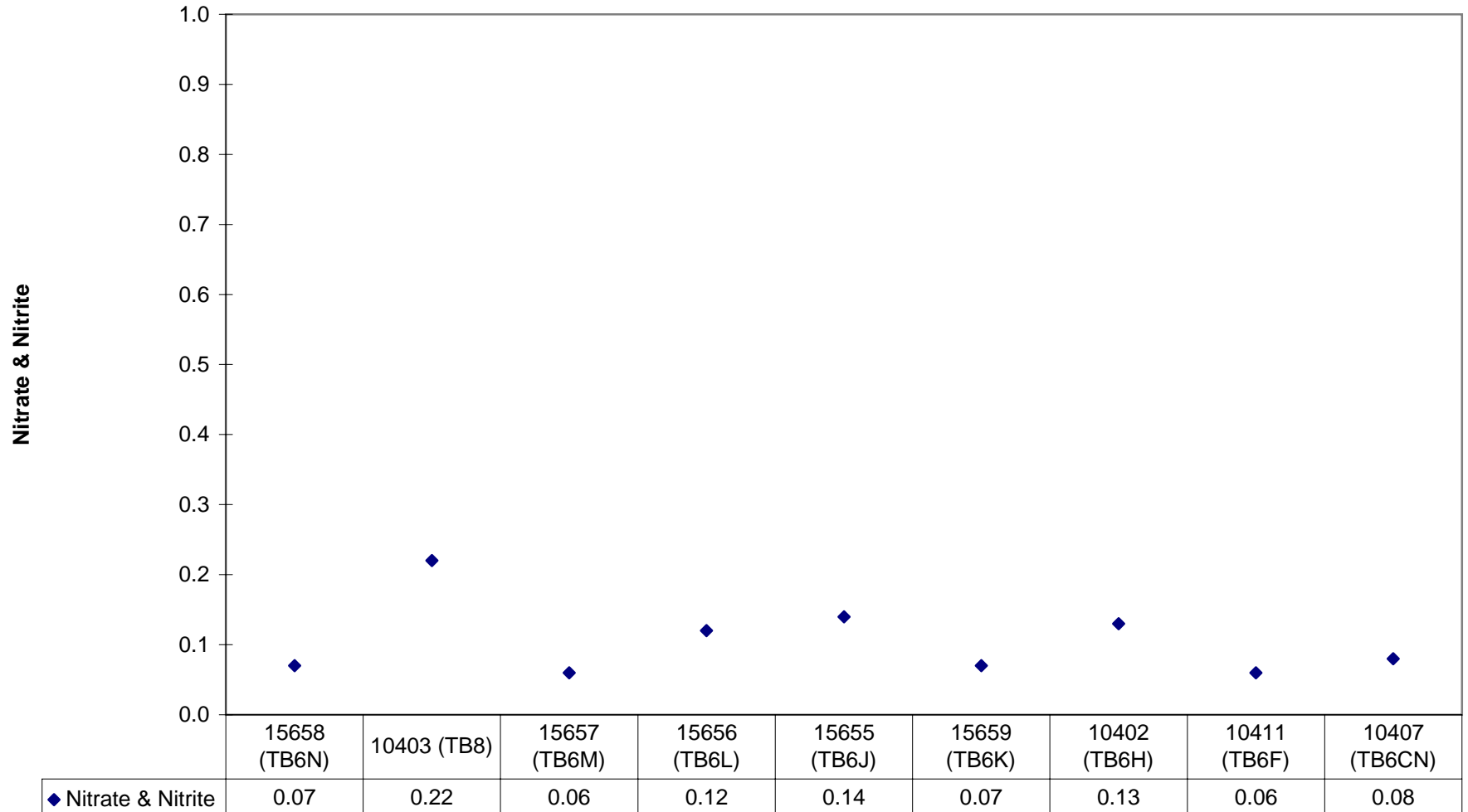


Stations without values were below detection limit on this run (see page 18).

SABINE RIVER AUTHORITY OF TEXAS

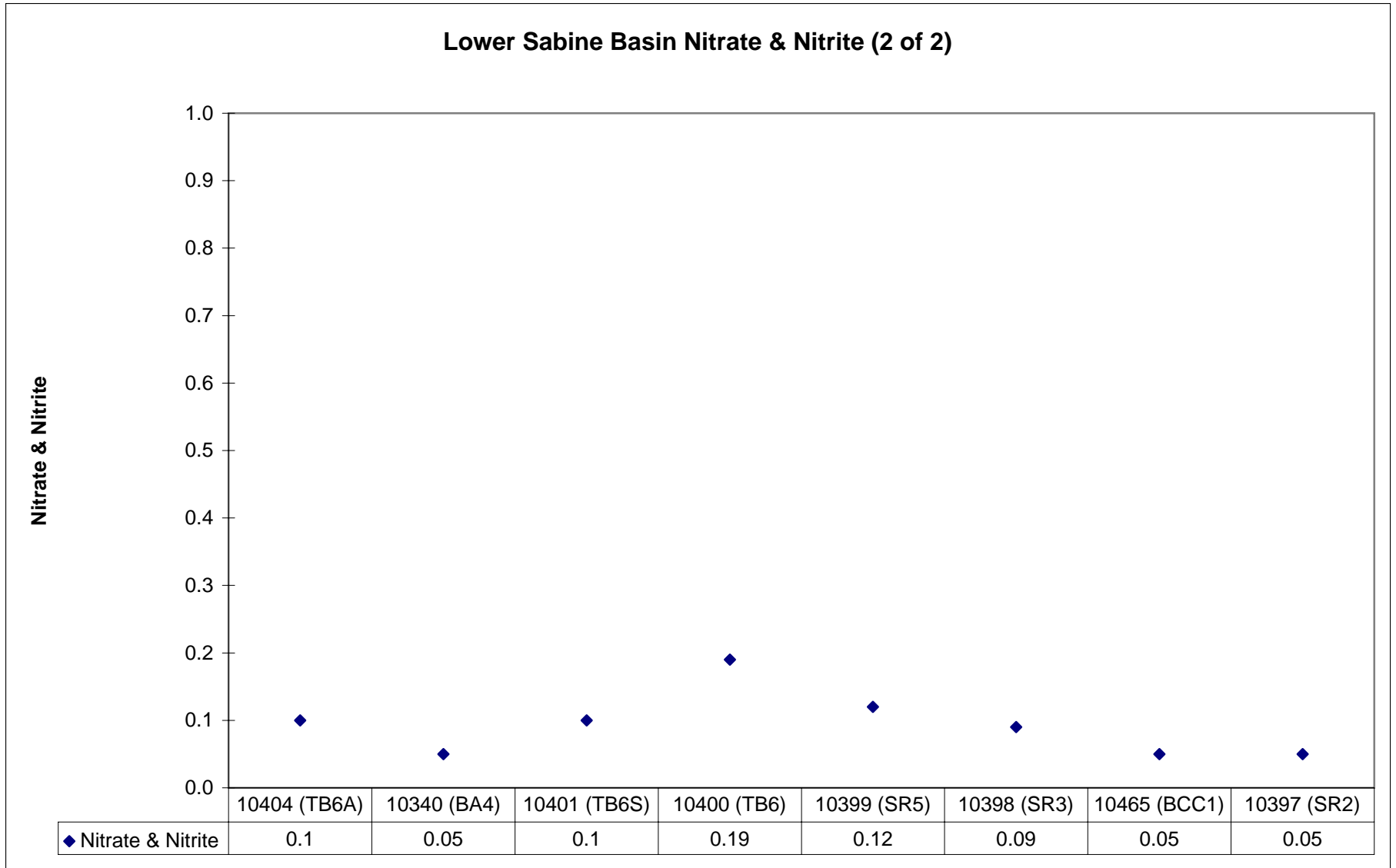
December 2002

Lower Sabine Basin Nitrate & Nitrite (1 of 2)



SABINE RIVER AUTHORITY OF TEXAS

December 2002



SABINE RIVER AUTHORITY OF TEXAS

Lower Basin Profiles

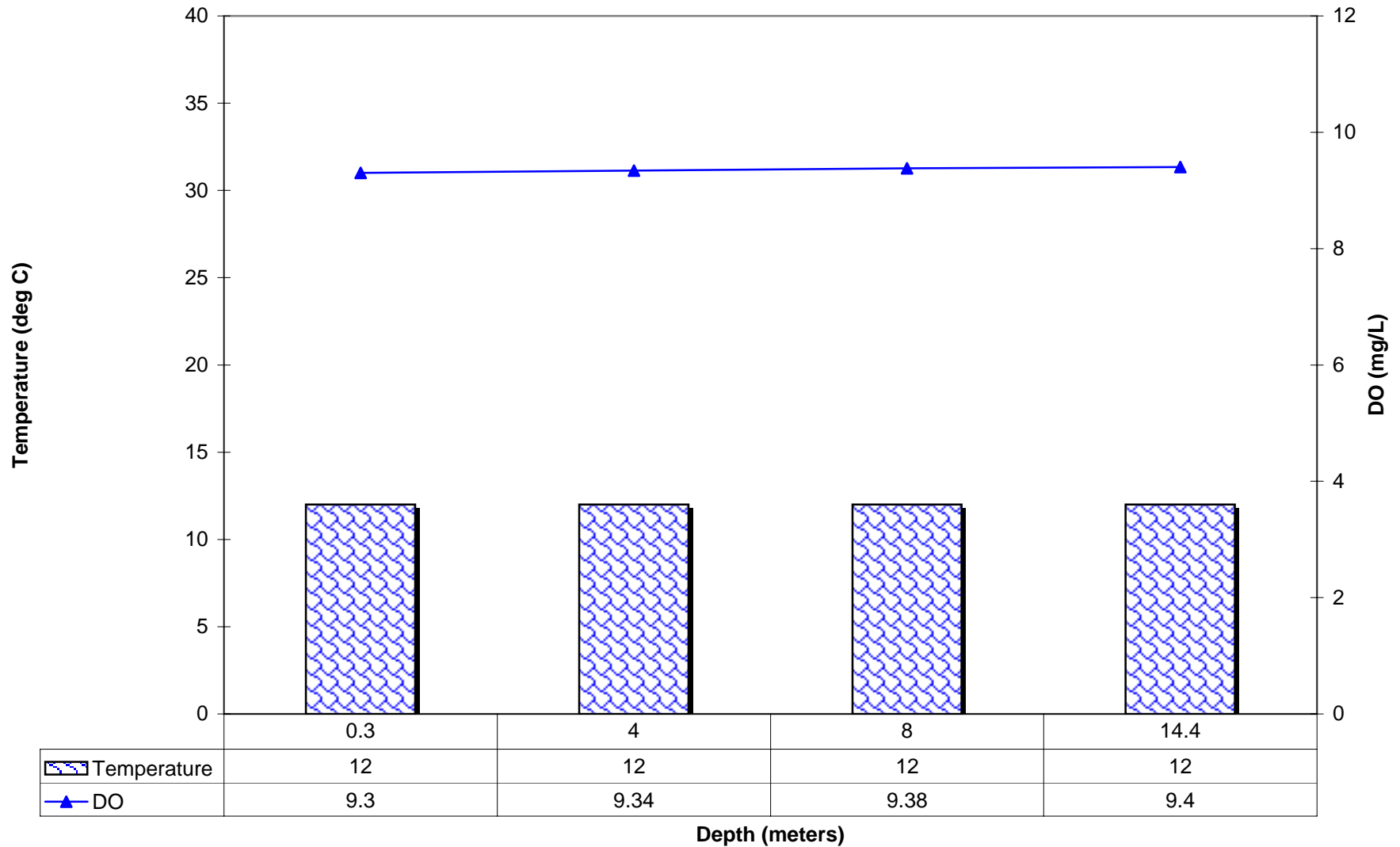
December 2002

Date	SW ID	Station	Depth Meters	Temperature	pH	DO	%	Conductivity
				°C 00010	Units 00400	mg/L 00300	Saturation 00301	µS/cm 00094
12/10/02 1:35 PM	4.00	15657 (TB6M)	0.3	8.6	7.16	8.3	71	127
			3.4	8.5	7.27	8.62	74	129
12/10/02 10:40 AM	4.00	15655 (TB6J)	0.3	9.8	7.32	9.19	81	123
			2	9.7	7.34	9.24	81	122
			4	9.7	7.36	9.42	83	124
12/10/02 12:40 PM	4.00	15659 (TB6K)	0.3	11.8	7.75	9.54	88	104
			4.2	11	7.81	9.33	84	96
			8.4	10.7	7.87	9.3	84	95
12/10/02 11:40 AM	4.00	10402 (TB6H)	0.3	12	7.64	9.3	86	162
			4	12	7.65	9.34	87	160
			8	12	7.64	9.38	87	161
			14.4	12	7.63	9.4	87	162
12/10/02 11:15 AM	4.00	10411 (TB6F)	0.3	10.5	7.39	8.61	77	81
			2.3	10.4	7.4	8.67	77	81
			4.6	10.2	7.45	8.75	78	81
12/10/02 10:00 AM	4.00	10407 (TB6CN)	0.3	10.7	7.08	9.48	85	40
			3.1	10.5	7.23	10.3	95	101
			6.2	10	7.24	10.6	94	104
12/11/2002 11:15	4.00	10404 (TB6A)	0.3	13.8	7.58	9.35	90	144
			10	13.4	7.6	9.34	89	144
			20	13.3	7.62	9.37	90	145
			27.4	13.3	7.67	9.43	90	147

SABINE RIVER AUTHORITY OF TEXAS

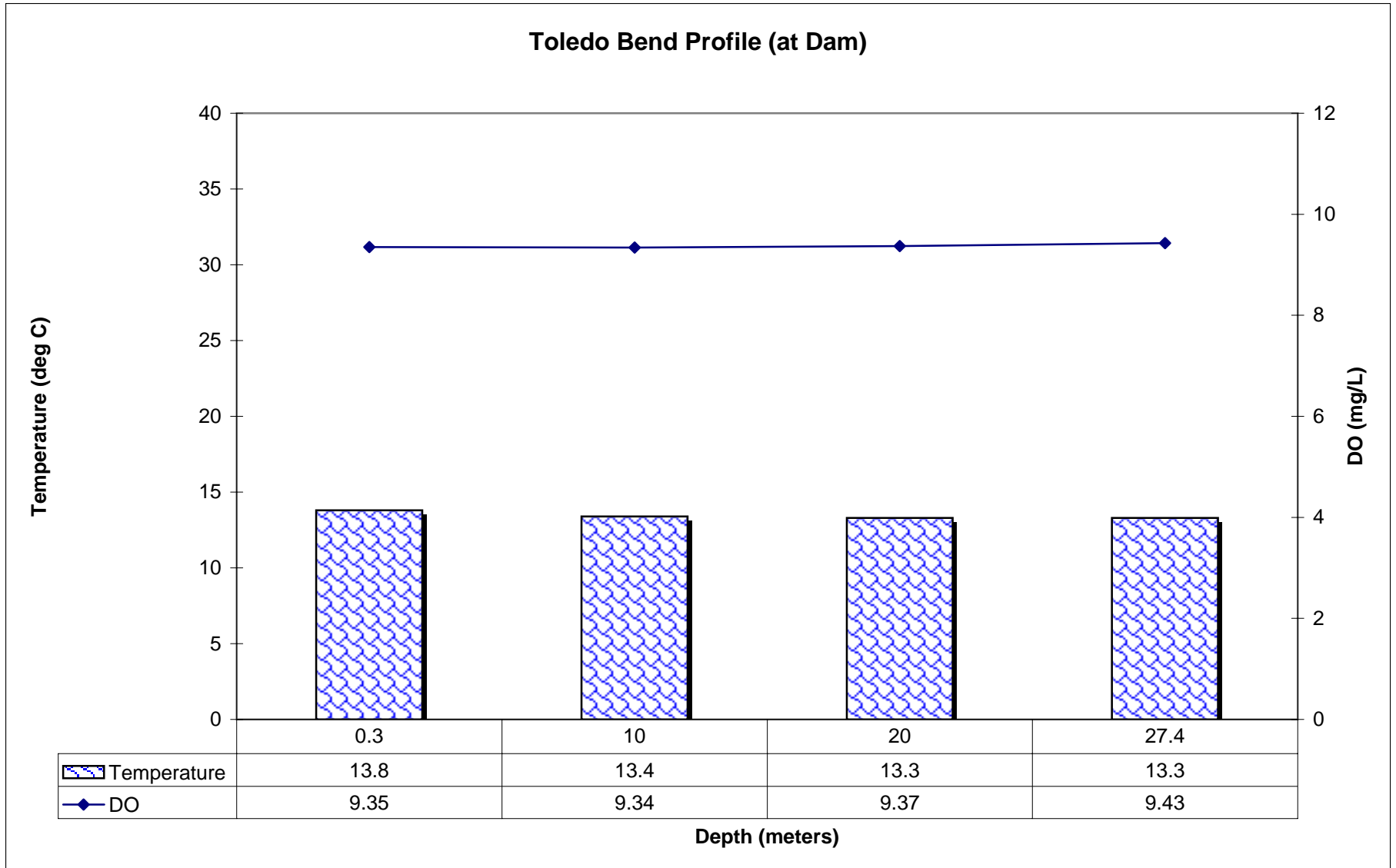
December 2002

Toledo Bend Profile (at Pendleton Bridge)



SABINE RIVER AUTHORITY OF TEXAS

December 2002



SABINE RIVER AUTHORITY OF TEXAS

Toledo Bend Weather and Reservoir Data

December 2002

Date	Lake Elev	LE - TOP	Max Temp	Min Temp	Rainfall	Evaporation	Daily Releases cfs	Daily Releases ac ft	Current Release
12/1/2002	167.98	(4.02)	66	36	0.00	0.15	174	345	174
12/2/2002	167.87	(4.13)	57	28	0.00	0.06	174	345	174
12/3/2002	167.92	(4.08)	70	33	0.00	0.03	174	345	174
12/4/2002	168.22	(3.78)	74	55	2.00	0.09	4,348	8,624	174
12/5/2002	168.45	(3.55)	63	38	1.05	NR	6,986	13,857	6,924
12/6/2002	168.39	(3.61)	42	30	0.00	FZ	6,825	13,537	7,044
12/7/2002	168.33	(3.67)	51	28	0.00	0.10	7,069	14,021	7,194
12/8/2002	168.33	(3.67)	65	29	0.00	0.07	7,044	13,972	6,344
12/9/2002	168.38	(3.62)	59	41	0.00	0.04	7,044	13,972	7,144
12/10/2002	168.36	(3.64)	47	42	0.41	0.05	6,614	13,119	6,944
12/11/2002	168.23	(3.77)	54	30	0.00	0.09	6,969	13,823	7,094
12/12/2002	168.15	(3.85)	59	31	0.02	0.08	6,952	13,789	6,844
12/13/2002	168.38	(3.62)	55	45	1.88	0.00	6,977	13,839	6,994
12/14/2002	168.46	(3.54)	51	32	0.00	0.12	7,106	14,095	7,094
12/15/2002	168.49	(3.51)	66	31	0.00	0.07	7,037	13,958	7,129
12/16/2002	168.44	(3.56)	68	32	0.00	0.06	6,982	13,849	6,944
12/17/2002	168.45	(3.55)	72	48	0.00	0.04	7,027	13,938	7,144
12/18/2002	168.38	(3.62)	75	59	0.00	0.13	6,994	13,872	7,044
12/19/2002	168.77	(3.23)	73	51	0.59	0.29	6,961	13,807	6,994
12/20/2002	168.56	(3.44)	65	47	0.00	0.20	7,107	14,097	7,044
12/21/2002	168.49	(3.51)	61	35	0.00	0.14	7,007	13,898	7,119
12/22/2002	168.69	(3.31)	68	36	0.00	0.05	6,969	13,823	6,894
12/23/2002	168.60	(3.40)	61	46	0.00	0.13	6,984	13,853	7,044
12/24/2002	169.15	(2.85)	70	42	0.95	0.00	6,884	13,654	6,924
12/25/2002	169.58	(2.42)	46	32	0.00	0.09	6,882	13,650	6,844
12/26/2002	169.85	(2.15)	46	29	0.00	0.08	11,346	22,504	6,919
12/27/2002	169.93	(2.07)	49	28	0.00	0.03	14,064	27,896	14,169
12/28/2002	169.92	(2.08)	61	29	0.00	0.08	13,925	27,620	14,144
12/29/2002	169.87	(2.13)	68	29	0.00	0.08	13,919	27,608	13,894
12/30/2002	169.74	(2.26)	72	41	0.00	0.05	14,102	27,971	13,944
12/31/2002	170.22	(1.78)	67	52	2.30	0.00	14,311	28,385	14269
Avg or Tot	168.73	(3.27)	61	38	9.20	2.40	7,515	462,066	

Units	Avg Feet M.S.L.	Avg Feet	Avg Deg. F	Avg Deg. F	Tot Inches	Tot Inches	Avg cfs	Tot Ac. Ft.	cfs approx. 8:00 a.m.
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TOP: Top of Pool = 172 Feet M.S.L.

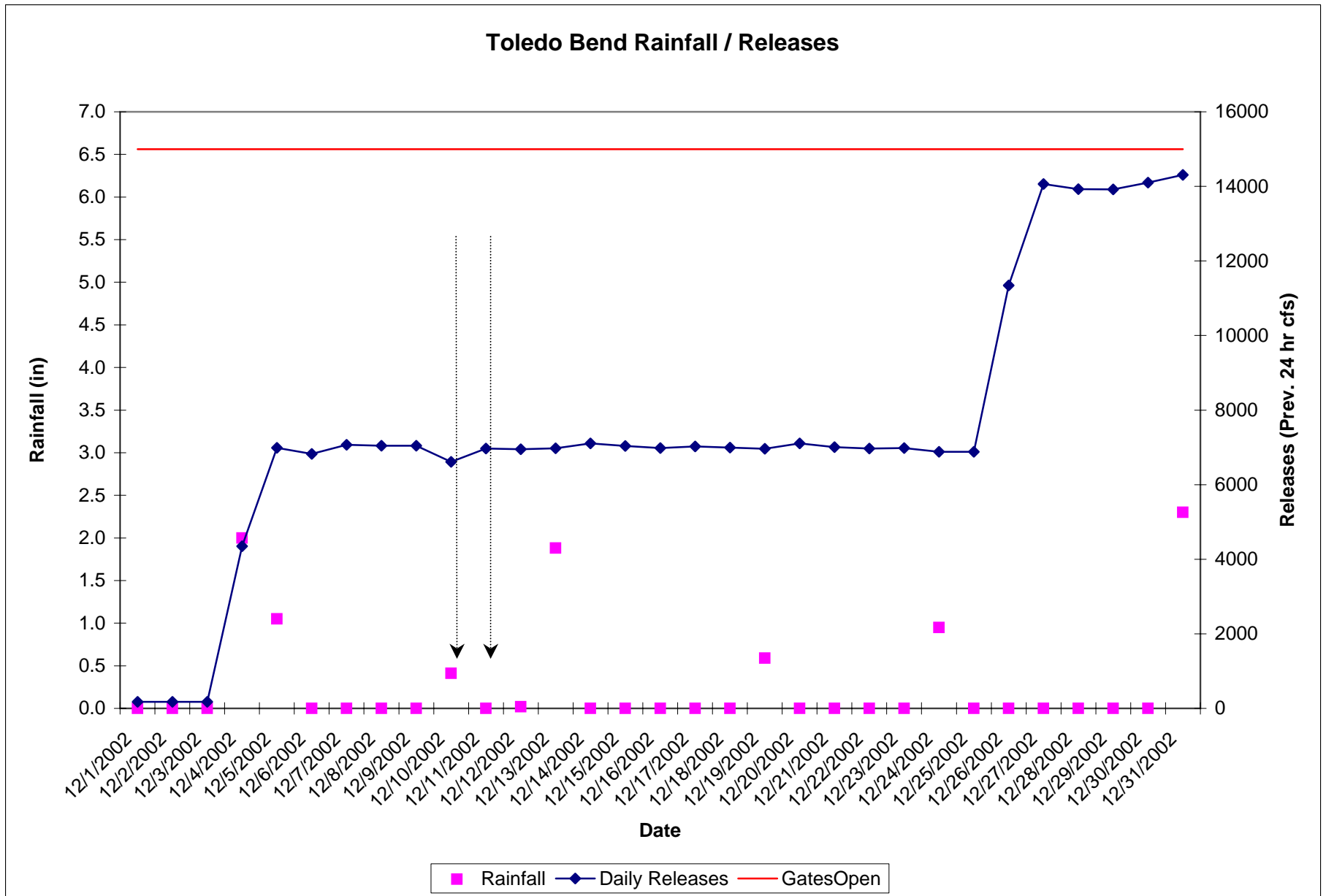
NR: Not Recorded

FZ: Gage Frozen

Toledo Bend Sampled on 12/10/2002 and 12/11/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Toledo Bend sampled on 12/10/2002 and 12/11/2002

Flood gates open when flow greater than approximately 15,000 cfs

SABINE RIVER AUTHORITY OF TEXAS

Burkeville Weather and River Data

December 2002

Date	<i>Rainfall</i>	<i>Gauge Height</i>	<i>GH - FS</i>	<i>Flow</i>
12/1/2002	OUT	OUT	OUT	OUT
12/2/2002	OUT	OUT	OUT	OUT
12/3/2002	OUT	OUT	OUT	OUT
12/4/2002	OUT	OUT	OUT	OUT
12/5/2002	OUT	OUT	OUT	OUT
12/6/2002	OUT	OUT	OUT	OUT
12/7/2002	OUT	OUT	OUT	OUT
12/8/2002	OUT	OUT	OUT	OUT
12/9/2002	OUT	OUT	OUT	OUT
12/10/2002	OUT	OUT	OUT	OUT
12/11/2002	0.00	20.56	(17.44)	5,836
12/12/2002	0.00	20.71	(17.29)	6,000
12/13/2002	1.84	22.60	(15.40)	8,234
12/14/2002	0.00	22.25	(15.75)	7,797
12/15/2002	0.01	21.38	(16.62)	6,757
12/16/2002	0.00	20.88	(17.12)	6,188
12/17/2002	0.00	20.81	(17.19)	6,110
12/18/2002	0.00	20.76	(17.24)	6,055
12/19/2002	0.32	20.78	(17.22)	6,077
12/20/2002	0.00	21.12	(16.88)	6,458
12/21/2002	0.00	20.93	(17.07)	6,243
12/22/2002	0.00	20.77	(17.23)	6,066
12/23/2002	0.00	20.70	(17.30)	5,989
12/24/2002	1.74	21.66	(16.34)	7,084
12/25/2002	0.00	22.93	(15.07)	8,655
12/26/2002	0.00	22.70	(15.30)	8,361
12/27/2002	0.00	25.53	(12.47)	12,295
12/28/2002	OUT	OUT	OUT	OUT
12/29/2002	0.00	25.09	(12.91)	11,636
12/30/2002	0.00	25.13	(12.87)	11,695
12/31/2002	2.05	26.23	(11.77)	13,368
Avg or Tot	5.96	22.18	(15.82)	7,845

	Tot	Avg	Avg	Avg
Units	Inches	Feet	Feet	cfs

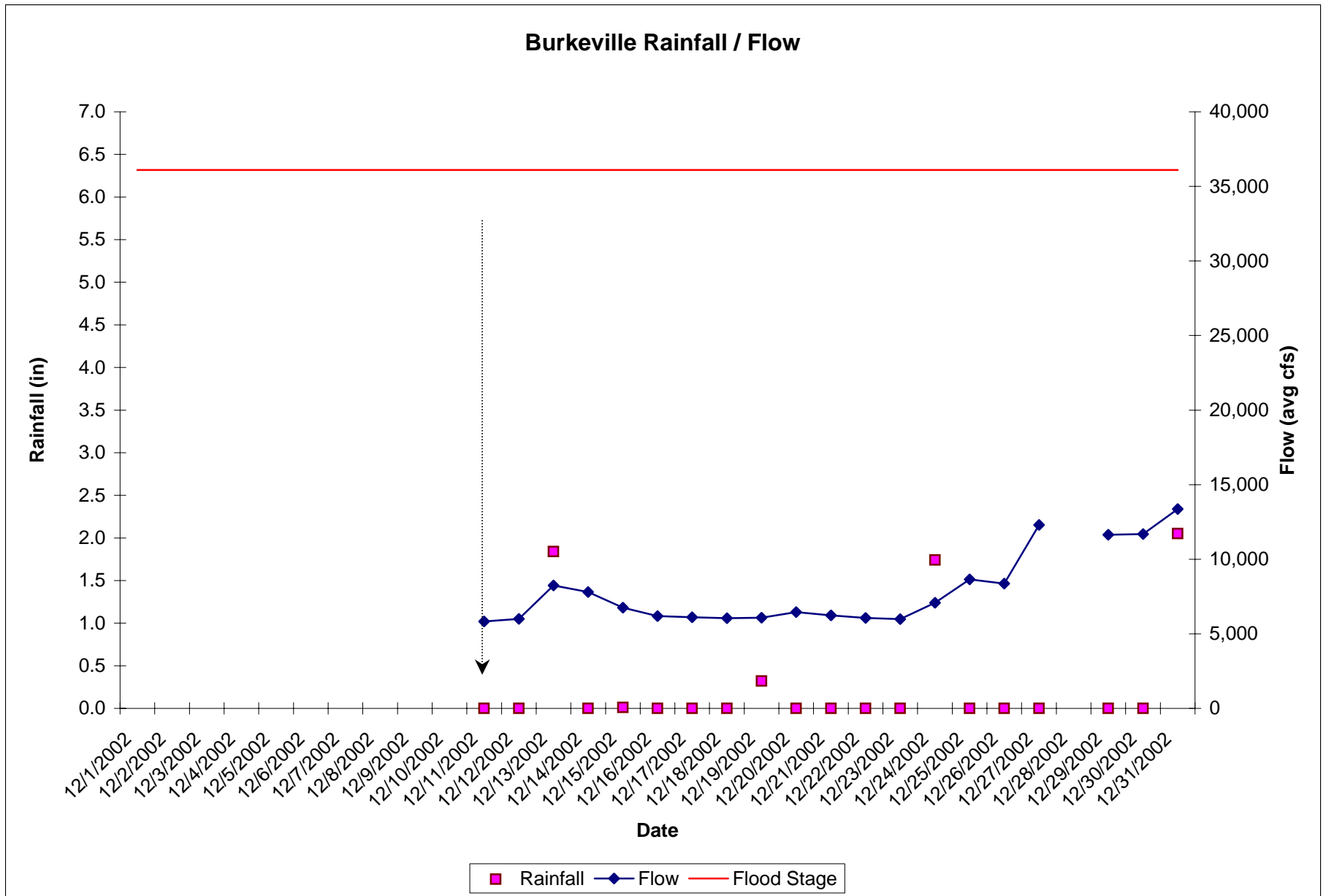
FS: Flood Stage = 41 feet

OUT: Gage Out

Lower Sabine Basin Sampled on 12/11/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Flood stage flow of 36,100 cfs calculated from flood stage gage height, 38 ft msl.

SABINE RIVER AUTHORITY OF TEXAS

Bon Wier Weather and River Data

December 2002

Date	<i>Gauge Height</i>	<i>GH - FS</i>	<i>Flow Avg</i>	<i>308 Rainfall</i>
12/1/2002	13.56	(16.44)	1,011	0.00
12/2/2002	13.50	(16.50)	981	0.00
12/3/2002	13.45	(16.55)	955	0.00
12/4/2002	14.08	(15.92)	1,296	2.03
12/5/2002	26.34	(3.66)	16,262	1.68
12/6/2002	27.13	(2.87)	17,717	0.00
12/7/2002	25.62	(4.38)	14,976	0.00
12/8/2002	24.72	(5.28)	13,444	0.00
12/9/2002	23.21	(6.79)	11,035	0.00
12/10/2002	22.04	(7.96)	9,319	0.42
12/11/2002	21.83	(8.17)	9,025	0.00
12/12/2002	21.60	(8.40)	8,708	0.00
12/13/2002	23.45	(6.55)	11,405	1.52
12/14/2002	26.21	(3.79)	16,028	0.00
12/15/2002	23.97	(6.03)	12,222	0.00
12/16/2002	23.69	(6.31)	11,775	0.00
12/17/2002	22.58	(7.42)	10,092	0.00
12/18/2002	21.90	(8.10)	9,123	0.00
12/19/2002	21.67	(8.33)	8,804	0.66
12/20/2002	22.14	(7.86)	9,461	0.16
12/21/2002	22.19	(7.81)	9,532	0.00
12/22/2002	21.82	(8.18)	9,012	0.00
12/23/2002	21.53	(8.47)	8,613	0.00
12/24/2002	OUT	OUT	OUT	OUT
12/25/2002	OUT	OUT	OUT	OUT
12/26/2002	OUT	OUT	OUT	OUT
12/27/2002	OUT	OUT	OUT	OUT
12/28/2002	25.84	(4.16)	15,362	0.00
12/29/2002	25.42	(4.58)	14,626	0.00
12/30/2002	25.33	(4.67)	14,471	0.00
12/31/2002	25.63	(4.37)	14,994	1.52
Avg or Tot	22.24	(7.76)	10,380	7.99

Units	Avg Feet	Avg Feet	Avg	Tot Inches
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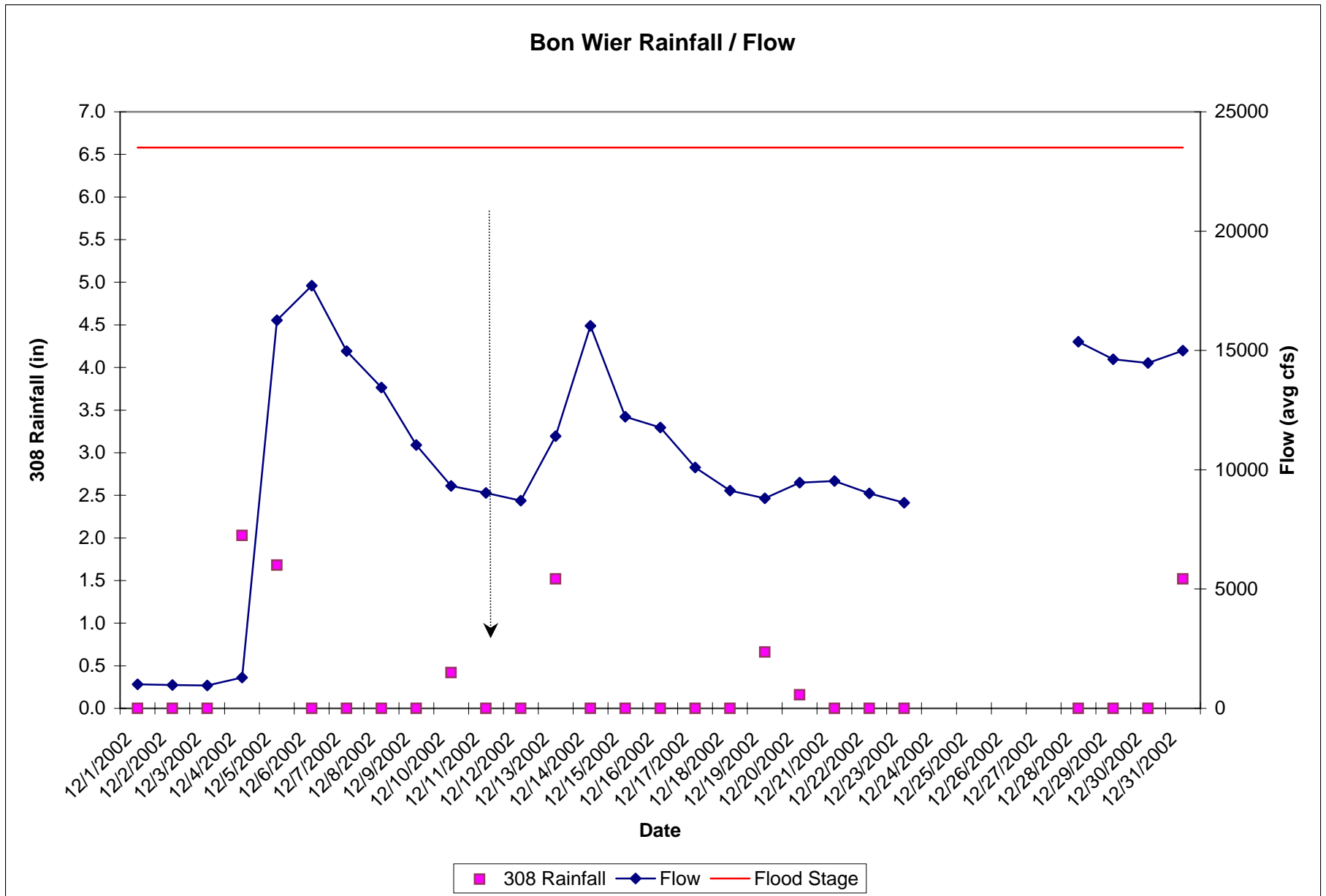
FS: Flood Stage = 30 feet

OUT: Gage Out

Lower Sabine Basin Sampled on 12/11/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Lower Sabine Basin sampled on 12/11/2002

Flood stage flow of 23,500 cfs calculated from flood stage gage height, 30 ft msl.

SABINE RIVER AUTHORITY OF TEXAS

Ruliff Weather and River Data

December 2002

Date	<i>Gauge Height</i>	<i>GH - FS</i>	<i>Flow cfs</i>	<i>Flow acft</i>	<i>Flow avg</i>	<i>309 Rainfall</i>
12/1/2002	16.83	(7.17)	2,230	4,423	2,230	0.00
12/2/2002	16.62	(7.38)	2,120	4,205	2,175	0.00
12/3/2002	16.49	(7.51)	2,053	4,072	2,134	0.10
12/4/2002	20.45	(3.55)	5,227	10,368	2,908	6.92
12/5/2002	22.89	(1.11)	10,155	20,142	4,357	2.21
12/6/2002	23.83	(0.17)	16,162	32,057	6,325	0.00
12/7/2002	24.06	0.06	18,514	36,722	8,066	0.00
12/8/2002	24.23	0.23	20,643	40,945	9,638	0.00
12/9/2002	24.35	0.35	22,255	44,142	11,040	0.00
12/10/2002	24.28	0.28	21,298	42,244	12,066	0.40
12/11/2002	24.08	0.08	18,752	37,194	12,674	0.01
12/12/2002	23.94	(0.06)	17,212	34,139	13,052	0.00
12/13/2002	23.89	(0.11)	16,726	33,176	13,334	1.52
12/14/2002	23.89	(0.11)	16,726	33,176	13,577	0.00
12/15/2002	23.97	(0.03)	17,506	34,723	13,839	0.00
12/16/2002	24.08	0.08	18,752	37,194	14,146	0.00
12/17/2002	24.12	0.12	19,242	38,166	14,445	0.00
12/18/2002	24.26	0.26	21,036	41,724	14,812	0.00
12/19/2002	24.01	0.01	17,918	35,540	14,975	0.01
12/20/2002	23.80	(0.20)	15,880	31,498	15,020	0.29
12/21/2002	23.58	(0.42)	13,956	27,681	14,970	0.00
12/22/2002	23.55	(0.45)	13,710	27,193	14,912	0.00
12/23/2002	23.52	(0.48)	13,464	26,705	14,849	0.03
12/24/2002	23.53	(0.47)	13,546	26,868	14,795	0.53
12/25/2002	23.44	(0.56)	12,952	25,690	14,721	0.00
12/26/2002	23.40	(0.60)	12,720	25,230	14,644	0.00
12/27/2002	23.52	(0.48)	13,464	26,705	14,601	0.01
12/28/2002	23.68	(0.32)	14,808	29,371	14,608	0.00
12/29/2002	23.79	(0.21)	15,790	31,319	14,649	0.00
12/30/2002	23.84	(0.16)	16,256	32,243	14,702	0.00
12/31/2002	23.95	(0.05)	17,310	34,334	14,787	1.48
Avg or Tot	23.03	(0.97)	14,787	909,189		13.51

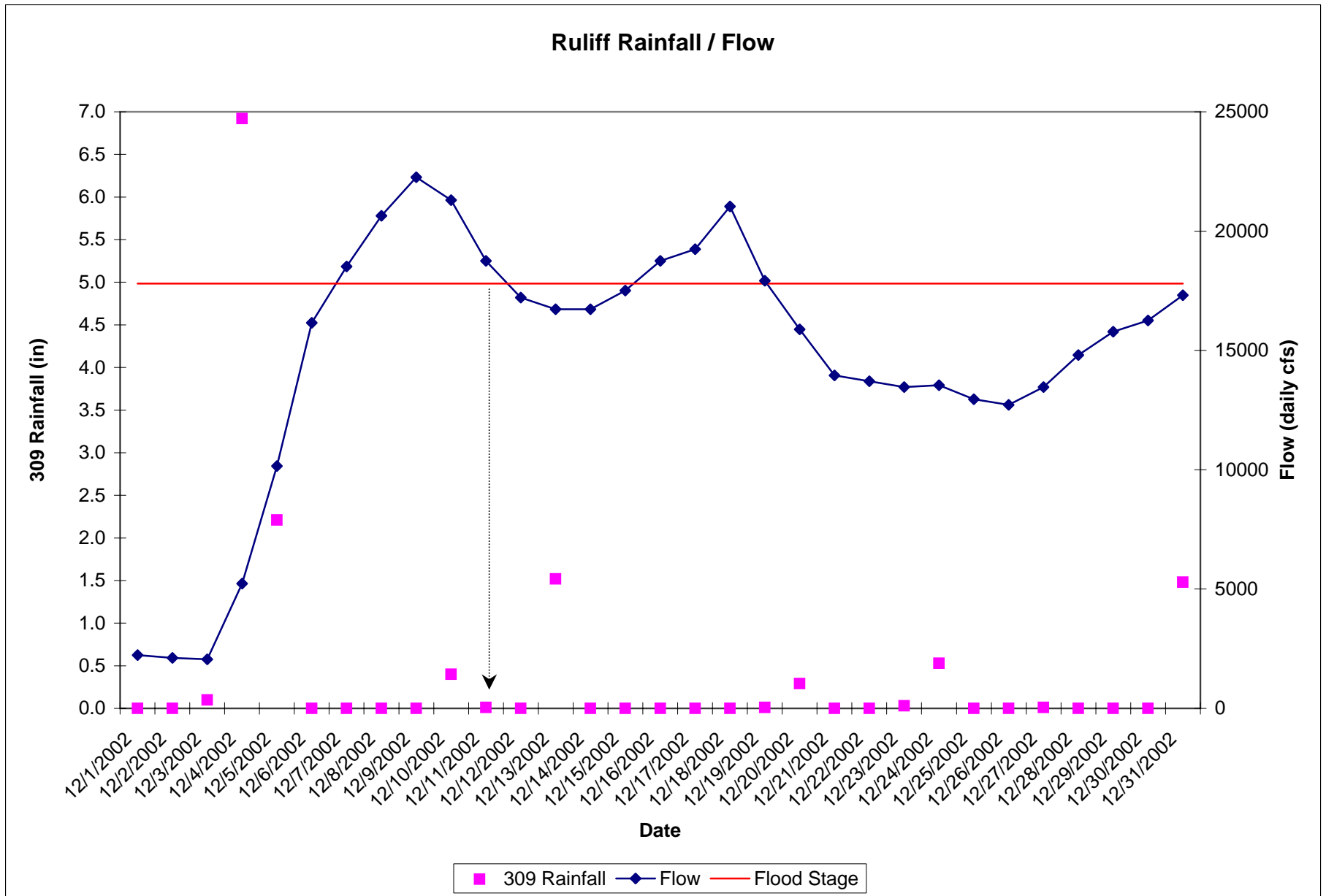
Units	Avg Feet	Avg Feet	Avg cfs	Tot ac ft	Tot Inches
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FS: Flood Stage 24 feet with 10 foot datum

Lower Sabine Basin Sampled on 12/11/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Lower Sabine Basin sampled on 12/11/2002

Flood stage flow of 17,800 cfs calculated from flood stage gage height, 24 ft msl.

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FY2003 Fixed Monitoring Stations

Tidal Sabine Basin

<i>SW</i>	<i>Segment Station</i>	<i>Location</i>
1.05	0501 15653 (ICW1)	INTERCOASTAL WATERWAY AT PERRY RIDGE
1.01	0501 15654 (BB1)	BLACK BAYOU IN CAMERON PARISH
1.00	0501 10395 (SR1)	SABINE RIVER 12.00 KM UPSTREAM OF IH 10
1.00	0501 10394 (SRT2)	SABINE RIVER AT IH 10
1.00	0501 10391 (SRT1)	SABINE RIVER AT CHANNEL CAN 3

SABINE RIVER AUTHORITY OF TEXAS

Tidal Report
December 2002

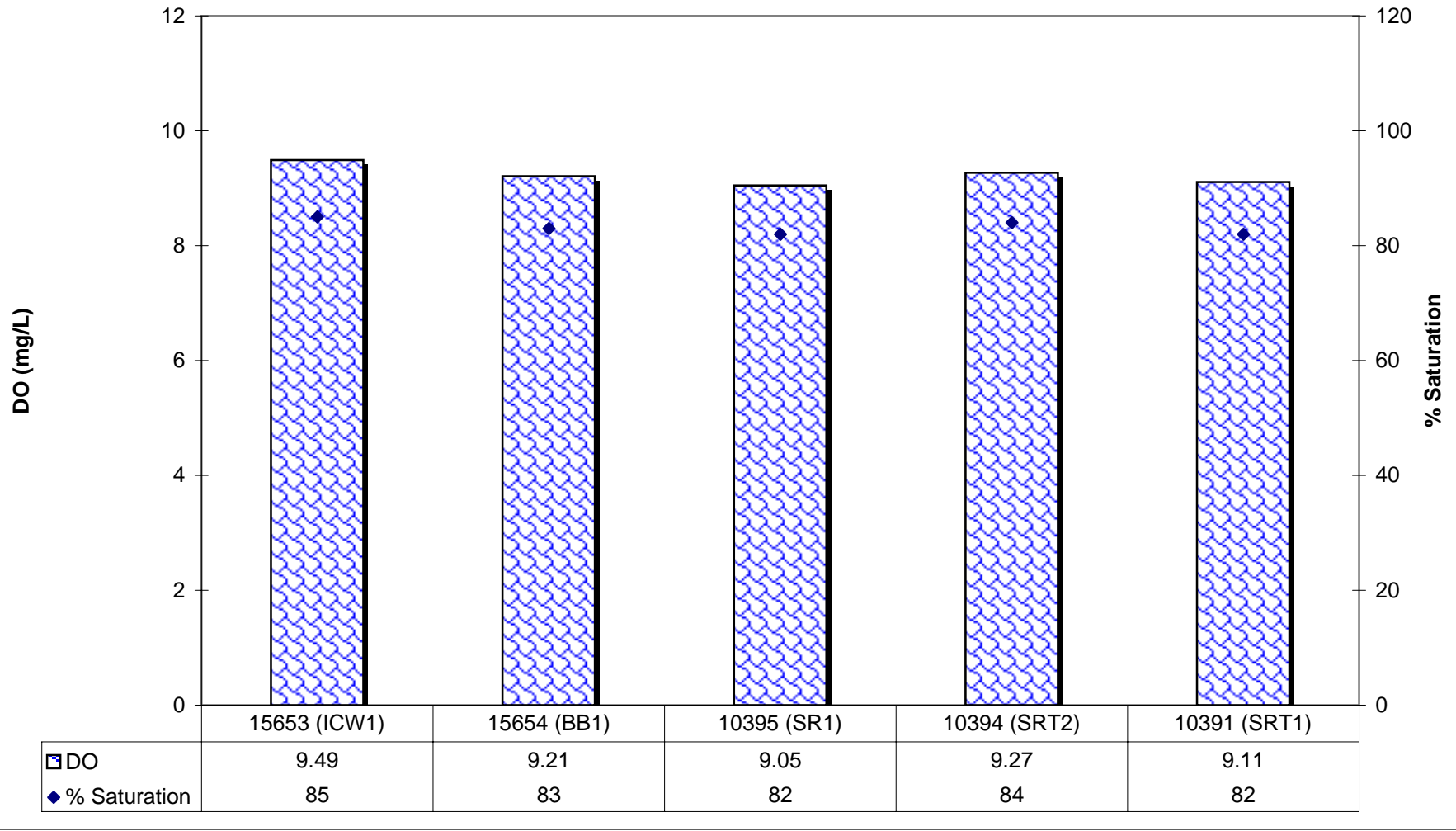
Date	SW ID	Station	Temperature °C 00010	pH Units 00400	DO mg/L 00300	% Saturation 00301	Conductivity µS/cm 00094	Salinity ppt 00480	Secchi Meters 00078	Turbidity NTU 82079	<i>E. coli</i> mpn/100ml 31699	<i>Enterococcus</i> mpn/100ml 31701	Chlorophyll a µg/L 32211	Nitrate & Nitrite 00630	Ortho-Phosphate 00671	TOC mg/L 00680	Total Alkalinity 00410	Total Hardness 00900
12/12/02 10:10 AM	1.05	15653 (ICW1)	10.6	8.13	9.49	85	89	< 1	0.43	25.8	*	62	*	< 0.04	< 0.04	11	*	*
12/12/02 10:33 AM	1.01	15654 (BB1)	10.6	7.76	9.21	83	101	< 1	0.36	28	*	74	*	< 0.04	< 0.04	13	*	*
12/12/02 9:22 AM	1.00	10395 (SR1)	10.9	7.05	9.05	82	97	*	0.44	23.5	219	*	*	< 0.04	< 0.04	11	*	*
12/12/02 9:45 AM	1.00	10394 (SRT2)	10.7	6.99	9.27	84	87	< 1	0.53	22.3	*	137	*	< 0.04	< 0.04	10	*	*
12/12/02 10:45 AM	1.00	10391 (SRT1)	10.6	7.49	9.11	82	96	< 1	0.4	24.8	*	50	*	< 0.04	< 0.04	11	*	*

*: Not sampled on this run

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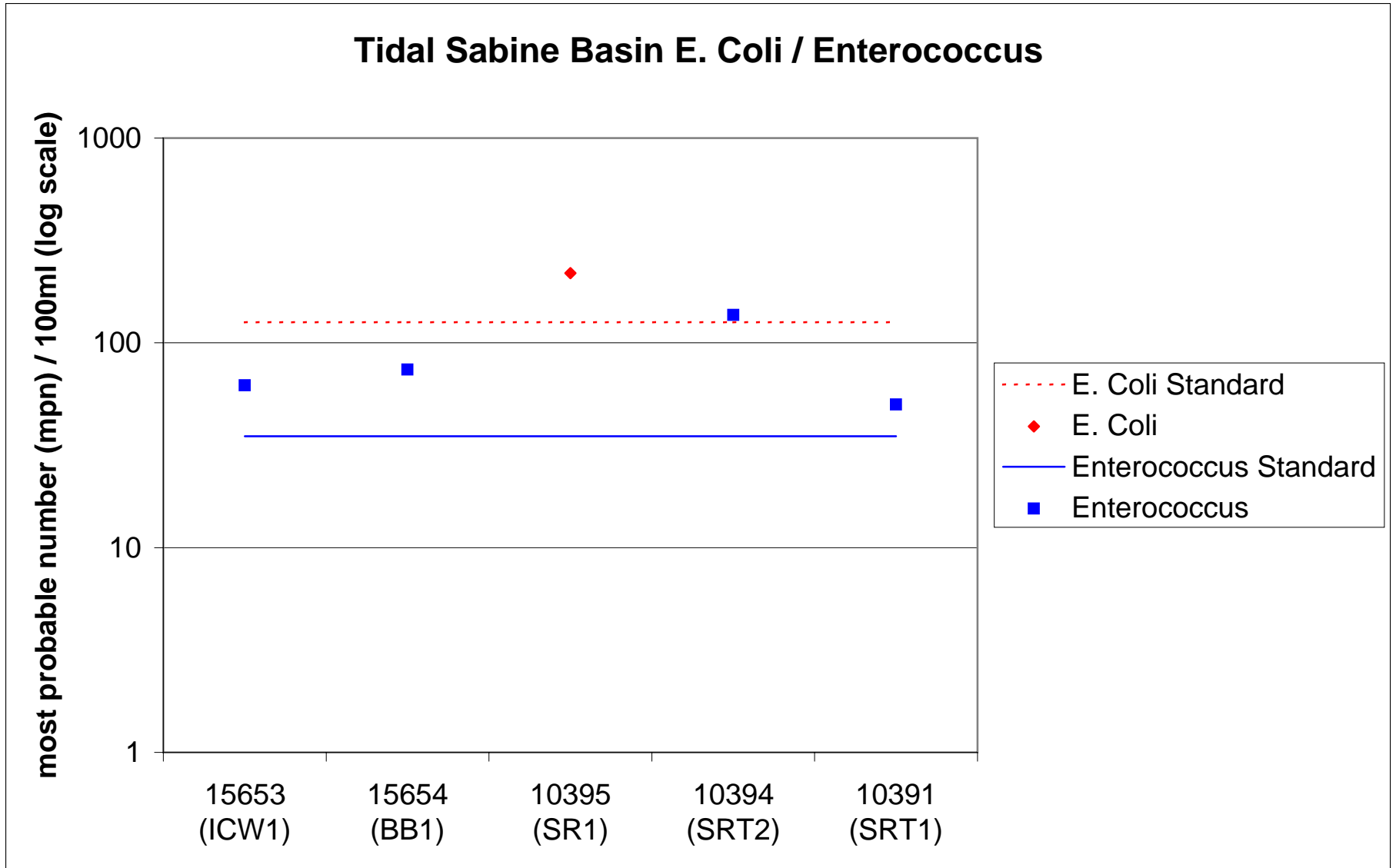
December 2002

Tidal Sabine Basin DO / % Saturation



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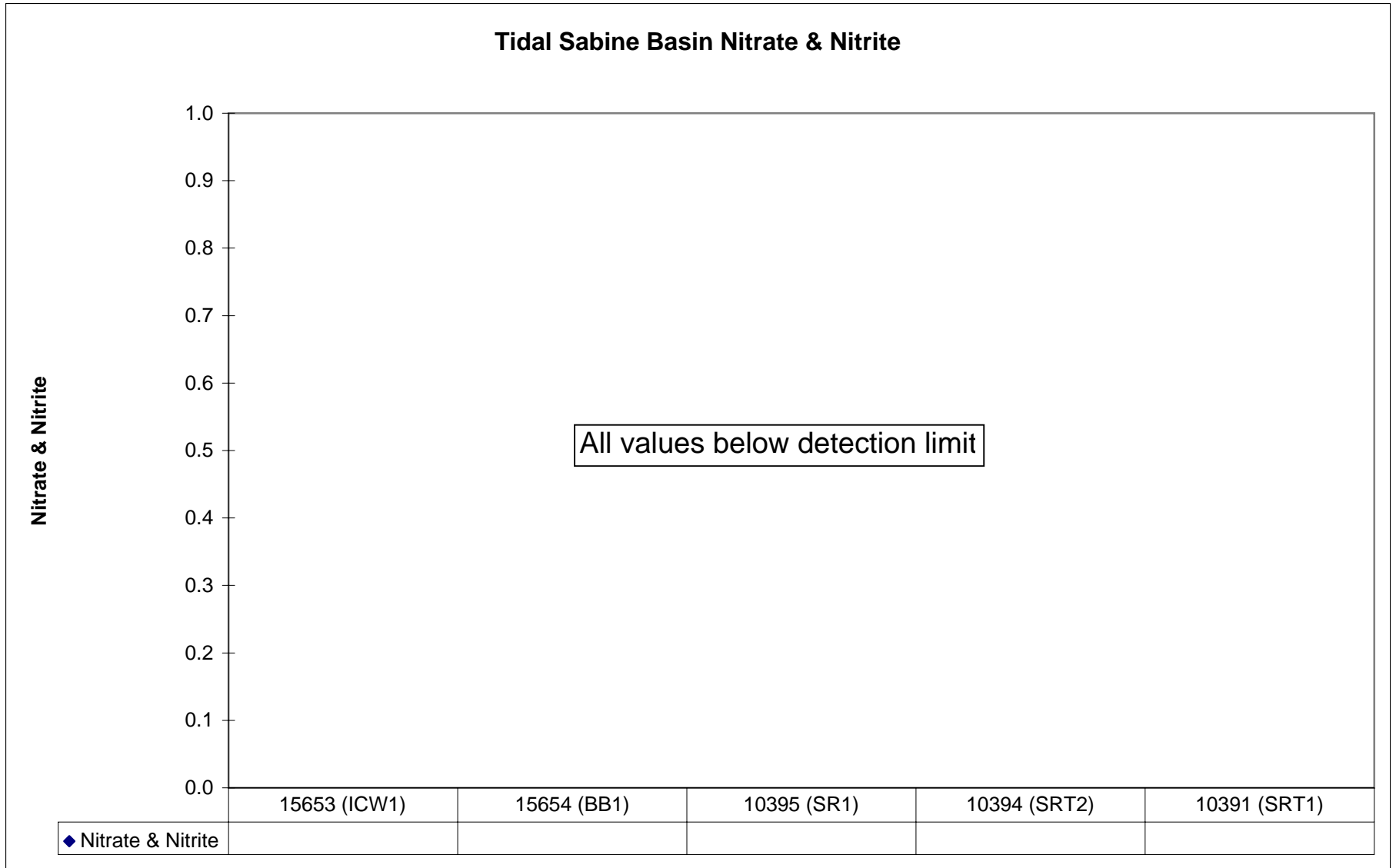
December 2002



Stations without values were not sampled on this run (see page 38).

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December 2002



All stations were below detection limit on this run (see page 38)

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Tidal Profiles

December 2002

Date	SW ID	Station	Depth Meters	Temperature	pH	DO	%	Conductivity	Salinity
				°C 00010	Units 00400	mg/L 00300	Saturation 00301	µS/cm 00094	ppt 00480
12/12/02 10:10 AM	1.05	15653 (ICW1)	0.3	10.6	8.13	9.49	85	89	< 1
			6.2	10.6	7.91	9.19	83	89	< 1
12/12/02 10:33 AM	1.01	15654 (BB1)	0.3	10.6	7.76	9.21	83	101	< 1
			5	10.7	7.64	9.1	82	101	< 1
12/12/02 9:45 AM	1.00	10394 (SRT2)	0.3	10.7	6.99	9.27	84	87	< 1
			9.6	10.7	6.89	9.01	81	86	< 1
12/12/02 10:45 AM	1.00	10391 (SRT1)	0.3	10.6	7.49	9.11	82	96	< 1
			8	10.6	7.31	8.96	81	94	< 1

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Orange Weather and River Data

December 2002

Date	310 (Orange) Rainfall	Gauge Height	GH - FS	Max Temp	Min Temp	Cur Temp	293 (GCD) Rainfall
12/1/2002	0.00	0.88	(3.12)	68	41	41	0.00
12/2/2002	0.00	1.75	(2.25)	68	38	38	0.00
12/3/2002	0.02	1.70	(2.30)	72	38	60	0.72
12/4/2002	3.83	2.64	(1.36)	70	60	70	6.17
12/5/2002	1.17	1.63	(2.37)	71	42	42	2.00
12/6/2002	0.00	1.60	(2.40)	42	33	34	0.00
12/7/2002	0.00	2.06	(1.94)	54	32	35	0.00
12/8/2002	0.00	2.05	(1.95)	56	32	45	0.00
12/9/2002	0.00	2.07	(1.93)	60	45	46	0.00
12/10/2002	0.16	2.07	(1.93)	48	43	44	0.31
12/11/2002	0.00	1.99	(2.01)	56	38	38	0.00
12/12/2002	OUT	2.34	(1.66)	55	38	52	0.00
12/13/2002	OUT	2.25	(1.75)	55	46	46	1.50
12/14/2002	OUT	OUT	OUT	58	37	38	0.00
12/15/2002	OUT	OUT	OUT	64	36	38	0.00
12/16/2002	OUT	OUT	OUT	67	38	49	0.00
12/17/2002	OUT	OUT	OUT	73	49	60	0.00
12/18/2002	0.00	2.28	(1.72)	74	59	66	0.00
12/19/2002	0.02	2.34	(1.66)	72	66	70	0.01
12/20/2002	OUT	OUT	OUT	70	44	44	0.76
12/21/2002	OUT	OUT	OUT	64	43	44	0.00
12/22/2002	OUT	OUT	OUT	69	44	52	0.00
12/23/2002	OUT	OUT	OUT	72	52	58	0.05
12/24/2002	OUT	OUT	OUT	72	48	48	0.50
12/25/2002	OUT	OUT	OUT	48	34	33	0.00
12/26/2002	OUT	OUT	OUT	50	34	37	0.00
12/27/2002	0.00	1.50	(2.50)	48	37	43	0.00
12/28/2002	0.00	1.23	(2.77)	65	37	37	0.00
12/29/2002	0.00	1.36	(2.64)	67	35	49	0.00
12/30/2002	0.00	2.01	(1.99)	72	49	61	0.00
12/31/2002	0.70	2.68	(1.32)	68	53	54	1.50
Avg or Tot	5.90	1.92	(2.08)	63	43	47	13.52

Units	Tot Inches	Avg Feet	Avg Feet	Avg Deg F	Avg Deg F	Avg Deg F	Tot Inches
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Appx. 8 am

310 Rainfall: Old Navy Base, City of Orange

293: SRA Gulf Coast Division Office, Northern Orange County

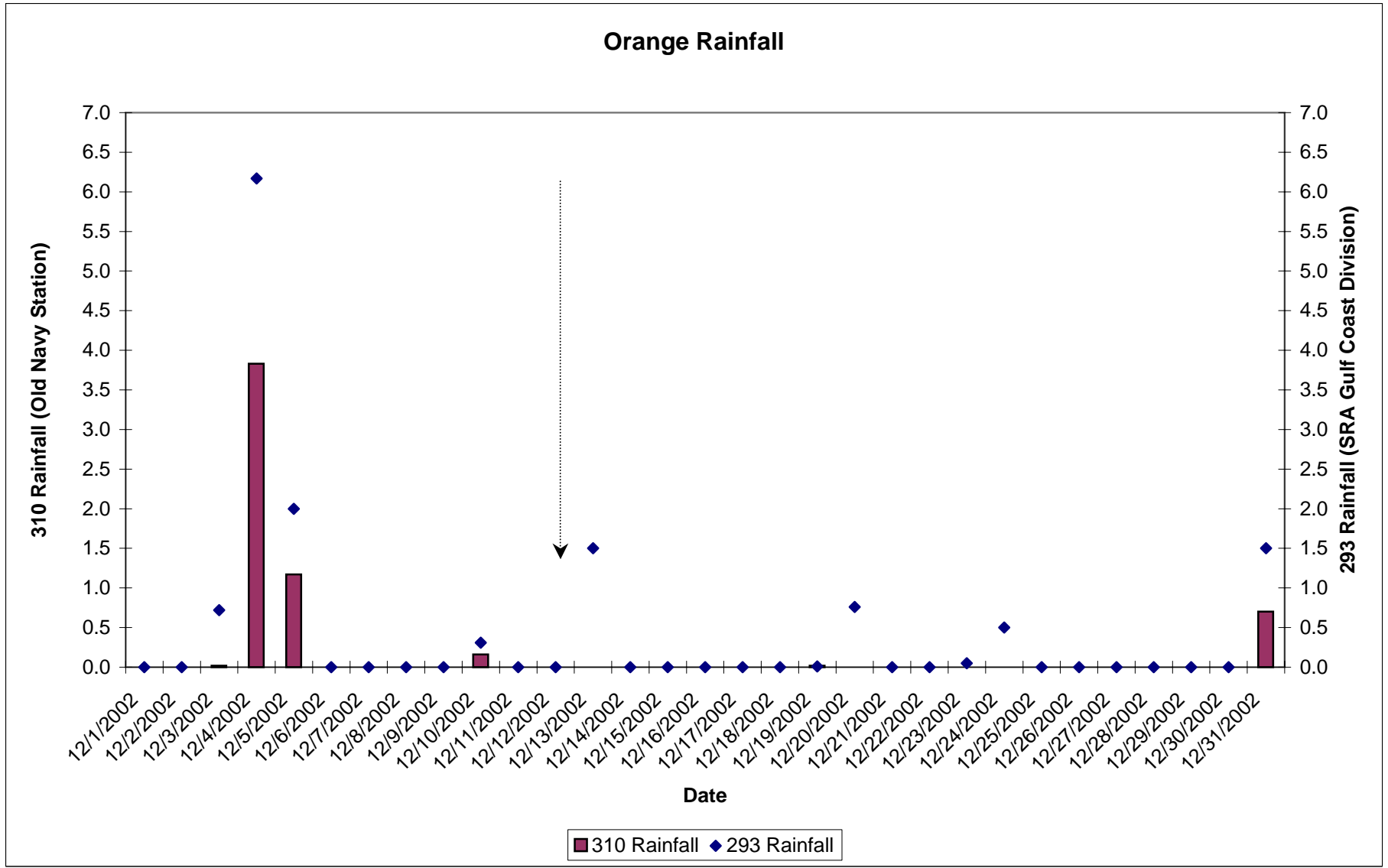
FS: Flood Stage = 4 Feet

OUT: Gage Out

Tidal Sabine Basin Sampled on 12/12/2002

SABINE RIVER AUTHORITY OF TEXAS

December 2002



Tidal Sabine Basin Sampled on 12/12/2002