TV-04 Water Level Data*

Collected hourly at 4 stations 1997 - present

- Monitoring Station Location Map
- Table: Average **Daily** Water Level and Variability
- Table: Average **Weekly** Water Level and Variability
- Histograms: Marsh Flooding Events by station
- Histograms: Daily and Weekly Water Level Variability (english)
- Histograms: Daily and Weekly Water Level Variability (metric)
- Hourly Salinity and Water Level Data by station (english)
- Hourly Salinity and Water Level by station (metric)
- Preliminary Statistical Analyses

*Although not a project monitoring element, hourly salinity data were also collected concurrent with hourly water level at no additional cost.

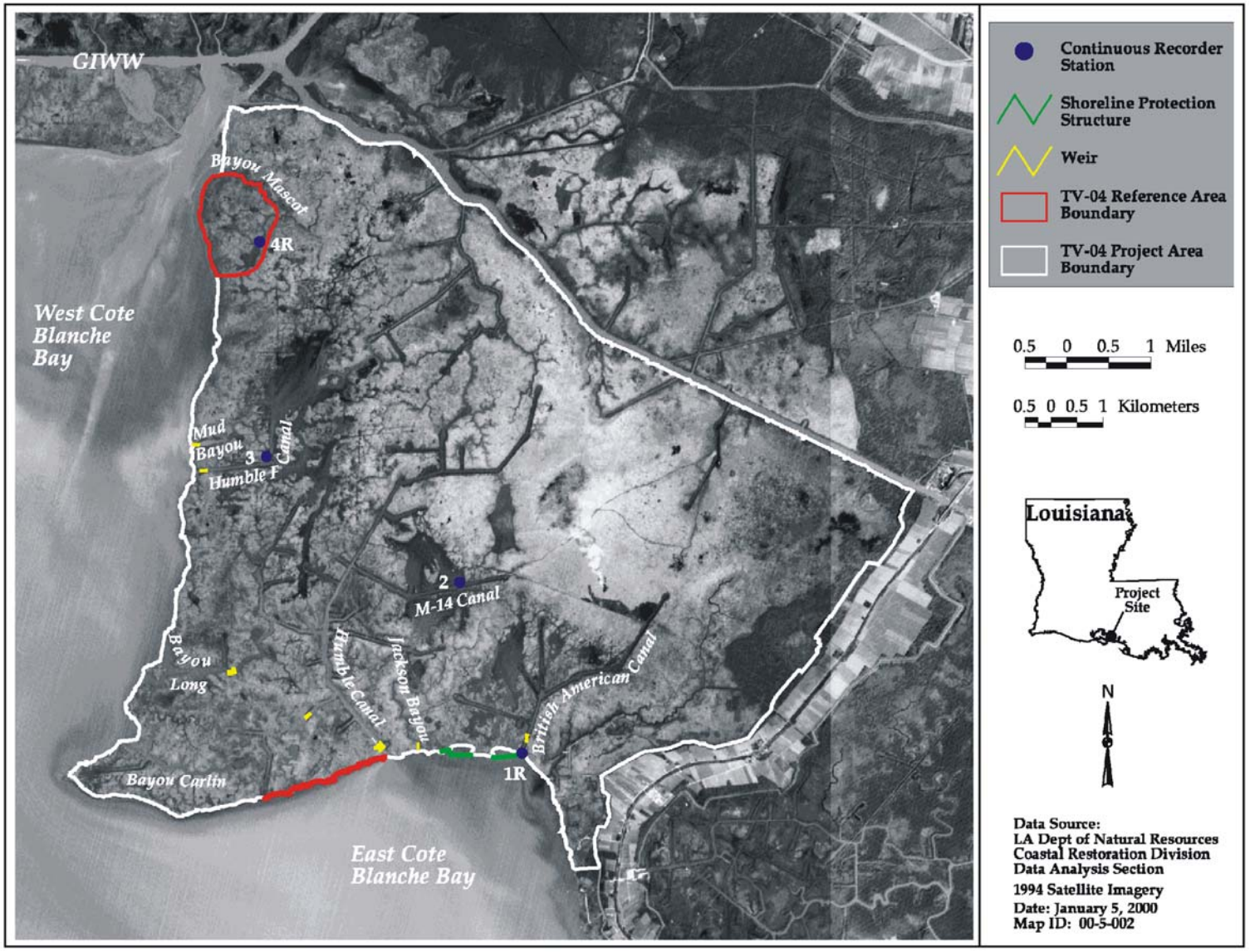
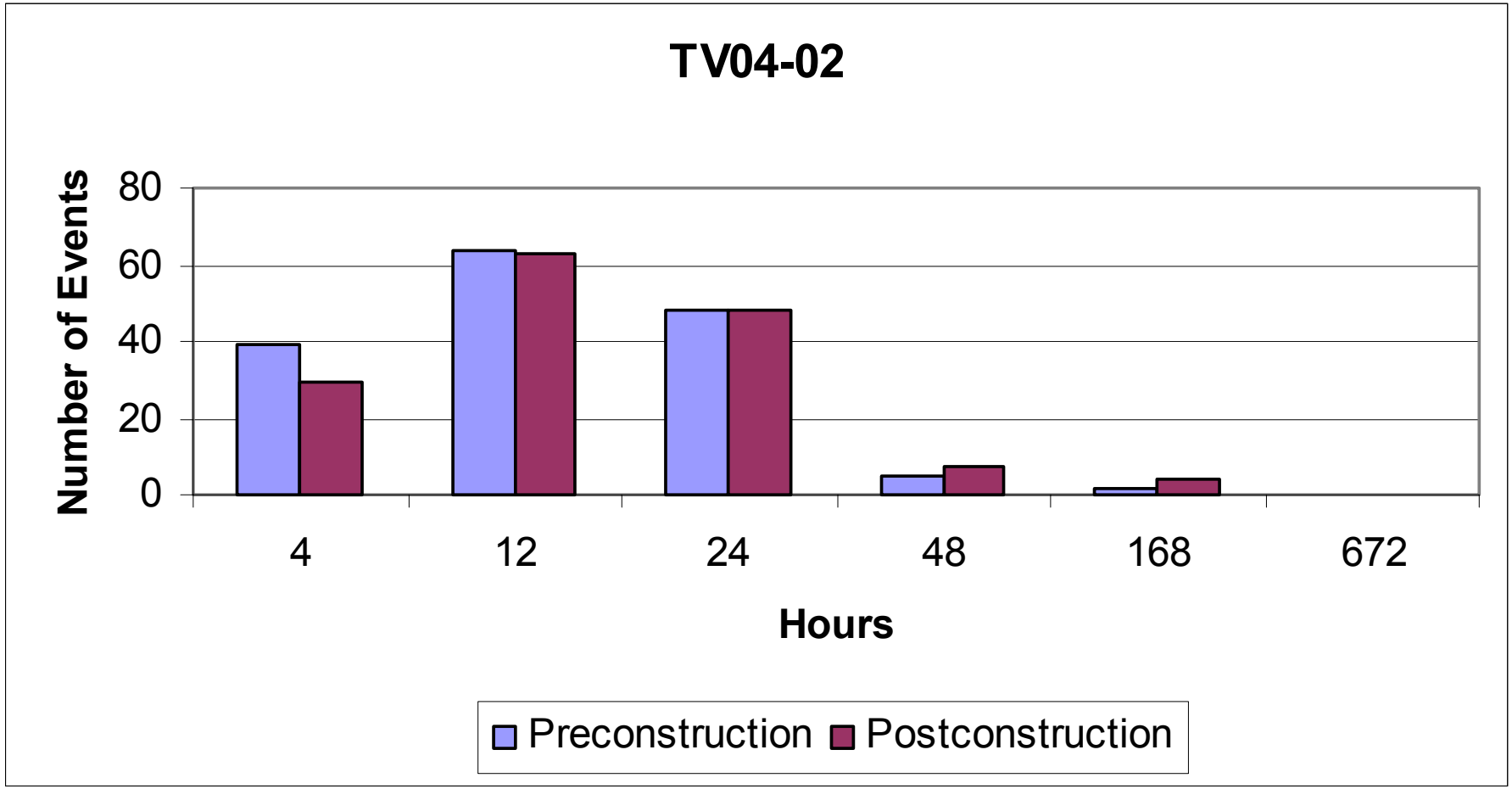

GIWW
Bayou Muscot
4R
West Cote Blanche Bay
Mud Bayou
3
Humble Canal
2
M-14 Canal
Bayou Long
Humble Canal
Jackson Bayou
British American Canal
1R
Bayou Carlin
East Cote Blanche Bay
Continuous Recorder Station
Shoreline Protection Structure
Weir
TV-04 Reference Area Boundary
TV-04 Project Area Boundary
0.5 0 0.5 1 Miles
0.5 0 0.5 1 Kilometers
Louisiana
Project Site
N
Data Source:
LA Dept of Natural Resources
Coastal Restoration Division
Data Analysis Section
1994 Satellite Imagery
Date: January 5, 2000
Map ID: 00-5-002

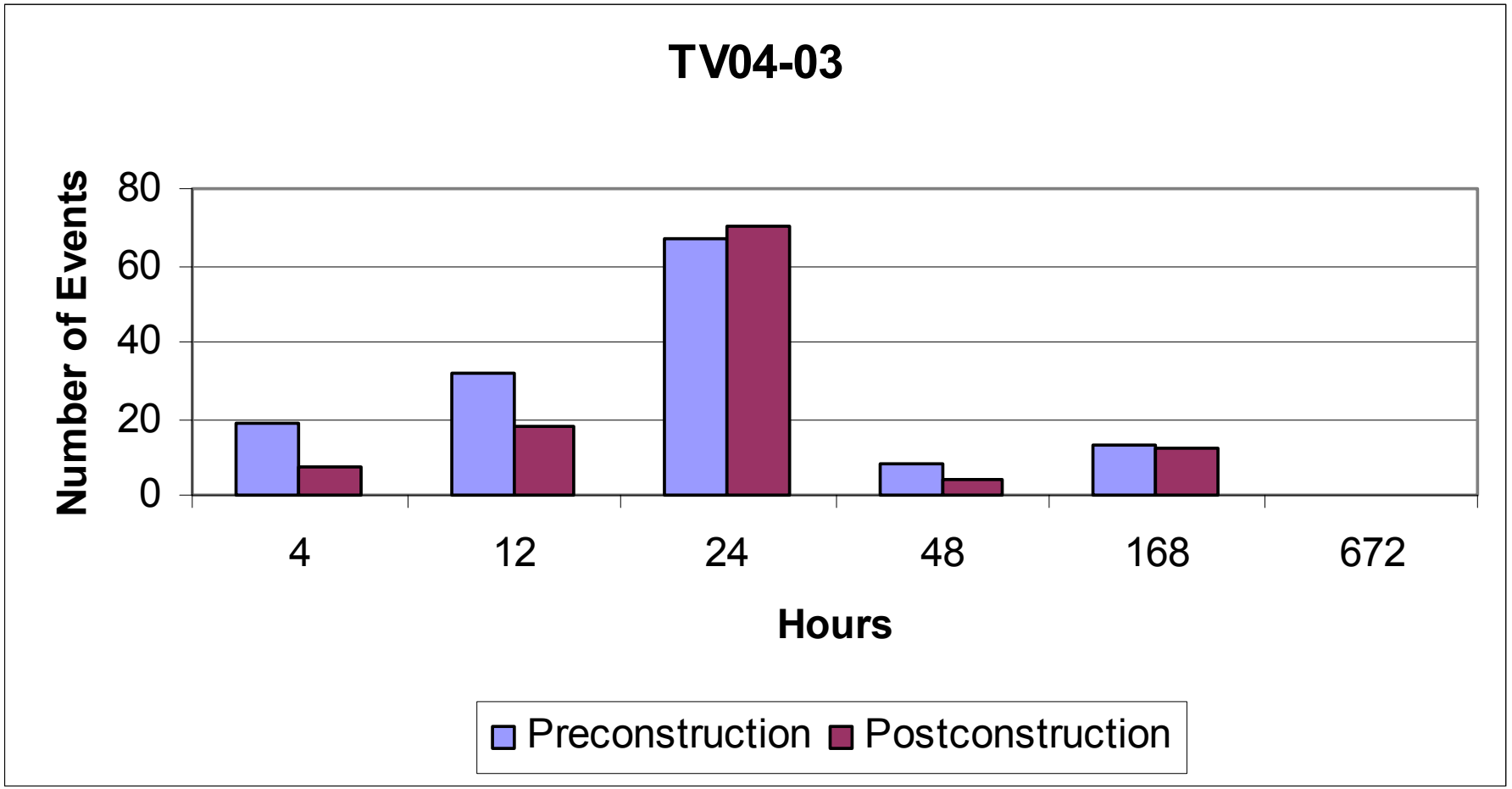
Table 1. Estimates based on daily variability in water levels.								
sonde	area	preconstruction			postconstruction		
Coefficient of Variation			SD	SE		SD	SE
1R	Bay@British American Canal	16.50	6.50	0.41	13.40	5.40	0.51
2	M-14 Canal	15.20	7.60	0.56	9.80	4.20	0.35
3	Humble-F Canal	13.20	5.20	0.38	10.30	4.50	0.37
4R	Bayou Mascot	11.20	3.70	0.23	10.10	4.20	0.34
Minimum Water Level (ft)							
1R	Bay@British American Canal	2.74	0.68	0.04	3.72	0.79	0.08
2	M-14 Canal	3.23	1.05	0.08	4.36	0.69	0.06
3	Humble-F Canal	3.24	0.73	0.05	3.74	0.60	0.05
4R	Bayou Mascot	3.45	0.58	0.04	3.85	0.61	0.05
Maximum Water Level (ft)							
1R	Bay@British American Canal	4.70	0.59	0.04	5.87	0.55	0.05
2	M-14 Canal	5.19	0.83	0.06	5.96	0.40	0.03
3	Humble-F Canal	4.92	0.57	0.04	5.18	0.40	0.03
4R	Bayou Mascot	4.94	0.48	0.03	5.33	0.40	0.03
Range of Water Level (ft)		preconstruction			postconstruction		
1R	Bay@British American Canal	1.97	0.54	0.03	2.16	0.76	0.07
2	M-14 Canal	1.96	0.56	0.04	1.63	0.52	0.04
3	Humble-F Canal	1.68	0.46	0.03	1.44	0.44	0.04
4R	Bayou Mascot	1.50	0.37	0.02	1.48	0.46	0.04
SD = Standard Deviation							
SE = Standard Error							

Table 2. Estimates based on weekly variability in water levels.								
sonde	**area**	**preconstruction**			**postconstruction**		
Coefficient of Variation			**SD**	**SE**		**SD**	**SE**
1R	Bay@British American Canal	19.30	5.40	0.93	16.00	4.80	1.15
2	M-14 Canal	18.60	7.30	1.43	12.00	3.10	0.70
3	Humble-F Canal	16.50	4.90	0.96	12.90	3.30	0.73
4R	Bayou Mascot	14.50	3.80	0.66	12.70	3.00	0.68
Minimum Water Level (ft)							
1R	Bay@British American Canal	2.08	0.70	0.12	2.77	0.99	0.24
2	M-14 Canal	2.49	1.08	0.21	3.50	0.69	0.15
3	Humble-F Canal	2.53	0.70	0.14	3.02	0.57	0.13
4R	Bayou Mascot	2.91	0.42	0.07	3.16	0.41	0.09
Maximum Water Level (ft)							
1R	Bay@British American Canal	5.40	0.63	0.11	6.44	0.70	0.17
2	M-14 Canal	5.93	0.66	0.13	6.40	0.42	0.09
3	Humble-F Canal	5.50	0.48	0.09	5.63	0.40	0.09
4R	Bayou Mascot	5.46	0.34	0.06	5.75	0.41	0.09
Range of Water Level (ft)							
1R	Bay@British American Canal	3.33	0.90	0.16	3.67	1.19	0.29
2	M-14 Canal	3.44	1.02	0.20	2.91	0.70	0.16
3	Humble-F Canal	2.97	0.83	0.16	2.62	0.59	0.13
4R	Bayou Mascot	2.54	0.53	0.09	2.59	0.48	0.11
SD = Standard Deviation							
SE = Standard Error							

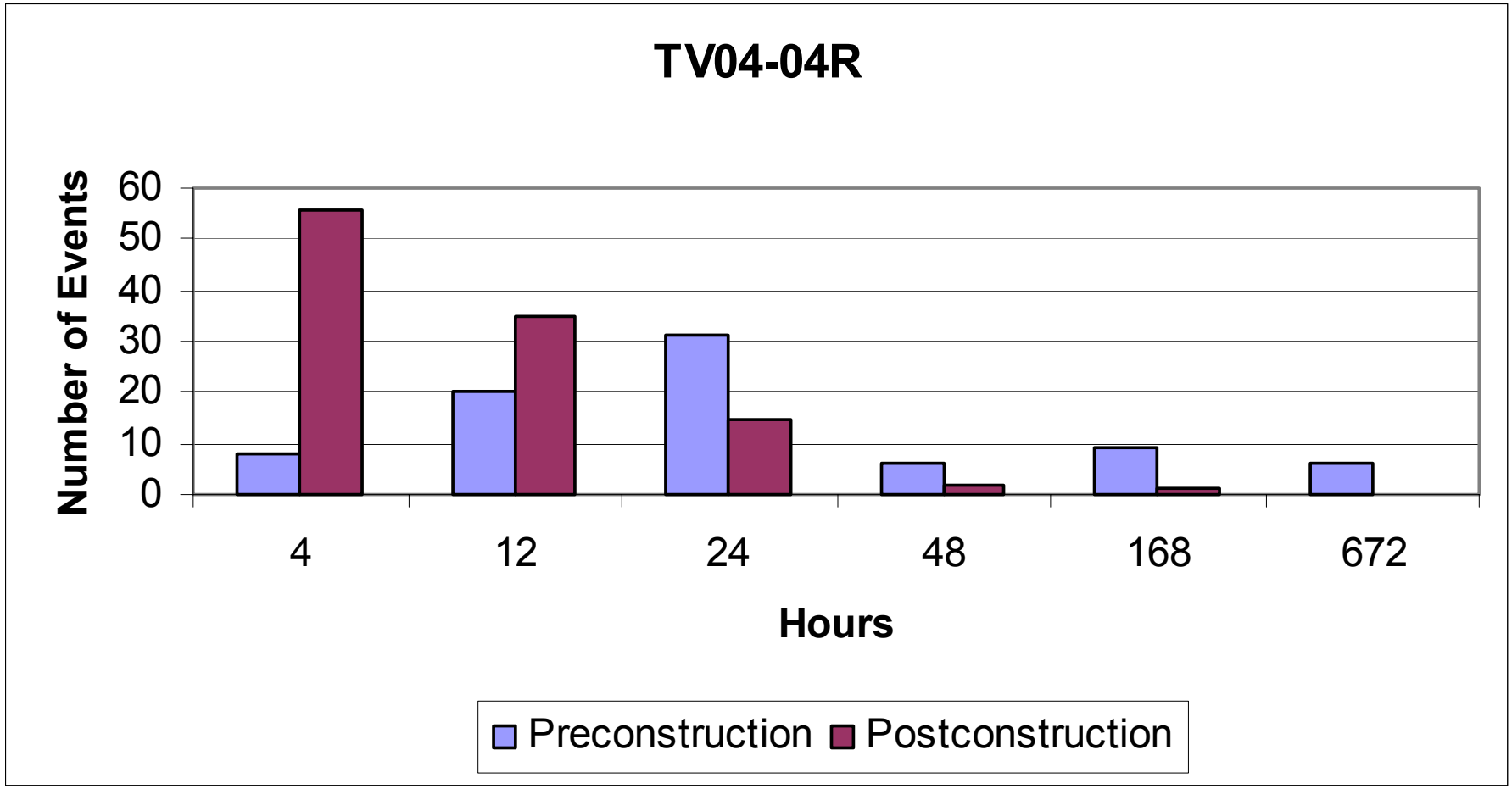
Frequency and Duration of flooding events

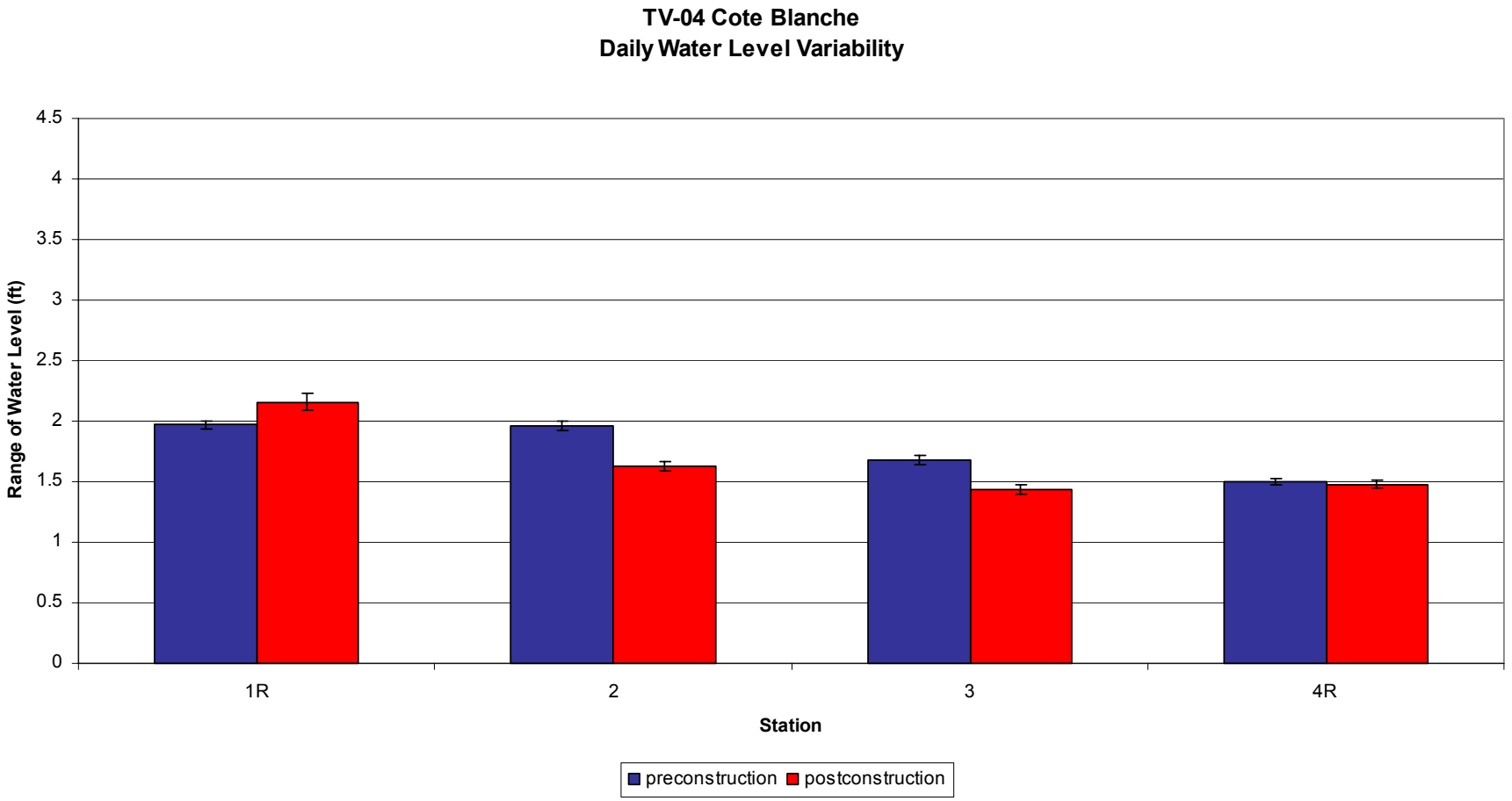


Frequency and Duration of flooding events

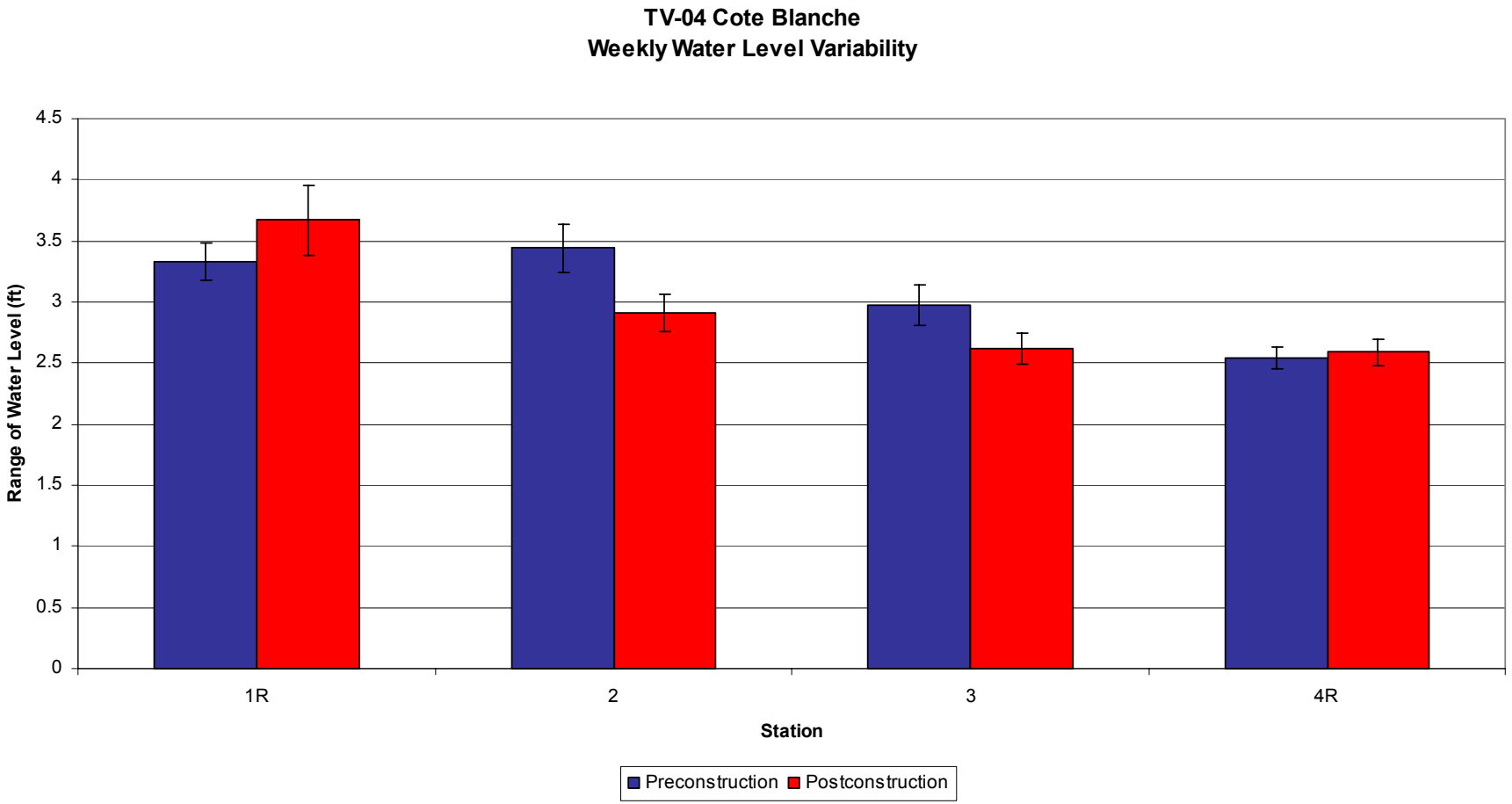


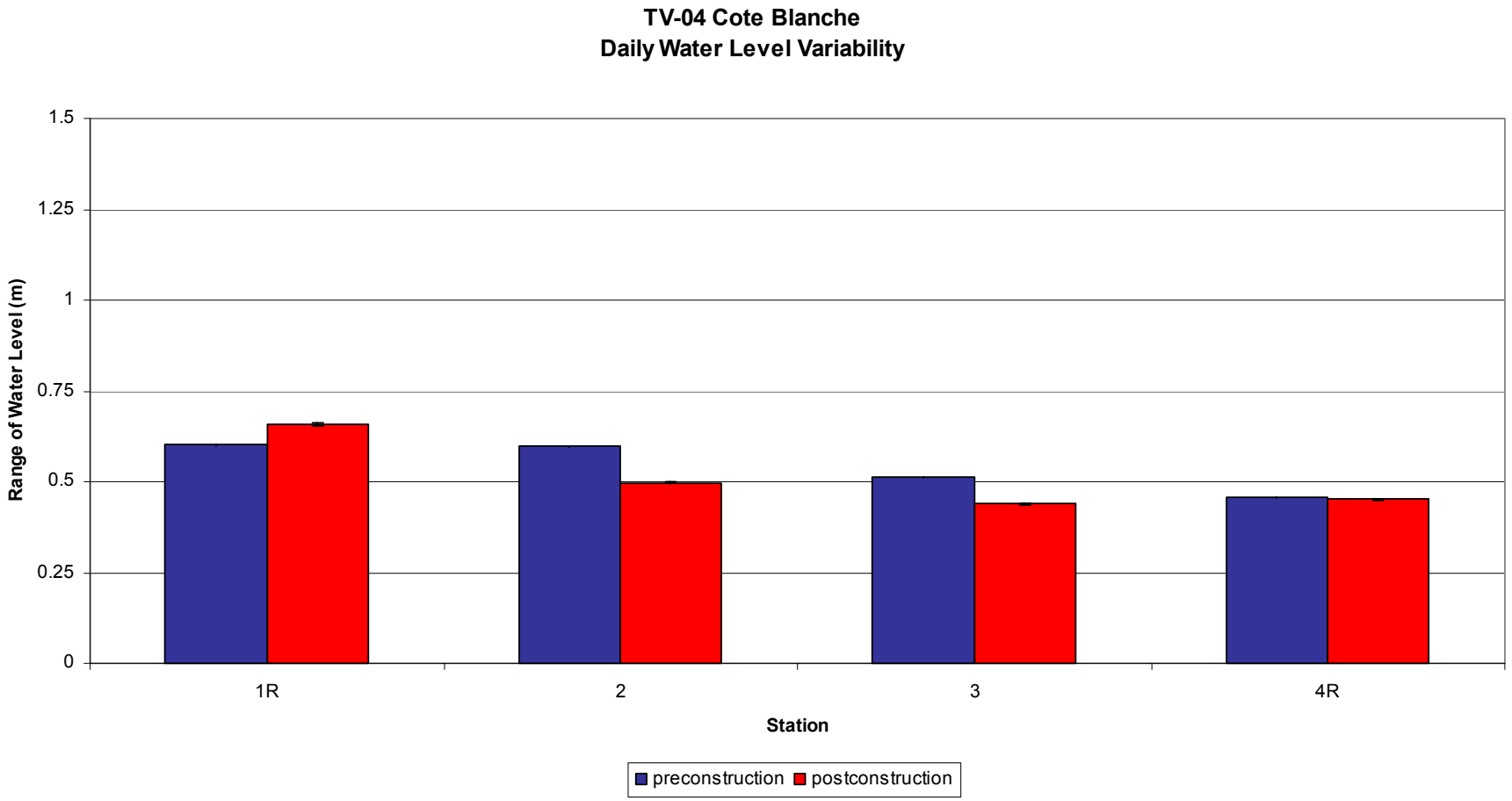
Frequency and Duration of flooding events



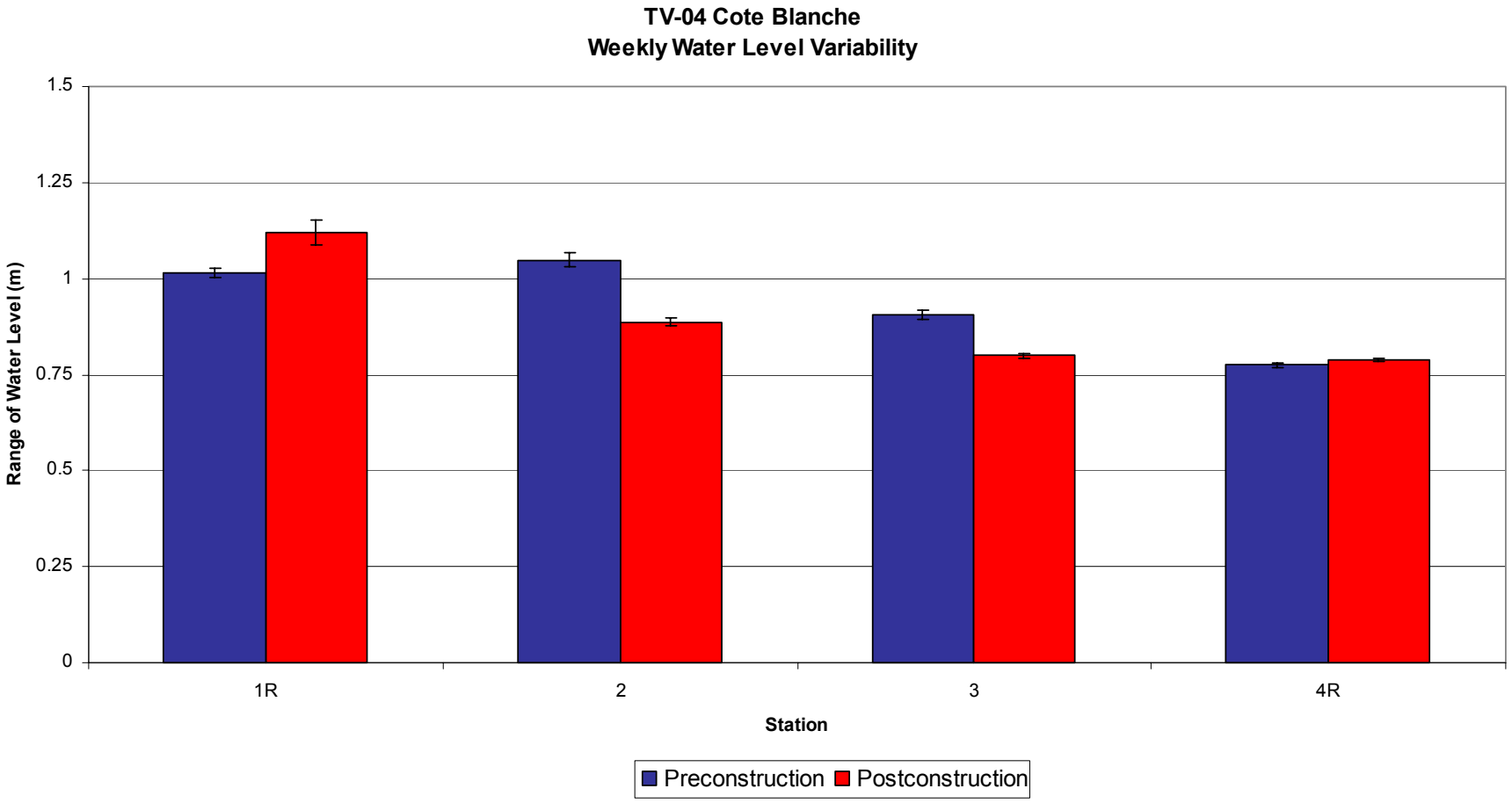


ENGLISH units

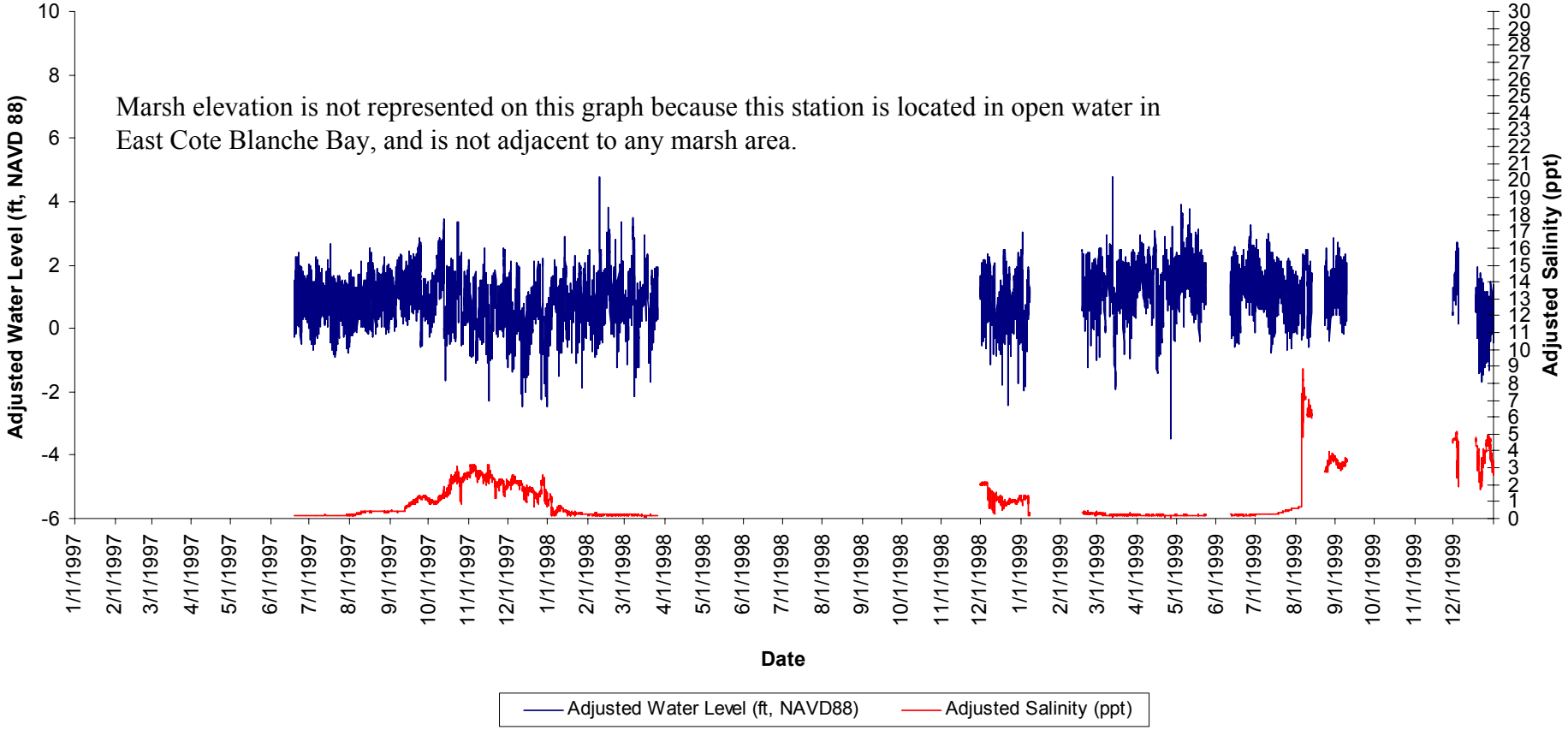

TV-04 Cote Blanche
Weekly Water Level Variability
Range of Water Level (ft)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1R
2
3
4R
Station
Preconstruction
Postconstruction



METRIC units

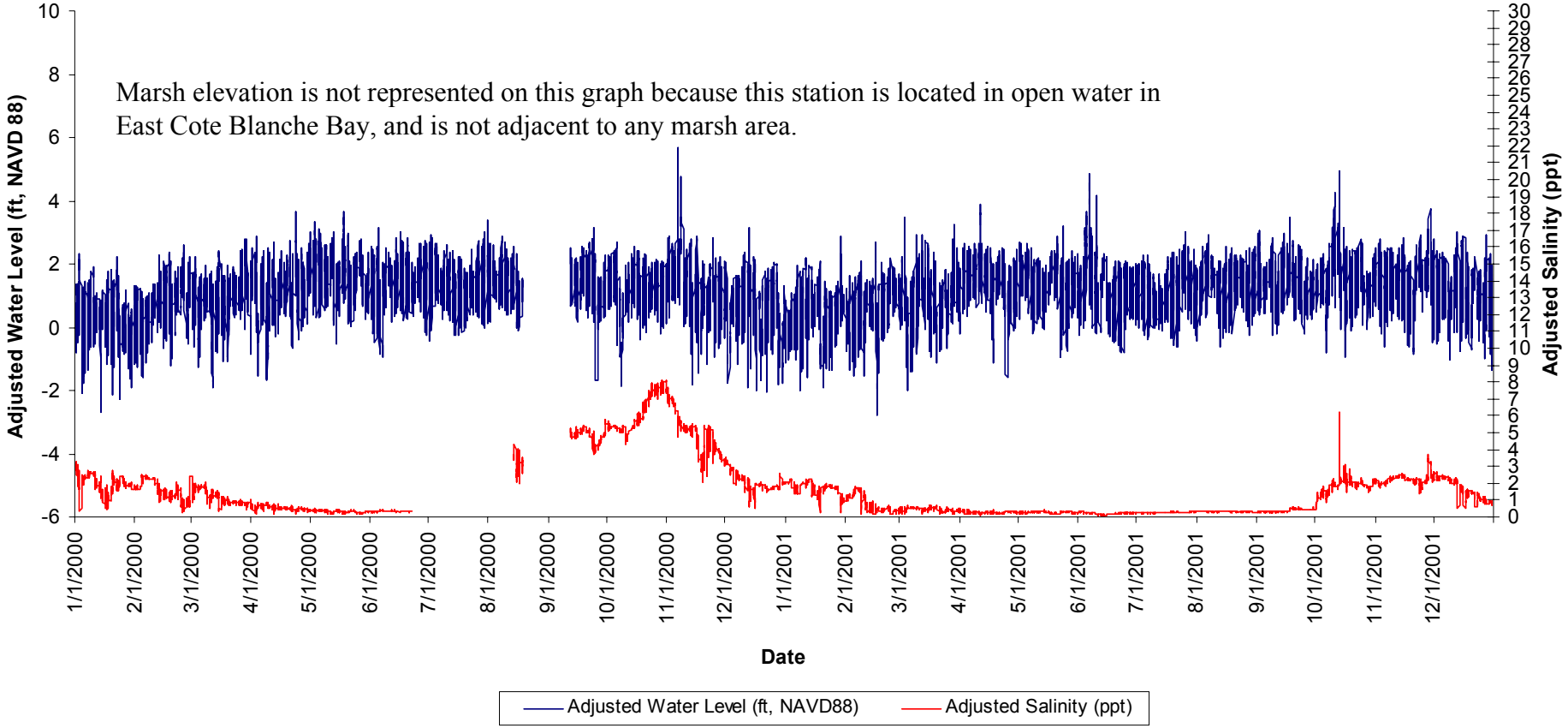

TV-04 Cote Blanche
Weekly Water Level Variability
Range of Water Level (m)
1.5
1.25
1
0.75
0.5
0.25
0
1R
2
3
4R
Station
Preconstruction
Postconstruction

Cote Blanche (TV-04)
Station TV04-01 (01/01/97 - 12/31/99)



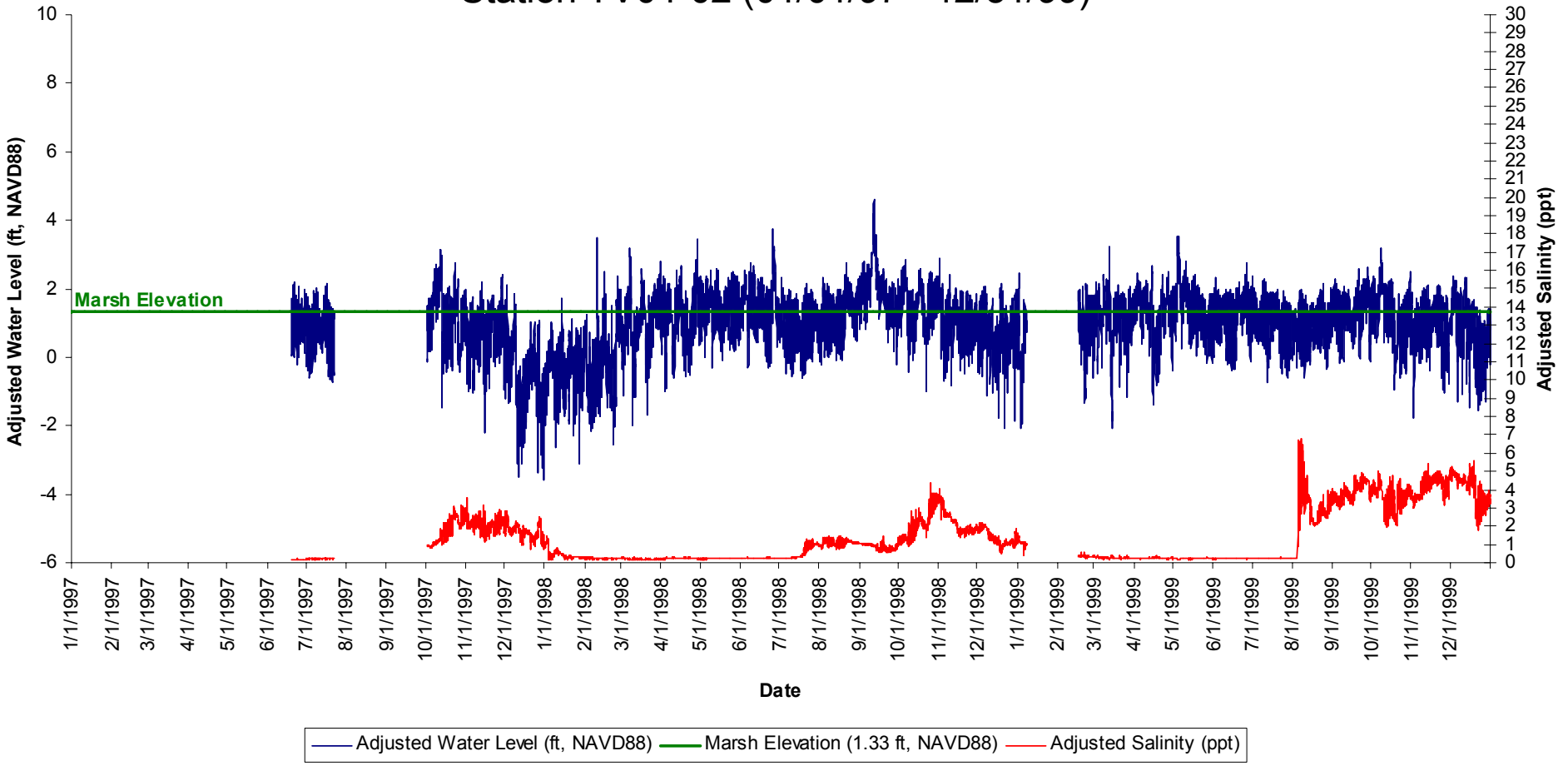
ENGLISH units

Cote Blanche (TV-04)
Station TV04-01 (01/01/00 - 12/31/01)



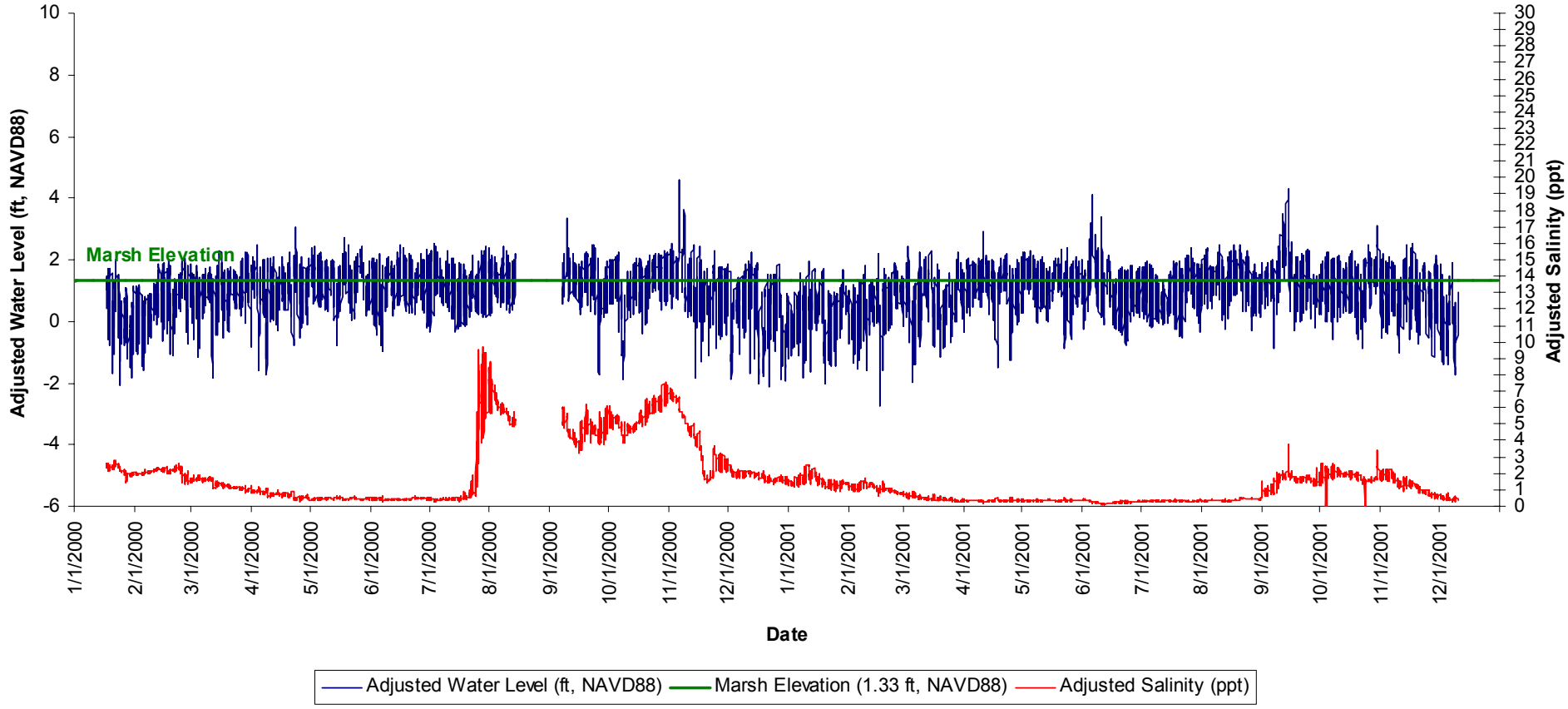
ENGLISH units

Cote Blanche (TV-04)
Station TV04-02 (01/01/97 - 12/31/99)



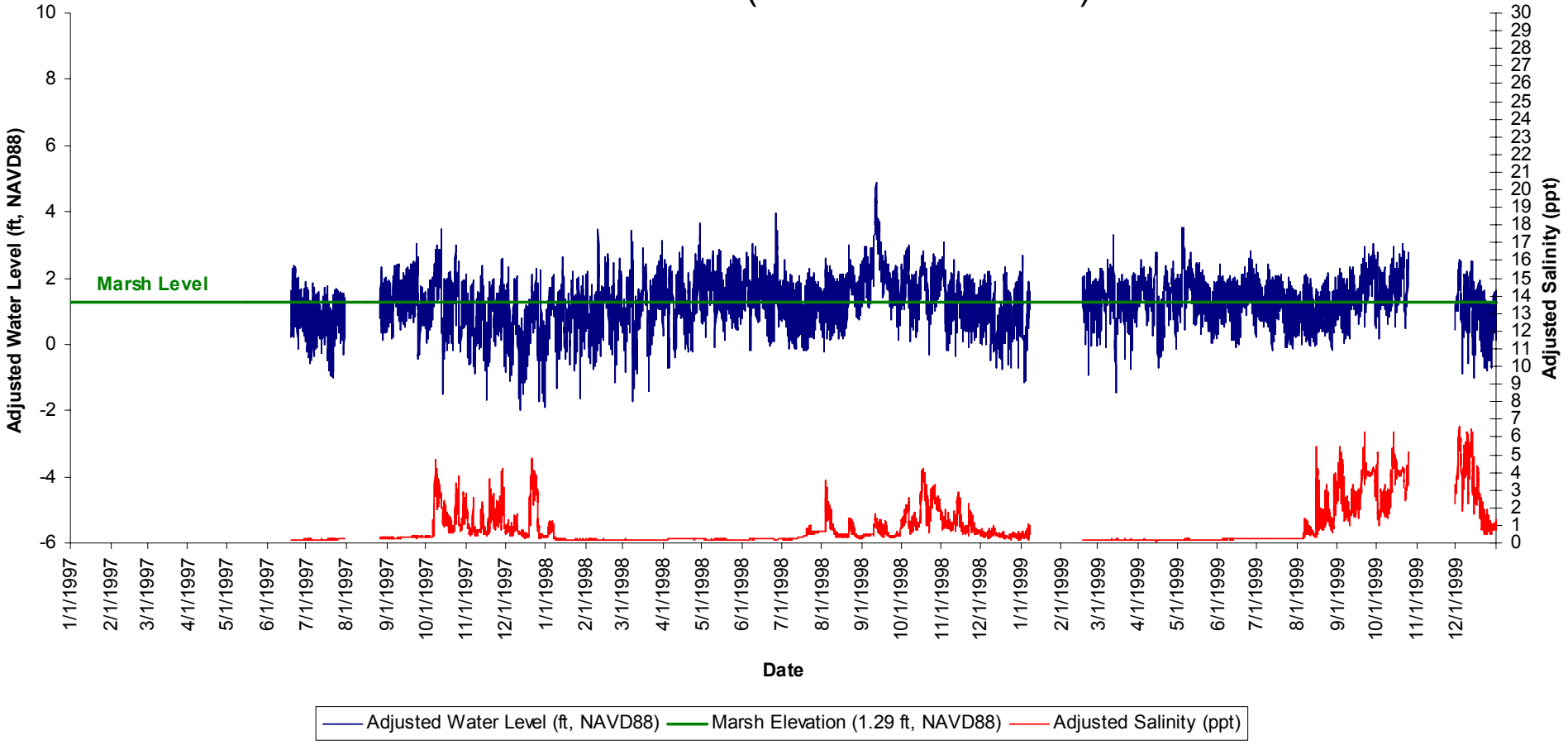
ENGLISH units

Cote Blanche (TV-04)
Station TV04-02 (01/01/00 - 12/31/01)



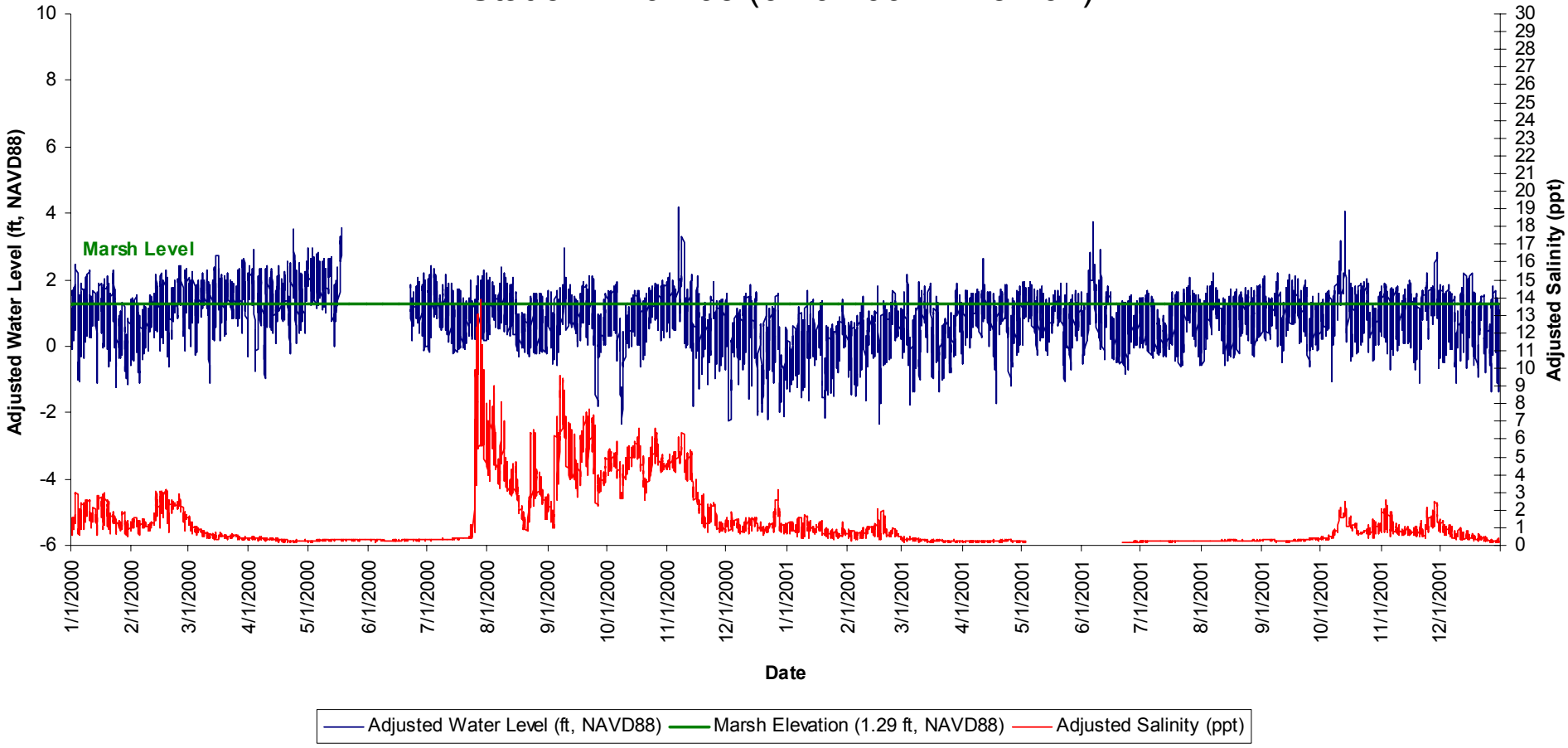
ENGLISH units

Cote Blanche (TV-04)
Station TV04-03 (01/01/97 - 12/31/99)



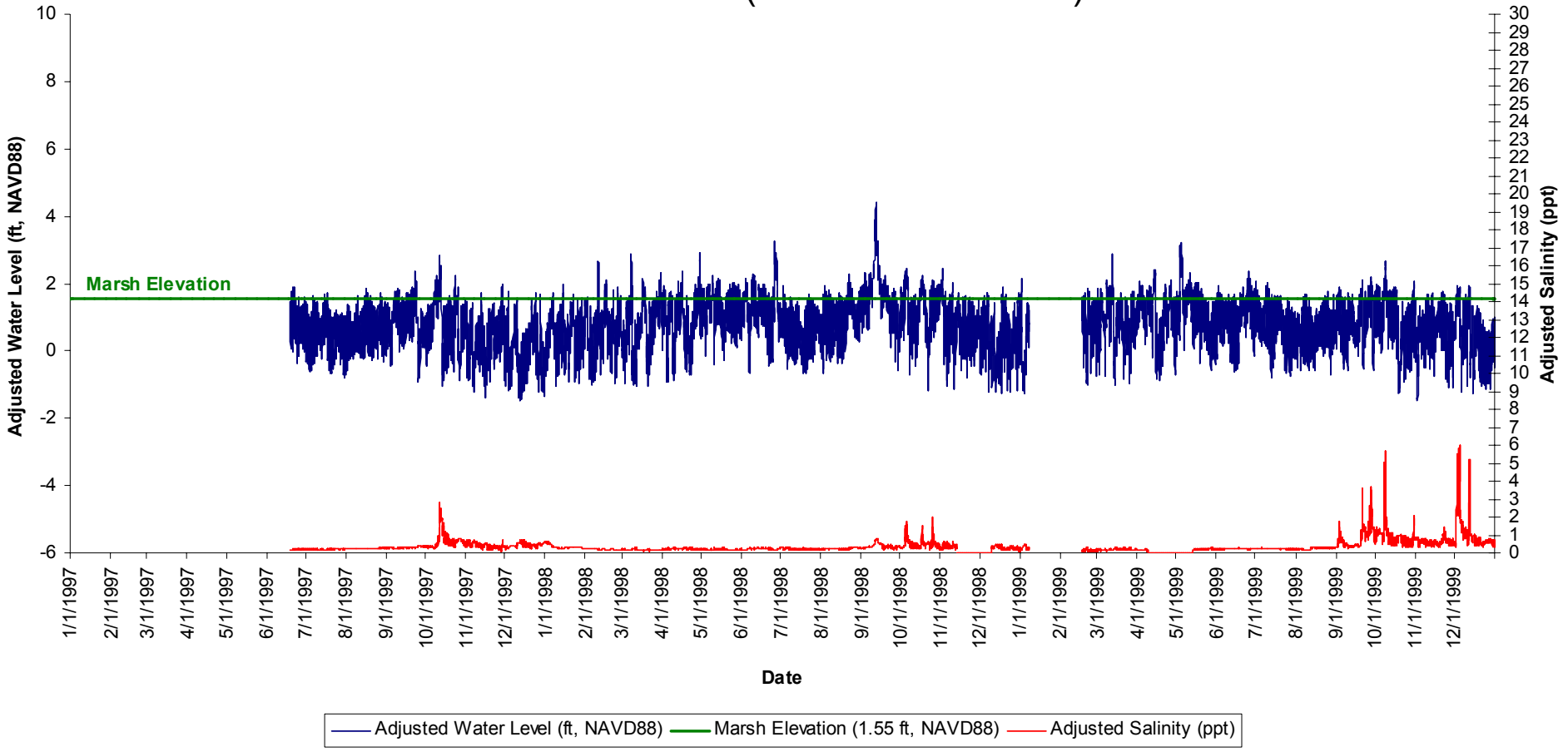
ENGLISH units

Cote Blanche (TV-04)
Station TV04-03 (01/01/00 - 12/31/01)



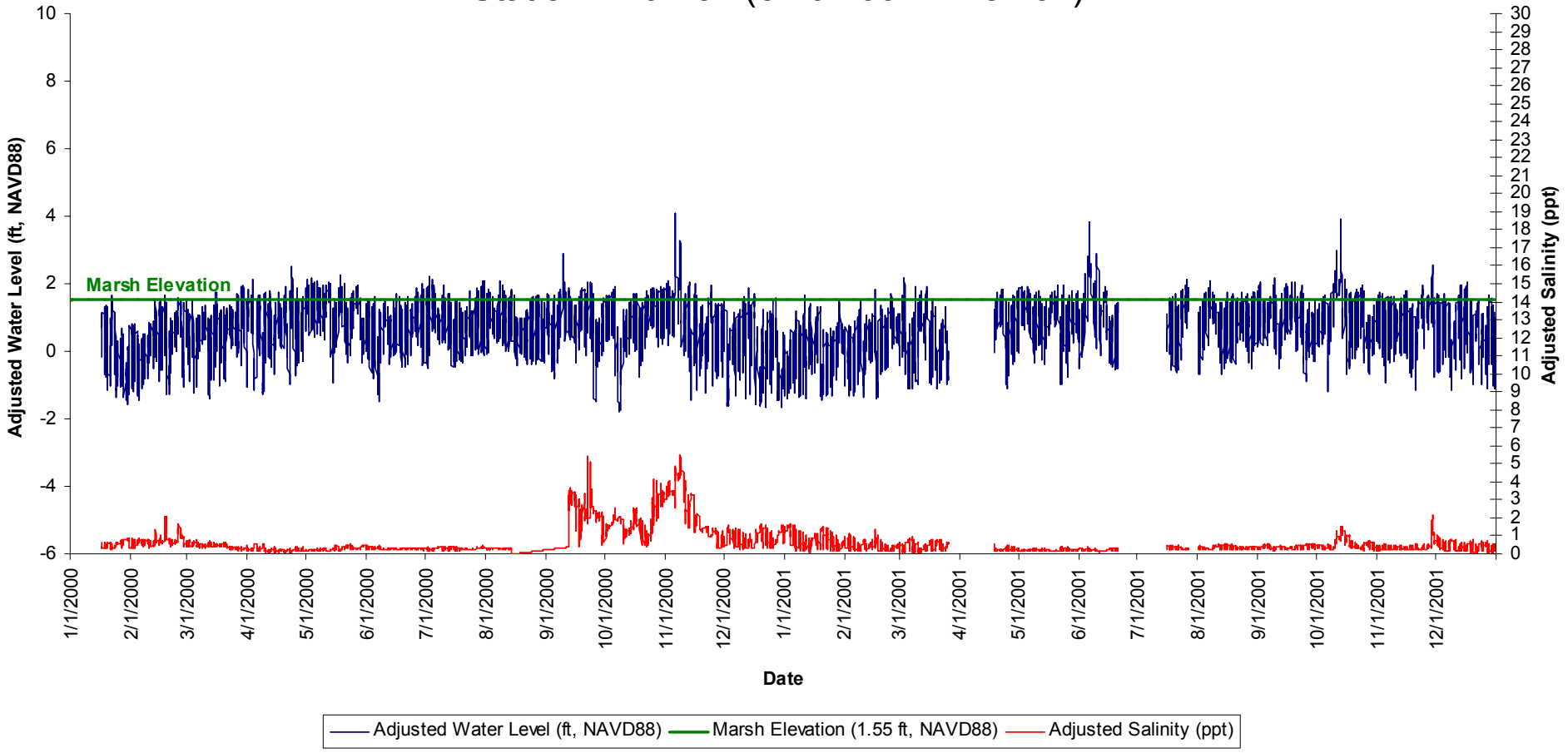
ENGLISH units

Cote Blanche (TV-04)
Station TV04-04 (01/01/97 - 12/31/99)



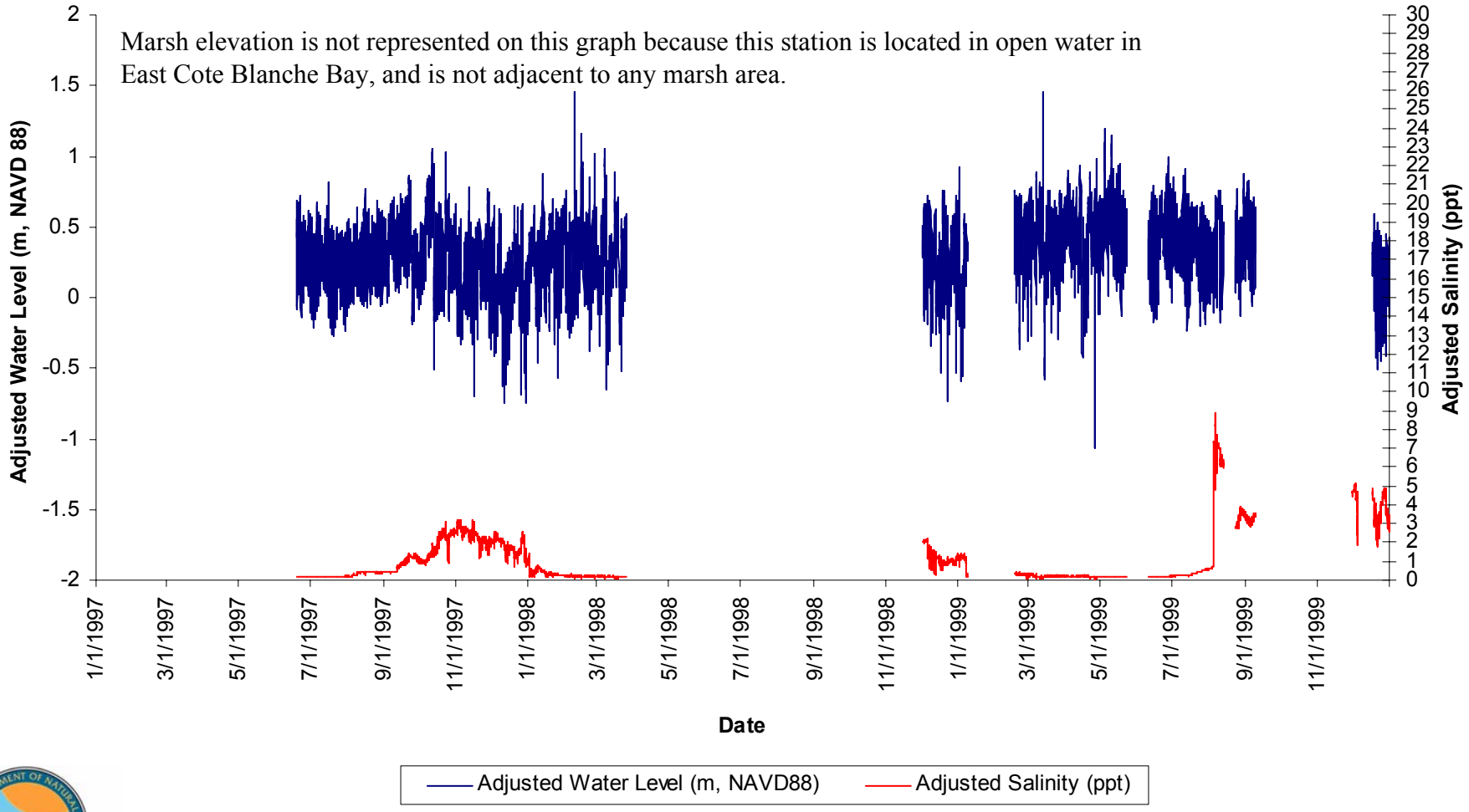
ENGLISH units

Cote Blanche (TV-04)
Station TV04-04 (01/01/00 - 12/31/01)



ENGLISH units

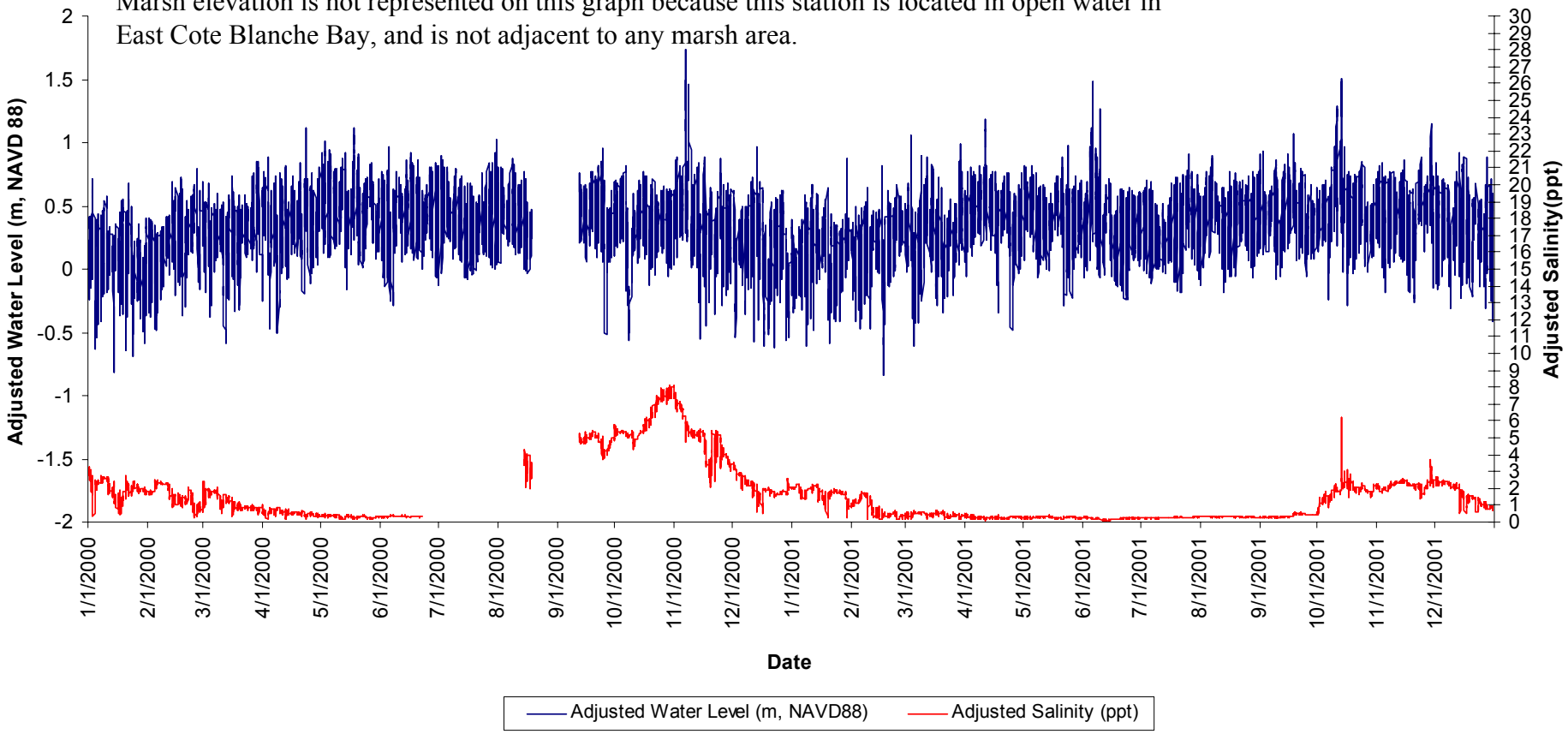
Cote Blanche (TV-04)
Station TV04-01 (01/01/97 - 12/31/99)



METRIC units

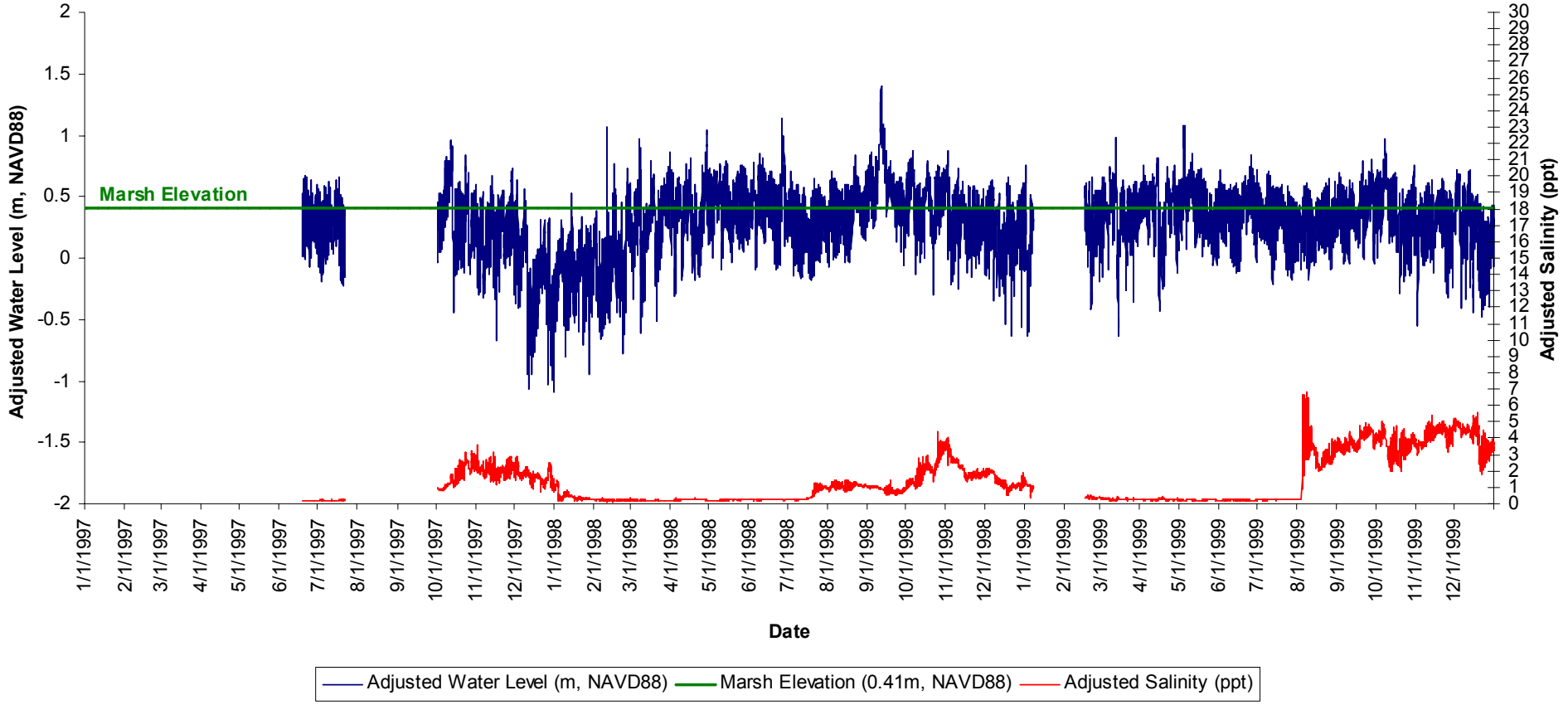
Cote Blanche (TV-04)
Station TV04-01 (01/01/00 - 12/31/01)

Marsh elevation is not represented on this graph because this station is located in open water in East Cote Blanche Bay, and is not adjacent to any marsh area.



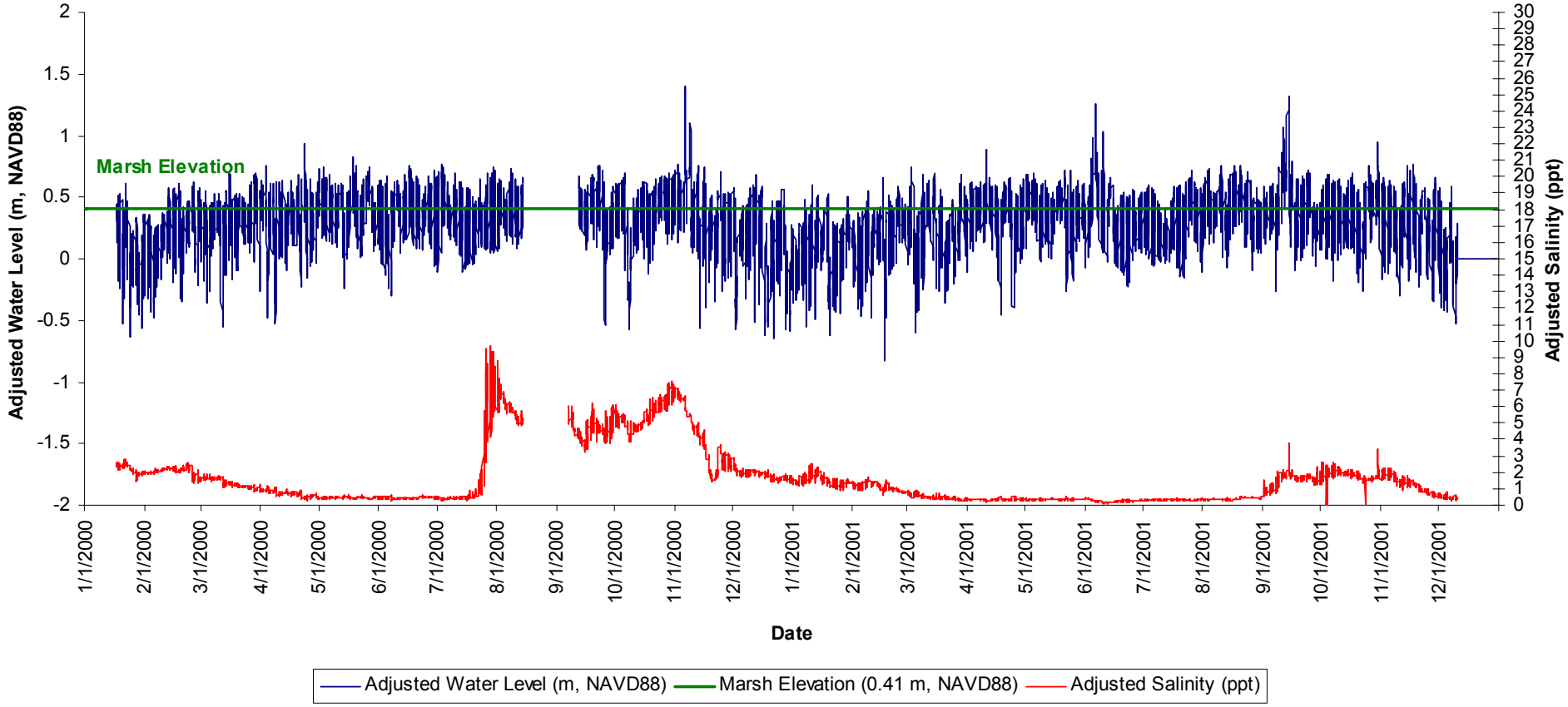
METRIC units

Cote Blanche (TV-04)
Station TV04-02 (01/01/97 - 12/31/99)



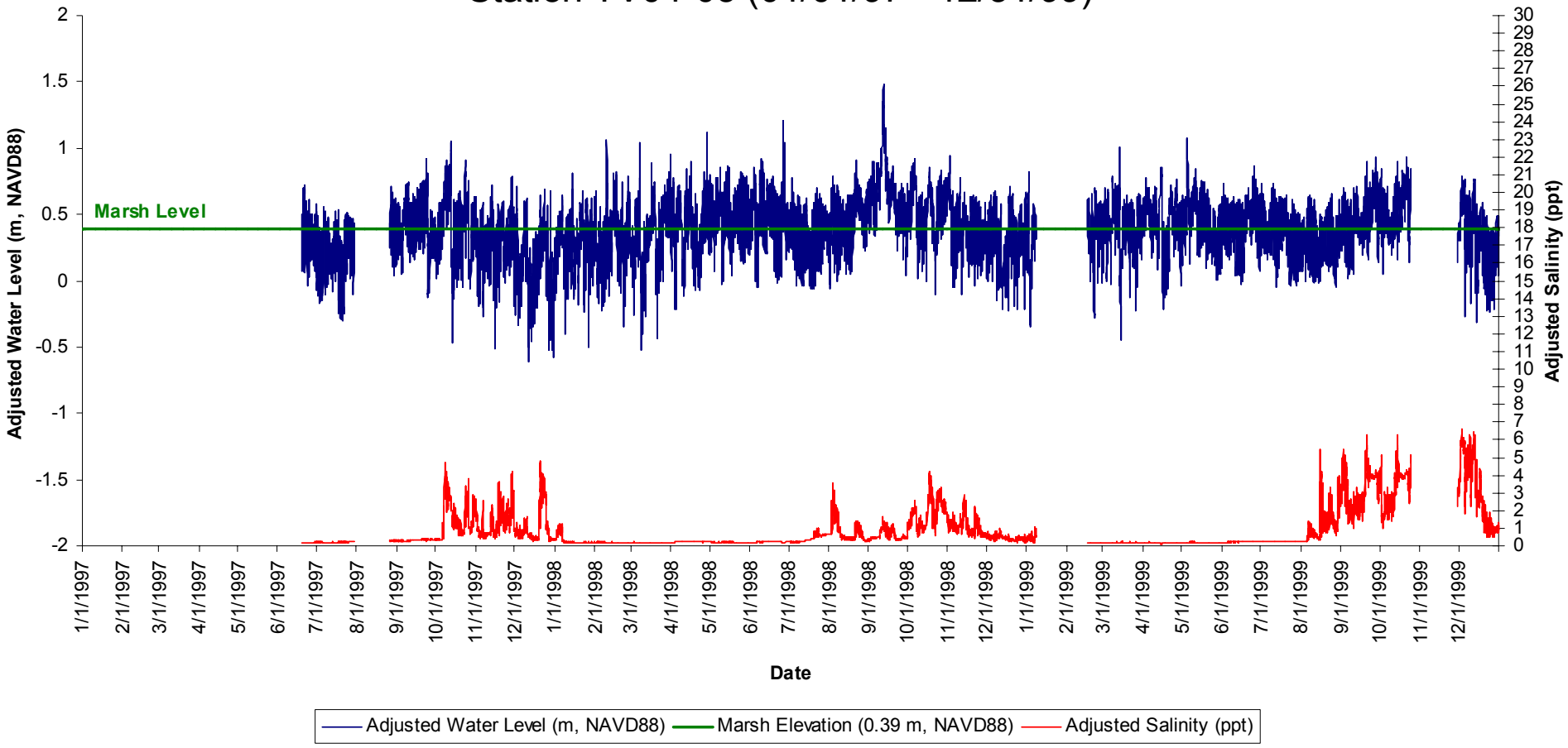
METRIC units

Cote Blanche (TV-04)
Station TV04-02 (01/01/00 - 12/31/01)



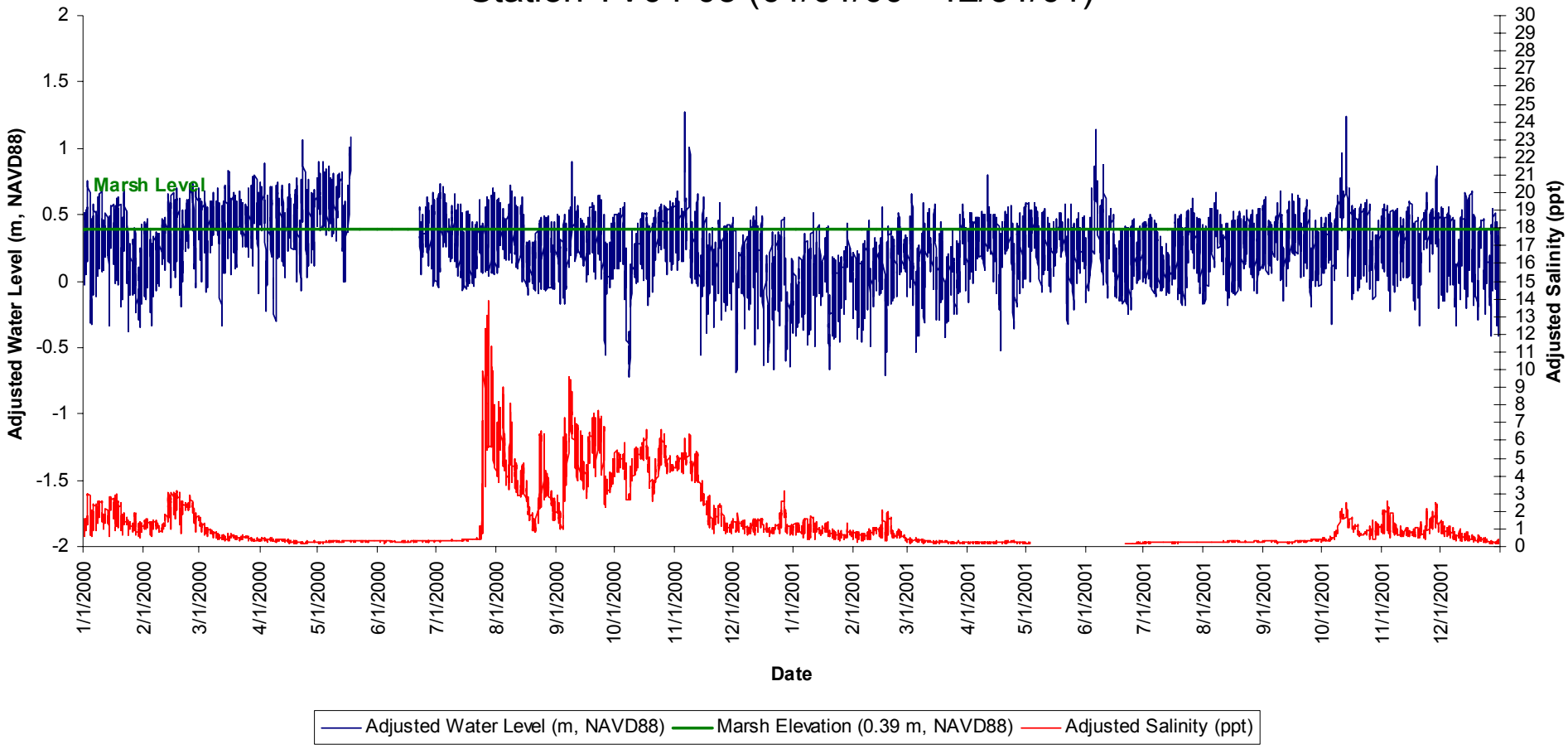
METRIC units

Cote Blanche (TV-04)
Station TV04-03 (01/01/97 - 12/31/99)



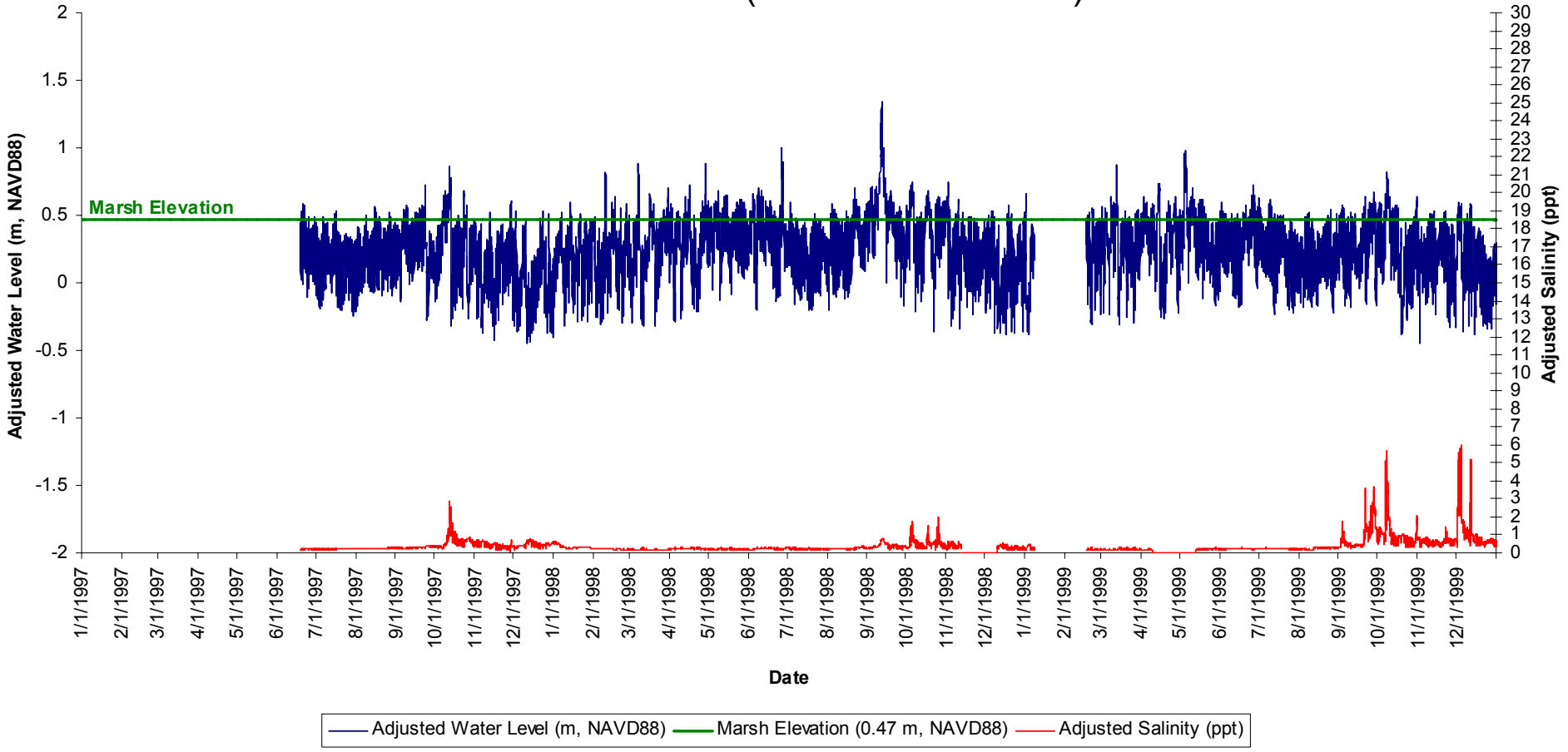
METRIC units

Cote Blanche (TV-04)
Station TV04-03 (01/01/00 - 12/31/01)



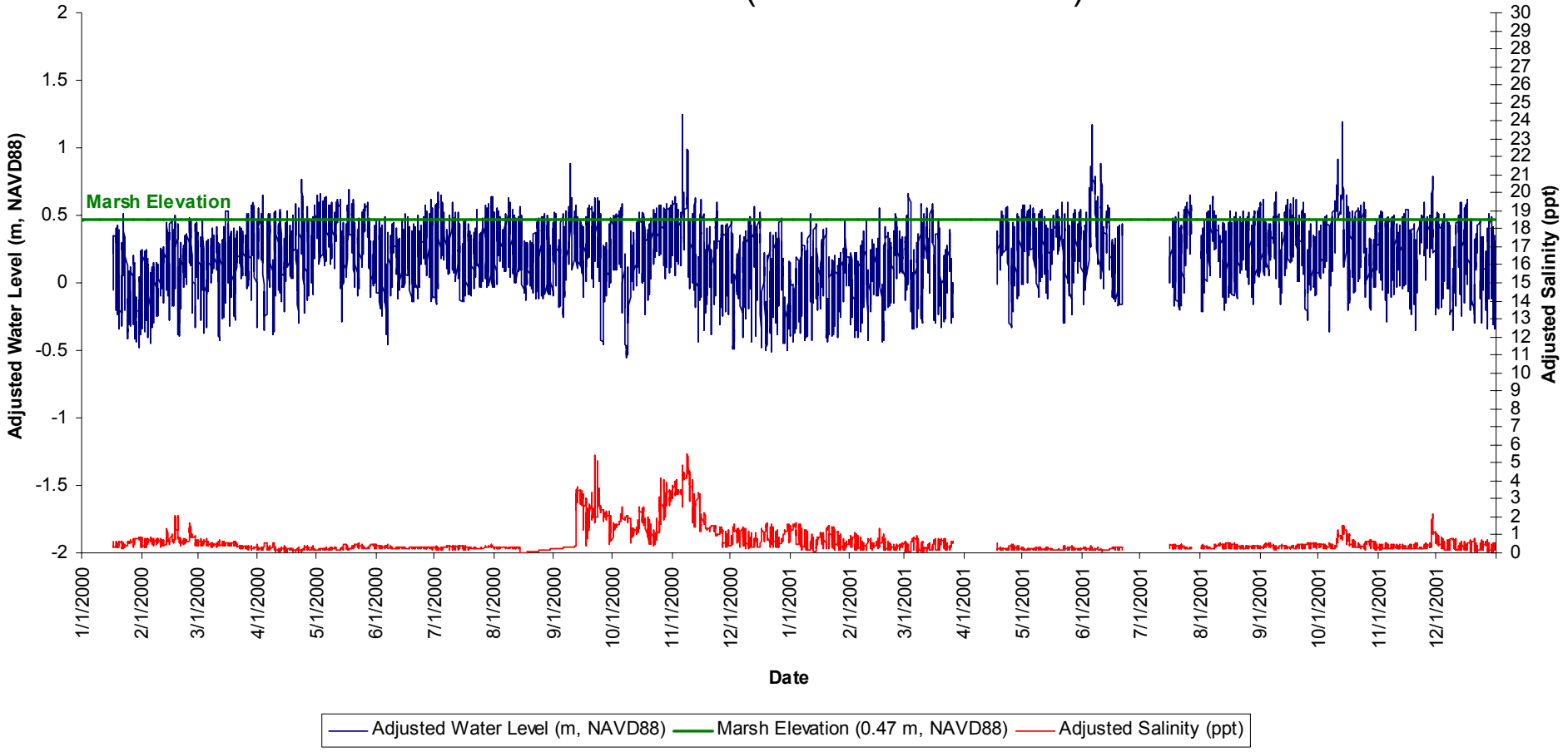
METRIC units

Cote Blanche (TV-04)
Station TV04-04 (01/01/97 - 12/31/99)



METRIC units

Cote Blanche (TV-04)
Station TV04-04 (01/01/00 - 12/31/01)



METRIC units

Cote Blanche Hydrologic Restoration Project (TV-04)

Pre- and Post Construction Water Level Statistics

	Pre-Construction (June 19, 1997 to March 31, 1998)							Post-Construction (January 1, 1999 to December 31, 2001)						
	N	Mean	Std. D	Mir	Max	Rang	Coef. of Var.	N	Mean	Std. De	Min	Max	Range	Coef. of Var.
Station 1R														
Water Elevation to Datum (ft)	6709	0.86	0.84	-2.45	4.76	7.21	96.97	21356	1.19	0.89	-2.77	5.70	8.47	74.28
Station 2														
Water Elevation to Marsh (ft)	5113	-0.92	1.10	-4.90	2.17	7.07	-119.56	20661	-0.25	0.81	-4.06	3.28	7.34	-318.66
Flood Depth (ft)	1129	0.46	0.38	0.01	2.17	2.16	82.88	8721	0.47	0.35	0.01	3.28	3.27	74.85
Flood Duration per Event (hr)	143	7.89	9.02	1.00	73.00	72.00	114.25	821	10.62	9.58	1.00	108.00	107.00	90.20
Drain Depth (ft)	3984	-1.31	0.90	-4.90	0.00	4.90	-69.09	11940	-0.78	0.63	-4.06	0.00	4.06	-80.75
Drain Duration per Event (hr)	143	27.86	91.23	1.00	863.00	862.00	327.47	821	14.54	26.17	1.00	494.00	493.00	179.95
Station 3														
Water Elevation to Marsh (ft)	5113	-0.34	0.85	-3.28	2.20	5.48	-248.19	20661	-0.23	0.83	-3.64	2.88	6.52	-363.70
Flood Depth (ft)	1857	0.51	0.41	0.01	2.20	2.19	80.54	8826	0.51	0.38	0.01	2.88	2.87	74.49
Flood Duration per Event (hr)	198	9.38	12.90	1.00	149.00	148.00	137.63	725	12.17	12.99	1.00	137.00	136.00	106.72
Drain Depth (ft)	3256	-0.83	0.62	-3.28	0.00	3.28	-74.90	11835	-0.78	0.63	-3.64	0.00	3.64	-81.70
Drain Duration per Event (hr)	198	16.44	24.61	1.00	234.00	233.00	149.65	725	16.32	29.73	1.00	355.00	354.00	182.13
Station 4R														
Water Elevation to Marsh (ft)	5113	-0.98	0.78	-3.03	1.34	4.37	-80.29	20661	-0.78	0.79	-3.35	2.53	5.88	-101.95
Flood Depth (ft)	453	0.34	0.29	0.01	1.34	1.33	86.79	3135	0.30	0.30	0.01	2.53	2.52	101.74
Flood Duration per Event (hr)	64	7.08	7.81	1.00	47.00	46.00	110.28	467	6.71	8.39	1.00	105.00	104.00	125.01
Drain Depth (ft)	4660	-1.11	0.69	-3.03	0.00	3.03	-62.87	17526	-0.97	0.69	-3.35	0.00	3.35	-71.60
Drain Duration per Event (hr)	64	72.73	103.98	1.00	440.00	439.00	142.96	468	37.46	78.69	1.00	868.00	868.00	210.08

Cote Blanche Hydrologic Restoration Project (TV-04)

Pre- and Post Construction Water Level Comparisons Based on Weekly Variability

	Station 2				Station 3			
	Pre-Construction		Post-Construction		Pre-Construction		Post-Construction	
	Frequency	%	Freqency	%	Frequency	%	Frequency	%
Flood Depth								
0.0 to 0.5 ft	20	83.33	95	74.22	20	66.67	91	71.09
0.5 to 1.0 ft	4	16.67	32	25.00	9	30.00	35	27.35
1.0 to 1.5 ft	0	0	1	0.78	1	3.33	1	0.78
1.5 to 2.0 ft	0	0	0	0.00	0	0.00	1	0.78
Above 2.0 ft	0	0	0	0.00	0	0.00	0	0.00
Total	**24**	**100.00**	**128**	**100.00**	**30**	**100.00**	**128**	**100.00**
Drain Depth								
0.0 to -0.5 ft	1	3.23	36	27.27	2	6.45	48	36.36
-0.5 to -1.0 ft	14	45.16	77	58.33	24	77.42	64	48.48
-1.0 to -1.5 ft	6	19.35	18	13.64	5	16.13	17	12.88
-1.5 to -2.0 ft	8	25.81	1	0.76	0	0.00	2	1.52
Below -2.0 ft	2	6.45	0	0.00	0	0.00	1	0.76
Total	**31**	**100.00**	**132**	**100.00**	**31**	**100.00**	**132**	**100.00**

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-01R Located in British American Canal

Table 1a.

Annual Flood and Drain Hours from 1997 to 2001

	1997		1998		1999		2000		2001	
	Total Hours of		Total Hours of		Total Hours of		Total Hours of		Total Hours of	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	628	116	136	44	187	161	531	213
February	N/A	N/A	594	78	235	37	564	131	541	131
March	N/A	N/A	503	108	678	65	645	99	262	482
April	N/A	N/A	N/A	N/A	684	34	659	61	286	434
May	N/A	N/A	N/A	N/A	543	3	740	4	716	28
June	262	10	N/A	N/A	465	25	693	26	672	48
July	648	93	N/A	N/A	696	47	726	18	705	39
August	706	37	N/A	N/A	429	23	425	2	719	25
Septembe	702	17	N/A	N/A	195	6	434	13	712	8
October	667	77	N/A	N/A	N/A	N/A	684	60	726	18
Novembe	559	161	N/A	N/A	12	0	639	81	683	37
Decembe	455	288	586	143	328	115	498	246	643	101
Total	**3999**	**683**	**2311**	**445**	**4401**	**399**	**6894**	**902**	**7196**	**1564**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-01R Located in British American Canal

Table 1b.

Annual Flood and Drain Events from 1997 to 2001

	1997		1998		1999		2000		2001	
	Number of Events		Number of Events		Number of Events		Number of Events		Number of Events	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	23	22	7	6	19	18	27	26
February	N/A	N/A	16	16	7	6	21	21	22	22
March	N/A	N/A	14	14	13	12	18	18	8	9
April	N/A	N/A	N/A	N/A	9	7	11	11	5	4
May	N/A	N/A	N/A	N/A	1	1	1	1	9	9
June	5	4	N/A	N/A	9	8	8	7	14	14
July	19	19	N/A	N/A	14	14	9	9	16	16
August	20	19	N/A	N/A	13	8	3	2	9	9
Septembe	5	3	N/A	N/A	2	2	3	2	3	3
October	19	19	N/A	N/A	N/A	N/A	9	9	7	7
Novembe	30	30	N/A	N/A	1	0	16	16	8	8
Decembe	31	31	27	24	18	17	25	25	23	23
Total	**129**	**125**	**80**	**76**	**94**	**81**	**143**	**139**	**151**	**150**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-02 Located in M-14 Canal

Table 2a.

Annual Flood and Drain Hours from 1997 to 2001

	1997		1998		1999		2000		2001	
	Total Hours of		Total Hours of		Total Hours of		Total Hours of		Total Hours of	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	3	741	41	137	40	308	50	693
February	N/A	N/A	76	595	112	160	133	563	85	587
March	N/A	N/A	312	432	326	418	247	497	195	549
April	N/A	N/A	355	365	426	294	310	410	401	319
May	N/A	N/A	467	274	443	301	452	291	438	306
June	123	149	466	239	425	294	404	316	333	387
July	137	377	218	525	314	430	366	378	318	426
August	N/A	N/A	422	322	237	507	190	132	23	20
Septembe	N/A	N/A	595	125	396	324	306	259	398	320
October	332	377	490	253	373	370	377	366	409	335
Novembe	125	595	270	450	216	503	307	412	390	330
December	24	720	168	576	168	575	124	620	279	465
Total	**741**	**2218**	**3842**	**4897**	**3477**	**4313**	**3256**	**4552**	**3319**	**4737**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-02 Located in M-14 Canal

Table 2b.

Annual Flood and Drain Events from 1997 to 2001

	1997		1998		1999		2000		2001	
	Number of Events		Number of Events		Number of Events		Number of Events		Number of Events	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	1	2	6	6	9	10	9	10
February	N/A	N/A	11	12	14	13	16	15	16	16
March	N/A	N/A	26	26	34	35	44	44	27	27
April	N/A	N/A	30	30	26	26	31	31	35	34
May	N/A	N/A	35	34	30	30	29	30	33	34
June	17	17	36	35	35	34	31	31	29	29
July	29	29	40	39	41	41	36	36	32	32
August	N/A	N/A	37	36	33	32	16	15	2	2
Septembe	N/A	N/A	16	16	30	30	26	25	38	36
October	31	32	26	26	28	28	31	31	32	32
Novembe	23	24	30	31	30	31	25	26	33	32
Decembe	5	5	23	22	21	22	19	20	26	27
Total	**105**	**107**	**311**	**309**	**328**	**328**	**313**	**314**	**312**	**311**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-03 Located in the Humble F Canal

Table 3a.

Annual Flood and Drain Hours from 1997 to 2001

	1997		1998		1999		2000		2001	
	Total Hours of		Total Hours of		Total Hours of		Total Hours of		Total Hours of	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	248	496	61	118	236	507	18	726
February	N/A	N/A	293	379	148	126	255	440	34	637
March	N/A	N/A	387	356	395	349	465	279	115	628
April	N/A	N/A	422	298	473	247	460	259	253	467
May	N/A	N/A	559	182	492	252	355	57	275	468
June	134	136	549	170	505	215	99	107	205	514
July	115	587	354	390	436	308	324	420	185	559
August	70	60	514	229	282	461	250	493	268	476
Septembe	426	294	653	67	522	198	261	459	260	460
October	423	321	576	167	455	137	268	476	293	450
Novembe	198	522	358	362	0	8	219	501	278	442
December	108	635	234	510	251	493	59	685	188	555
Total	**1474**	**2555**	**5147**	**3606**	**4020**	**2912**	**3251**	**4683**	**2372**	**6382**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-03 Located in the Humble F Canal

Table 3b.

Annual Flood and Drain Events from 1997 to 2001

	1997		1998		1999		2000		2001	
	Number of Events		Number of Events		Number of Events		Number of Events		Number of Events	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	36	36	5	5	25	26	5	6
February	N/A	N/A	29	30	13	12	26	27	7	8
March	N/A	N/A	25	25	31	32	33	33	19	20
April	N/A	N/A	27	27	25	25	26	25	32	32
May	N/A	N/A	32	31	26	26	13	12	34	34
June	17	17	30	28	27	27	10	10	20	21
July	32	31	40	40	38	38	34	34	30	30
August	9	9	31	30	35	33	31	30	34	34
Septembe	35	35	14	14	27	27	27	26	32	32
October	24	23	23	22	21	21	27	27	25	24
Novembe	30	31	31	32	0	1	19	19	31	30
Decembe	18	18	27	26	28	28	8	9	22	24
Total	**165**	**164**	**345**	**341**	**276**	**275**	**279**	**278**	**291**	**295**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-04R Located in Bayou Mascot

Table 4a.

Annual Flood and Drain Hours from 1997 to 2001

	1997		1998		1999		2000		2001	
	Total Hours of		Total Hours of		Total Hours of		Total Hours of		Total Hours of	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	25	719	16	163	4	345	4	740
February	N/A	N/A	58	614	19	254	6	690	14	658
March	N/A	N/A	147	597	113	631	35	709	45	567
April	N/A	N/A	188	532	206	514	107	613	41	258
May	N/A	N/A	261	481	241	503	267	476	149	594
June	33	237	272	446	140	580	39	681	167	324
July	6	738	13	730	66	677	127	617	48	217
August	38	706	145	598	22	722	71	673	113	620
Septembe	122	597	437	282	134	586	155	565	151	569
October	156	588	306	437	189	555	135	608	196	548
Novembe	16	704	82	637	31	689	155	565	94	626
Decembe	12	731	35	709	47	696	16	728	58	686
Total	**383**	**4301**	**1969**	**6782**	**1224**	**6570**	**1117**	**7270**	**1080**	**6407**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

Cote Blanche Hydrologic Restoration Project (TV-04)

Sation-04R Located in Bayou Mascot

Table 4b.

Annual Flood and Drain Events from 1997 to 2001

	1997		1998		1999		2000		2001	
	Number of Events		Number of Events		Number of Events		Number of Events		Number of Events	
Month	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain	Flood	Drain
January	N/A	N/A	7	8	1	2	2	3	1	2
February	N/A	N/A	10	10	6	7	3	3	3	3
March	N/A	N/A	20	20	16	16	6	6	9	9
April	N/A	N/A	23	23	25	25	19	19	8	9
May	N/A	N/A	31	31	25	25	27	28	30	30
June	6	7	26	26	25	25	13	13	9	9
July	3	3	4	5	18	18	21	21	11	11
August	8	8	27	26	8	8	24	24	22	23
Septembe	14	15	24	23	24	23	22	22	23	23
October	12	12	28	29	16	17	25	25	15	15
Novembe	2	2	14	15	8	8	14	15	18	18
Decembe	4	5	8	8	8	9	6	6	11	11
Total	**49**	**52**	**222**	**224**	**180**	**183**	**182**	**185**	**160**	**163**

A flood event is considered as a continuous occurrence of flood until drain occurs.
Therefore, the duration (hour) and frequency (number) of an event differ greatly.

TV-04 Cote Blanche

Preliminary findings

Habitat Mapping:

- Pre-construction classification indicated 83.4% land and 15.6% water within the project area. Approximately 73% of the project area was classified as Fresh Marsh.
- Ad hoc post-Hurricane Lili analysis by USGS using Landsat TM satellite imagery suggests a loss of approximately 1,765 acres of land between February 2 and October 16, 2002.
- 2002 aerial photography was collected and is currently being processed.

Shoreline Position:

- Data were collected in 1998 (preconstruction) and in 2001, however were not presented. These data are currently being processed and will be presented in the next update.

Water Level:

- Daily and weekly water level variability have decreased within the project area, whereas no changes were detected in the reference areas pre and post-construction.
- Water level range has decreased within the project area, however has remained the same, or increased at reference stations.

Salinity data indicate a distinct seasonality with salinities near 0ppt from December through July, and slightly higher salinities between August and November. During the fall, salinities generally remain within the 1-6 ppt range, however have peaked to as high as 14 ppt at station TV04-03 (during a severe drought in July/August 2000).