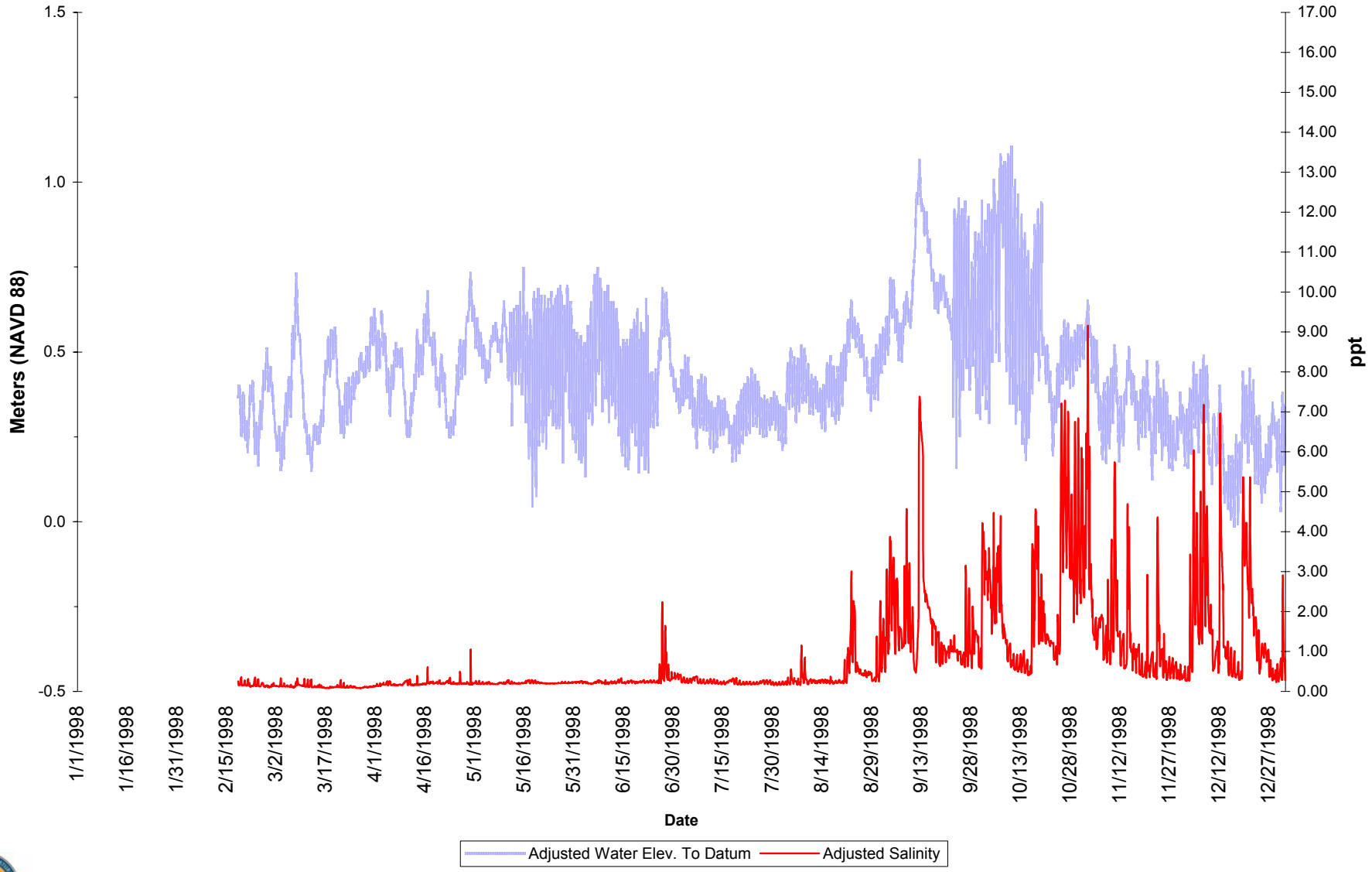
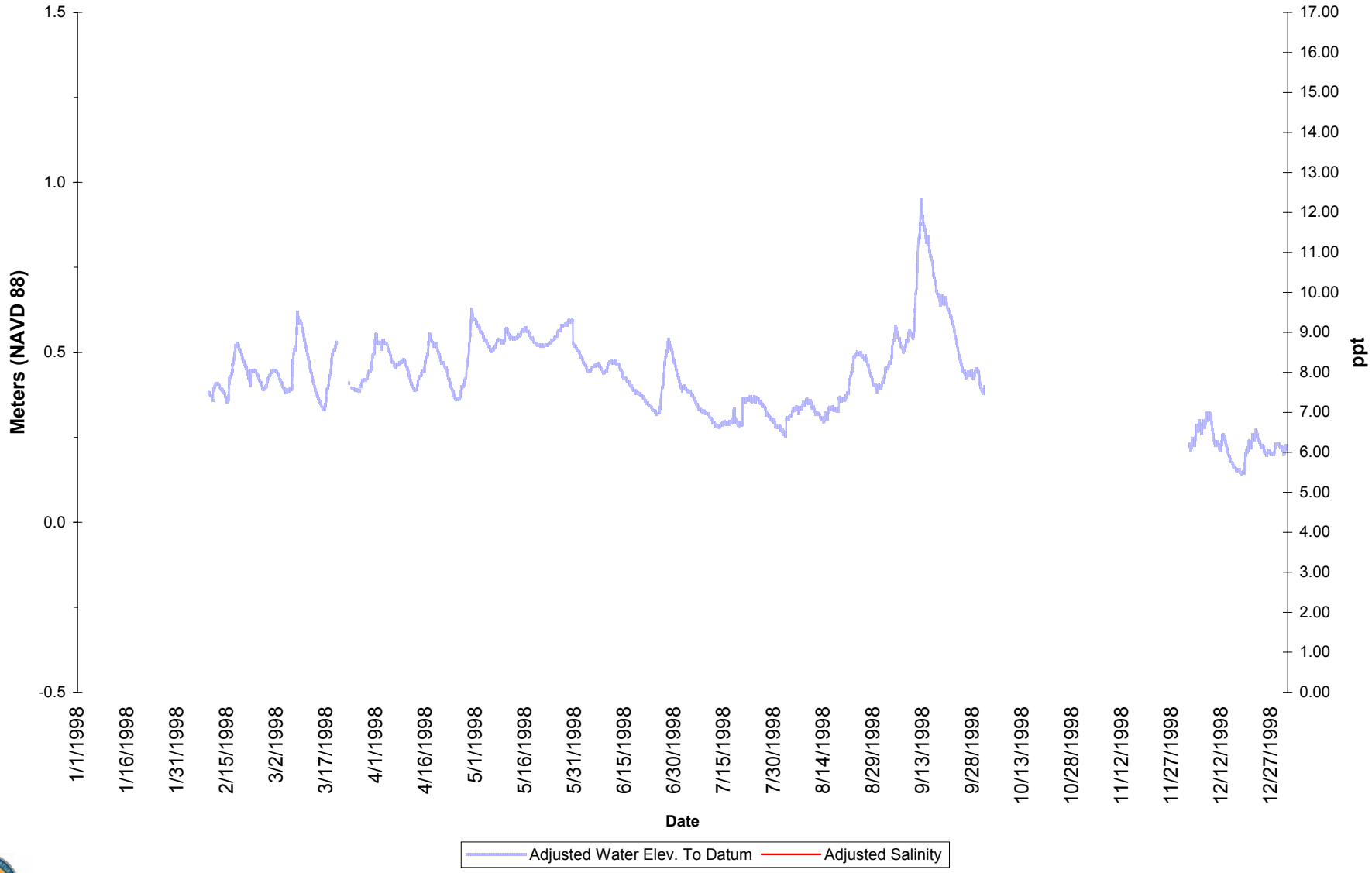
Water Level and Salinity Data
1998

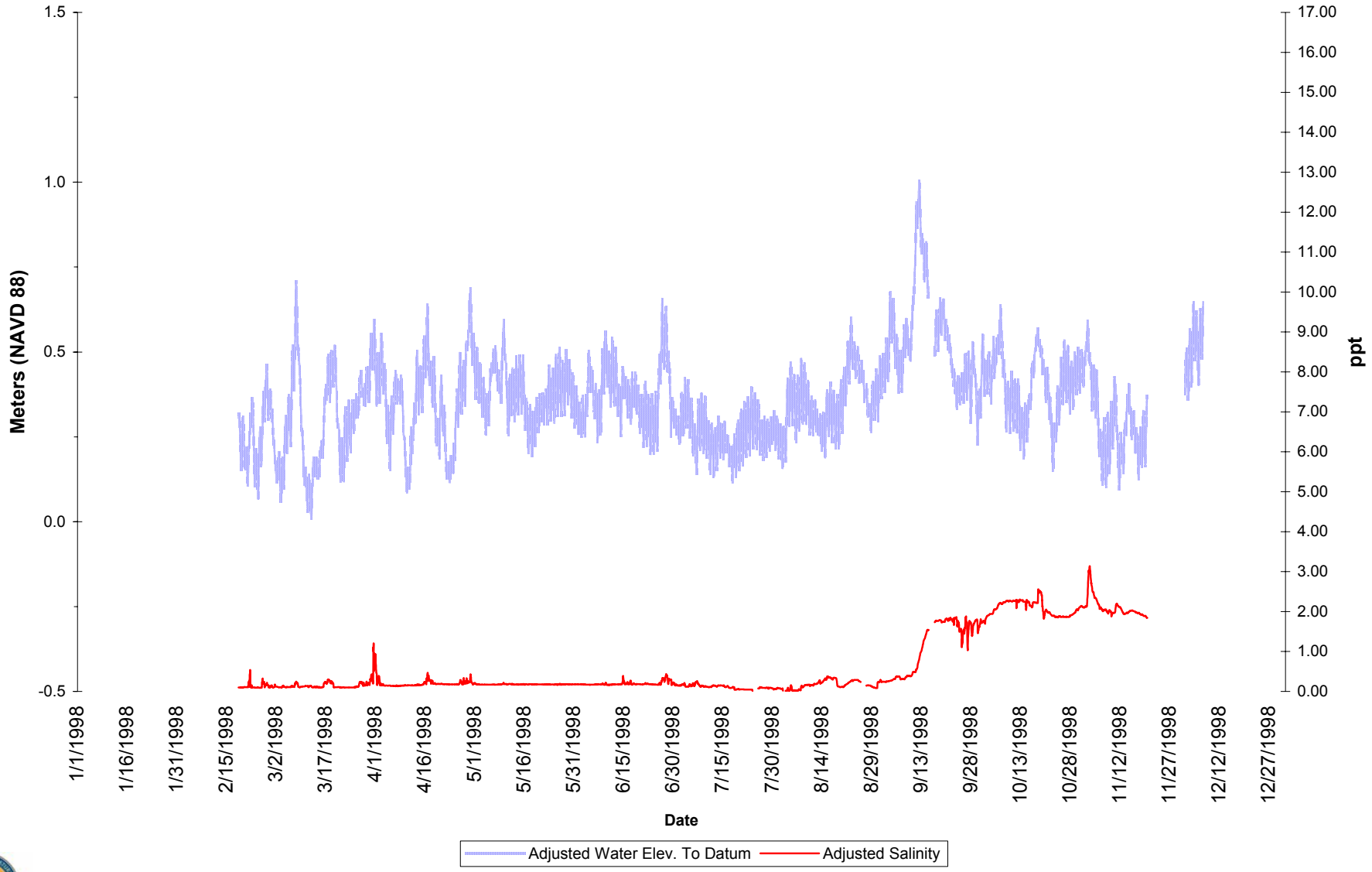
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-01 (CTU 1)
1998



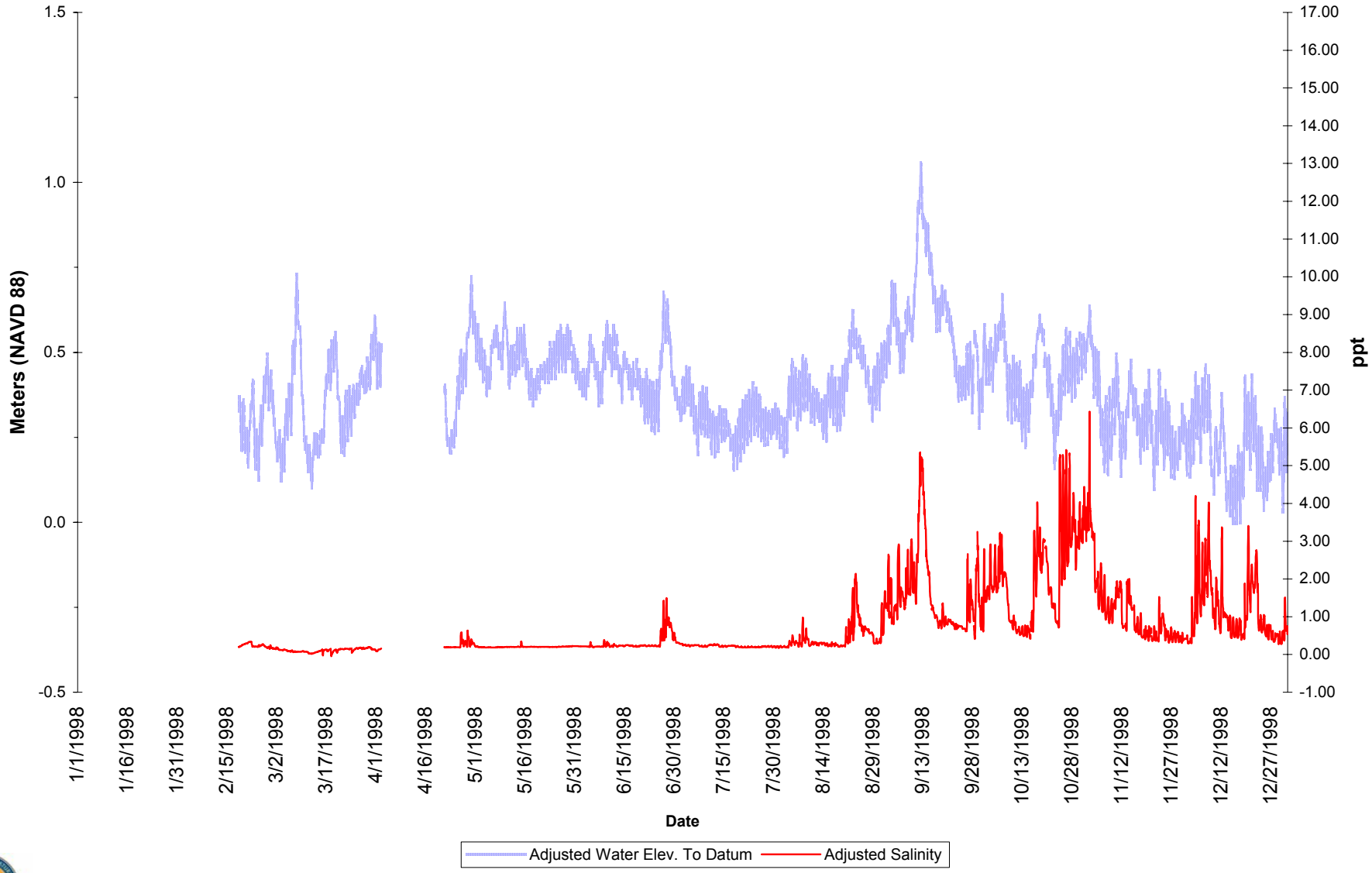
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-02 (CTU 2)
1998



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-03 (CTU 3)
1998

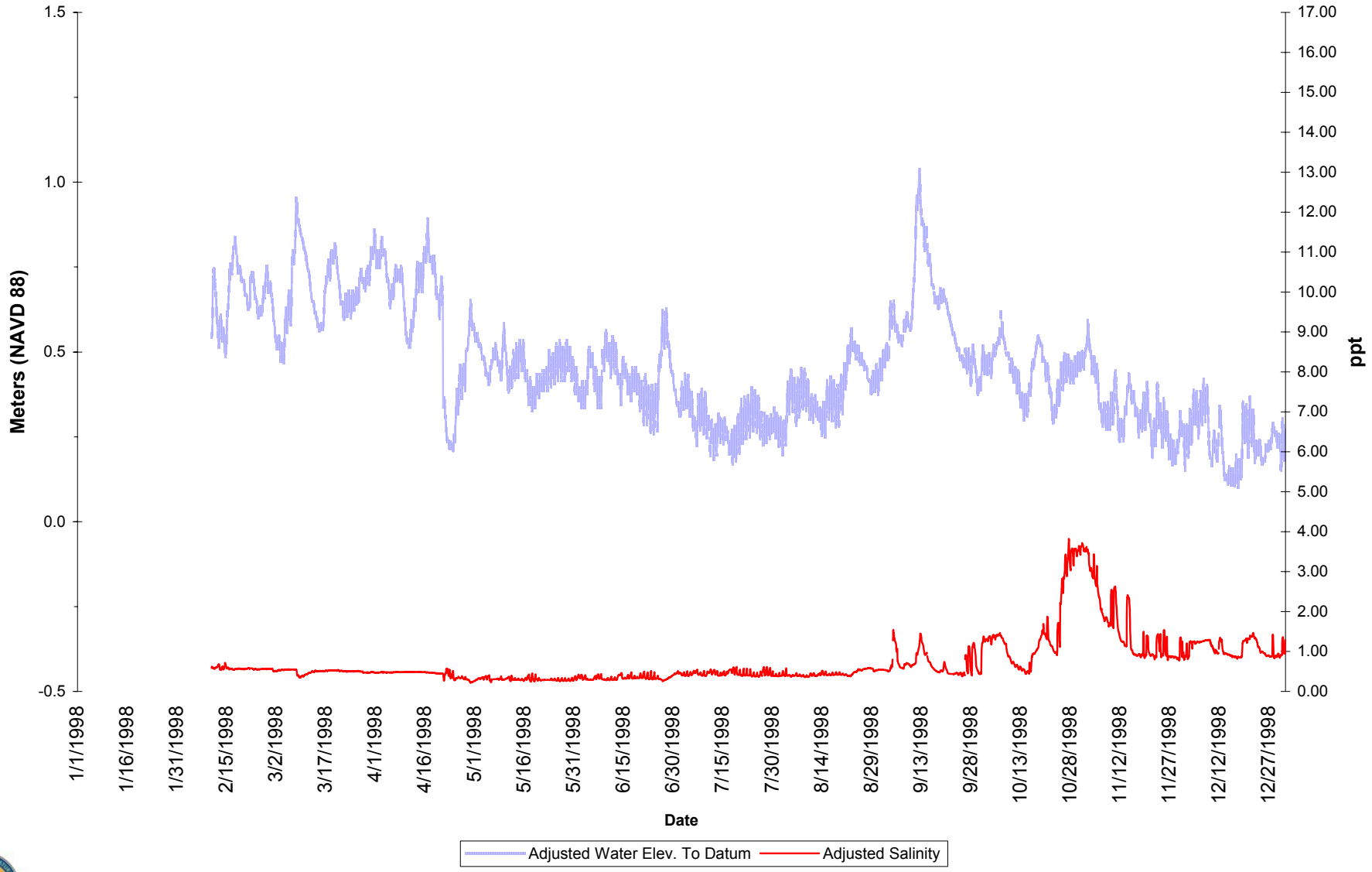


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-04R (REF 1)
1998

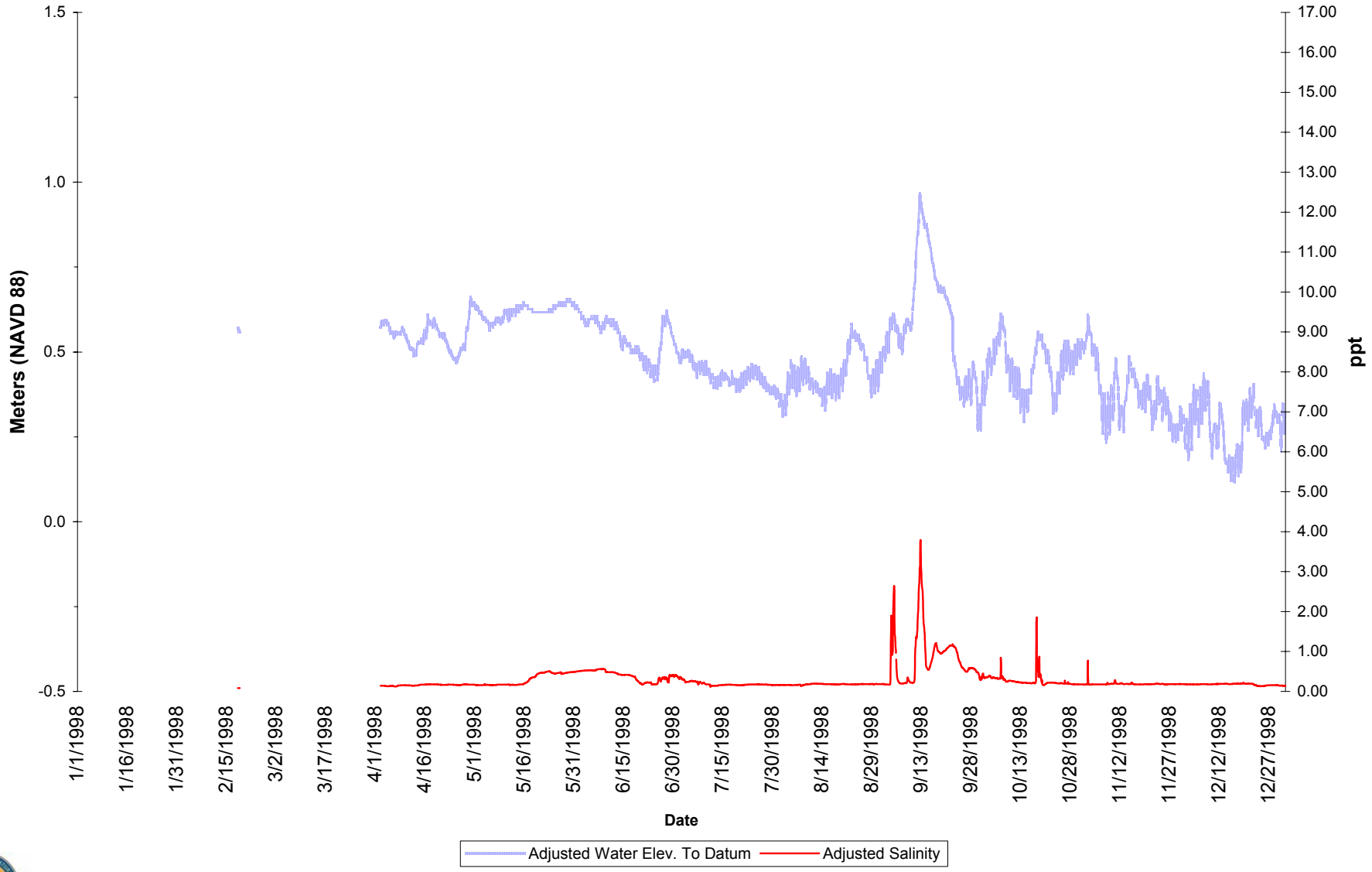


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-05R (REF 2)
1998

Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-06R (REF 3)
1998

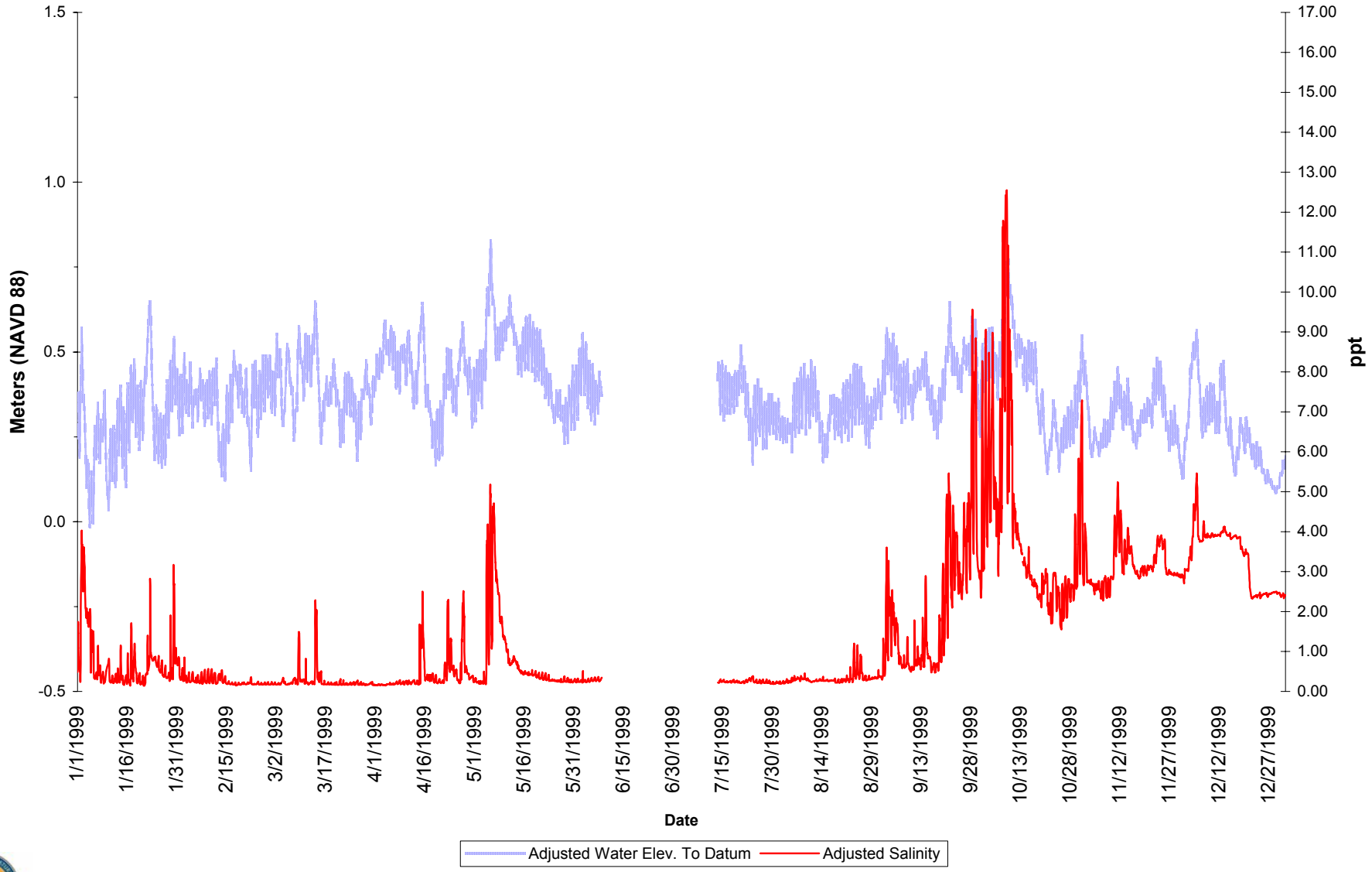


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-07R (REF 4)
1998

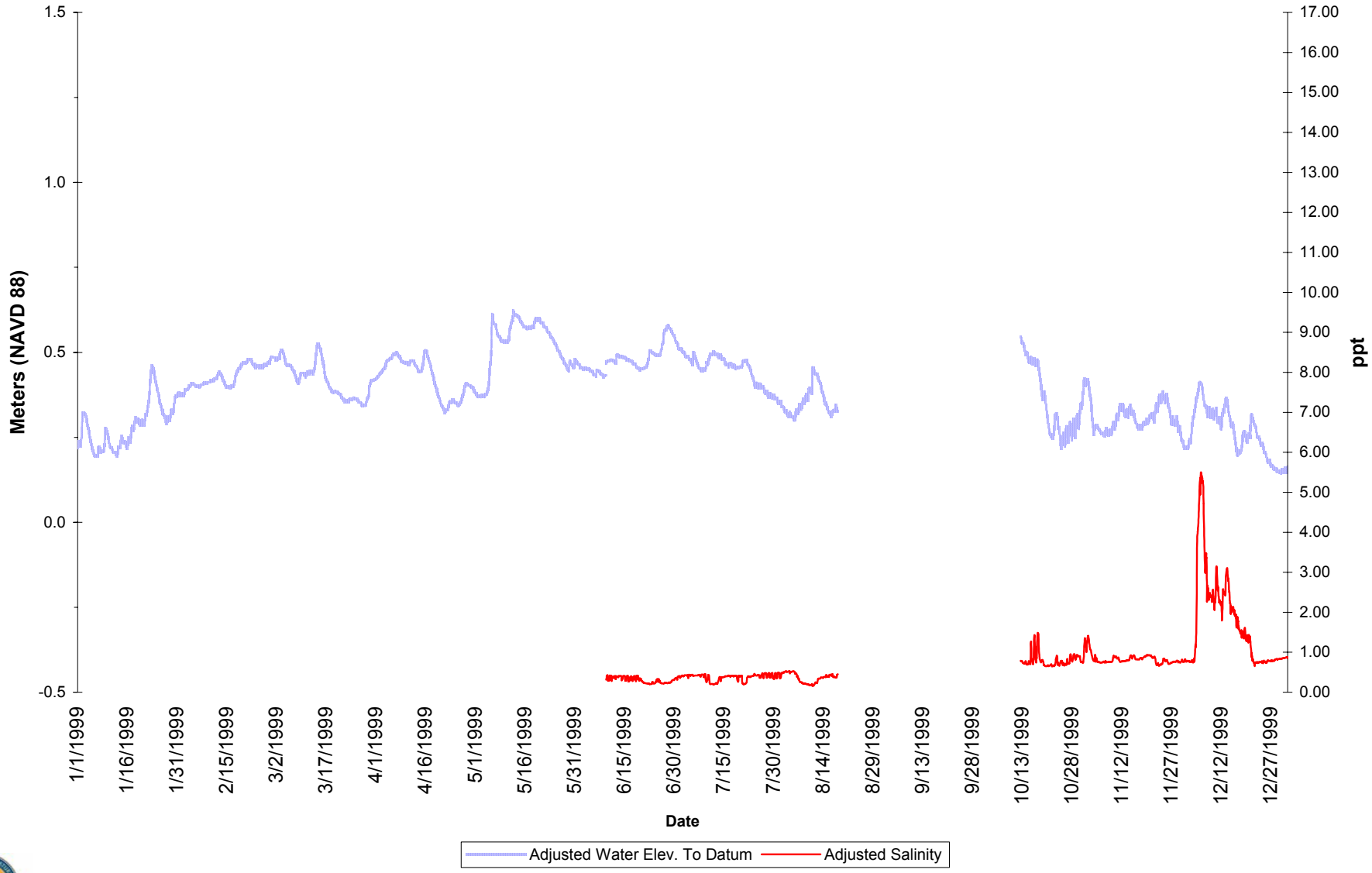


Water Level and Salinity Data
1999

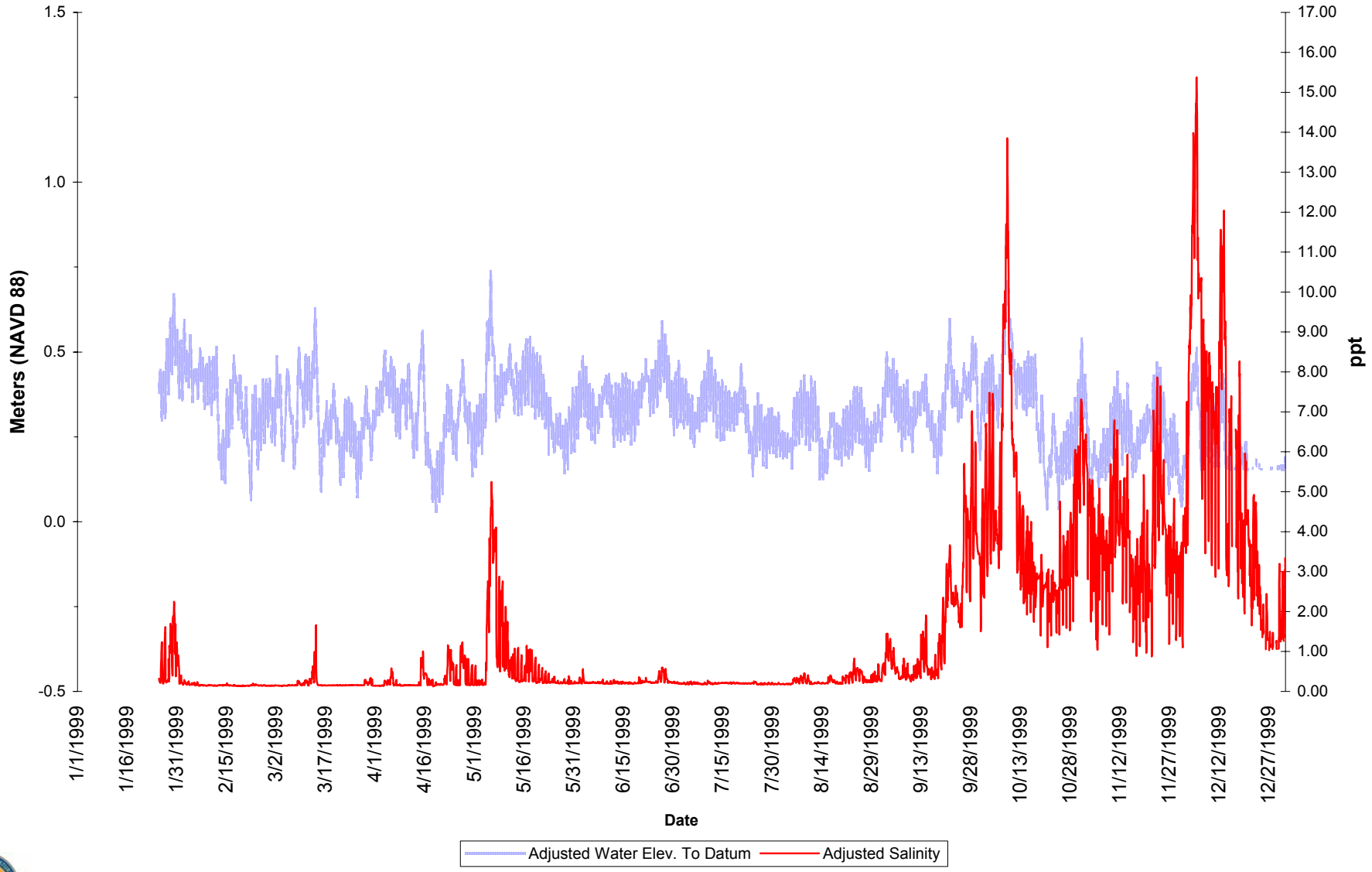
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-01 (CTU 1)
1999



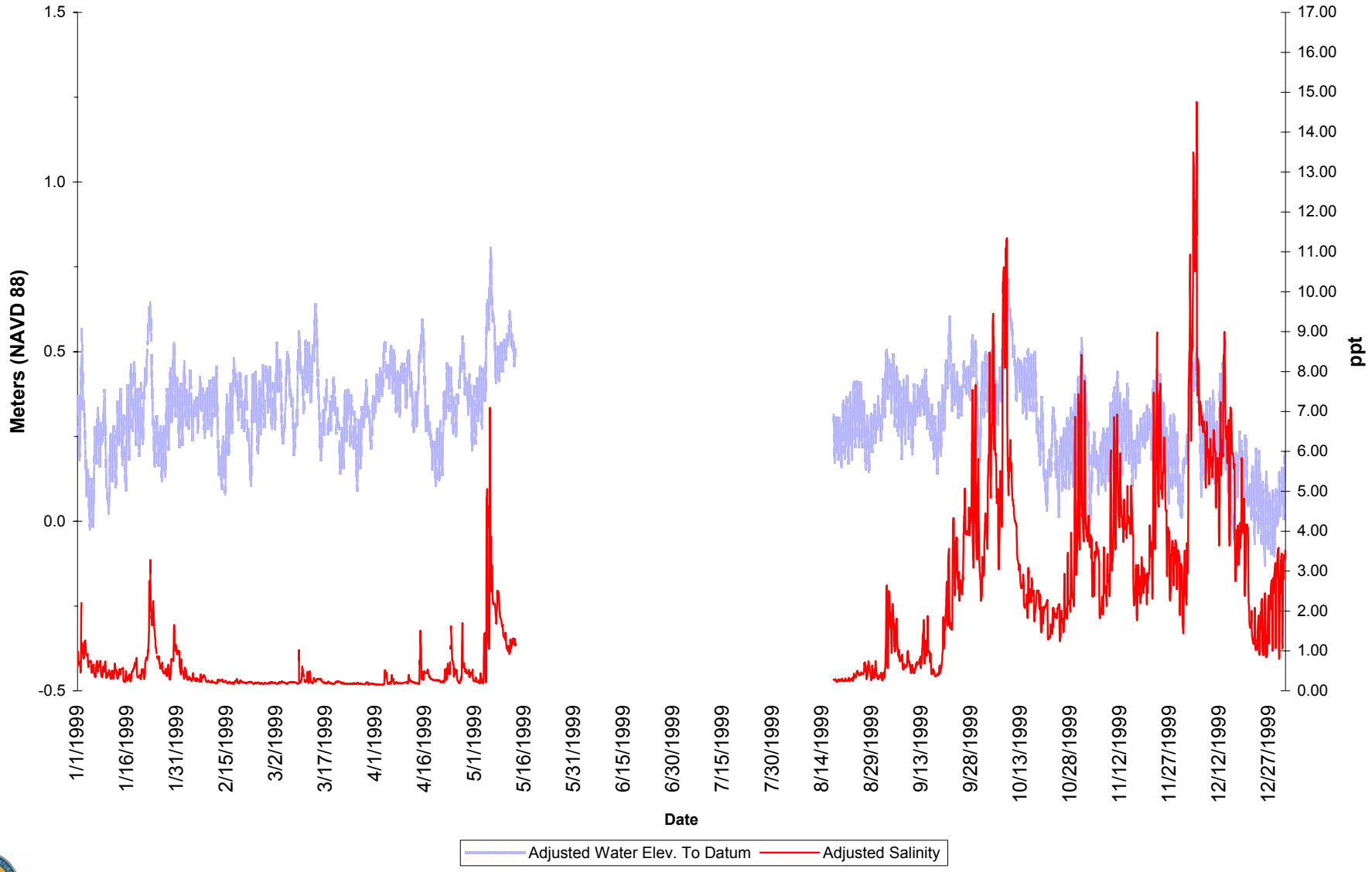
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-02 (CTU 2)
1999



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-03 (CTU 3)
1999



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-04R (REF 1)
1999



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-05R (REF 2)
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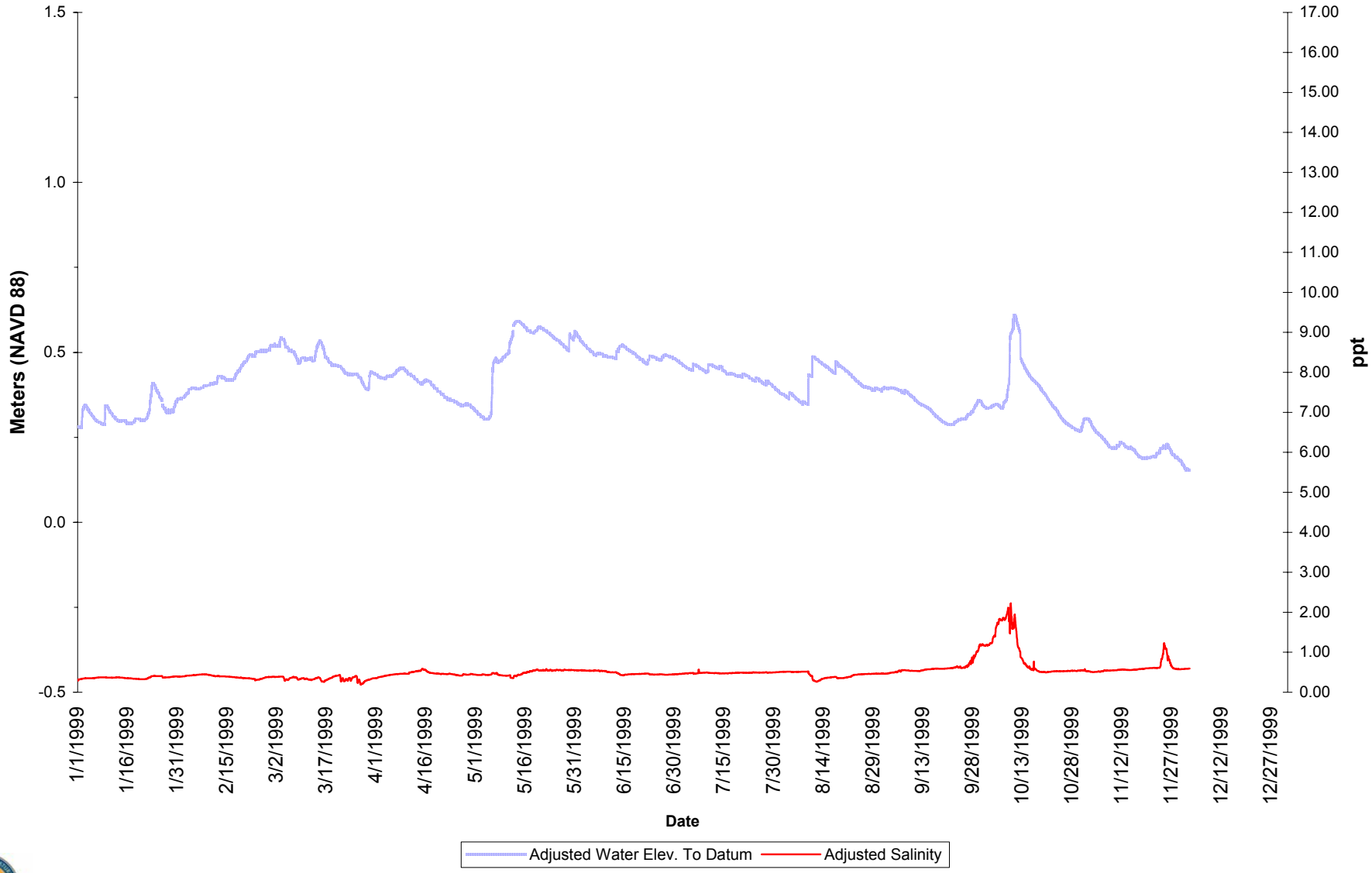

Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-06R (REF 3)
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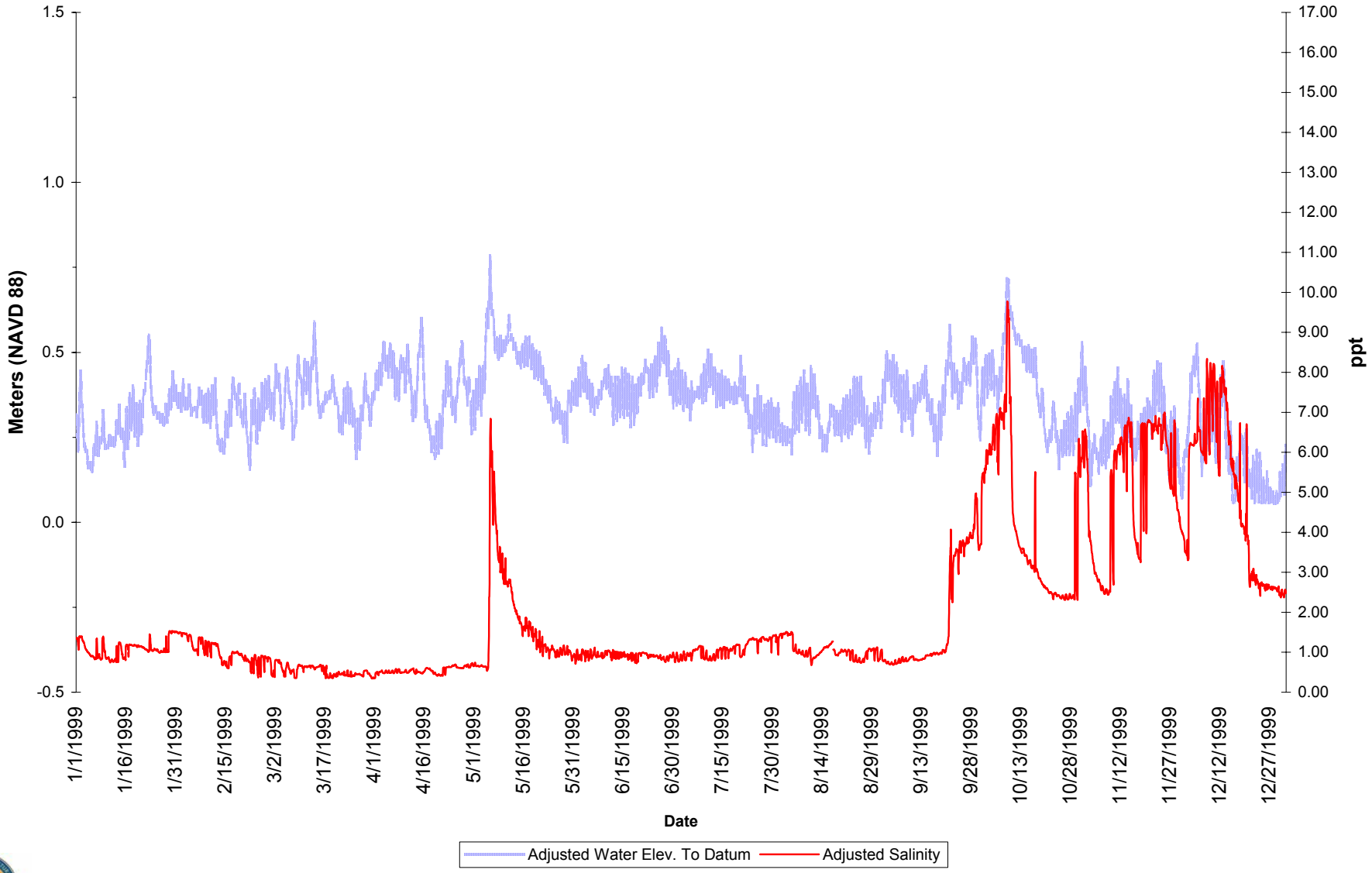
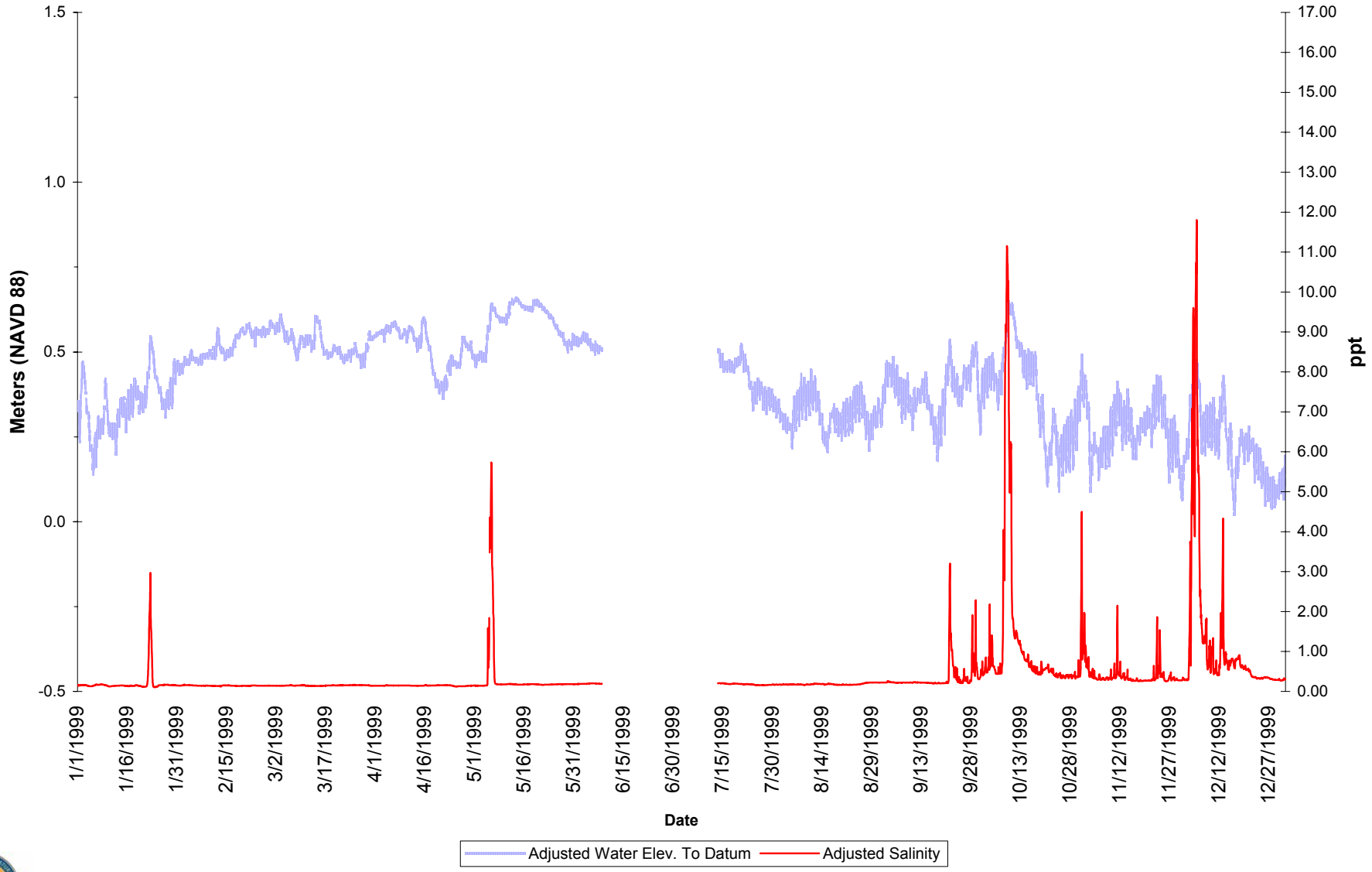
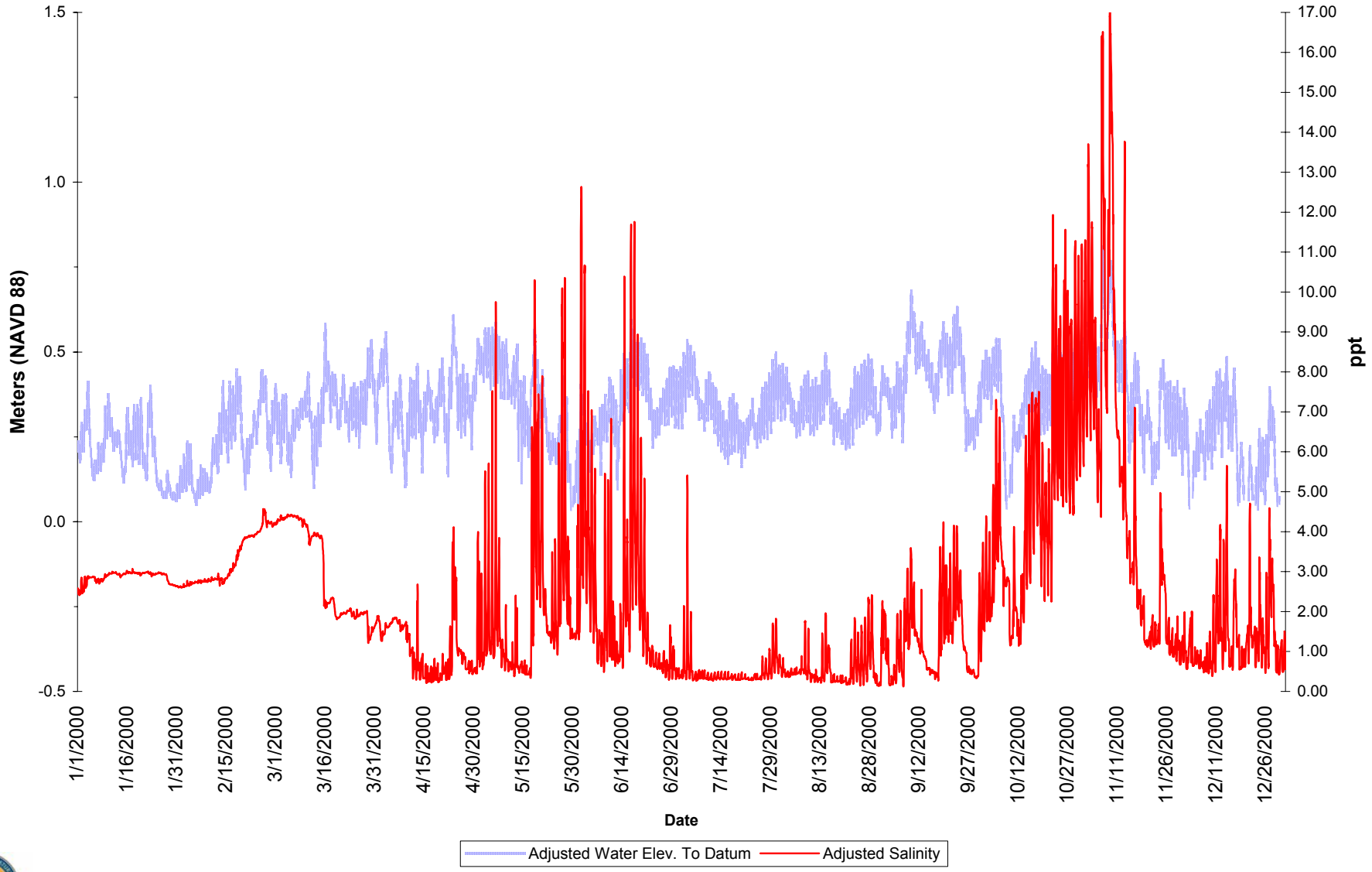


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-07R (REF 4)
1999

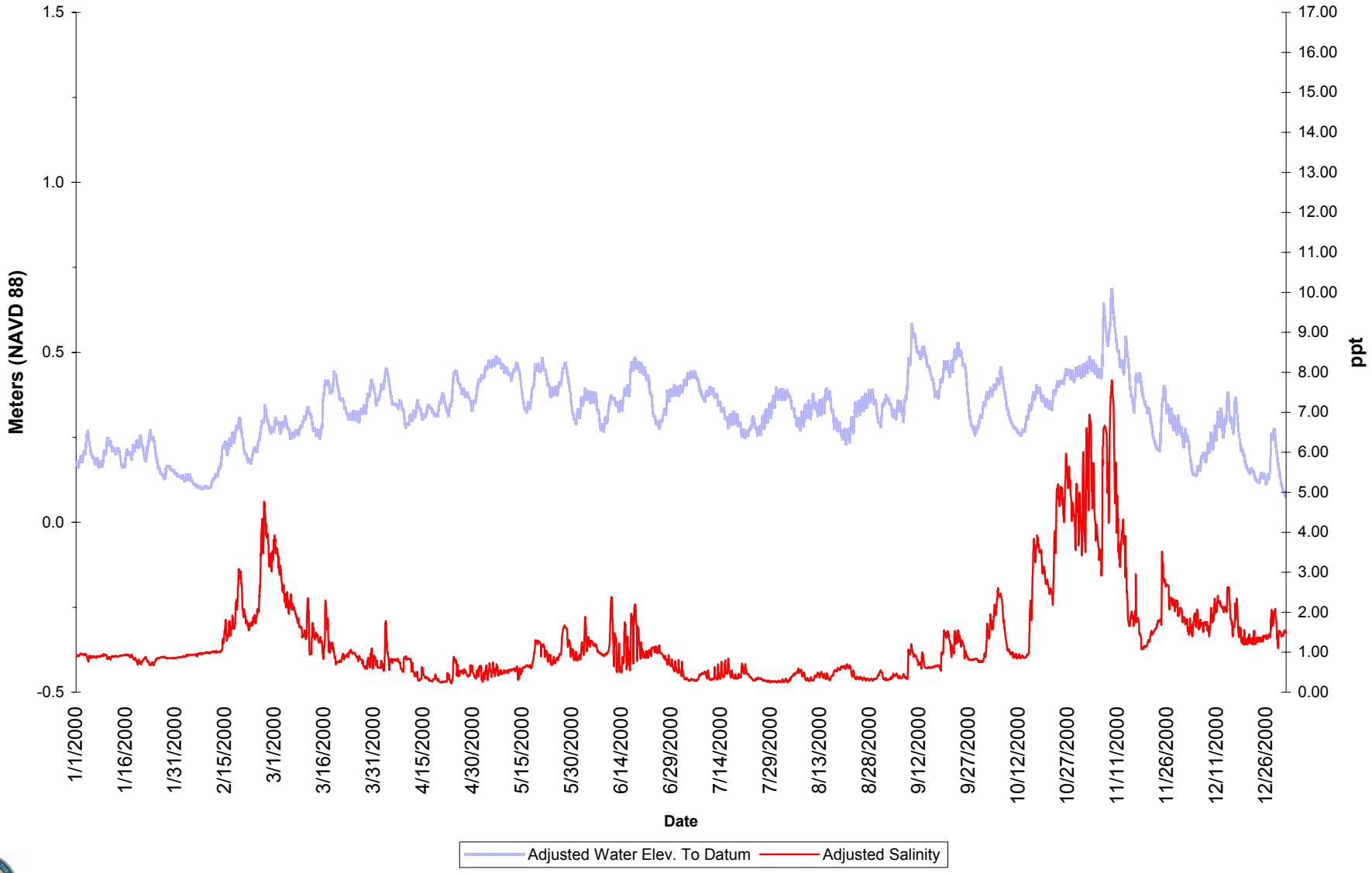


Water Level and Salinity Data 2000

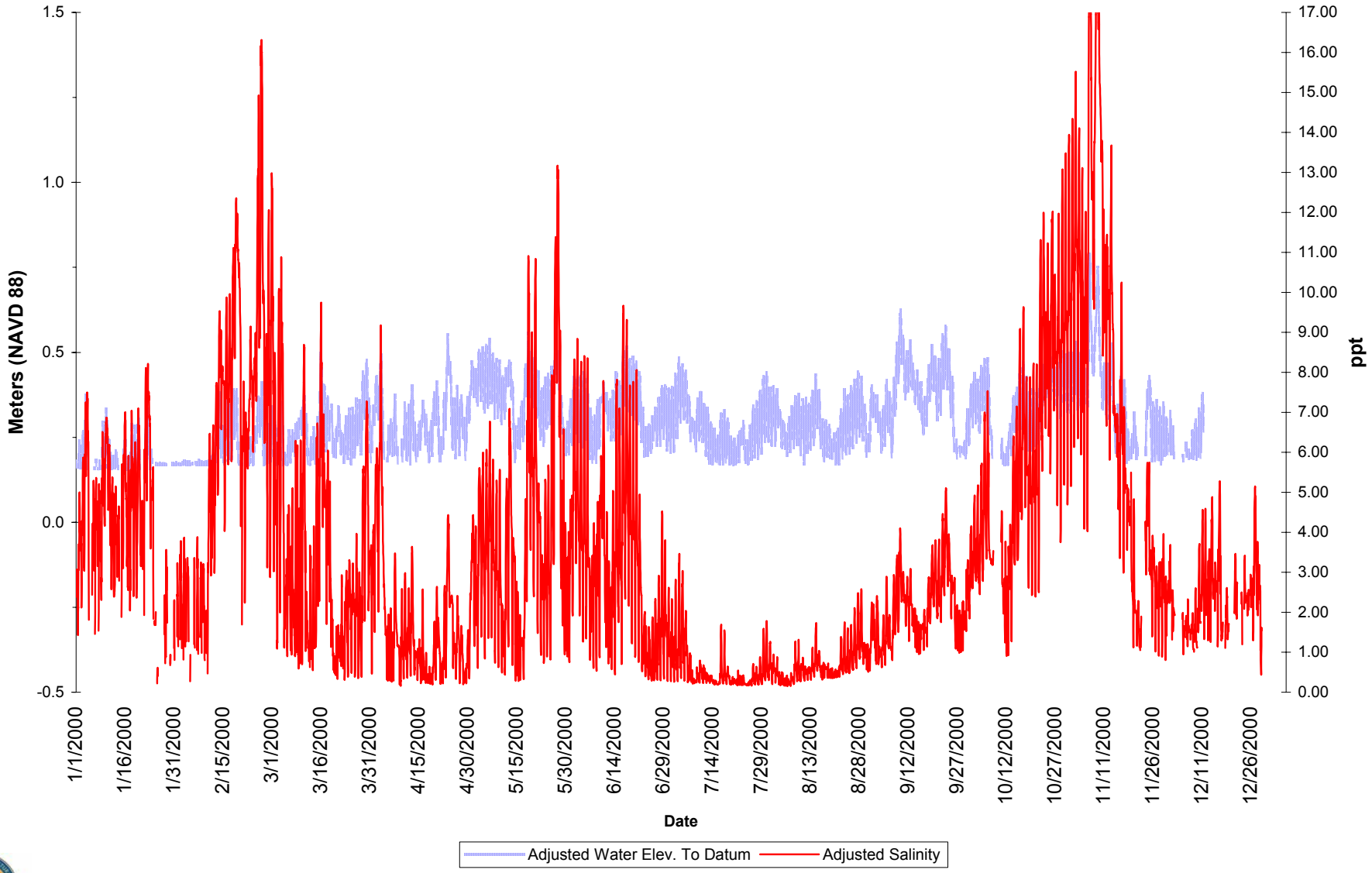
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-01 (CTU 1)
2000



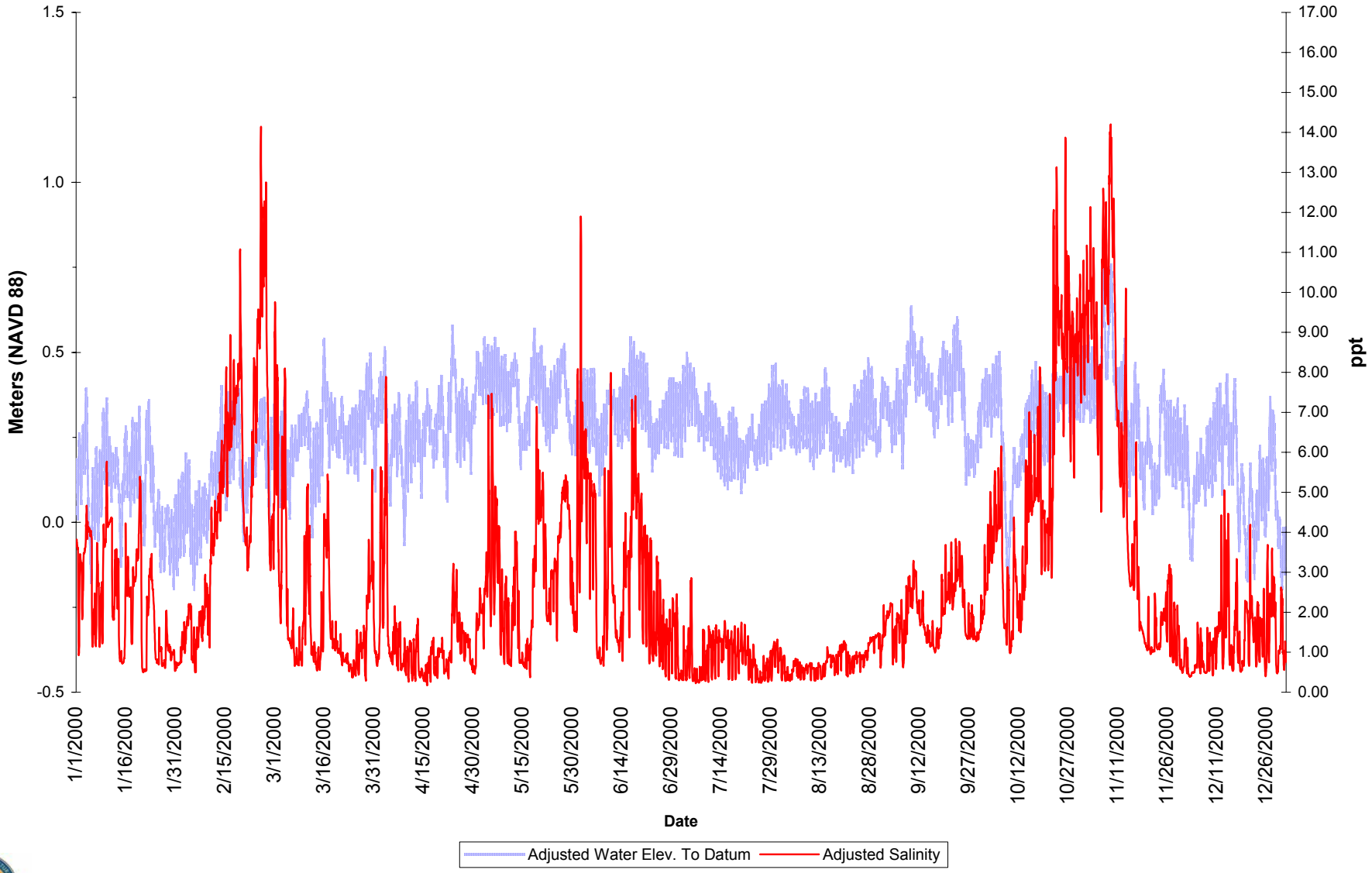
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-02 (CTU 2)
2000



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-03 (CTU 3)
2000



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-04R (REF 1)
2000



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-05R (REF 2)
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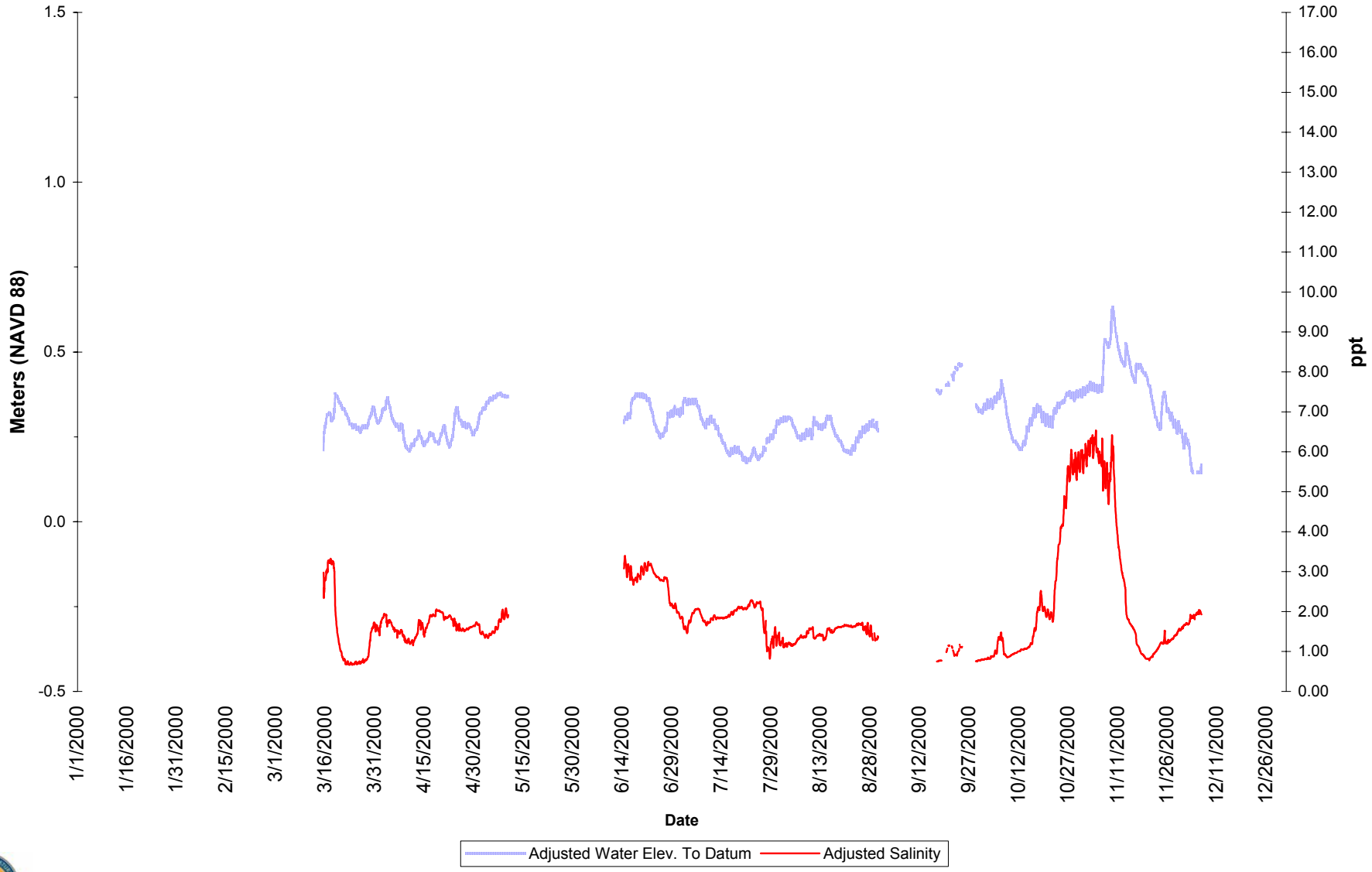
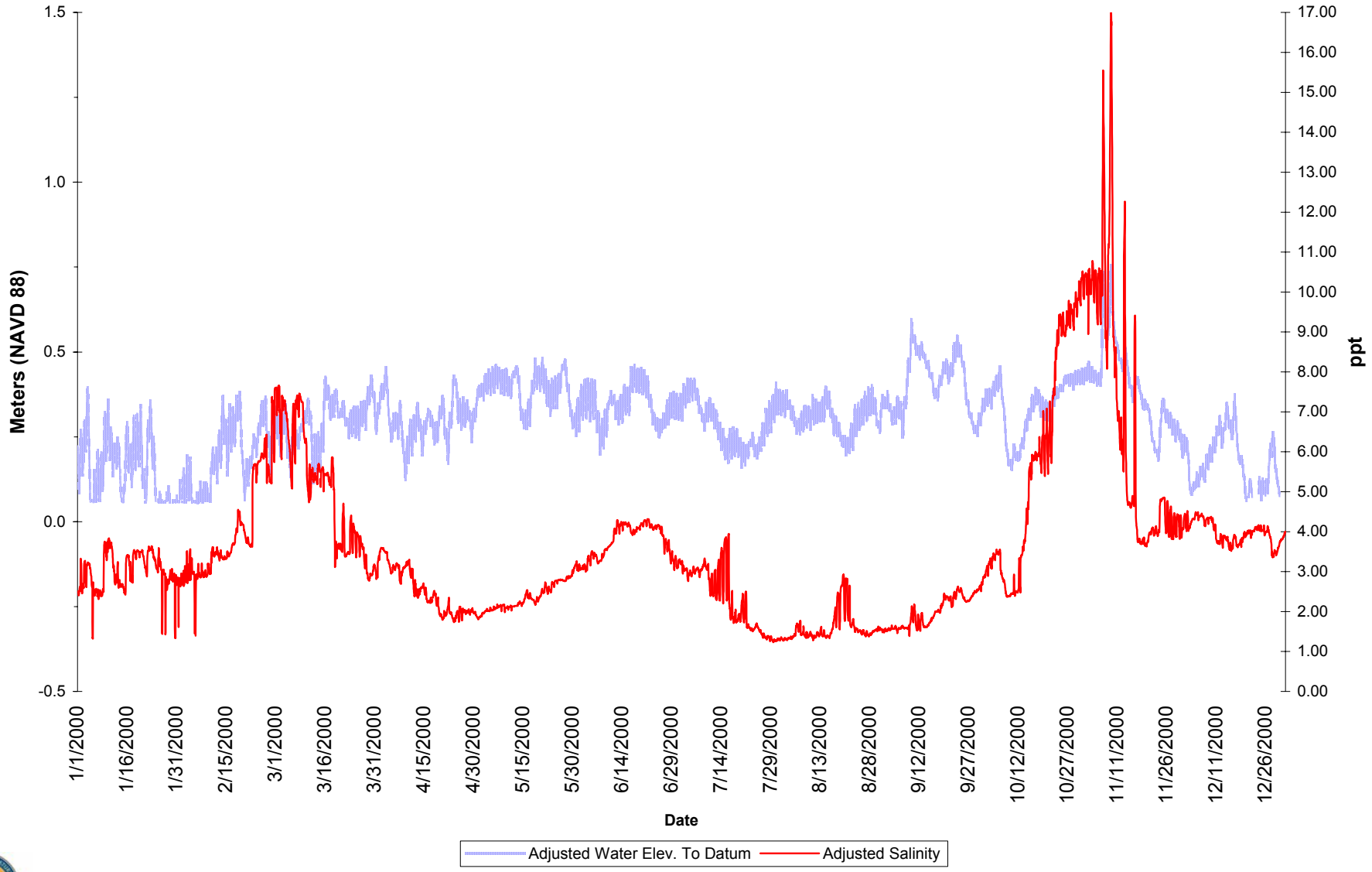
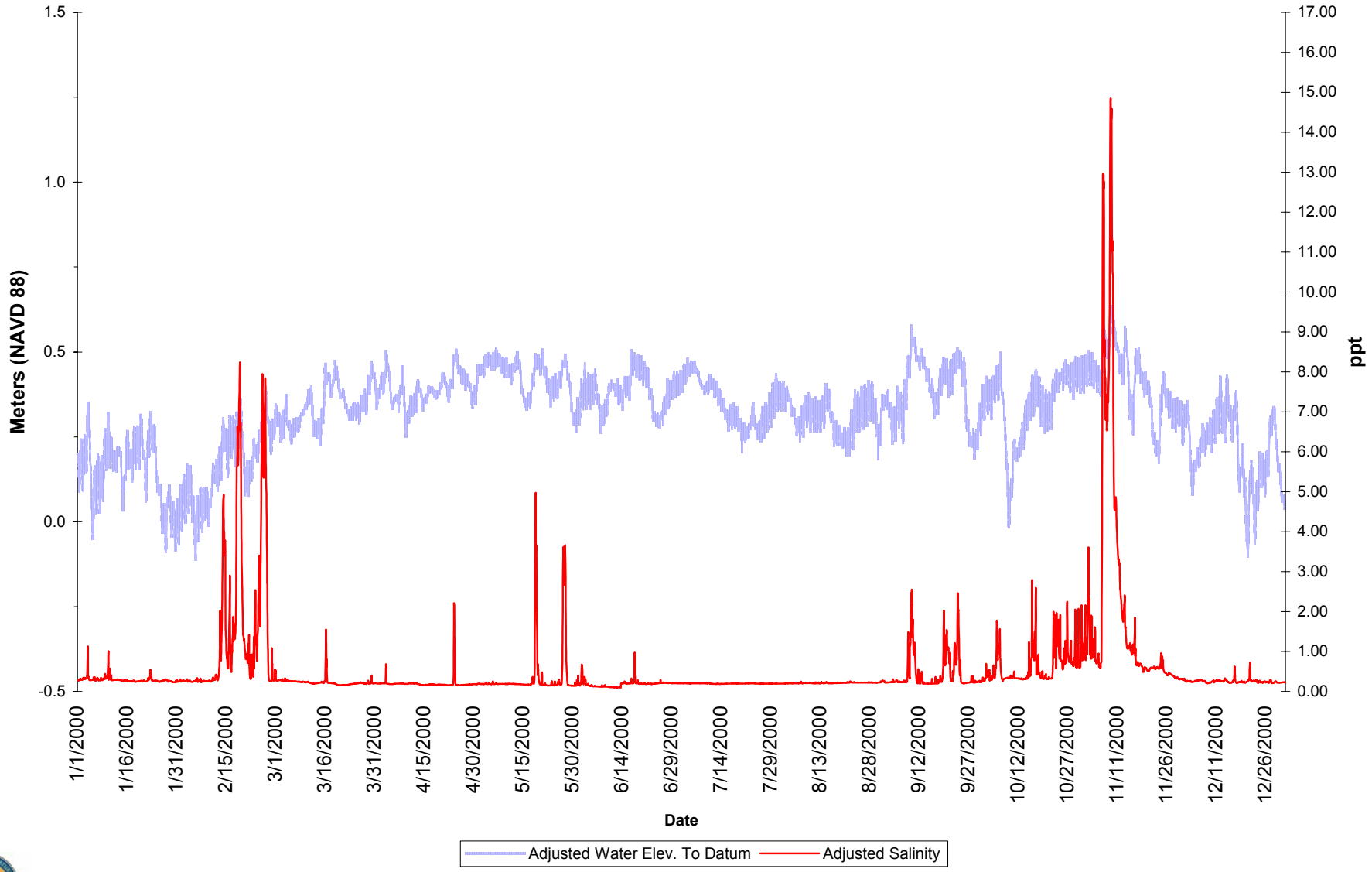


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-06R (REF 3)
2000

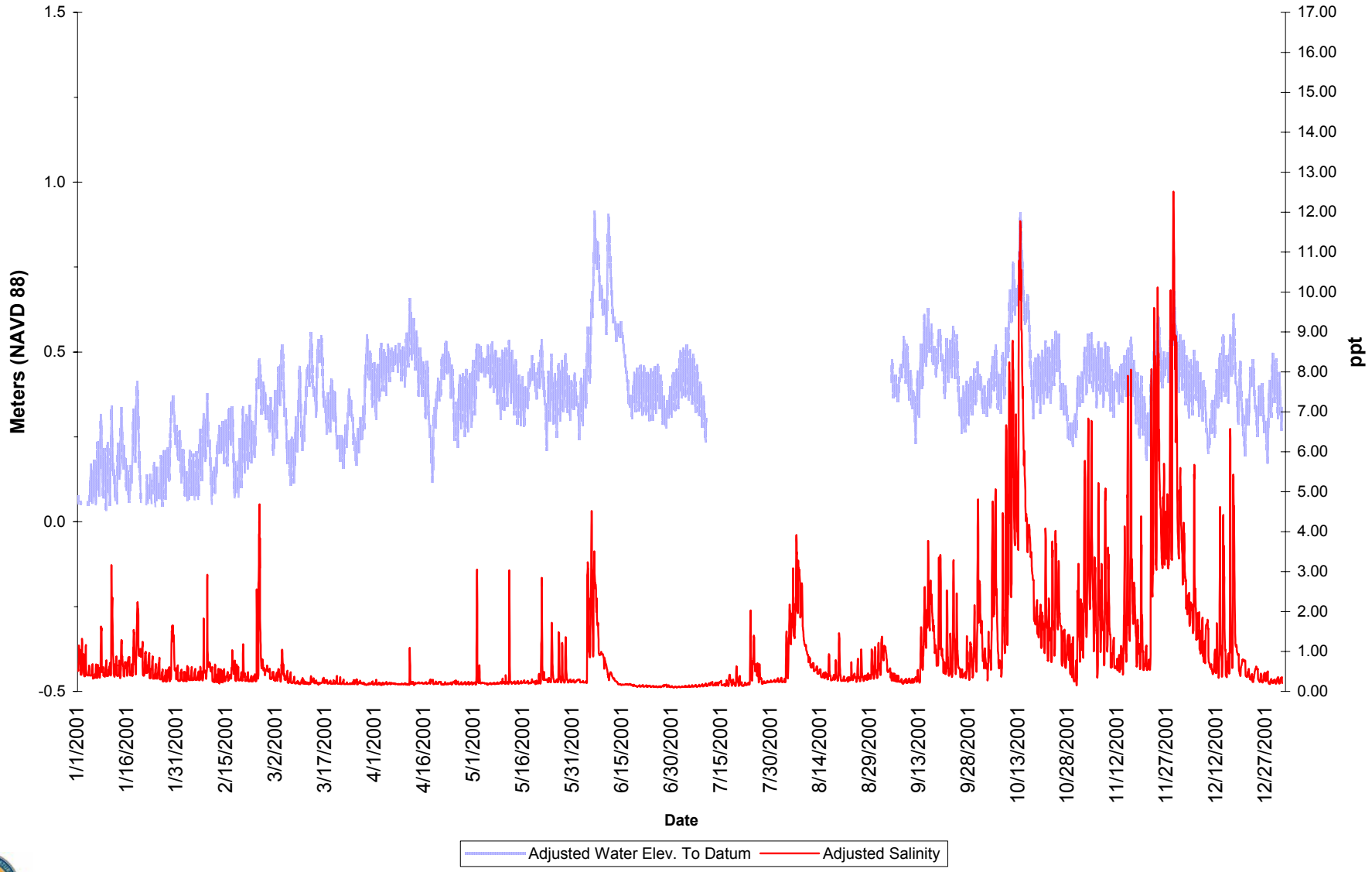


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-07R (REF 4)
2000



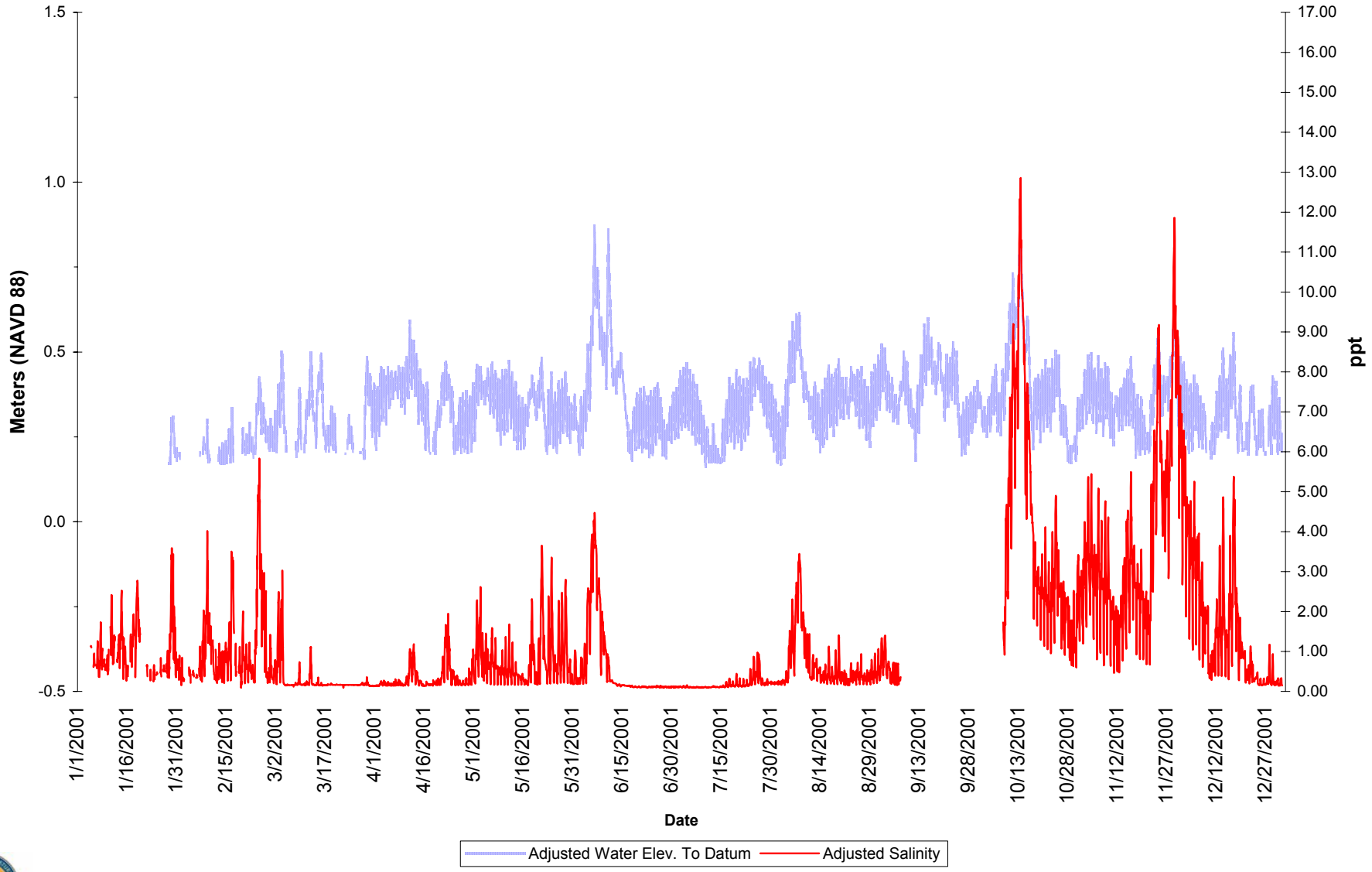
Water Level and Salinity Data 2001

Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-01 (CTU 1)
2001

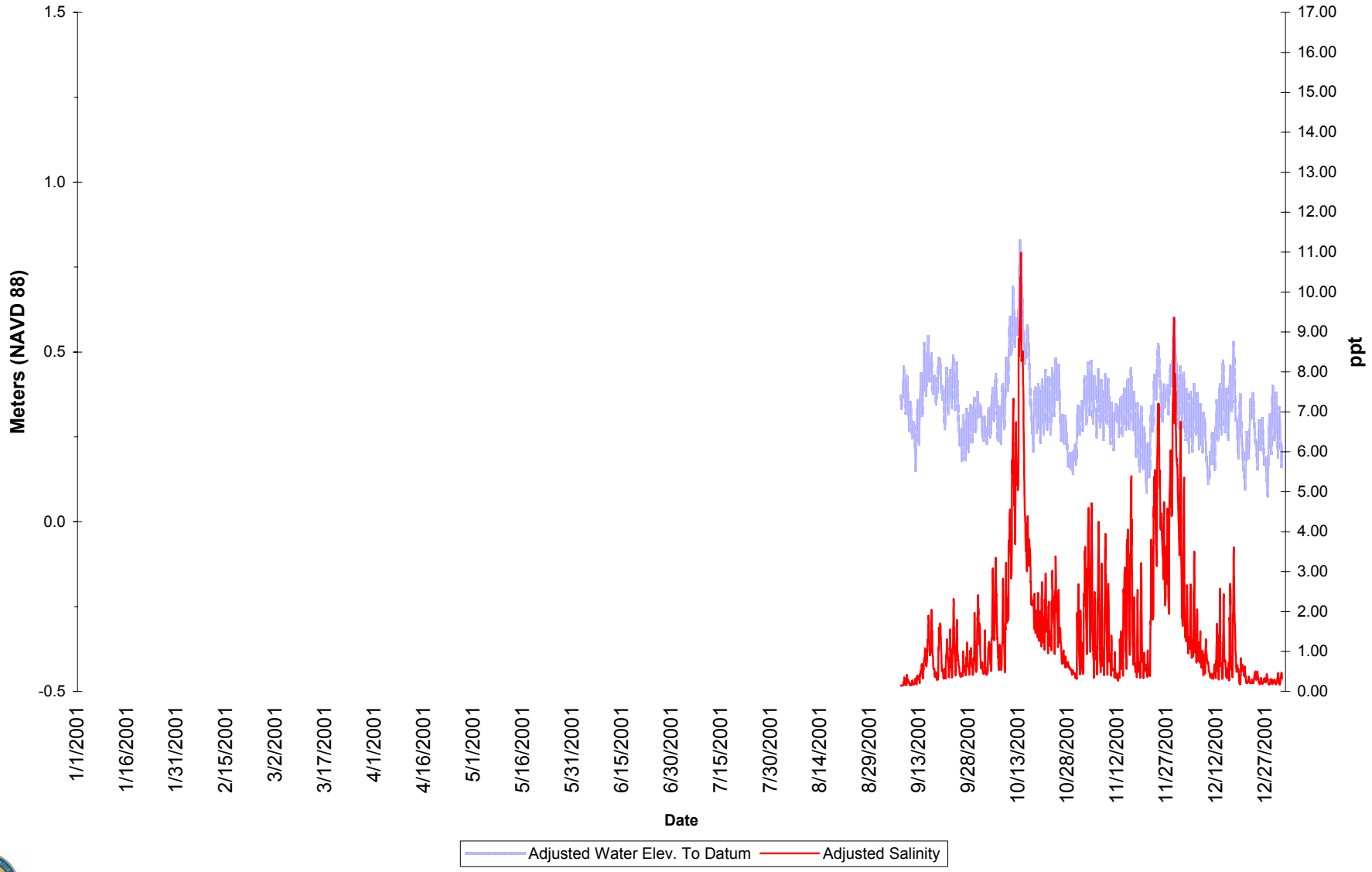


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-02 (CTU 2)
2001

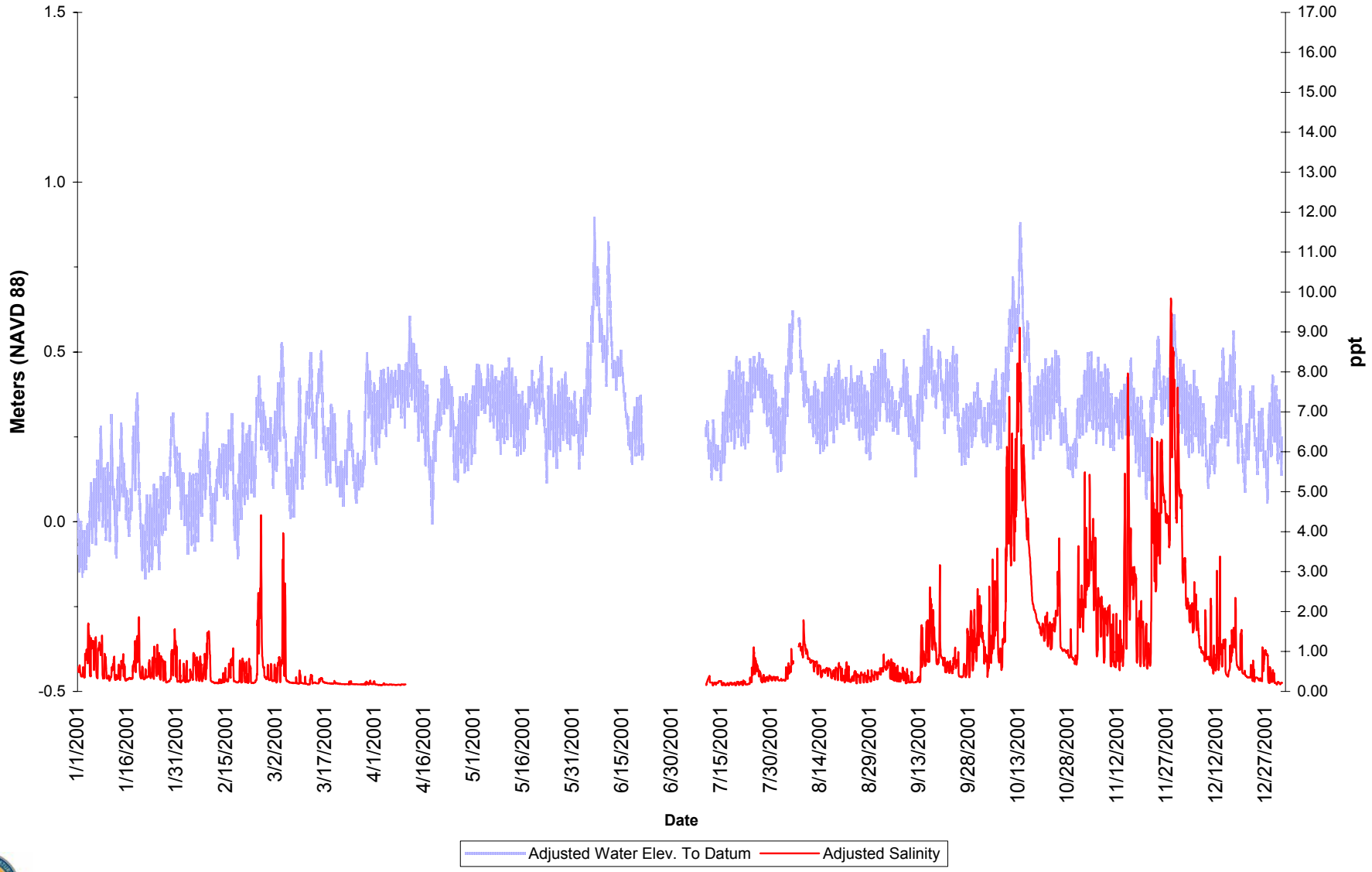
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-03 (CTU 3)
2001



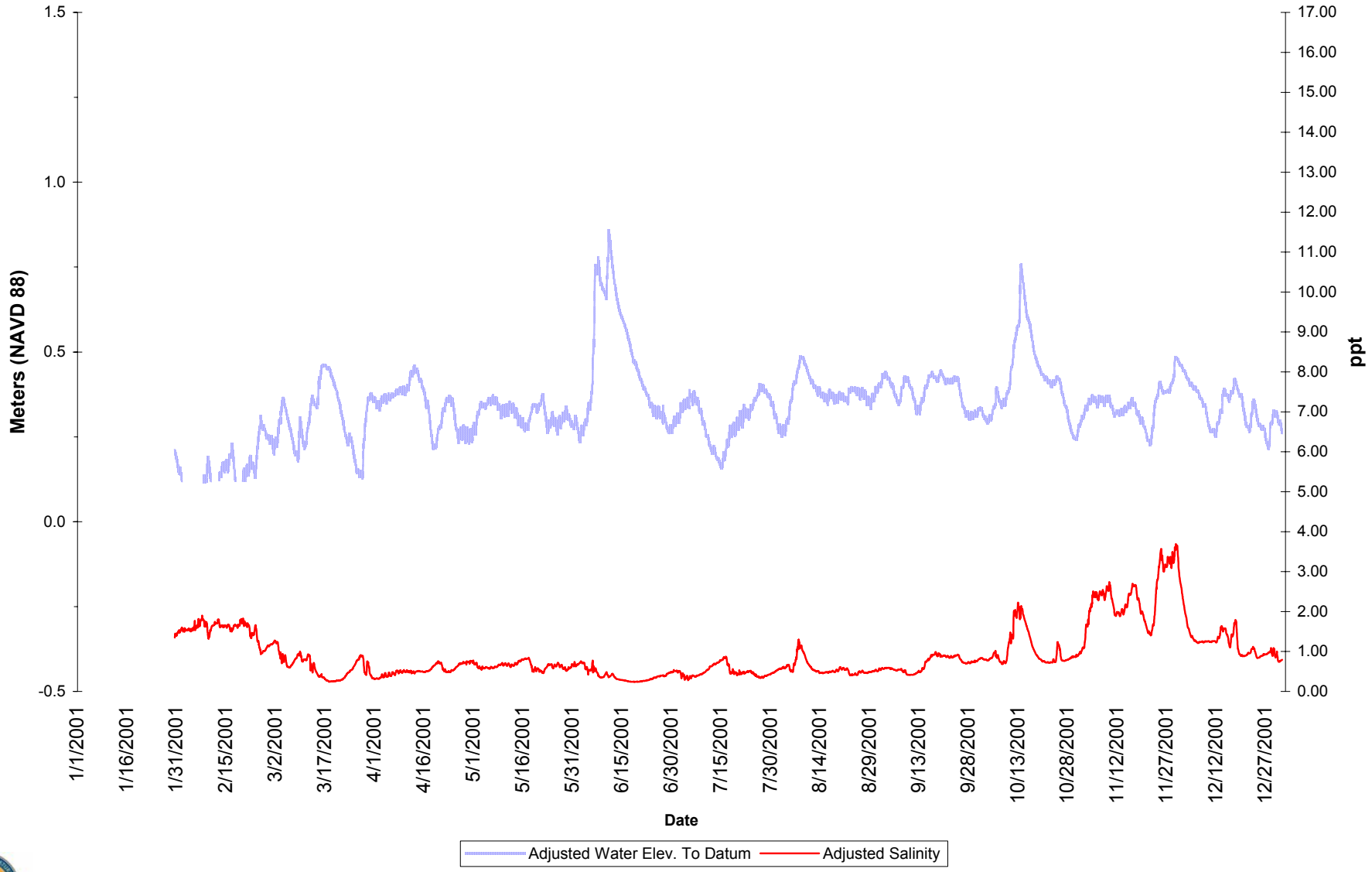
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-400 (CTU 3)
2001



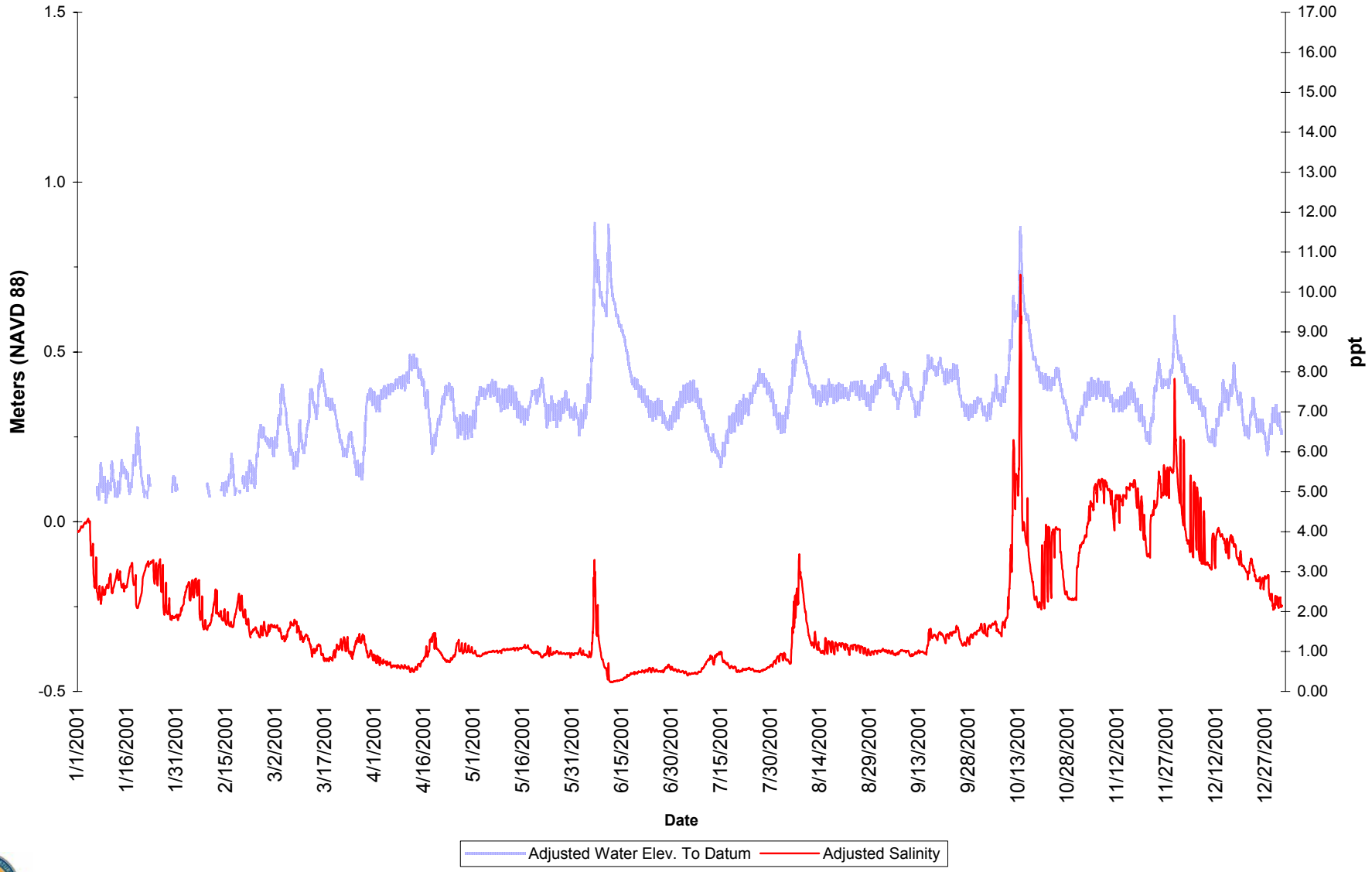
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-04R (REF 1)
2001



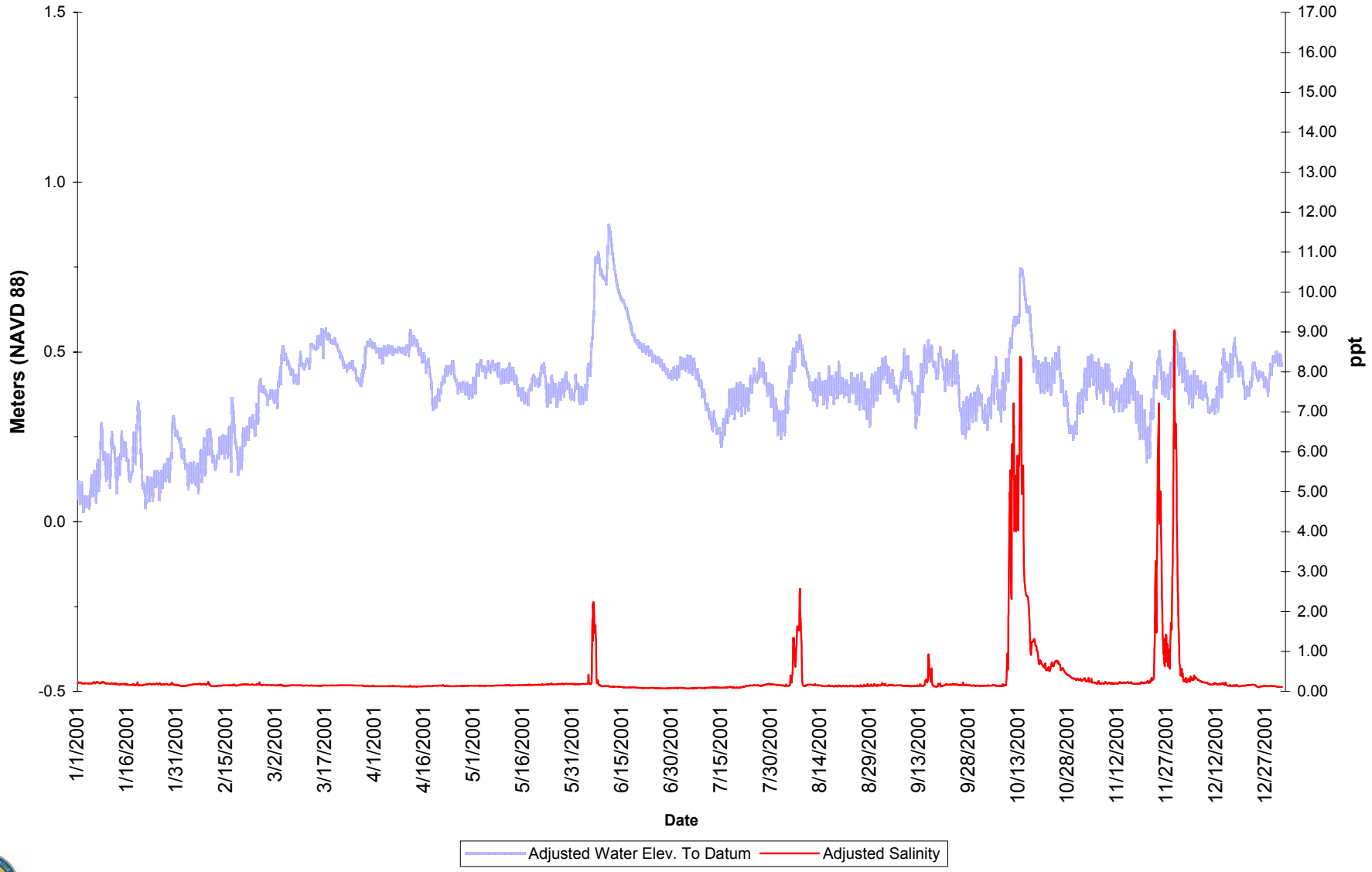
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-05R (REF 2)
2001



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-06R (REF 3)
2001

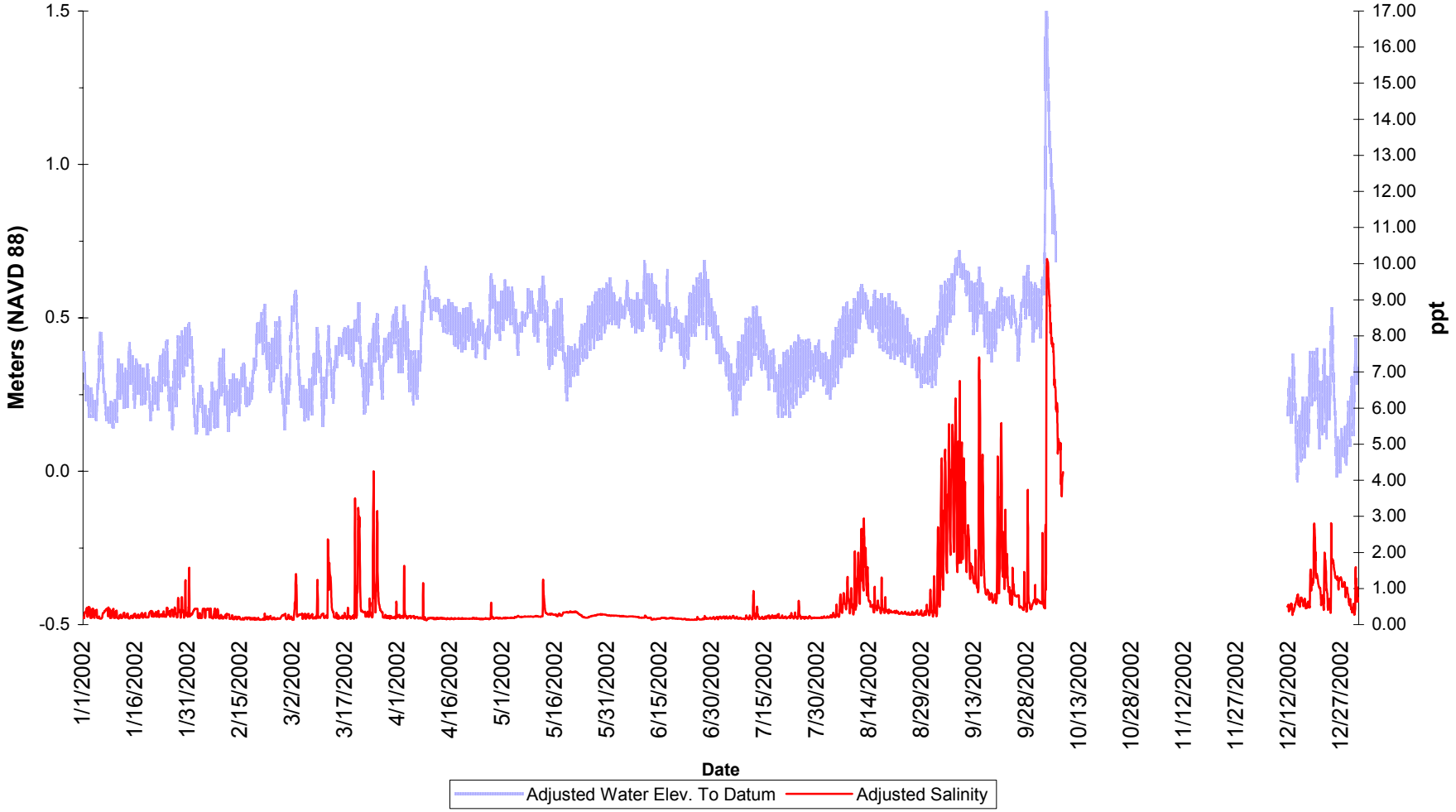


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-07R (REF 4)
2001



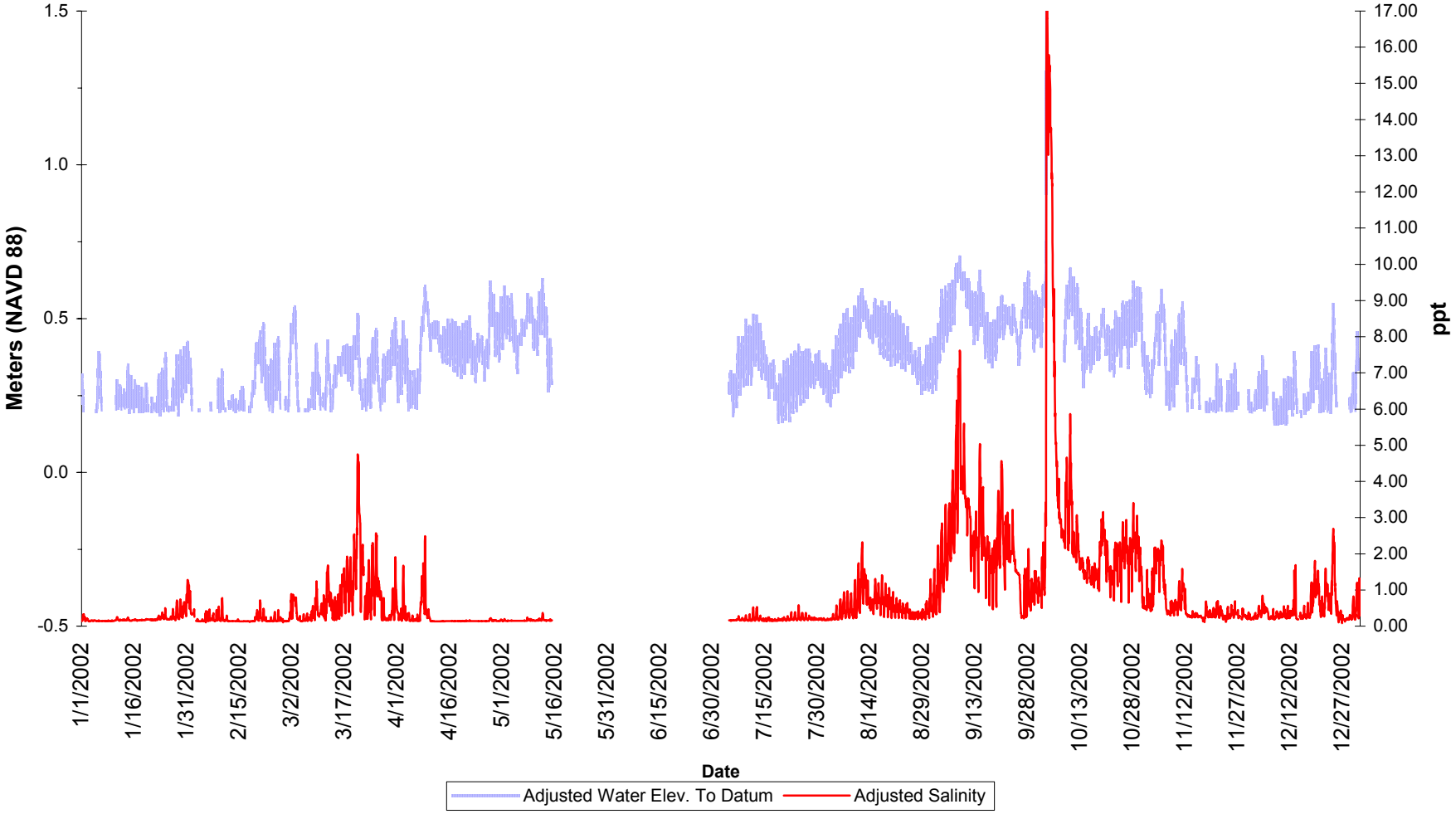
Water Level and Salinity Data 2002

Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-01 (CTU 1)
2002

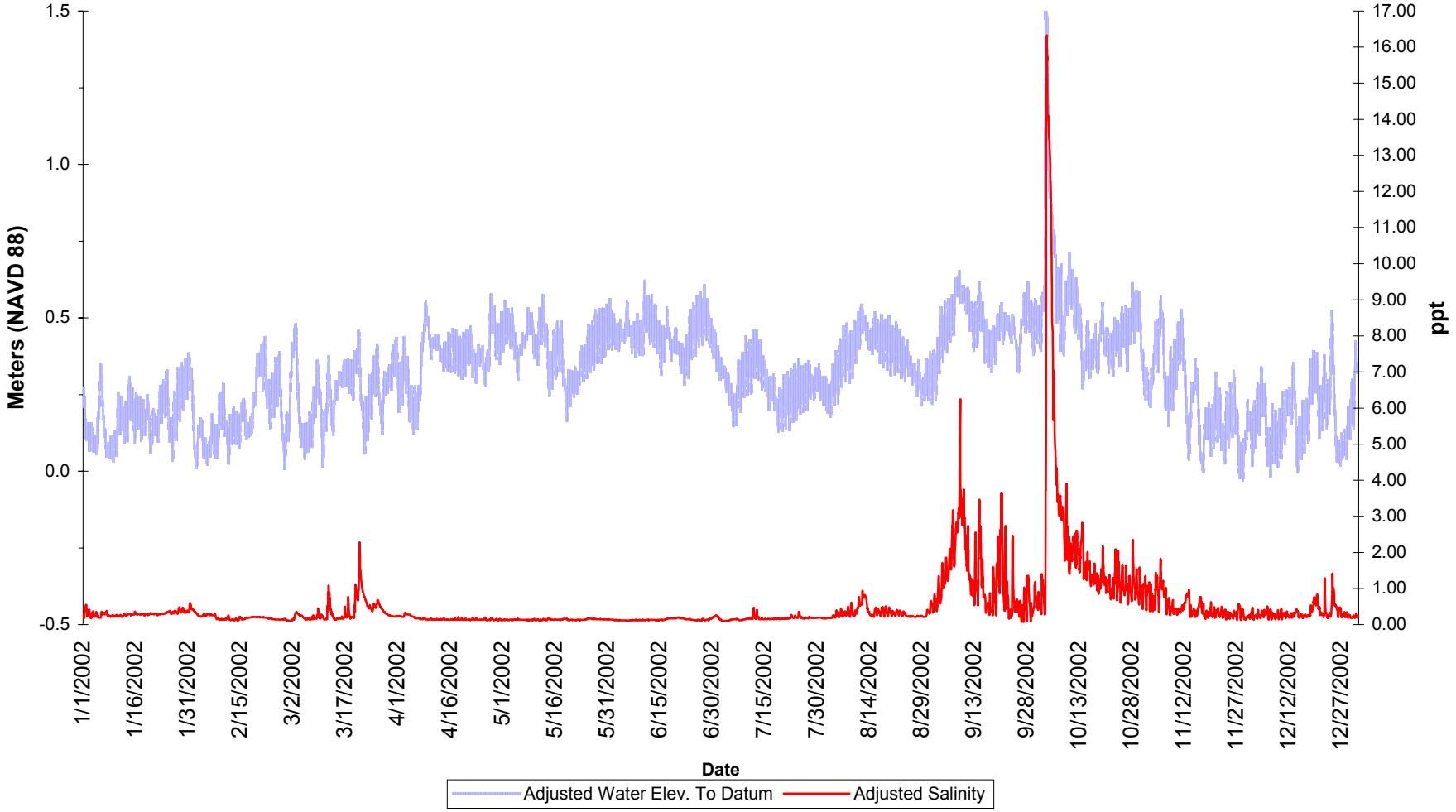


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-02 (CTU 2)
2002

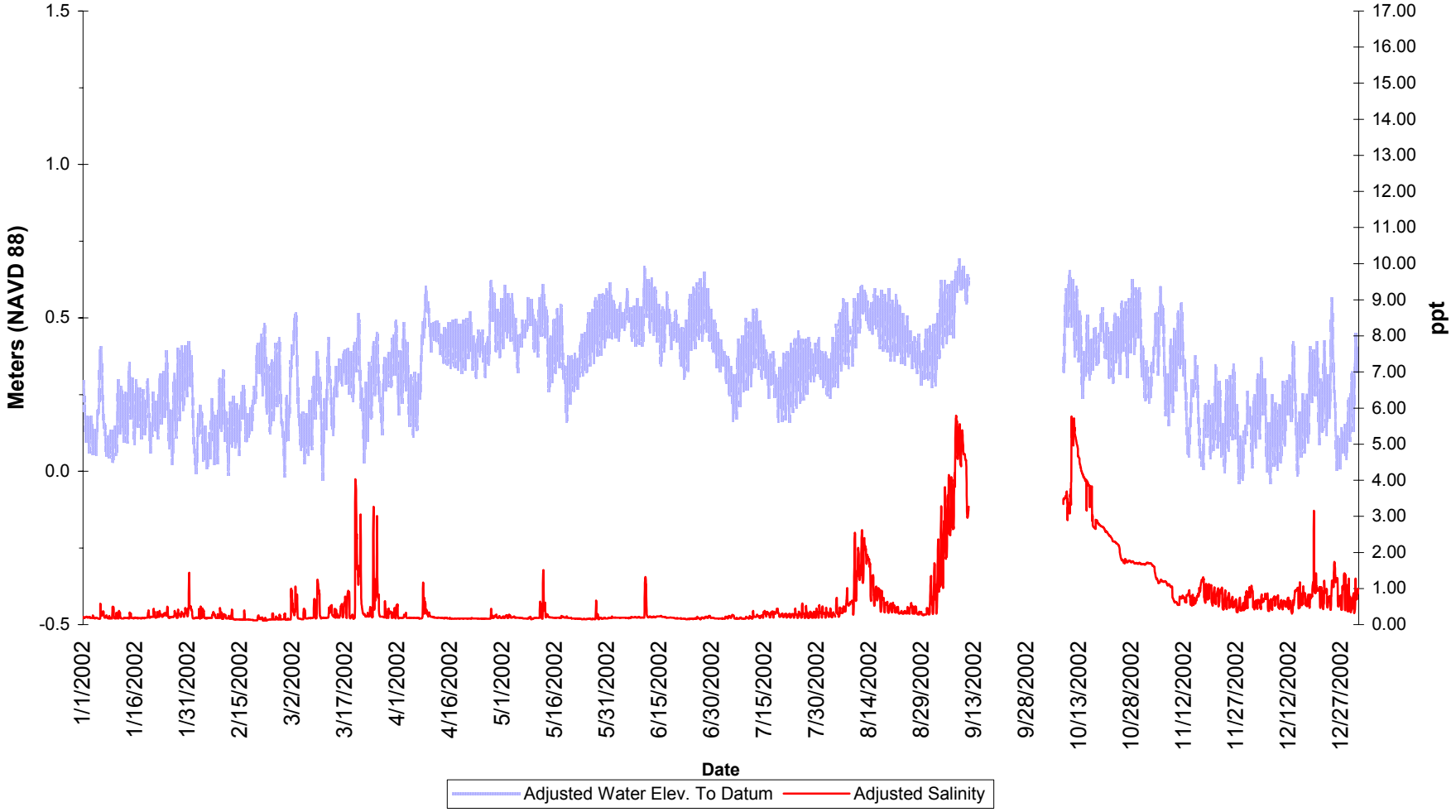
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-03 (CTU 3)
2002



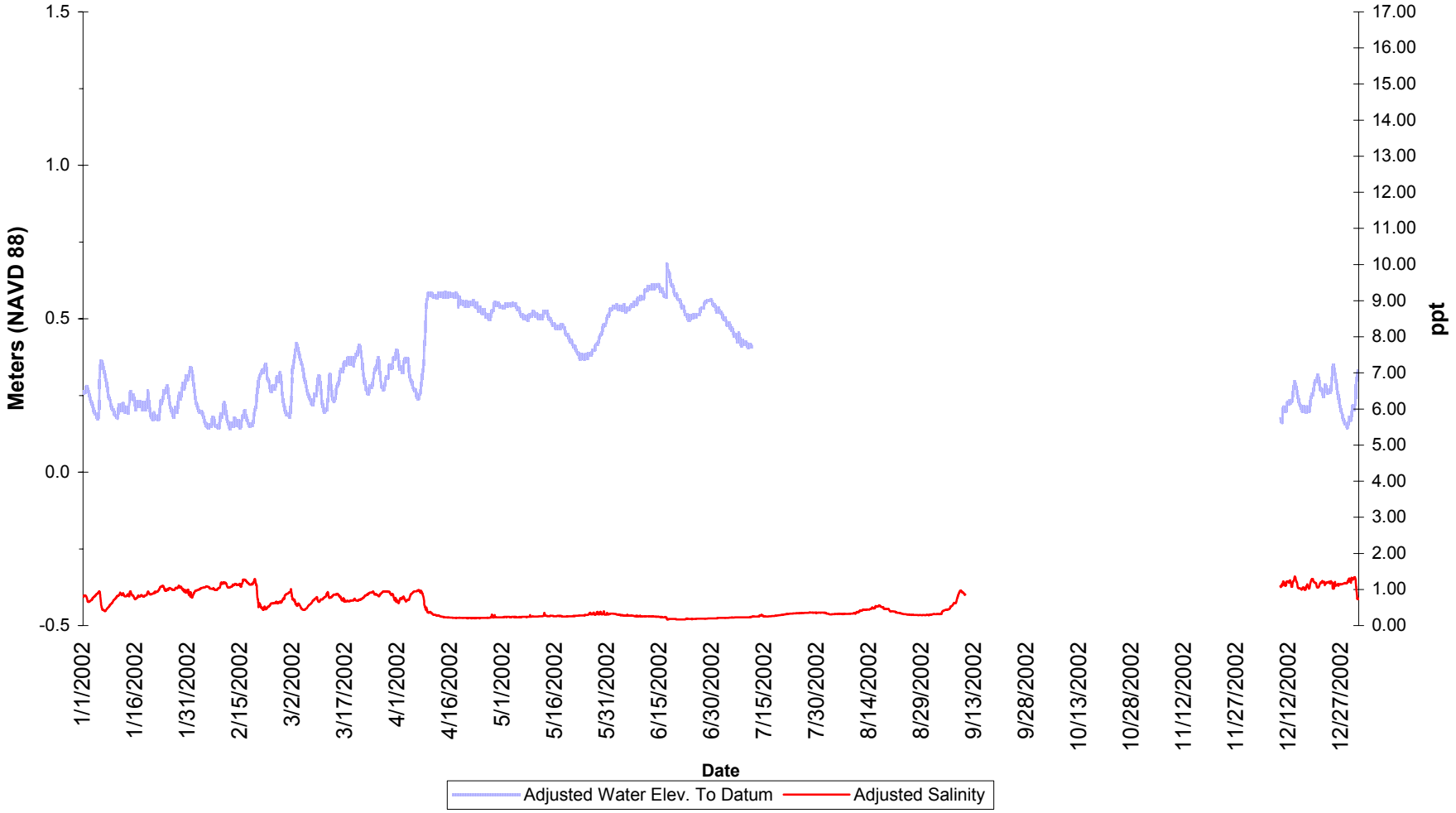
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-400 (CTU 3)
2002



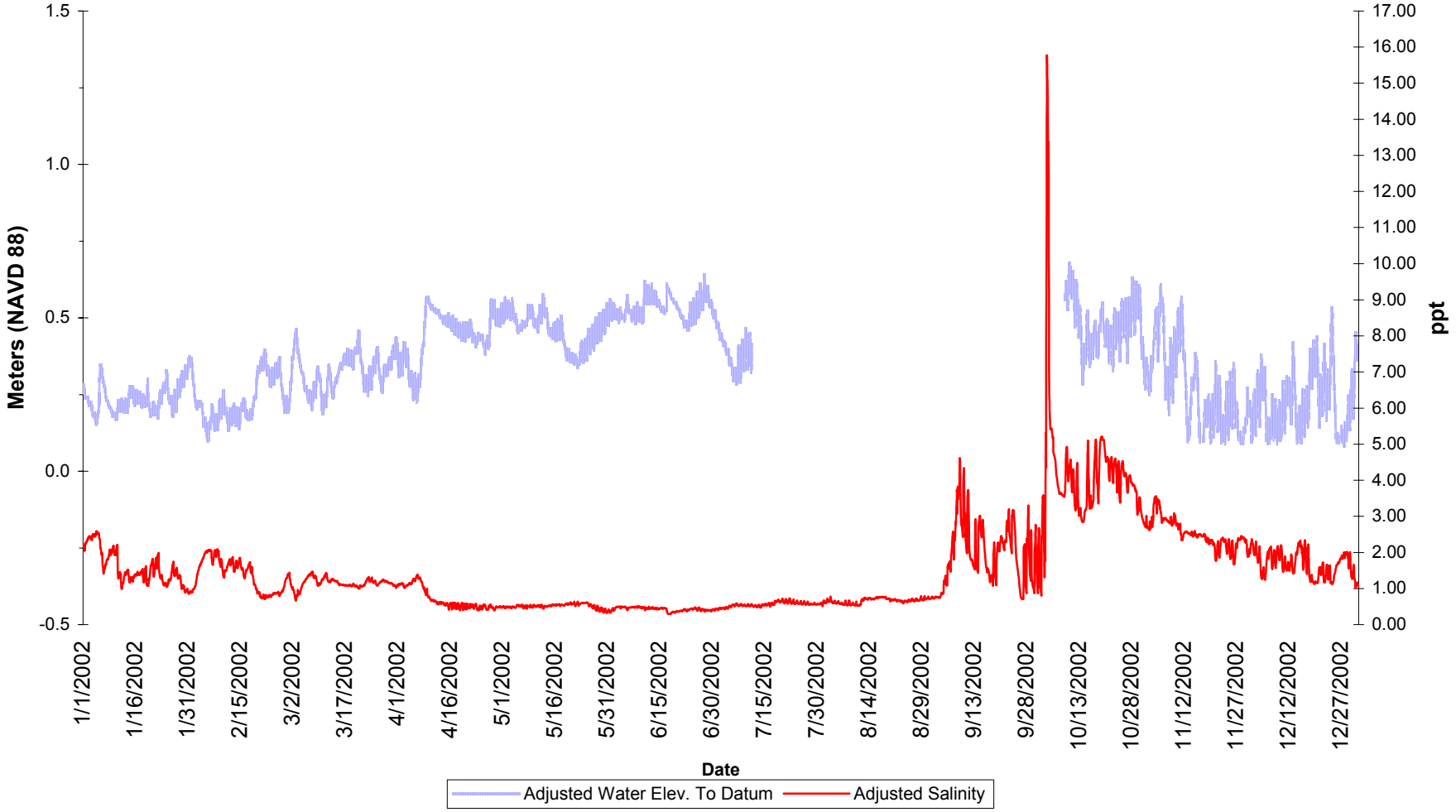
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-04R (REF 1)
2002



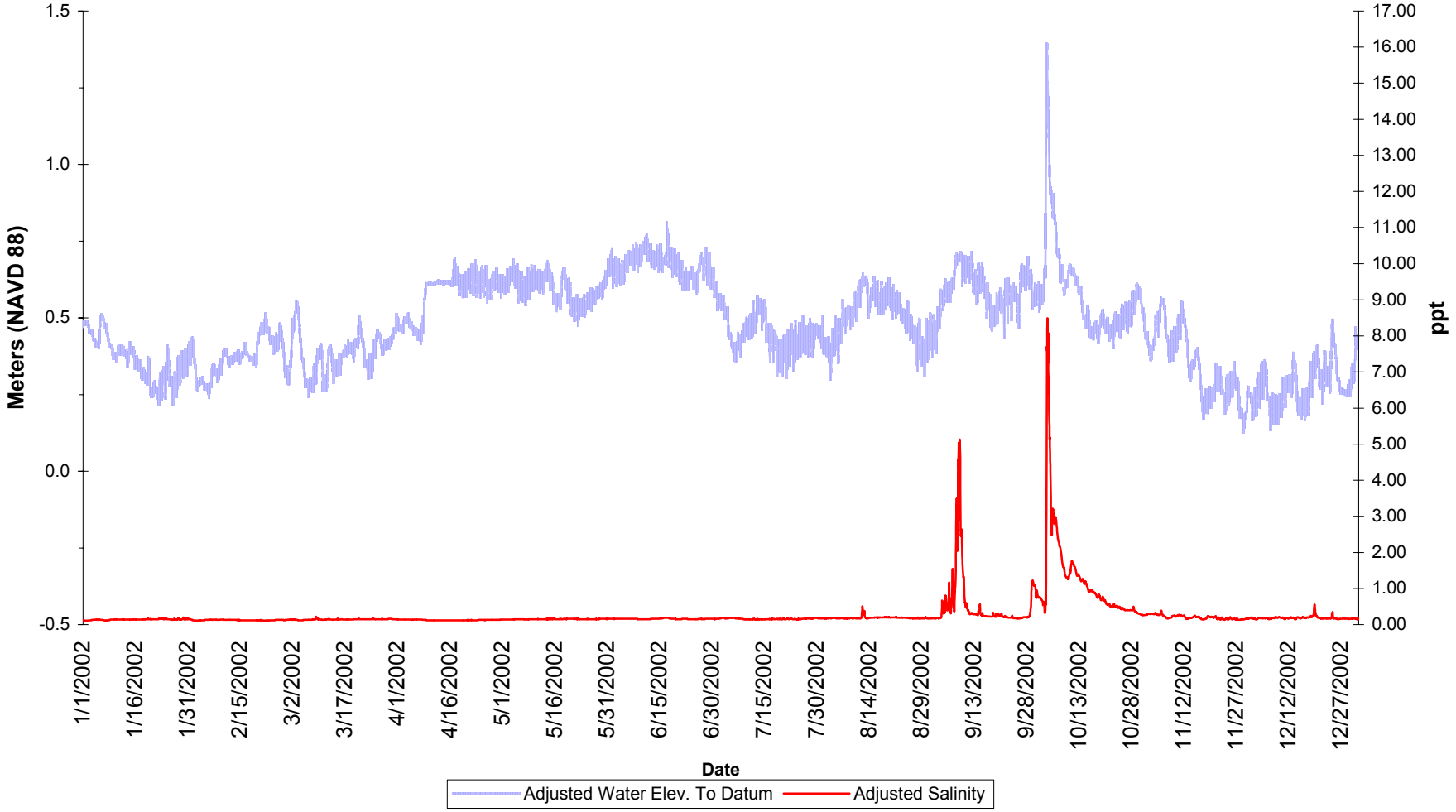
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-05R (REF 2)
2002



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-06R (REF 3)
2002



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-07R (REF 4)
2002



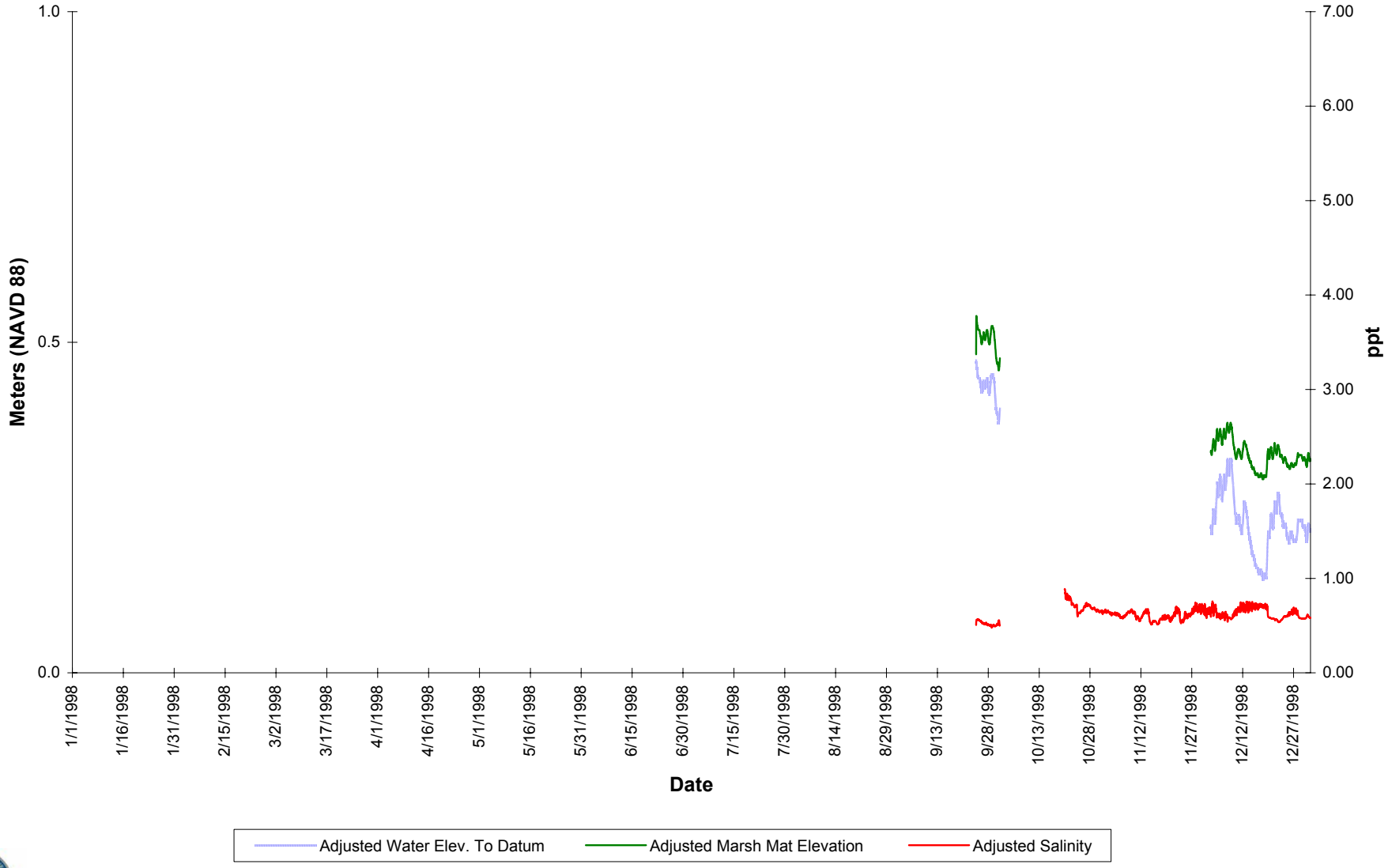
Marsh Mat Movement:

Marsh Elevation

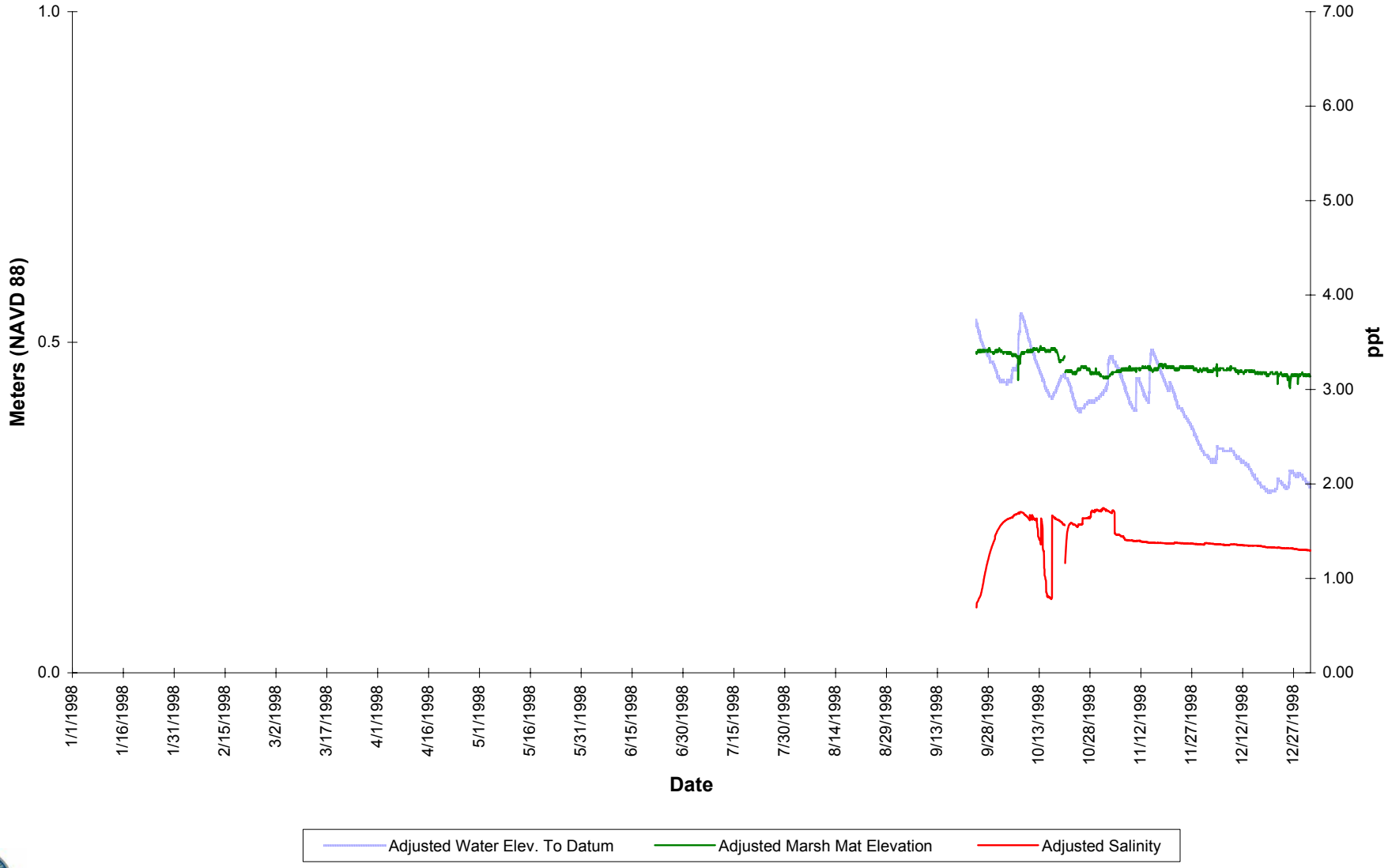
Water Level

Salinity (*below marsh mat*)

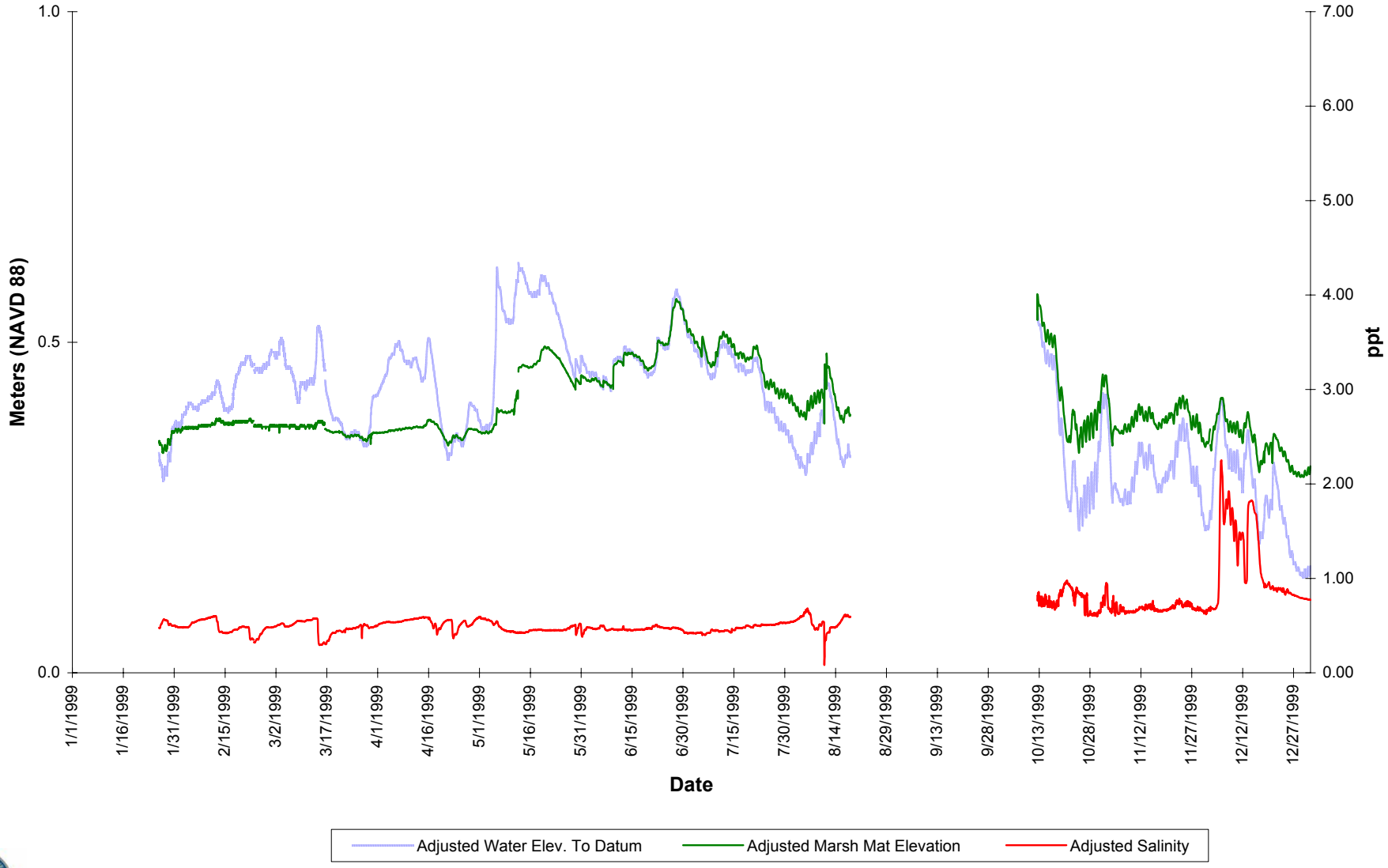
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Water Level and Salinity
1998



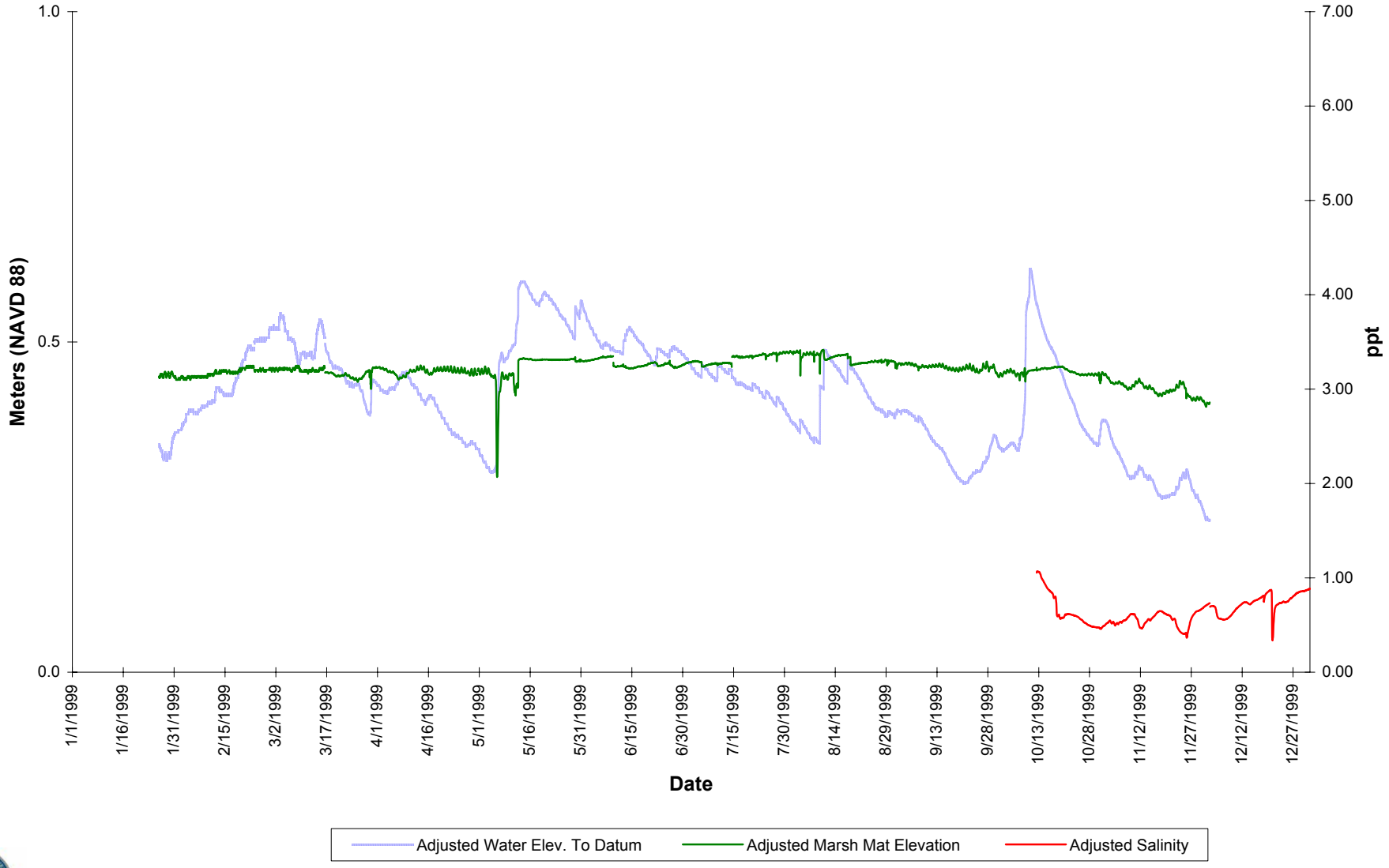
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Water Level and Salinity
1998



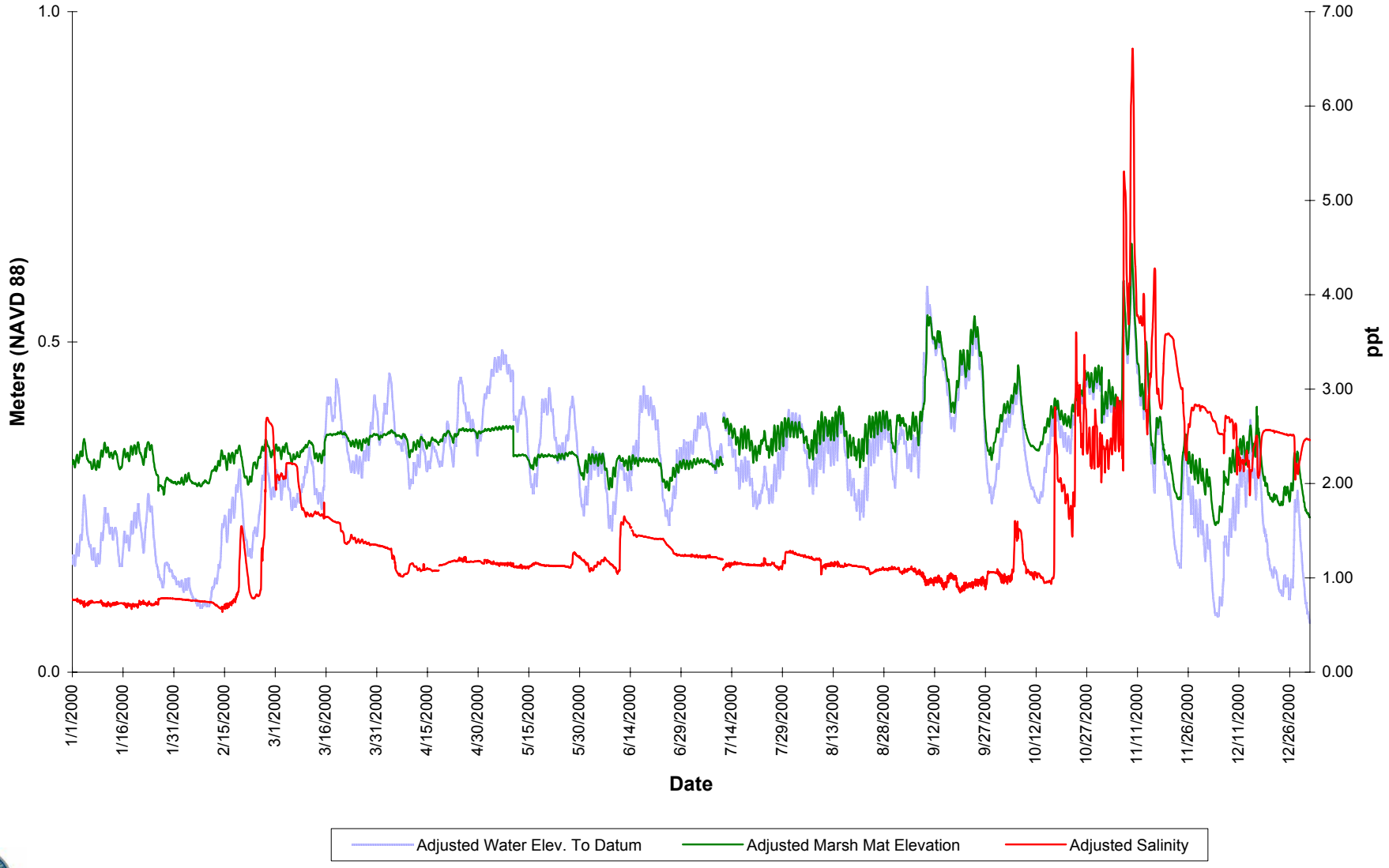
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Water Level and Salinity
1999



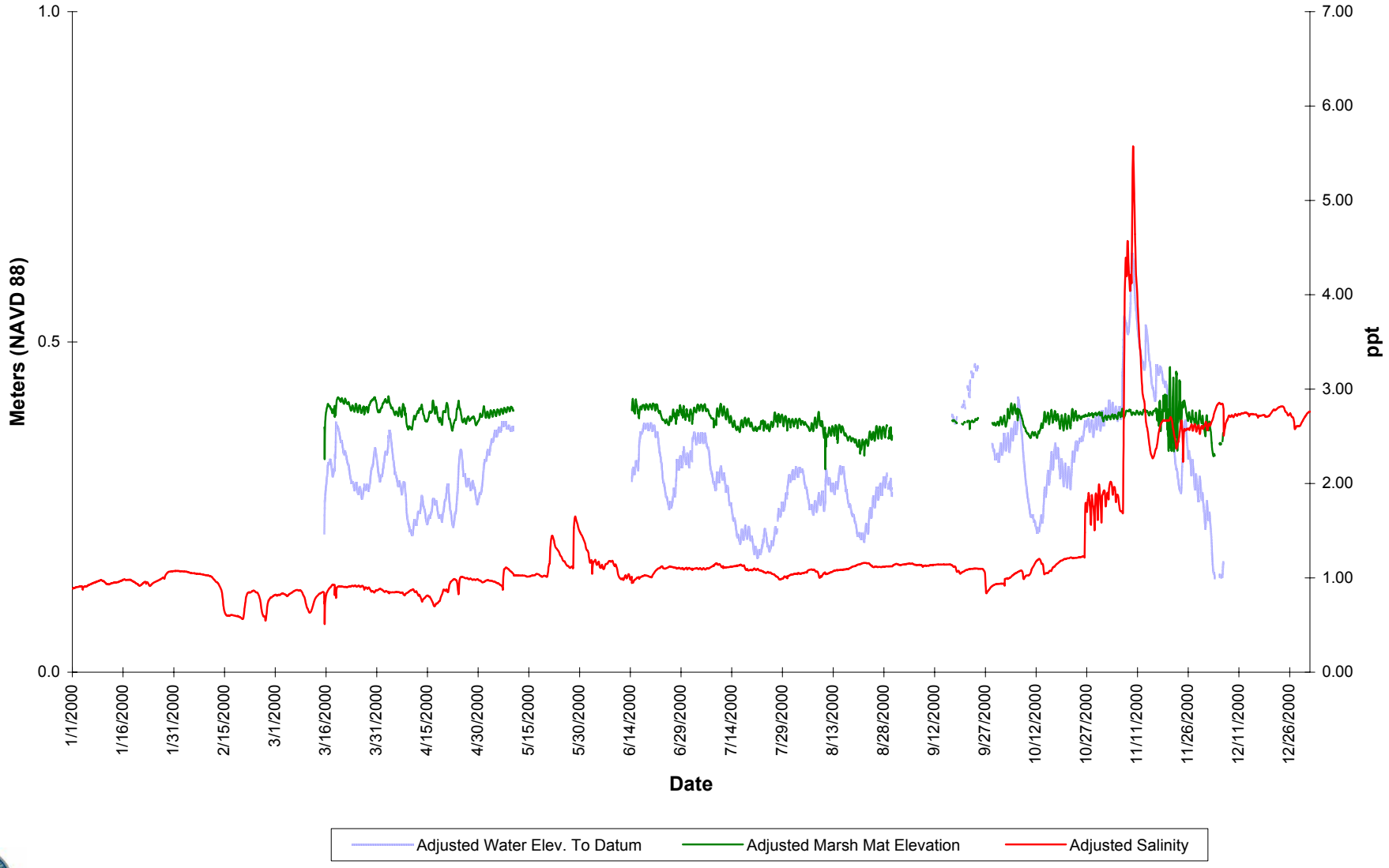
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Water Level and Salinity
1999



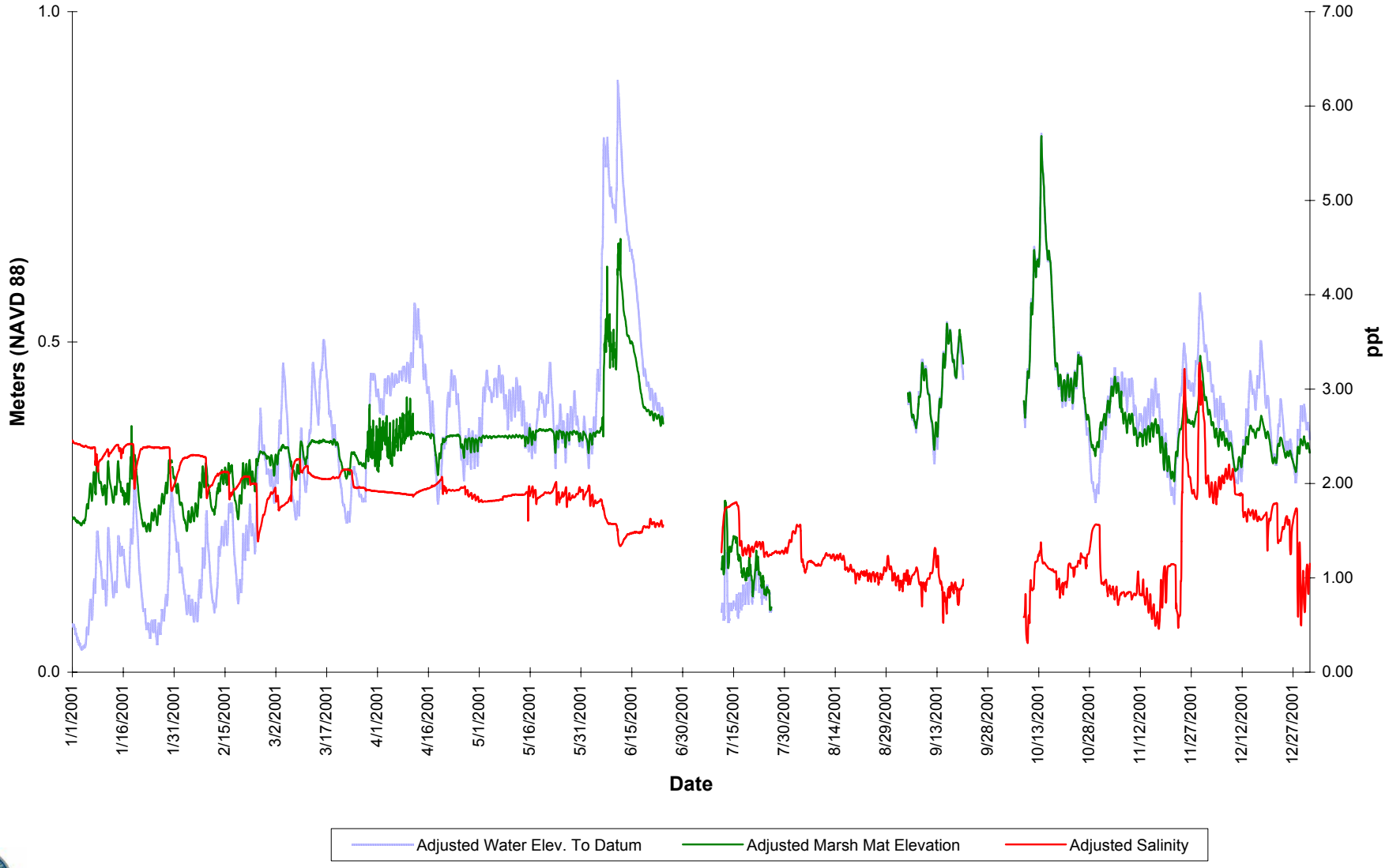
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Water Level and Salinity
2000



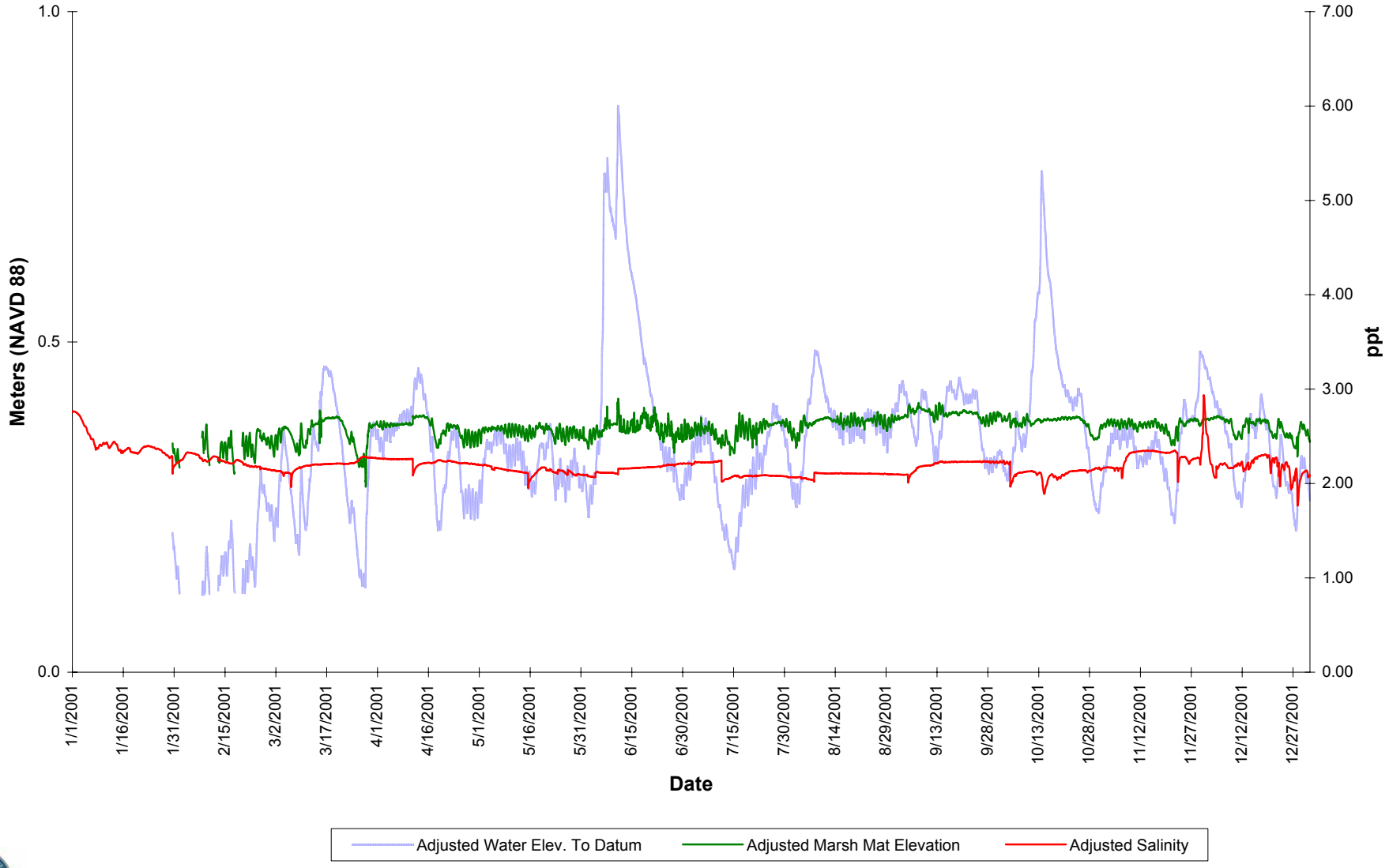
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Water Level and Salinity
2000



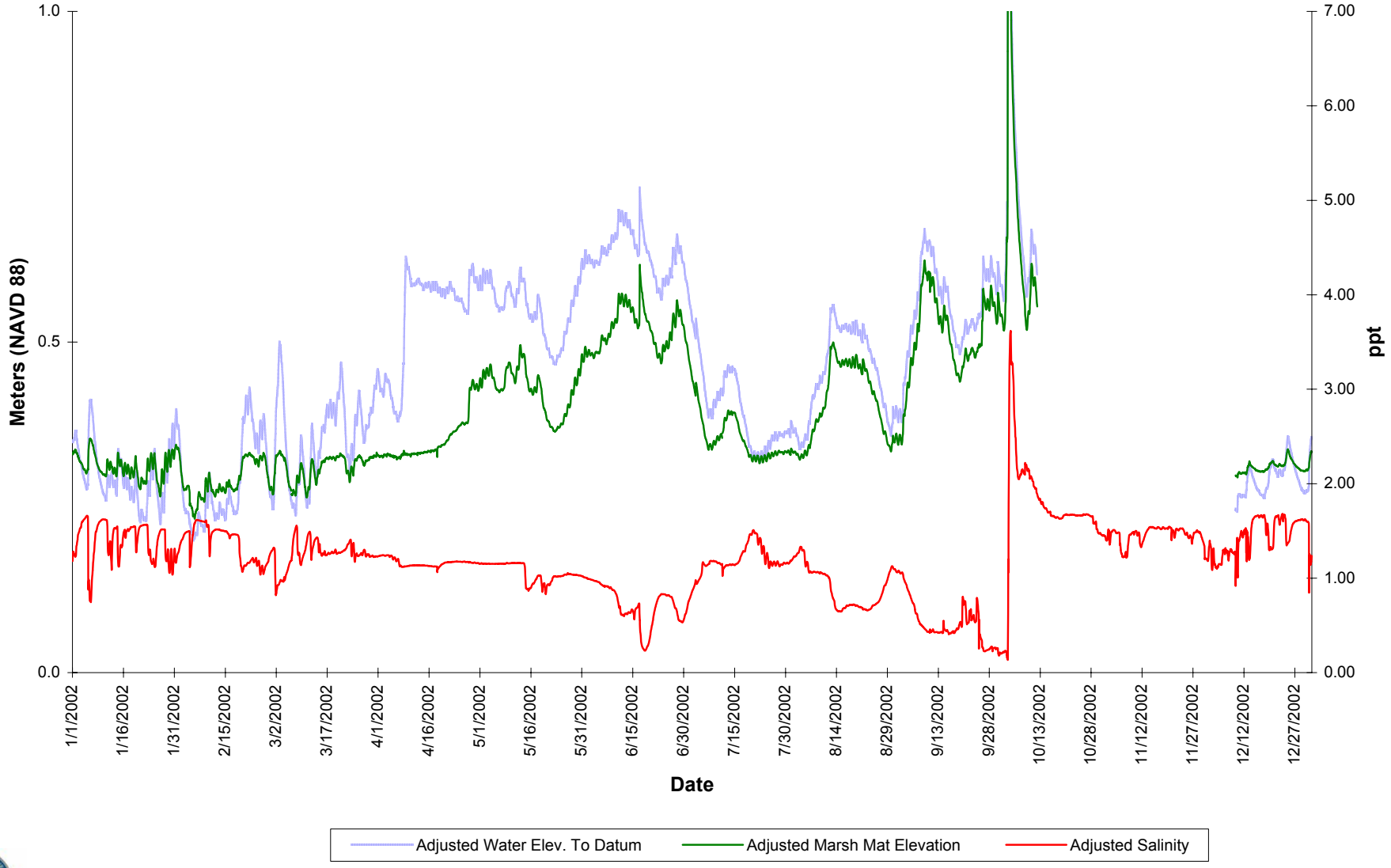
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Water Level and Salinity
2001



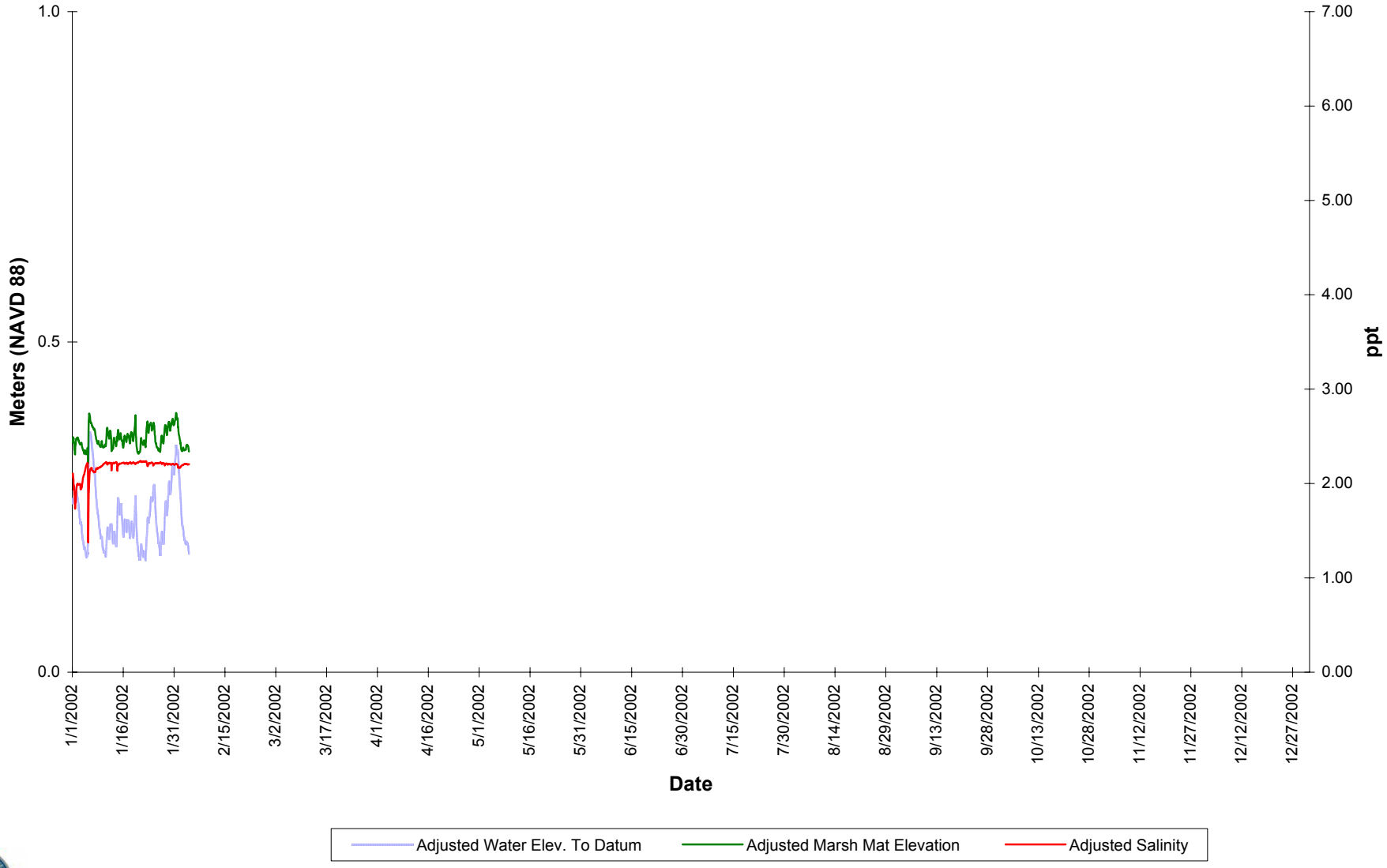
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Water Level and Salinity
2001



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Water Level and Salinity
2002

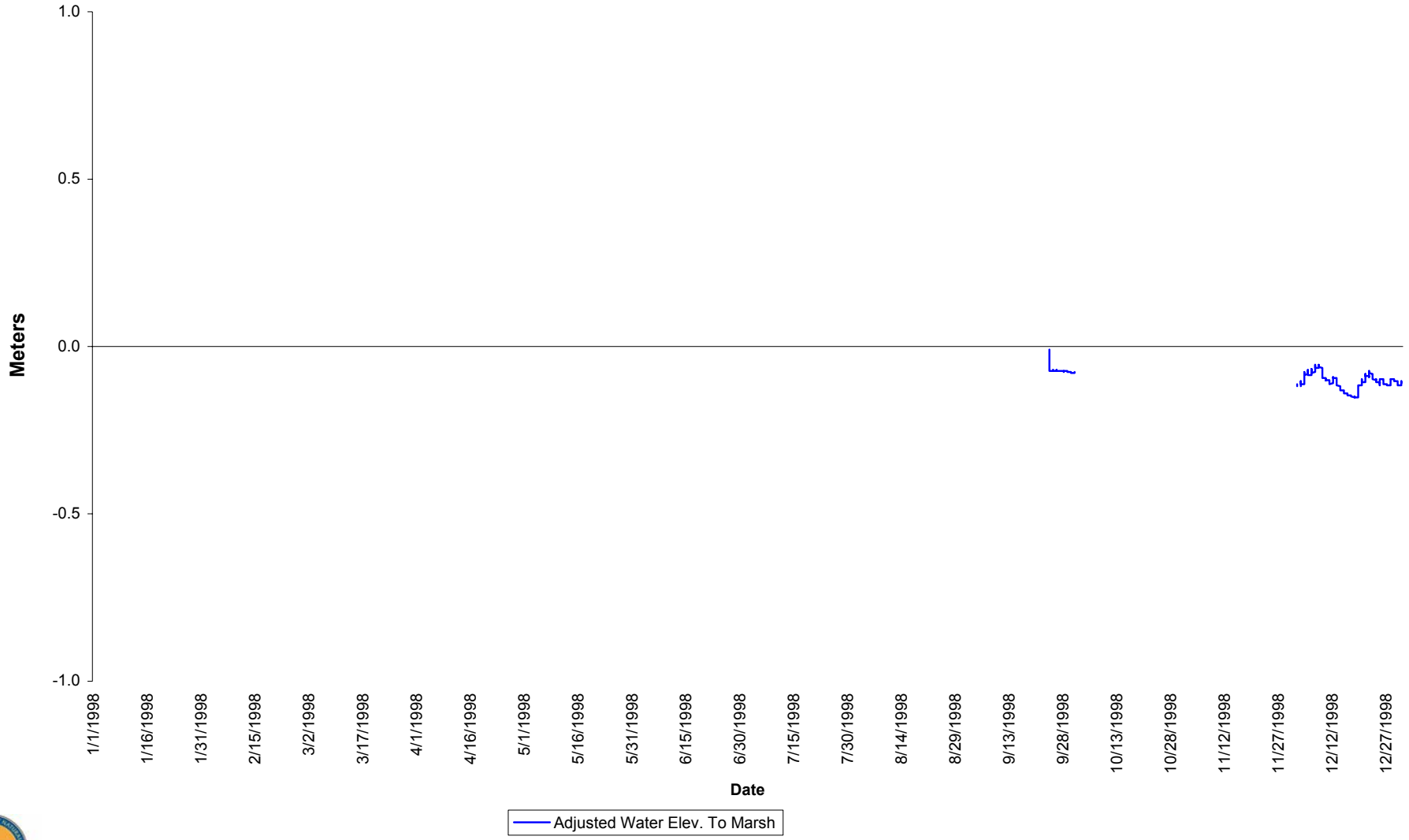


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Water Level and Salinity
2002

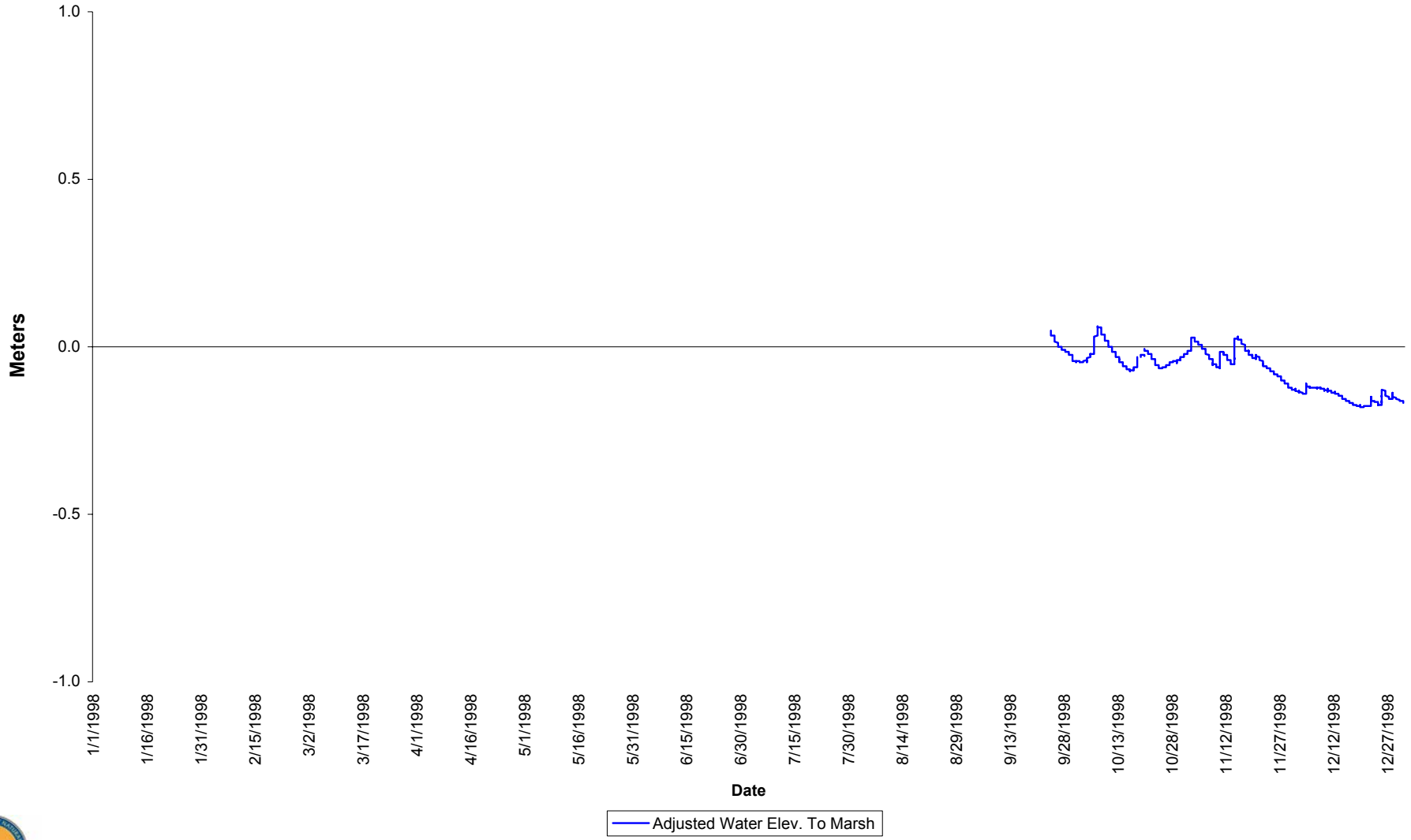


Depth and Duration of Flooding

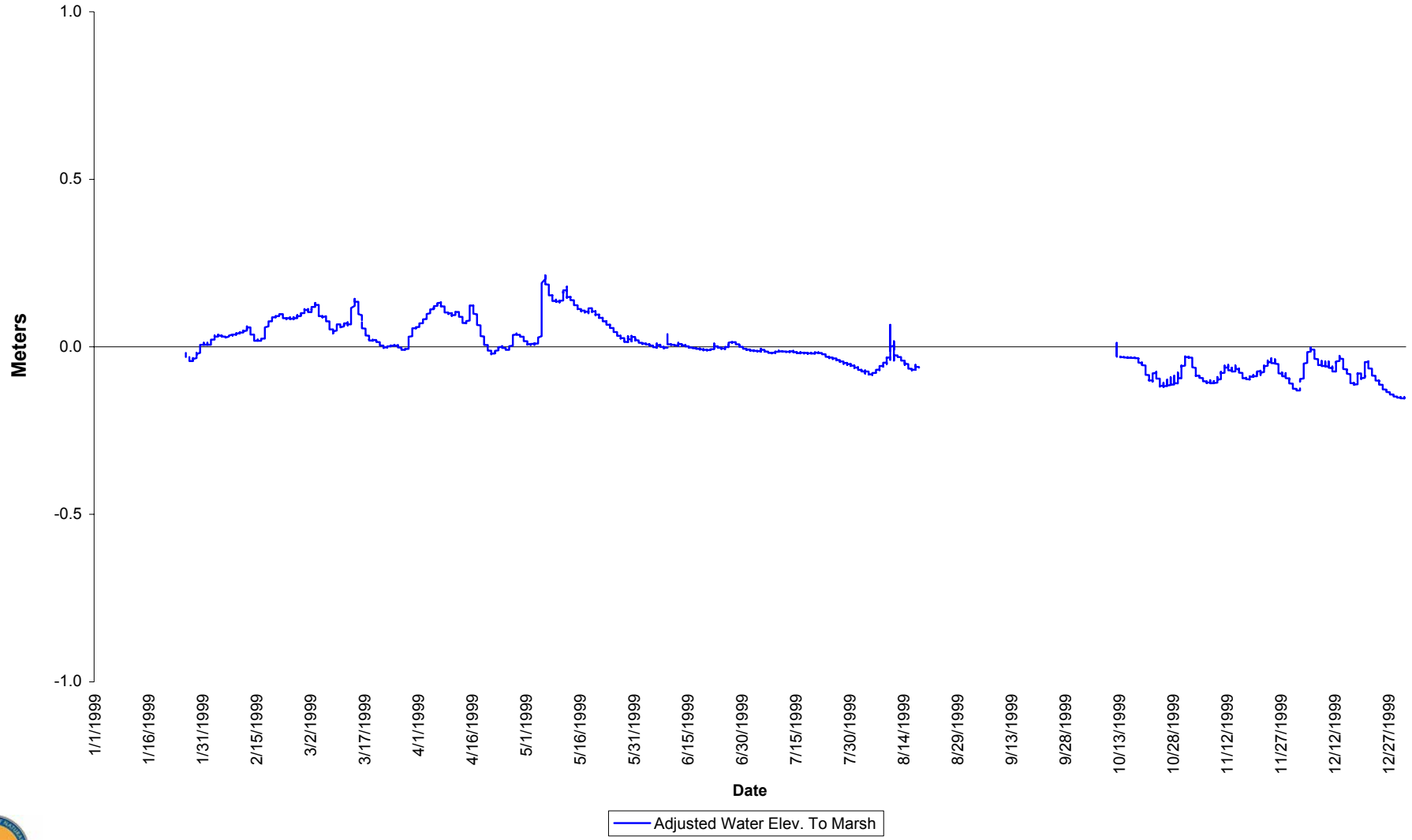
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
1998



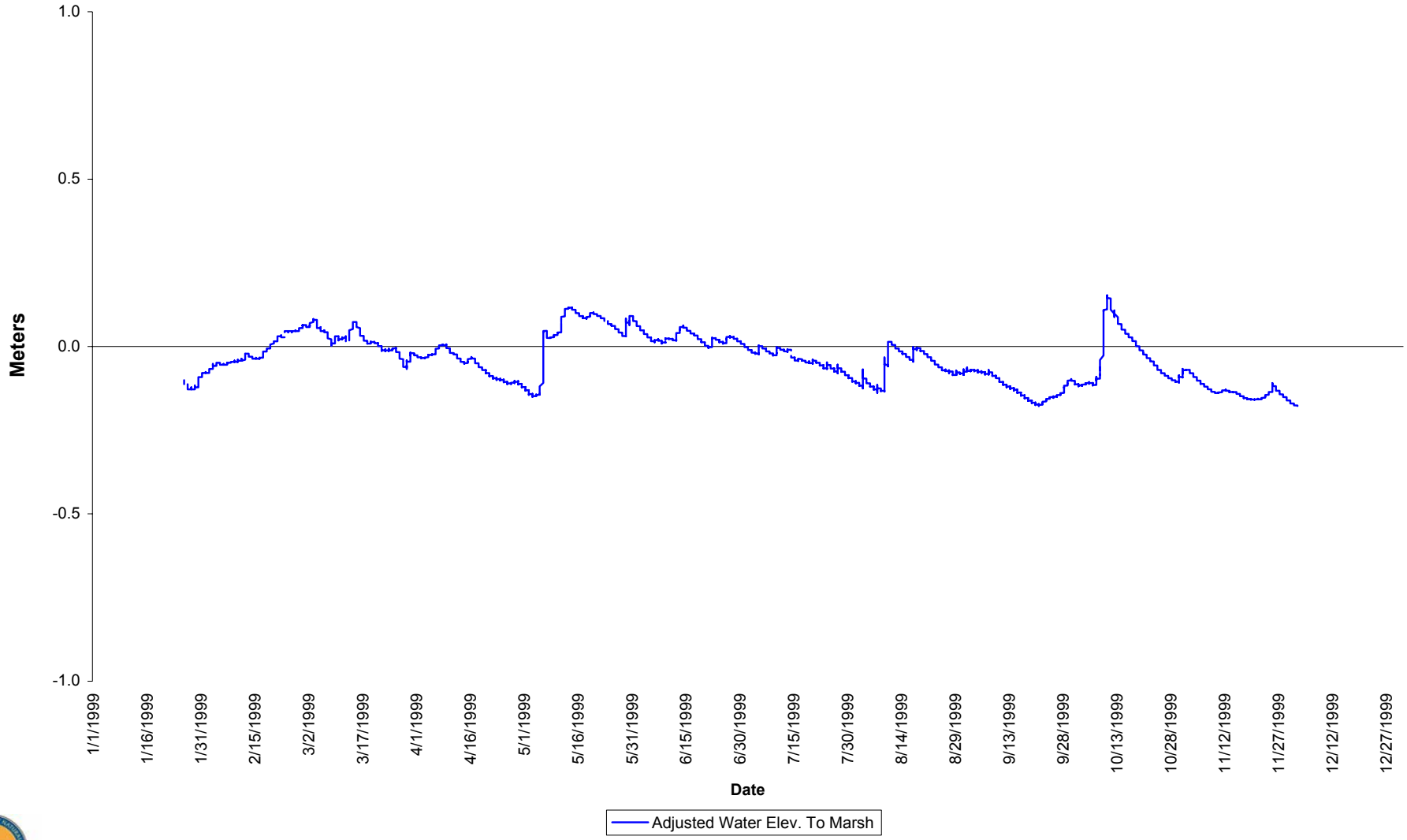
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
1998



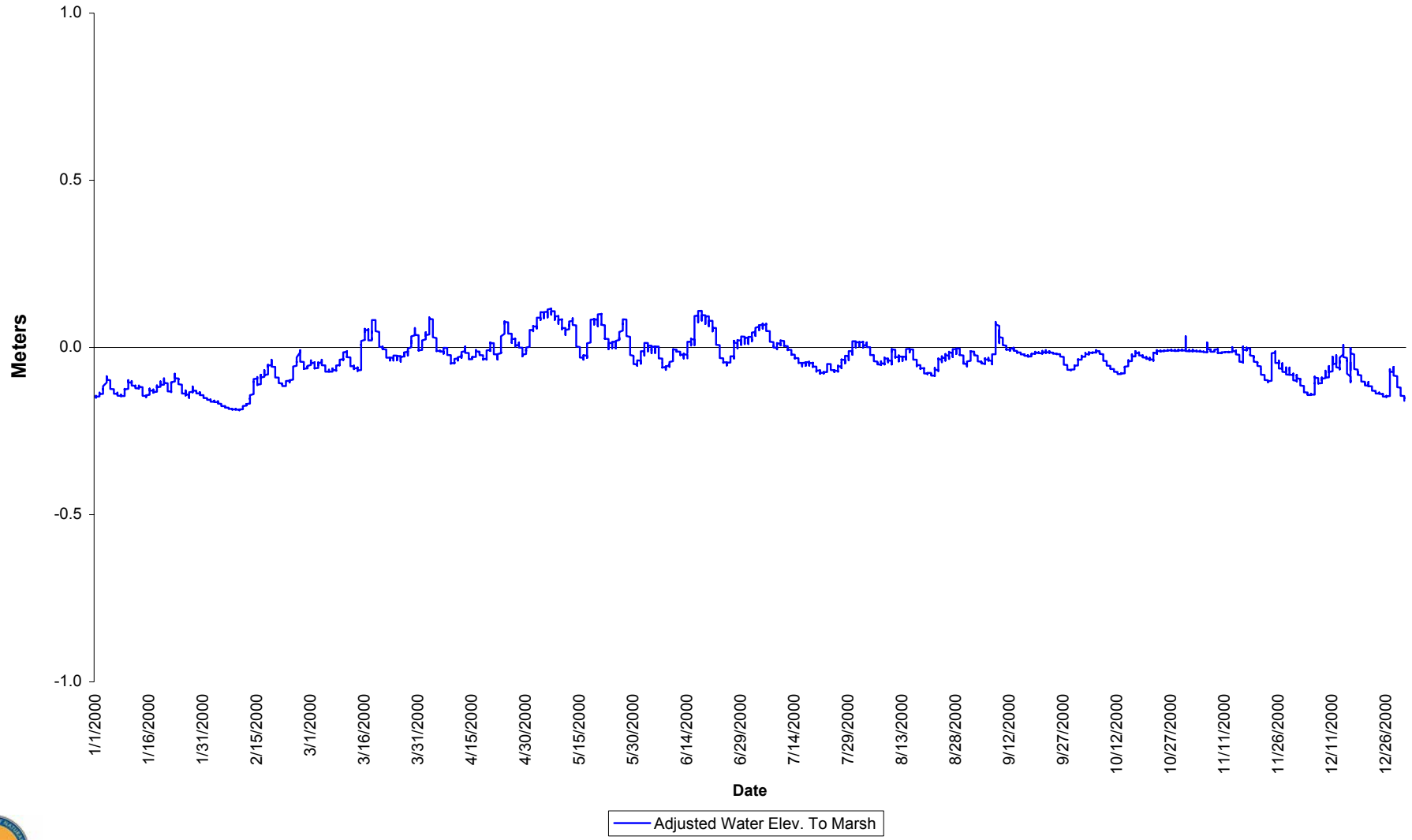
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
1999



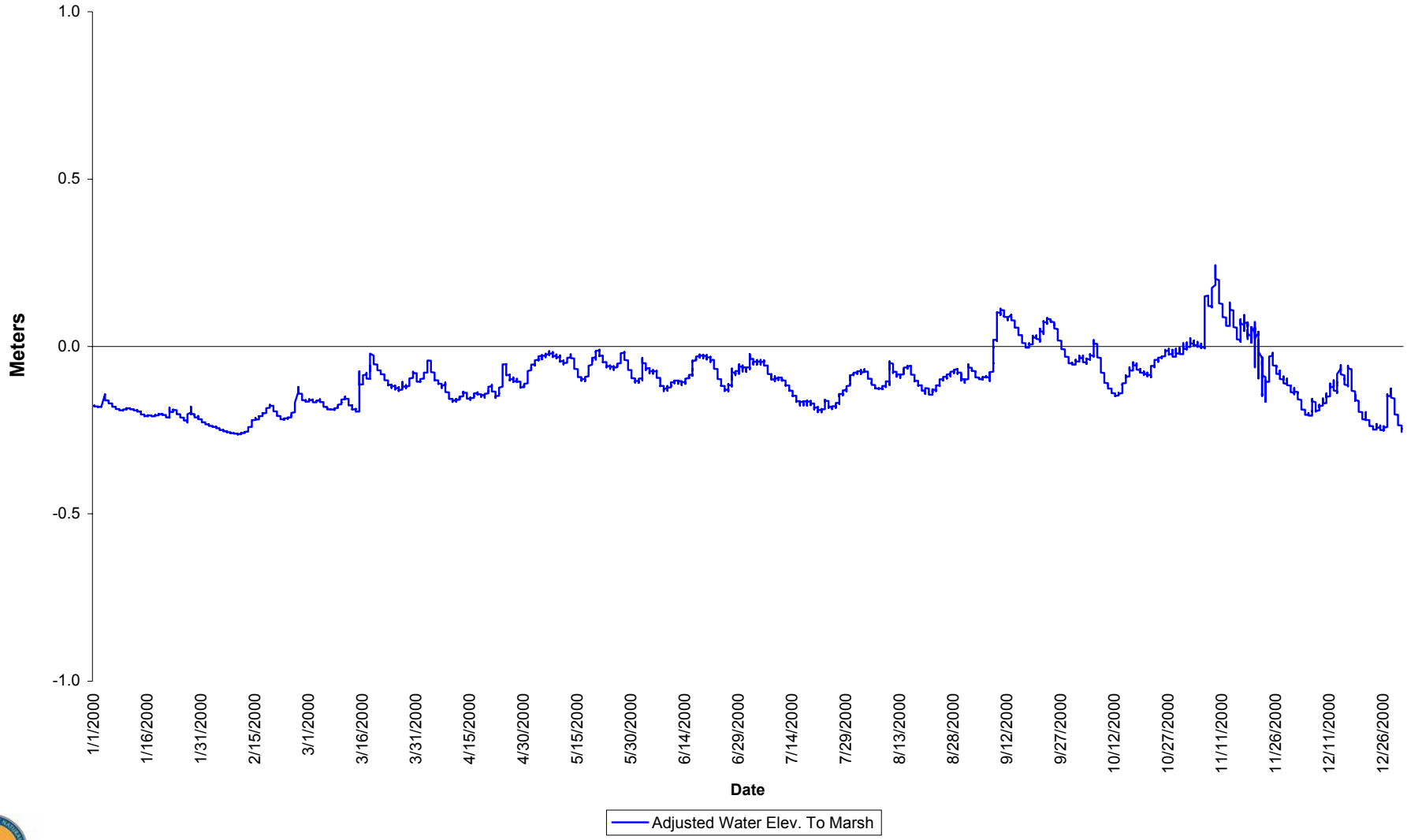
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
1999



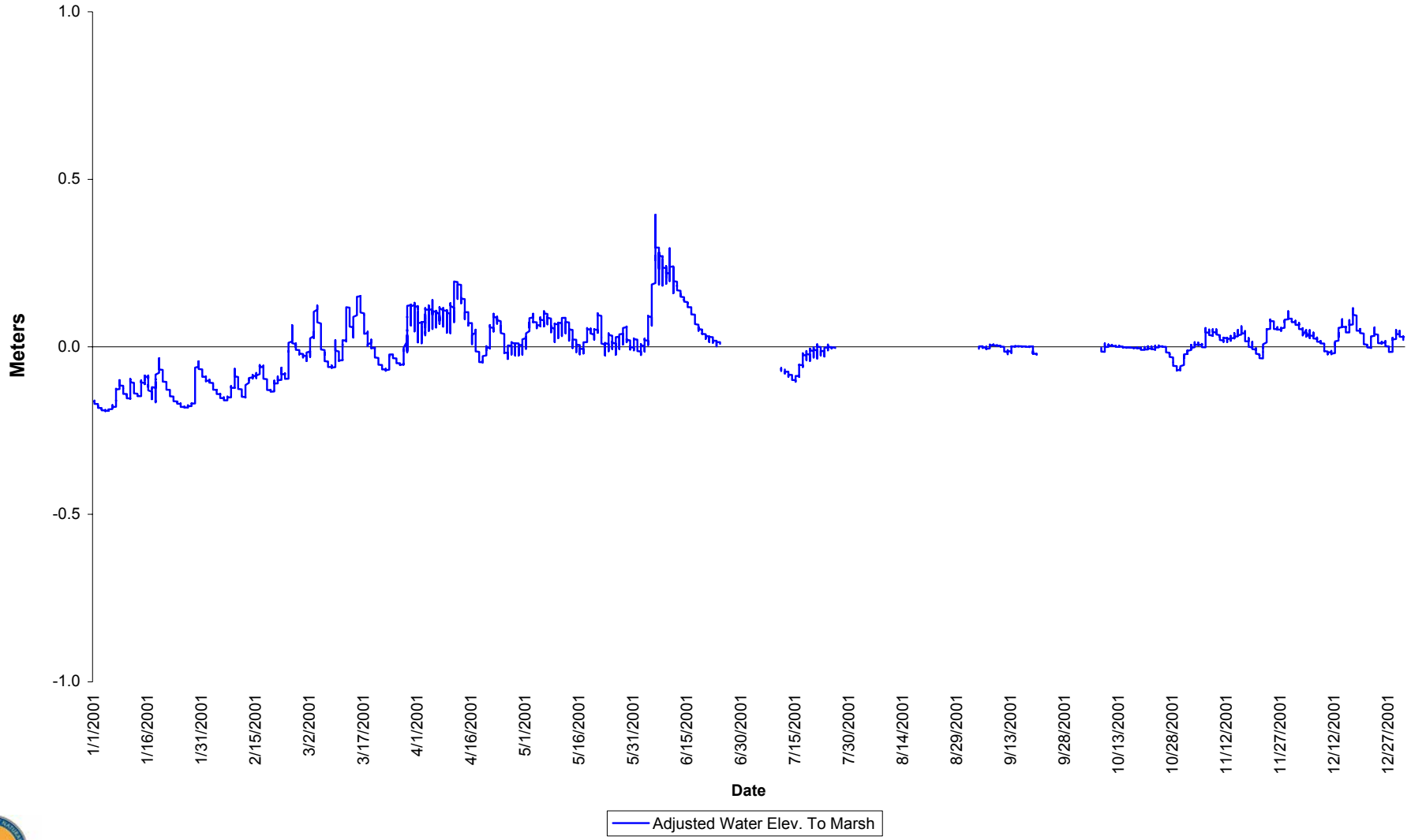
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2000



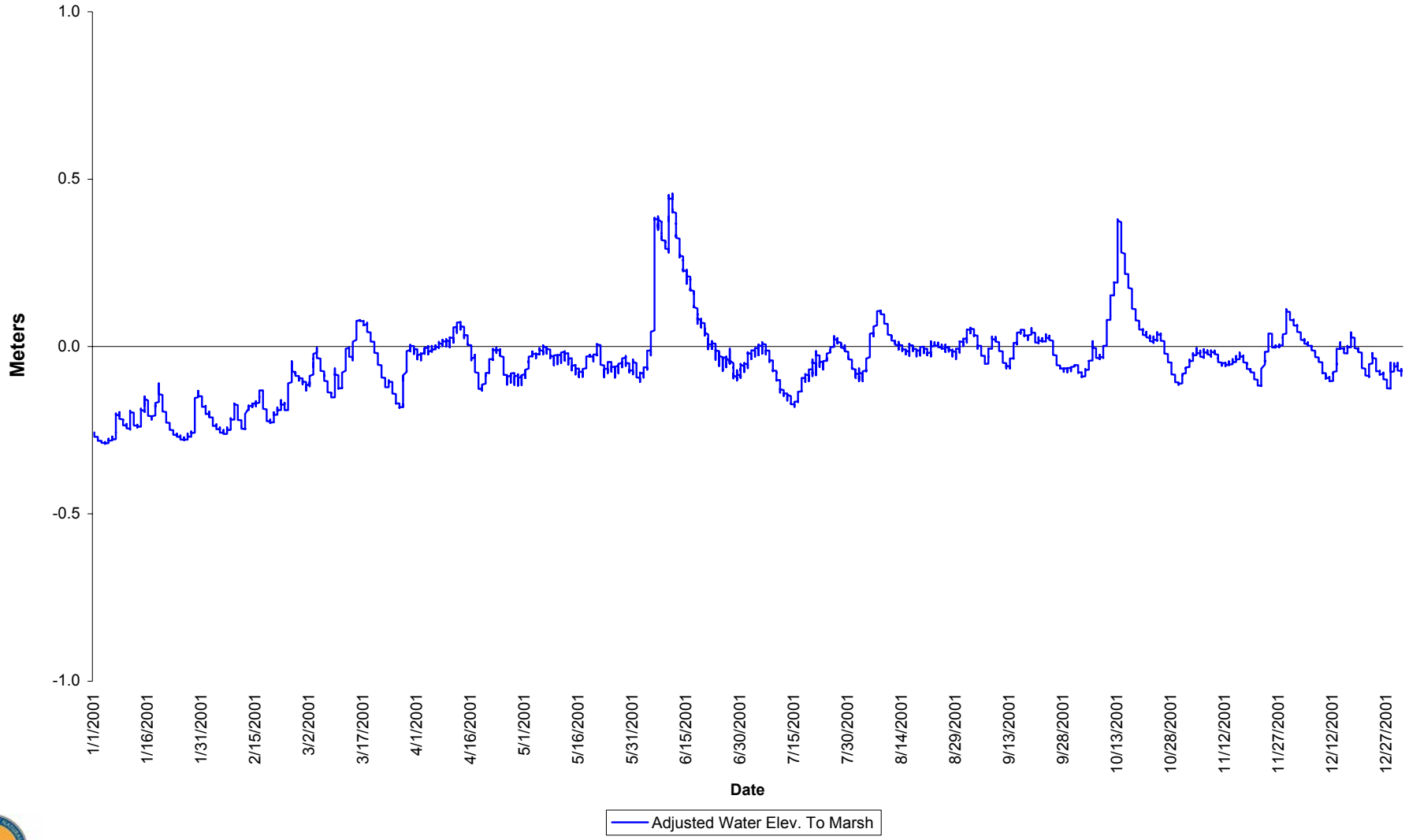
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2000



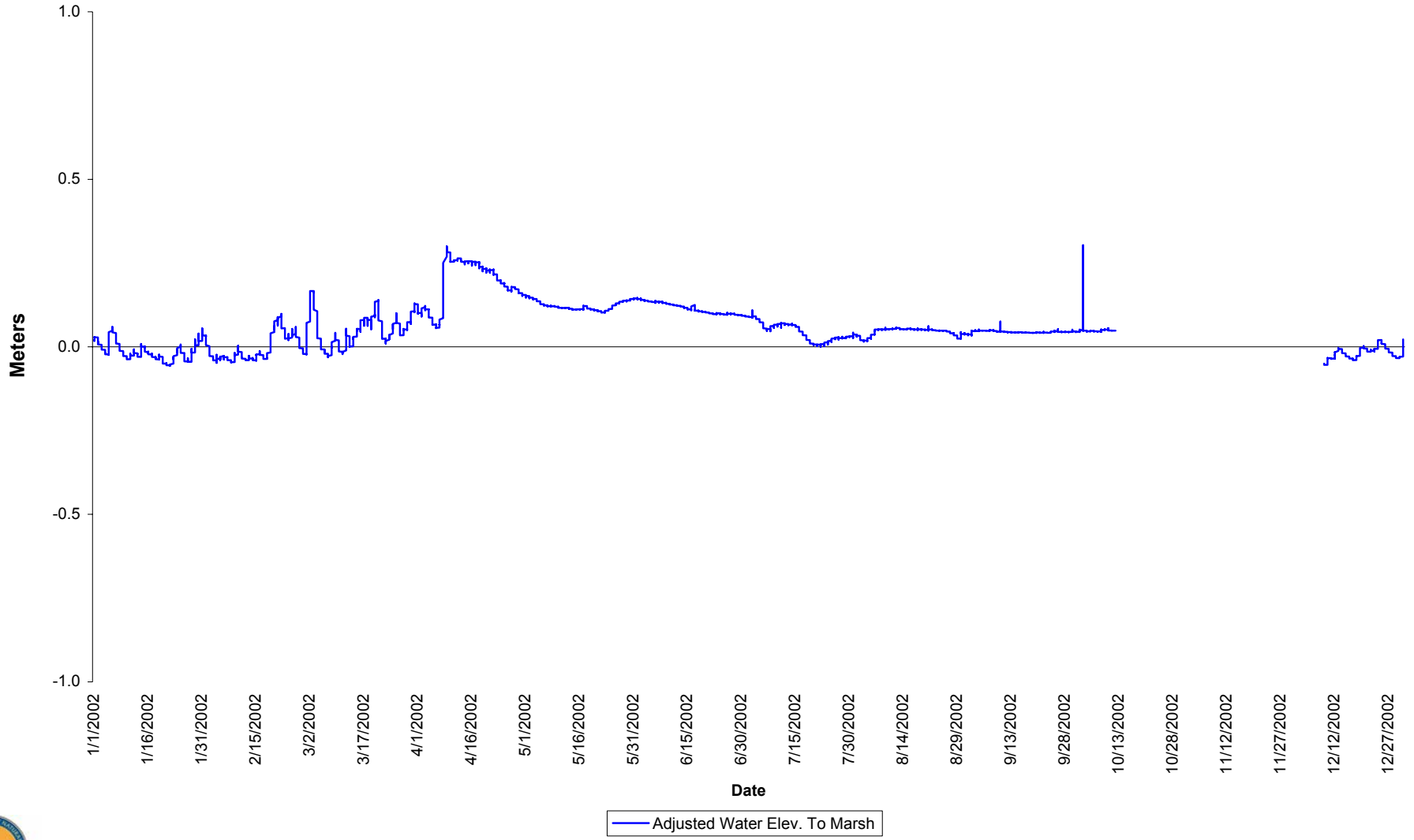
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2001



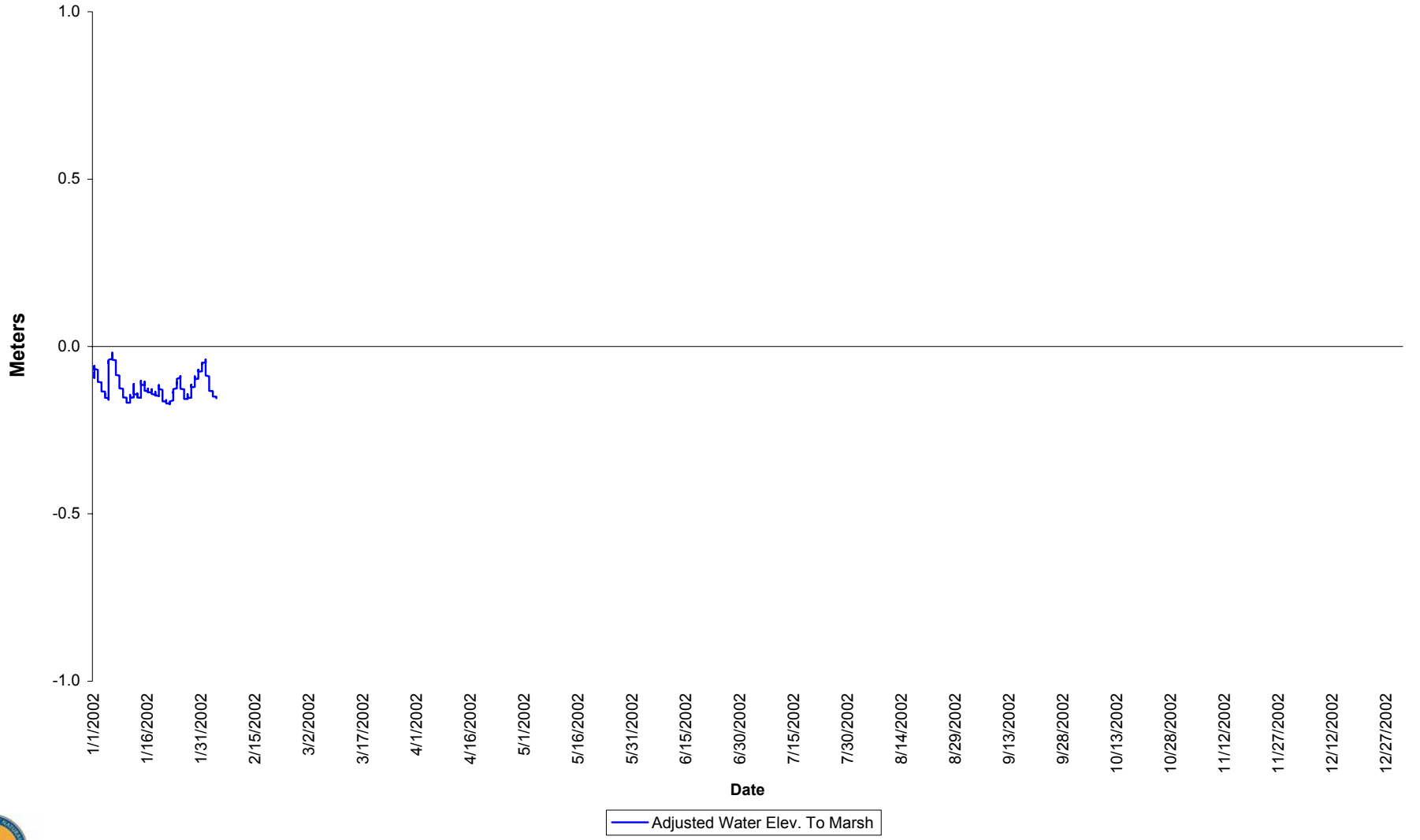
Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2001



Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-218 (CTU 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2002

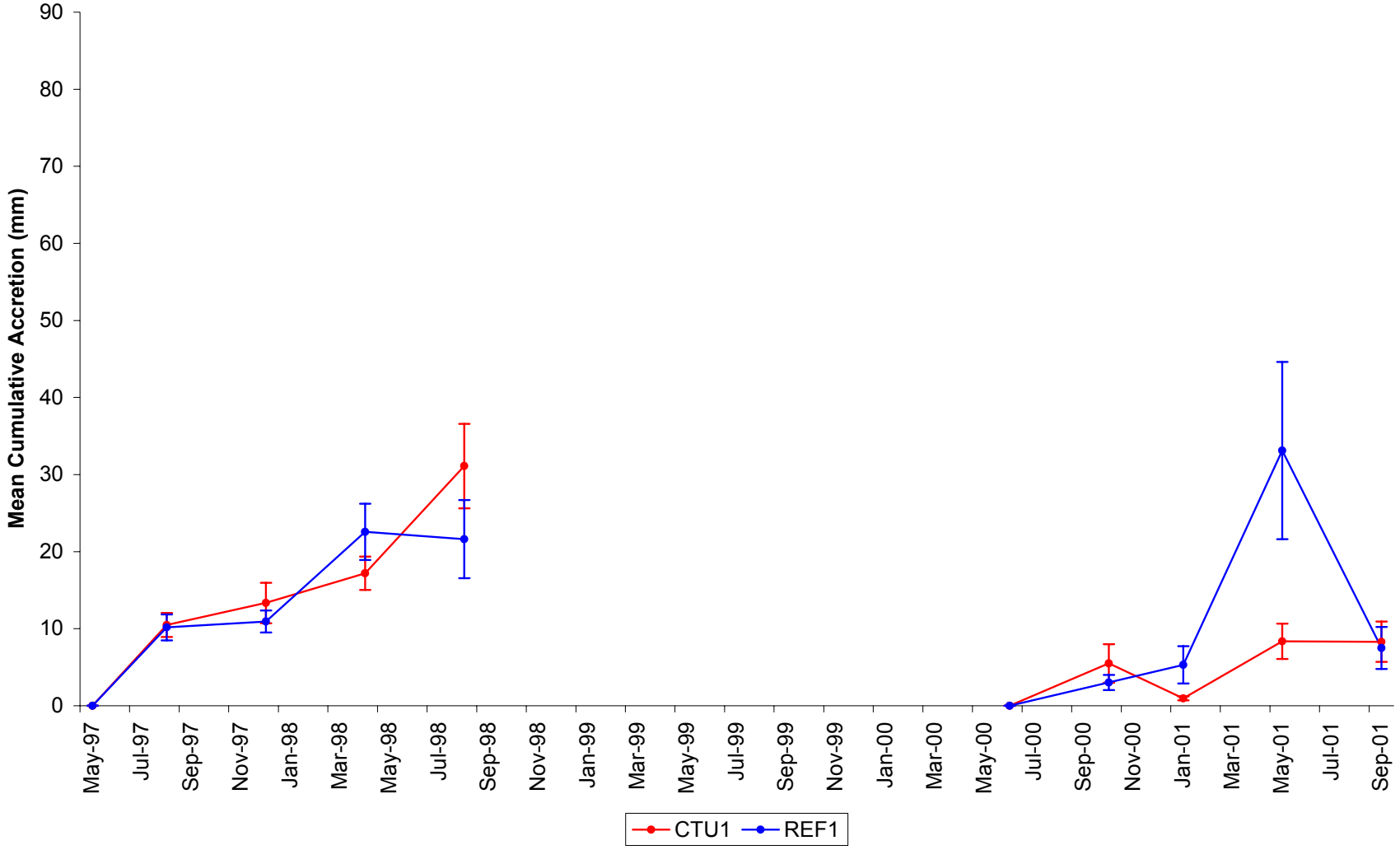


Brady Canal Hydrologic Restoration (TE-28) Project
Station TE28-219R (REF 2)
Depth and Duration of Flooding
(Above 0.0 = Flooded, Below 0.0 = Unflooded)
2002

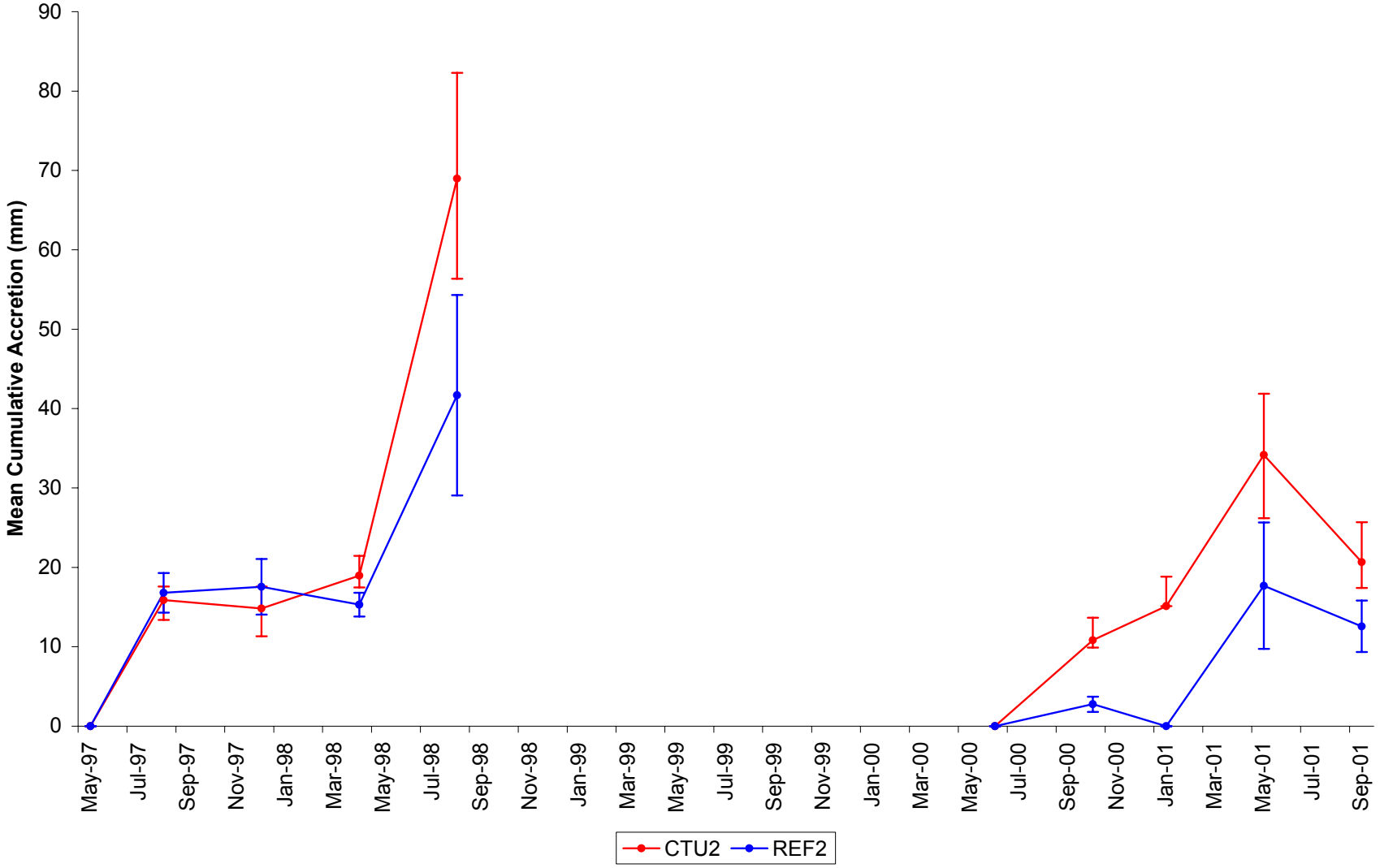


Accretion Data

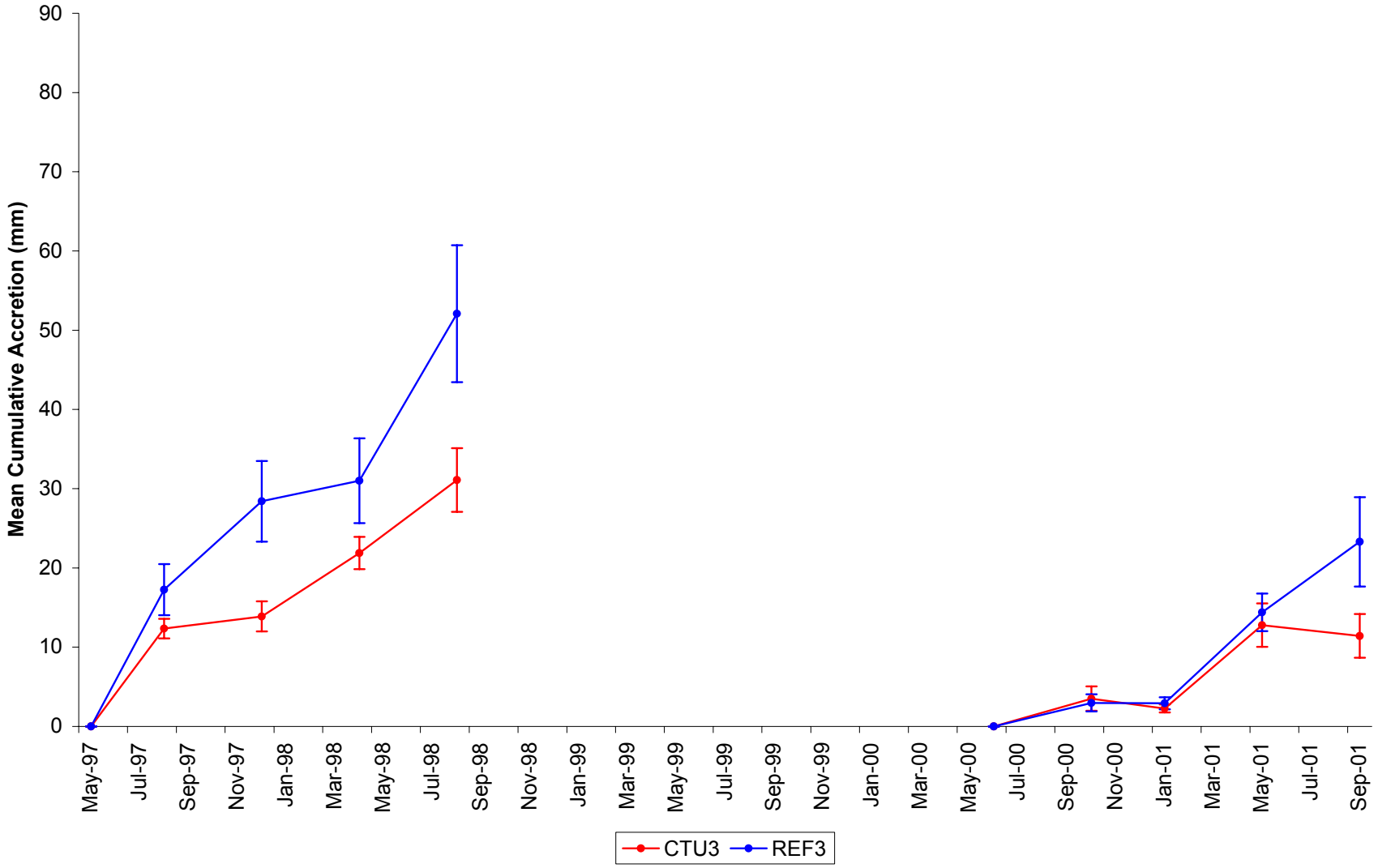
Brady Canal Hydrologic Restoration (TE-28) Project
Pre and Post-Construction Cumulative Accretion +/- Standard Error
Between CTU 1 and REF 1
Construction Completion Date: July 10, 2000



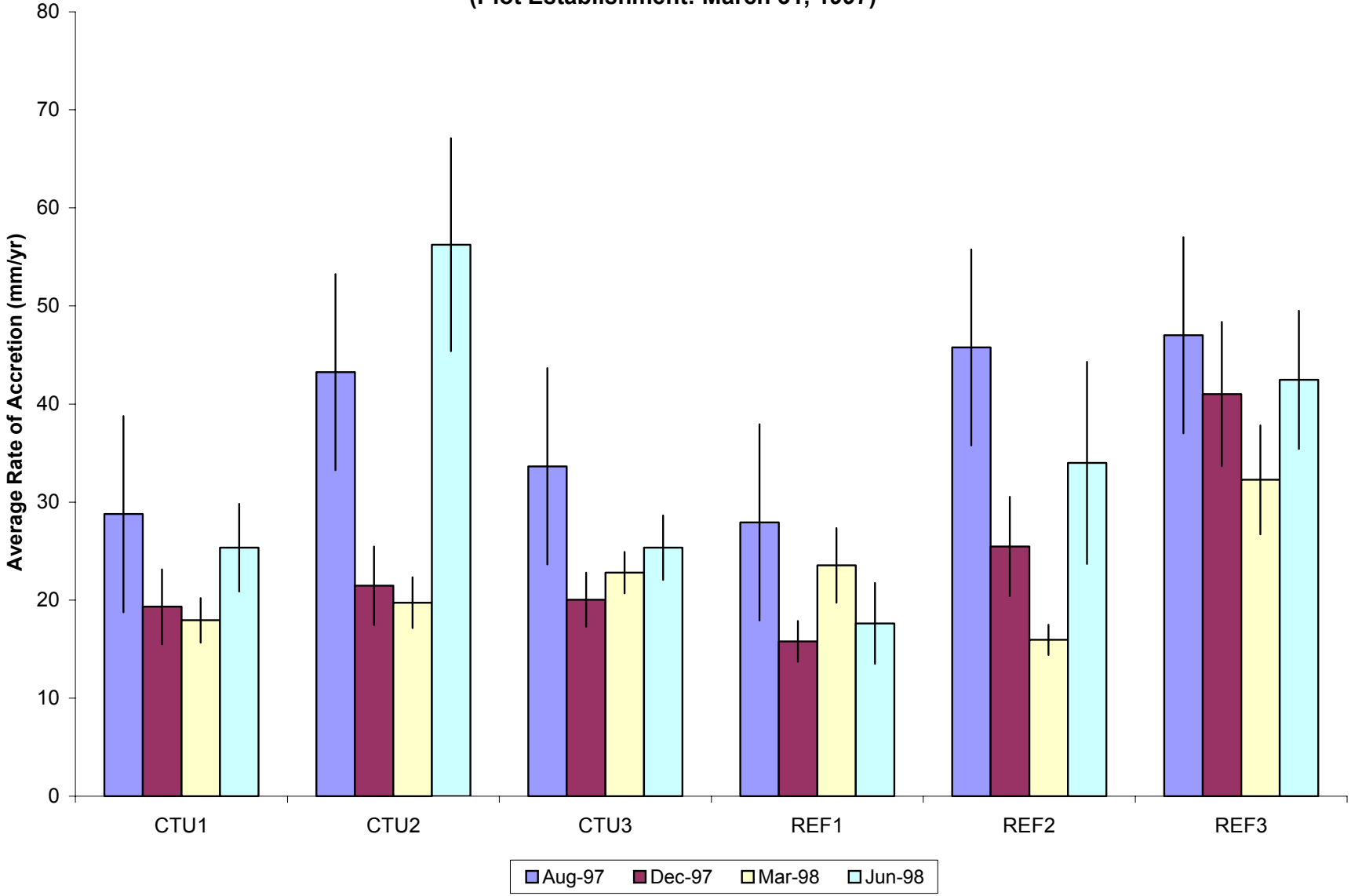
Brady Canal Hydrologic Restoration (TE-28) Project
Pre and Post-Construction Cumulative Accretion +/- Standard Error
Between CTU 2 and REF 2
Construction Completion Date: July 10, 2000



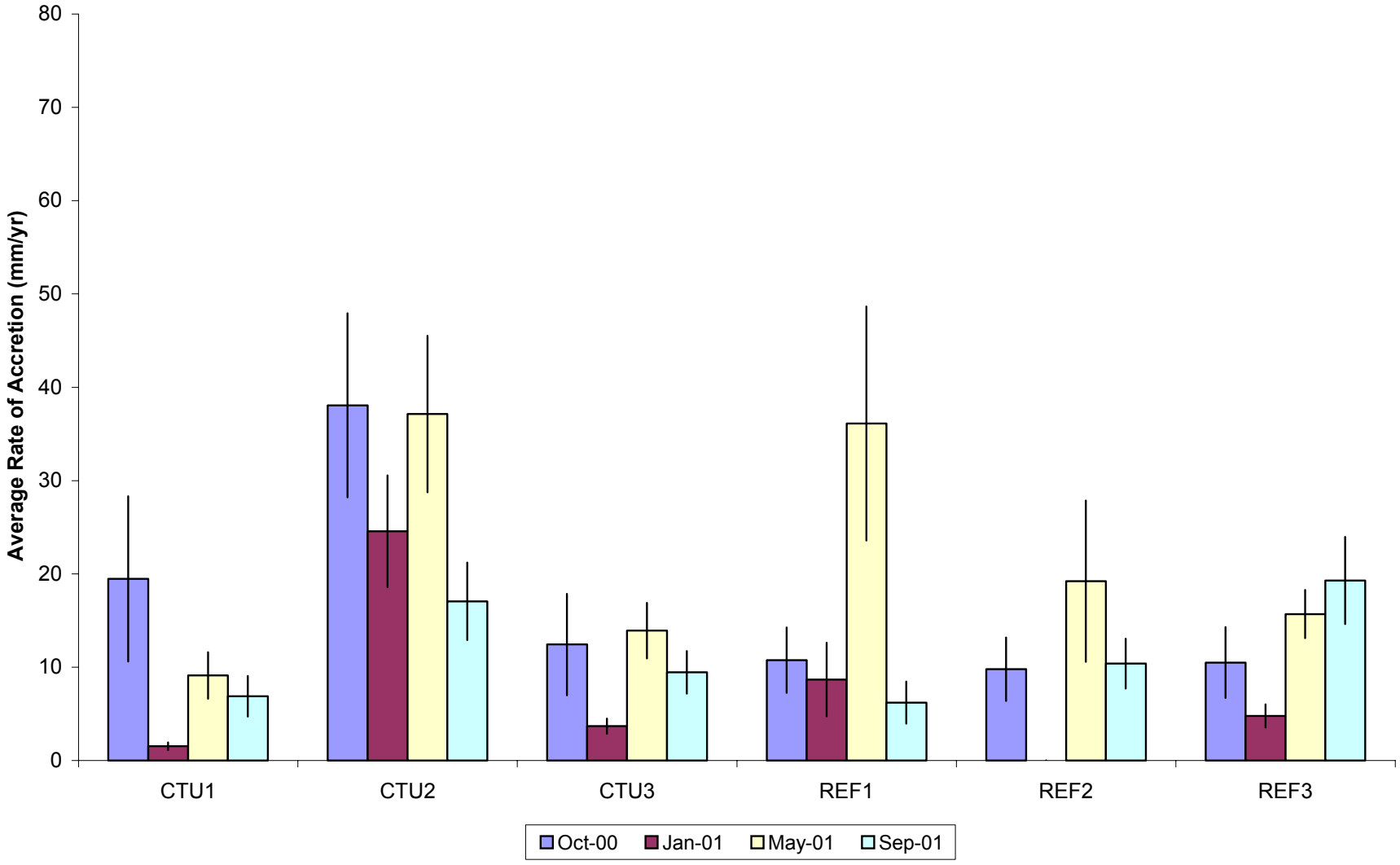
Brady Canal Hydrologic Restoration (TE-28) Project
Pre and Post-Construction Cumulative Accretion +/- Standard Error
Between CTU 3 and REF 3
Construction Completion Date: July 10, 2000



Brady Canal Hydrologic Restoration (TE-28) Project
Pre-Construction Comparison of the Average Annual Rate of Accretion
+/- Standard Error
(Plot Establishment: March 31, 1997)



Brady Canal Hydrologic Restoration (TE-28) Project
Post-Construction Comparison of the Average Annual Rate of Accretion
+/- Standard Error
(Plot Establishment: June 21, 2000)



Preliminary Findings
Brady Canal Hydrologic Restoration
(TE-28)

1. Goal #1: Habitat mapping has not been initiated on the 1998 and 2002 aerial photography; consequently, any conclusions concerning the rate of marsh loss would be speculation. However, observations immediately following Hurricane Lili (October 2002) indicate that the high water and high winds affected the marsh by overturning, doubling, and moving large pieces into bayous and previously open waters. The next aerial photograph is scheduled for 2008.
2. Goal #2: The abundance of plant species has decreased from the pre-construction time period to the post-construction time period throughout the project and reference areas. Although statistical test were not performed to show significant differences, regardless of the analysis, the conclusion would be that the 2002 sampling period occurred after the passing of Tropical Storm Isidore and Hurricane Lili which both had impacts to the study area. Table 4 shows the decrease of plant species for each CTU and REF area.

Table 4. Number of plant species identified by area for the Brady Canal Hydrologic Restoration (TE-28) project.

Construction Period	Year	Number of plant species identified					
		CTU 1	REF 1	CTU 2	REF 2	CTU 3	REF 3
PRE	1996	23	28	19	28	31	34
PRE	1999	21	22	22	22	29	37
POST	2002	15	19	20	19	16	27

Preliminary Findings

3. Goal #3: Table 5 shows the mean weekly water elevation (NAVD 88, ft) at each continuous recorder station with a significant difference ($p<0.05$) at stations TE28-05R and TE28-06R. Table 6 shows the water level variability between the pre- and post-construction conditions at all continuous recorder station throughout the Brady Canal Hydrologic Restoration (TE28) project. Statistics show that there is a significant difference ($p<0.05$) between the pre- and post-construction water levels; however, ecologically and biologically the differences may not be detrimental. With respect to the goal of the project, only one station has decreased in water variability (TE28-01) statistically. The other stations have remained the same or have increased the hourly water change.

Table 5. Mean weekly water level ± standard deviation from hourly readings converted to the vertical datum NAVD 88, ft. showing significance ($p<0.05$).

Station	Pre-construction	Post-construction	Significance Level
TE28-01	1.36 ±0.38	1.27 ±0.39	ns
TE28-02	1.31 ±0.39	1.28 ±0.44	ns
TE28-03	1.12 ±0.30	1.15 ±0.27	ns
TE28-04R	1.15 ±0.41	1.03 ±0.40	ns
TE28-05R	1.39 ±0.27	1.13 ±0.37	0.0004
TE28-06R	1.30 ±0.49	1.11 ±0.38	0.0433
TE28-07R	1.44 ±0.48	1.37 ±0.43	ns

Table 6. Mean hourly water level change ± standard deviation showing significance ($p<0.05$).

Station	Pre-construction	Post-construction	Significance Level
TE28-01	0.05 ±0.07	0.04 ±0.02	<0.0001
TE28-02	0.004 ±0.008	0.008 ±0.015	<0.0001
TE28-03	0.04 ±0.02	0.04 ±0.03	<0.0001
TE28-04R	0.04 ±0.03	0.05 ±0.03	<0.0001
TE28-05R	0.002 ±0.006	0.007 ±0.009	<0.0001
TE28-06R	0.02 ±0.02	0.02 ±0.02	<0.0001
TE28-07R	0.01 ±0.02	0.02 ±0.02	<0.0001

Preliminary Findings

4. Goal #4: Table 7 shows the mean weekly salinity has increased significantly ($p<0.05$) at two of the seven continuous stations. Moreover, the mean hourly salinity change (Table 8) at six of the seven stations have increased significantly ($p<0.05$). The increase of salinity may not be attributed to the construction of the project features. Environmentally and climatically there has been differences during the pre- and post-construction periods. South Louisiana experienced a more typical weather pattern during the pre-construction monitoring phase whereas south Louisiana experienced a severe drought (1999-2000), a historical rainfall (June 2001), and two tropical cyclones - Tropical Strom Isidore and Hurricane Lili (September and October 2002) during the post-construction monitoring thru 2002.

Table 7. Mean weekly salinity ± standard deviation from hourly readings showing significance ($p<0.05$).

Station	Pre-construction	Post-construction	Significance Level
TE28-01	0.84 ±1.10	1.10 ±1.60	ns
TE28-02	0.55 ±0.19	1.03 ±0.97	ns
TE28-03	0.72 ±1.23	1.49 ±2.23	0.0054
TE28-04R	1.02 ±1.28	1.24 ±1.68	ns
TE28-05R	0.37 ±0.10	1.00 ±0.89	ns
TE28-06R	0.89 ±0.62	2.07 ±1.77	<0.0001
TE28-07R	0.33 ±0.62	0.37 ±0.67	ns

Table 8. Mean hourly salinity change ± standard deviation showing significance ($p<0.05$).

Station	Pre-construction	Post-construction	Significance Level
TE28-01	0.06 ±0.19	0.09 ±0.24	<0.0001
TE28-02	0.01 ±0.01	0.02 ±0.05	<0.0001
TE28-03	0.03 ±0.12	0.13 ±0.28	<0.0001
TE28-04R	0.05 ±0.14	0.07 ±0.18	<0.0001
TE28-05R	0.002 ±0.005	0.009 ±.0.02	0.0110
TE28-06R	0.01 ±0.04	0.03 ±0.10	0.0433
TE28-07R	0.01 ±0.14	0.02 ±0.09	ns

Preliminary Findings

5. Goal #5: Figure 10 shows that the vertical accretion within the project area has decreased significantly ($p<0.05$) from the pre-construction sampling to the post-construction sampling. The decrease in accretion can be attributed to environmental conditions that the project and reference areas experienced during the sampling period. The post-construction sampling period occurred during a severe drought that lowered water levels and increased salinities throughout the area. Because of these conditions the marsh experienced little or no flooding which would have deposited some mineral sediment on the surface. More importantly, it is believed that these freshwater floating marsh depend heavily on the production of biomass to sustain their ability to increase vertical. During this period, the lack of marsh flooding and increase in salinity concentrations may have reduced the productivity of the plants thereby reducing the marshes ability to increase vertically. During the sampling period, the marker horizon (feldspar) was still visible on the surface 9-12 months after plot establishment.

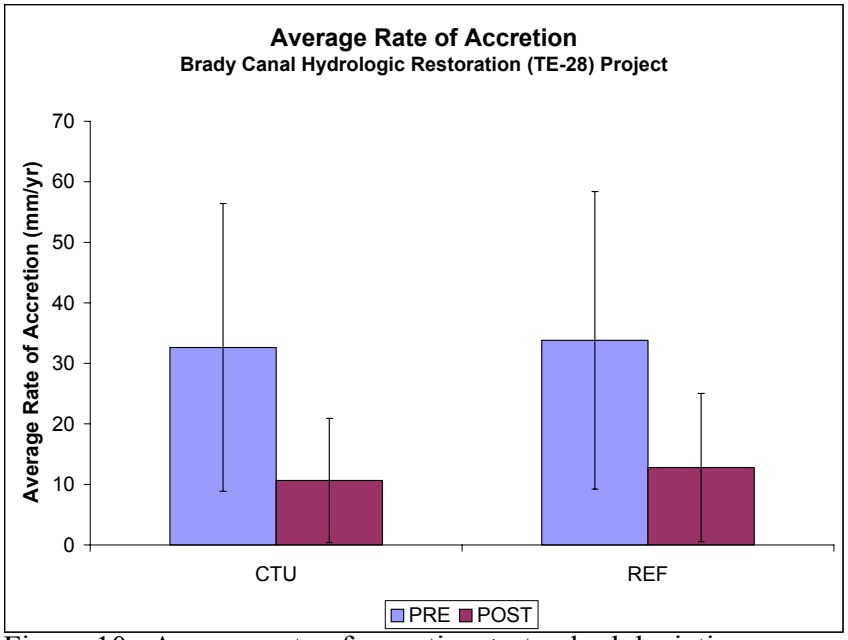


Figure 10. Average rate of accretion ± standard deviation showing significance between the pre- and post-construction time periods in the conservation treatment unit (CTU) and reference area (REF).

Preliminary Findings

6. Goal #6: The frequency of occurrence with respect to the submerged aquatic vegetation within the project area has decreased from the pre-construction sampling period to the post-construction sampling. Although it has decreased statistically, this decrease can be explained by the passing of Hurricane Lili prior to the post-construction sampling. This hurricane past just weeks before the scheduled sampling period and affected the submerged aquatic vegetation as well as the emergent vegetation.

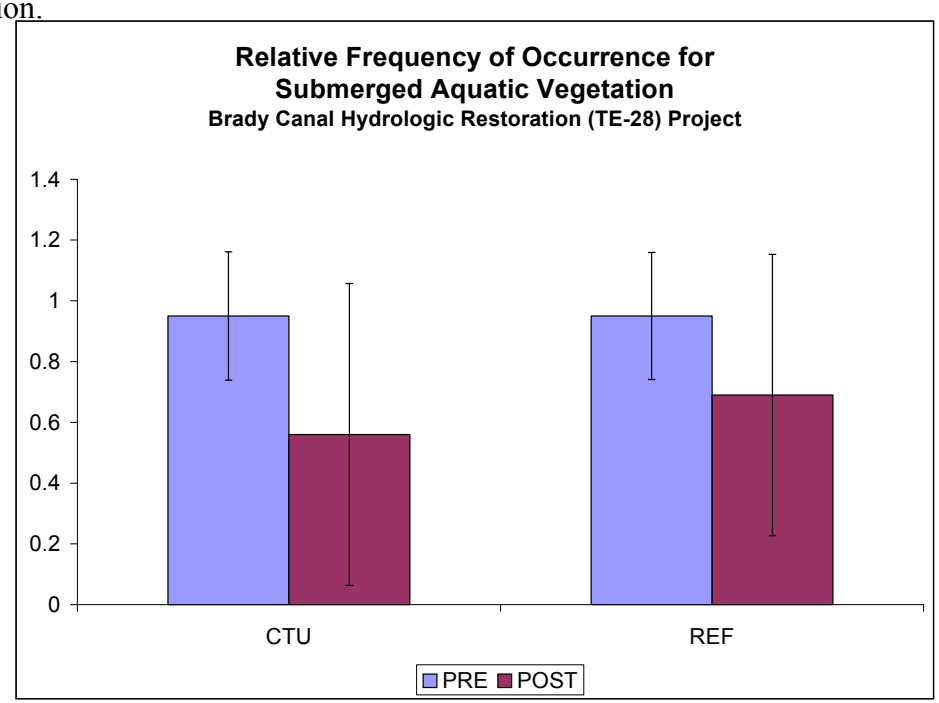


Figure 11. Relative frequency of occurrence for submerged aquatic vegetation ± standard deviation showing significance between the pre- and post-construction time periods in the conservation treatment unit (CTU) and reference area (REF).