
**Suisun Marsh Monitoring Program
Channel Water Salinity Report**
Reporting Period: February 2007

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1. SUISUN MARSH MONITORING STATIONS AND REPORTING REQUIREMENT

As per SWRCB Water Rights Decision 1641, dated December 29, 1999, and previous SWRCB decisions, the California Department of Water Resources (DWR) is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the SWRCB. Conditions of channel water salinity in the Suisun Marsh are determined by monitoring specific electrical conductivity, which is referred as "specific conductance" (SC). The locations of all listed stations are shown in Figure 5.

The monthly reports are submitted for October through May each year in accordance with SWRCB requirements. The reports are required to include salinity data from the stations listed below to ensure salinity standards are met to protect habitat for waterfowl in managed wetlands:

Station Identification	Station Name	General Location	Classification
C-2*	Collinsville	Western Delta	Compliance Station
S-64	National Steel	Eastern Suisun Marsh	Compliance Station
S-49	Beldon's Landing	North-Central Suisun Marsh	Compliance Station
S-42	Volanti	North-Western Suisun Marsh	Compliance Station
S-21	Sunrise	North-Western Suisun Marsh	Compliance Station

Data from the stations listed below are included in the monthly reports to provide information on salinity conditions in the western Suisun Marsh.

Station Identification	Station Name	General Location	Classification
S-97	Ibis	Western Suisun Marsh	Monitoring Station
S-35	Morrow Island	South-Western Suisun Marsh	Monitoring Station

Information on Delta outflow, area rainfall, and operation of the Suisun Marsh Salinity Control Gates are also included in the monthly reports to provide information on conditions that may affect channel water salinity in the Marsh.

* Throughout the report, the representative data from nearby USBR station is used in lieu of data from station C-2.

2. Monitoring Results

2.1 Channel Water Salinity Compliance

During the month of February 2007, salinity conditions at all five compliance stations are in compliance with channel water salinity standards of SWRCB (Table 1). Compliance with standards for the month of February was determined for each compliance station by comparing the progressive daily mean of high-tide SC with respective standards. During February, the standard for compliance stations C-2, S-64, S-49, S-42, and S-21 were 8.0 mS/cm. Table 1 lists monthly mean high-tide SC at these compliance stations. The progressive daily mean (PDM) is the monthly average of both daily high-tide SC values. The mathematical equation is shown below.

$$\text{PDM} = \frac{\sum \text{daily average of high tide SC}}{\# \text{ days of the month}}$$

2.2 Delta Outflow

Outflow for February 2007 started off low around 10,000 cfs, then decreased down a bit before reversing upward on February 9 and peaking just below 50,000 cfs on February 13, as a result of several storms with favorable rainfall amounts. Thereafter, outflow dropped significantly but gradually downward and leveled off at about 17,000 cfs by February 22 due to no rainfall events. It then increased as a result of late month rainfall events and ended the month on a high outflow amount of about 35,000 cfs. The monthly Delta outflow is represented by the mean Net Delta Outflow Index (NDOI). The NDOI is the estimated daily average of Delta outflow. Mean NDOI for February 2007 is listed below:

Month	Mean NDOI (cubic feet per second)
February	21,133

2.3 Rainfall

Rainfall activities in February were impressive compared to previous month totals. The monthly total was four times more than previous month. Rainfall occurrences were observed mostly during the mid to late month period, with all daily amounts at least .20 inches. The largest daily total of the month was 0.82 inches, on February 10. The monthly total is shown below.

Month	Total Rainfall (inches)
February	4.38

2.4 Suisun Marsh Salinity Control Gate (SMSCG) Operations

Operations and flashboard/boat lock installations at the SMSCG during February 2007 is summarized below.

Date	Gate status	Flashboards status	Boat Lock status
February 1 – 28	Tidally operated	IN	Open daylight hrs

SMSCG operations continued during February, however, there were considerations to cease gate operations at the end of the month due to low water quality levels throughout the marsh as a result of high runoff in mid and late February.

3. Discussion

3.1 Factors Affecting Channel Water Salinity in the Suisun Marsh

Factors that affect channel water salinity levels in the Suisun Marsh include:

- delta outflow;
- tidal exchange;
- rainfall and local creek inflow;
- managed wetland operations; and,
- operation of the SMSCG and flashboard configurations.

3.2 Observations and Trends

3.2.1 Conditions during the Reporting Period

During February 2007 PDM salinity levels at Collinsville(C-2), National Steel(S-64), Beldons (S-49), and Volanti(S-42) were all below 7.0 mS/cm as shown in Figure 1. Salinity at all stations was low coming into February due to the carry over effect of gate operations in late January. Stations closer to the gates, such as S64, responded sooner to gate operations than stations further away, such as S42, as shown in Figure 1. Further west, stations such as S35 and S97 have no gain to gate operations as shown in Figure 2. By mid-February, salinity levels throughout the marsh at all stations began a steadily drop due to the combination effect of gate operations and high outflows resulting from early month storm events.

Overall, salinity levels in February 2007 were below standards at all compliance and monitoring stations.

S-21 (Sunrise Club) continues to be out of service since late December 2005 due to flooded event, thus S-21 station will not be reported in future reports until further notice. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season while repair work is being done at S21 site.

3.2.2 Comparison of Reporting Period Conditions with Previous Years

Monthly mean high-tide SC at the compliance and monitoring stations for February 2007 were compared with means for those months during the previous nine years (Figure 4).

Mean salinity pattern of all compliance and monitoring stations is most comparable to the 2001 year. February 2007 salinity levels overall were higher compared to the 2001 year, except at S64. Compared to previous nine years, February 2007 salinity levels were overall ranked first in high Specific Conductance, thus making it the last lowest salinity levels month.

Table 1**Monthly Mean High Tide Specific Conductance at Suisun Marsh
Water Quality Compliance Stations****February 2007**

Station	Specific Conductance (mS/cm)*	Standard	Standard meet?
C-2**	1.7	8.0	Yes
S-64	1.7	8.0	Yes
S-49	2.7	8.0	Yes
S-42	4.3	8.0	Yes
S-21***	n/a	n/a	n/a

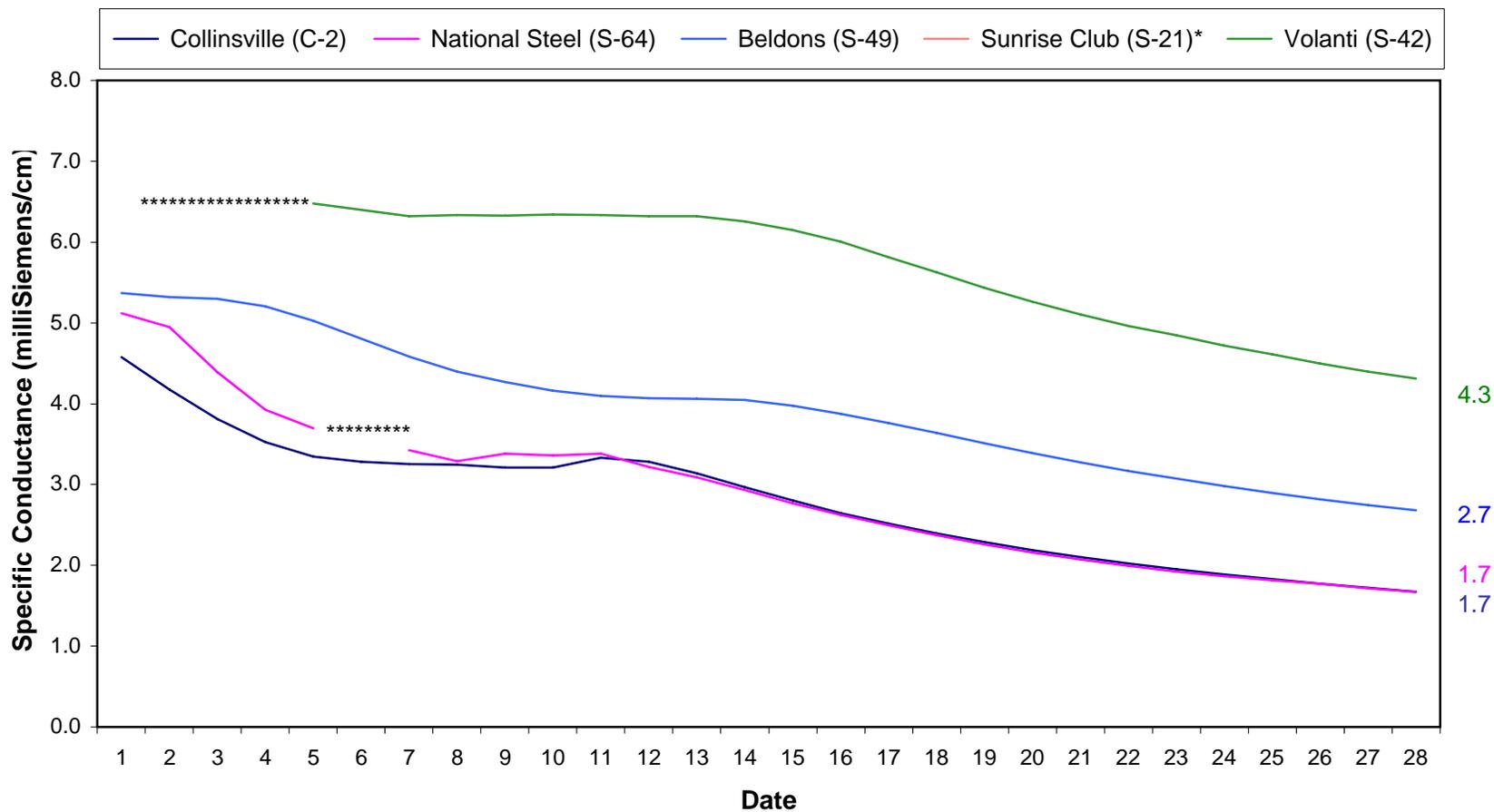
*milliSiemens per centimeter

**The representative data from nearby USBR station is used in lieu of data from station C-2.

***station is temporarily out of service. The SWRCB has granted DWR to continue using S42 as a surrogate station for S21 during the 2006-2007 control season.

**Figure 1. Suisun Marsh Progressive Mean High Tide Specific Conductance
February 2007**

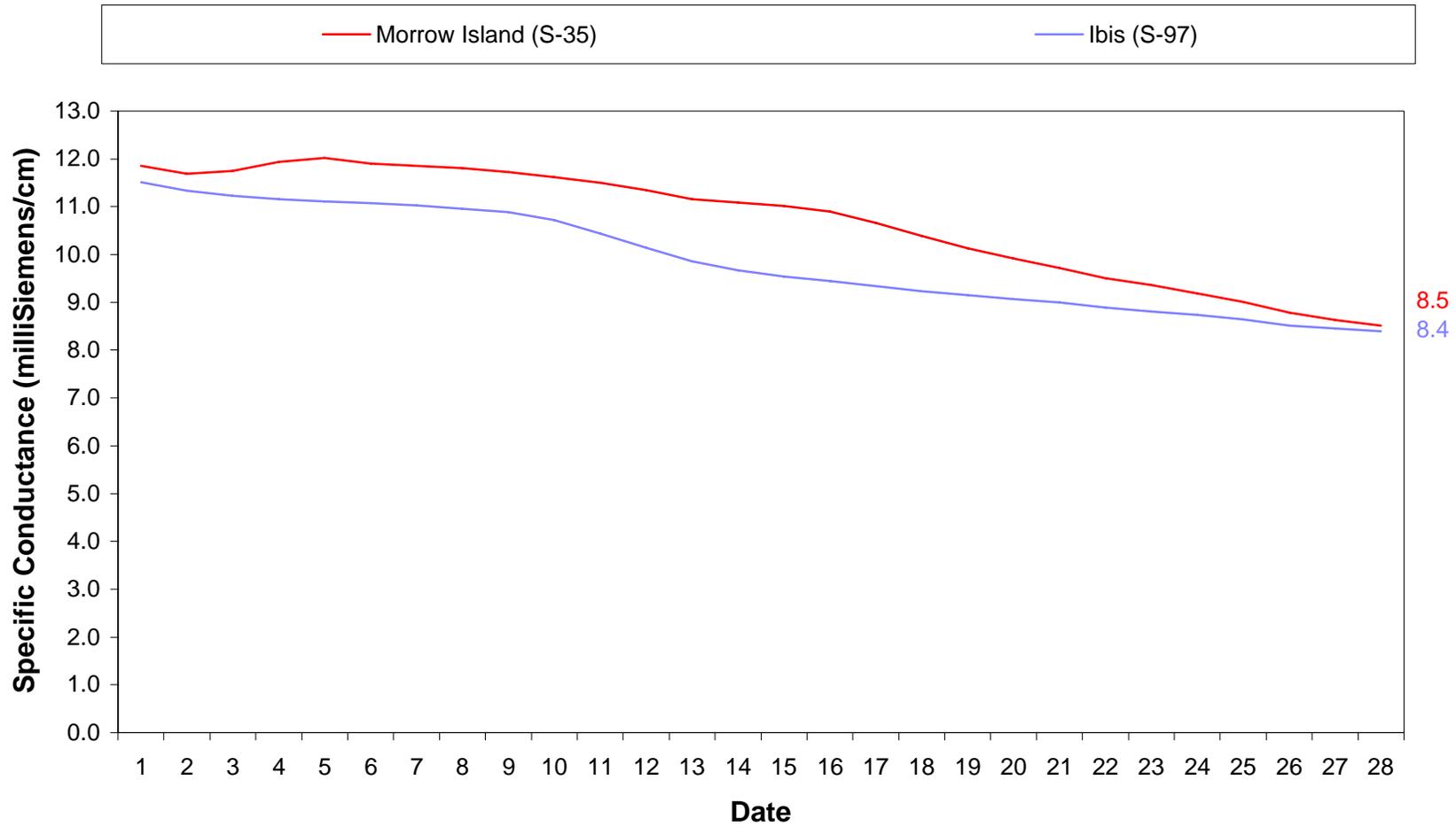
Standard = 8.0 mS/cm



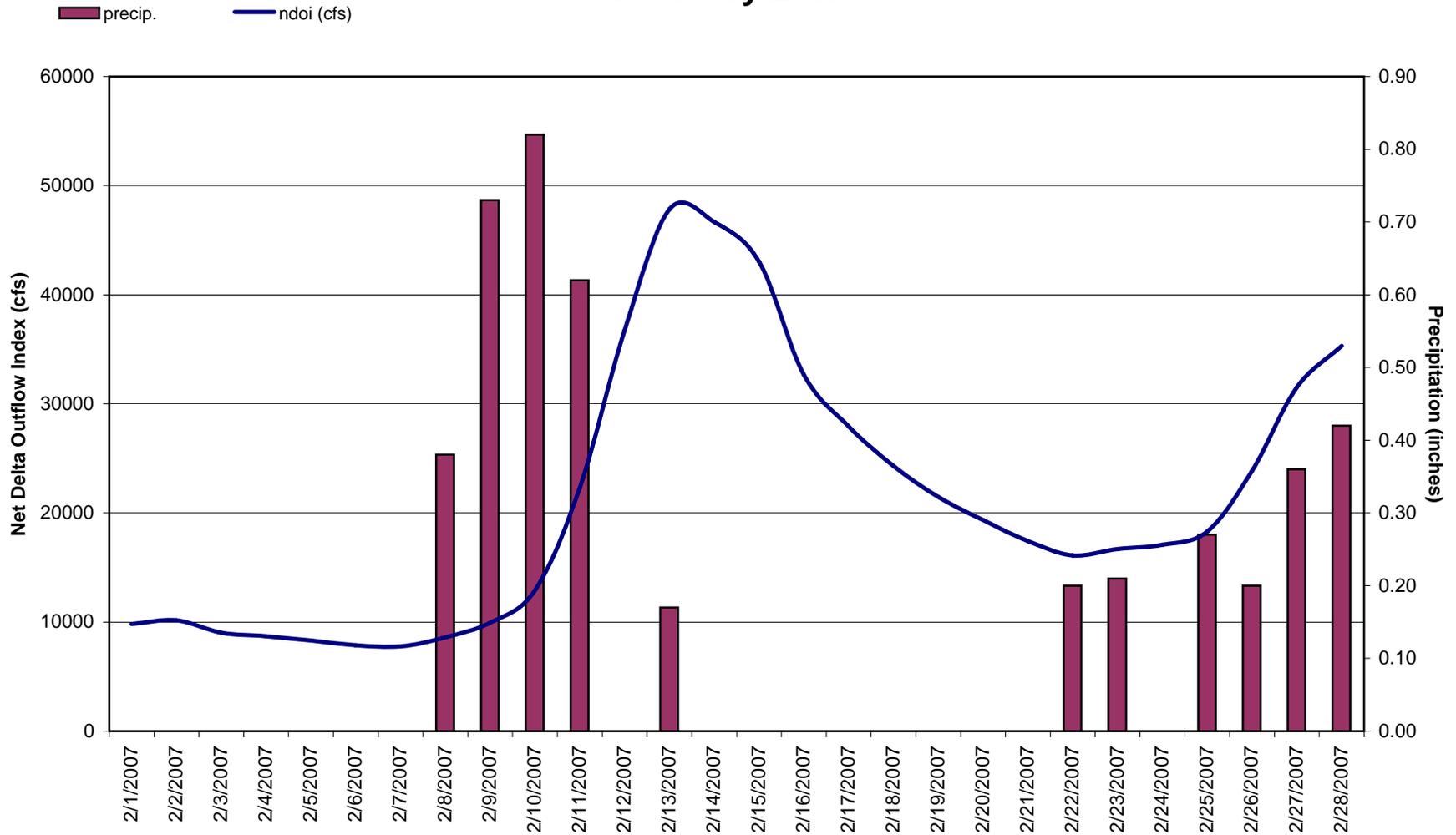
*S21 data not available due to flooded levees and inaccessible roads.

*****missing data due to equipment problem.

**Figure 2. Suisun Marsh Progressive Mean High Tide Specific Conductance
February 2007**

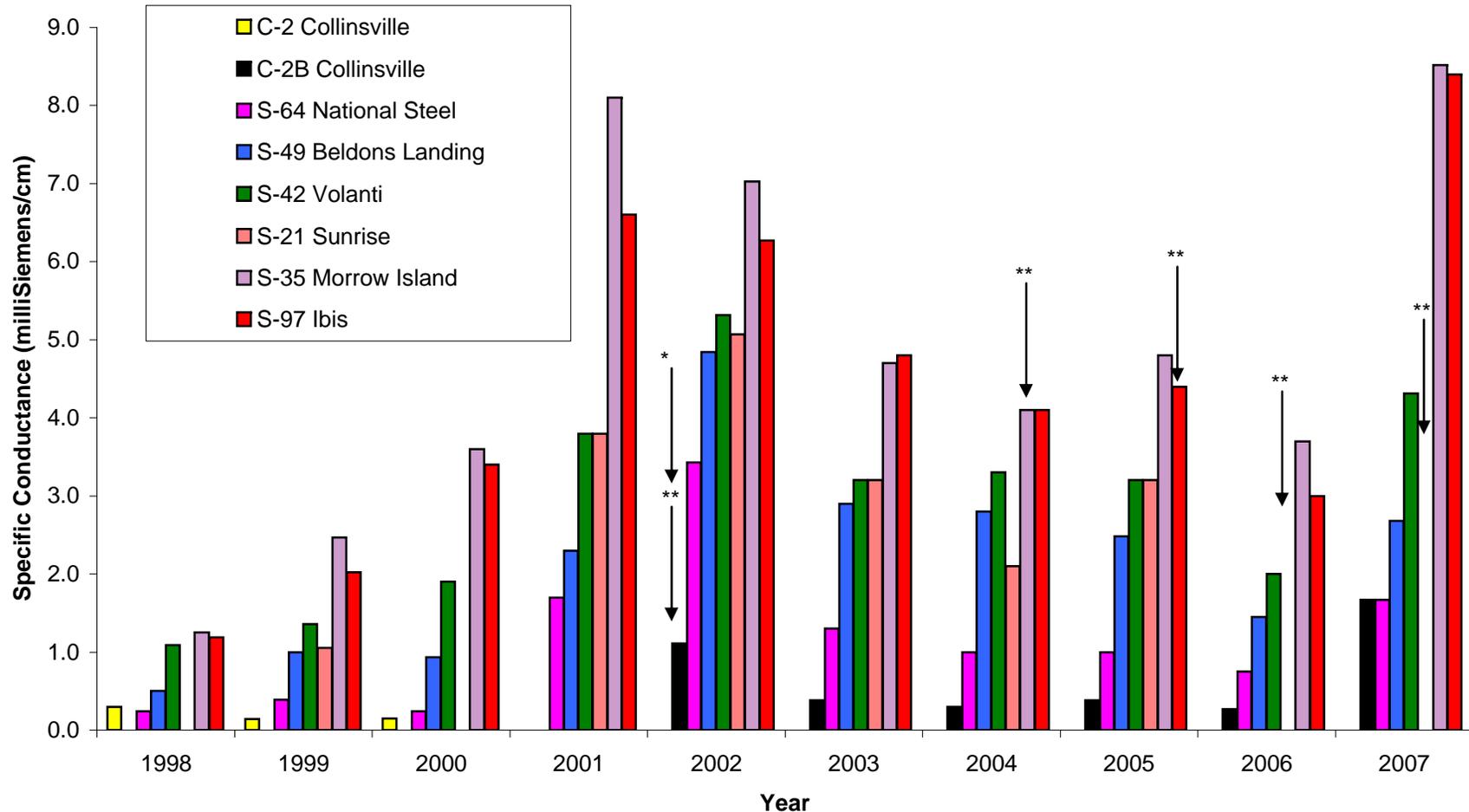


**Figure 3. Daily Net Delta Outflow Index and Precipitation*
February 2007**



*Preliminary DWR, O&M Delta Outflow data and precipitation from Fairfield Water Treatment Plant.

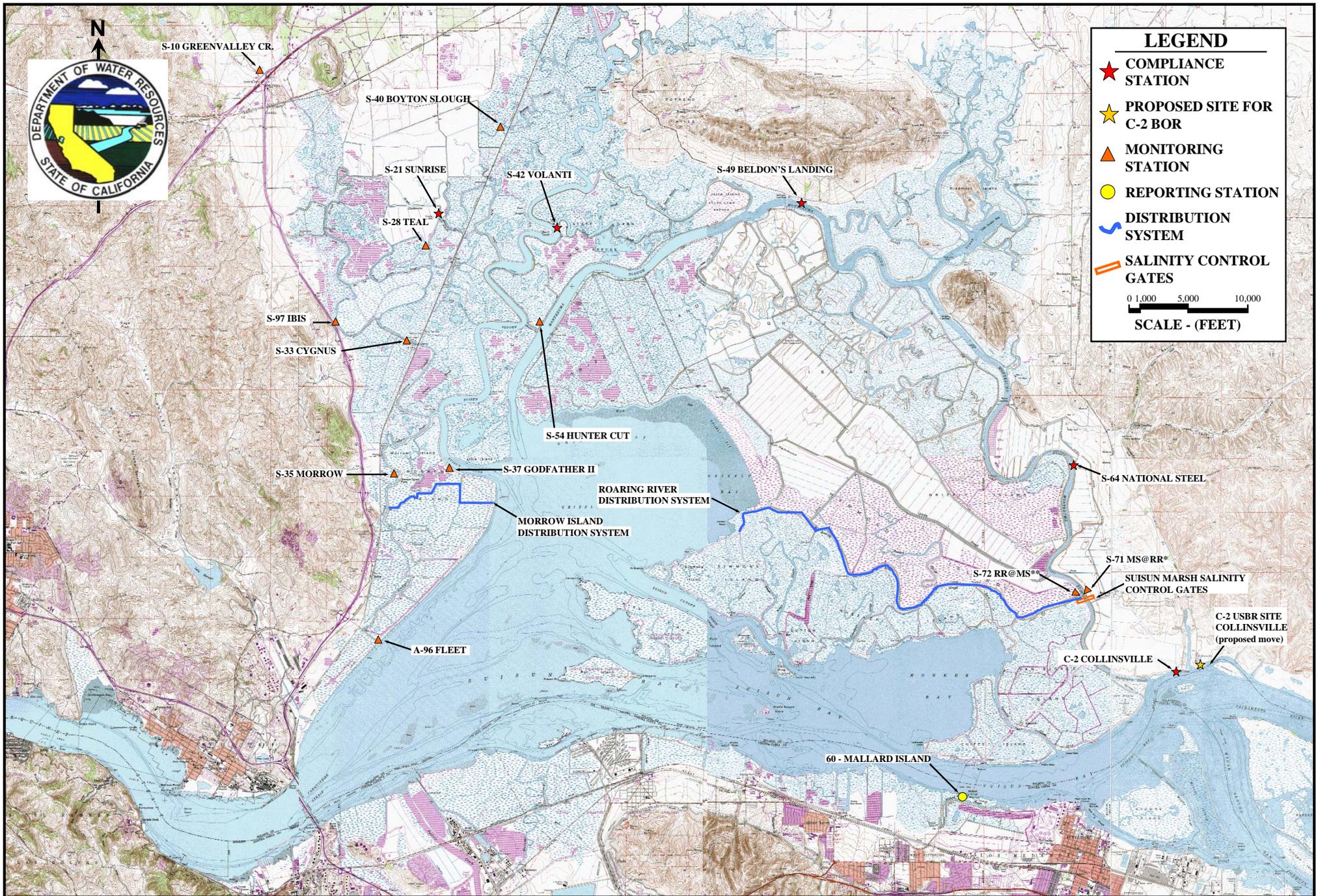
**Figure 4. Monthly Mean Specific Conductance at High Tide:
Comparison of Monthly Values for Selected Stations
February of 1998-2007**



*Representative data from nearby USBR station is used in lieu of station C-2 from 2002 and thereafter.

**Data missing due to equipment failure. Number of missing data is small enough not to alter end of month value.

***Data not available due to flooded levees and inaccessible roads.



SUISUN MARSH PROGRAM WATER QUALITY MONITORING AND CONTROL FACILITIES