Discrete Water Quality Report

1 Introduction

The Department of Water Resources (DWR) and the US Bureau of Reclamation (USBR) are required by Water Right Decision 1641 (D-1641) to collect discrete water chemistry data to monitor the water quality at select sites in the upper San Francisco Estuary (Estuary). This report describes the results of these monitoring efforts for water year 2023 (October 1st 2022 through September 30th 2023), which was classified as a wet year in the Sacramento Valley (source). Results are compared to the previous water year, which was classified as a critically dry year.

2 Methods

Discrete water quality samples were collected monthly at 24 monitoring sites throughout the Upper Estuary and were grouped into regions based on their geographic location (Figure 1; Table 1). These sites represent a variety of aquatic habitats, from narrow, freshwater channels to broad, estuarine bays.

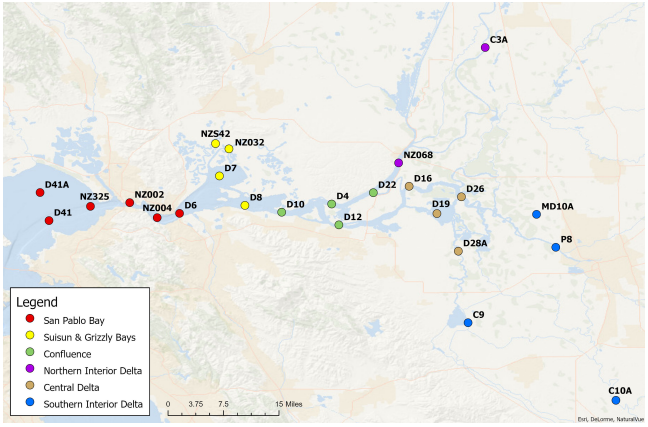

Figure 1: test

Table 1: test

Region	Stations
Northern Interior Delta	C3A and NZ068
Southern Interior Delta	C9, C10A, MD10A and P8
Central Delta	D16, D19, D26 and D28A
The Confluence	D4, D10, D12 and D22
Grizzly and Suisun Bay	D7, D8, NZ032 and NZS42
San Pablo Bay	D6, D41, D41A, NZ002, NZ004 and NZ325

EMP collects data for six different field parameters and 18 different laboratory constituents. The analytes highlighted in this report are:

- Specific Conductance (S/cm)
- Turbidity (FNU)
- Dissolved Ammonia (mg/L)
- Chlorophyll *a* (g/cm)
- Dissolved Nitrate+Nitrite (mg/L)
- Total Phosphorus (mg/L)

Regional facet graphs were created for each parameter. The average, minimum and maximum values were determined for each analyte. Non-detect values were represented graphically via a vertical dashed line capped at the reporting limit. Average summary statistics are reported as the median (M) ± the median average deviation.

For more in-depth methodology, see here.

3 Results

3.1 Specific Conductance

The average specific conductance value was 537.5 ± 417 µS/cm; for comparison, the previous year average was 5530.5 ± 5270.5 µS/cm. Values ranged from 73 µS/cm to 44933 µS/cm. Per region average, minimum, and maximum values are shown in **?@tbl-spc**; time series plots are shown in Figure 2.

3.2 Turbidity

The average turbidity value was 11.1 ± 6 FNU; for comparison, the previous year average was 9.05 ± 5 FNU. Values ranged from 0.9 FNU to 161 FNU. Per region average, minimum, and maximum values are shown in **?@tbl-turb**; time series plots are shown in Figure 3

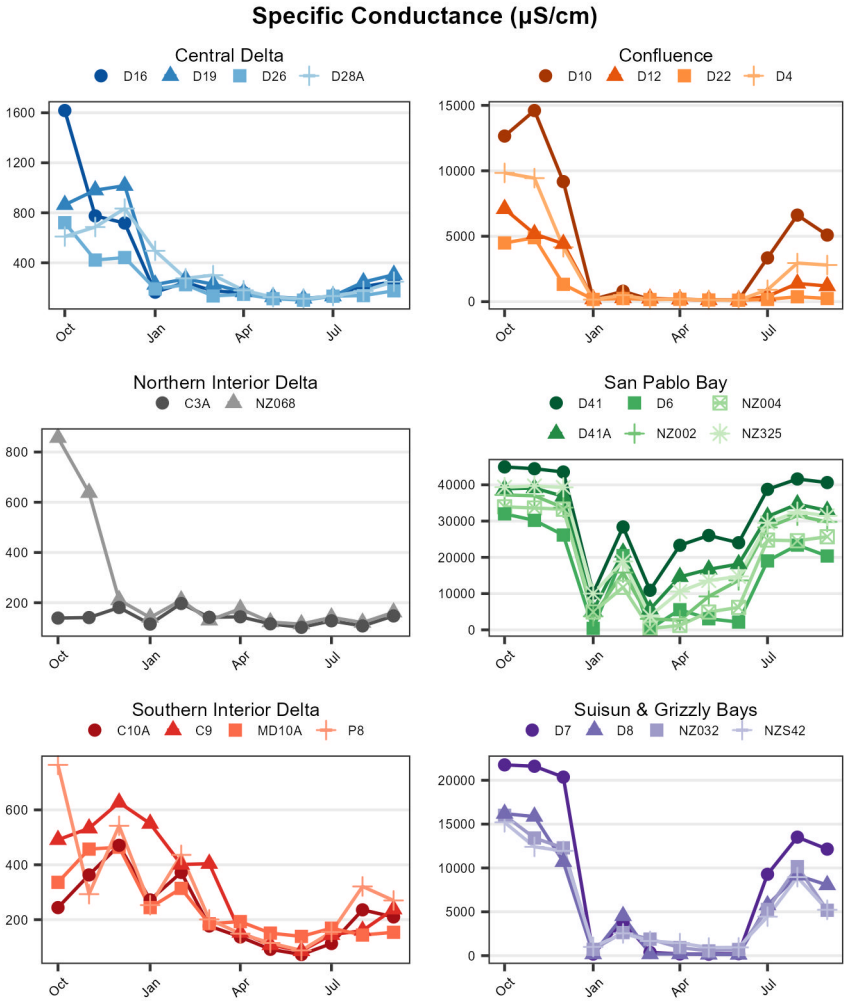

Figure 2: **?(caption)**

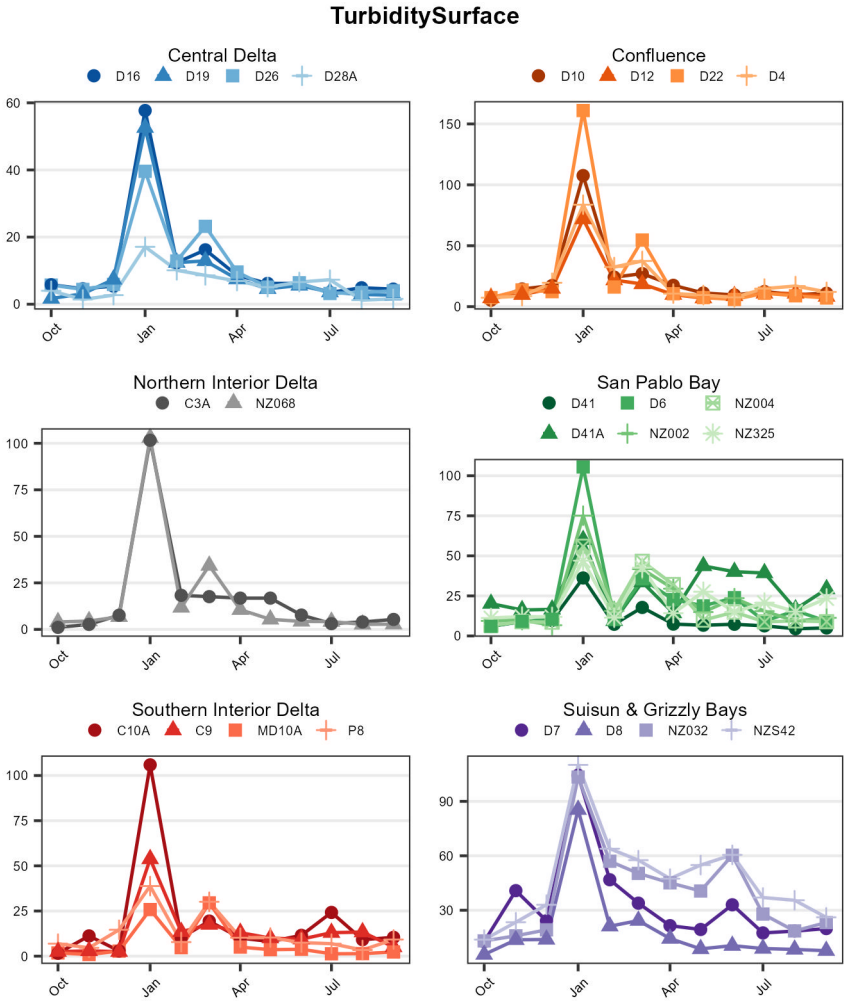

Figure 3: **?(caption)**

3.3 Dissolved Ammonia

The average dissolved ammonia value was 0.05 ± 0 mg/L; for comparison, the previous year average was 0.05 ± 0 mg/L. Values ranged from < 0.05 mg/L to 0.674 mg/L. 53.12% of samples were below the reporting limit. Per region average, minimum, and maximum values are shown in Table 2; time series plots are shown in Figure 4.

Table 2: test

Statistic	Central Delta	Confluence	Northern Interior Delta	San Pablo Bay	Southern Interior Delta	Suisun and Grizzly Bays
Average	0.05*	0.05*	0.05*	0.0755	0.05*	0.0655
Min	0.05*	0.05*	0.05*	0.05*	0.05*	0.05*
Max	0.19	0.123	0.05*	0.154	0.674	0.174

* Value is RL

4 Interpretations

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5 Archived Reports

Previous EMP discrete water quality reports can be found here.

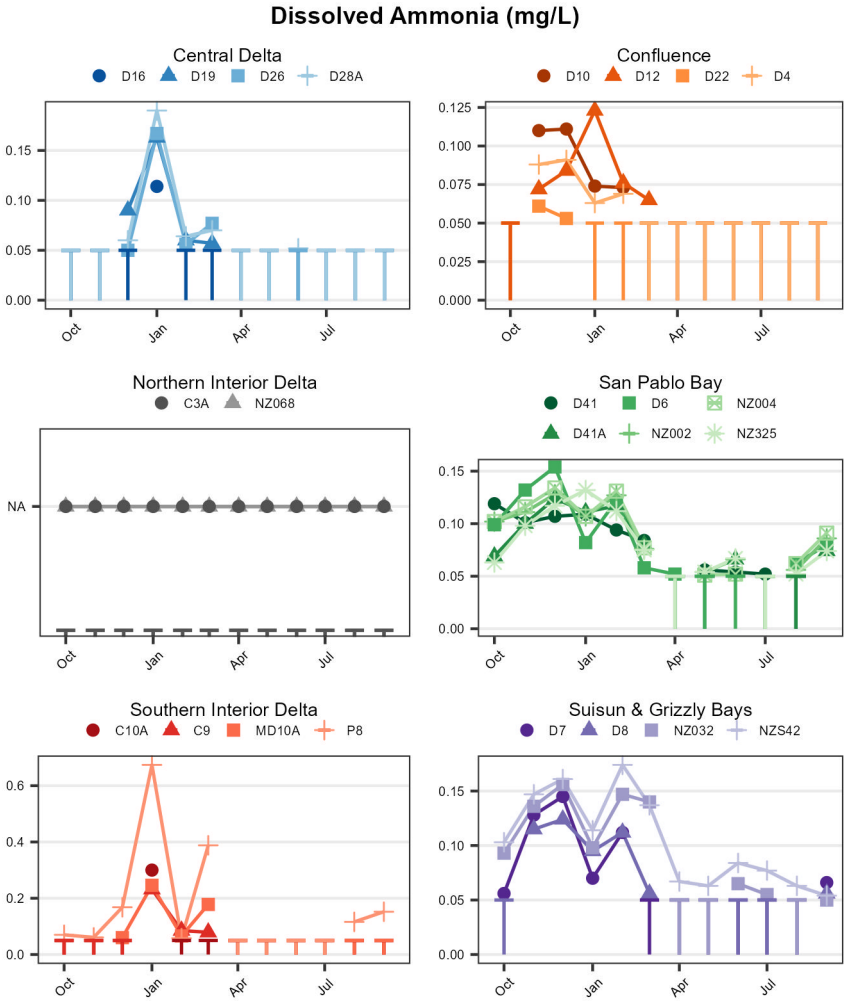

Figure 4: **?(caption)**