CALIFORNIA WATER FIX

South Delta Water Agency Parties
Case-In-Chief Part 1b

TESTIMONY OF TOM BURKE

Central and South Delta Issues

- The Central and Southern Delta
  - An Existing Stressed System
  - Existing Stressors
    - Water Quality
    - Temperature
    - Stage
    - Algal Blooms

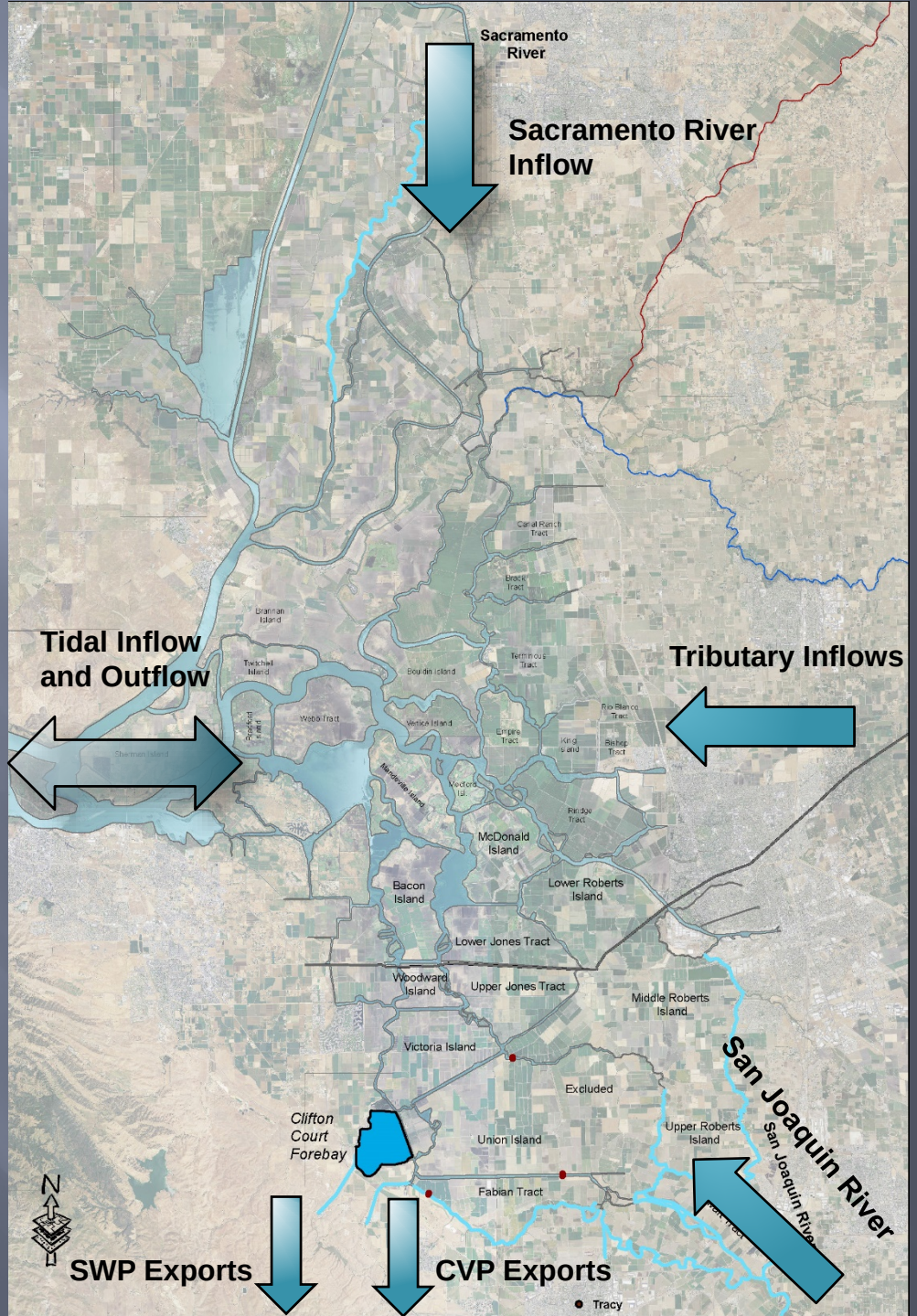
Analysis

- Evaluated the Impact of the CWF on the hydrodynamics and water quality in the Central and South Delta
  - Effect on Salinity
  - Effect on River Stage
  - Effect on Residence Time

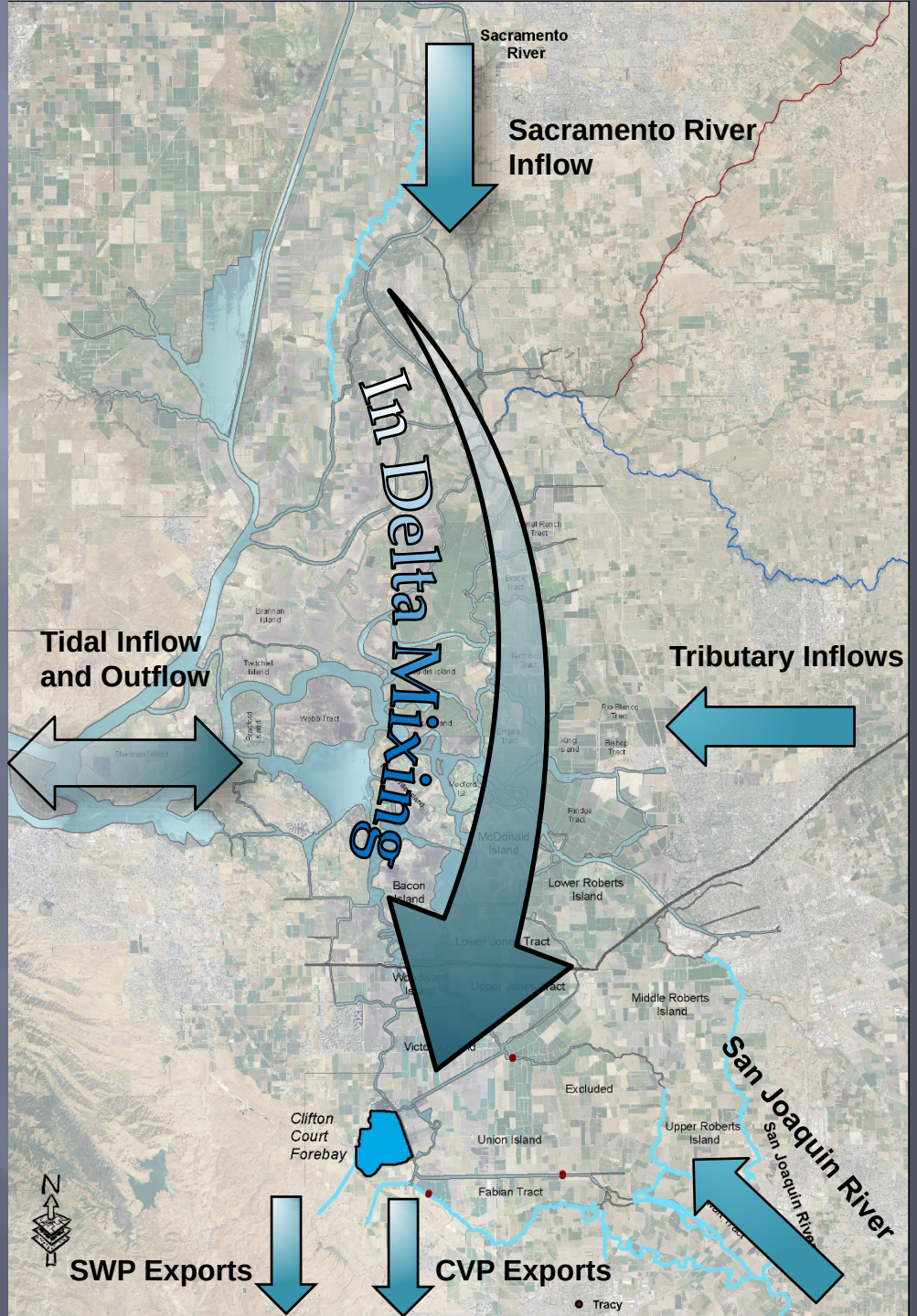
CWF System Components

- Diversions
- Tunnels
- 4 Scenarios
  - B1
  - H3
  - H4
  - B2
  - NAA

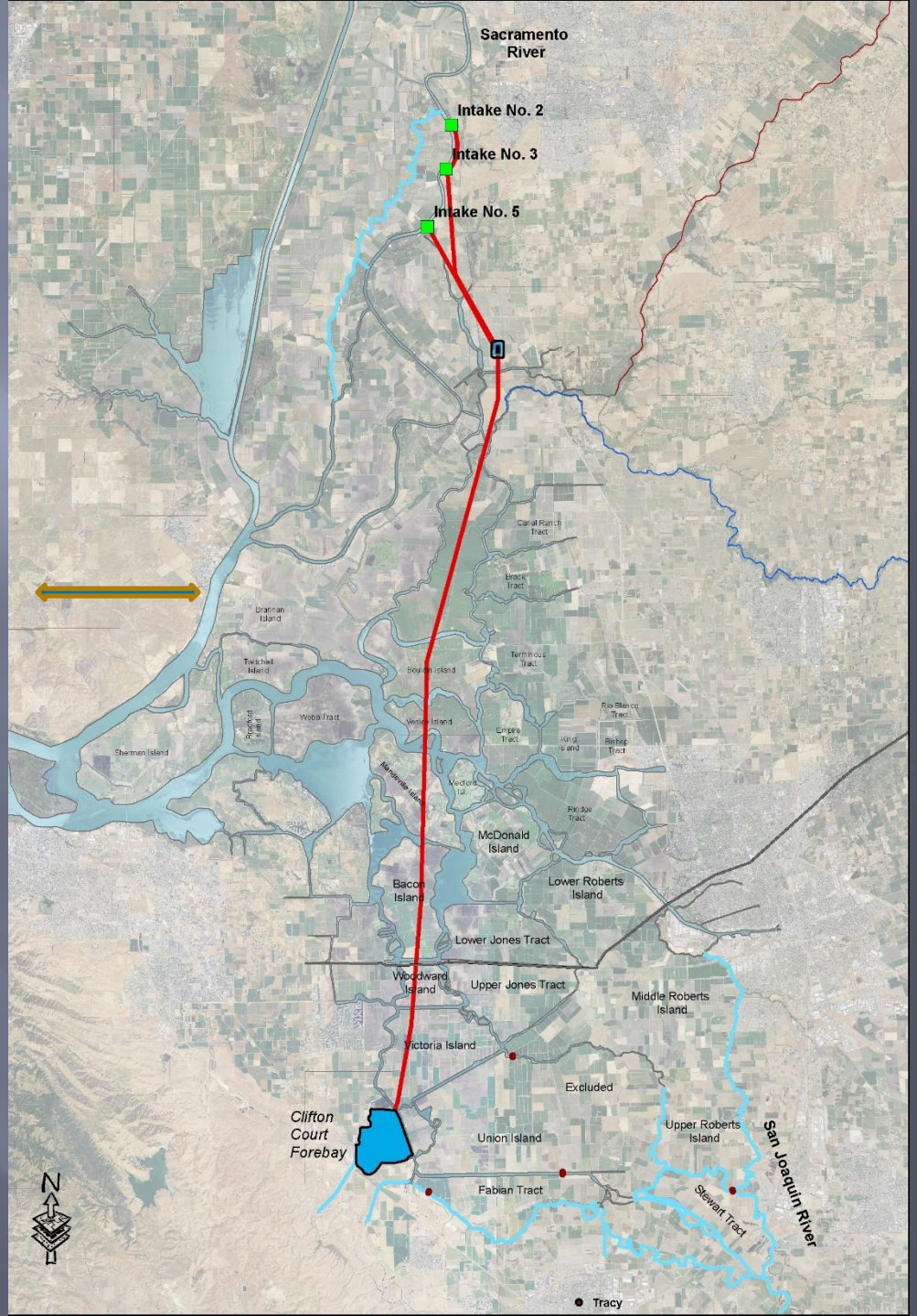
Delta Schematic



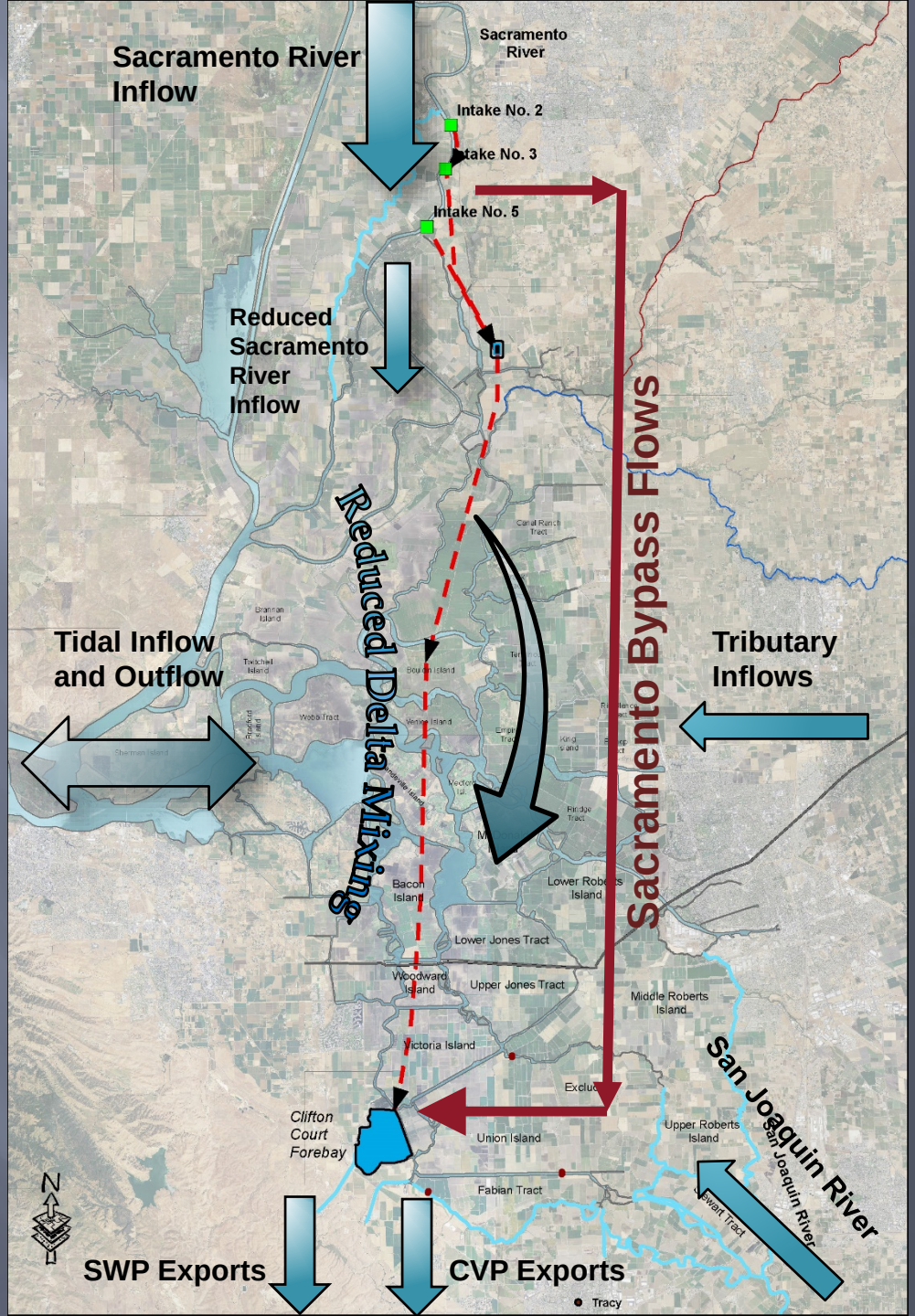
Delta Schematic



CFW Schematic



CFW Schematic



Approach To Analyzing Reduced Sacramento Inflows

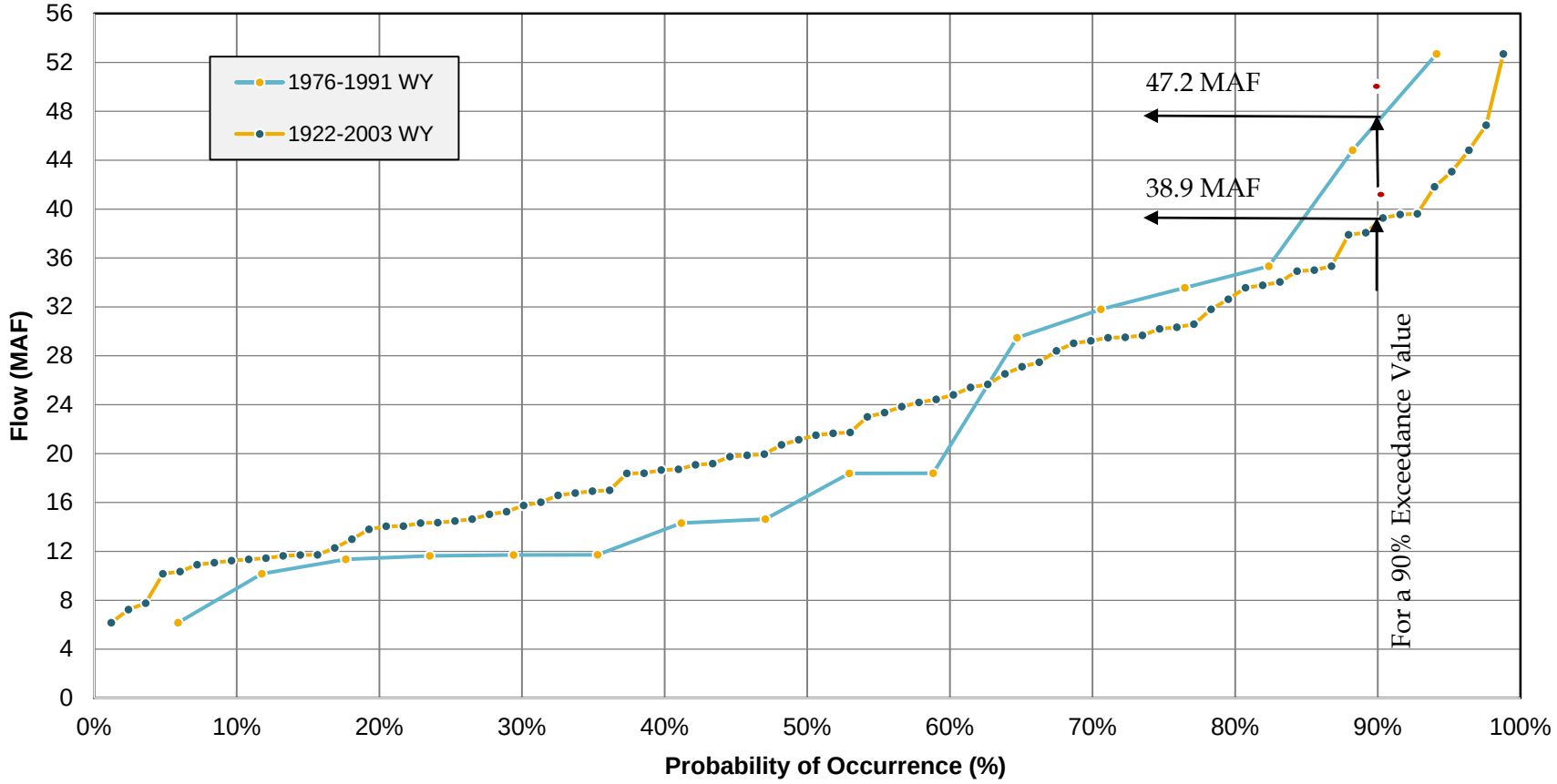
- Use Existing Models
- Set NAA at the Baseline
- Evaluate on a 15-minute and Daily Timeframe

Modeling Timeframe

- CALSIM II
  - 82 Years
- DSM2
  - 16 Years
- Hydrologic Similarity Between Time Periods

Probability Comparison

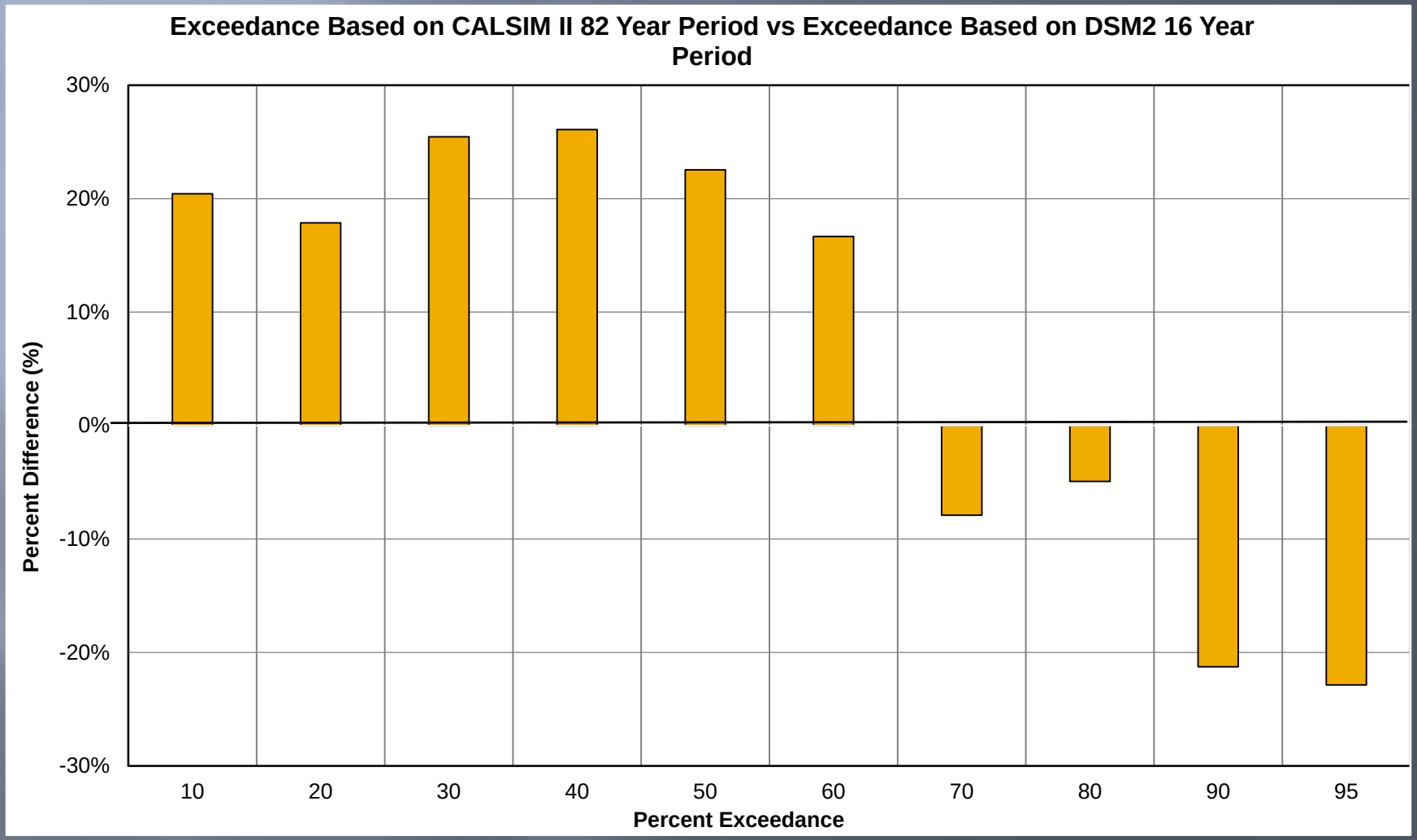
Figure 3-1 Comparison of the 8-River Runoff For The 1976-1991 Period and the 1922-2003 Period



Difference in Exceedance Predictions

% Exceedance	1922-2003	1976-1991	% Difference
10	11.27	8.97	20.4%
20	13.96	11.47	17.9%
30	15.71	11.71	25.5%
40	18.67	13.8	26.1%
50	21.31	16.51	22.5%
60	24.73	20.61	16.7%
70	29.26	31.57	-7.9%
80	33	34.63	-4.9%
90	38.91	47.18	-21.3%
95	42.88	52.69	-22.9%

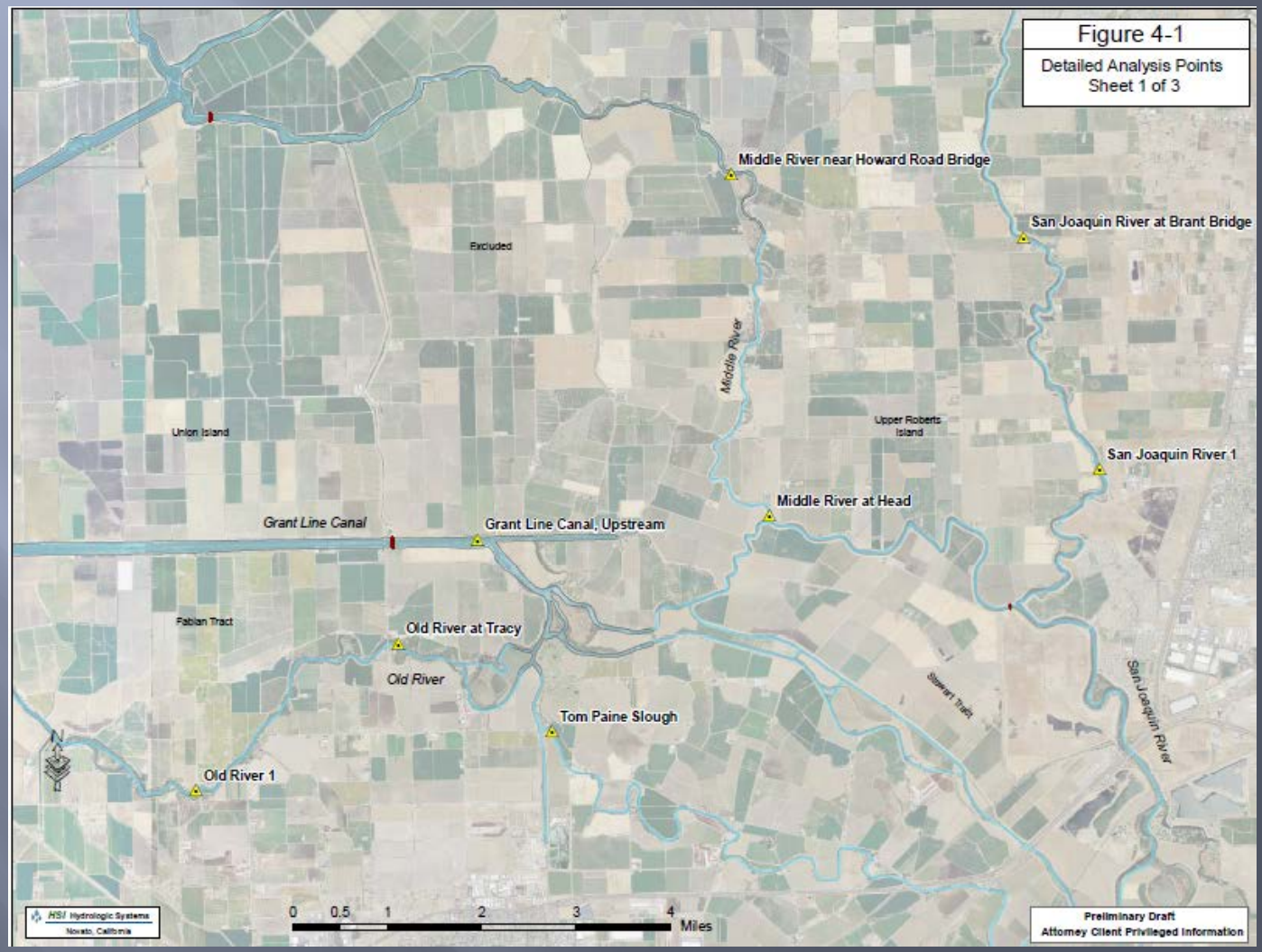
Difference in Exceedance Predictions



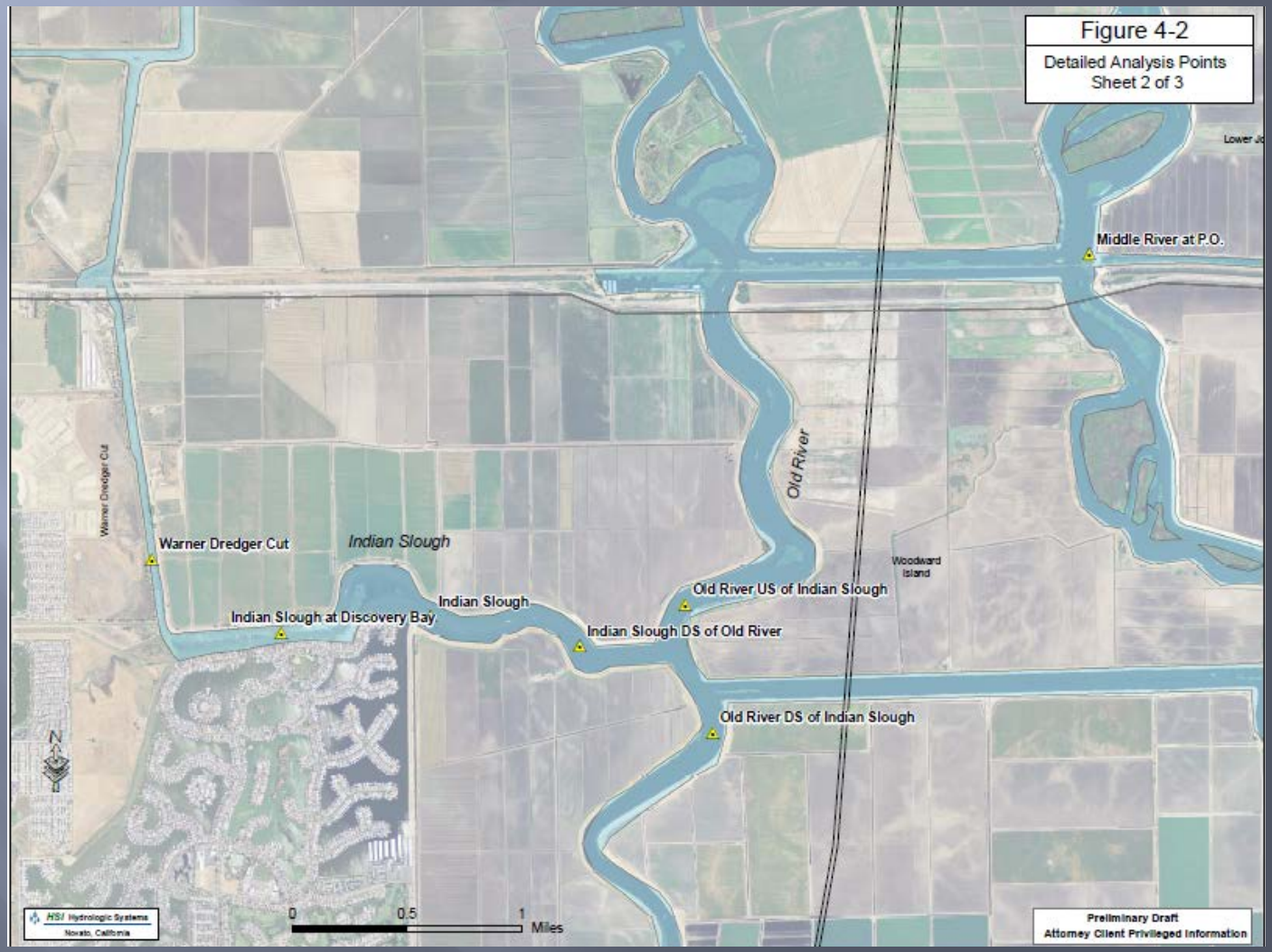
Selection of Analysis Points

- South Delta
- Central Delta
- Distribution and Problem Areas

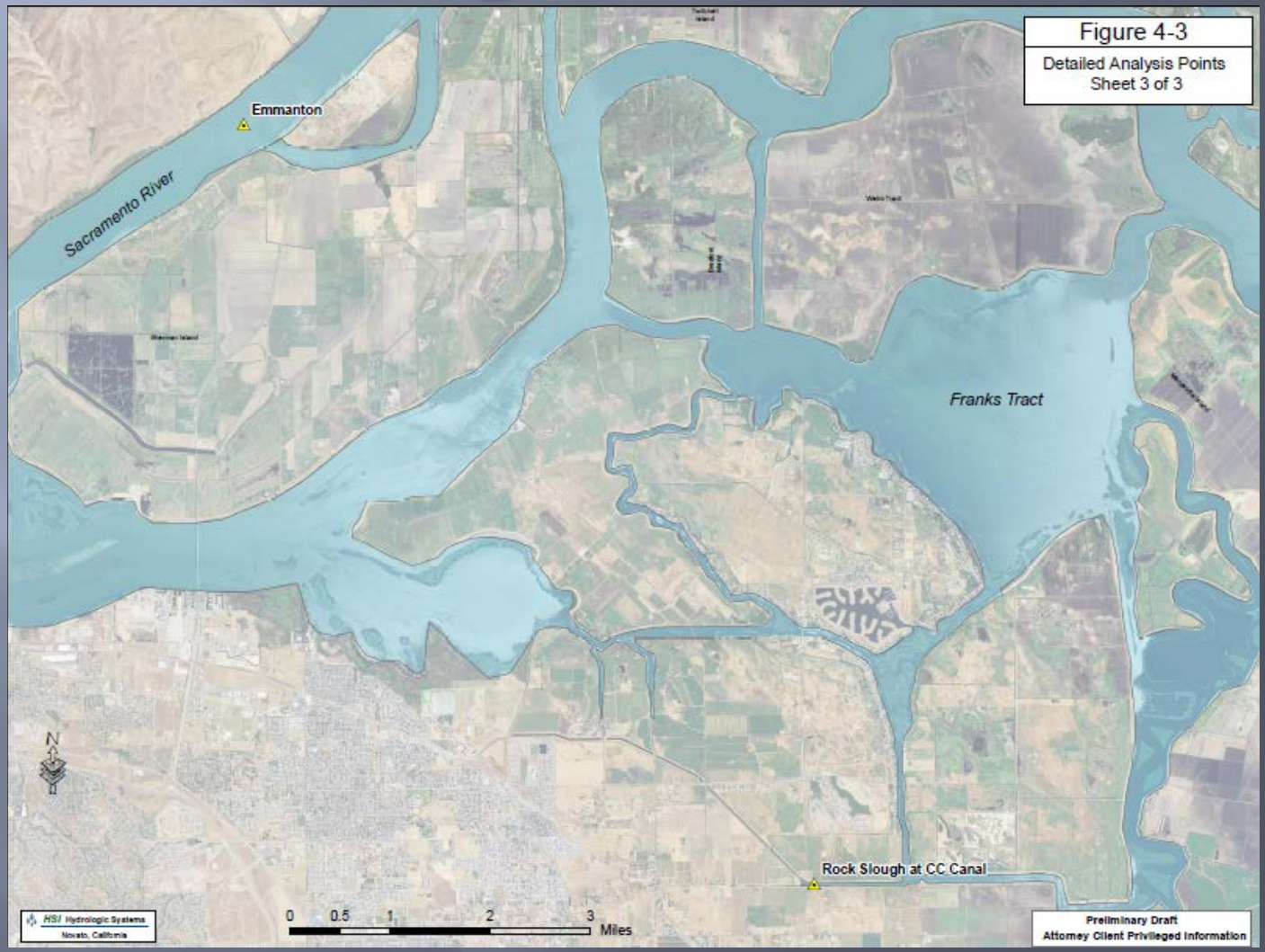
Detailed Analysis Points (Figure 4-1)



Detailed Analysis Points (Figure 4-2)



Detailed Analysis Points (Figure 4-3)

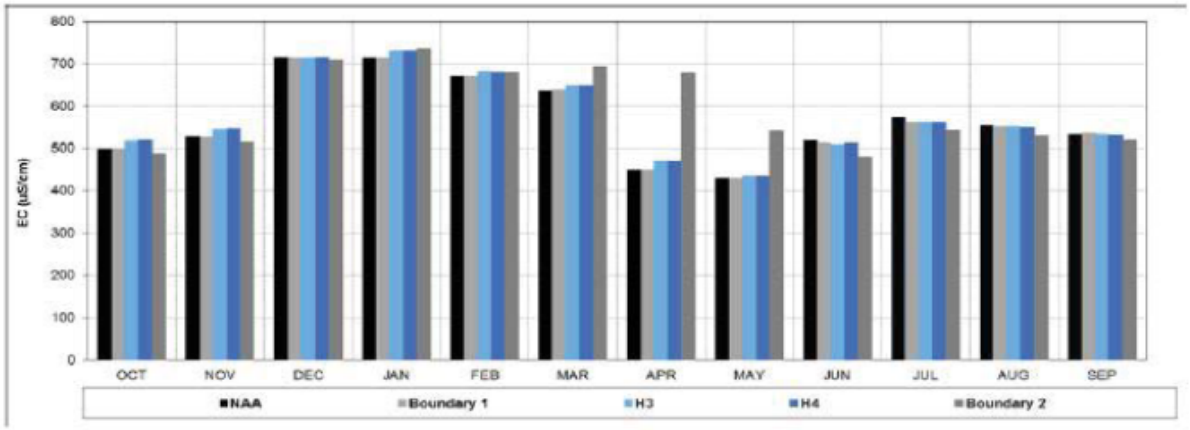


Differences in Approach To Impact Analysis

- Timescale of Importance
- Averaging

Monthly Average EC Old River at Tracy Road (Figure 4-4)

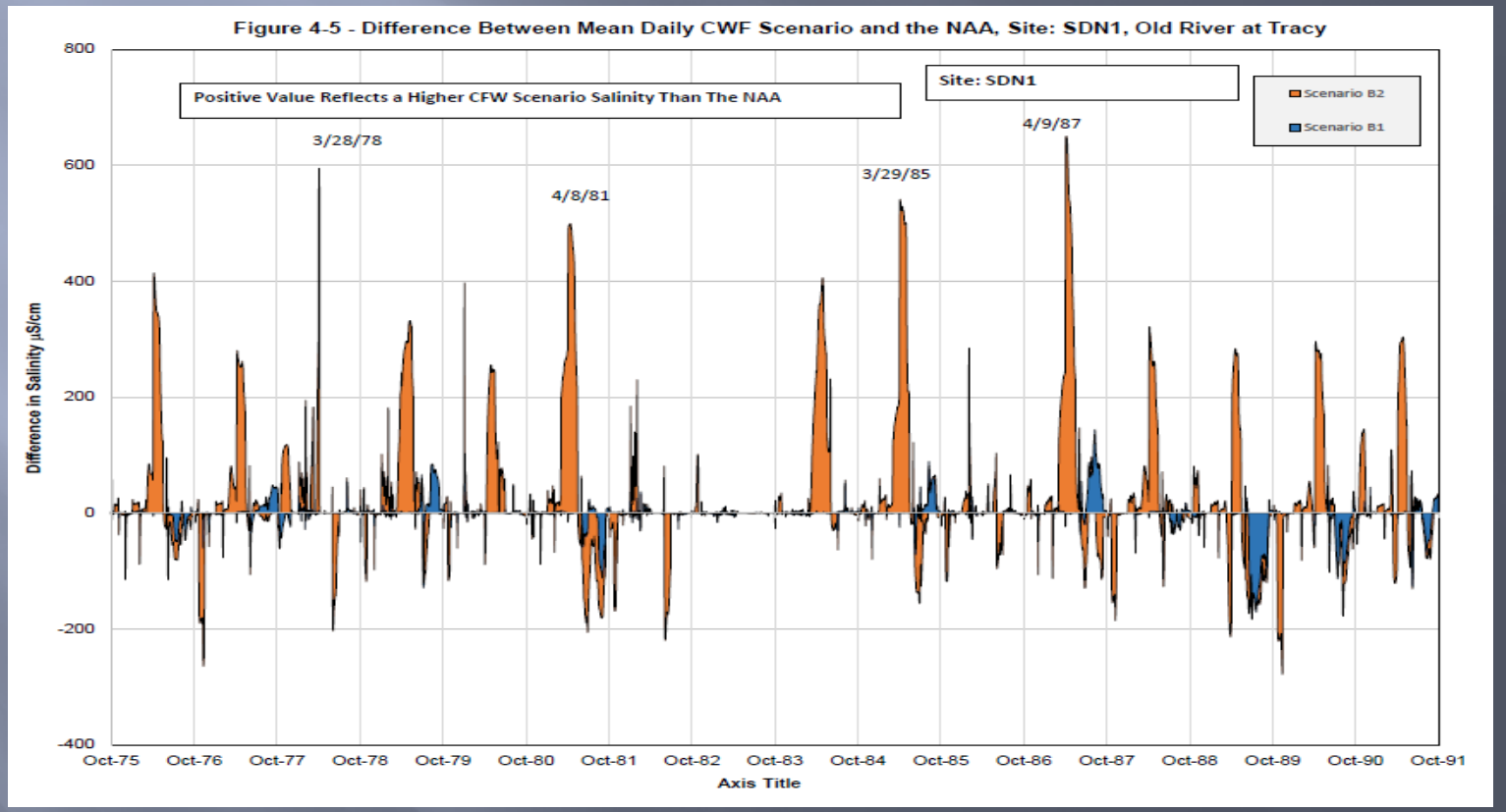
Figure EC5: Monthly Average EC at Old River at Tracy Road



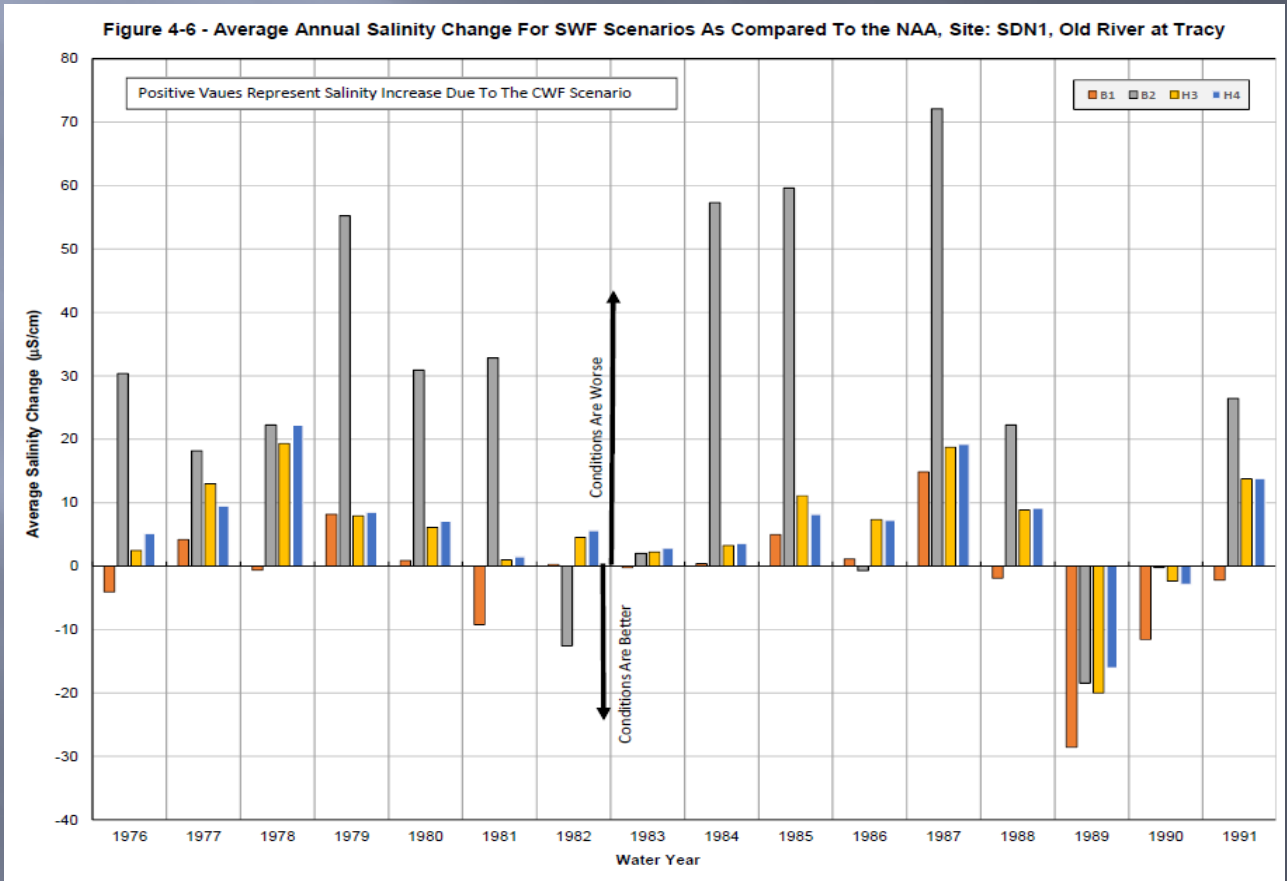
*Model results are used for comparative purposes and not for predictive purposes

Figure 4-4
From DWR Exhibit 513, Figure EC5

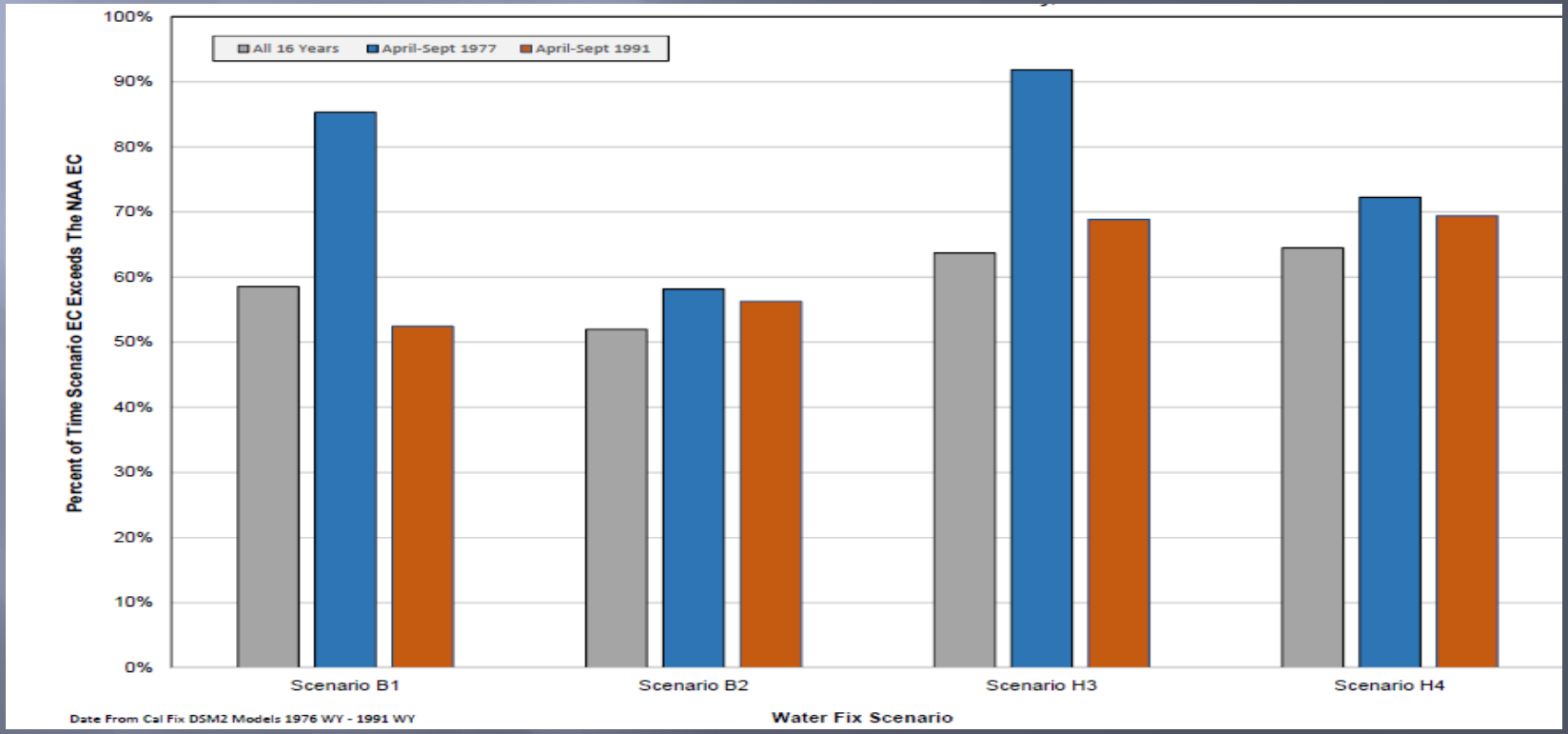
Difference between Mean Daily CWF and NAA
Site: SDN1, Old River at Tracy (Figure 4-5)



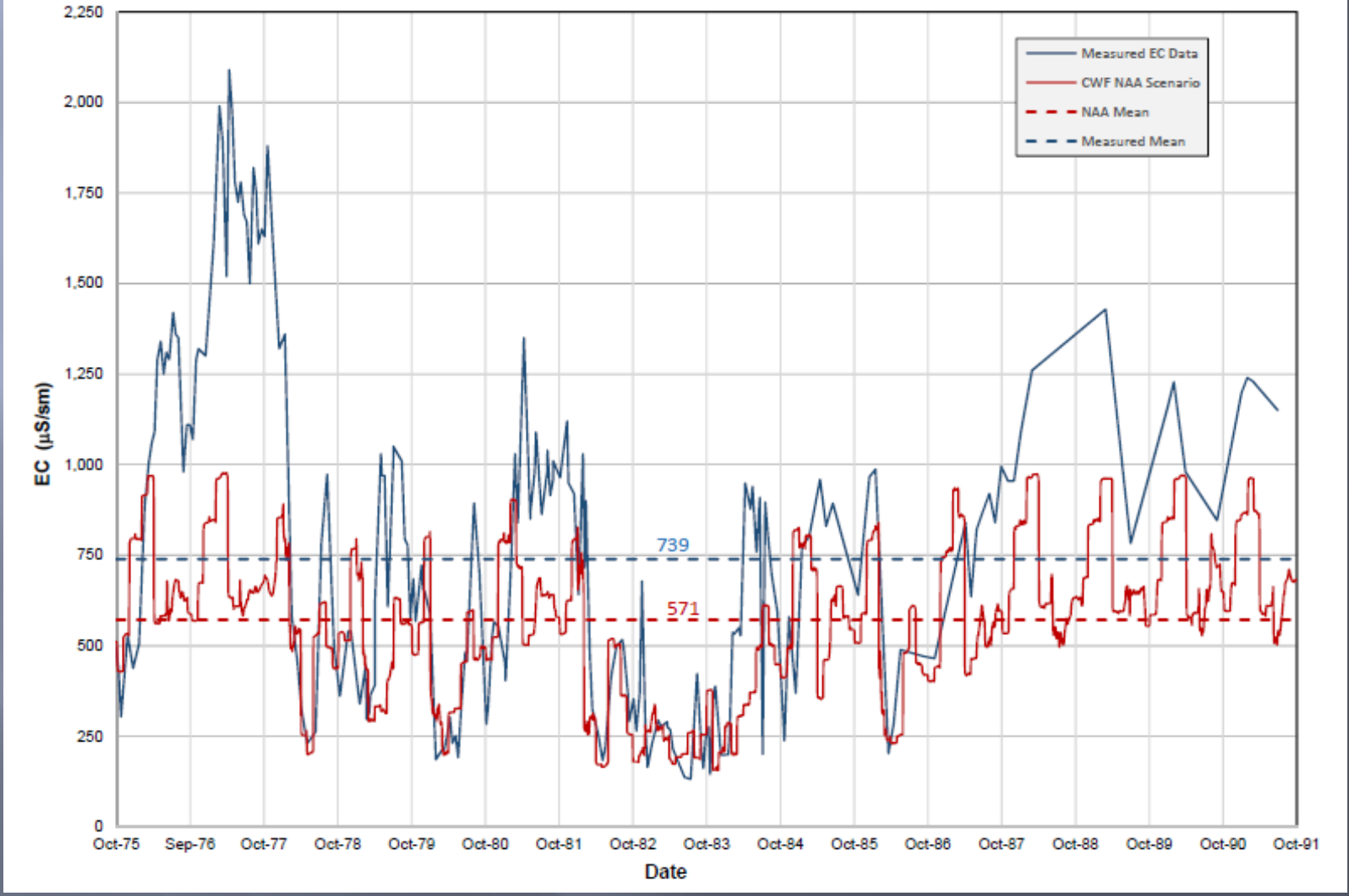
Average Annual Salinity for SWF Scenarios As Compared to the NAA Site: SDN1, Old River at Tracy Figure 4-6



Amount of Time the Daily Average EC of the WaterFix Scenarios Exceeds the EC of the NAA
Site: SDN1, Old River at Tracy (Figure 4-7)

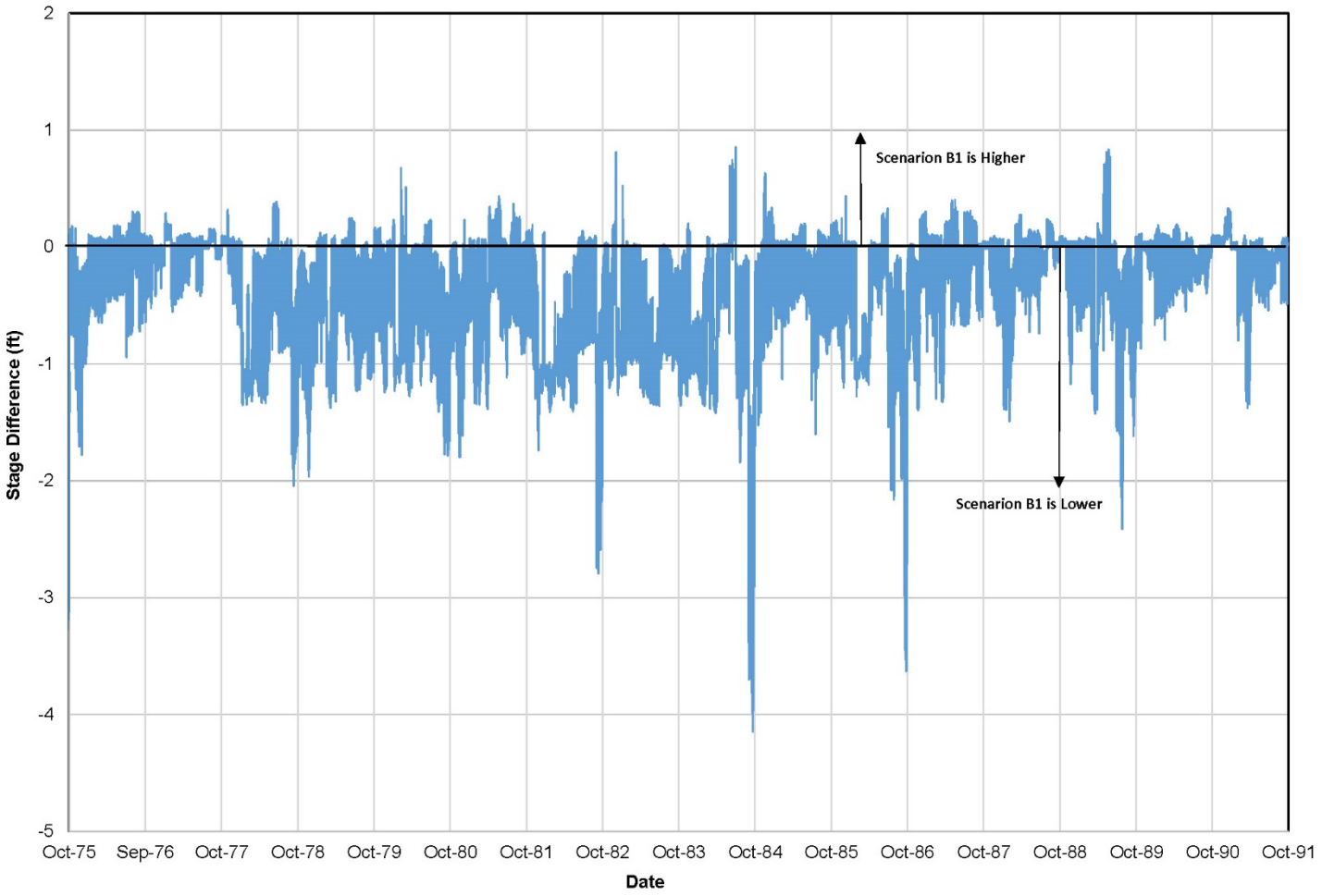


Measured Salinity at Old River at Tracy and Predicted Salinity from the NAA (Figure 4-8)



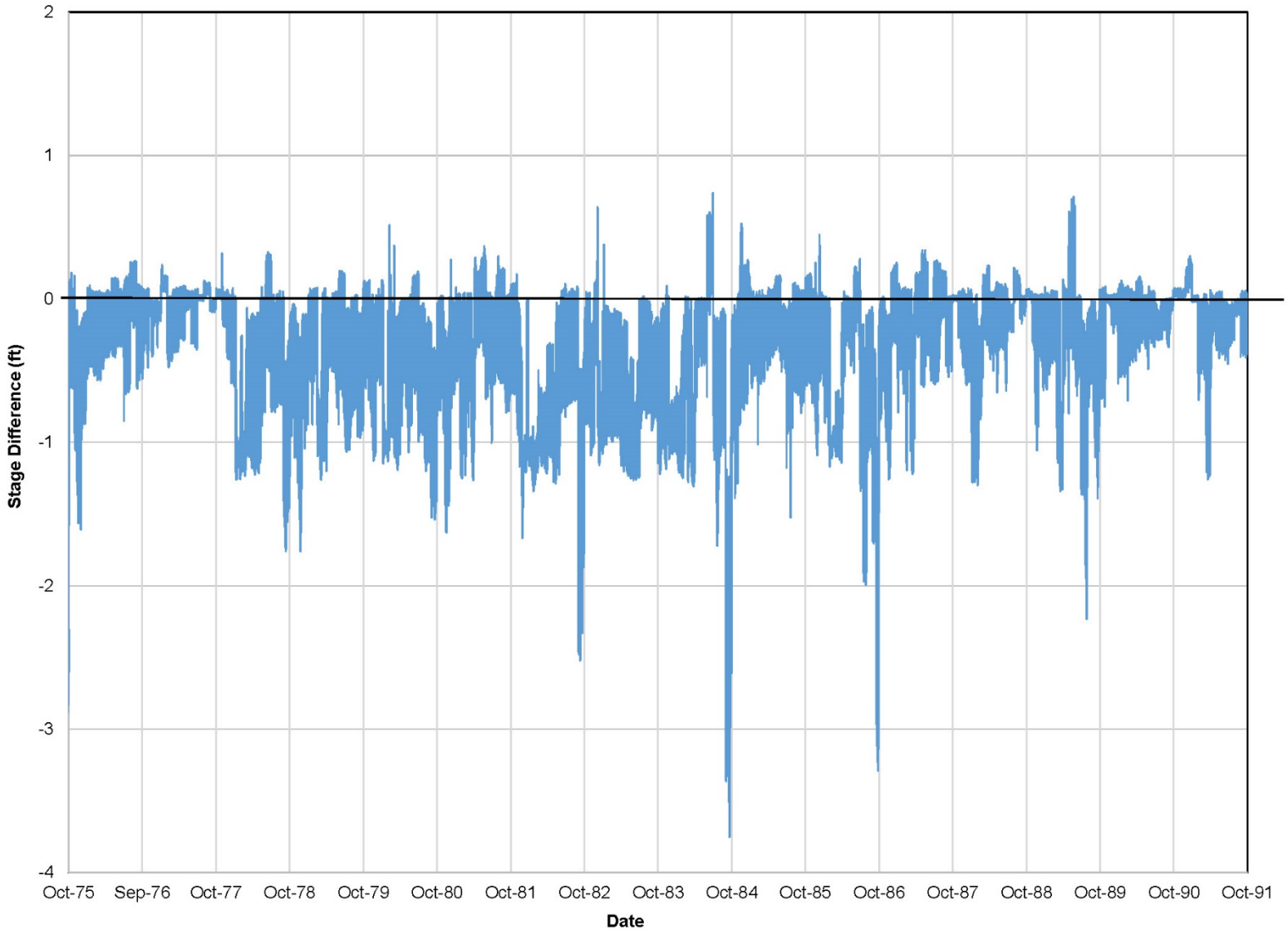
Stage Difference DS of NDD

Figure 4-8 Stage Difference Between CWF Scenario B1 and The NAA, Downstream of NDD No. 5

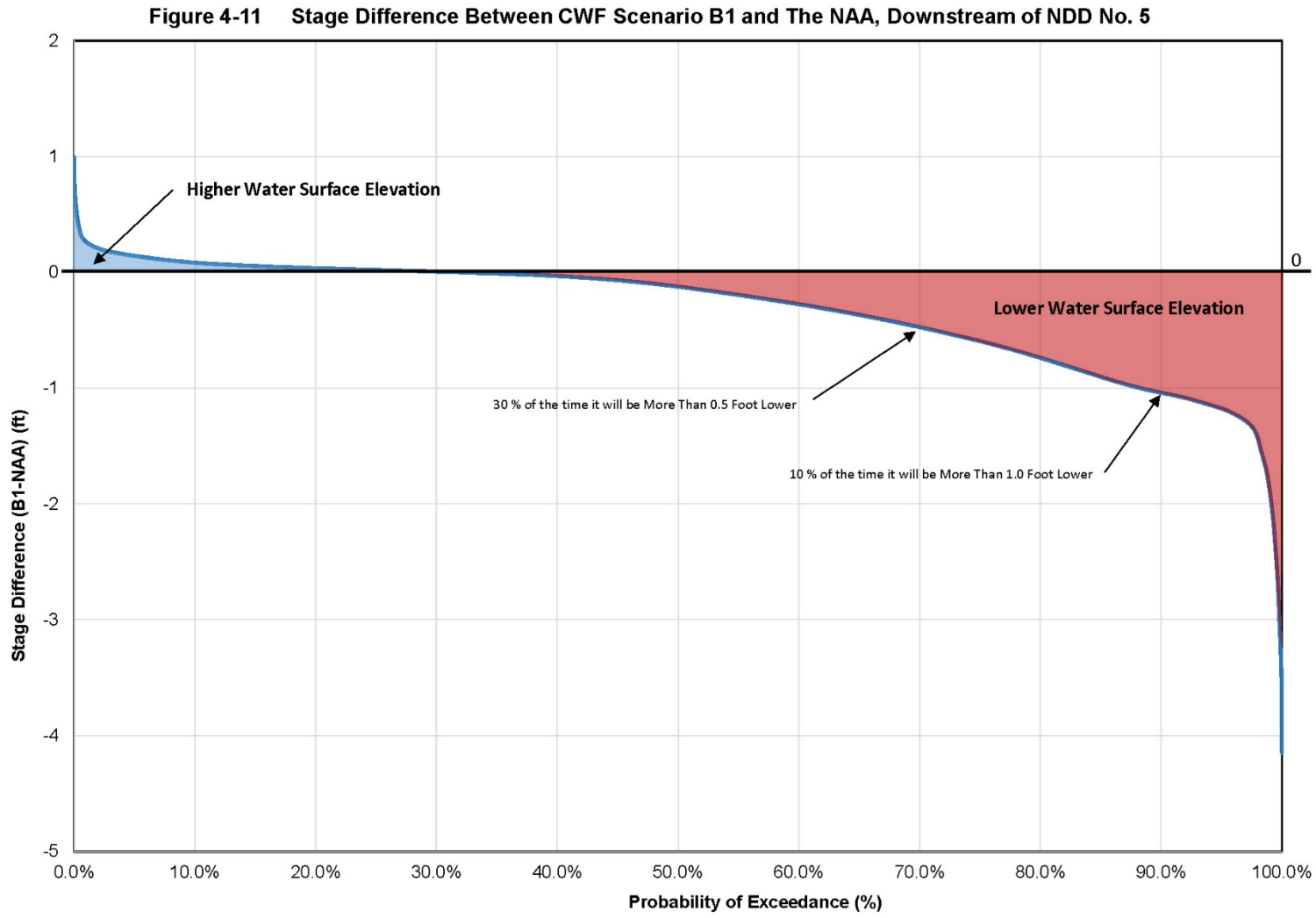


Stage Difference 3 Miles DS of NDD

Figure 4-9 Stage Difference Between CWF Scenario B1 and The NAA, 3 Miles Downstream of NDD No. 5



Probability of Exceedance For Stage Change Due The CWF



Conclusions

- The CWF will result in an Increase in Salinity in the Central and South Delta
  - - Averaging Masks The True Increase
  - Sometimes High and Sometimes Low, But Generally
  - Increase Roughly 50% of the Time

Conclusions (Cont.)

- Stage in the Sacramento River Will Decrease DS of the NDD's
  - Up to 4' DS of the Diversion
  - Up To 3.7 ' 3 Miles DS of the Diversion
  - Up To 2.9' 9 Miles DS of the Diversion

Conclusions (Cont.)

- Residence Time Will Increase in the Central and South Delta

Table 4-6 Reduction in Flushing Flow For The CWF Scenarios As Compared To The NAA During a Dry Year.[1]		
Scenario	Middle River	Old River
B1	-1.5 %	4.4 %
B2	-9.5 %	-42.0 %
H3	-4.3 %	-0.9 %
H4	-4.5 %	-1.2 %
1. A negative value indicates a reduction in volume moving through the system and a positive value indicates an increase in volume moving through the river.		