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4.7 FIGURES

This section contains all figures for Section 4 of the Modeling Technical Appendix.

Figure 4.1.1-1 Variation of monthly average salinity at Jersey Point with net Delta outflow in water years 1965 to 1998

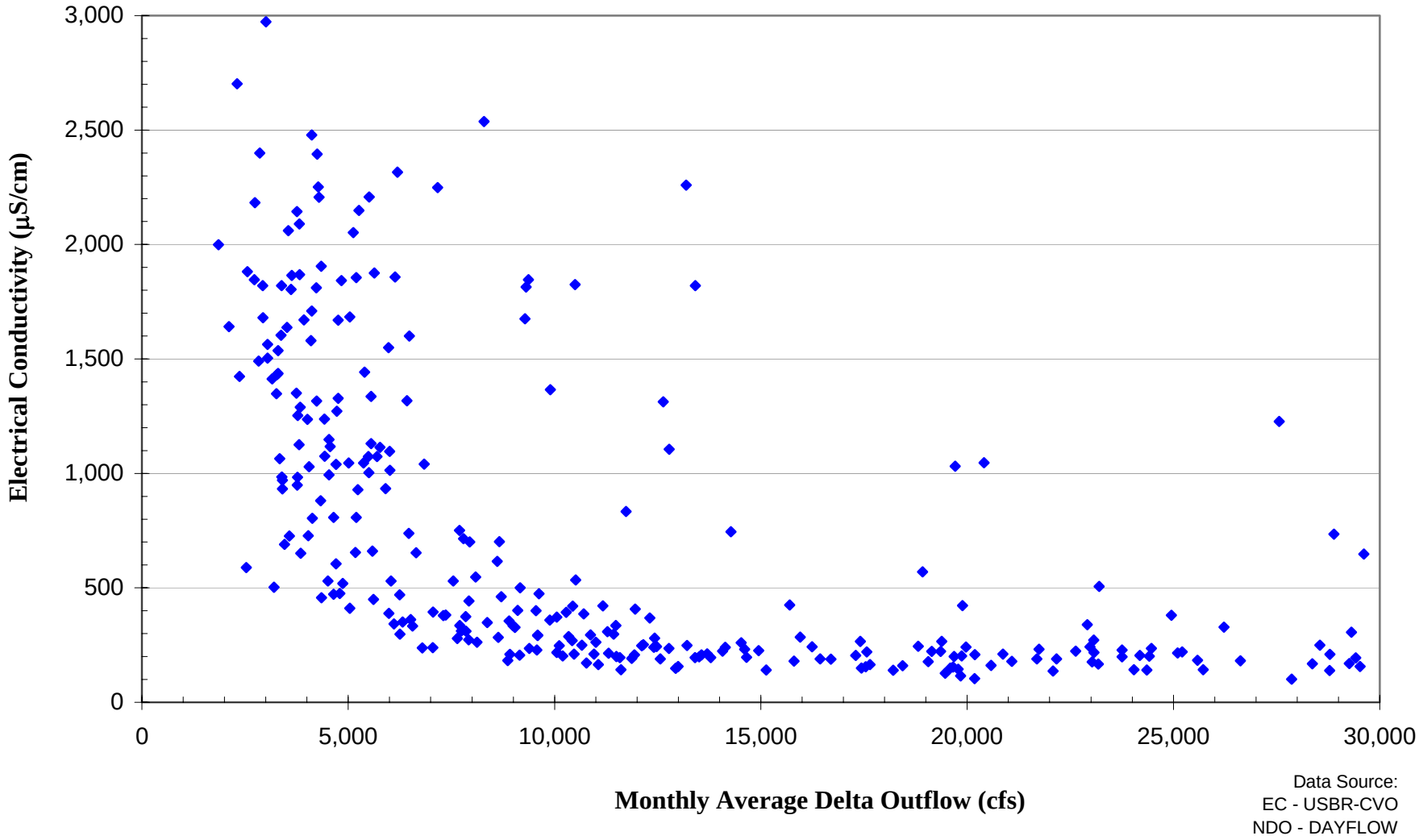


Figure 4.1.1-2 Variation of monthly average salinity at Jersey Point with antecedent Delta outflow (Denton, 1993) in water years 1965 to 1998

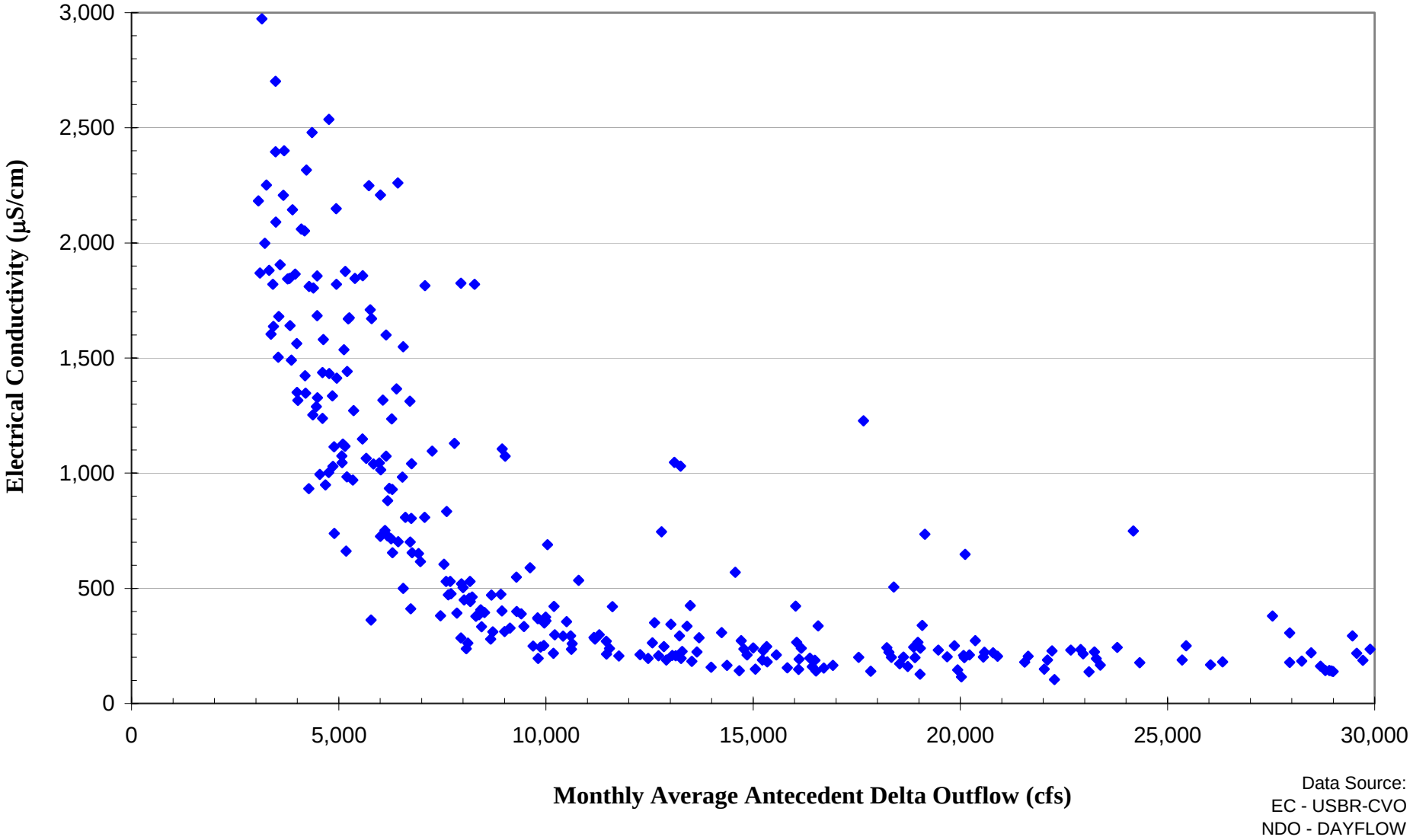


Figure 4.2.1-1 Variation of steady-state X2 location with Delta outflow based on the Kimmerer-Monismith Equation

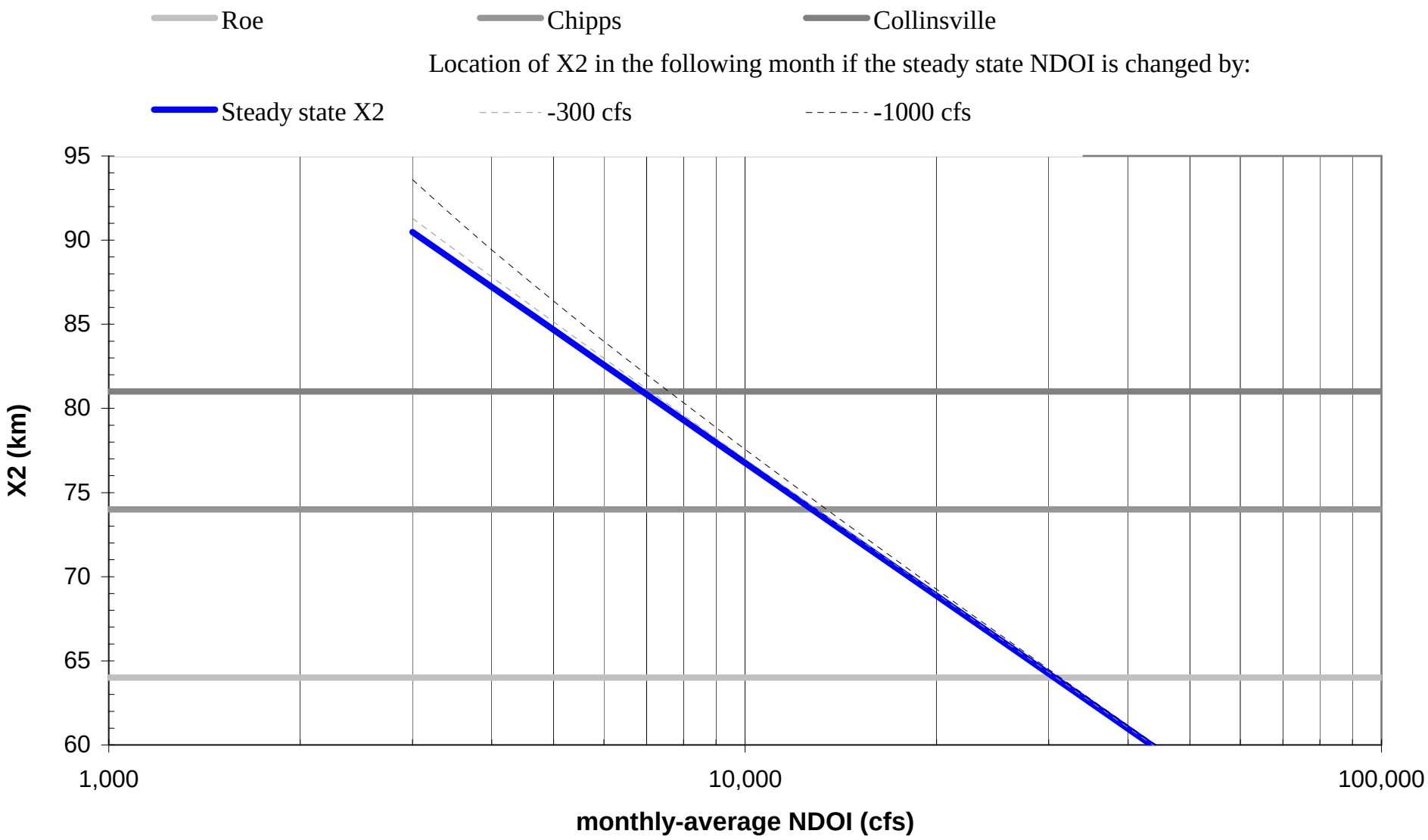


Figure 4.3.2.3-1a Simultaneous measurements of bromide and chloride concentration of water sample from Rock Slough collected between January 1990 and October 1994

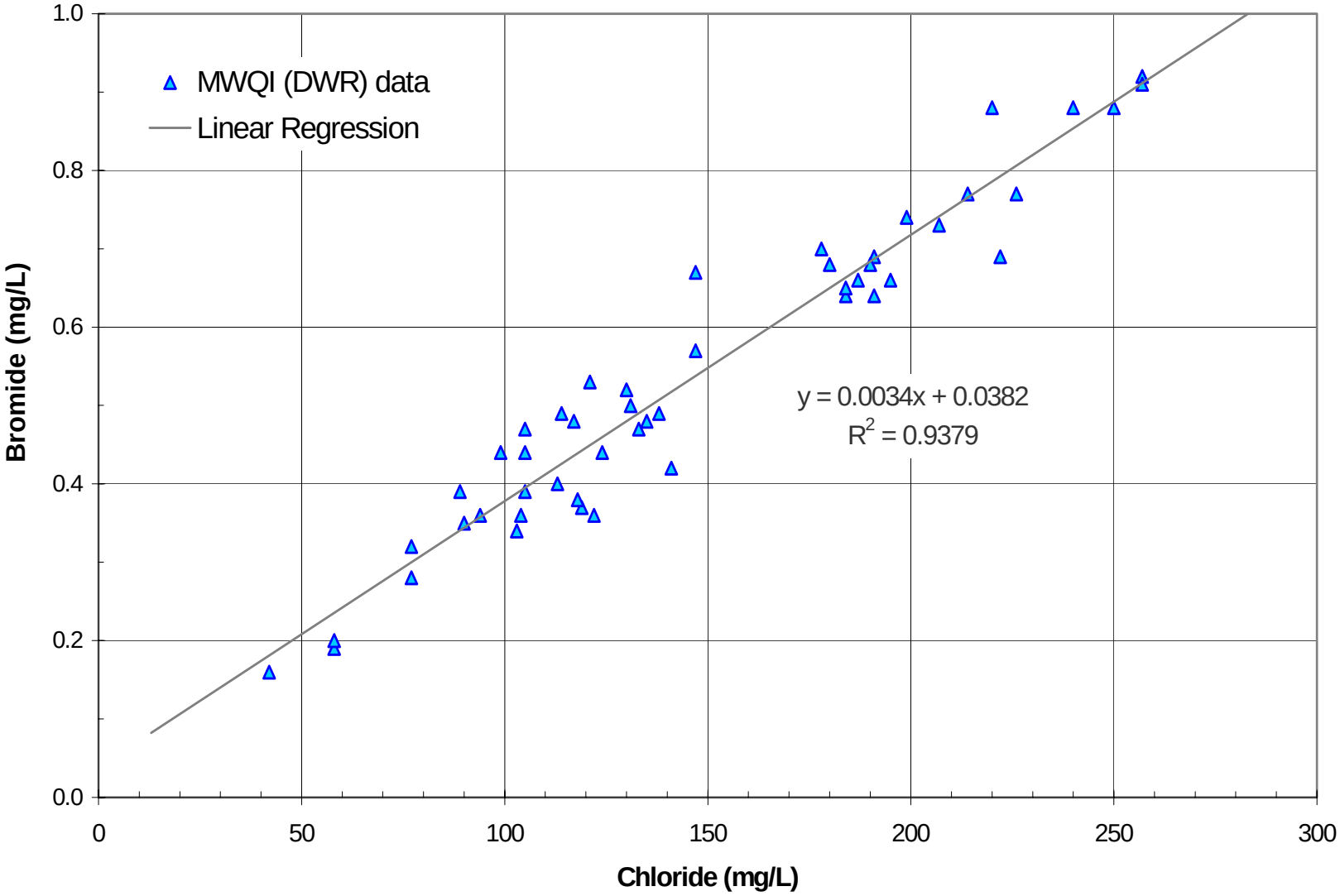


Figure 4.3.2.3-1b Simultaneous measurements of bromide concentration and electrical conductivity of water sample collected from Rock Slough between Jan 1990 and Oct 1994

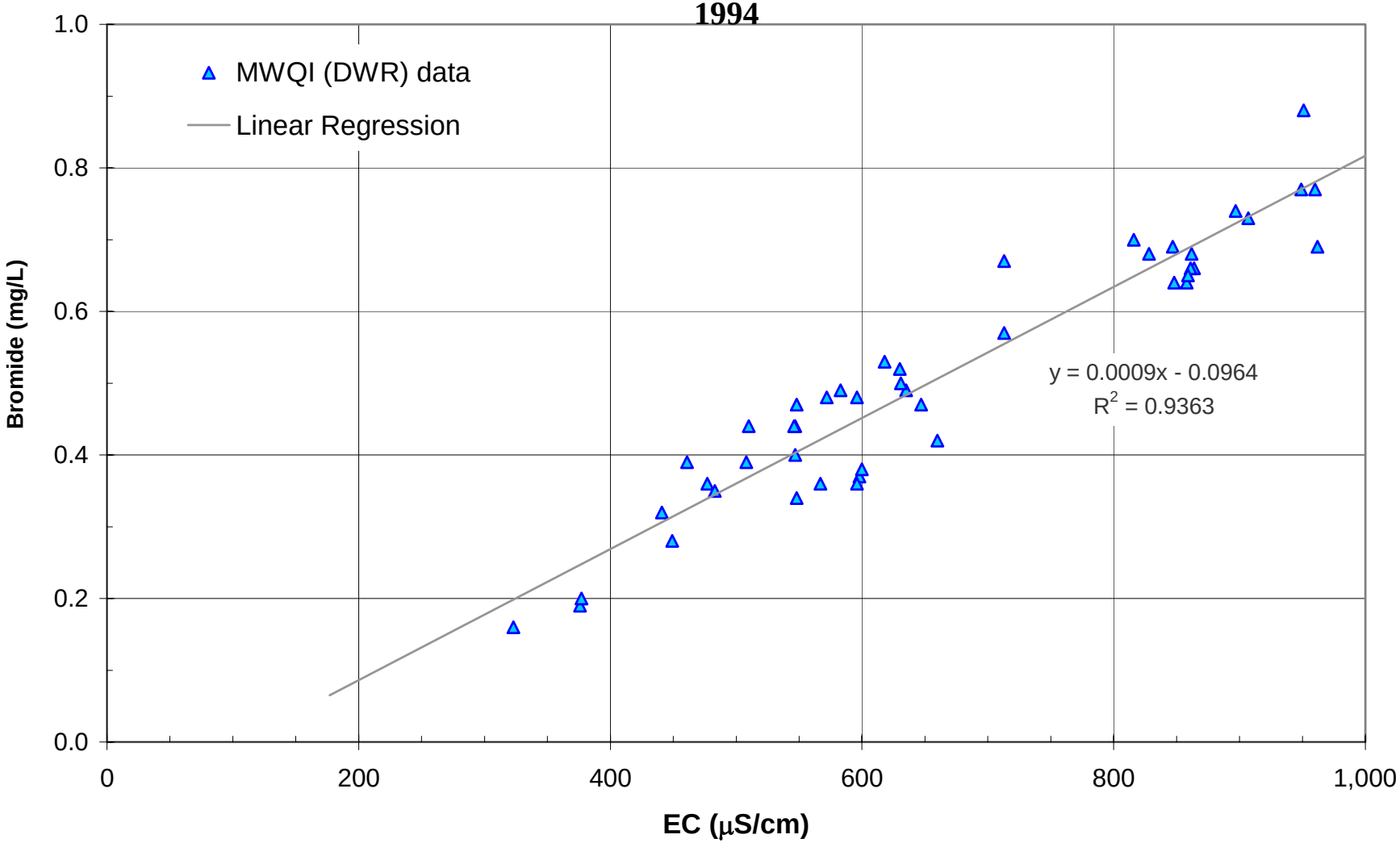


Figure 4.3.2.3-1c Simultaneous measurements of chloride concentration and electrical conductivity of water sample from Rock Slough collected between July 1983 and Oct 1994

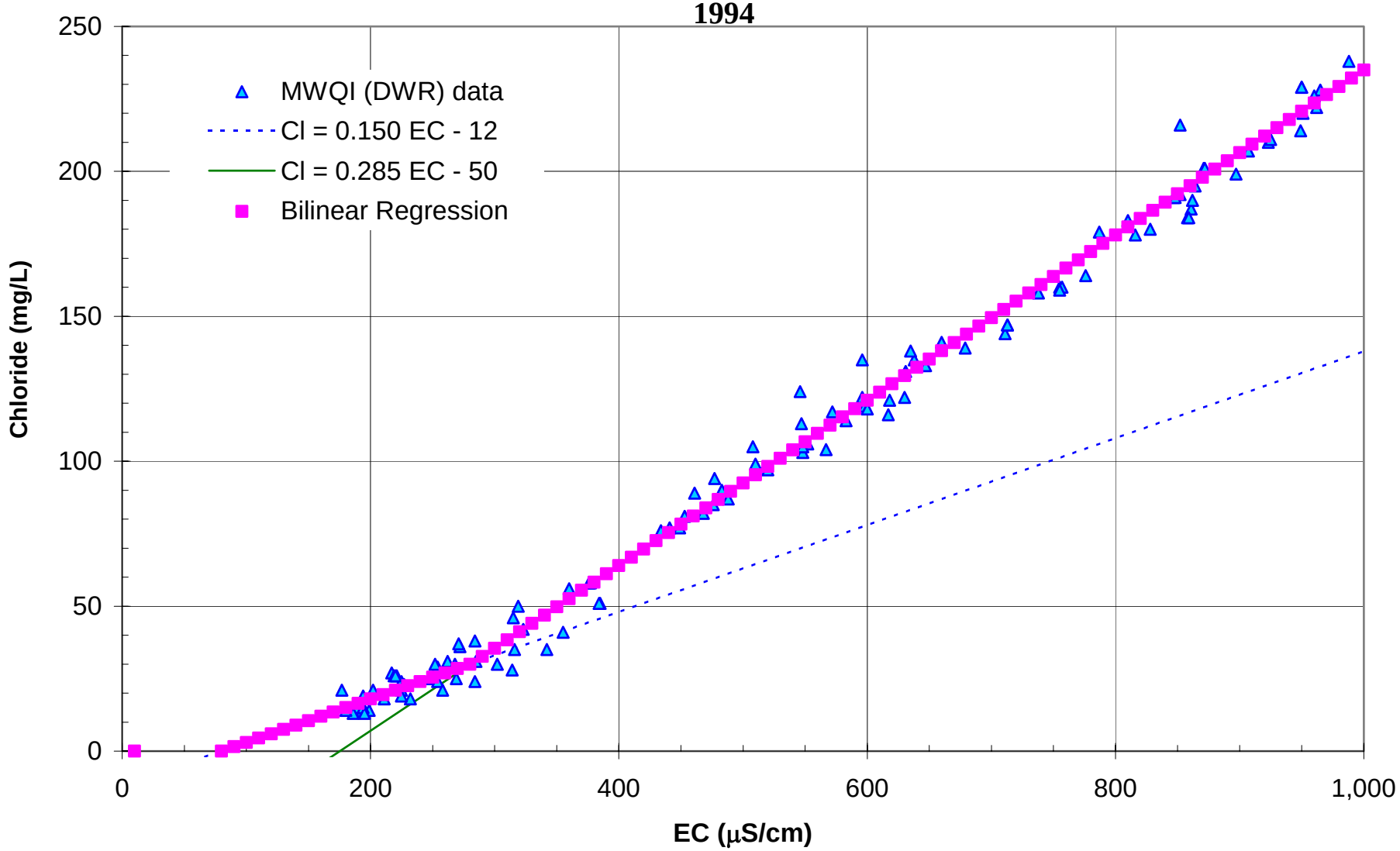


Figure 4.3.2.3-2a Simultaneous measurements of total dissolved solids and chloride concentration of water sample collected at Banks Pumping Plant between July 1986 and January 1995

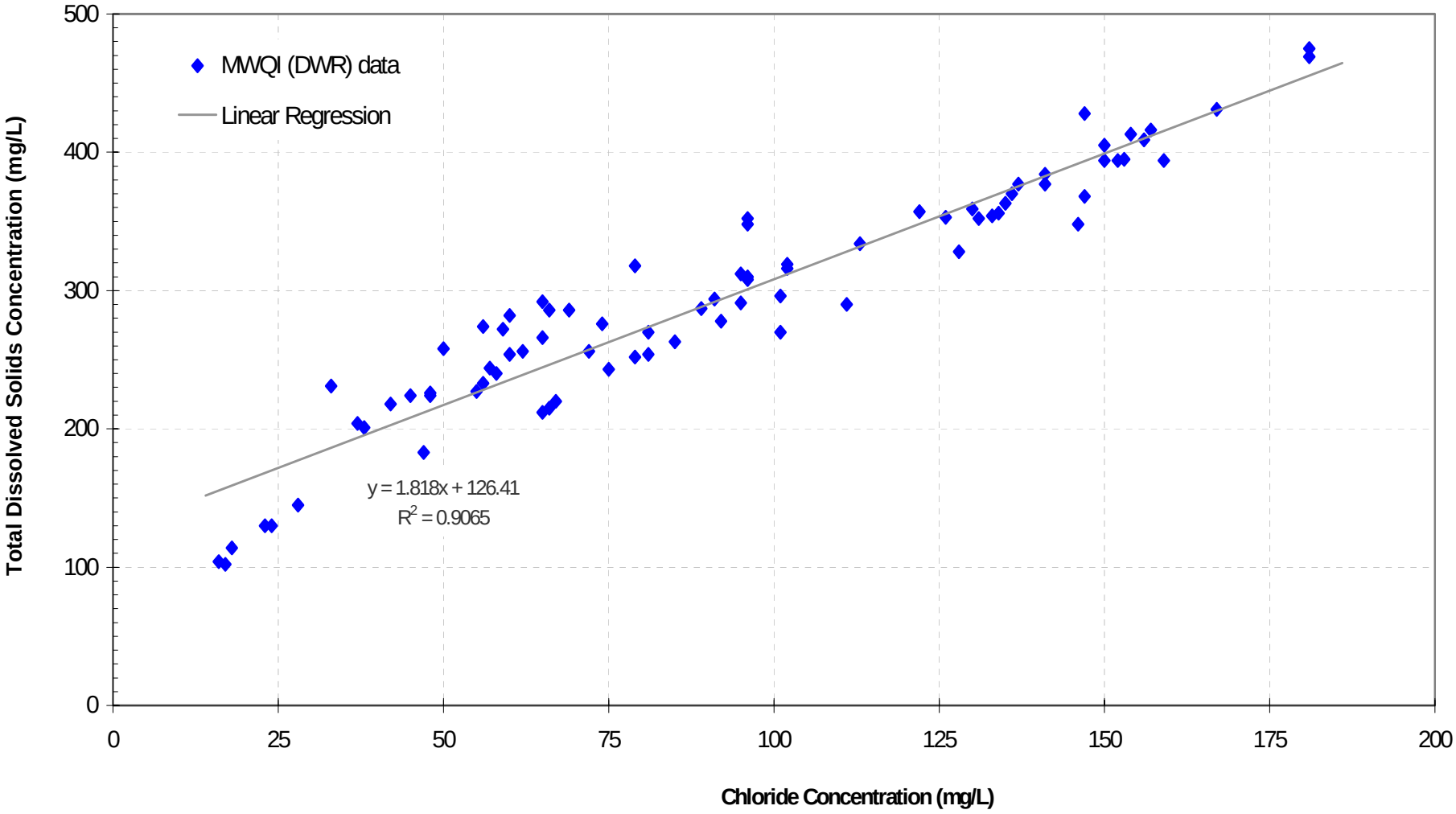


Figure 4.3.2.3-2b Simultaneous measurements of total dissolved solids concentration and electrical conductivity of water sample collected at Banks Pumping Plant between July 1986 and January 1995

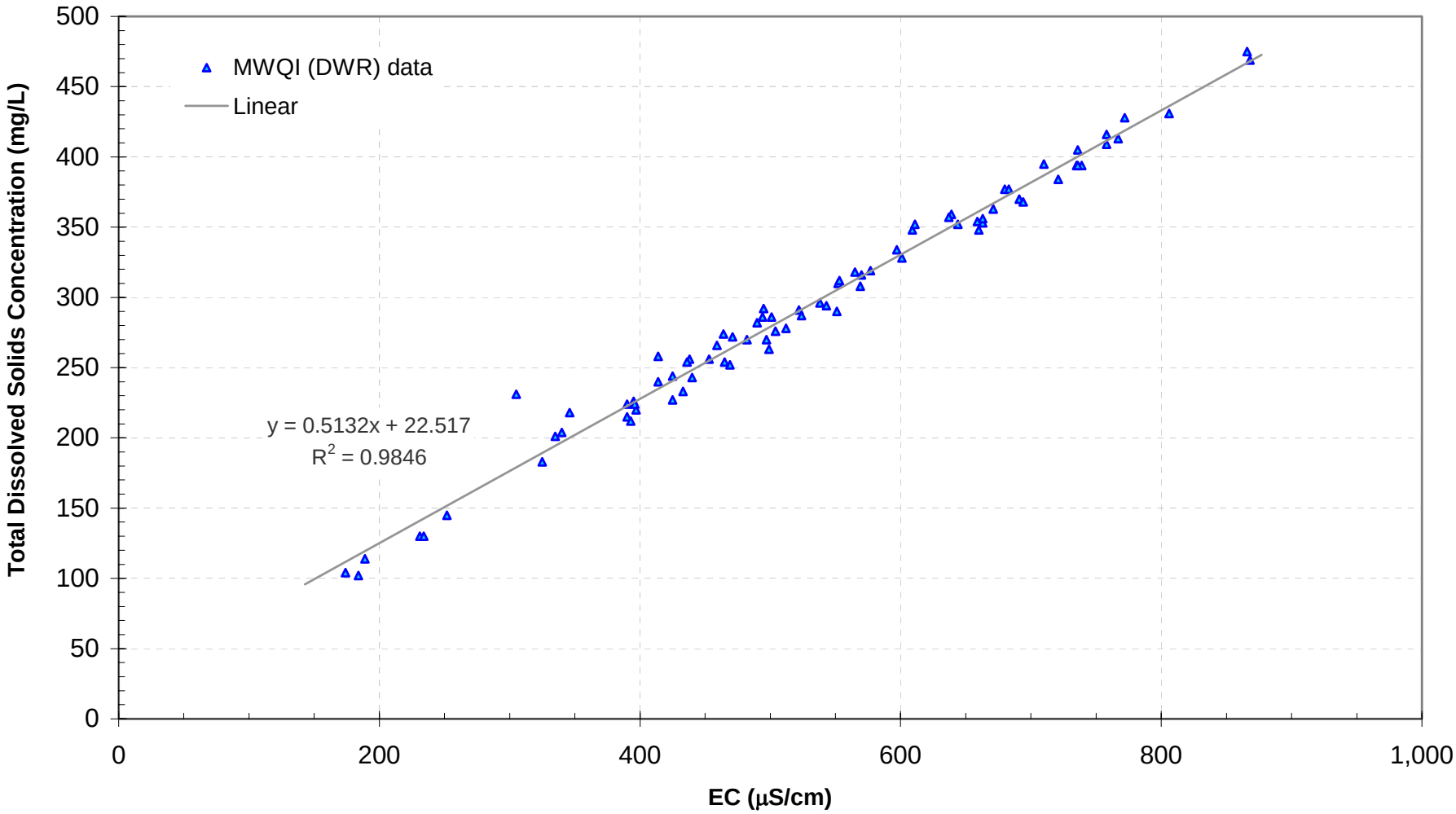


Figure 4.3.2.3-3 Simultaneous measurements of chloride concentration and electrical conductivity of water sample collected from Old River near the Los Vaqueros intake between March 1989 and January 1998

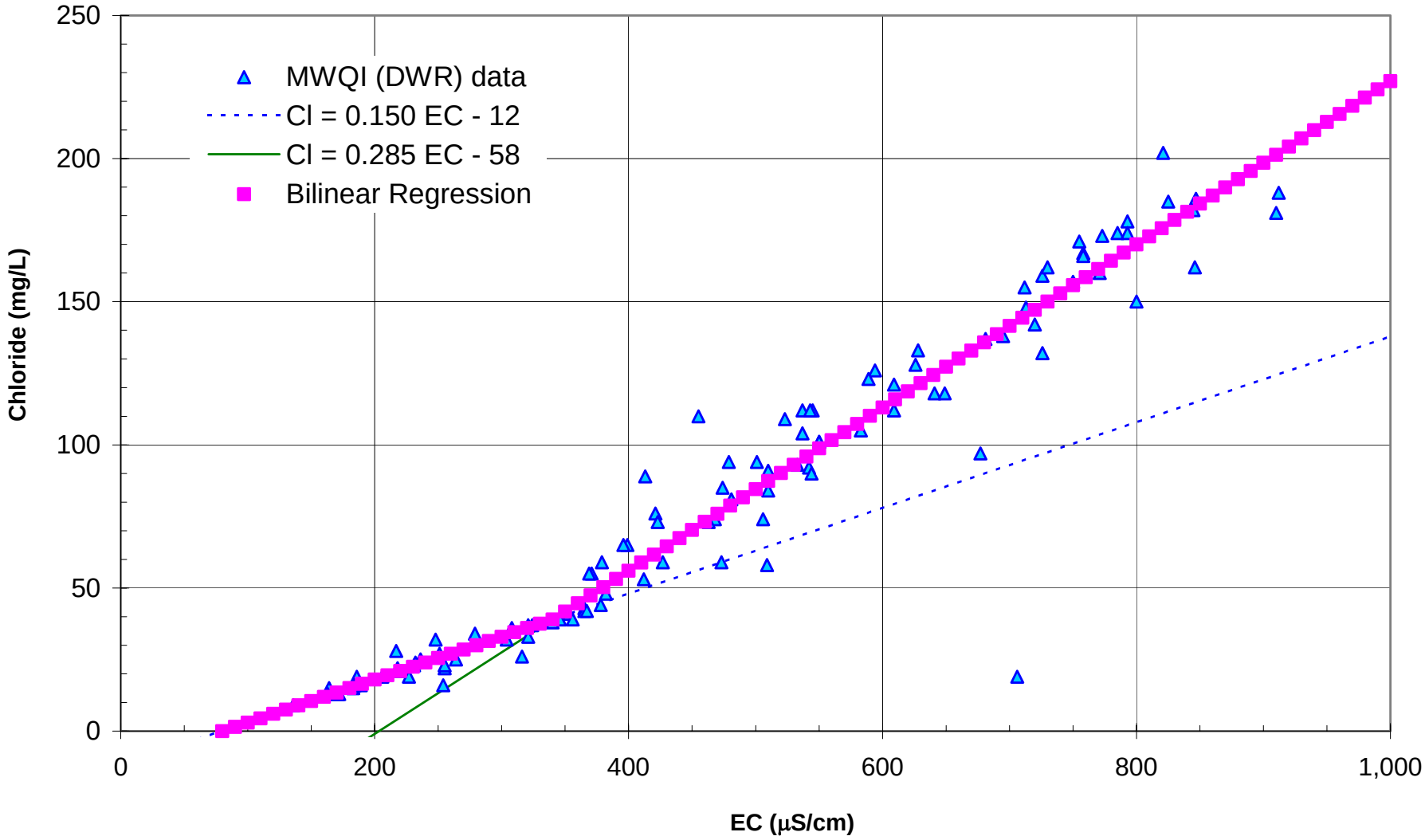


Figure 4.4.1-1a Simulated monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2001 LOD

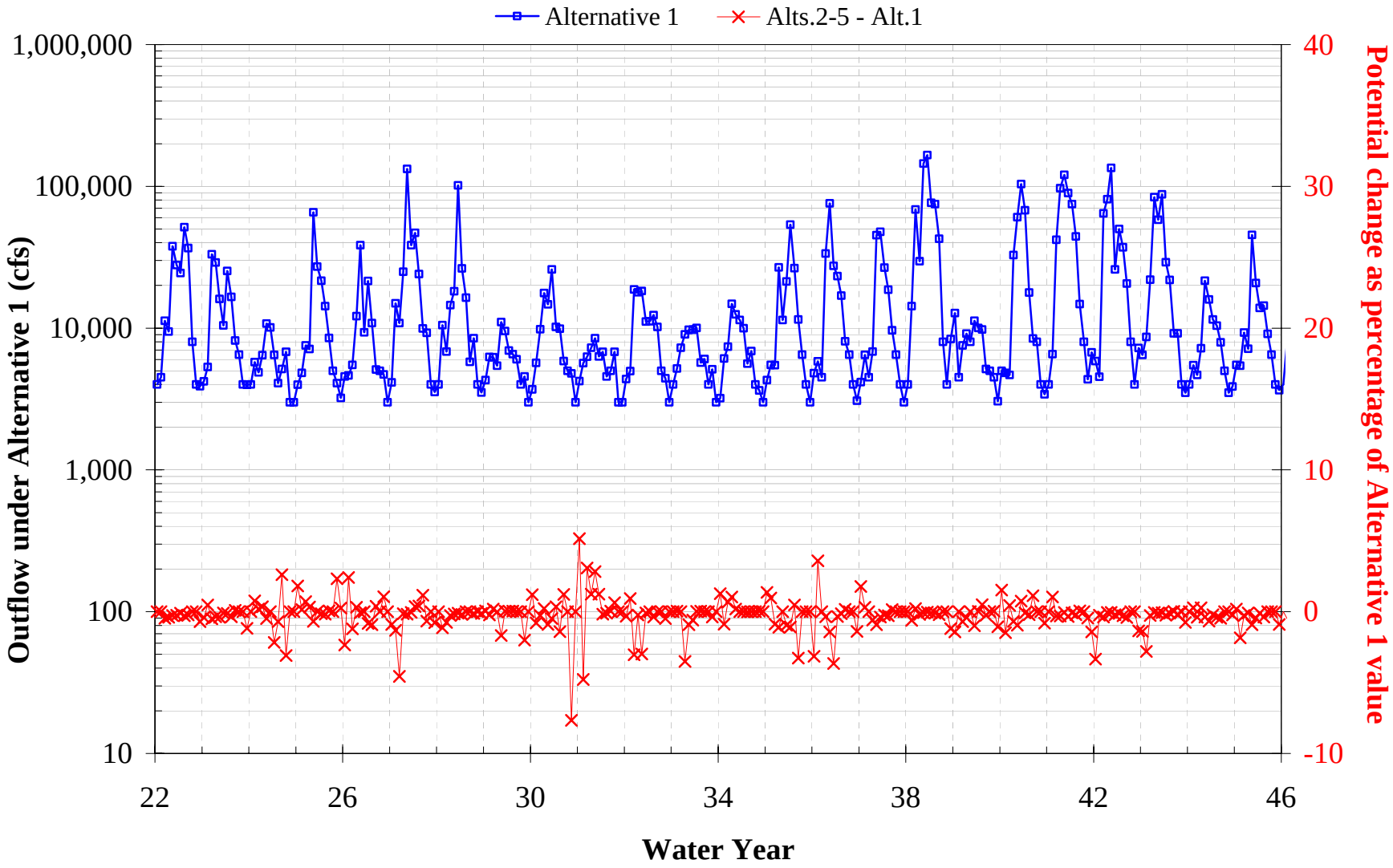


Figure 4.4.1-1b Simulated monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2001 LOD

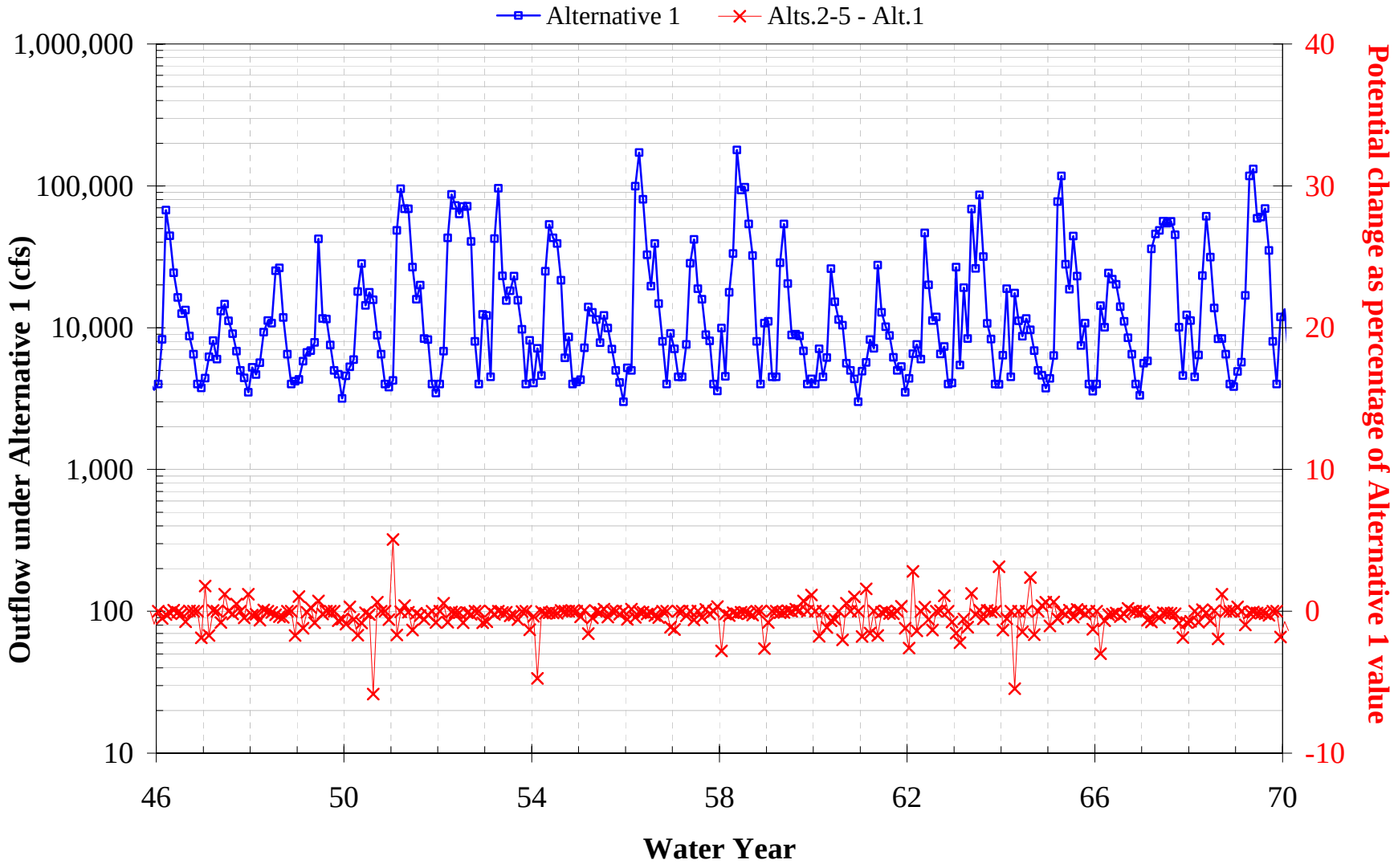
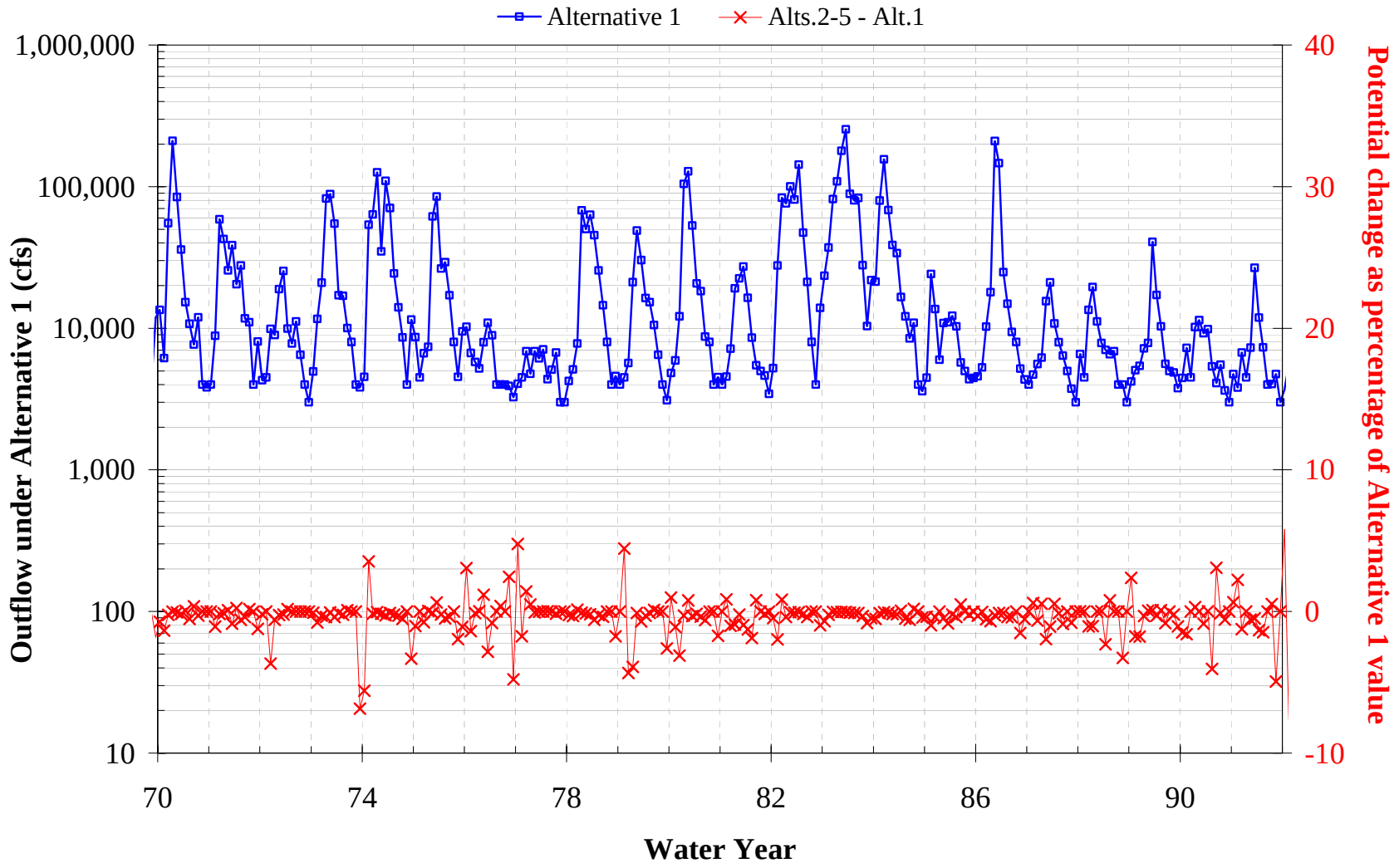


Figure 4.4.1-1c Simulated monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2001 LOD



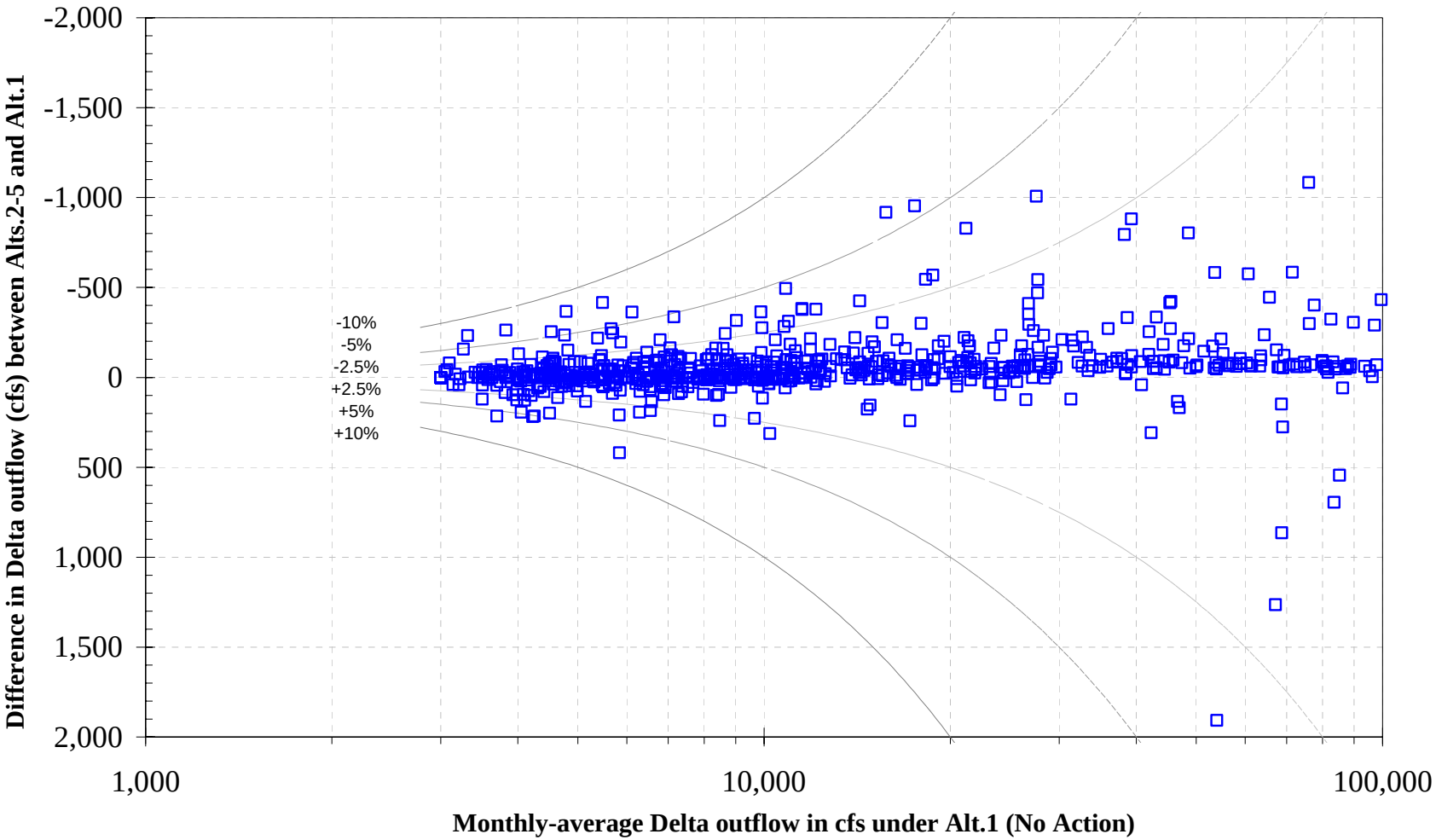


Figure 4.4.1-2 Potential changes in monthly-average Delta outflow at 2001 LOD under Alternatives 2-5

For each data point (indicated by a square), the x-value is the outflow corresponding to the CALSIM output under Alt.1 for a particular month, and the y-value (shown on the left-hand-side axis) corresponds to the difference in simulated outflow between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no effects on outflow in that month (that is, Alt.1 and Alts.2-5 have same outflow). A positive y-value would indicate an increase in outflow under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points below the y=0 line and the number above gives the frequencies the project increases and decreases outflow. (Note that the y-axis has a decreasing scale.) The solid lines represent the limits for differences of ±2.5%, ±5%, and ±10% of Alt.1 outflow.

Figure 4.4.1-3a Simulated monthly-average electrical conductivity at Martinez and potential changes under Alternatives 2-5 at 2001 LOD

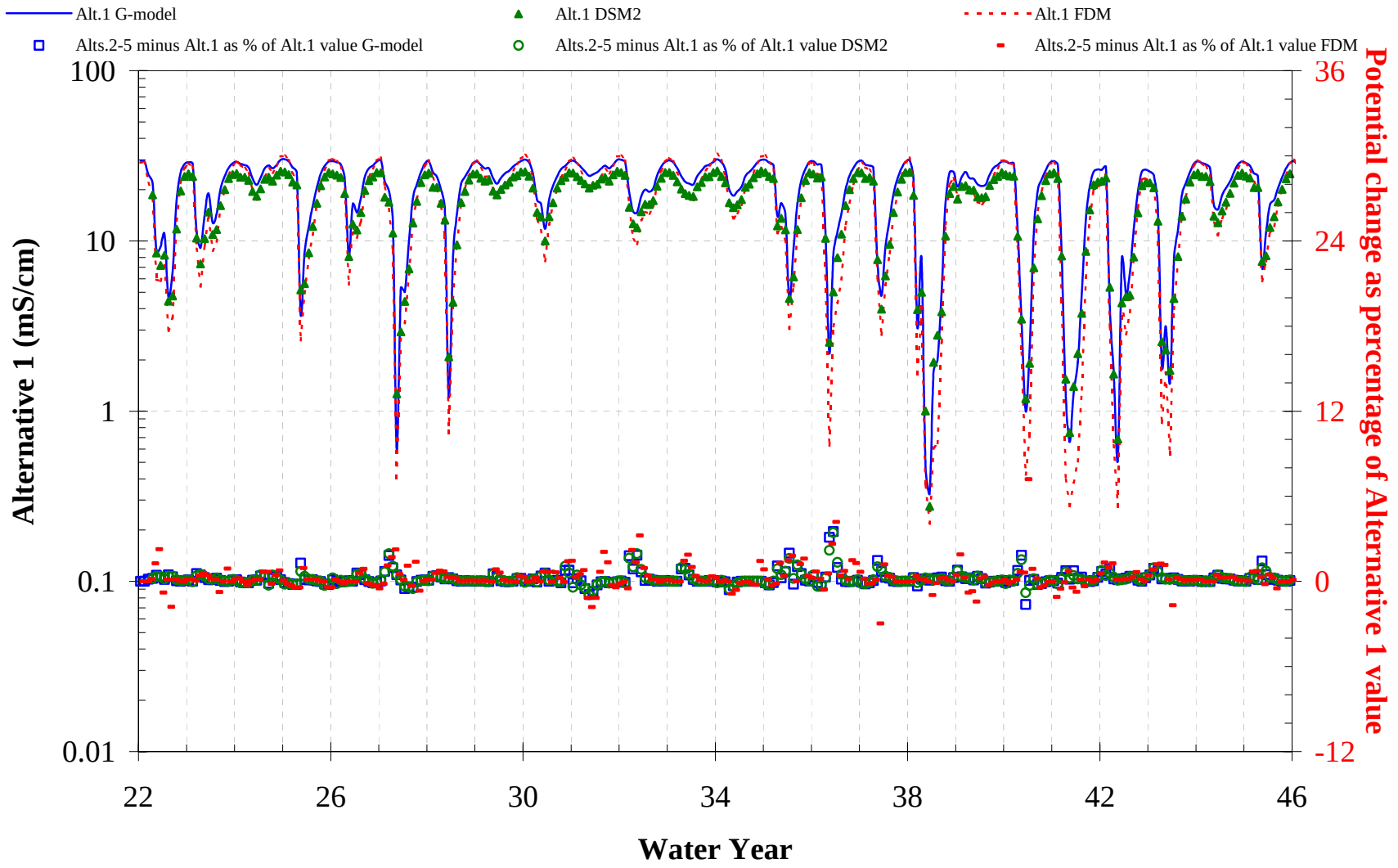


Figure 4.4.1-3b Simulated monthly-average electrical conductivity at Martinez and potential changes under Alternatives 2-5 at 2001 LOD

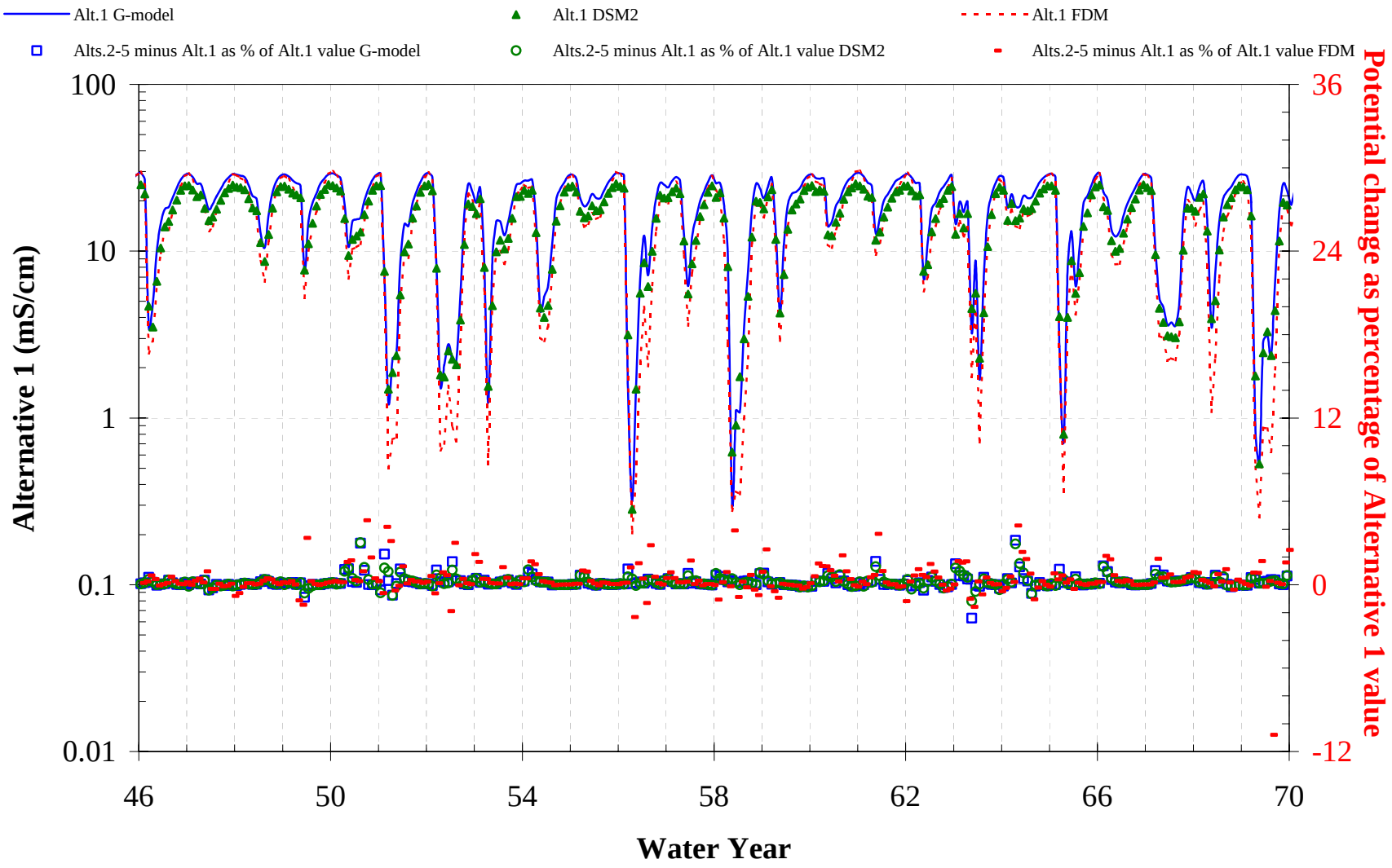
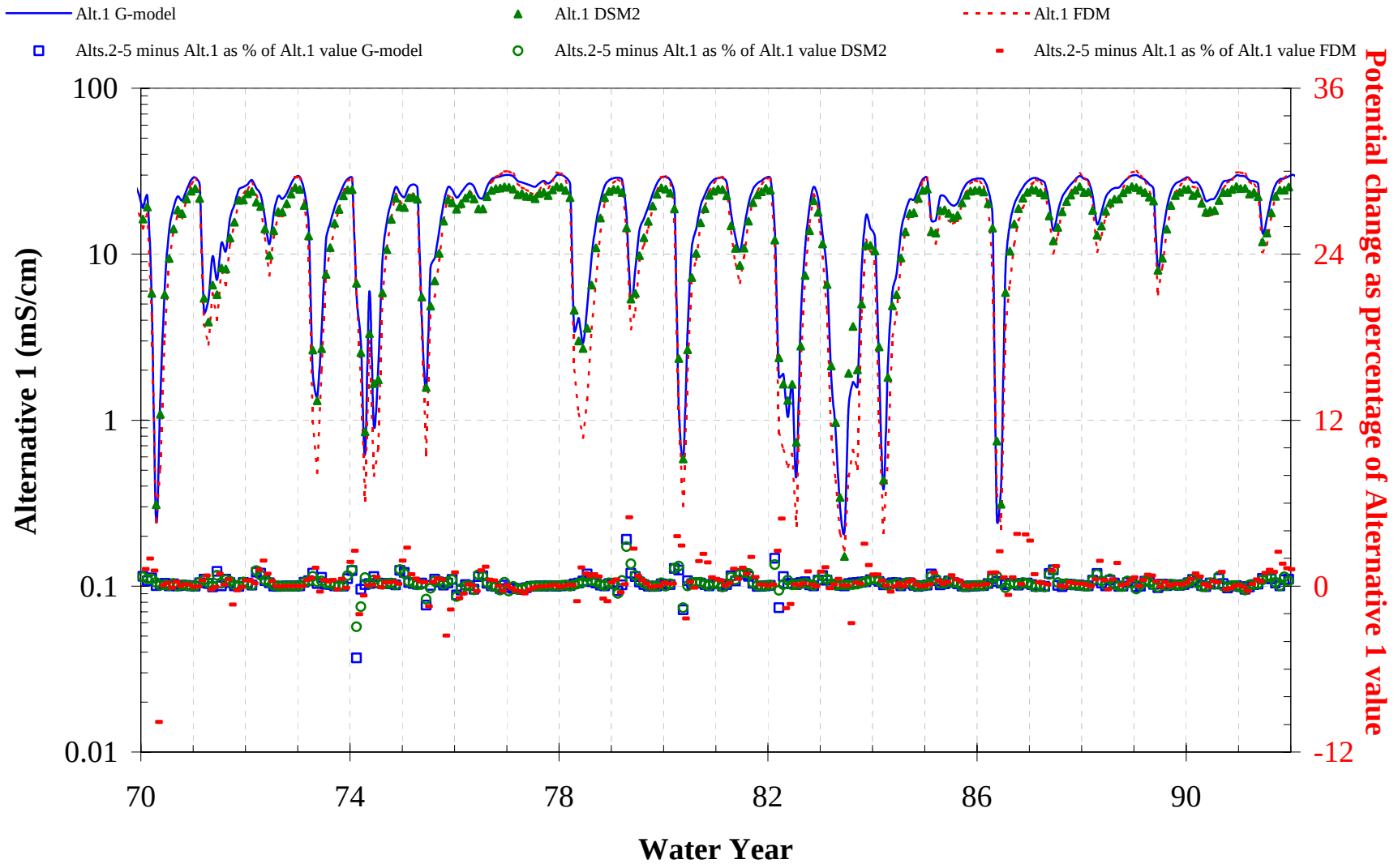


Figure 4.4.1-3c Simulated monthly-average electrical conductivity at Martinez and potential changes under Alternatives 2-5 at 2001 LOD



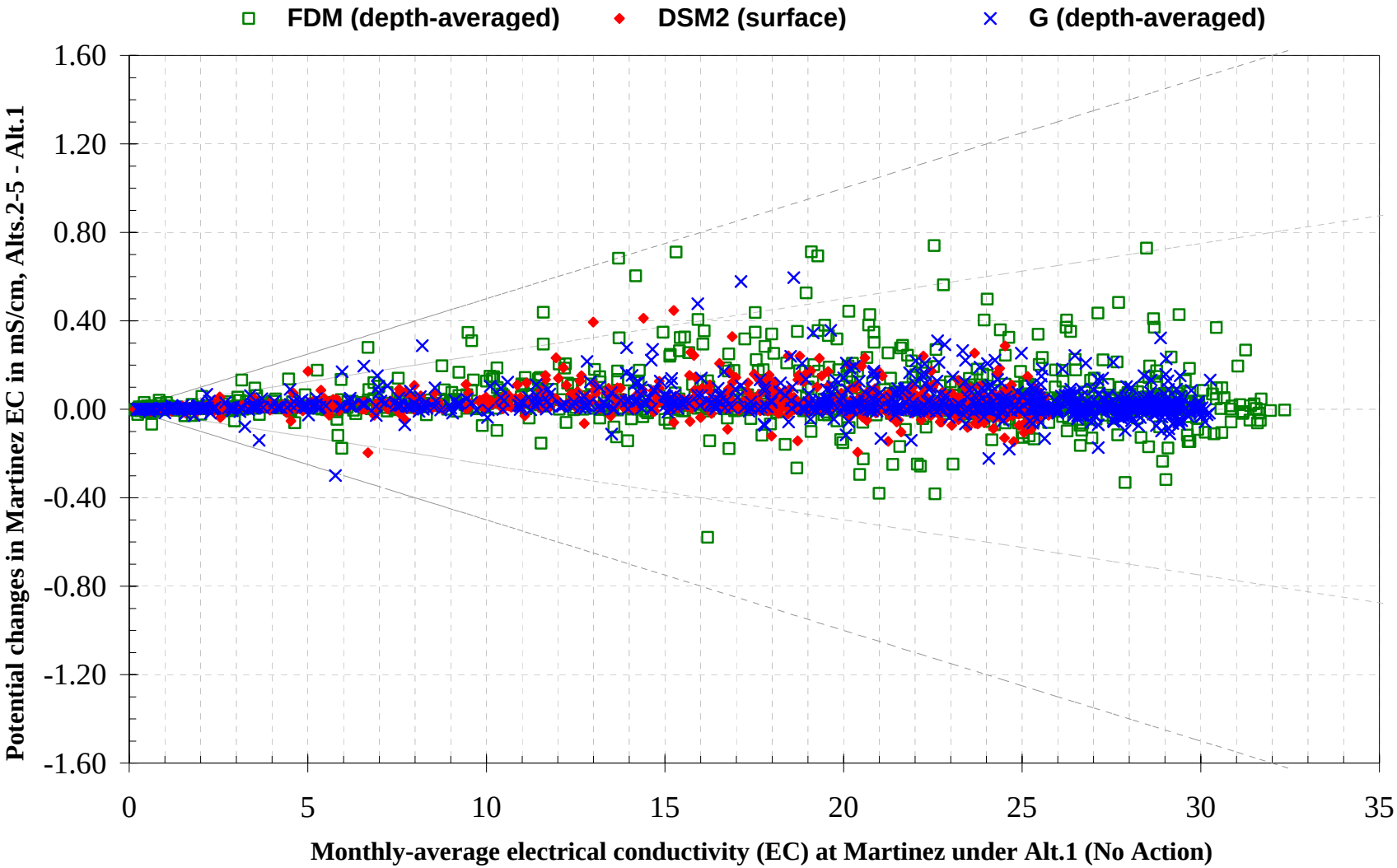


Figure 4.4.1-4 Potential changes in monthly-average salinity at Martinez under Alternatives 2-5 at 2001 LOD

For each data point, the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line (the line where the y-values are zero) indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alts.2-5 have same salinity). A positive y-value would indicate an increase in salinity under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases outflow. The solid lines represent the limits for impacts to be within ±2.5% and ±5% of Alt.1 value.

Figure 4.4.1.5.a Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2001 LoD

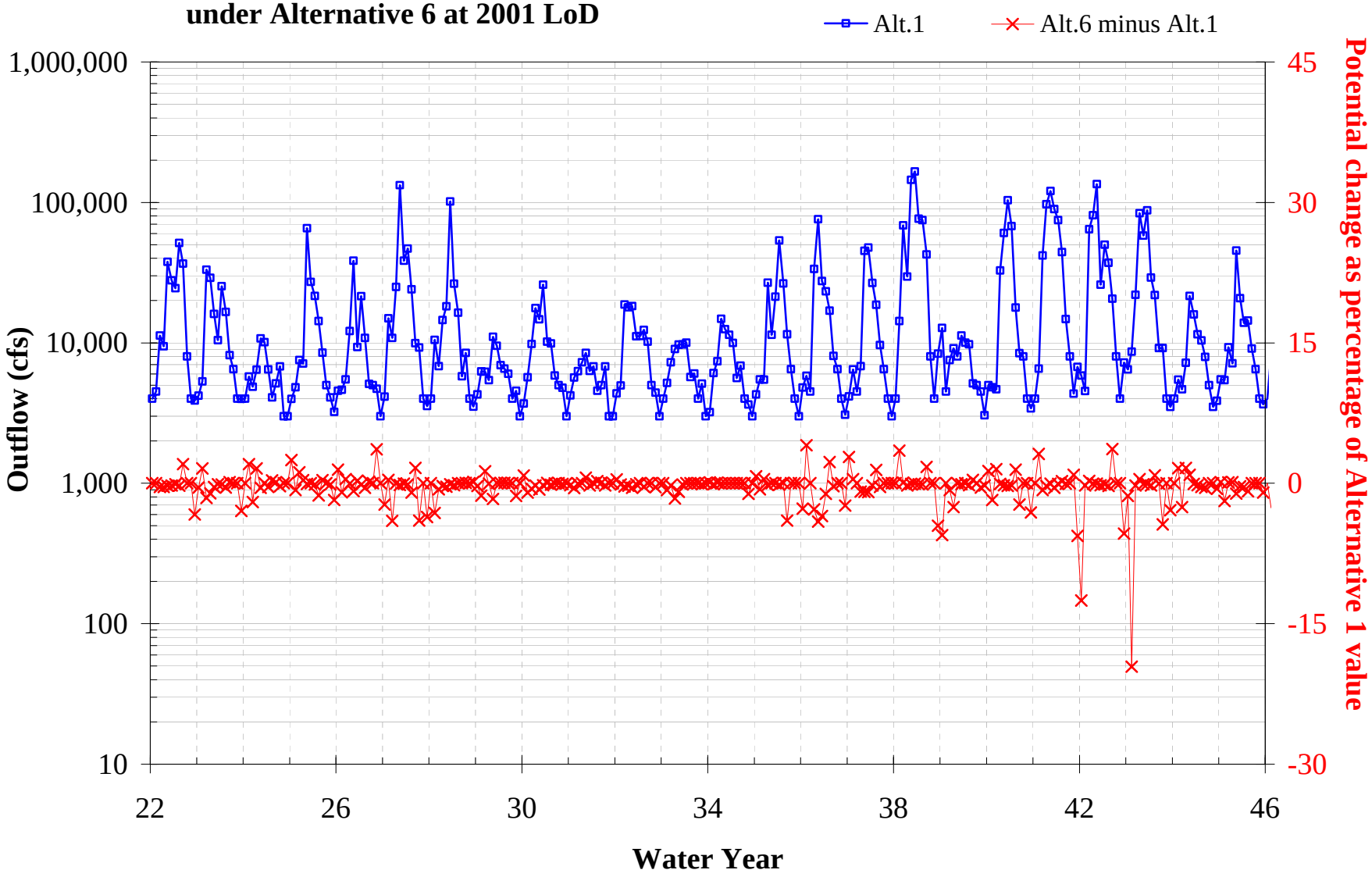


Figure 4.4.1.5.b Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2001 LoD

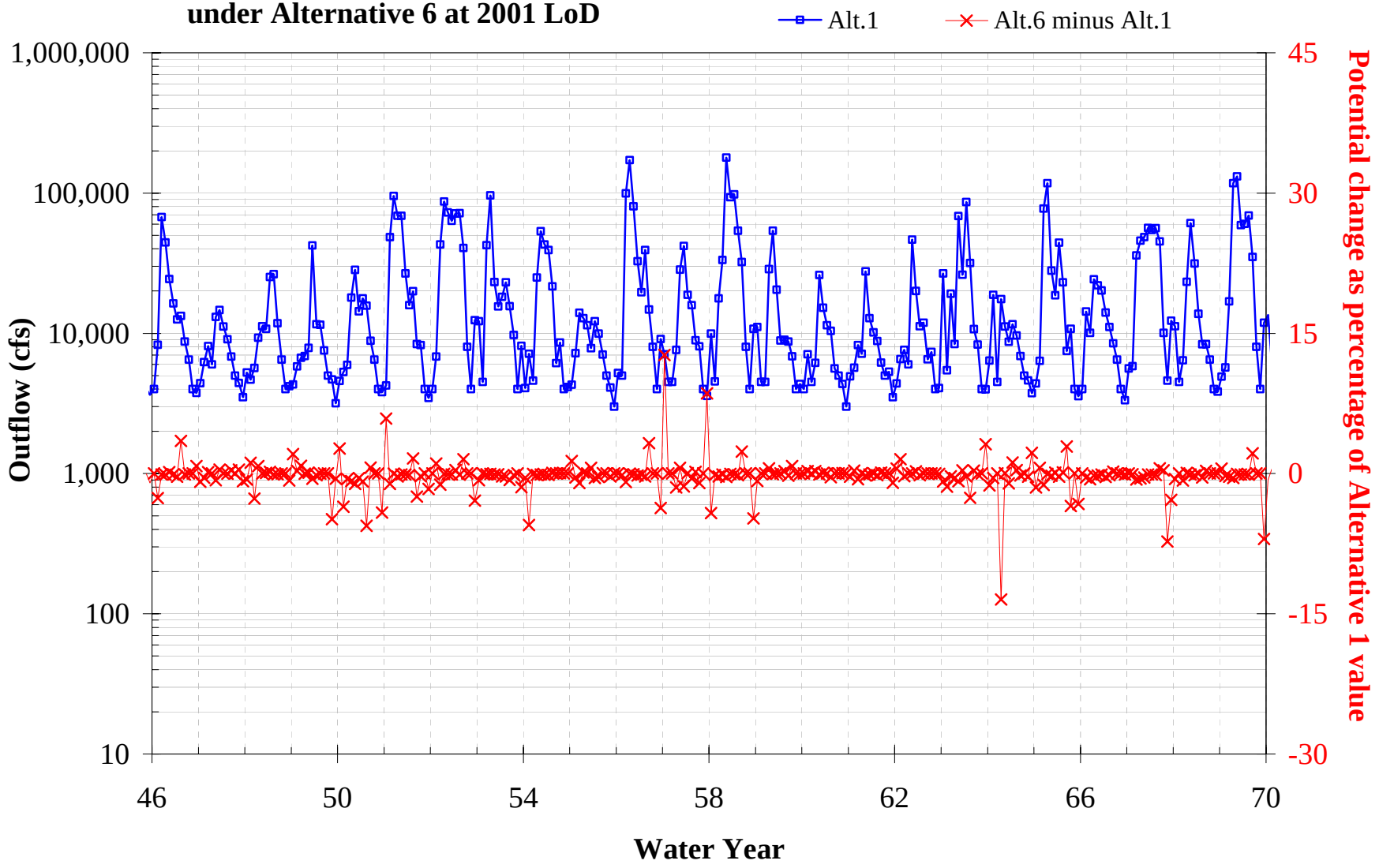
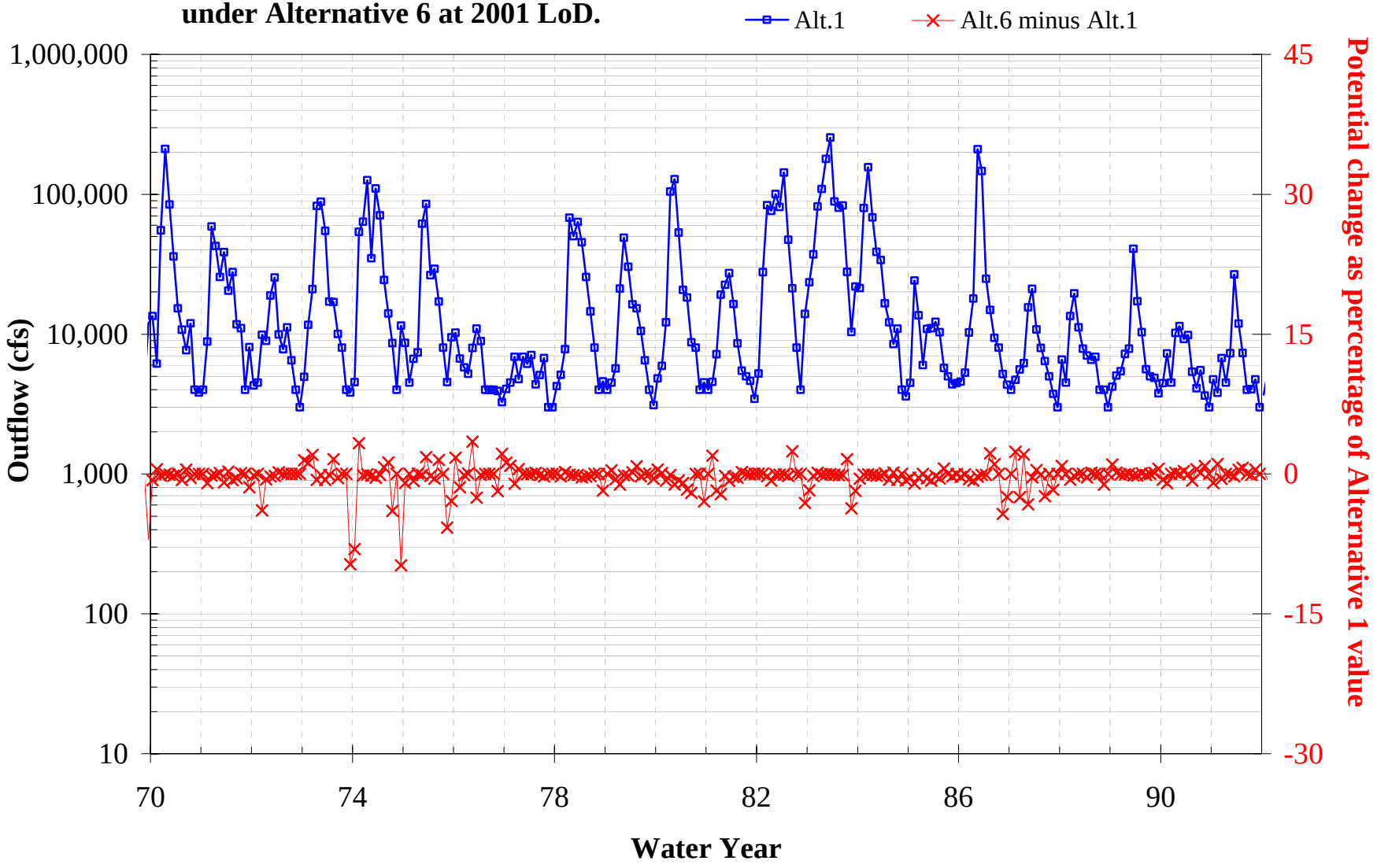


Figure 4.4.1.5.c. Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2001 LoD.



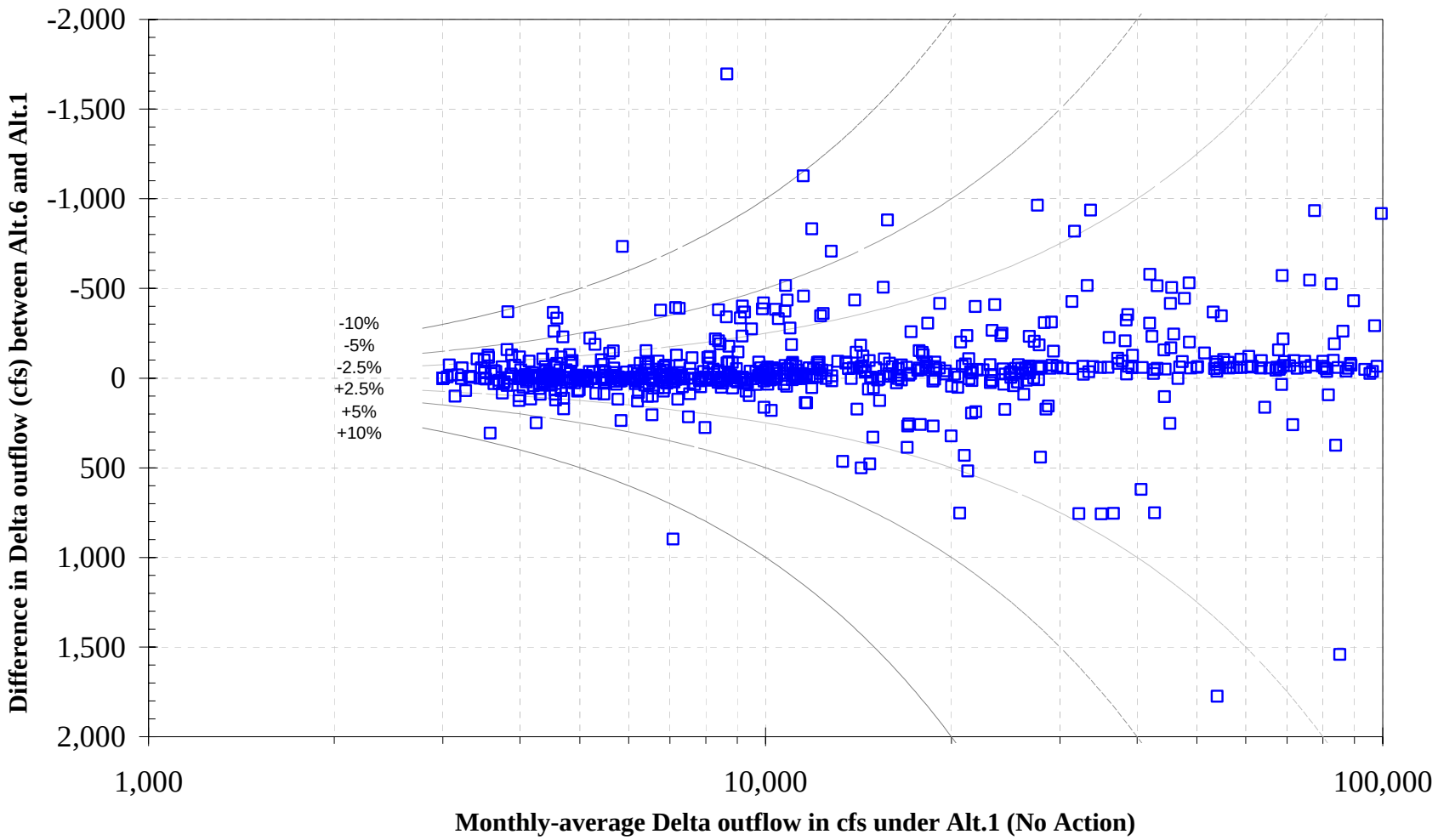


Figure 4.4.1-6 Potential changes in monthly-average Delta outflow at 2001 LOD under Alternative 6

For each data point (indicated by a square), the x-value is the outflow corresponding to the CALSIM output under Alt.1 for a particular month, and the y-value (shown on the left-hand-side axis) corresponds to the difference in simulated outflow between Alt.6 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no effects on outflow in that month (that is, Alt.1 and Alt.6 have same outflow). A positive y-value would indicate an increase in outflow under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points below the y=0 line and the number above gives the frequencies the project increases and decreases outflow. (Note that the y-axis has a decreasing scale.) The solid lines represent the limits for differences of ±2.5%, ±5%, and ±10% of Alt.1 outflow.

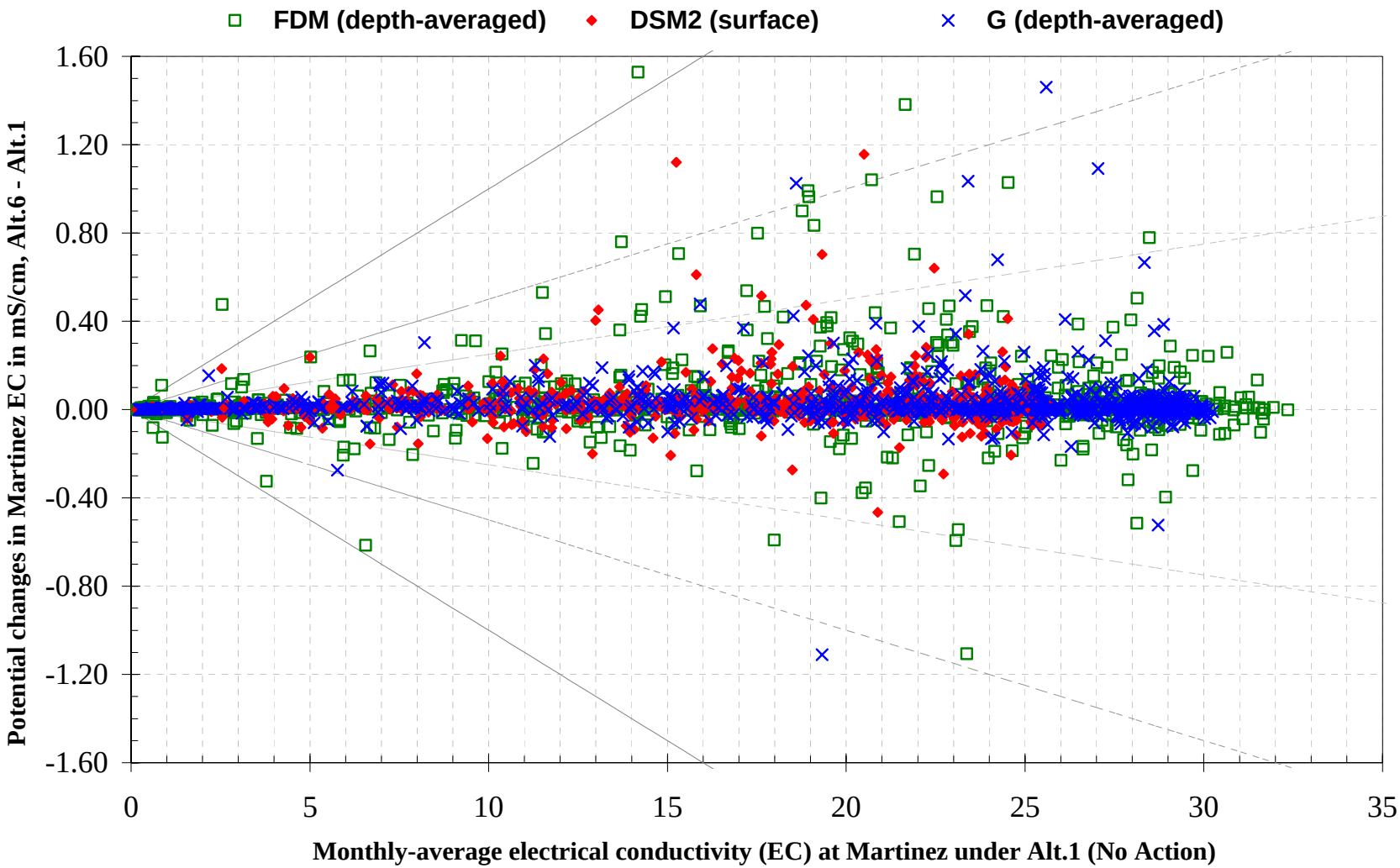


Figure 4.4.1-7 Potential changes in monthly-average salinity at Martinez under Alternative 6 at 2001 LOD

For each data point, the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alt.6 and Alt.1 for the same month. All data points on the horizontal line (the line where the y-values are zero) indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alt.6 have same salinity). A positive y-value would indicate an increase in salinity under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases outflow. The solid lines represent the limits for impacts to be within ±2.5%, ±5% and ±10% of Alt.1 value.

Figure 4.4.1-8a Monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2020 LoD

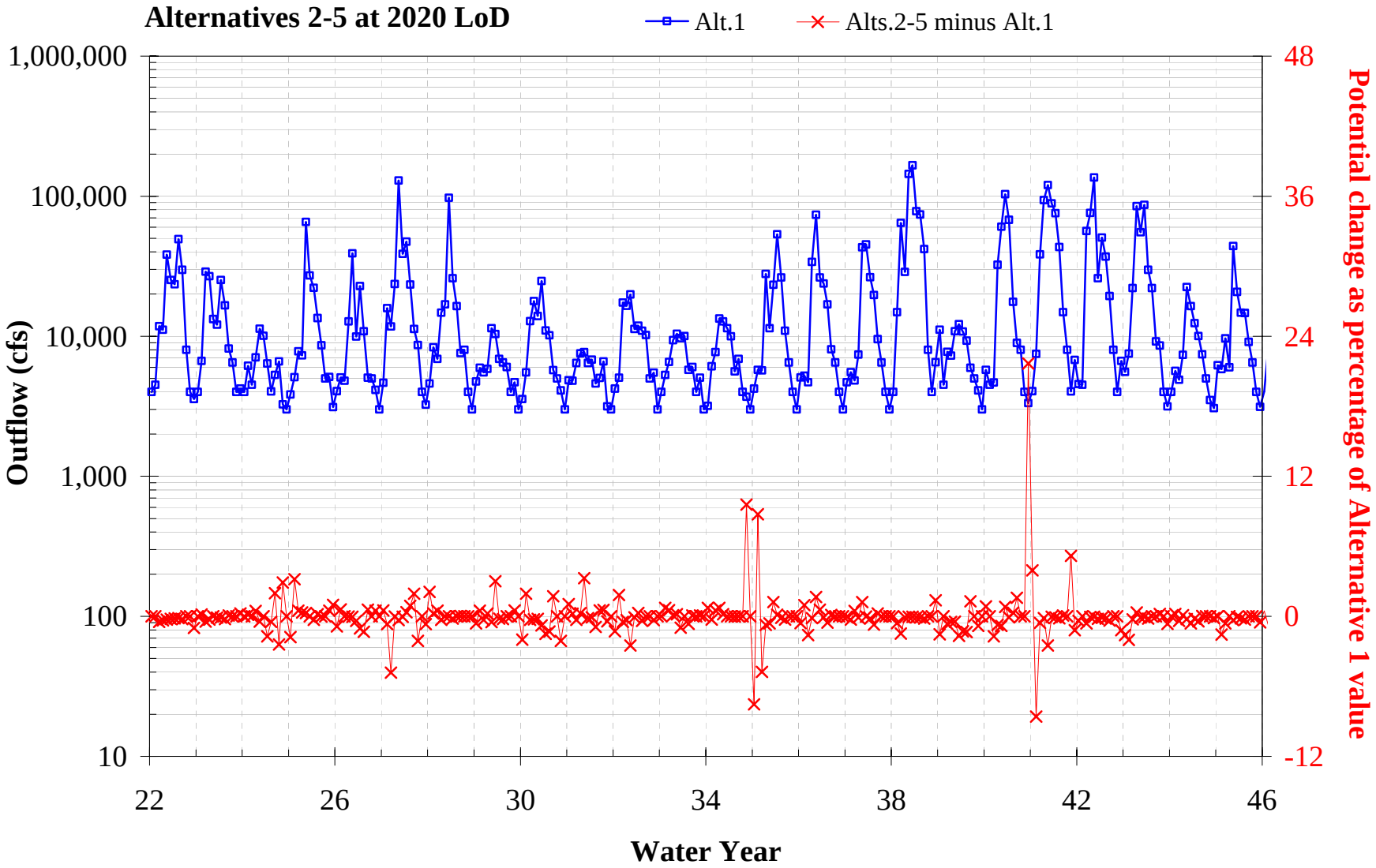


Figure 4.4.1-8b Monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2020 LoD

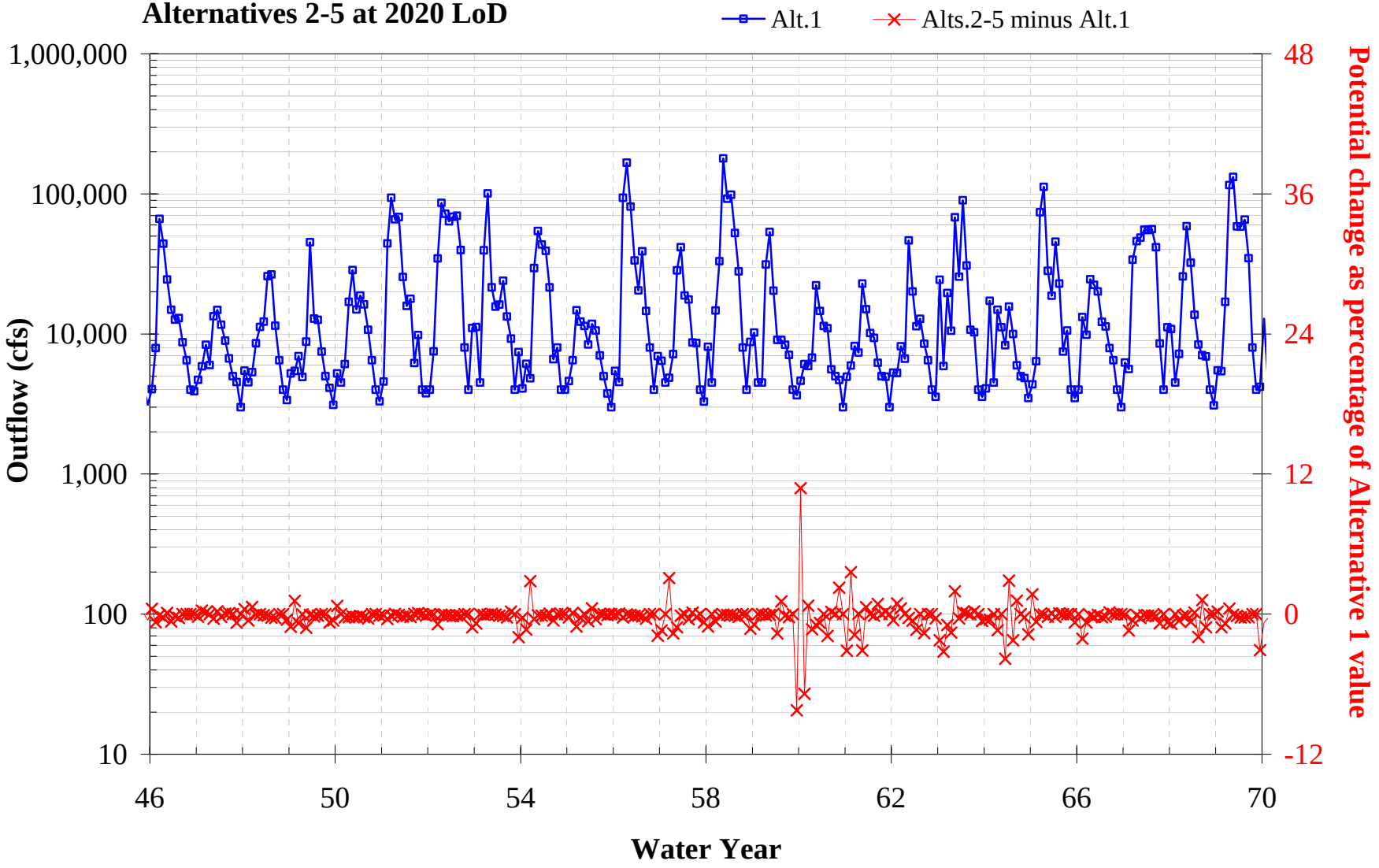
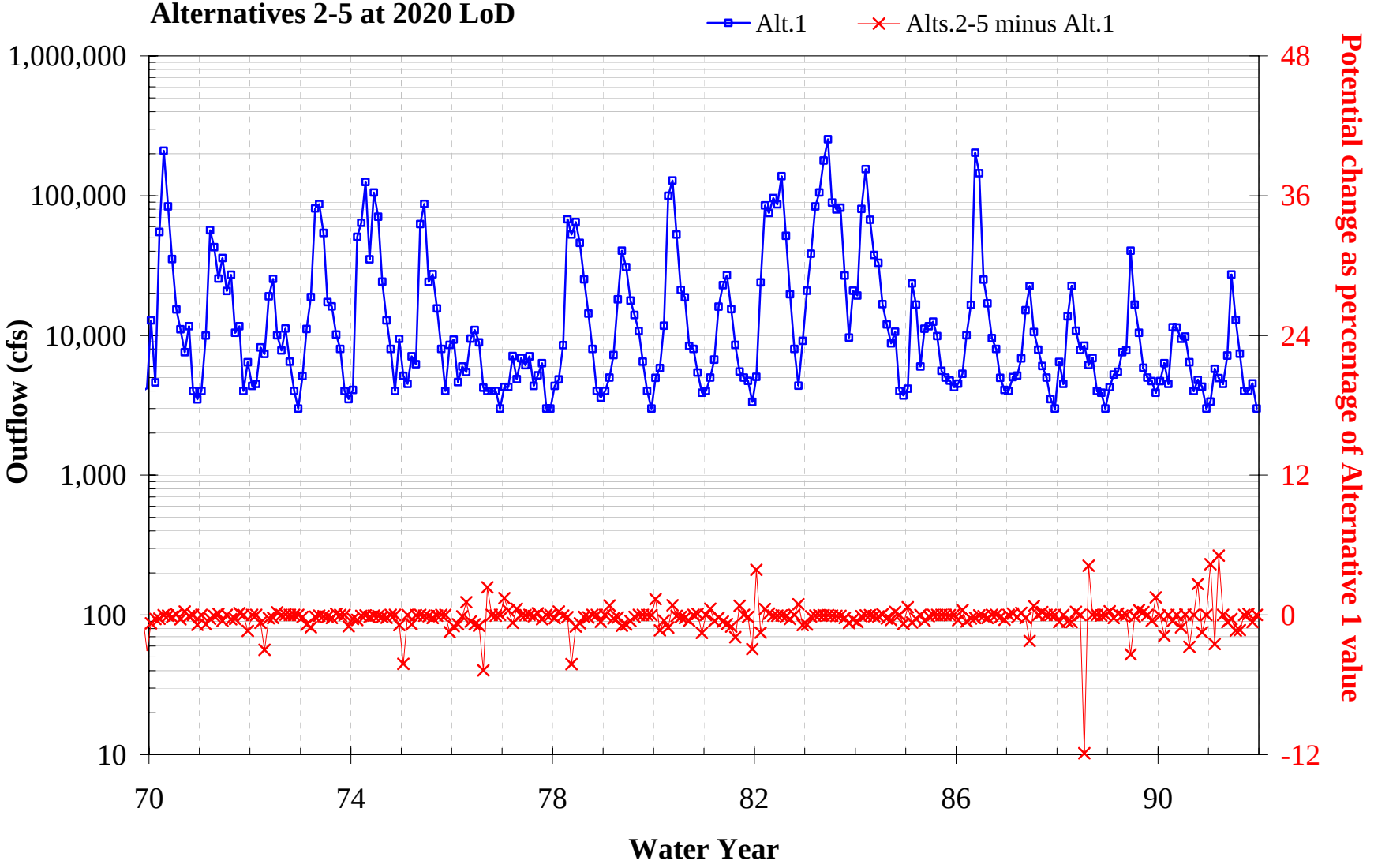


Figure 4.4.1-8c Monthly-average Delta outflow at Martinez and potential changes under Alternatives 2-5 at 2020 LoD



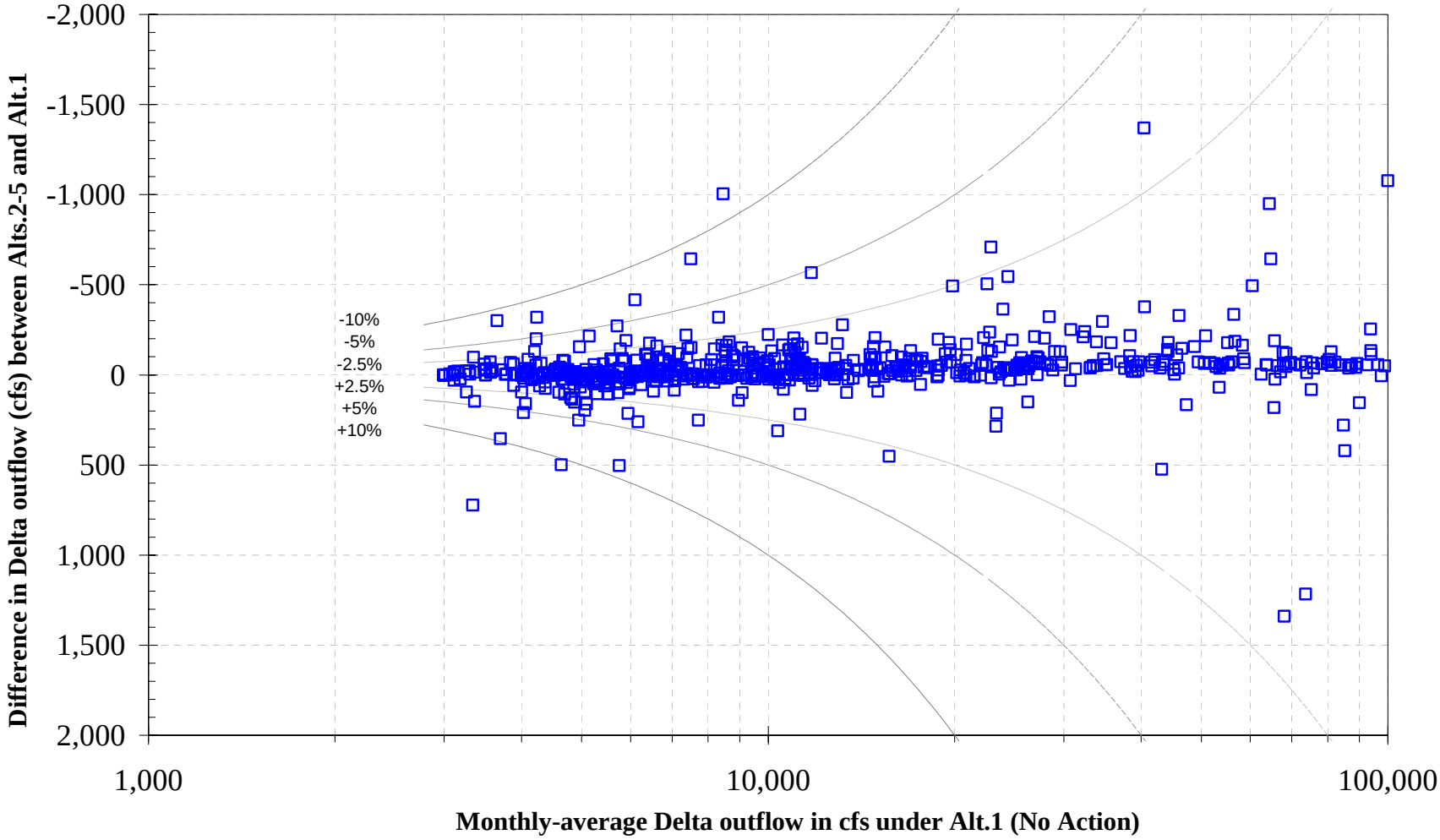


Figure 4.4.1-9 Potential changes in monthly-average Delta outflow at 2020 LOD under Alternatives 2-5

For each data point (indicated by a square), the x-value is the outflow corresponding to the CALSIM output under Alt.1 for a particular month, and the y-value (shown on the left-hand-side axis) corresponds to the difference in simulated outflow between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no effects on outflow in that month (that is, Alt.1 and Alts.2-5 have same outflow). A positive y-value would indicate an increase in outflow under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points below the y=0 line and the number above gives the frequencies the project increases and decreases outflow. (Note that the y-axis has a decreasing scale.) The solid lines represent the limits for differences of ±2.5%, ±5%, and ±10% of Alt.1 outflow.

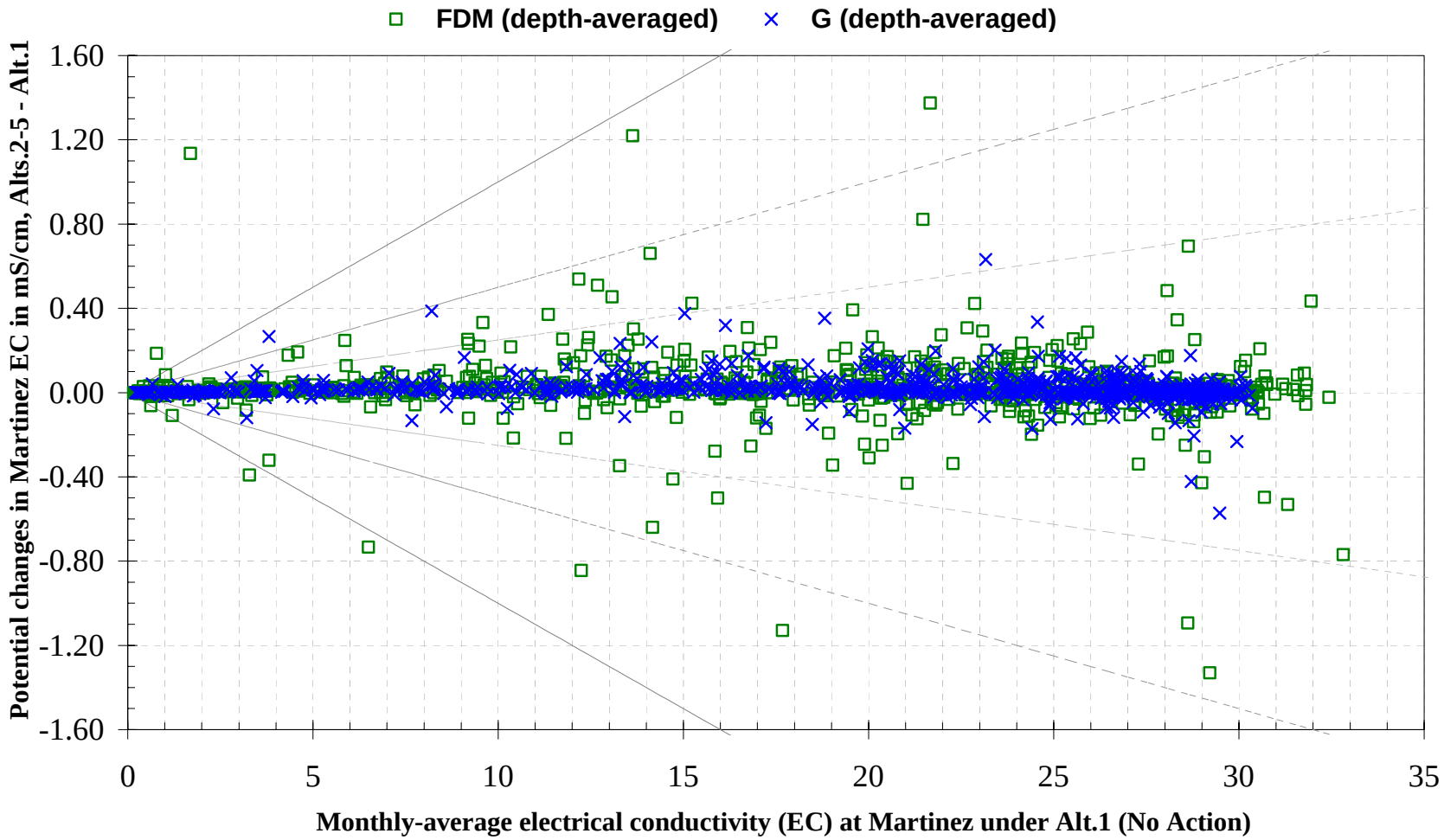


Figure 4.4.1-10 Potential changes in monthly-average salinity at Martinez under Alternatives 2-5 at 2020 LOD

For each data point, the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line (the line where the y-values are zero) indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alts.2-5 have same salinity). A positive y-value would indicate an increase in salinity under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases outflow. The solid lines represent the limits for impacts to be within ±2.5%, ±5% , and ±10% of Alt.1 value.

Figure 4.4.1-11a Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2020 LoD

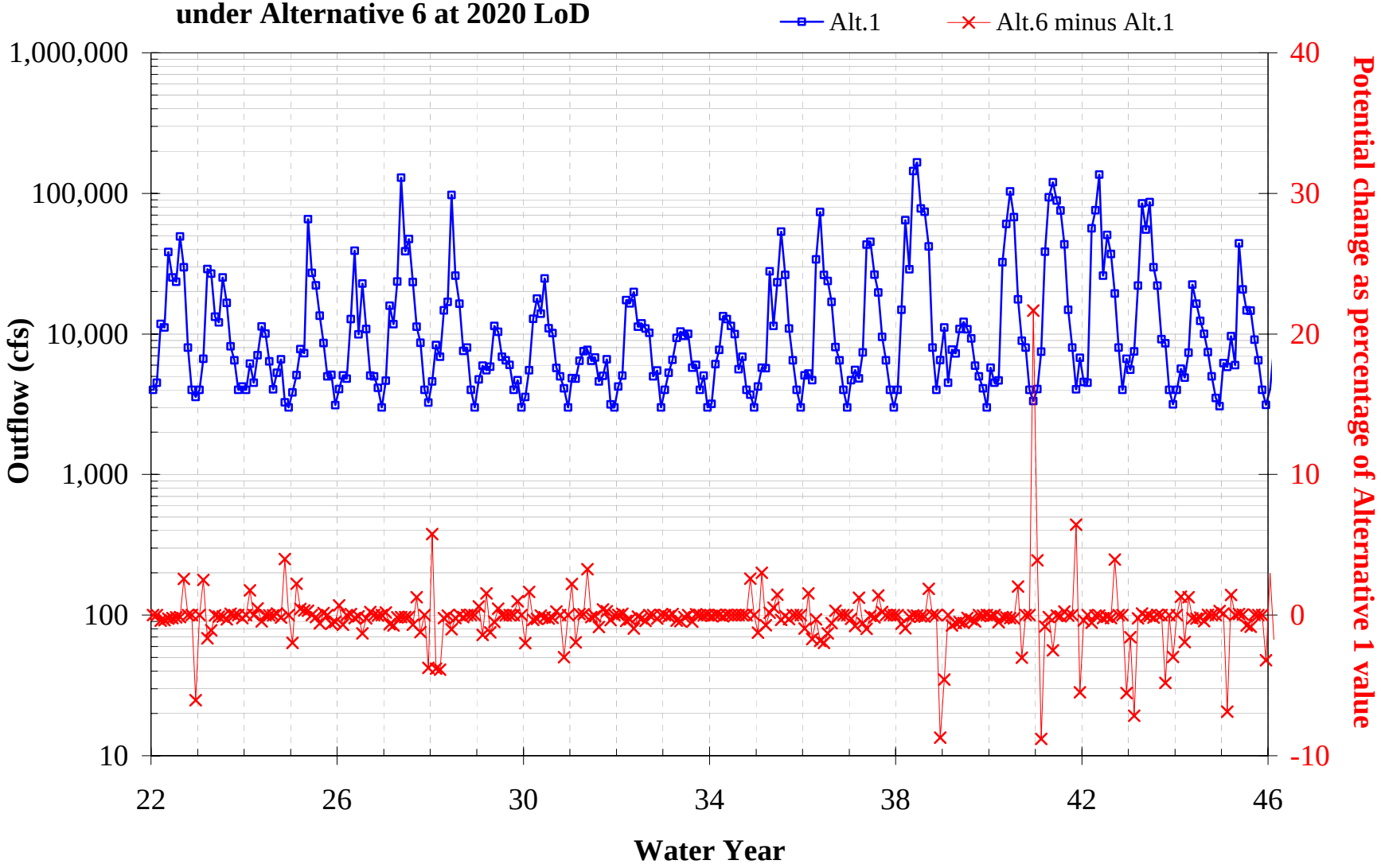


Figure 4.4.1-11b Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2020 LoD

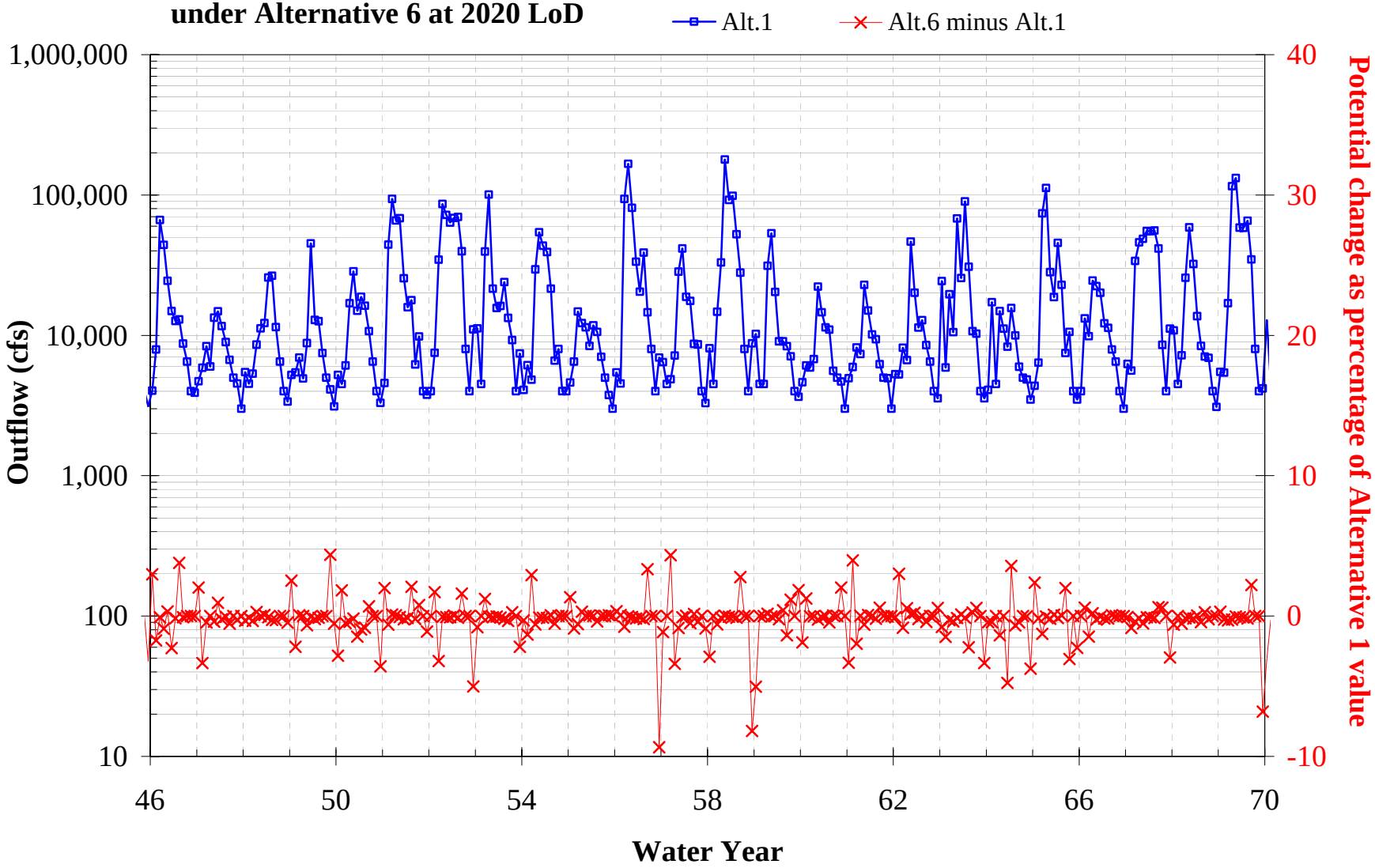
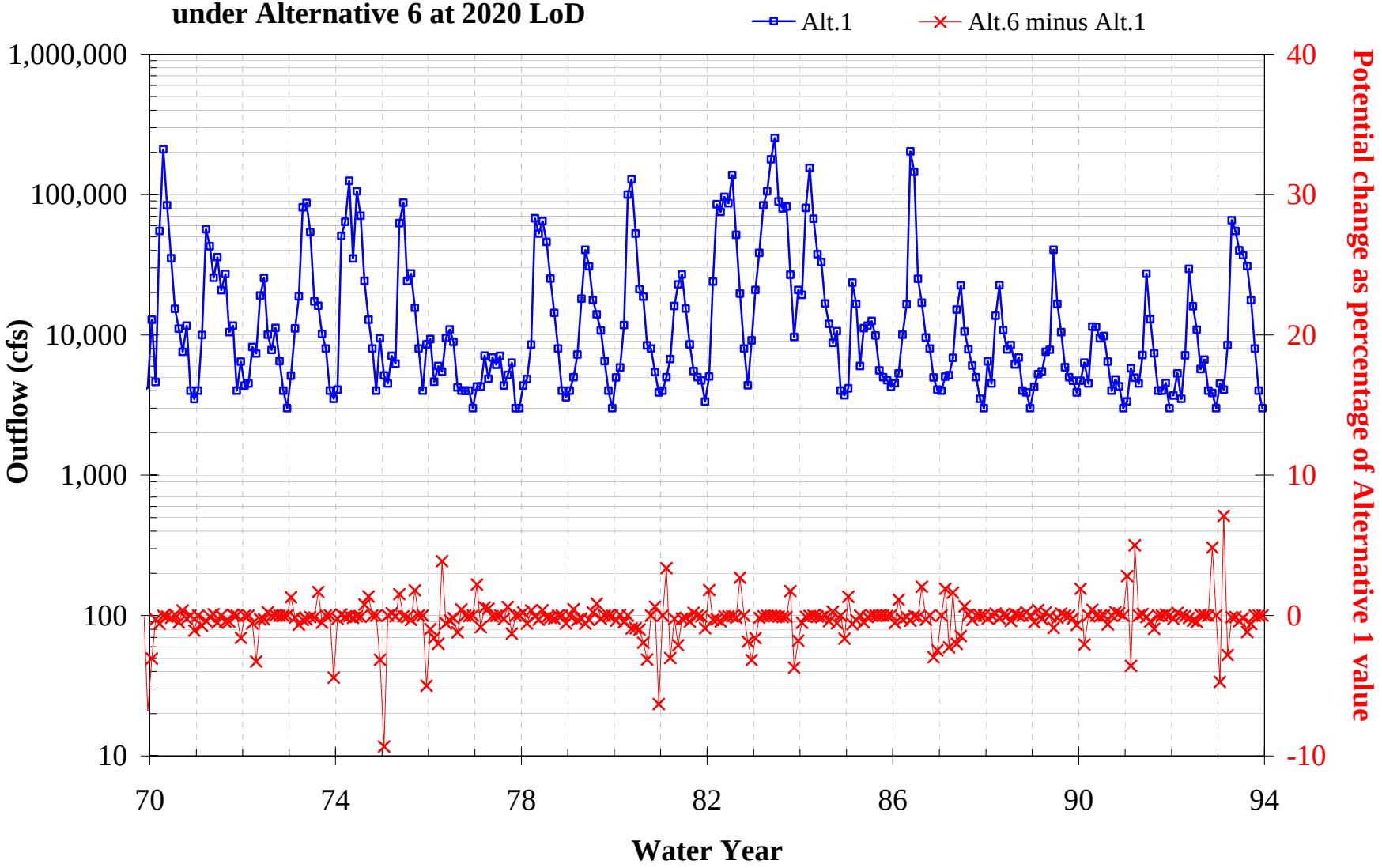


Figure 4.4.1-11c Monthly-average Delta outflow at Martinez and potential changes under Alternative 6 at 2020 LoD



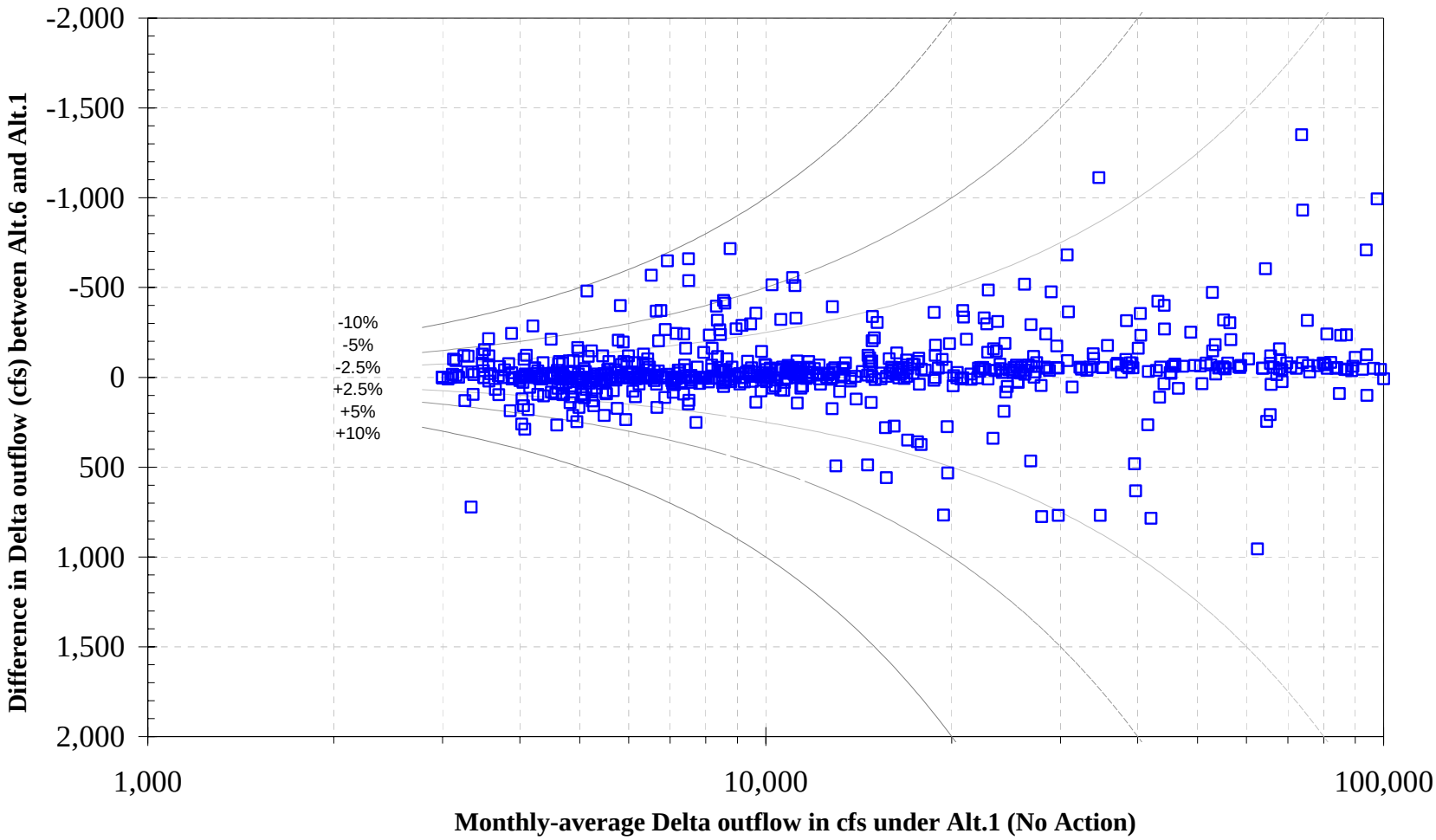


Figure 4.4.1-12 Potential changes in monthly-average Delta outflow at 2020 LOD under Alternative 6

For each data point (indicated by a square), the x-value is the outflow corresponding to the CALSIM output under Alt.1 for a particular month, and the y-value (shown on the left-hand-side axis) corresponds to the difference in simulated outflow between Alt.6 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no effects on outflow in that month (that is, Alt.1 and Alt.6 have same outflow). A positive y-value would indicate an increase in outflow under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points below the y=0 line and the number above gives the frequencies the project increases and decreases outflow. (Note that the y-axis has a decreasing scale.) The solid lines represent the limits for differences of ±2.5%, ±5%, and ±10% of Alt.1 outflow.

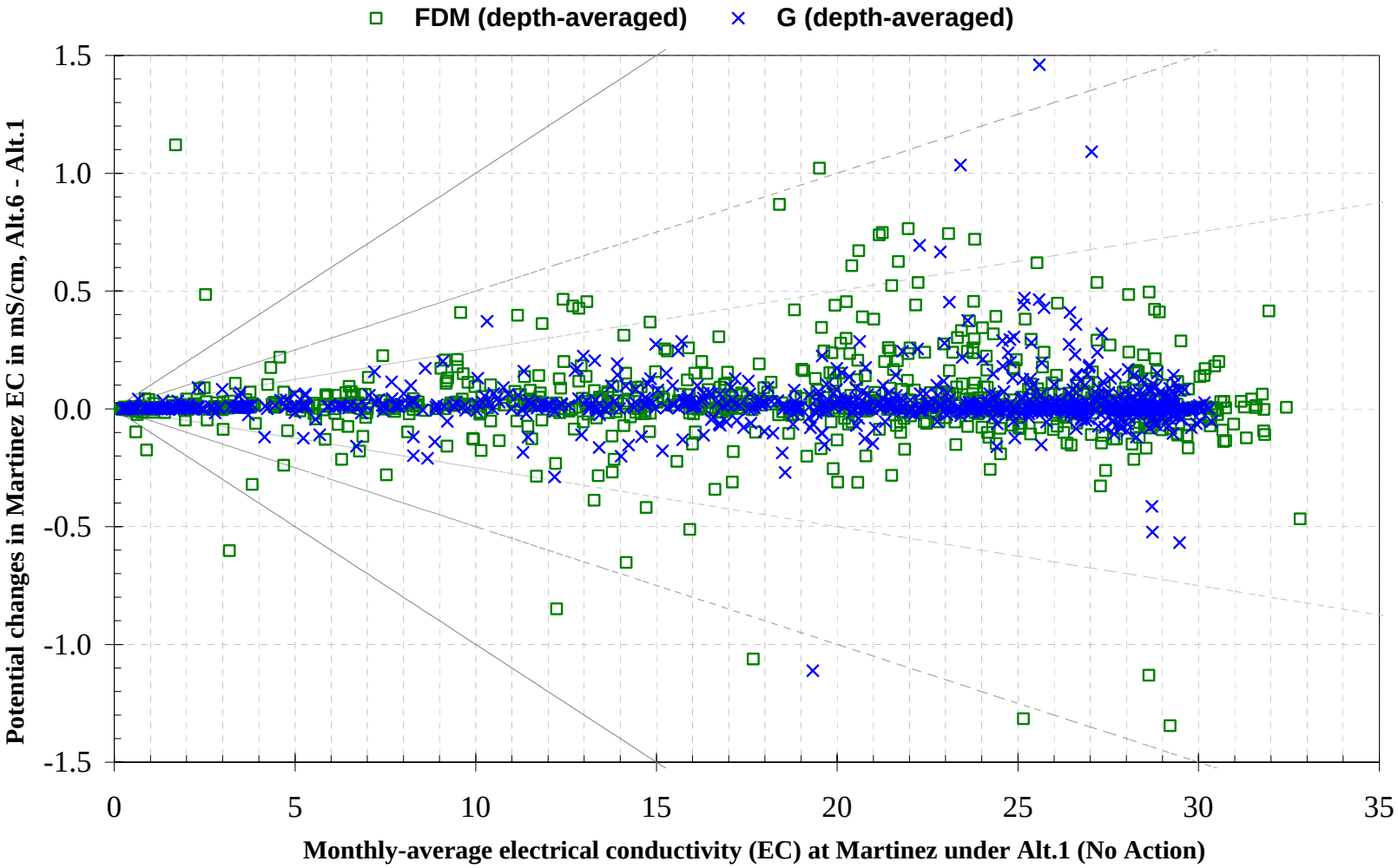


Figure 4.4.1-13 Potential changes in monthly-average salinity at Martinez under Alternative 6 at 2020 LOD

For each data point, the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alt.6 and Alt.1 for the same month. All data points on the horizontal line (the line where the y-values are zero) indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alt.6 have same salinity). A positive y-value would indicate an increase in salinity under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases outflow. The solid lines represent the limits for impacts to be within ±2.5%, ±5% and ±10% of Alt.1 value.

Figure 4.4.2-1a Potential changes in monthly mean X2 and salinity at Chipps Island under Aternatives 2-5 at 2001 LOD

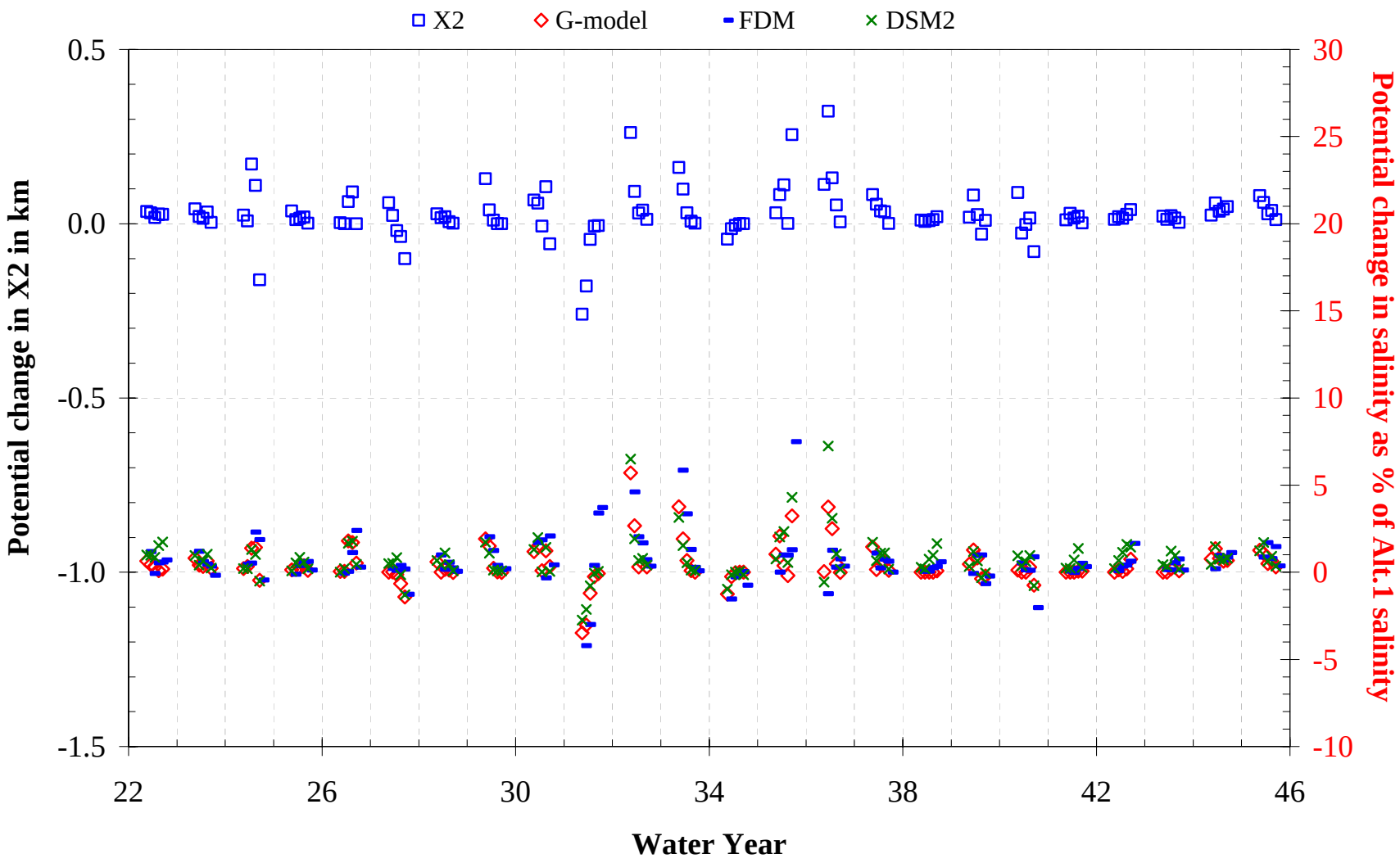


Figure 4.4.2-1b Potential changes in monthly mean X2 and salinity at Chipps Island under Aternatives 2-5 at 2001 LOD.

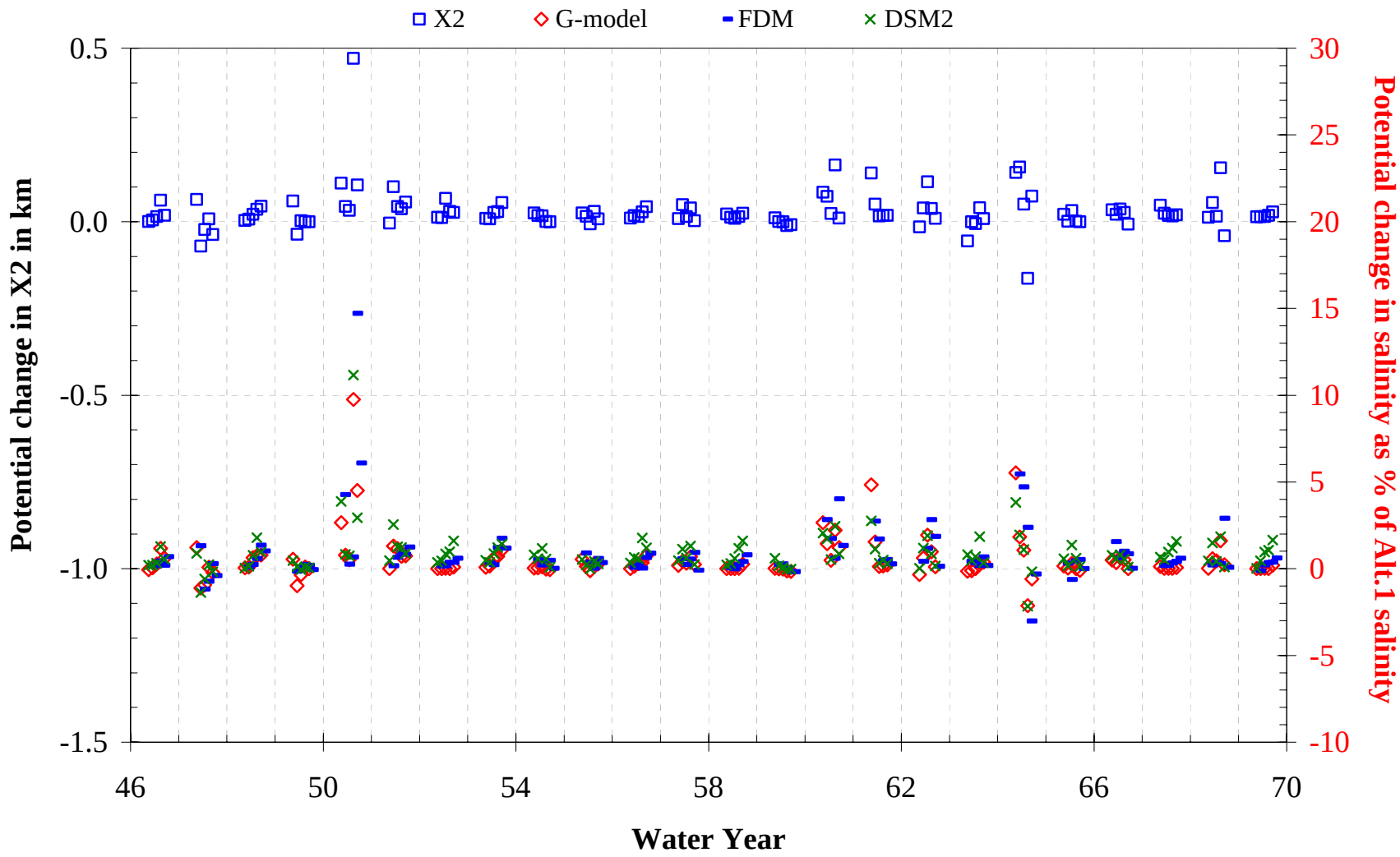


Figure 4.4.2-1c Potential changes in monthly mean X2 and salinity at Chipps Island under Aternatives 2-5 at 2001 LOD

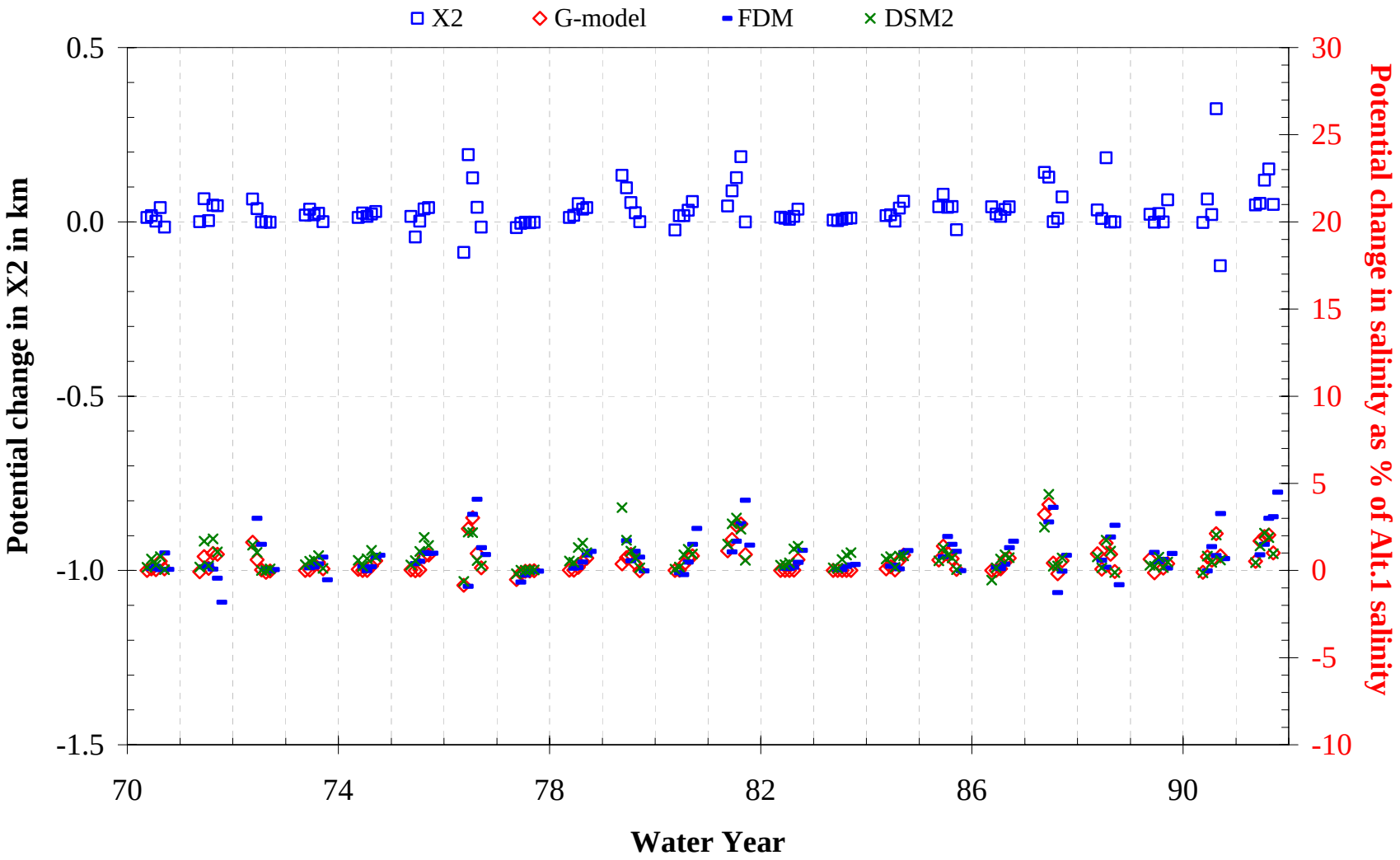


Figure 4.4.2-2 Potential changes in monthly-average X2 location from February through June under Alternatives 2-5 at 2001 LOD

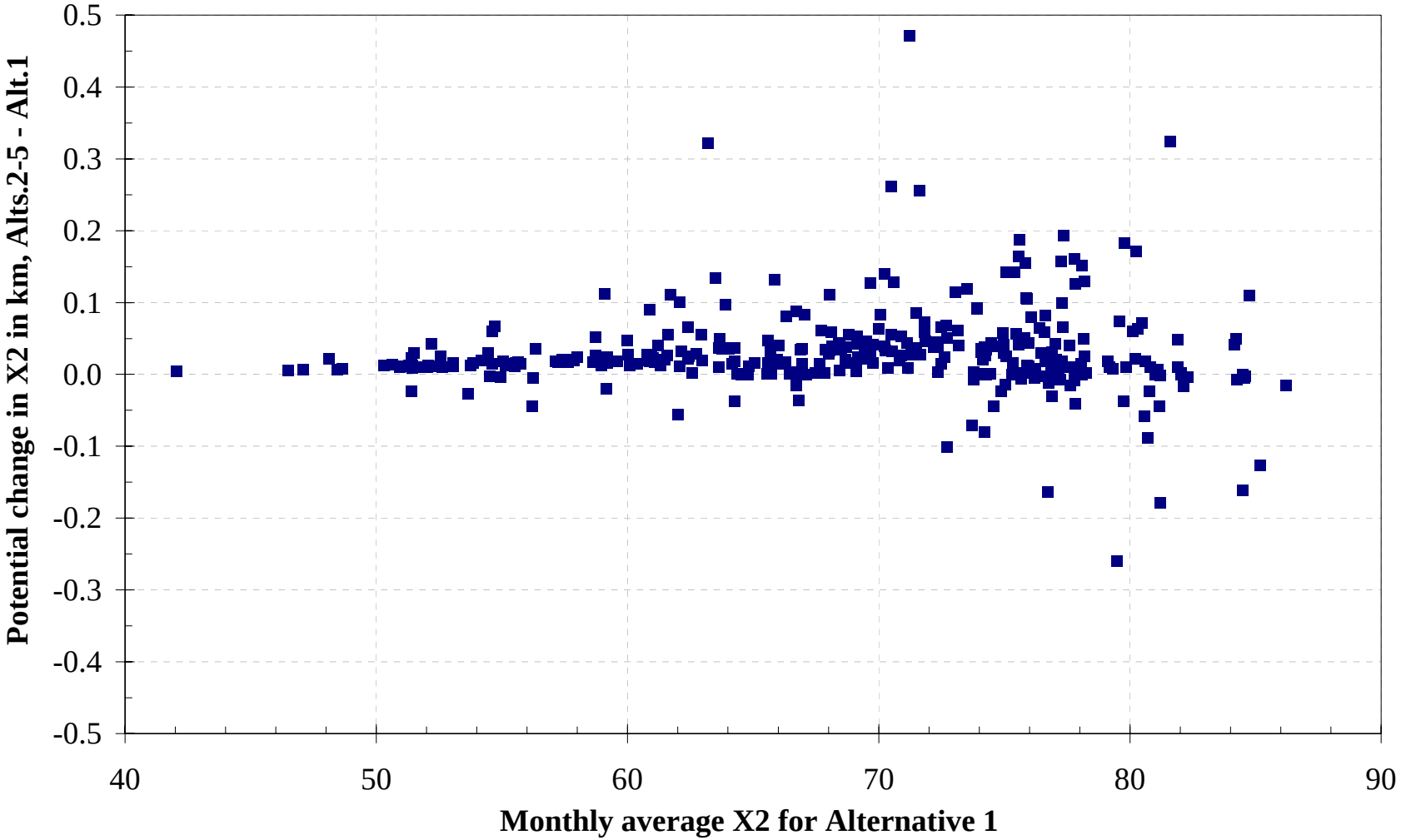


Figure 4.4.2-3 Potential changes in monthly-average X2 location from February through June under Alternative 6 at 2001 LoD

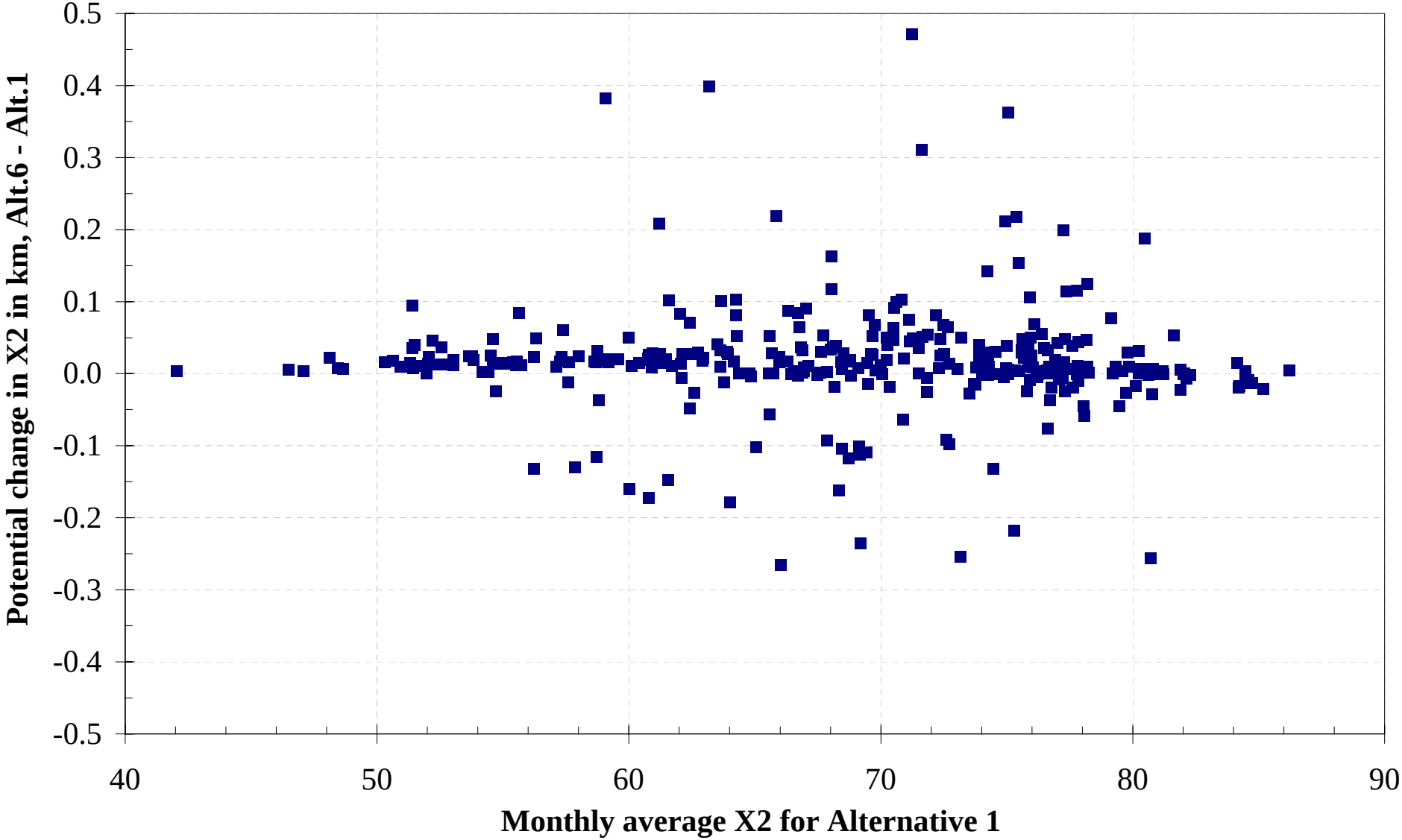


Figure 4.4.2-4 Potential changes in monthly-average X2 location from February through June under Alternatives 2-5 at 2020 LoD

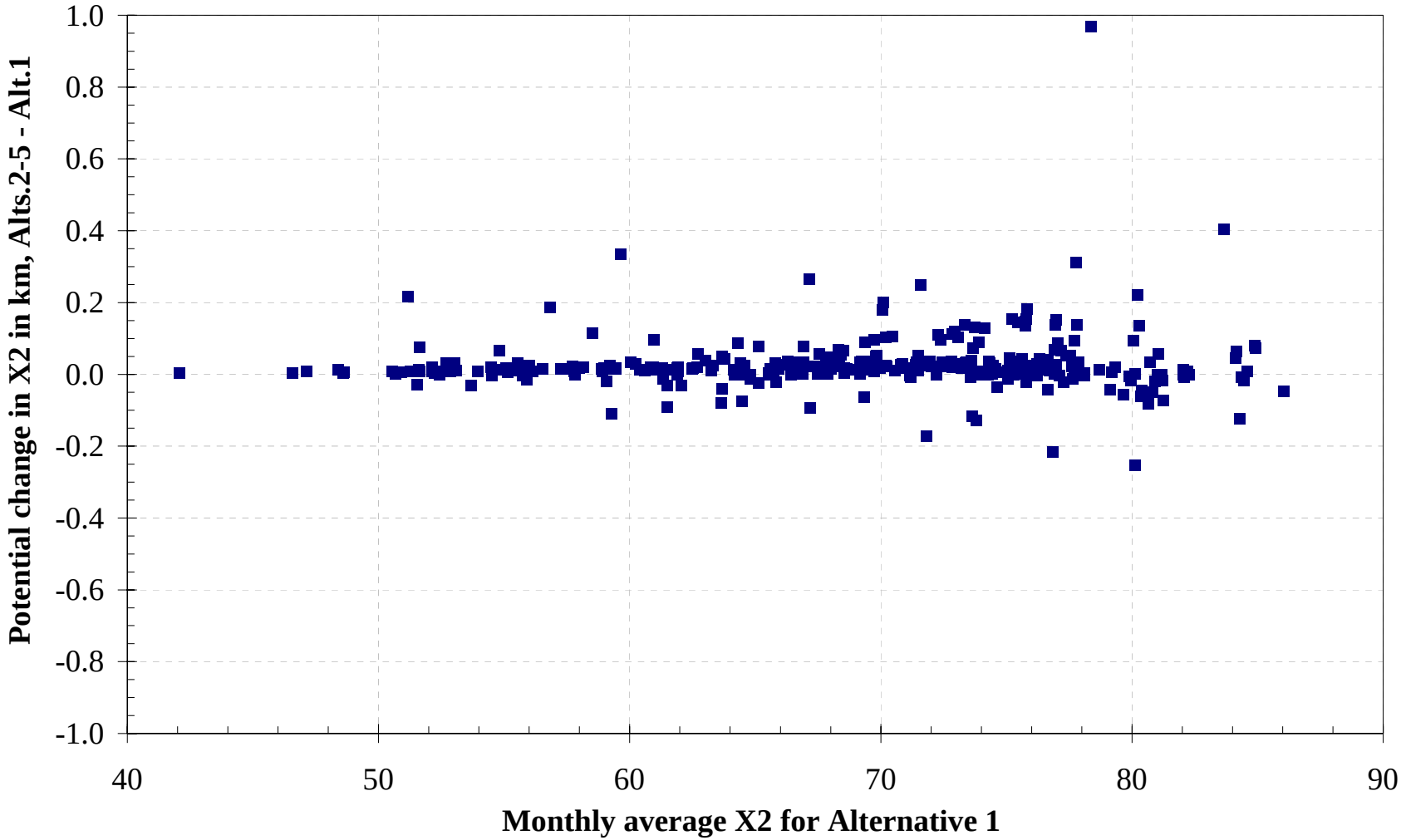


Figure 4.4.2-5 Potential changes in monthly-average X2 location from February through June under Alternative 6 at 2020 LoD

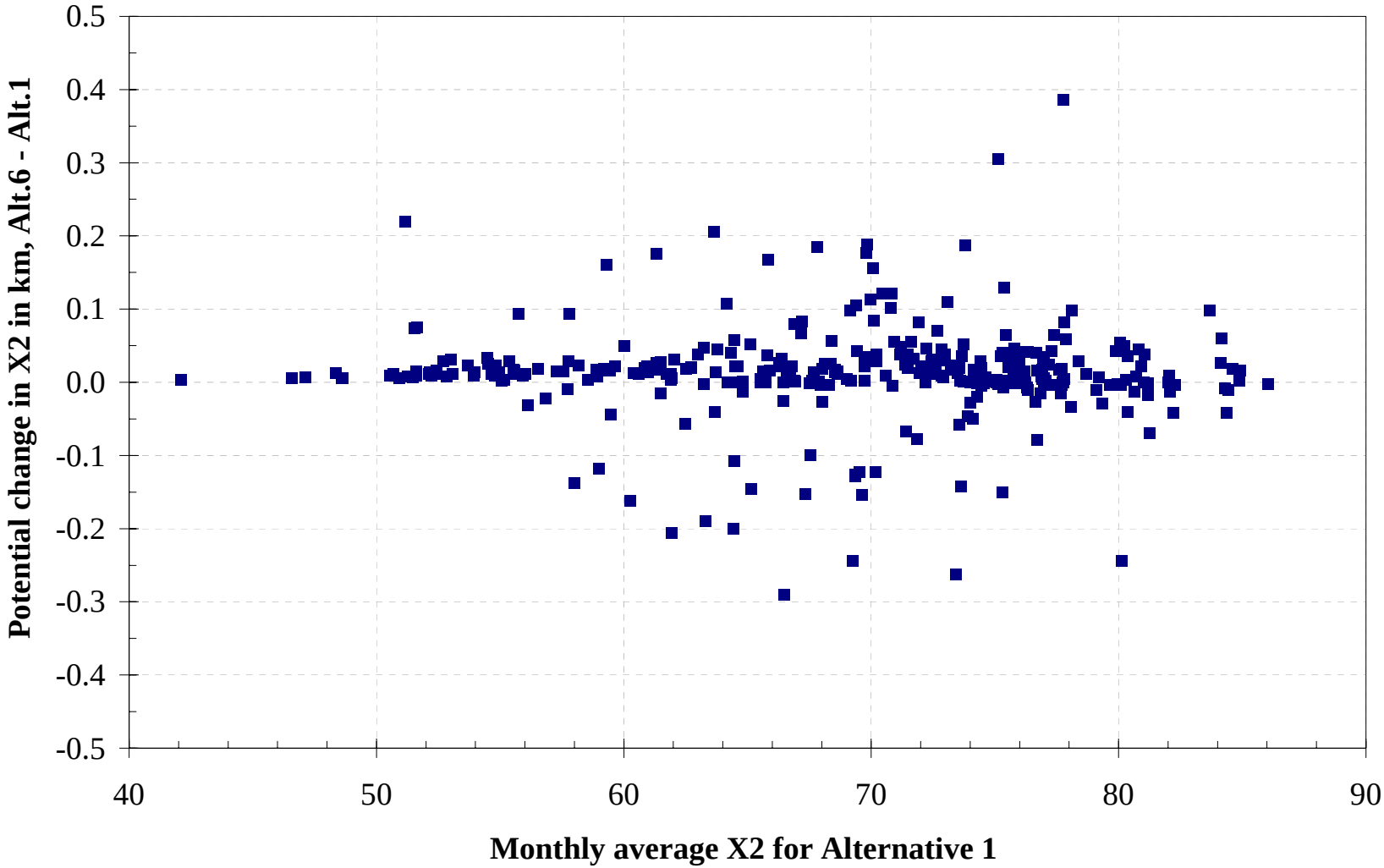


Figure 4.4.4-1a Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternatives 2-5 at 2001 LOD

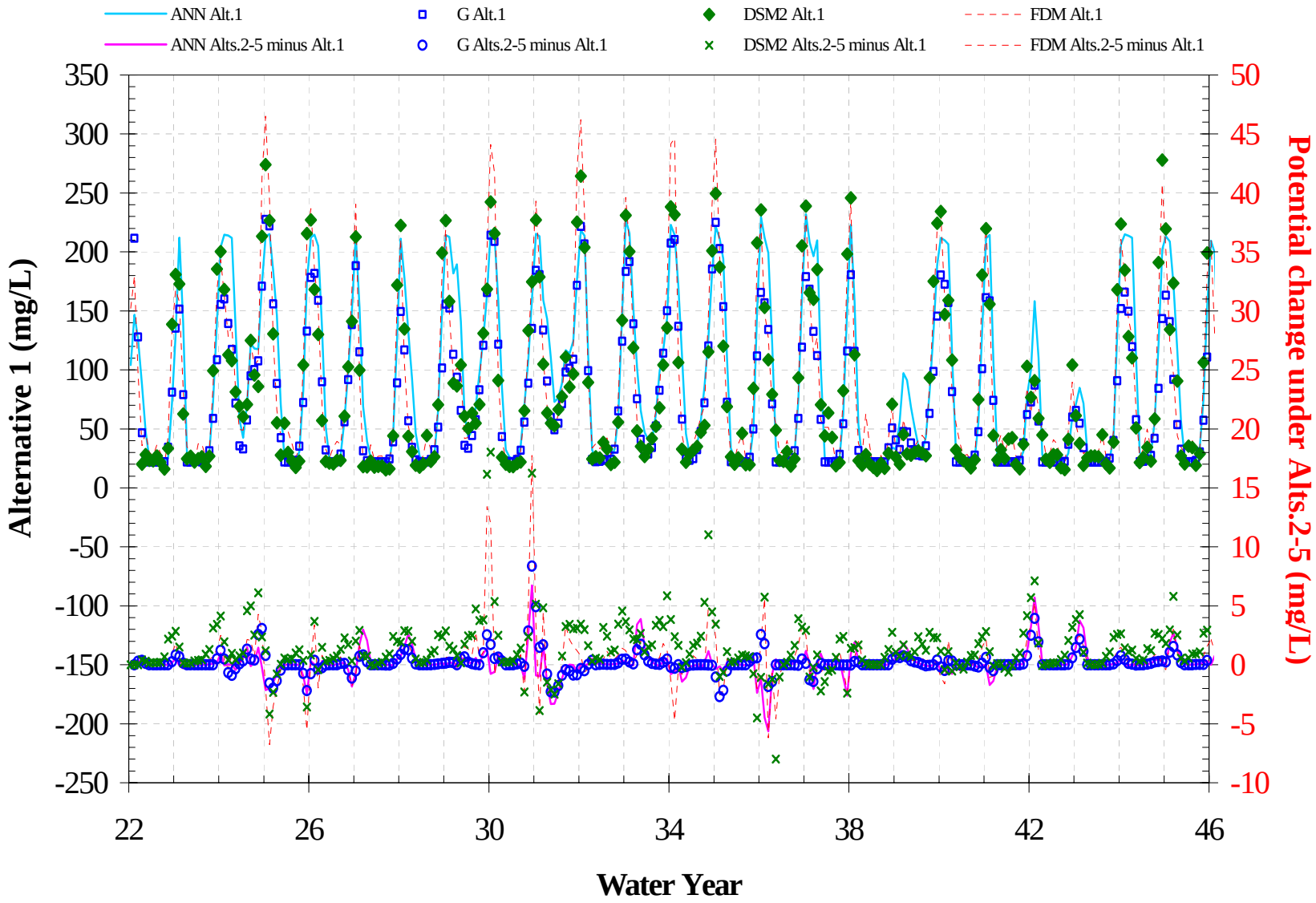


Figure 4.4.4-1b Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternatives 2-5 at 2001 LOD

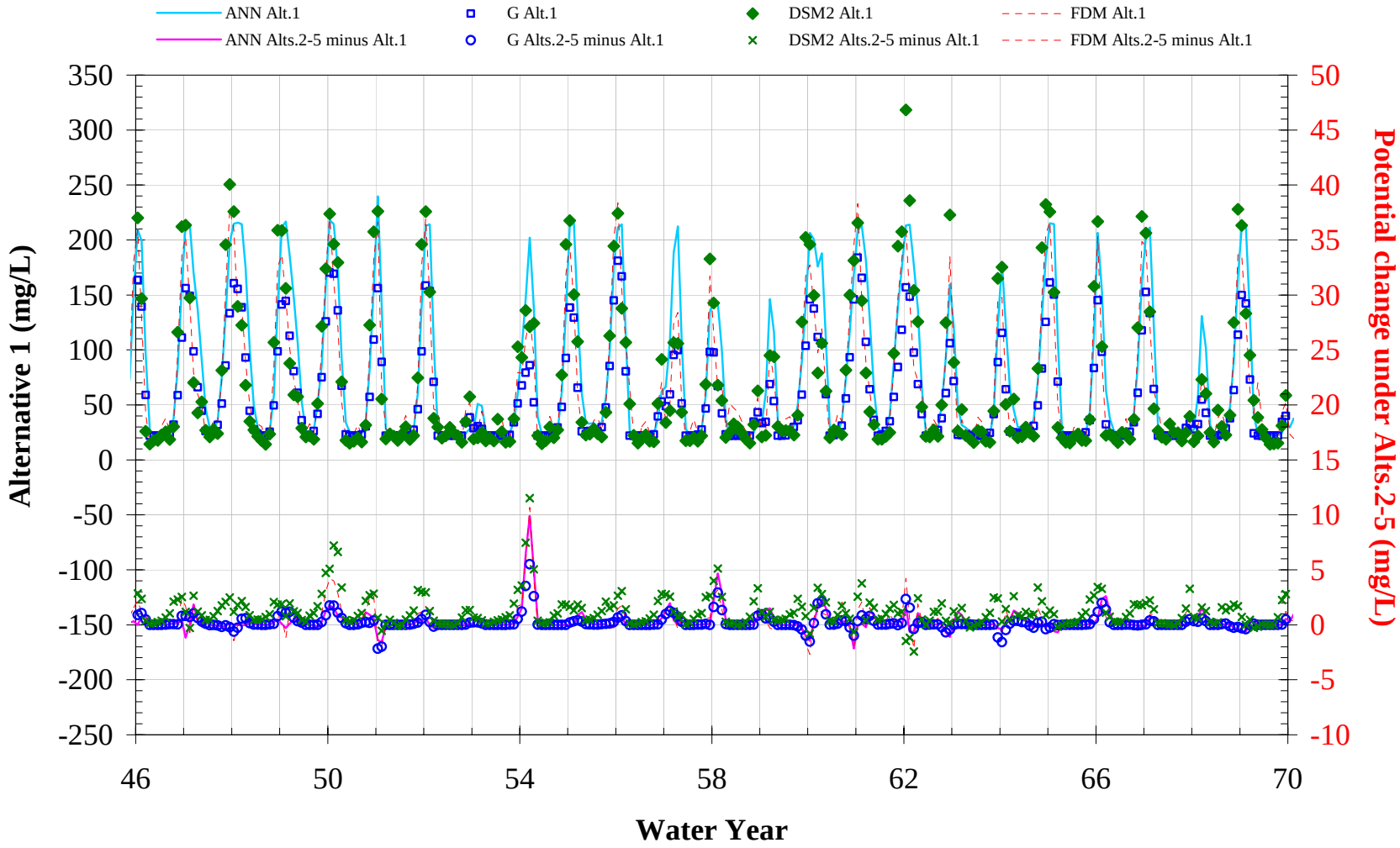
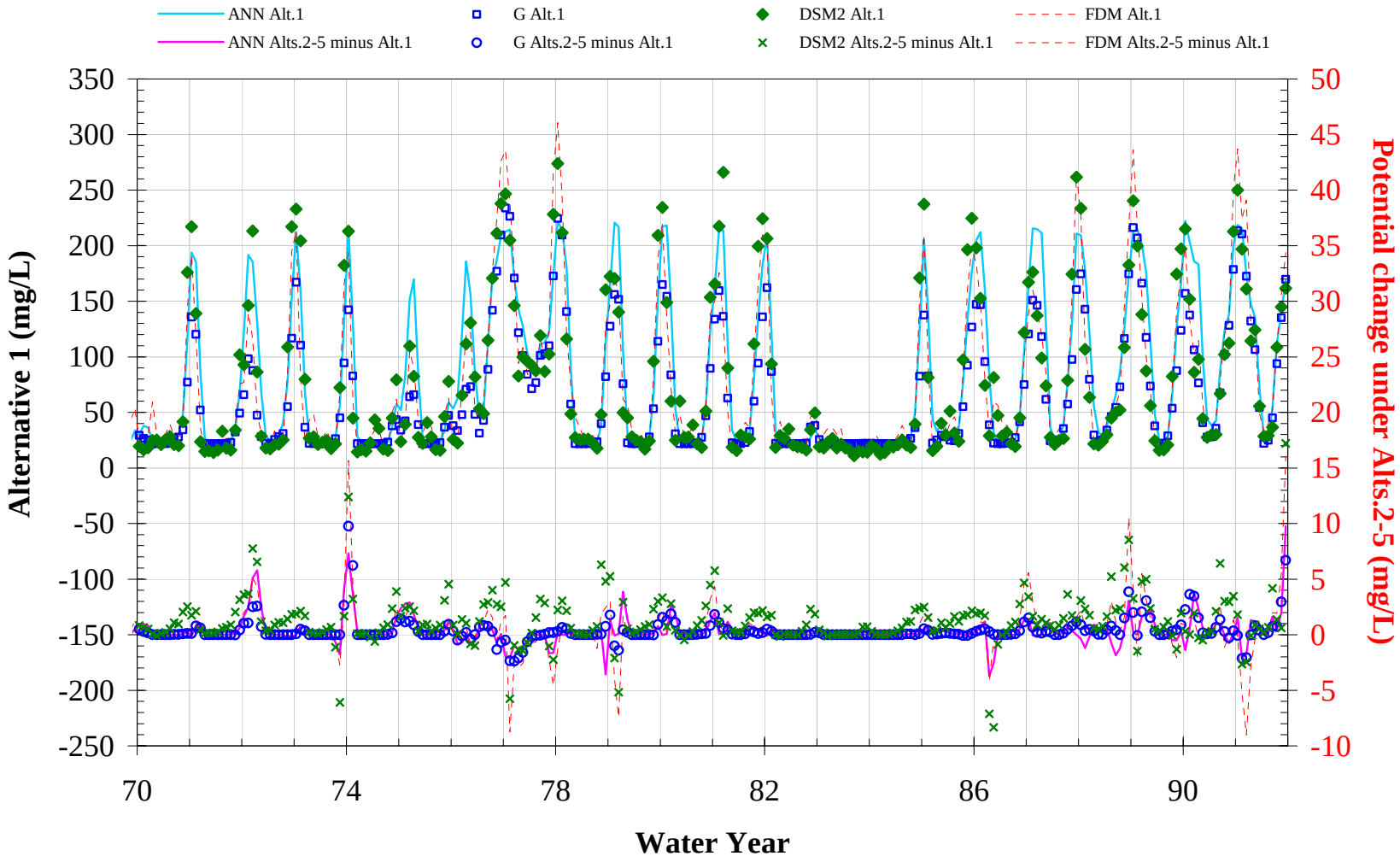


Figure 4.4.4-1c Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternatives 2-5 at 2001 LOD



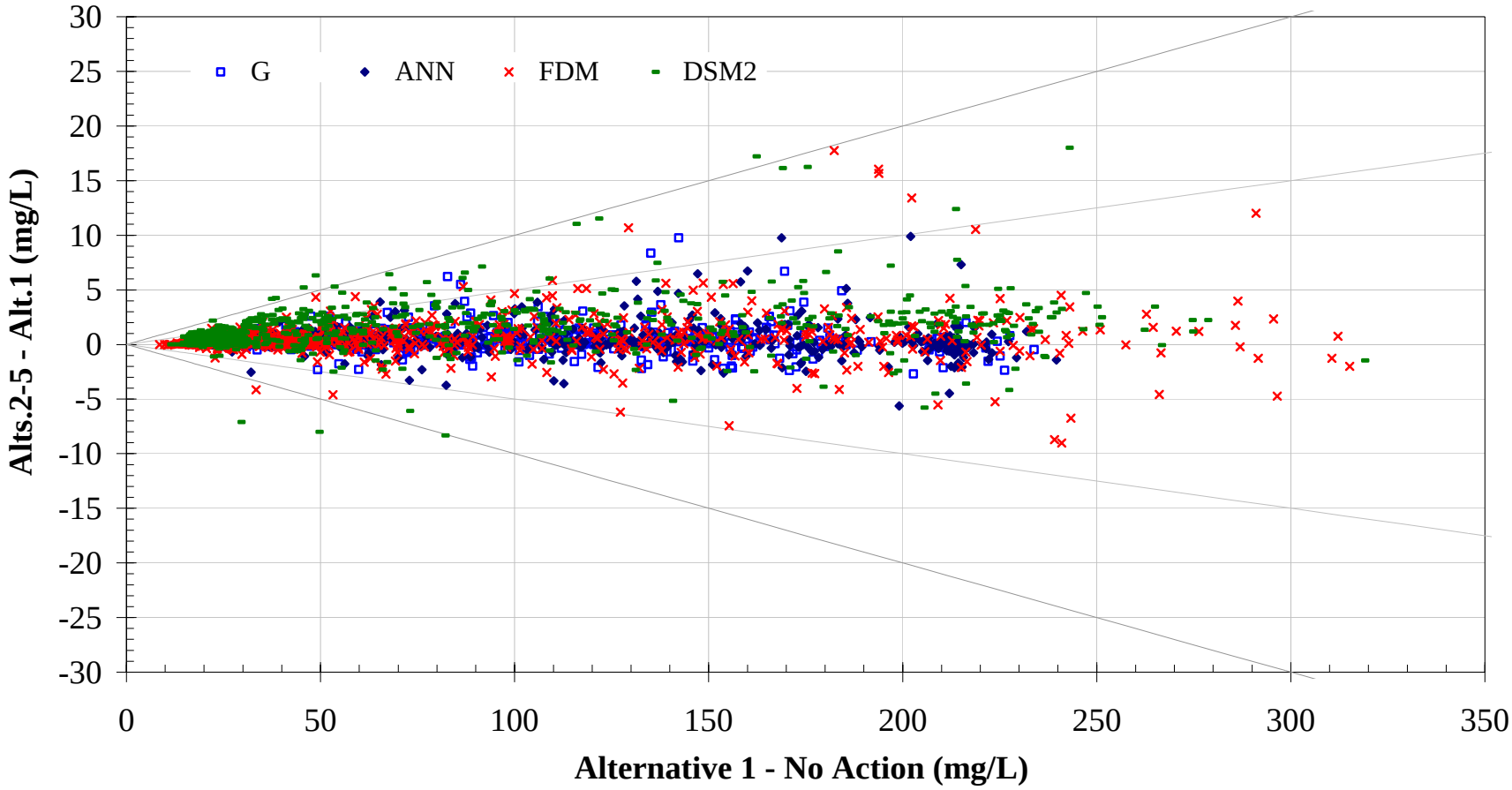


Figure 4.4.4-2 Potential change in monthly-average chloride concentration in Rock Slough at Old River under Alternaitves 2-5 at 2001 LOD For each data point (indicated by a square), the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alts.2-5 have same salinity). A positive y-value would indicate an increase in salinity under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases salinity in Rock Slough. The solid lines represent the limits for impacts to be within ±5% and ±10% of Alt.1 value.

Figure 4.4.4-3a Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternative 6 at 2001 LoD.

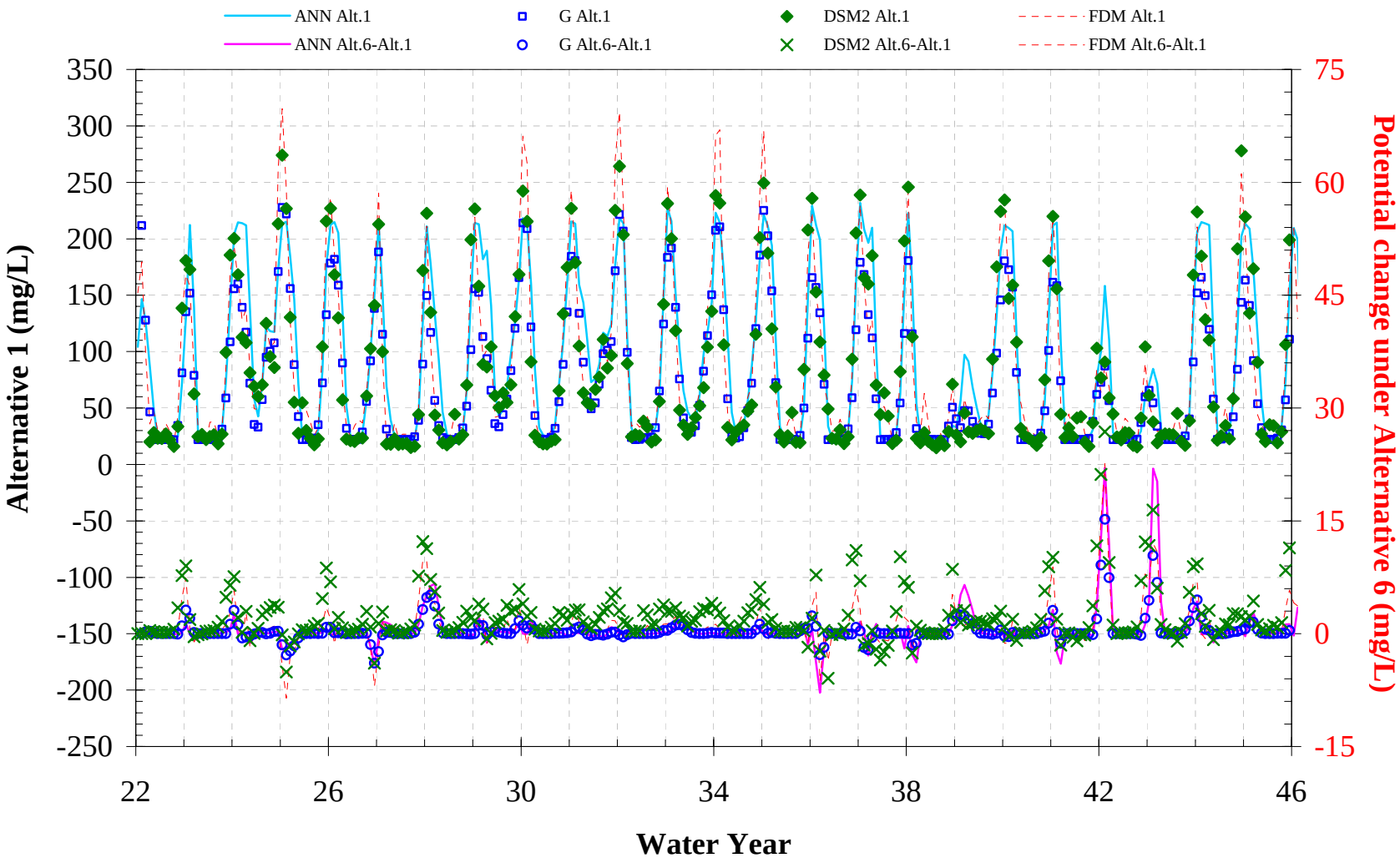


Figure 4.4.4-3b Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternative 6 at 2001 LoD.

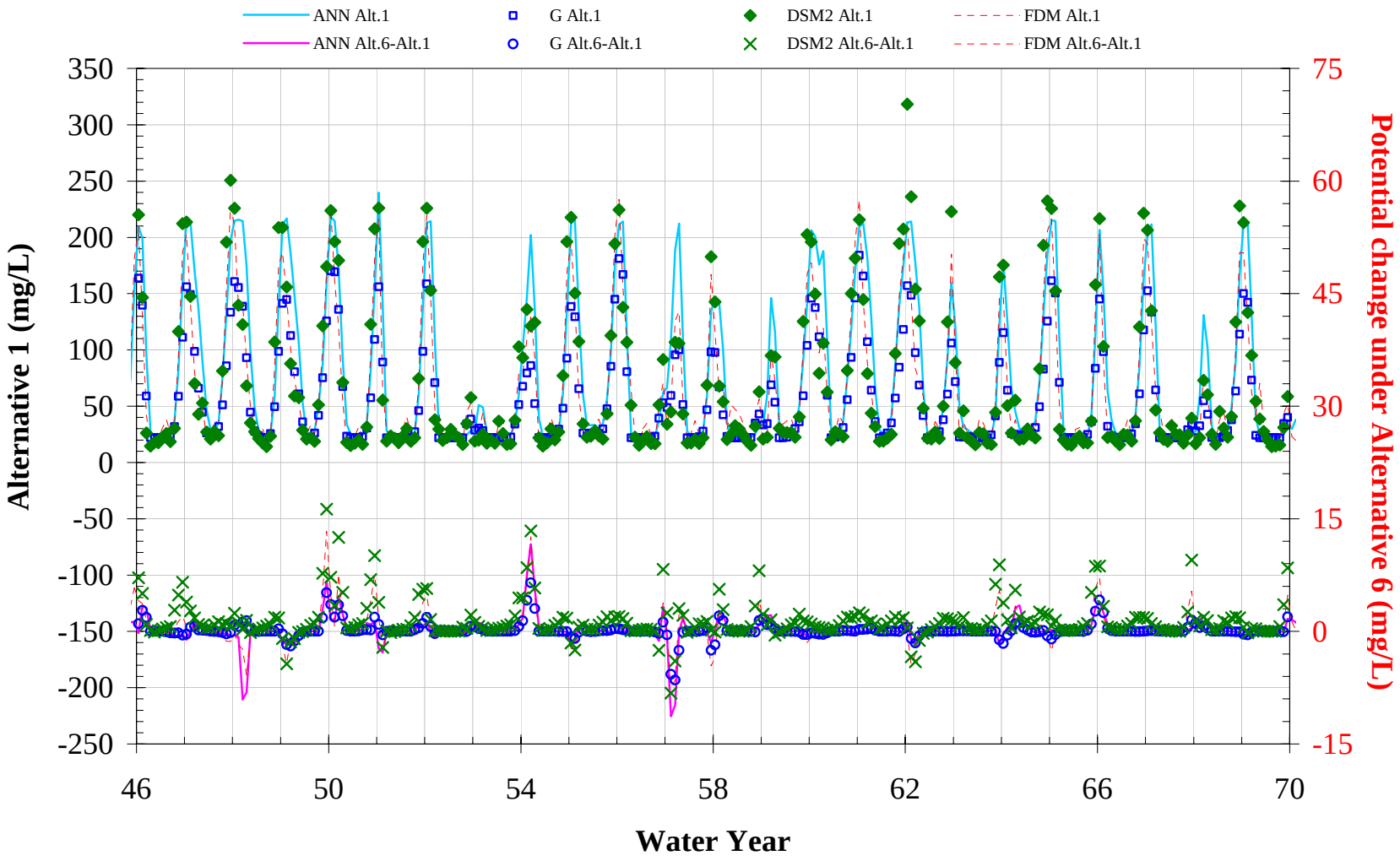
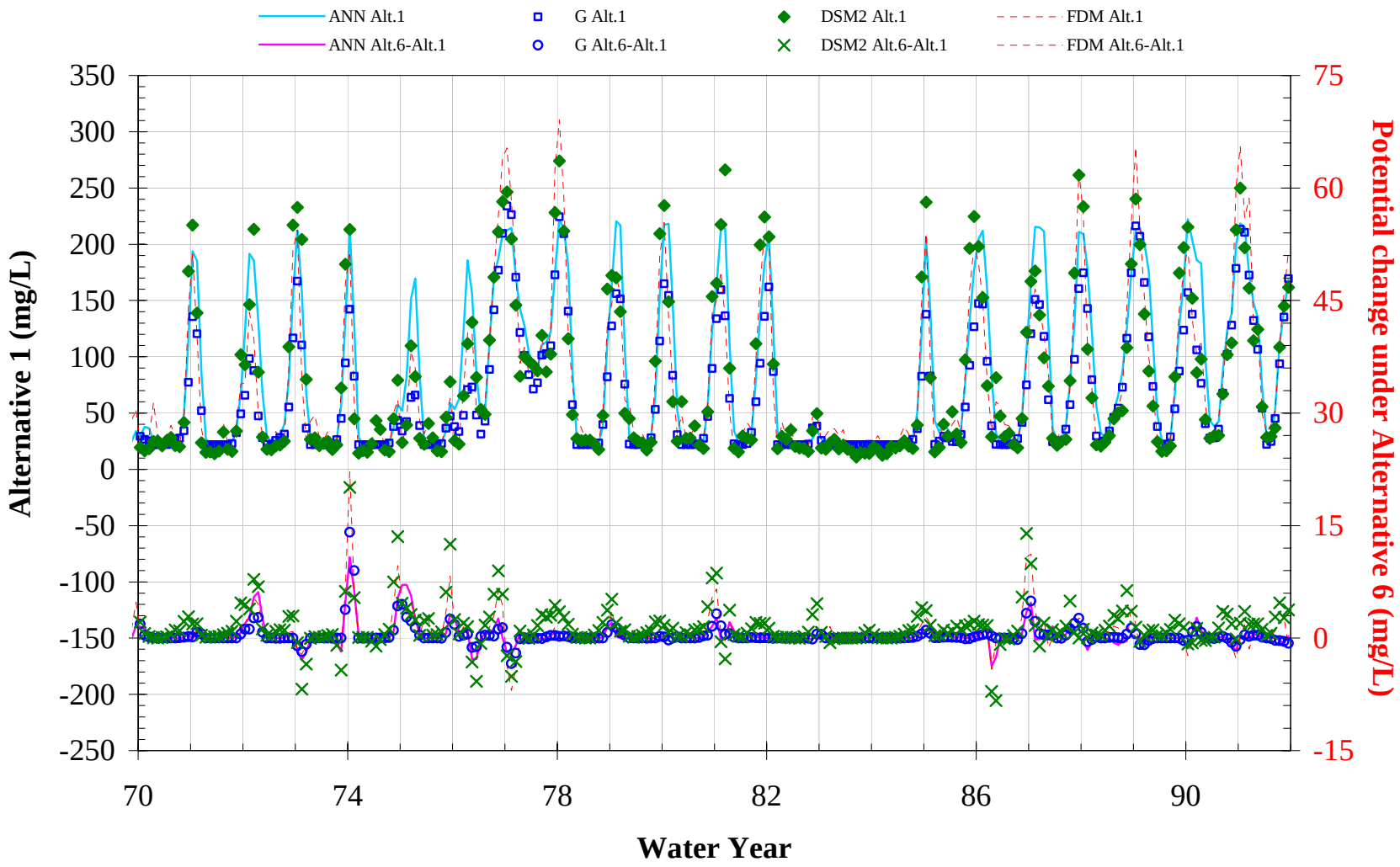


Figure 4.4.4-3c Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternative 1 and Alternative 6 at 2001 LoD.



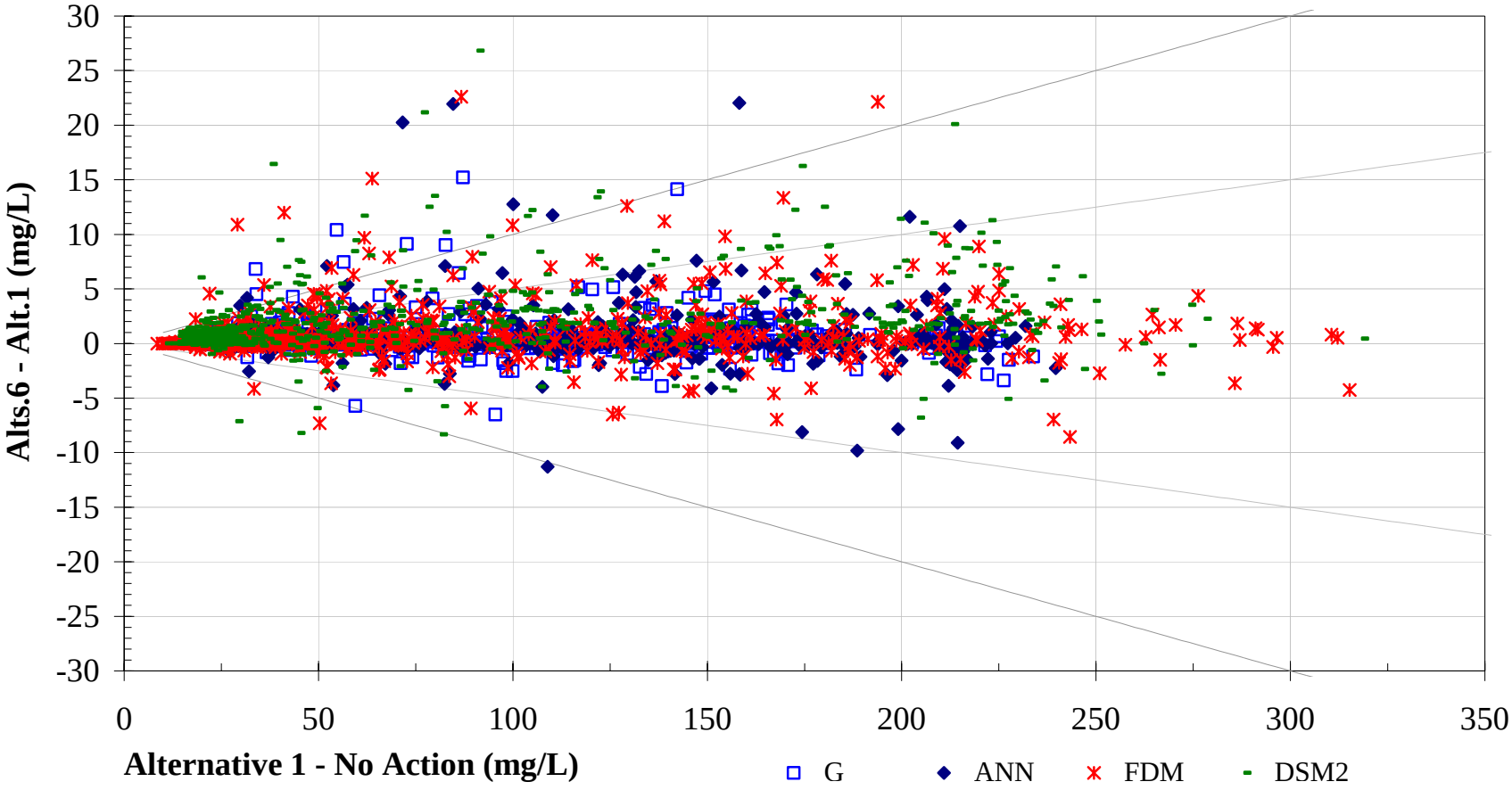


Figure 4.4.4-4 Potential change in monthly-average chloride concentration in Rock Slough at Old River under Alternaitve 6 at 2001 LOD For each data point (indicated by a square), the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alt.6 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alt.6 have same salinity). A positive y-value would indicate an increase in salinity under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases salinity in Rock Slough. The solid lines represent the limits for impacts to be within ±5% and ±10% of Alt.1 value.

Figure 4.4.4-5a Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1-5 at 2020 LoD

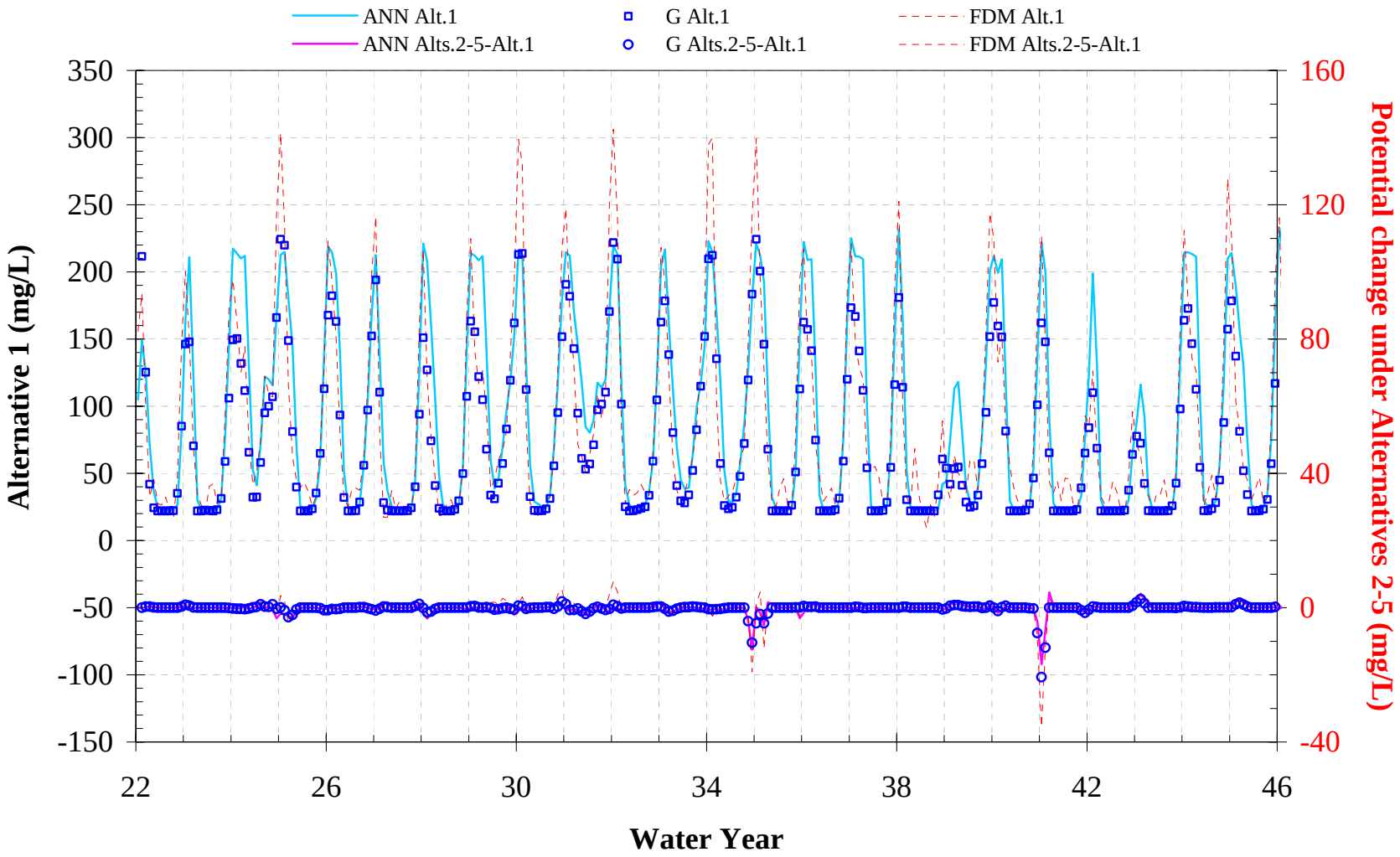


Figure 4.4.4-5b Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1-5 at 2020 LoD

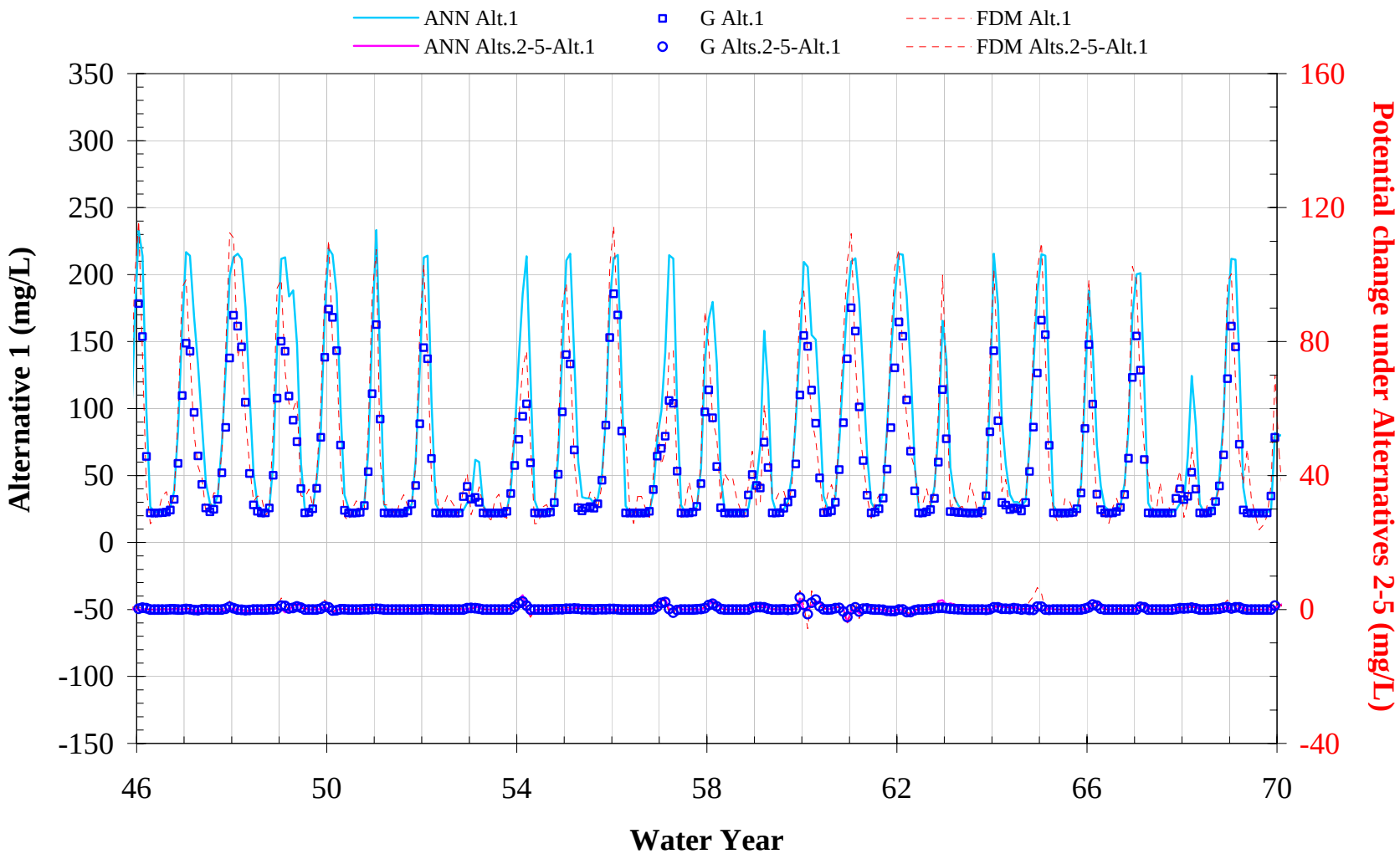
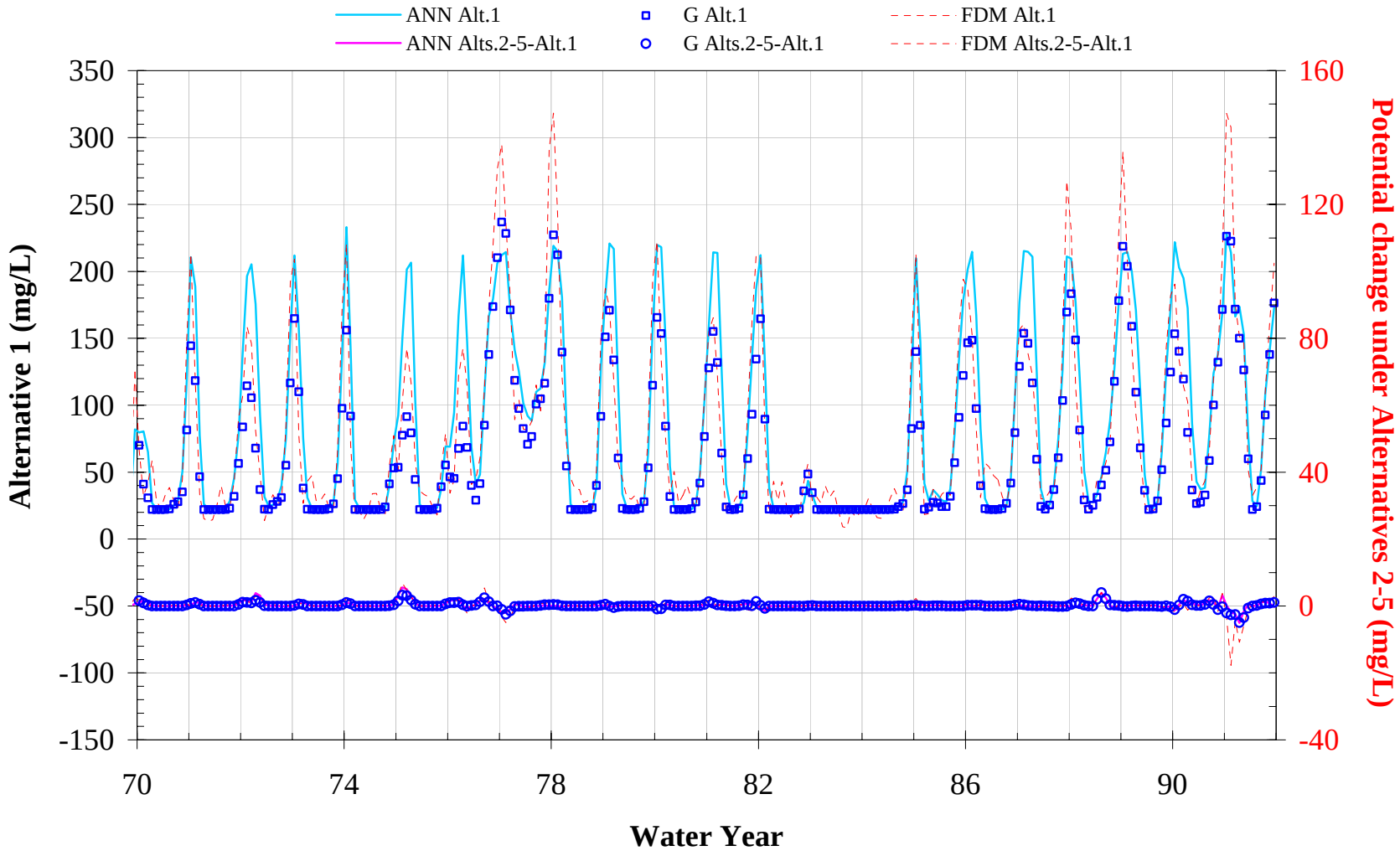


Figure 4.4.4-5c Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1-5 at 2020 LoD



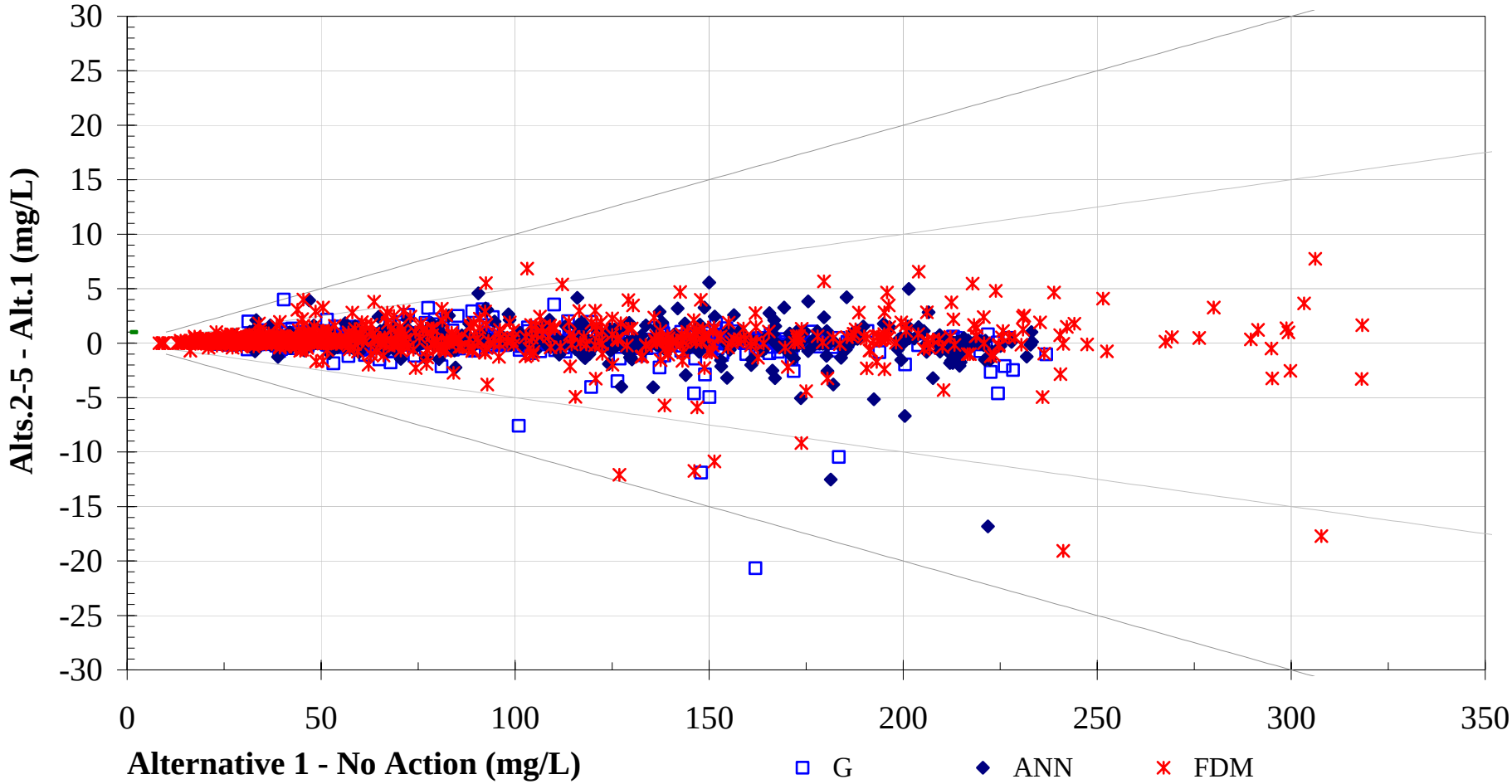


Figure 4.4.4-6 Potential change in monthly-average chloride concentration in Rock Slough at Old River under Alternaitves 2-5 at 2020 LOD For each data point (indicated by a square), the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alts.2-5 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alts.2-5 have same salinity). A positive y-value would indicate an increase in salinity under Alts.2-5 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases salinity in Rock Slough. The solid lines represent the limits for impacts to be within ±5% and ±10% of Alt.1 value.

Figure 4.4.4-7a Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1 and 6 at 2020 LoD

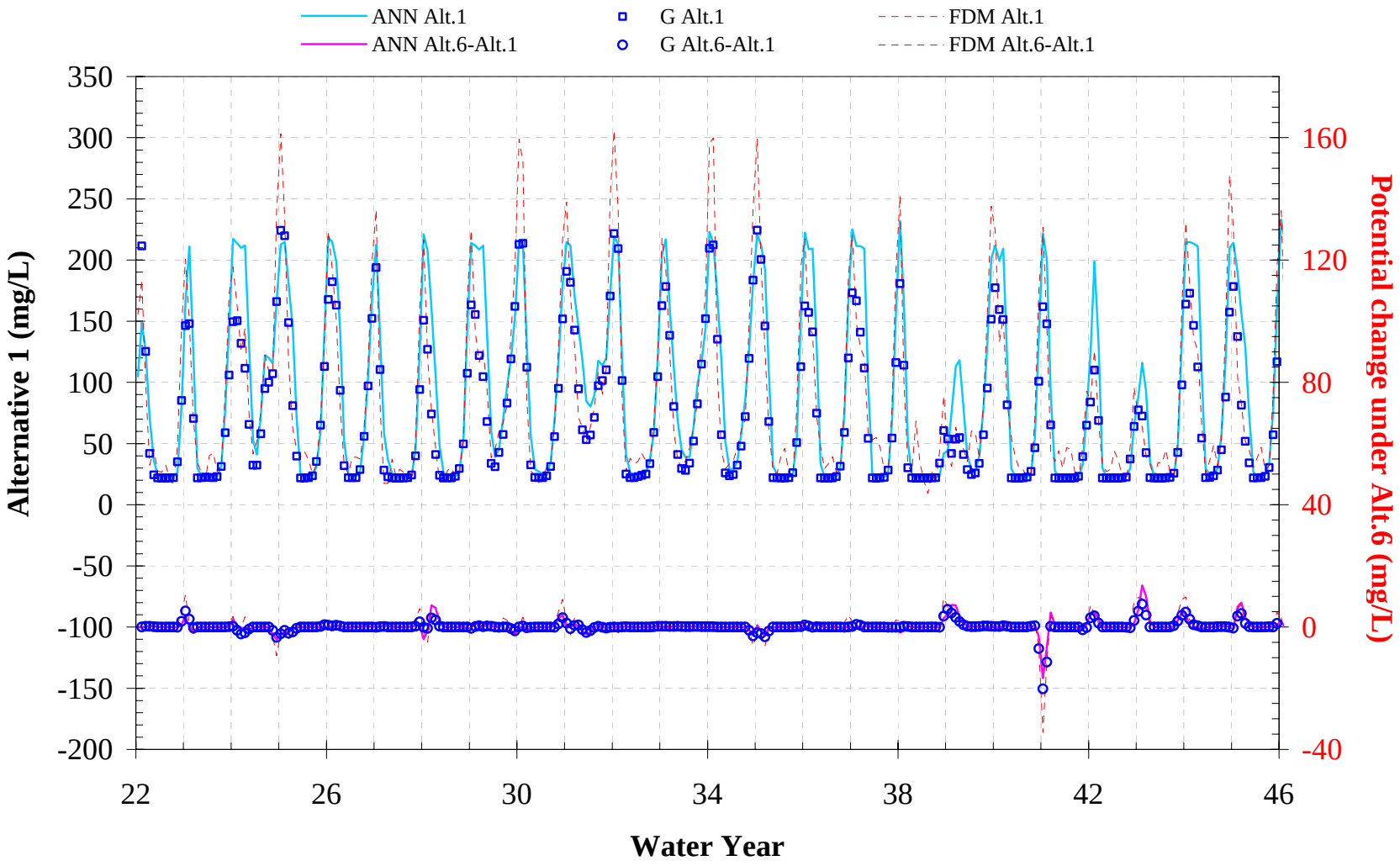


Figure 4.4.4-7b Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1 and 6 at 2020 LoD

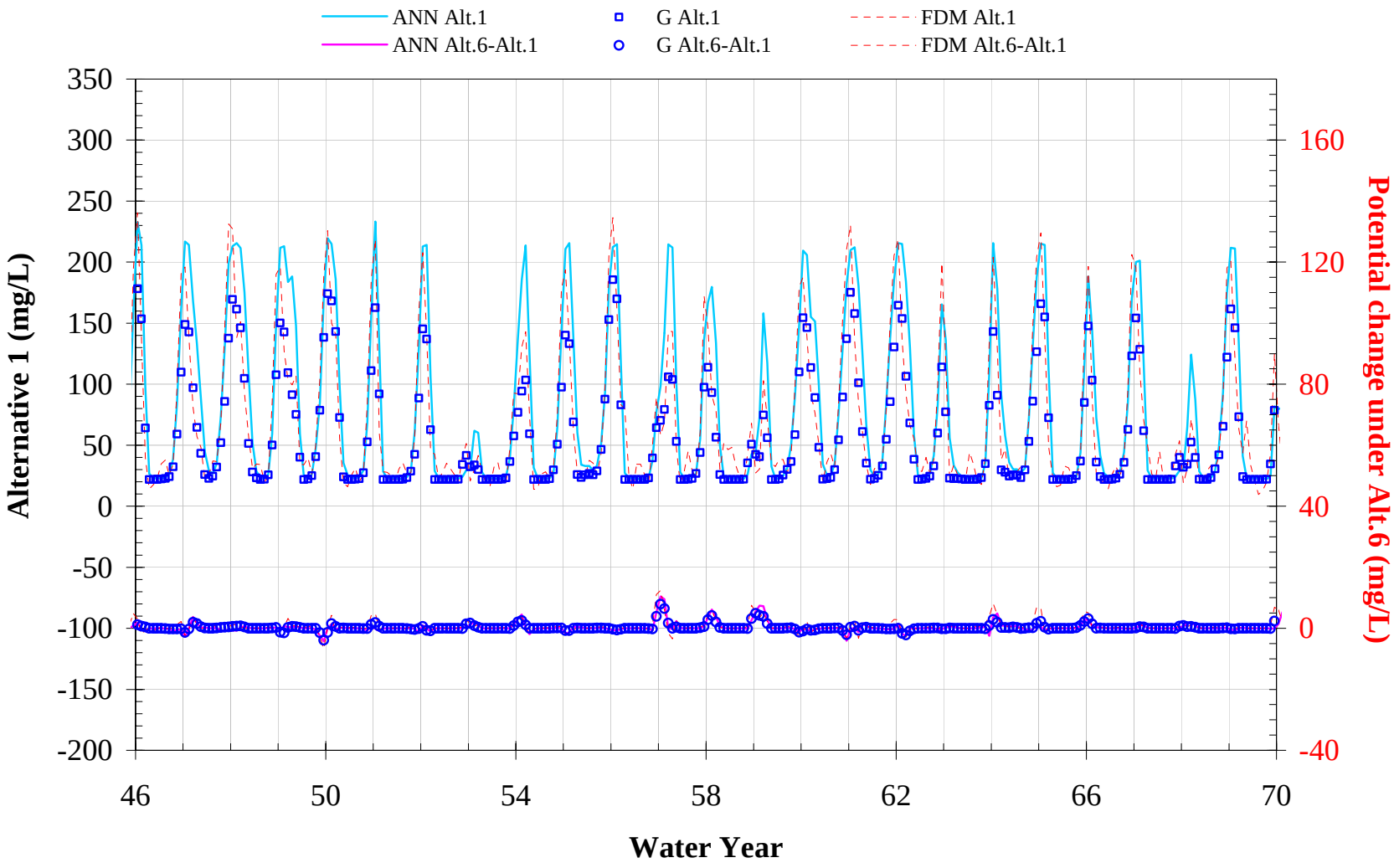
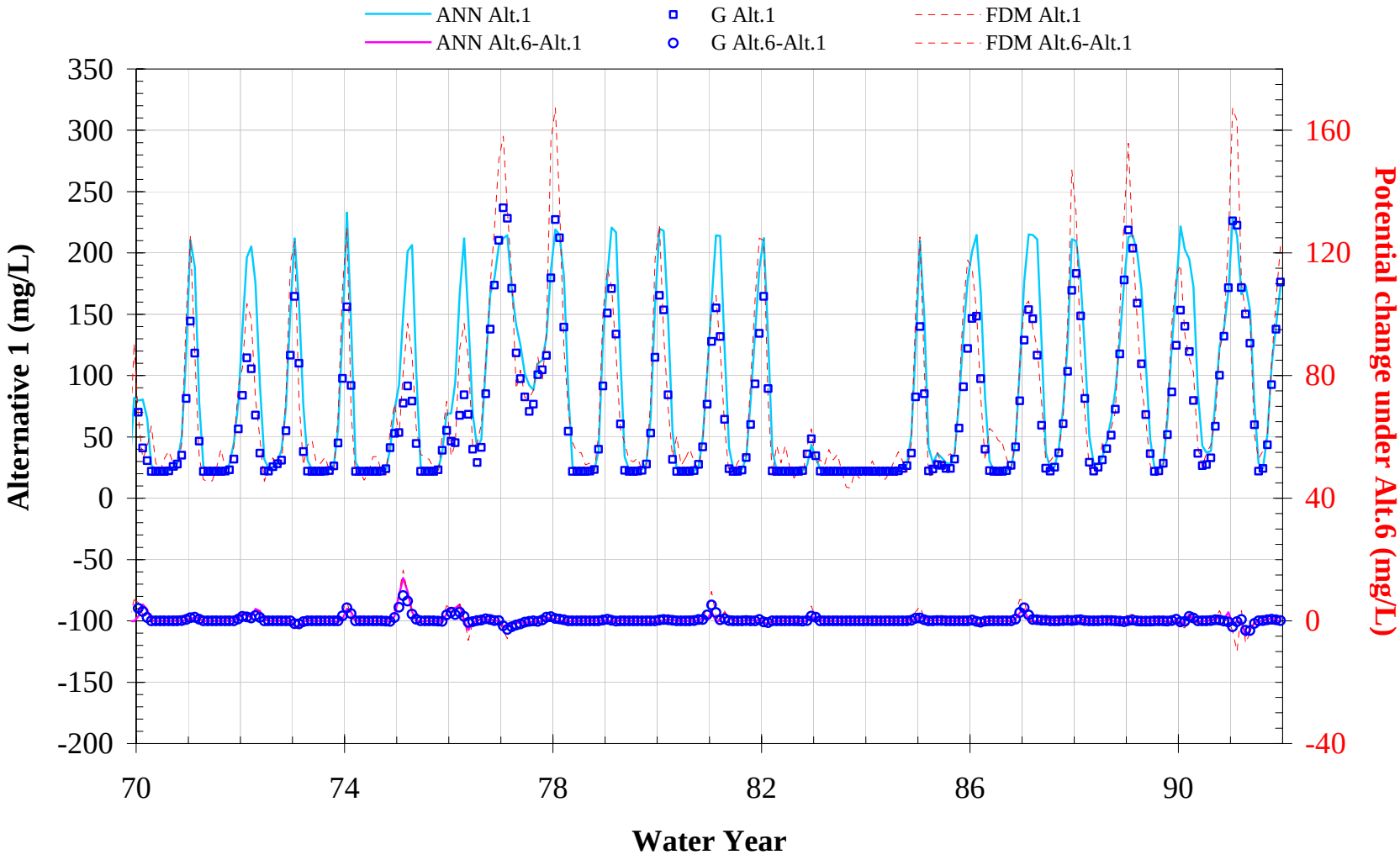


Figure 4.4.4-7c Simulated monthly-average chloride concentration in Rock Slough at Old River under Alternatives 1 and 6 at 2020 LoD



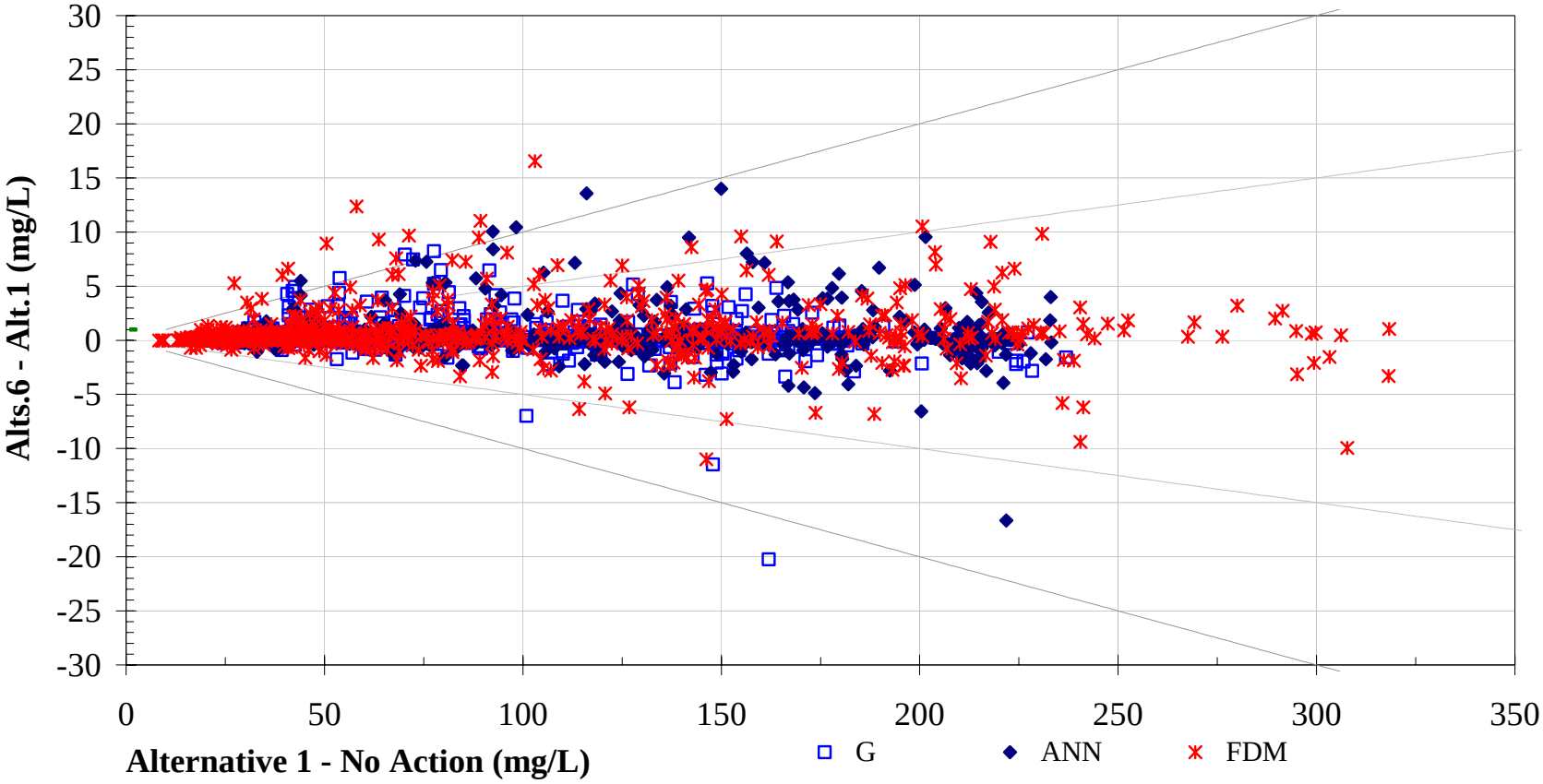
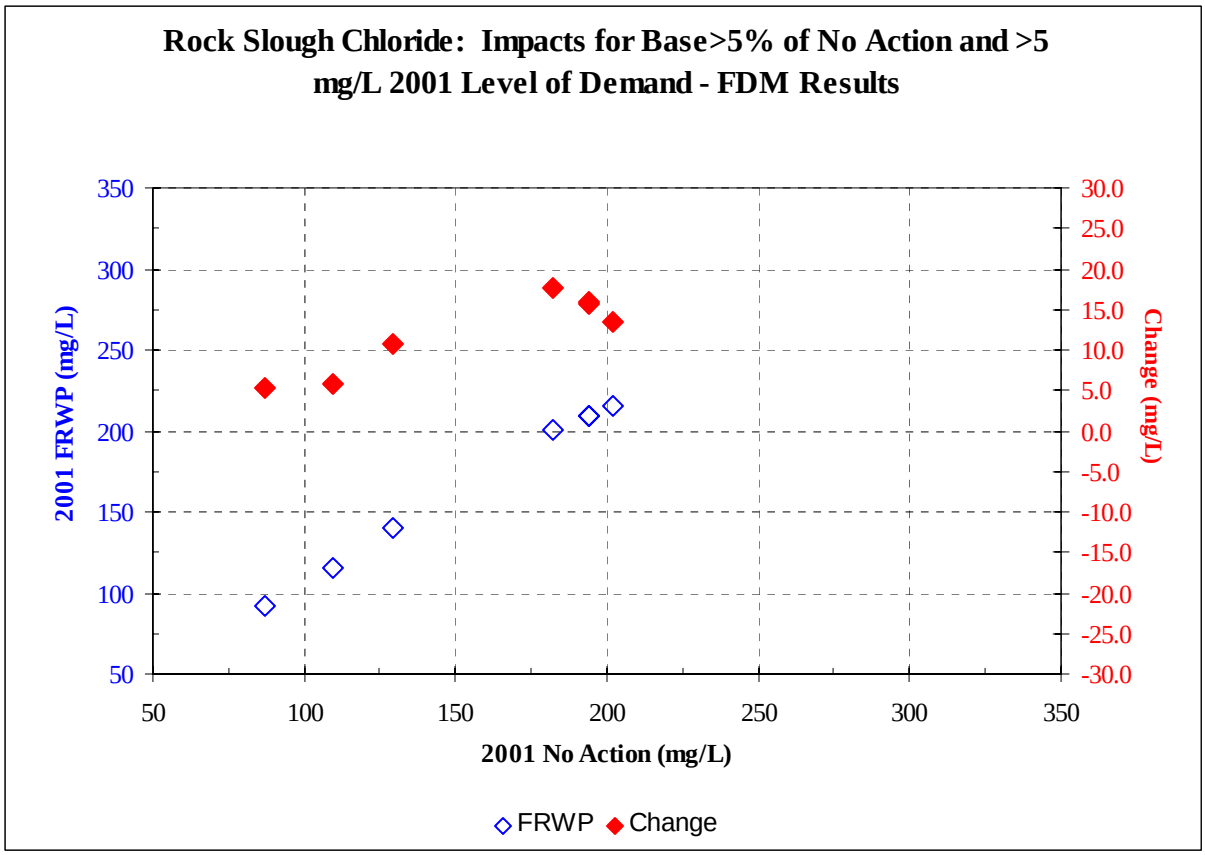
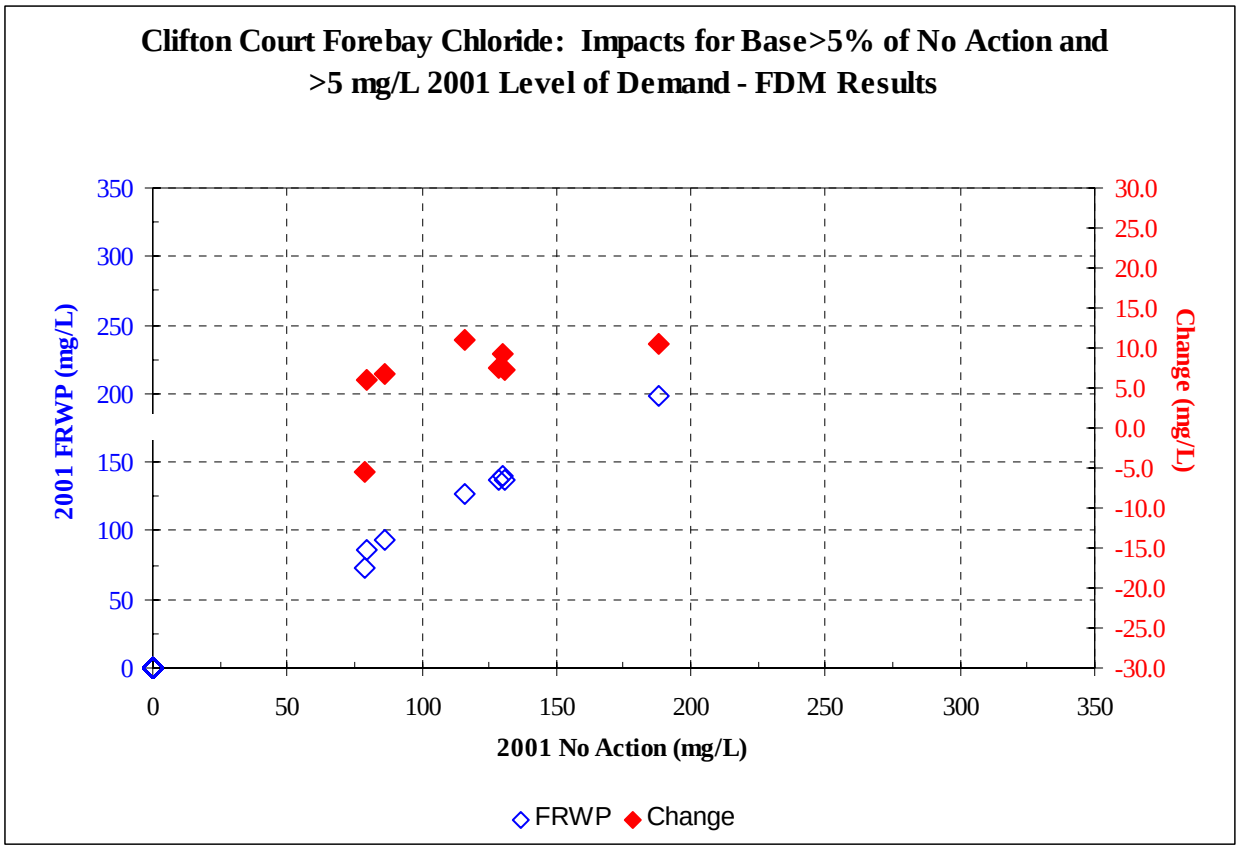


Figure 4.4.4-8 Potential change in monthly-average chloride concentration in Rock Slough at Old River under Alternaitve 6 at 2020 LOD For each data point (indicated by a square), the x-value is the salinity for Alt.1 for a particular month, and the y-value corresponds to the difference in simulated salinity between Alt.6 and Alt.1 for the same month. All data points on the horizontal line where the y-values are zero indicate that the project has no potential impact on salinity in that month (that is, Alt.1 and Alt.6 have same salinity). A positive y-value would indicate an increase in salinity under Alt.6 and a negative y-value would indicate a decrease. A comparison of the number of points above the y=0 line and the number below gives the frequencies the project increases and decreases salinity in Rock Slough. The solid lines represent the limits for impacts to be within ±5% and ±10% of Alt.1 value.



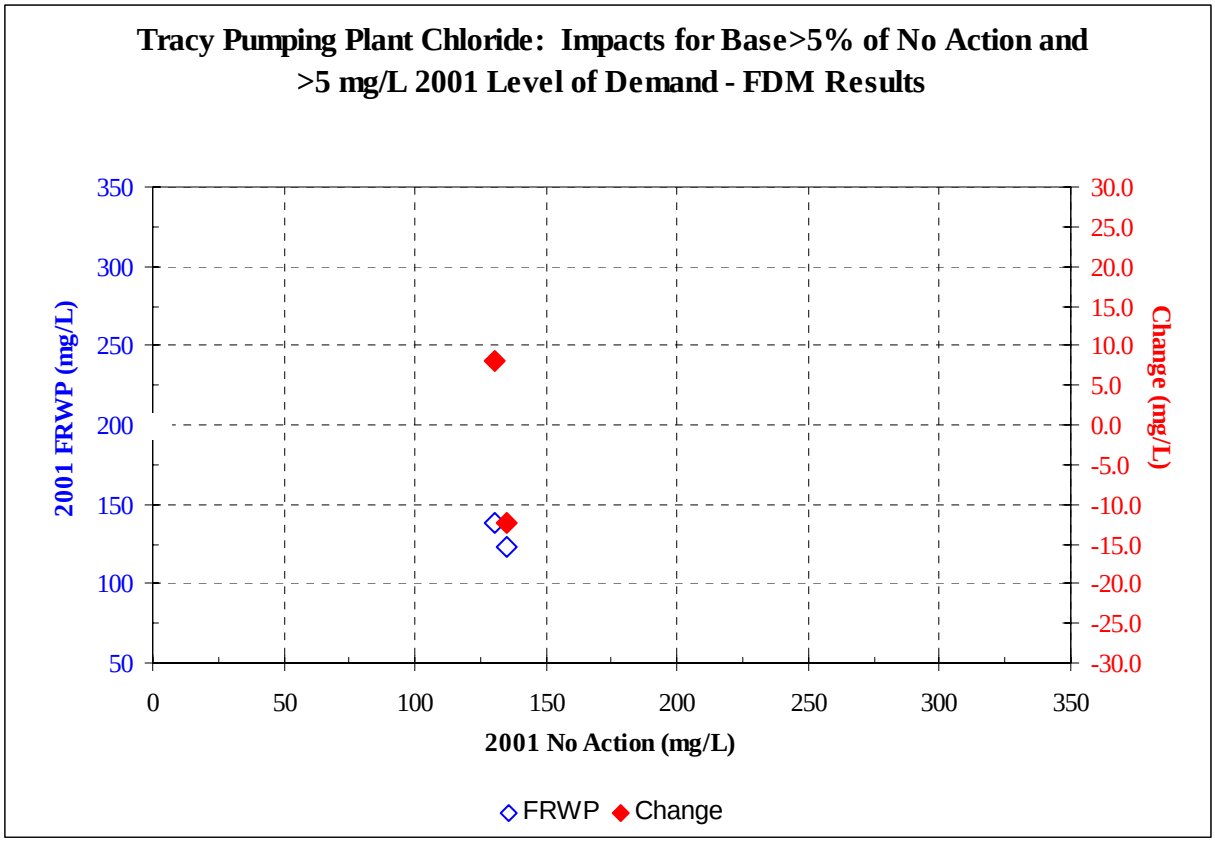
Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	0	0.0%	7	0.8%
Average Change (mg/L Cl^-)	0		12.1	
Distribution of Changes by Year Type				
YT 1 = Critical	0		2	
YT 2 = Dry	0		1	
YT 3 = Below Normal	0		0	
YT 4 = Above Normal	0		1	
YT 5 = Wet	0		3	

Figure 4.4.7.3.1-1. Potential changes in monthly-average chloride concentration in Rock Slough under Alternatives 2-5 at 2001 LOD. Only those months in which the difference is more than 5 mg/L and 5% of the Alternative 1 value are shown.



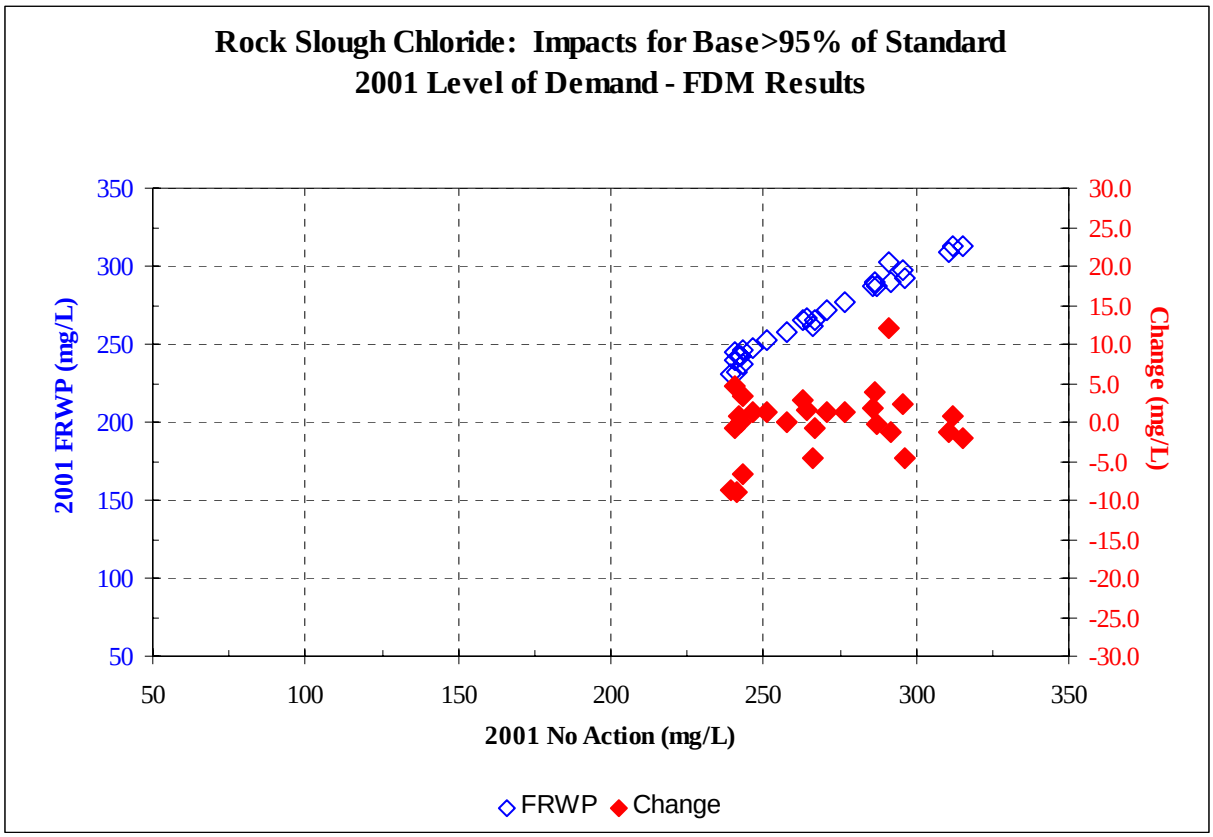
Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	1	0.1%	7	0.8%
Average Change (mg/L Cl^-)	-5.4		8.3	
Distribution of Changes by Year Type				
YT 1 = Critical	1		4	
YT 2 = Dry	0		1	
YT 3 = Below Normal	0		0	
YT 4 = Above Normal	0		1	
YT 5 = Wet	0		1	

Figure 4.4.7.3.1-2. Potential changes in monthly-average chloride concentration in Clifton Court Forebay under Alternatives 2-5 at 2001 LOD. Only those months in which the difference is more than 5 mg/L and 5% of the Alternative 1 value are shown.



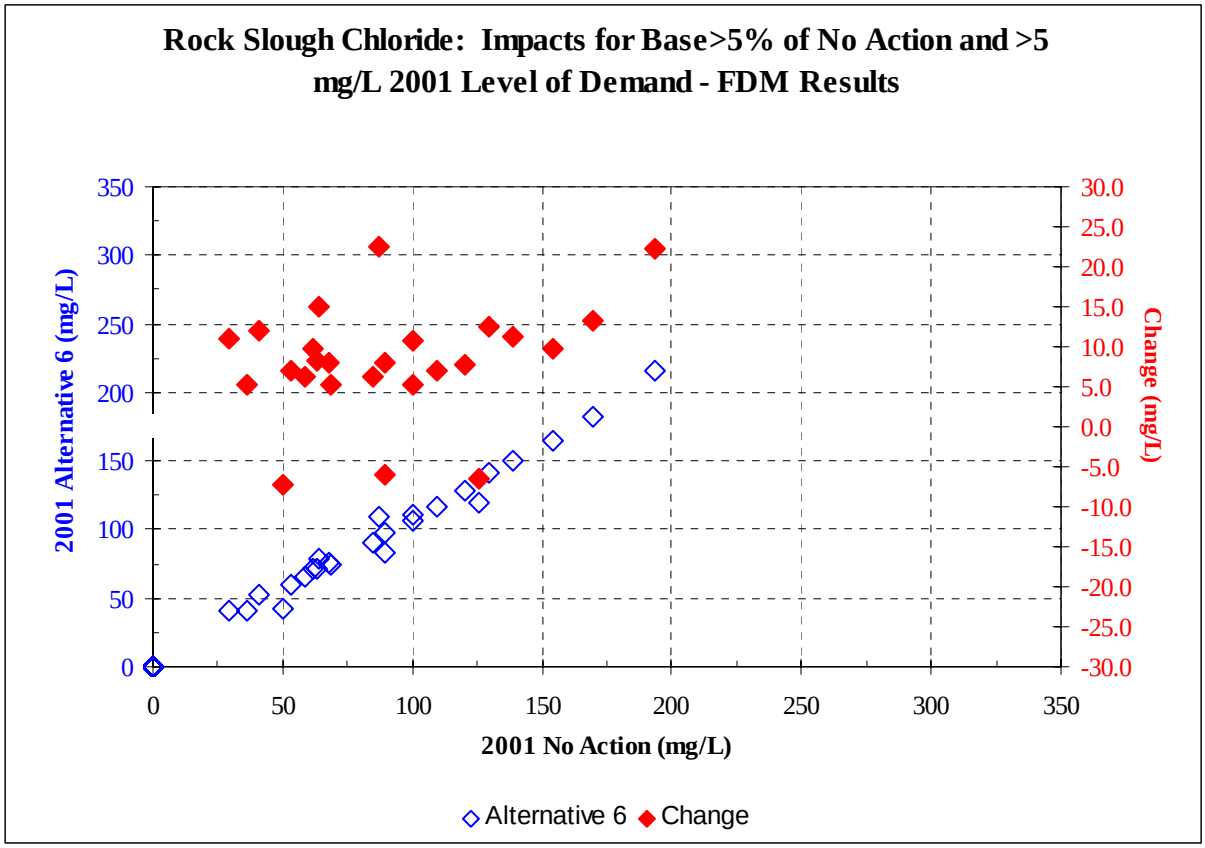
Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	1	0.1%	1	0.1%
Average Change (mg/L Cl^-)	-12.3		8.0	
Distribution of Changes by Year Type				
YT 1 = Critical	0		0	
YT 2 = Dry	1		1	
YT 3 = Below Normal	0		0	
YT 4 = Above Normal	0		0	
YT 5 = Wet	0		0	

Figure 4.4.7.3.1-3. Potential changes in monthly-average chloride concentration at Tracy Pumping Plant under Alternatives 2-5 at 2001 LOD. Only those months in which the difference is more than 5 mg/L and 5% of the Alternative 1 value are shown.



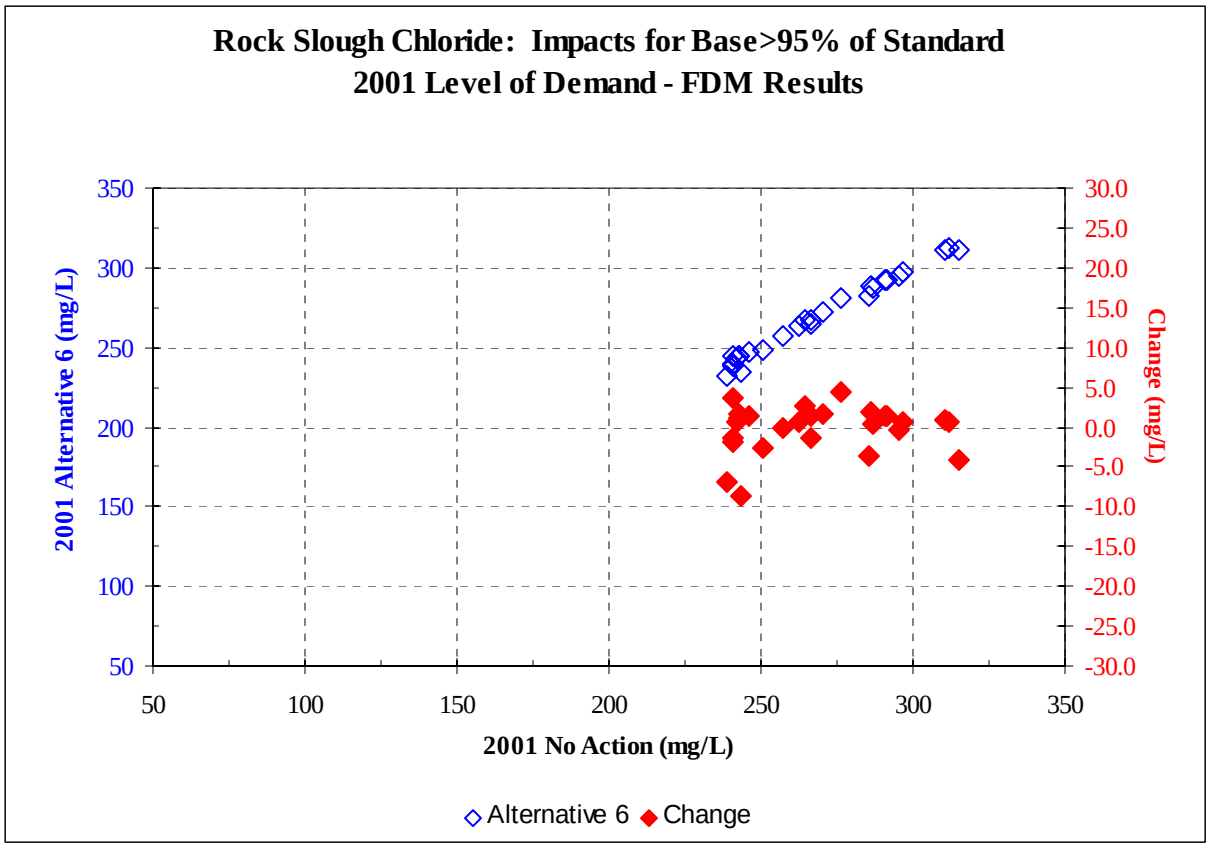
Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	12	1.4%	15	1.8%
Average Change (mg/L Cl^-)	-3.3		2.6	
Distribution of Changes by Year Type				
YT 1 = Critical	10		11	
YT 2 = Dry	2		3	
YT 3 = Below Normal	0		1	
YT 4 = Above Normal	0		0	
YT 5 = Wet	0		0	

Figure 4.4.7.3.1-4. Potential changes in monthly-average chloride concentration in Rock Slough under Alternatives 2-5 at 2001 LOD. Only those months in which the Alternative 1 value is 237.5 mg/L or higher (95% of the 250 mg/L standard) are shown.



Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	3	0.4%	22	2.6%
Average Change (mg/L Cl^-)	-6.6		10.2	
Distribution of Changes by Year Type				
YT 1 = Critical	0		0	
YT 2 = Dry	1		3	
YT 3 = Below Normal	0		0	
YT 4 = Above Normal	0		2	
YT 5 = Wet	2		17	

Figure 4.4.7.3.2-1. Potential changes in monthly-average chloride concentration in Rock Slough under Alternative 6 at 2001 LOD. Only those months in which the difference is more than 5 mg/L and 5% of the Alternative 1 value are shown.



Parameter	Months with Reduced Salinity	Percent of Total	Months with Increased Salinity	Percent of Total
Total Months	10	1.2%	17	2.0%
Average Change (mg/L Cl^-)	-3.1		1.5	
Distribution of Changes by Year Type				
YT 1 = Critical	8		13	
YT 2 = Dry	2		3	
YT 3 = Below Normal	0		1	
YT 4 = Above Normal	0		0	
YT 5 = Wet	0		0	

Figure 4.4.7.3.2-2. Potential changes in monthly-average chloride concentration in Rock Slough under Alternative 6 at 2001 LOD. Only those months in which the Alternative 1 value is 237.5 mg/L or higher (95% of the 250 mg/L standard) are shown.