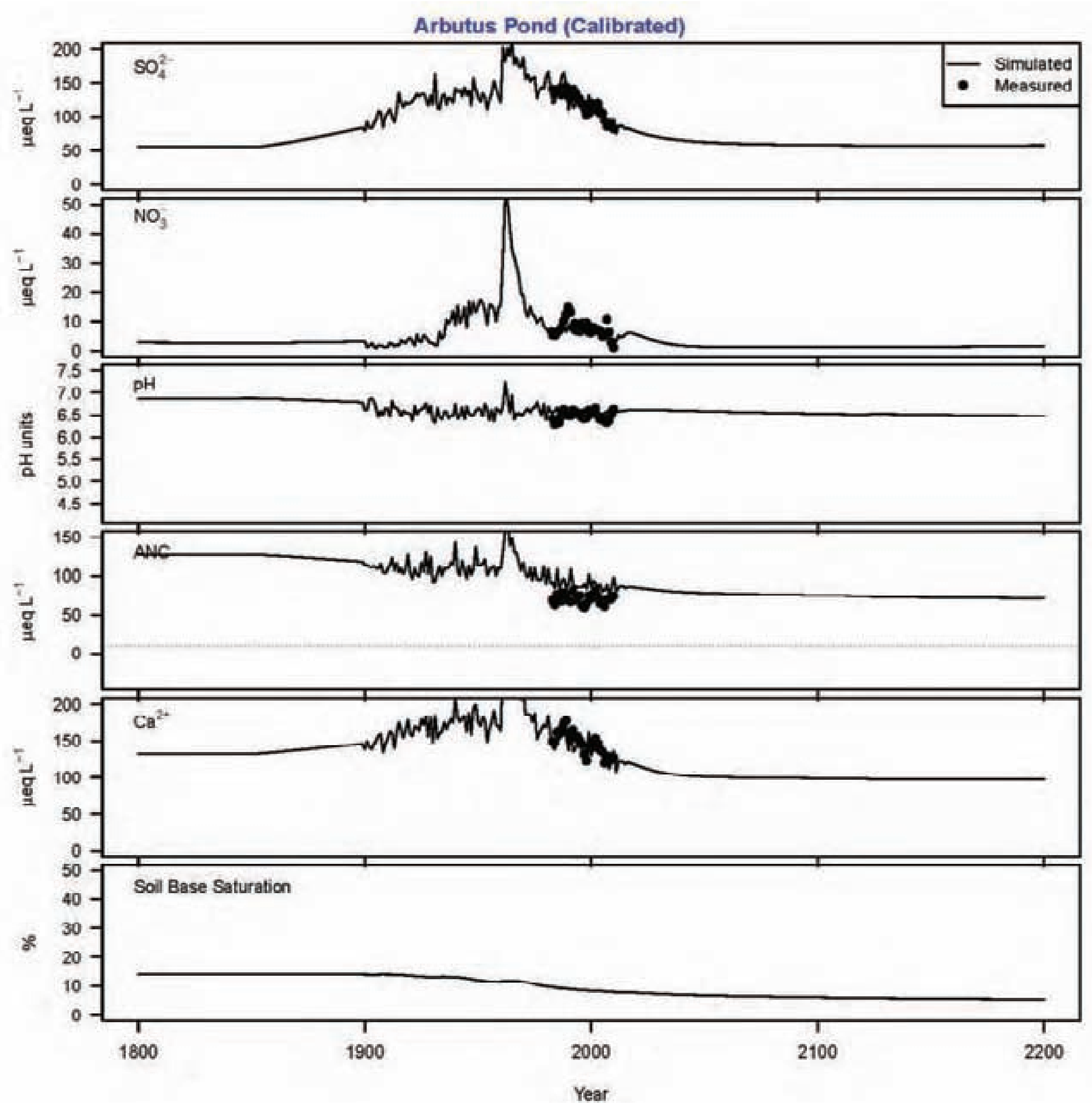
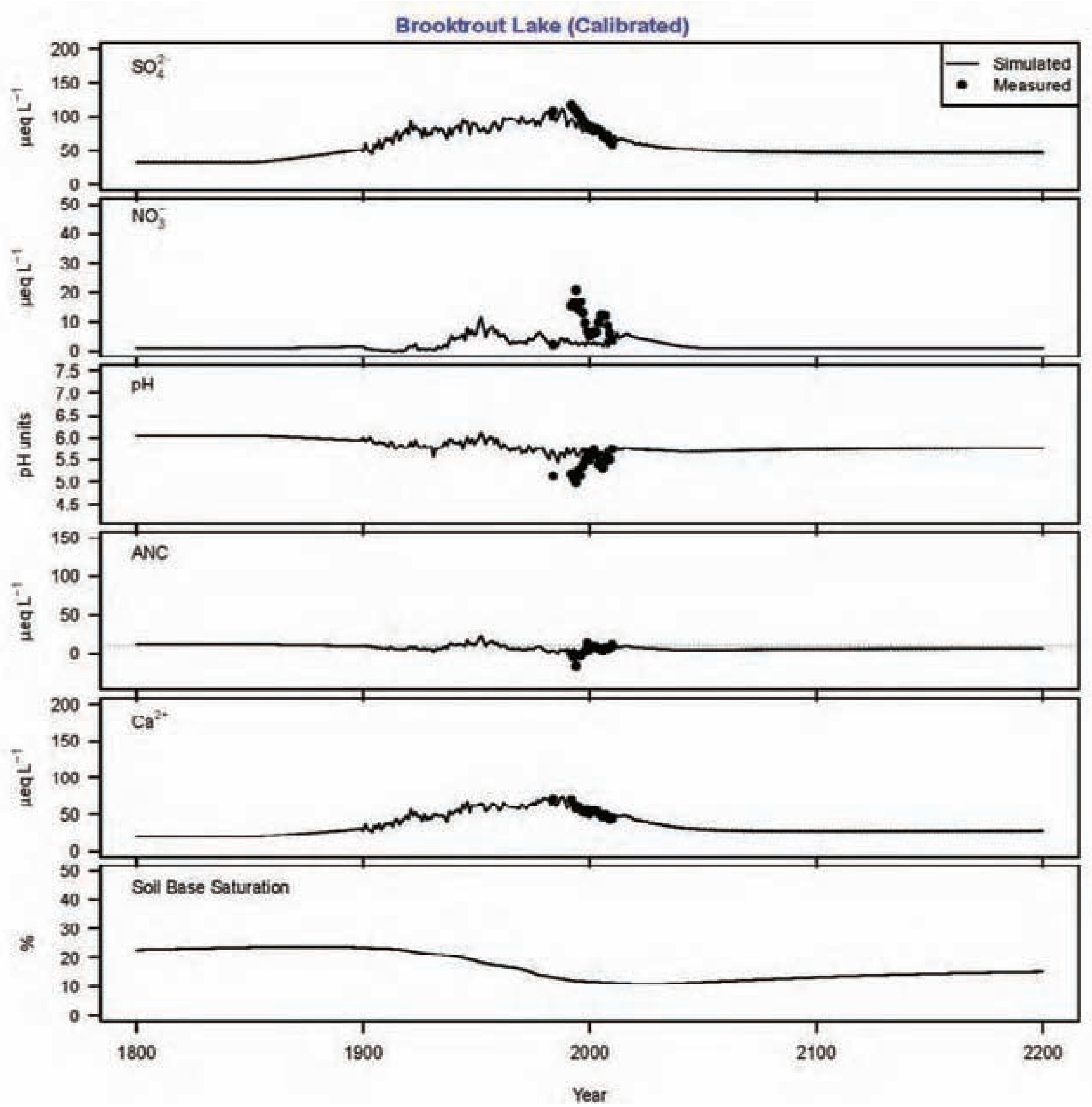
Appendix 1

Time-series results of model simulated concentrations of SO_4^{2-}, NO_3^{-}, pH, ANC, Ca^{2+} and soil percent base saturation for the 12 calibration and 14 confirmation lakes

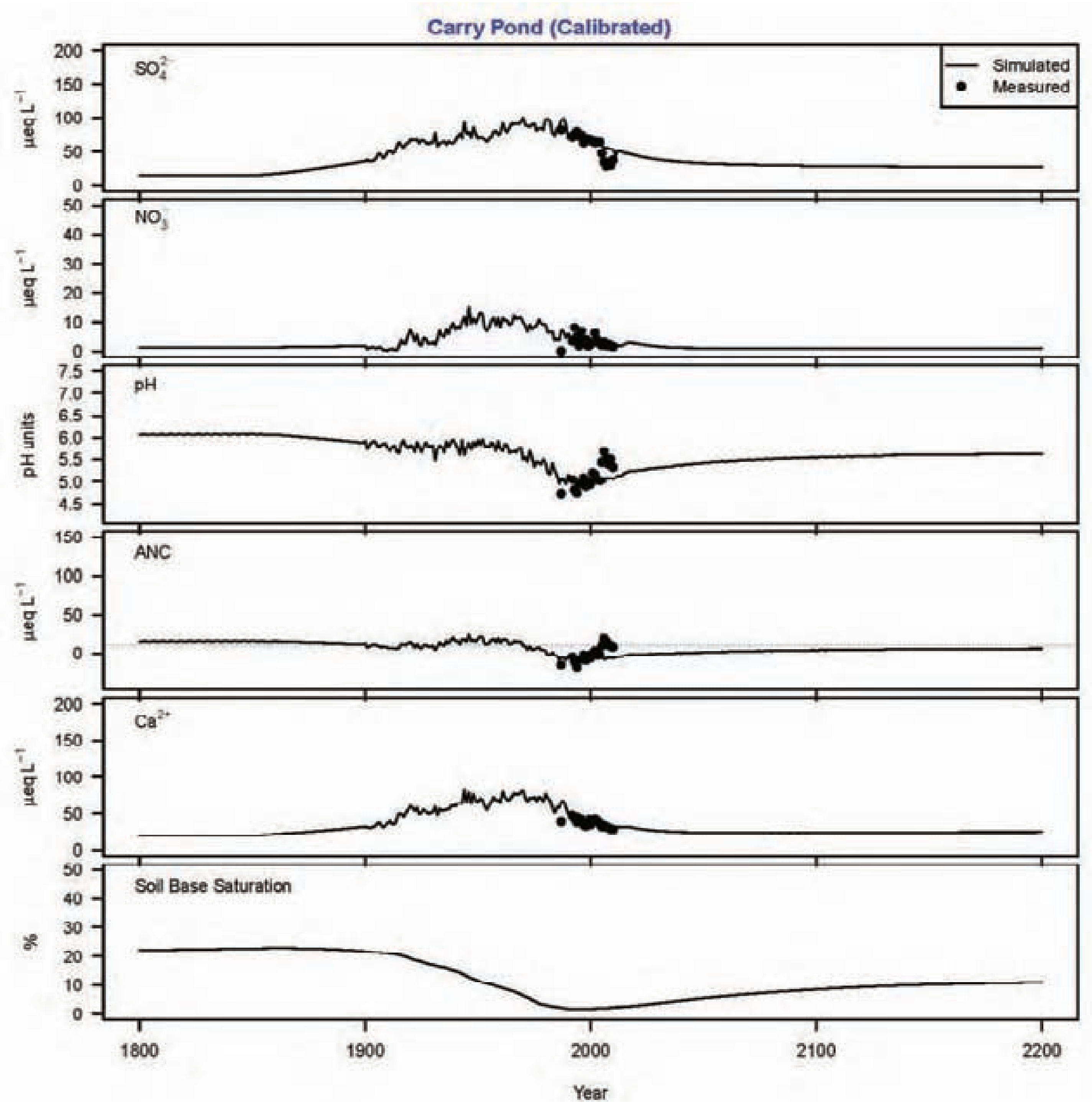
Appendix 1

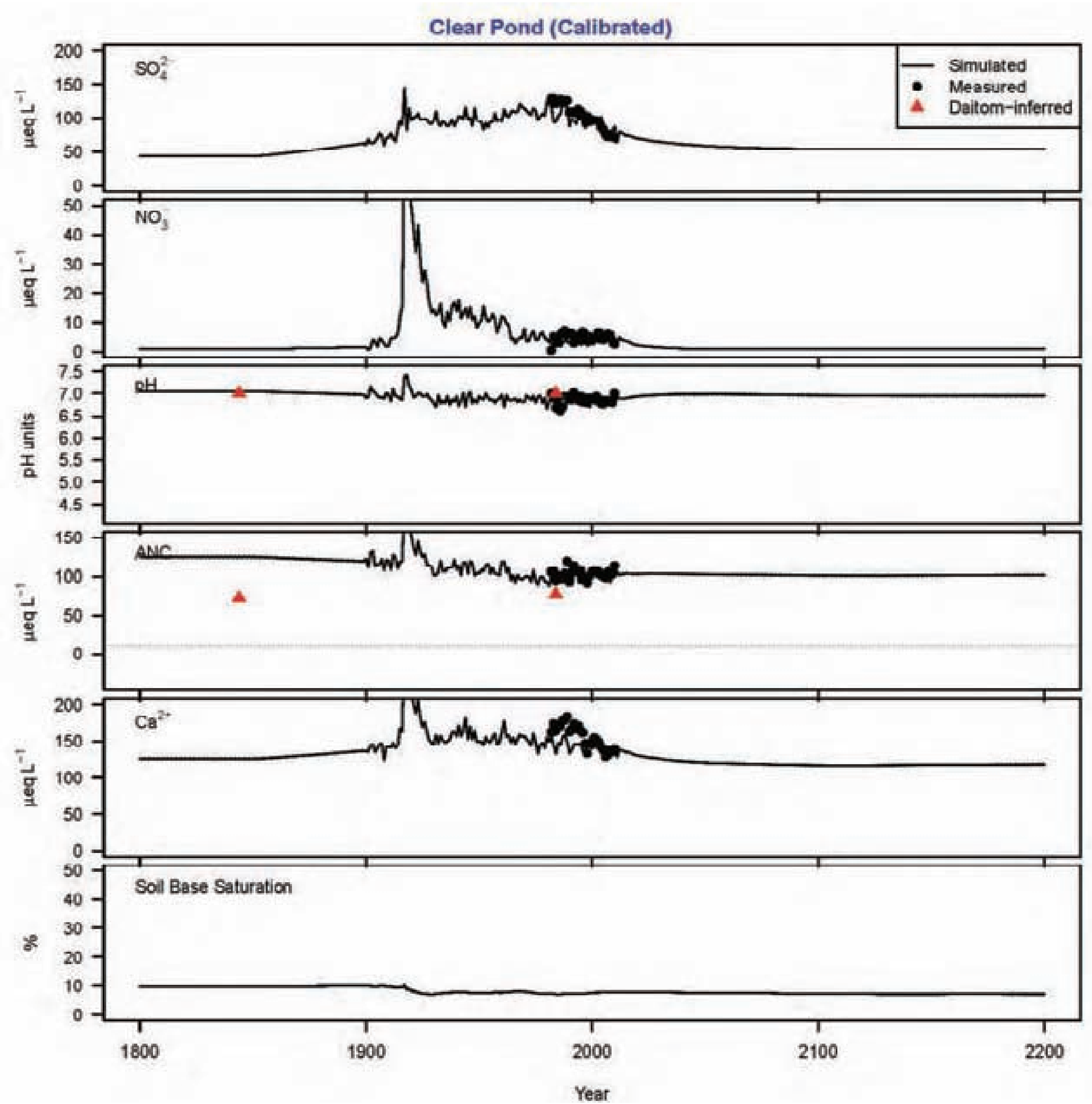


Arbutus Pond (Calibrated)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
200
150
100
50
0
50
40
30
20
10
7.5
7.0
6.5
6.0
5.5
5.0
4.5
1800
1900
2000
2100
2200
Year

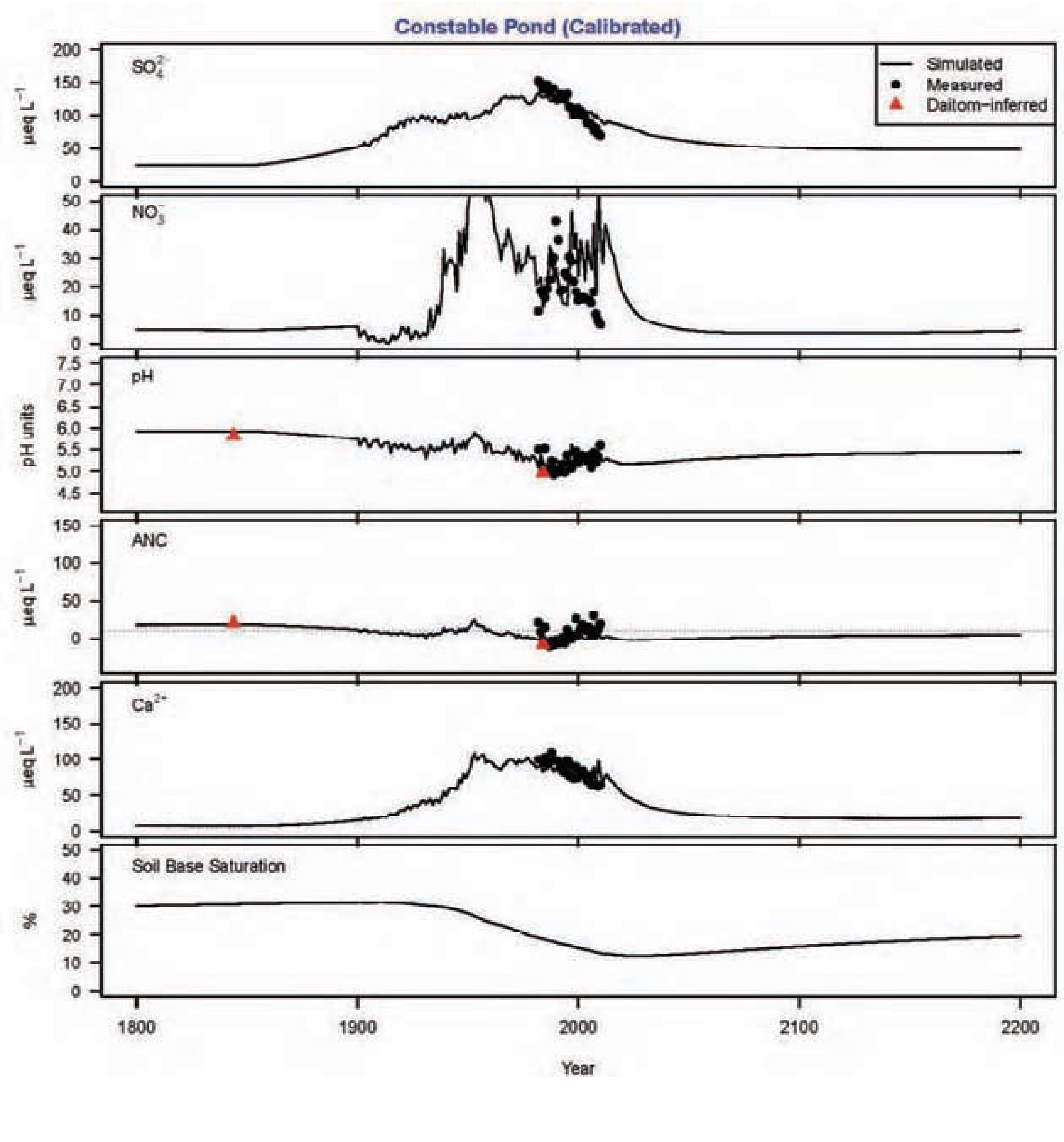


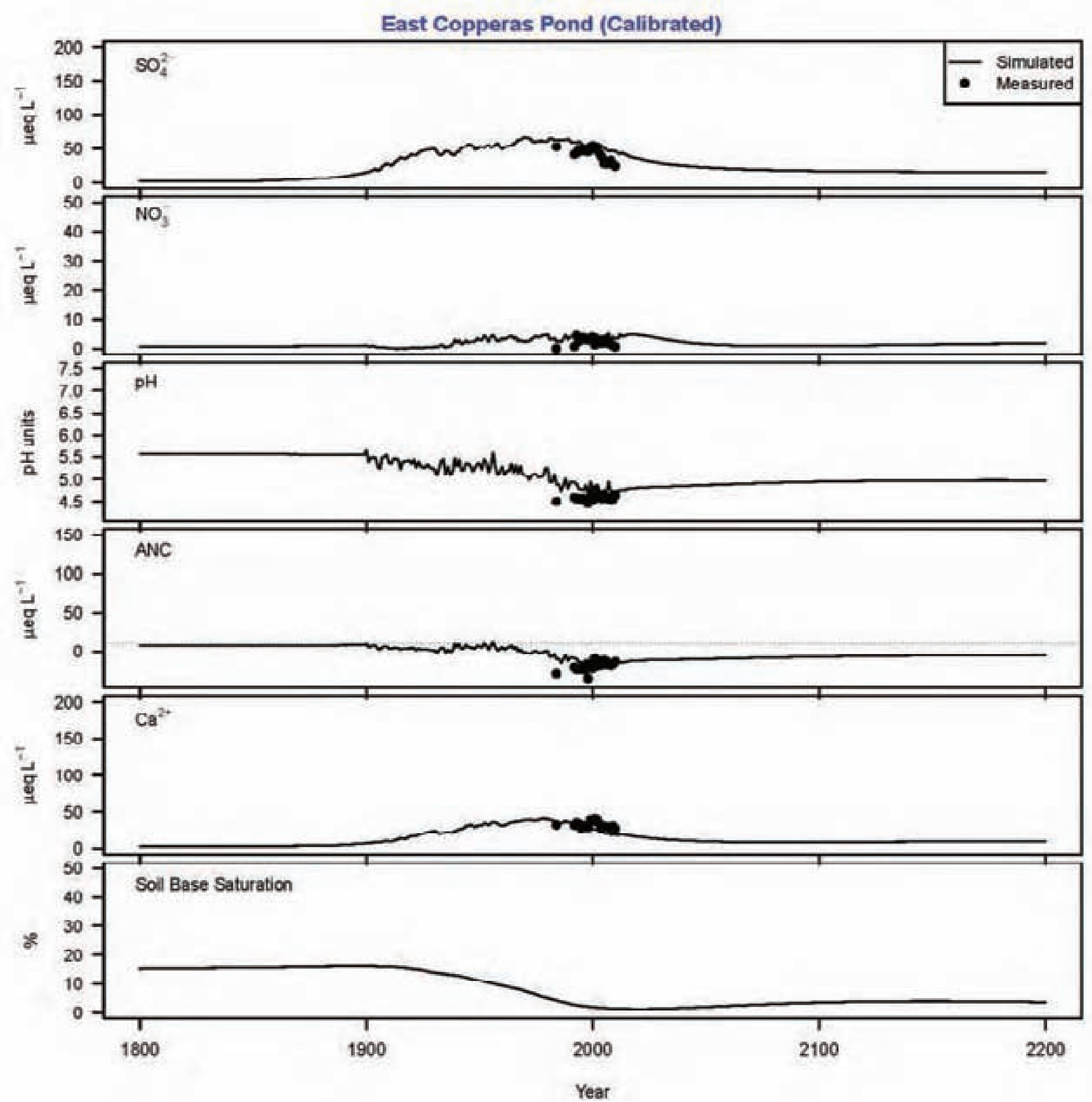
Brooktrout Lake (Calibrated)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
1800
1900
2000
2100
2200
Year

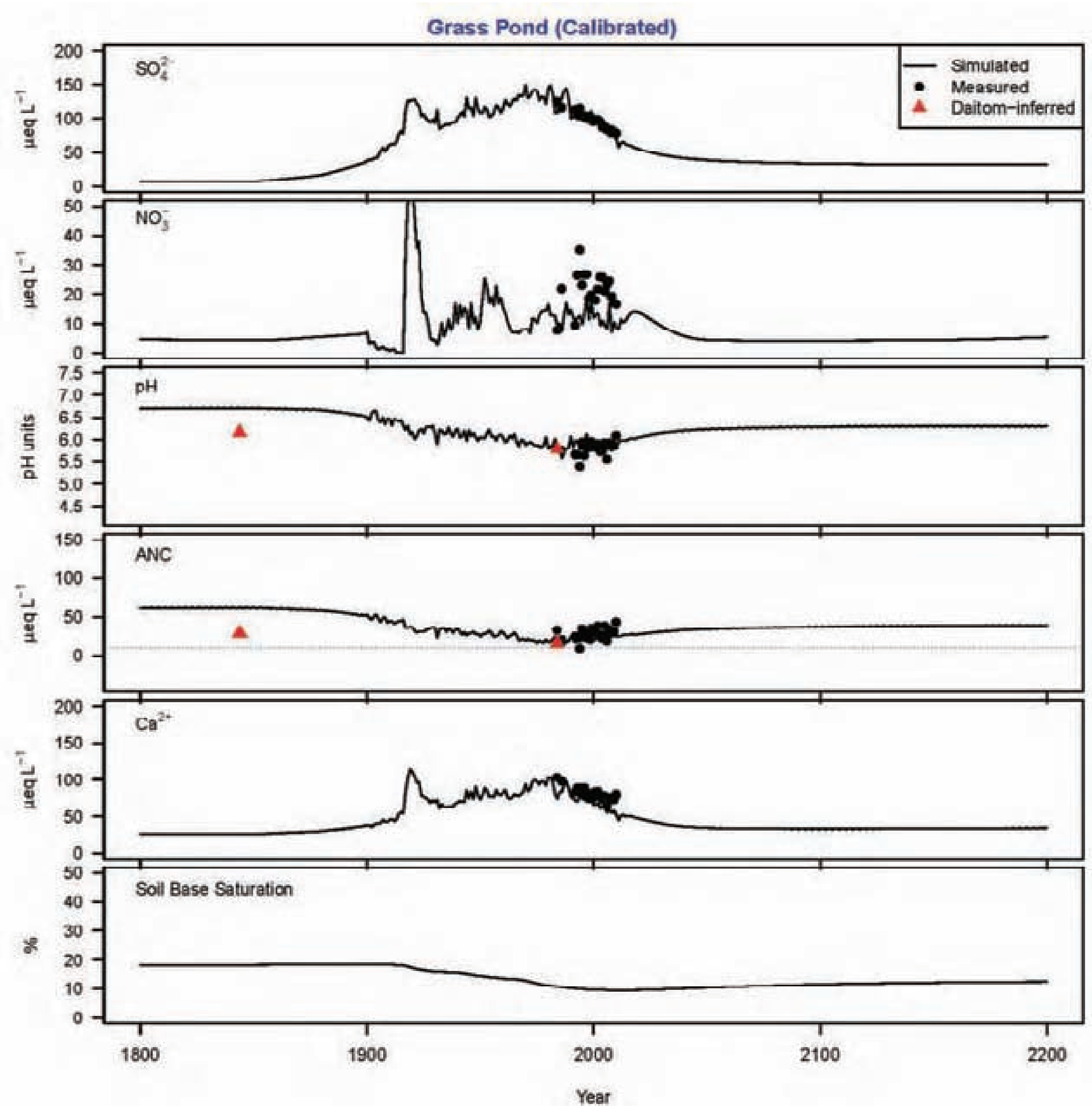

Carry Pond (Calibrated)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

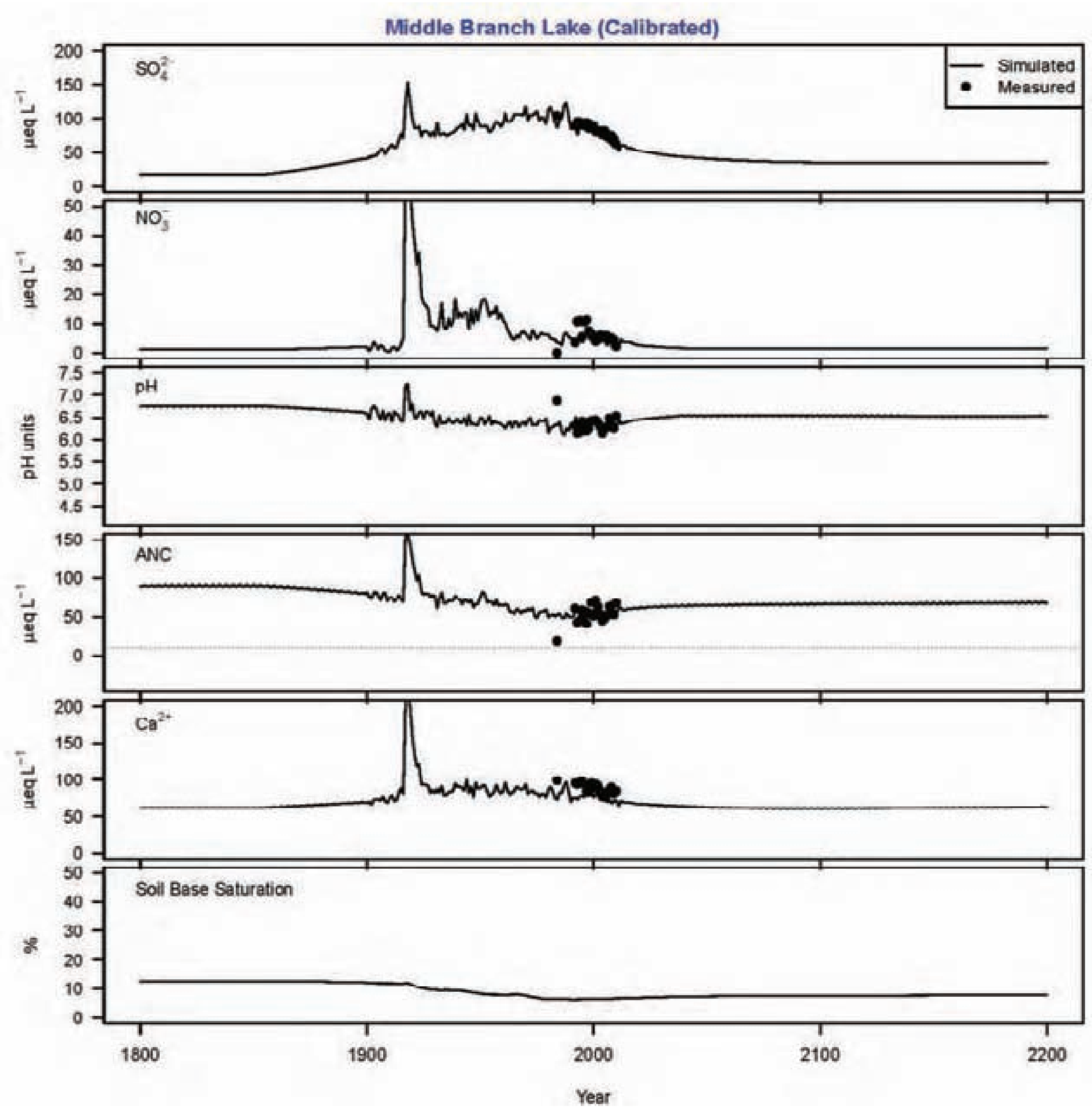


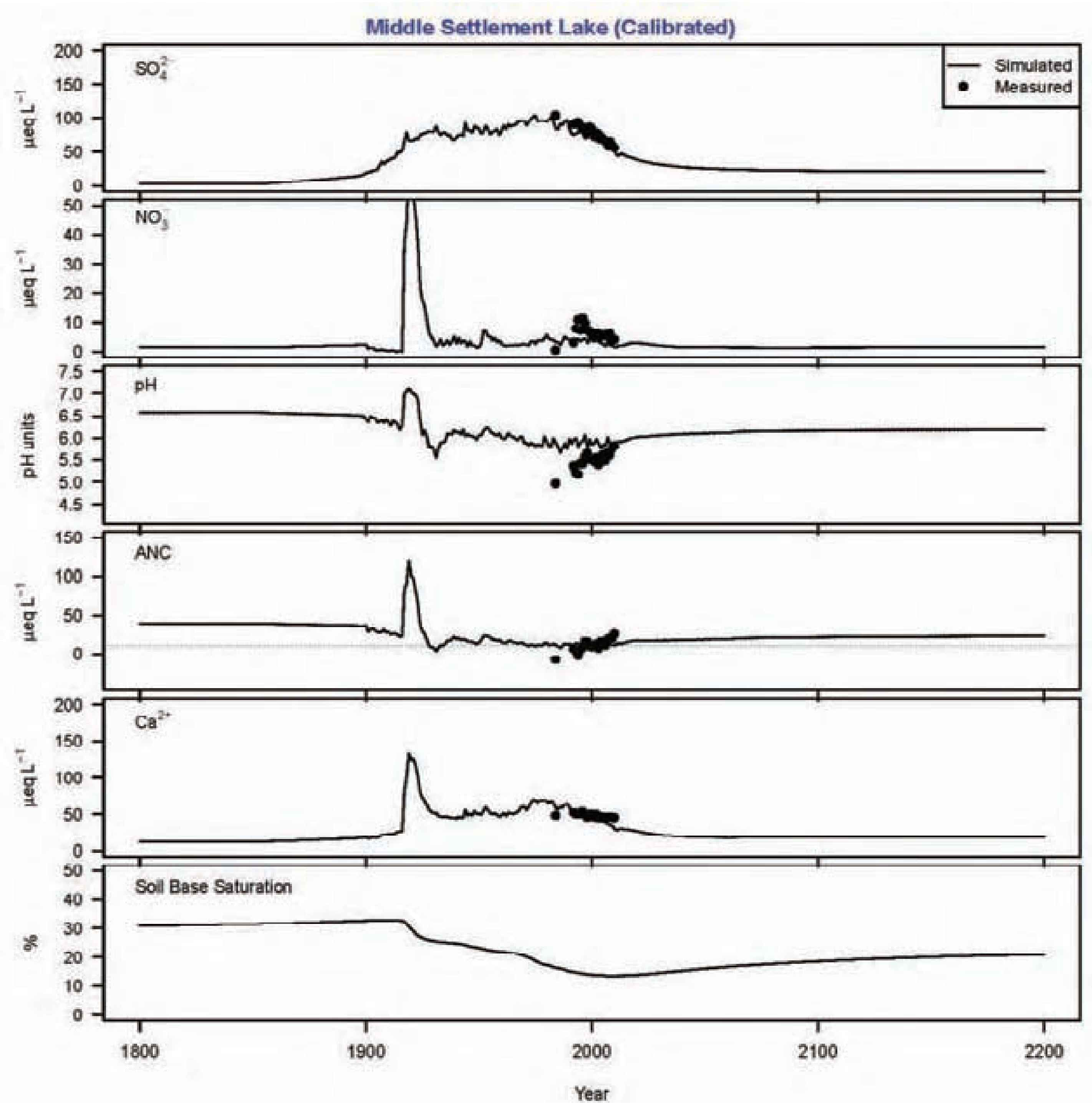
Clear Pond (Calibrated)
Simulated
Measured
Daitom−inferred
SO4 2−
NO3 −
pH
ANC
Ca2+
Soil Base Saturation
µeq L−1
pH units
%
1800
1900
2000
2100
2200
Year

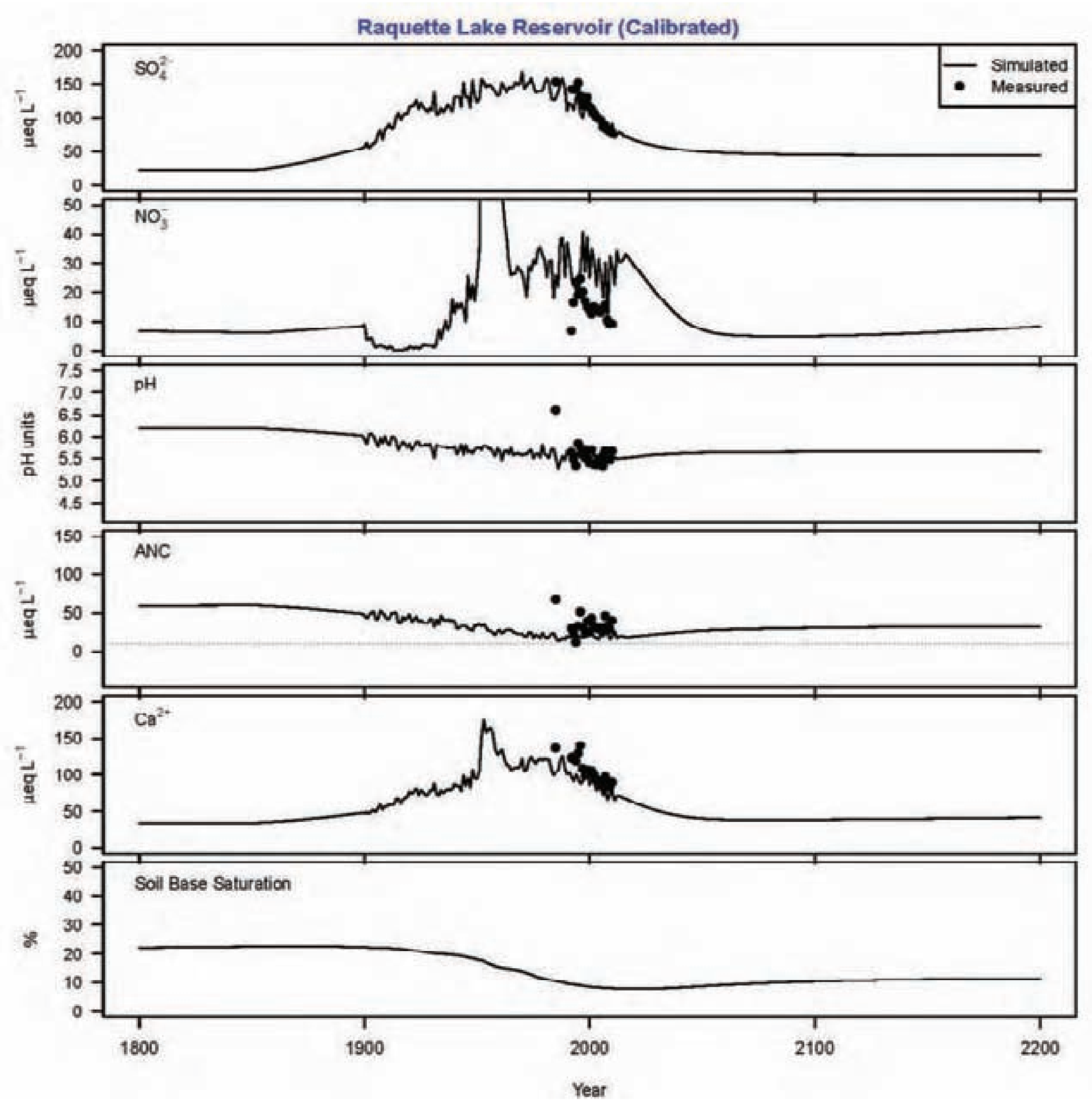

Constable Pond (Calibrated)
Simulated
Measured
Daitom-inferred
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

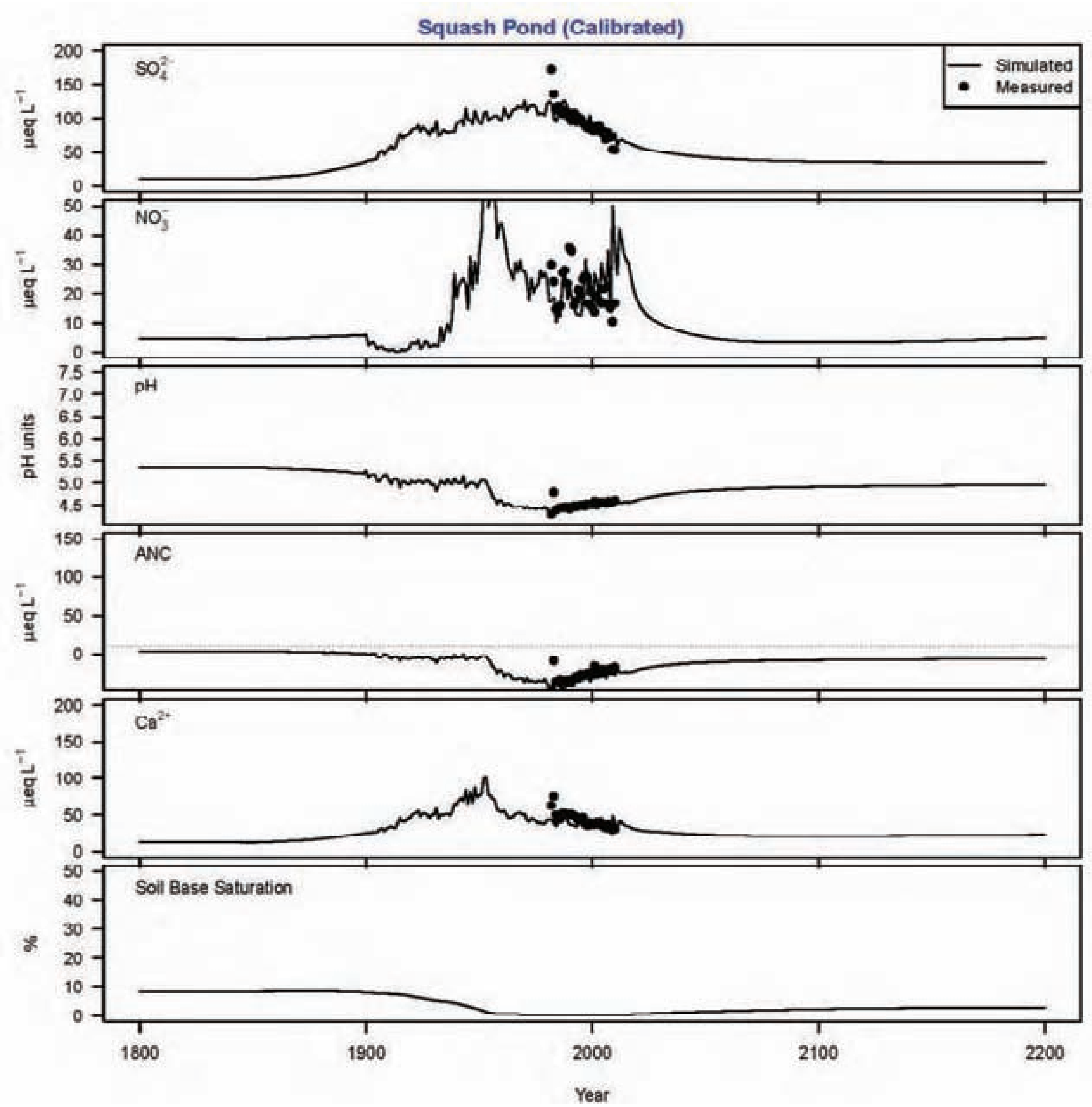

East Copperas Pond (Calibrated)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
1800
1900
2000
2100
2200
Year

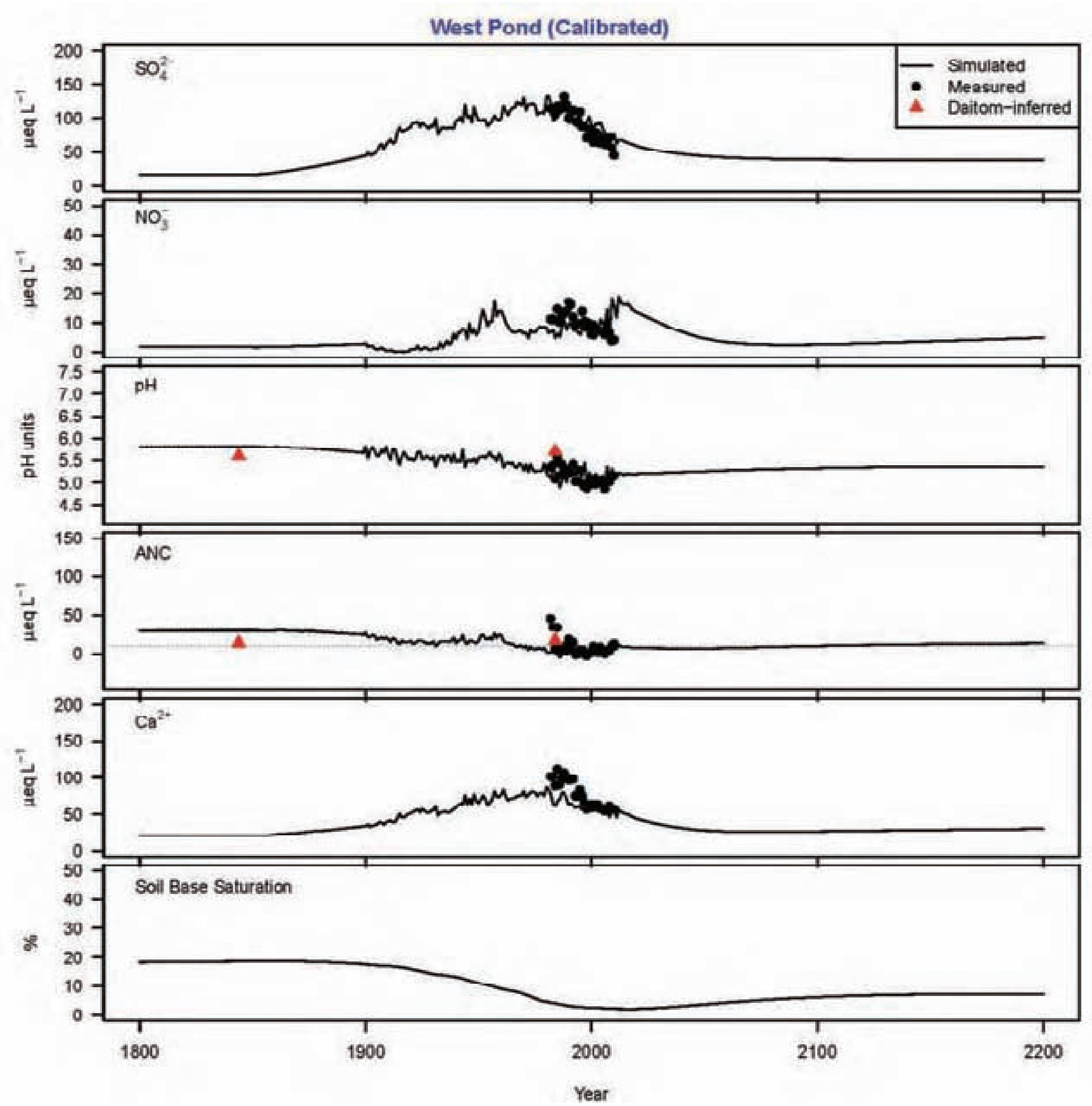

Grass Pond (Calibrated)
Simulated
Measured
Daitom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

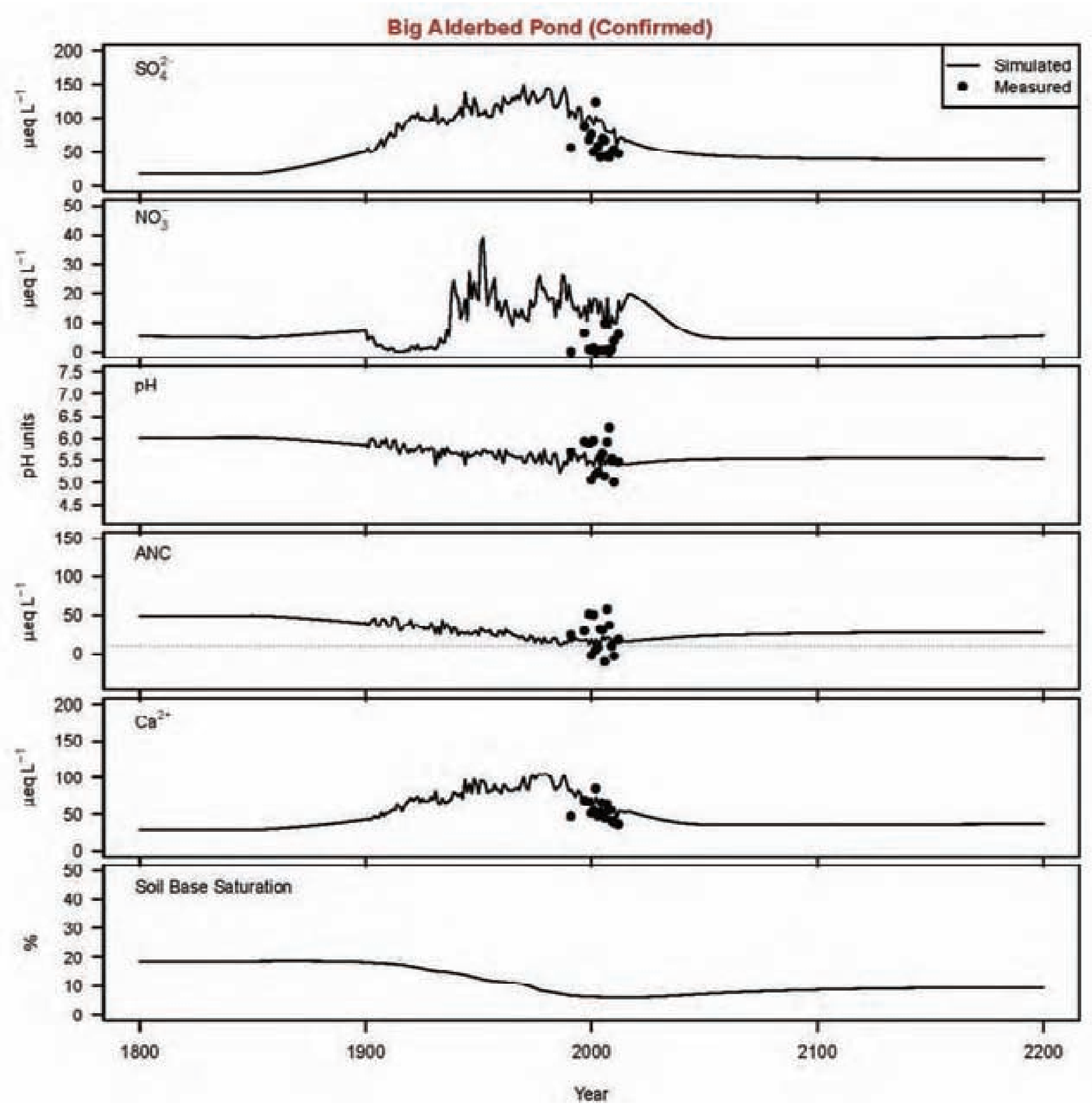

Middle Branch Lake (Calibrated)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year


Middle Settlement Lake (Calibrated)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
1800
1900
2000
2100
2200
Year

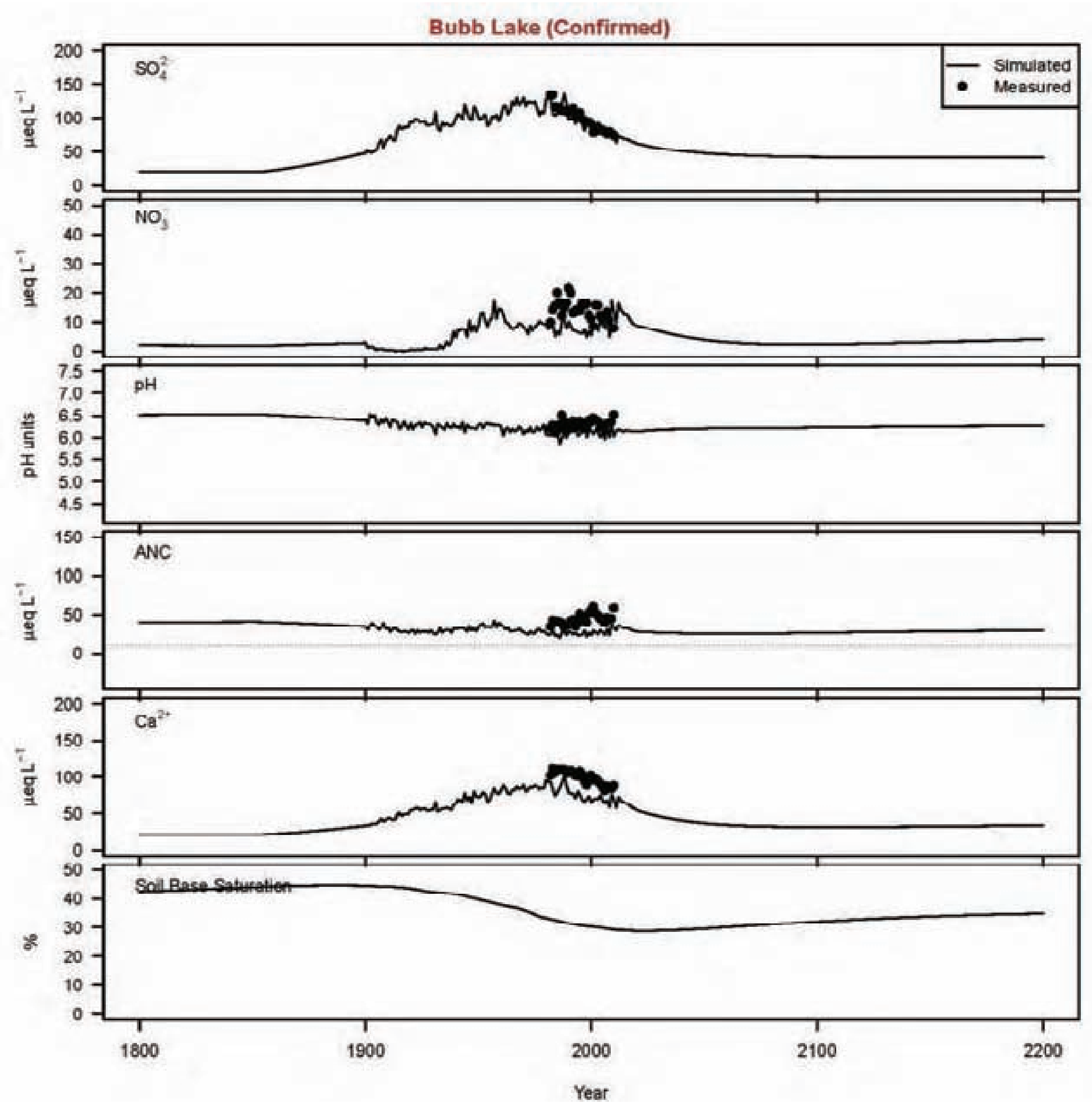

Raquette Lake Reservoir (Calibrated)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
1800
1900
2000
2100
2200
Year


Squash Pond (Calibrated)
Simulated
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
µeq L⁻¹
pH
pH units
ANC
µeq L⁻¹
Ca^{2+}
µeq L⁻¹
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

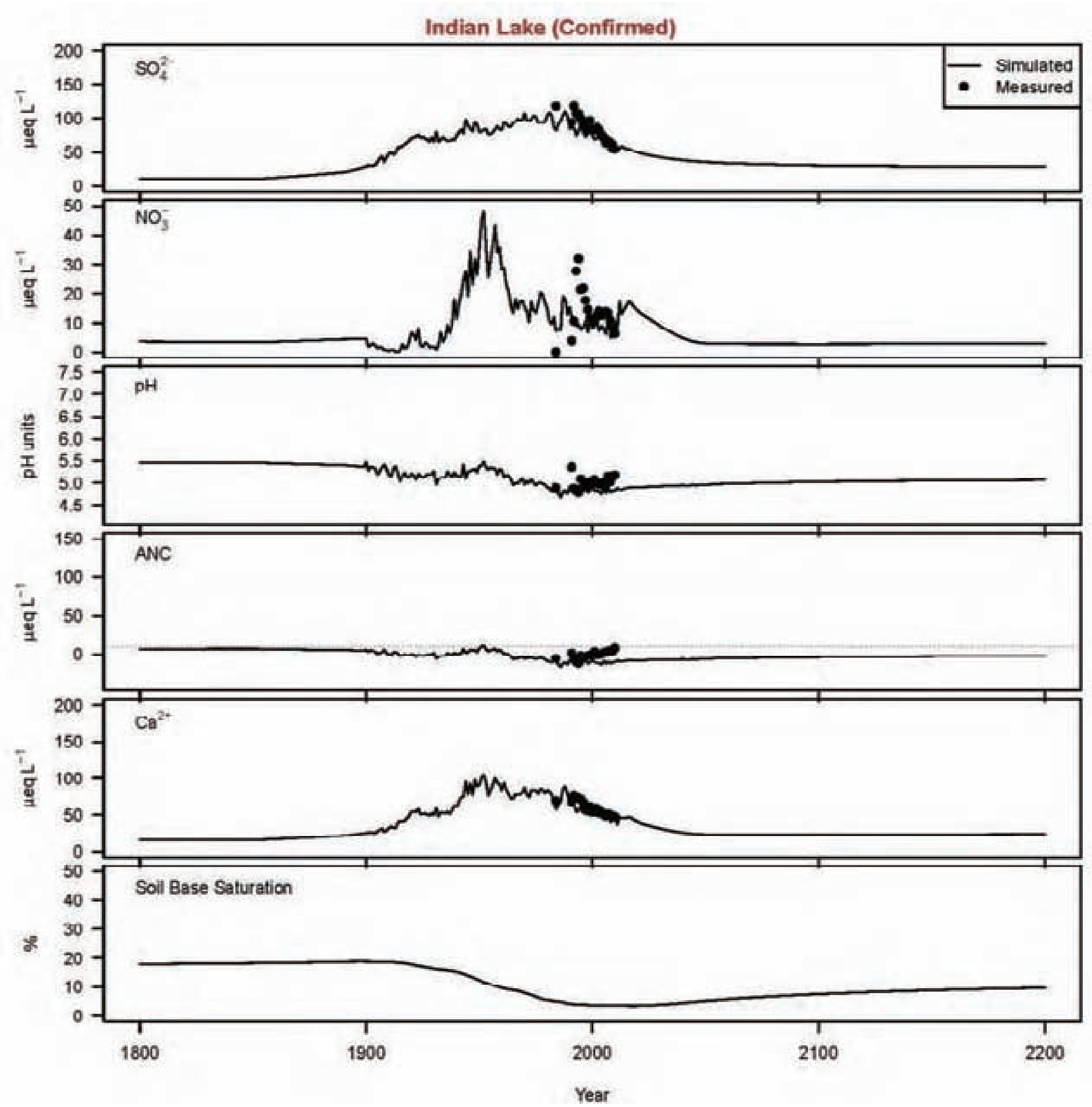

West Pond (Calibrated)
Simulated
Measured
Daitom−inferred
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
μeq L−1
pH units
%
Year
1800
1900
2000
2100
2200

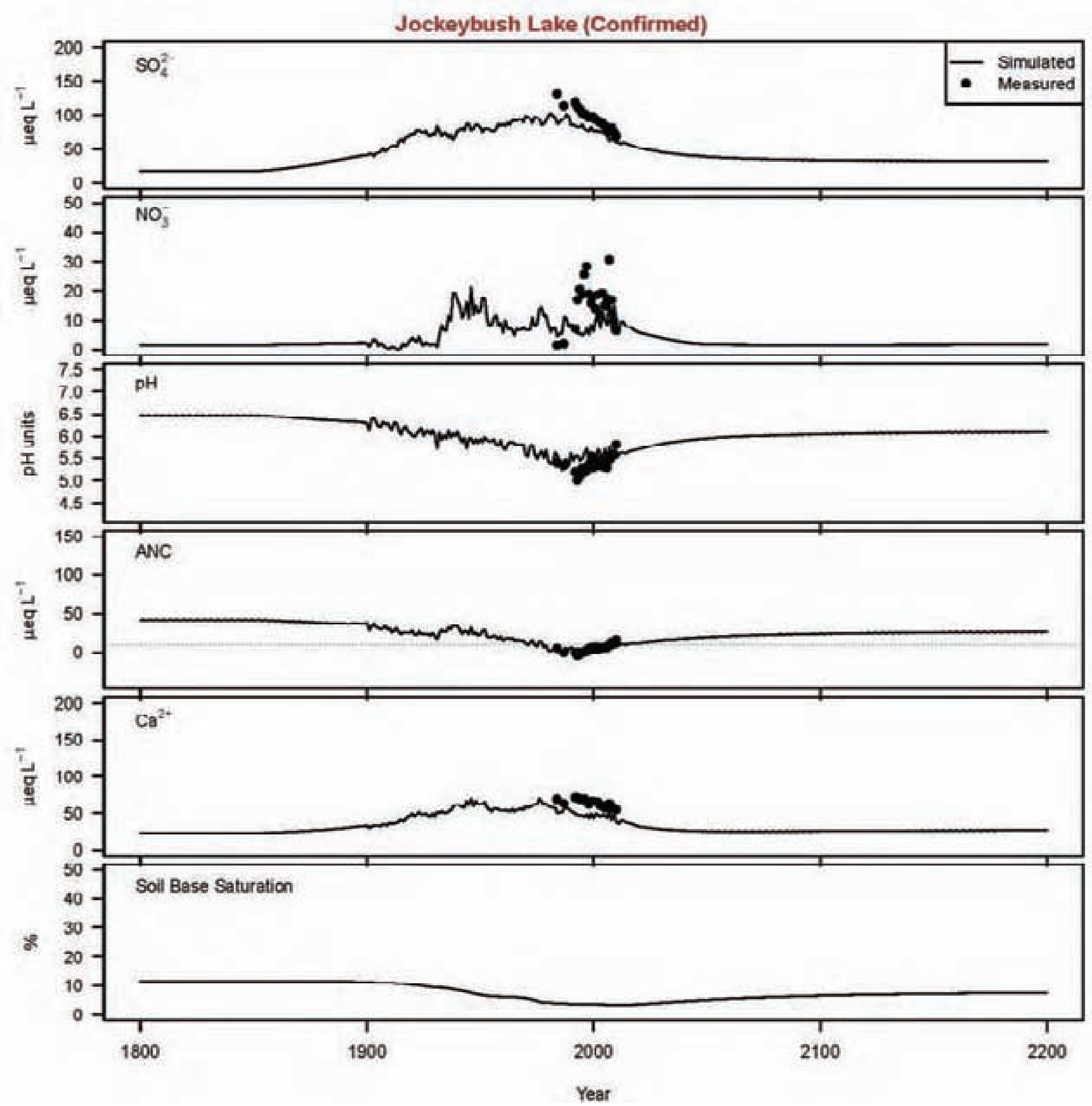


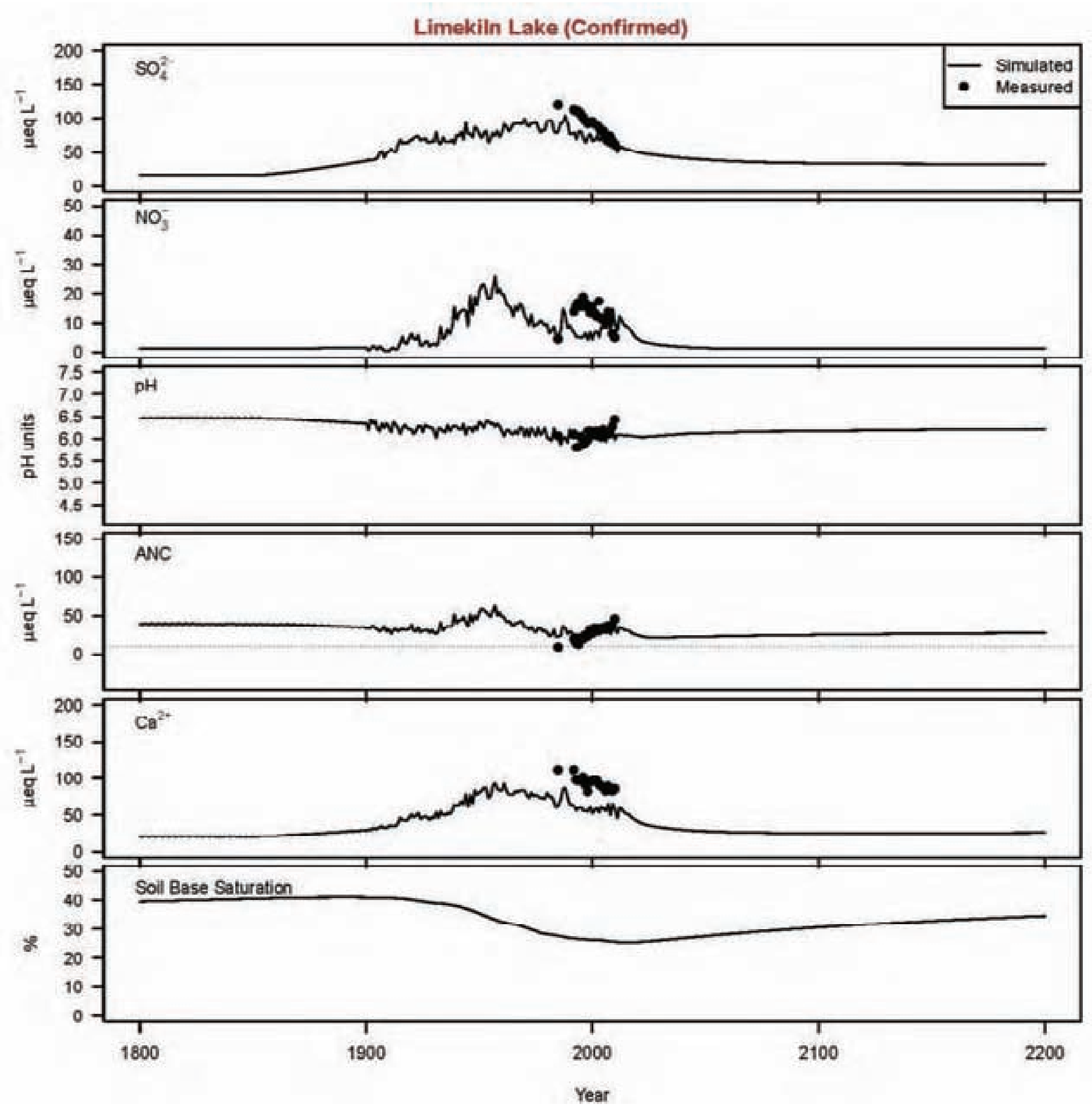
Big Alderbed Pond (Confirmed)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200



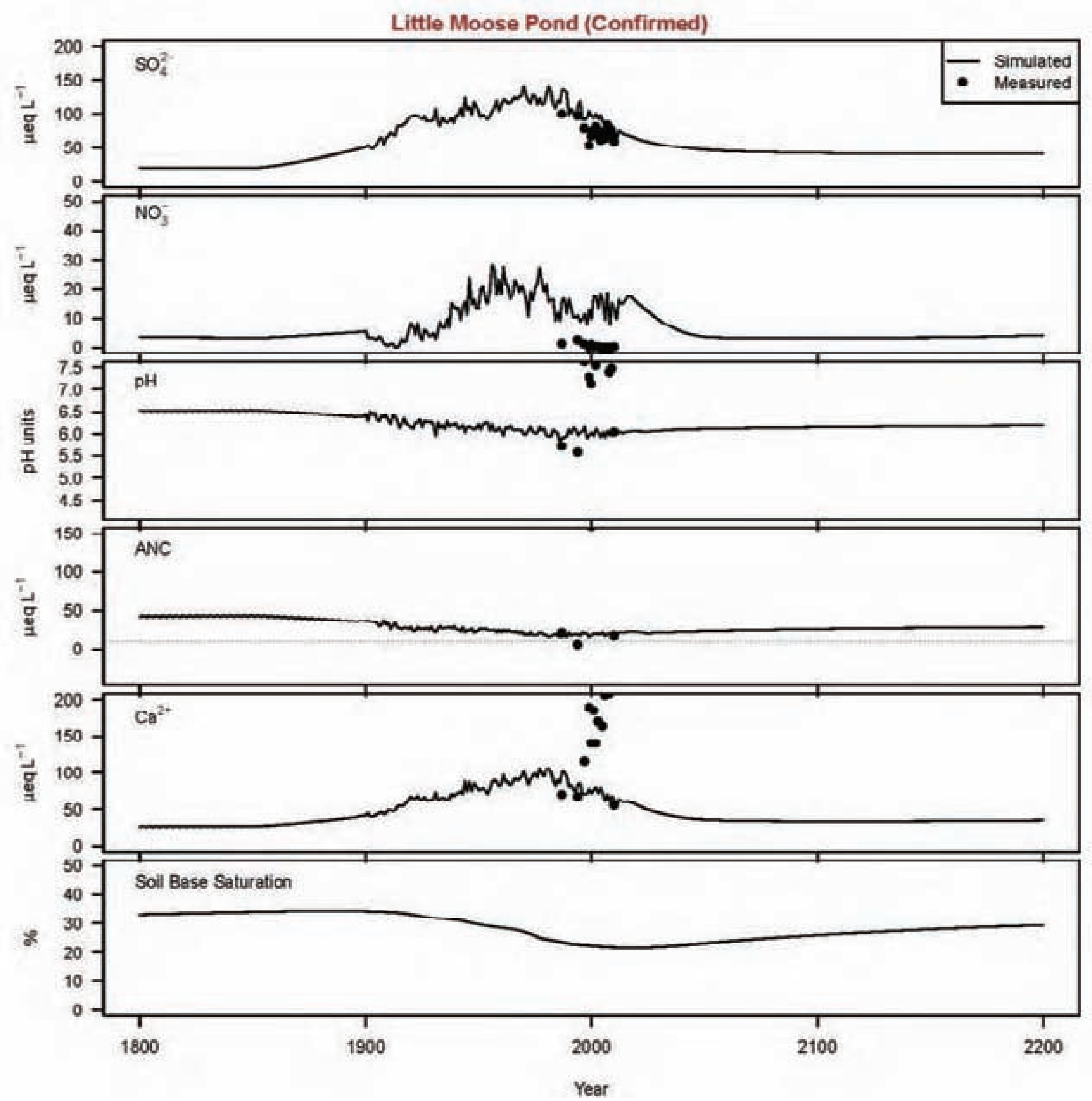
Bubb Lake (Confirmed)
Simulated
Measured
SO$_4^{2-}$
μeq L^{-1}
NO$_3^-$
μeq L^{-1}
pH
pH units
ANC
μeq L^{-1}
Ca^{2+}
μeq L^{-1}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

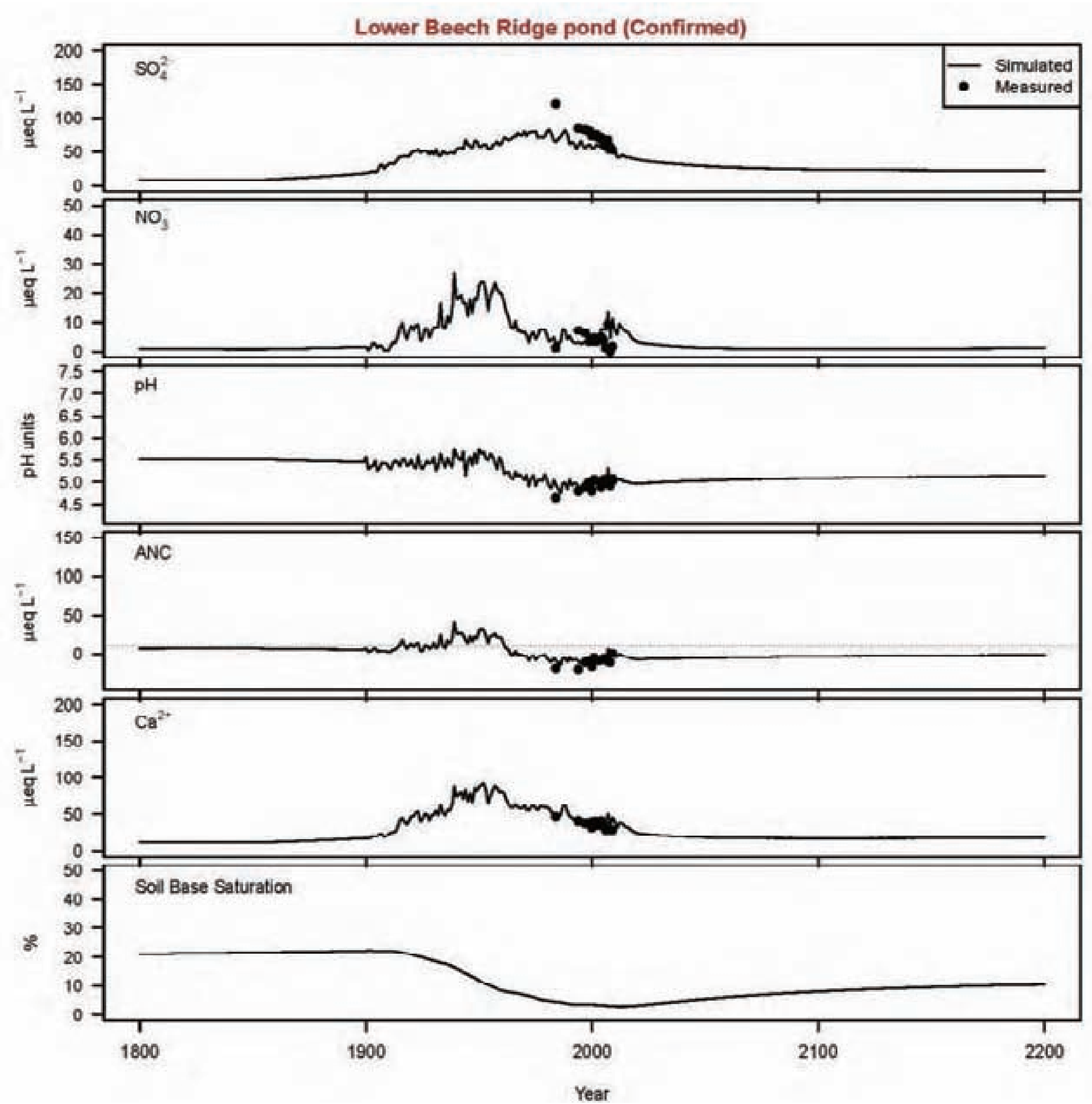

Indian Lake (Confirmed)
Simulated
Measured
SO$_4^{2-}$
µeq L^{-1}
NO$_3^-$
µeq L^{-1}
pH
pH units
ANC
µeq L^{-1}
Ca^{2+}
µeq L^{-1}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

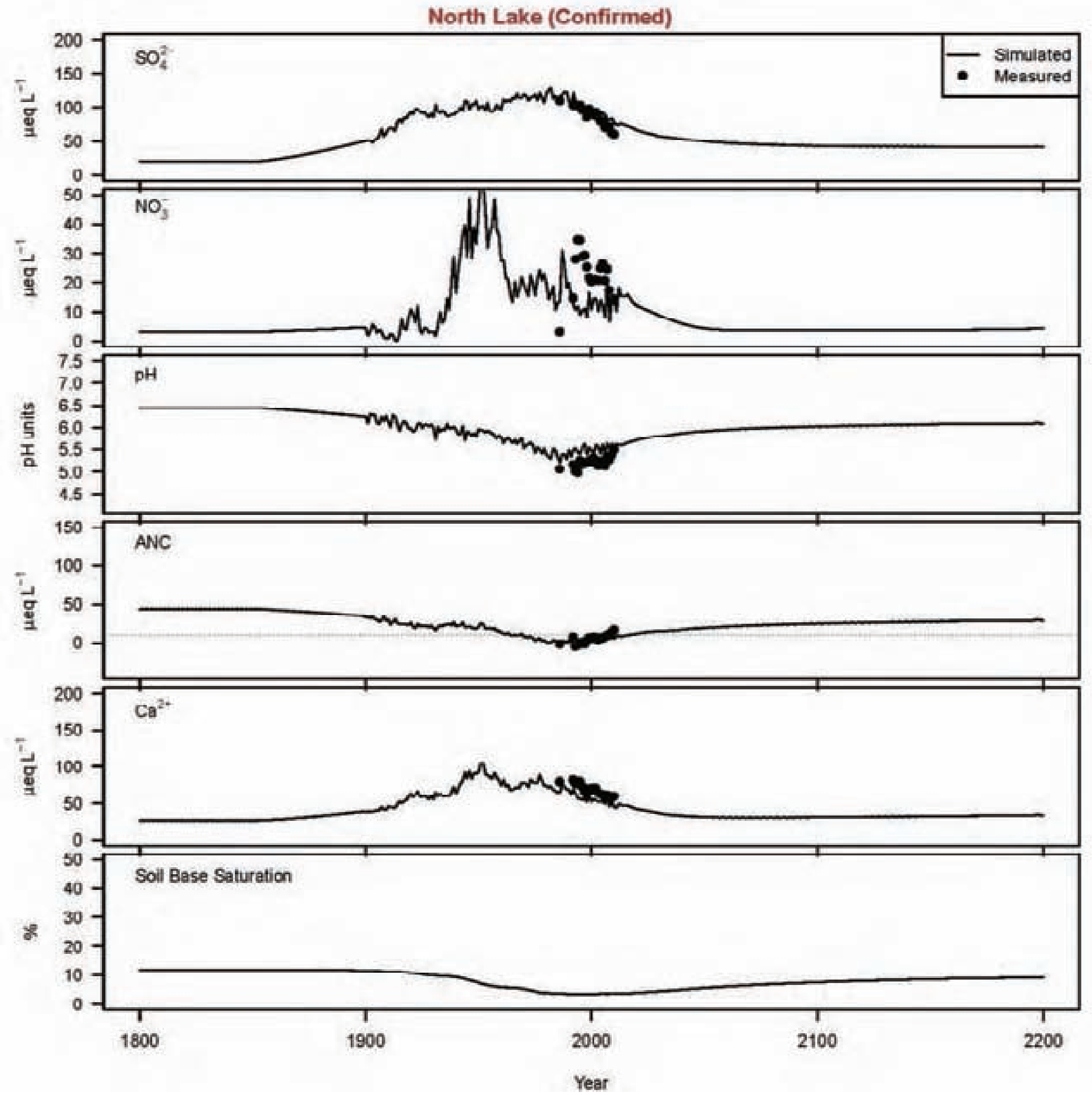

Jockeybush Lake (Confirmed)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

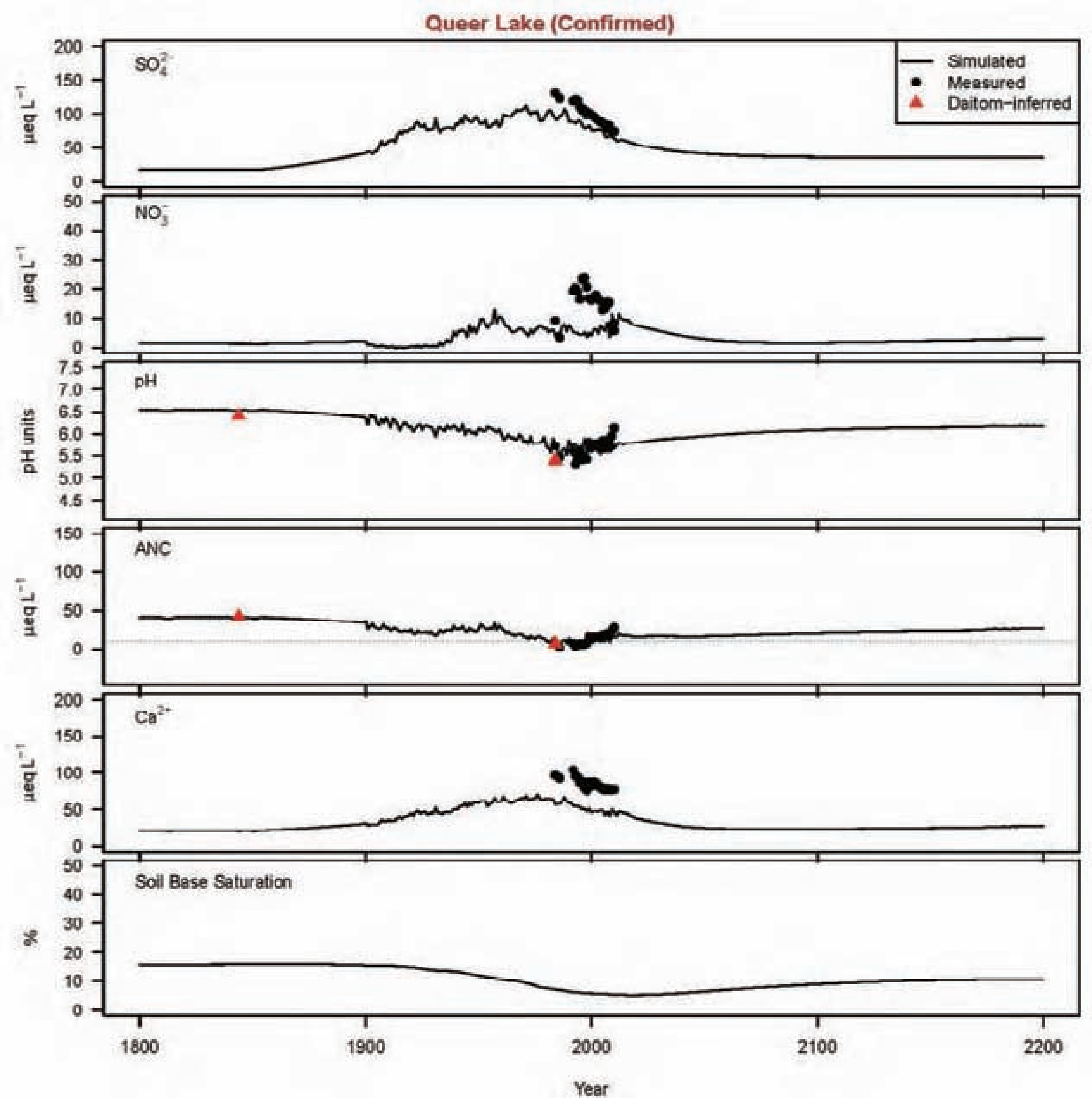


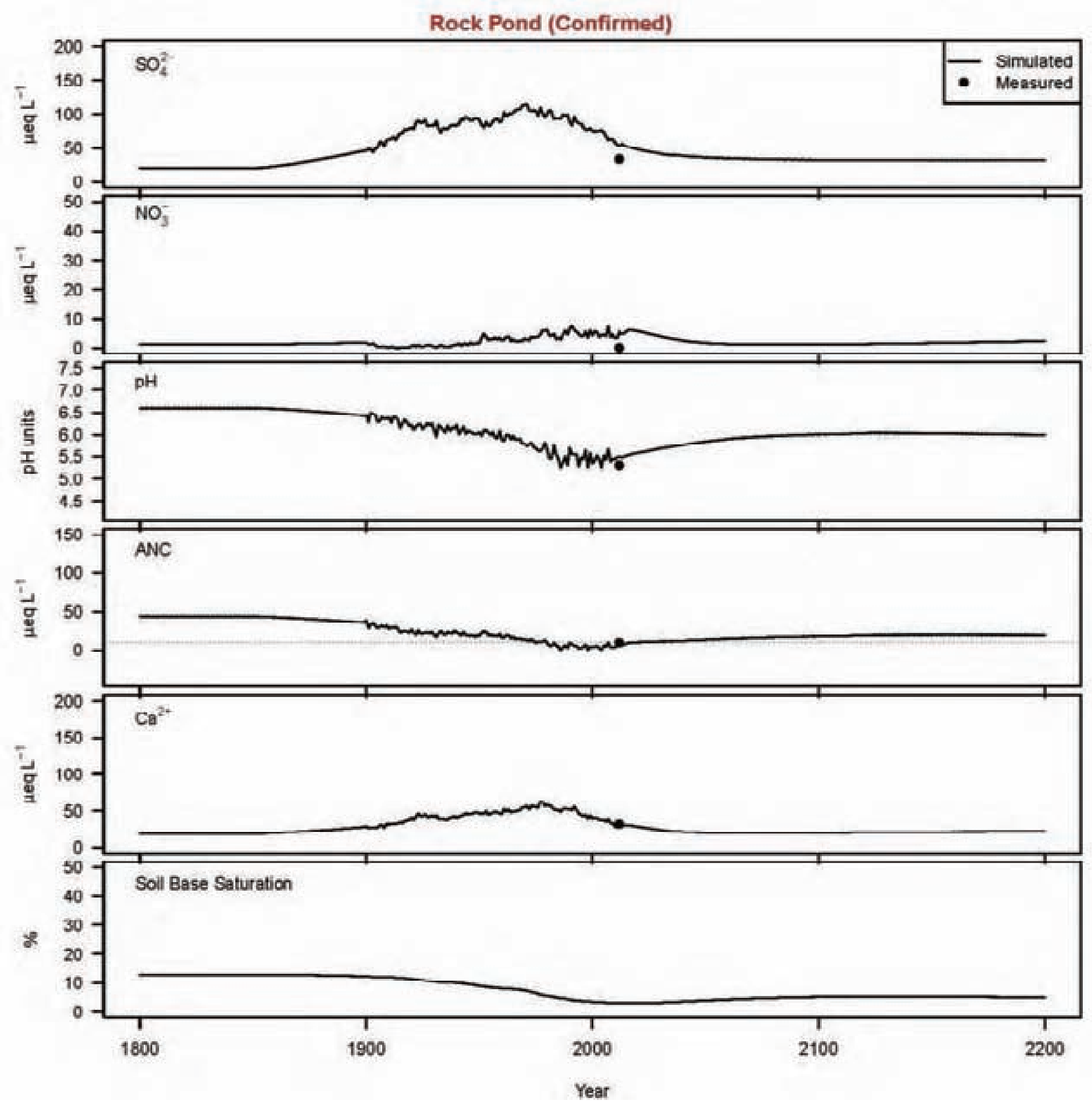
Limekiln Lake (Confirmed)
Simulated
Measured
SO42-
NO3-
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
200
150
100
50
0
40
30
20
10
7.5
7.0
6.5
6.0
5.5
5.0
4.5
1800
1900
2000
2100
2200
Year

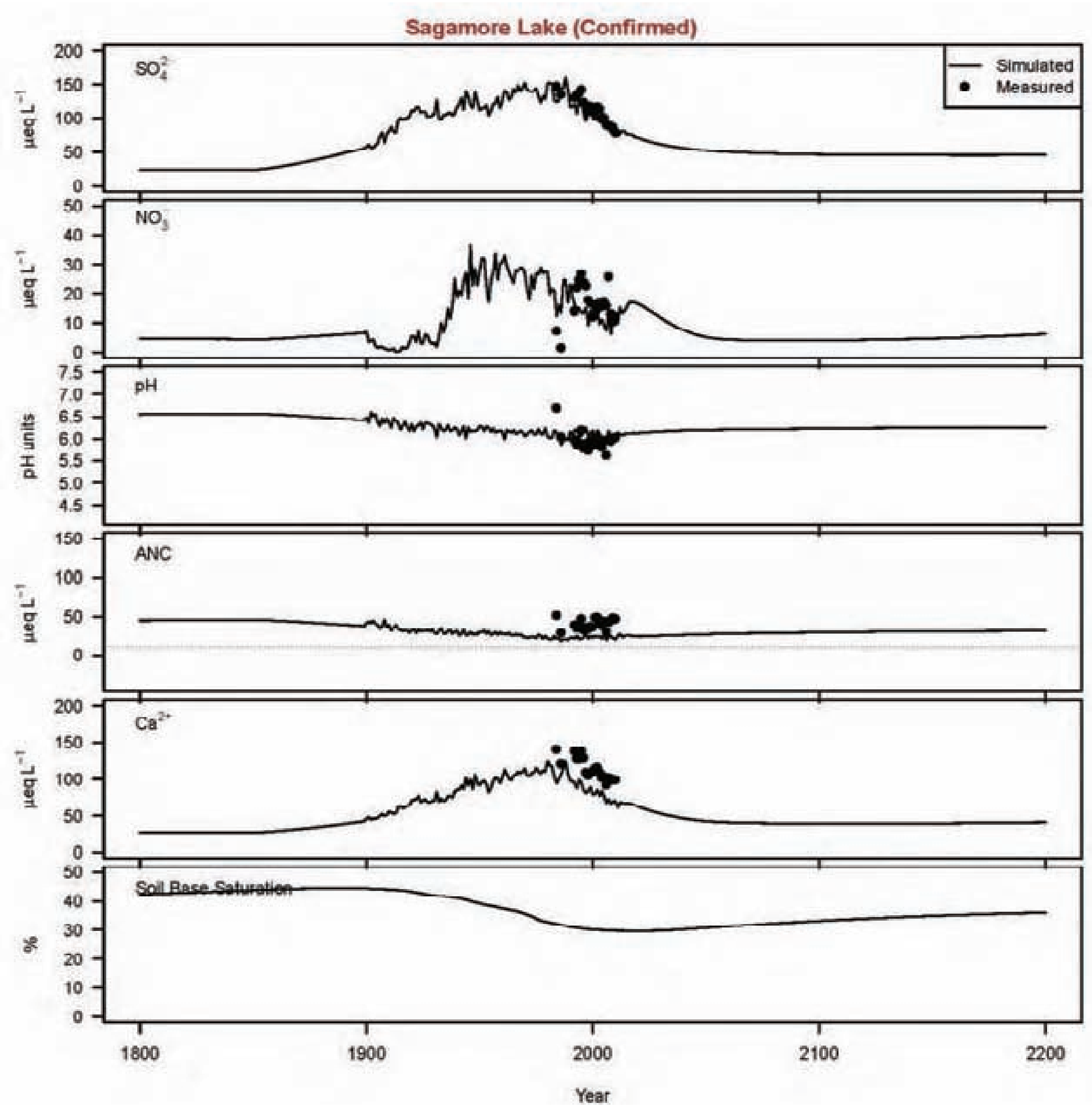

Little Moose Pond (Confirmed)
Simulated
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

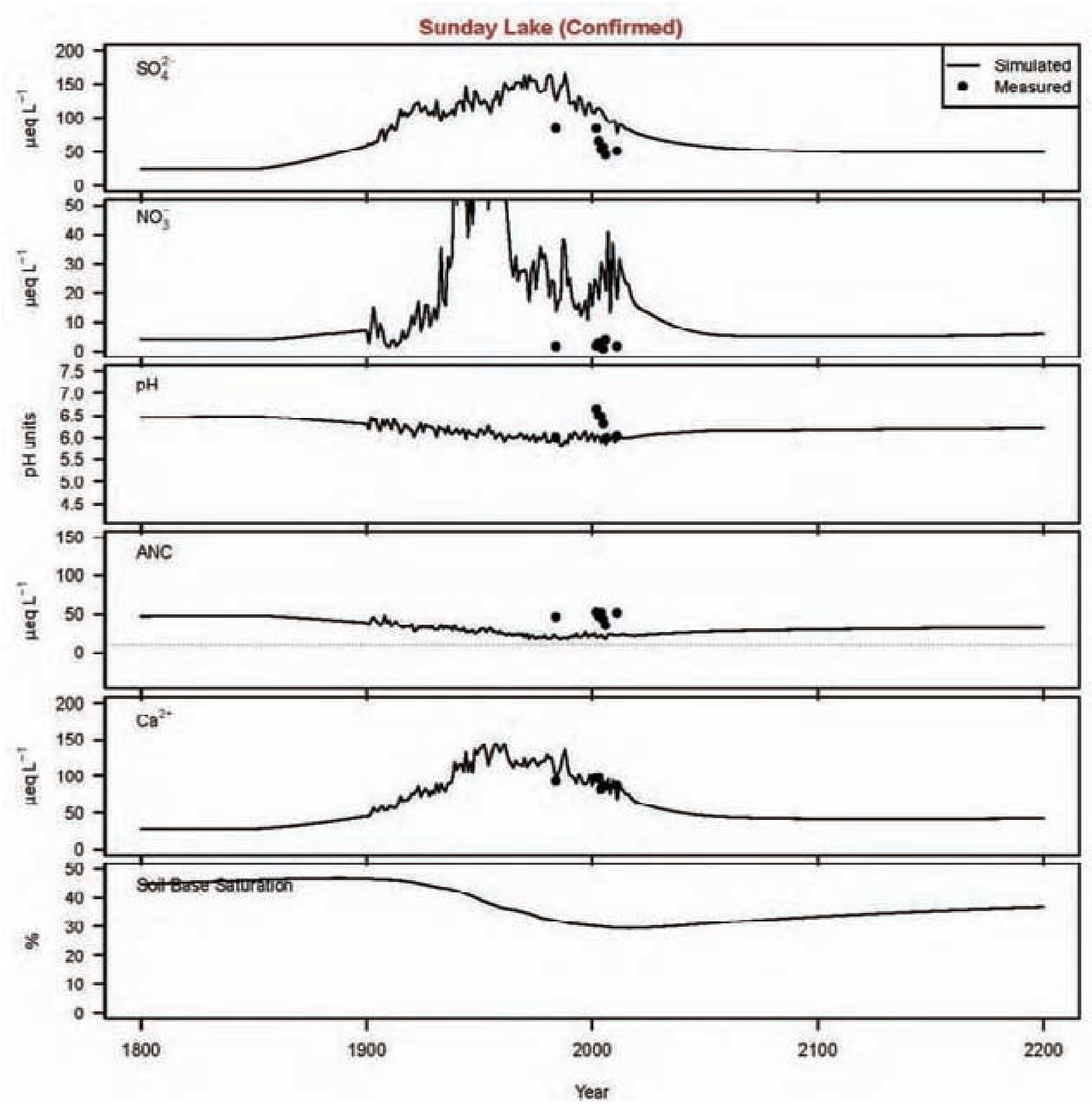

Lower Beech Ridge pond (Confirmed)
Simulated
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

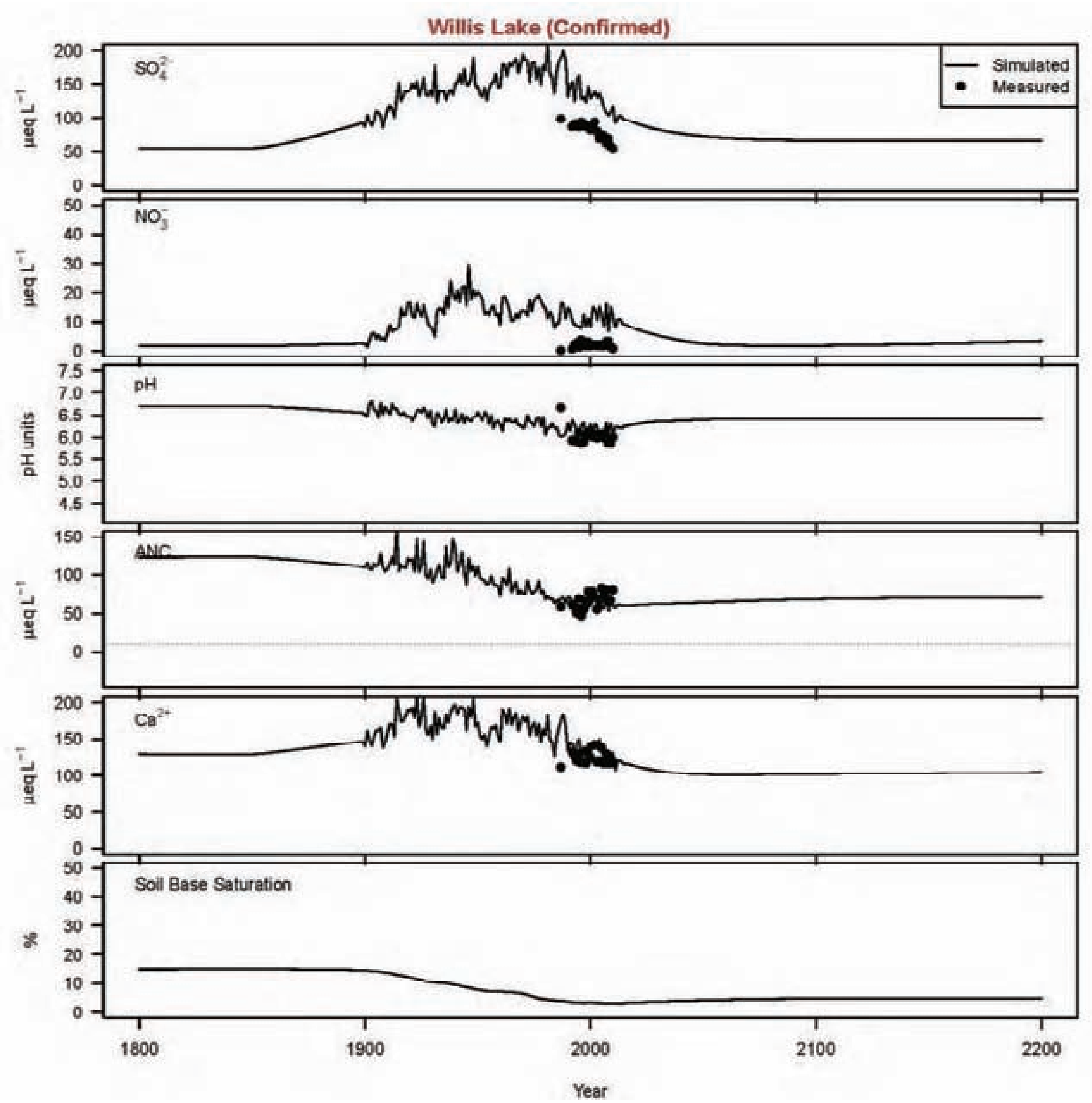

North Lake (Confirmed)
Simulated
Measured
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
μeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

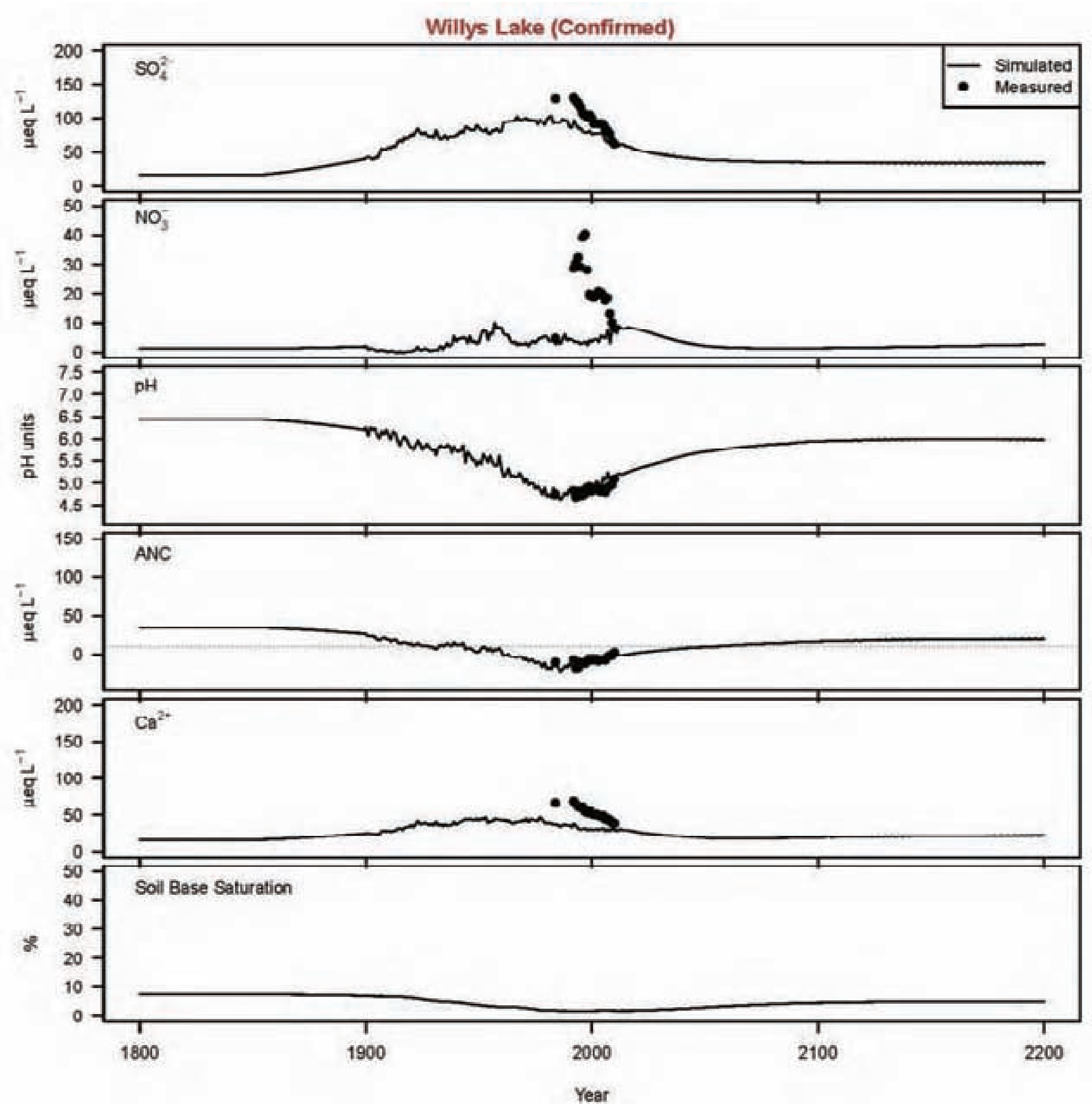

Queer Lake (Confirmed)
Simulated
Measured
Daitom-inferred
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year


Rock Pond (Confirmed)
Simulated
Measured
SO_4^{2-}
μeq L⁻¹
NO_3^-
μeq L⁻¹
pH
pH units
ANC
μeq L⁻¹
Ca^{2+}
μeq L⁻¹
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200


Sagamore Lake (Confirmed)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Sunday Lake (Confirmed)
Simulated
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200


Willis Lake (Confirmed)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
200
150
100
50
0
50
40
30
20
10
7.5
7.0
6.5
6.0
5.5
5.0
4.5
1800
1900
2000
2100
2200
Year



Willys Lake (Confirmed)
Simulated
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
1800
1900
2000
2100
2200
Year

Appendix 2
PnET-BGC parameters used in model application to the 128 TMDL lakes

PnET-BGC Calibration Parameters

Parameter Set	SO4Ad (mol/kg)[a]	Site Doc[b]	CEC (eq/kg)[c]	WHAM DocFrac[d]	Weathering rate (g/m^2/month)								Tableau file			Pmass[1] soil[f]
					Na^+	Mg^{2+}	Al^{3+}	K^+	Ca^{2+}	S	F	Si	X_2Ca[e]	X_3Al[e]	XSO4[e]	
Class 1	0.0155	0.0211	0.1025	0.582	0.045	0.021	0.743	0.011	0.198	0.06	0.491	0.821	-5.6	-3.388	9.521	-2.1
Class 2	0.0155	0.0133	0.096	0.383	0.047	0.015	0.192	0.01	0.052	0.023	0.318	0.81	-3.98	-3.788	9.321	-2.5
Class 3	0.0055	0.0138	0.0802	0.84	0.009	0.006	0.074	0.008	0.027	0.011	0.009	0.149	-4	-4.488	9.021	-2.85
Class 4	0.0155	0.0198	0.0887	0.386	0.045	0.023	0.094	0.003	0.24	0.06	0.076	1.283	-5.7	-3.388	9.521	-2
Class 5	0.0055	0.018	0.0849	0.837	0.045	0.02	0.374	0.012	0.042	0.018	0.212	0.688	-3.8	-3.388	9.521	-2.3
Class 6	0.0155	0.0133	0.096	0.383	0.047	0.015	0.192	0.01	0.0522	0.023	0.318	0.81	-3.98	-3.788	9.321	-2.2
Class 7	0.0155	0.0133	0.096	0.383	0.047	0.015	0.192	0.01	0.0422	0.023	0.318	0.81	-3.98	-3.788	9.321	-2.2
Class 8	0.0155	0.0133	0.096	0.383	0.047	0.015	0.192	0.01	0.0422	0.023	0.318	0.81	-3.98	-3.788	9.321	-2.1
Class 9	0.0155	0.0133	0.096	0.383	0.047	0.015	0.192	0.01	0.0322	0.023	0.318	0.81	-3.98	-3.788	9.321	-2.1

[a]SO_4^{2-} adsorption capacity

[b]Site density, moles of organic anions sites per mole of organic C

[c]Cation Exchange Capacity

[d]DOC partitioning coefficient

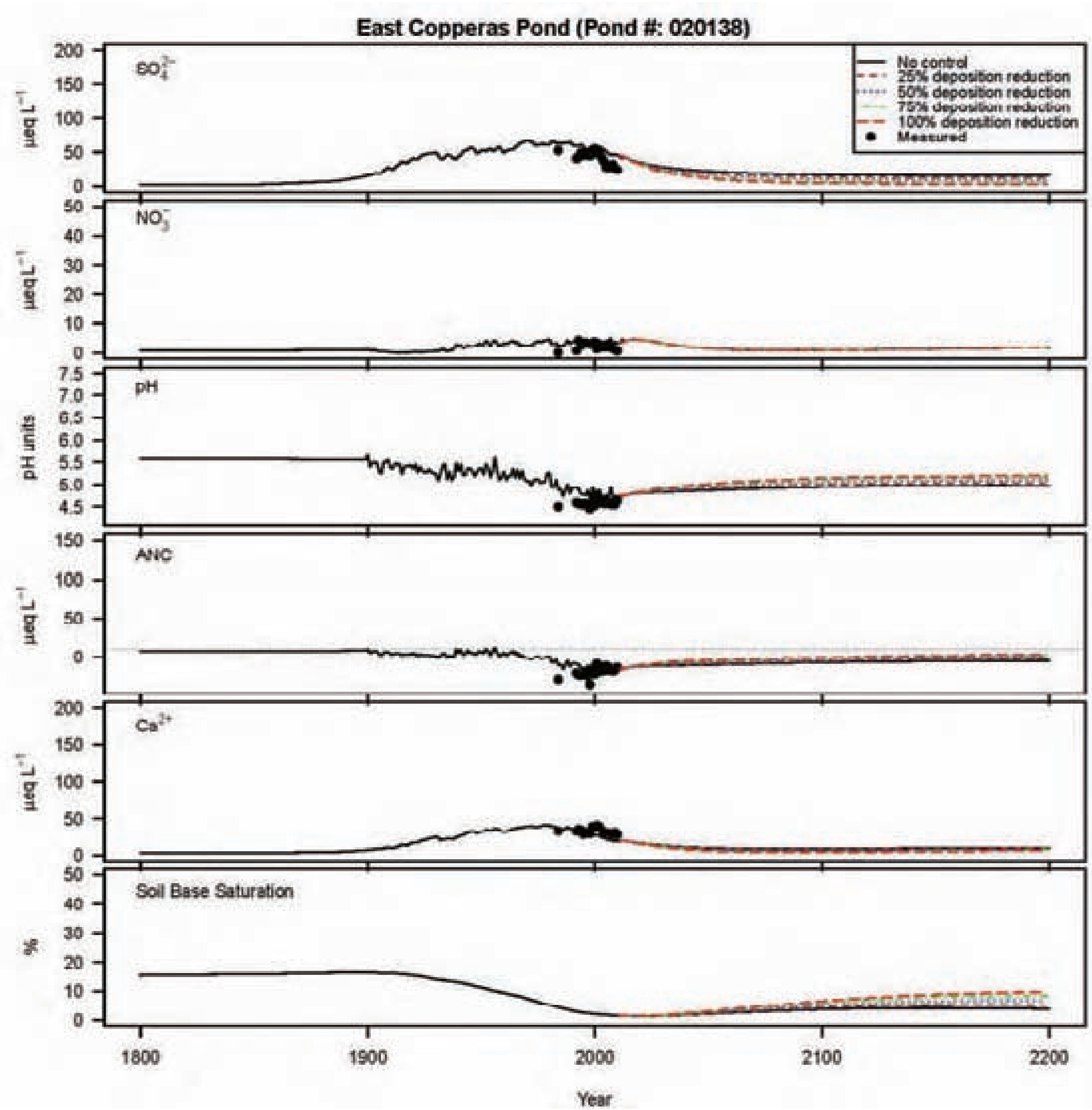
[e]Selectivity coefficients, log K

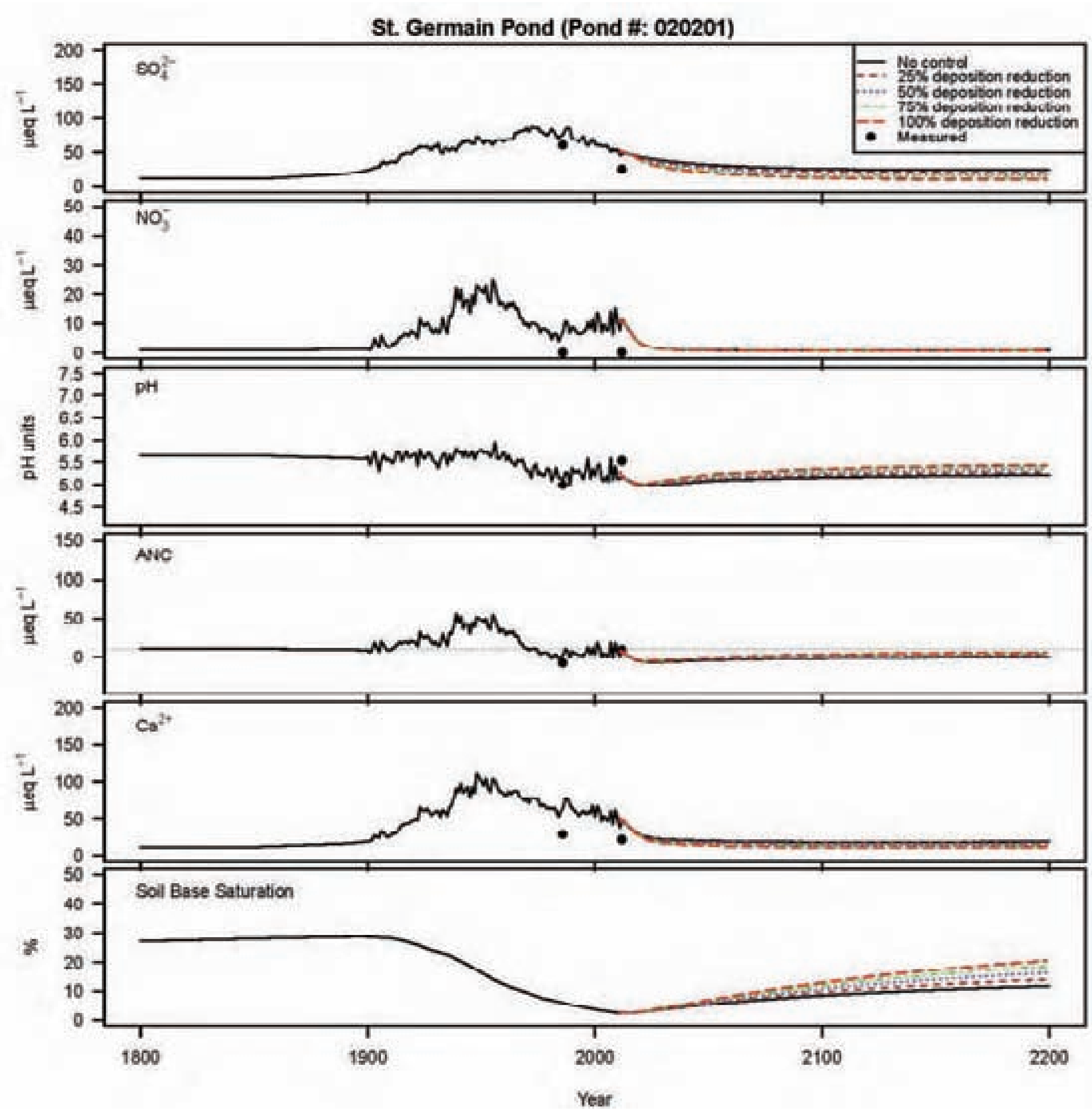
[f]Partial pressure of CO_2 in soil, unit: log (atm)

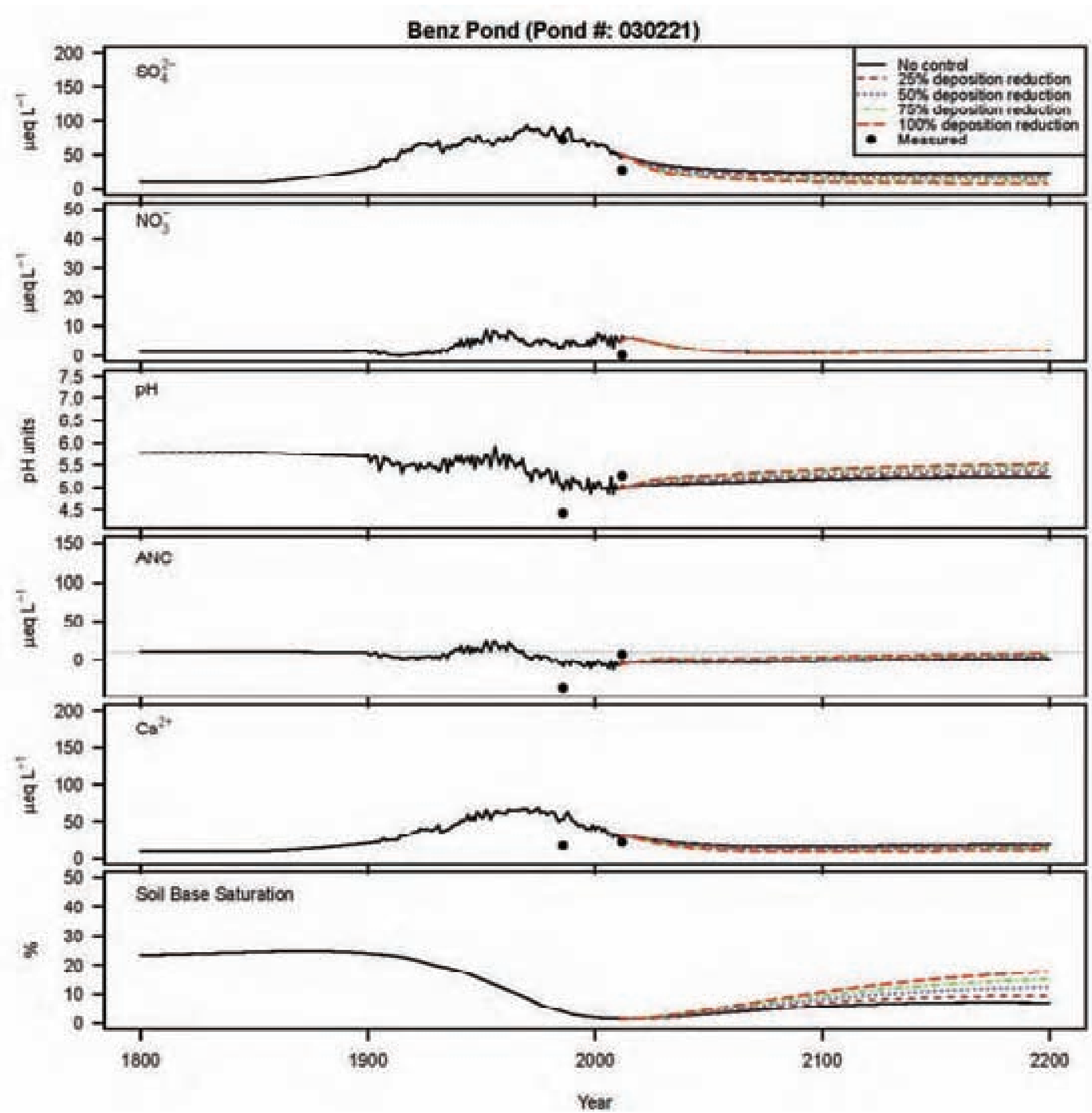
Appendix 3

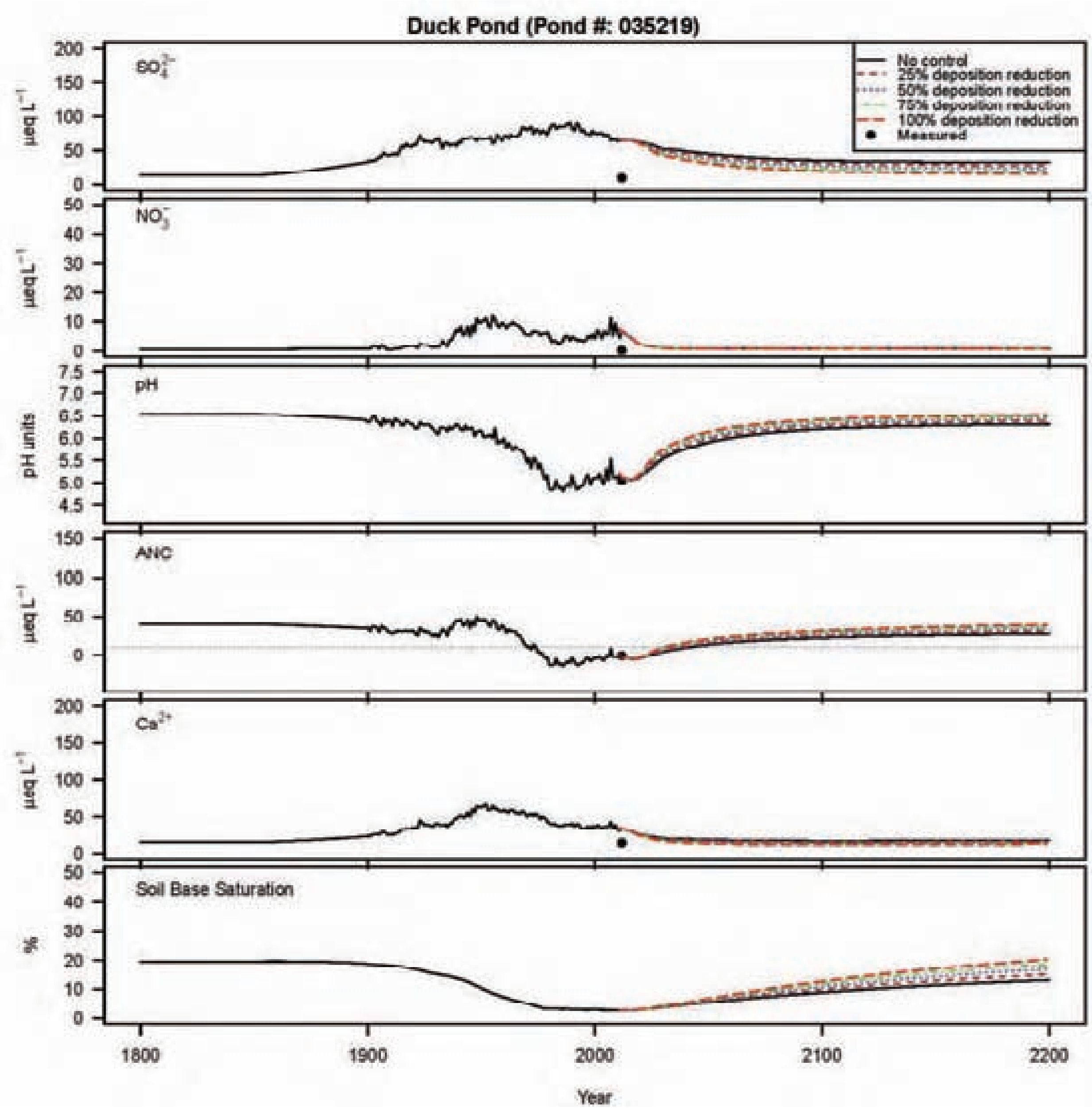
Time-series results of model simulated concentrations of SO_4^{2-}, NO_3^-, pH, ANC, Ca^{2+} and soil percent base saturation for the 128 TMDL lakes

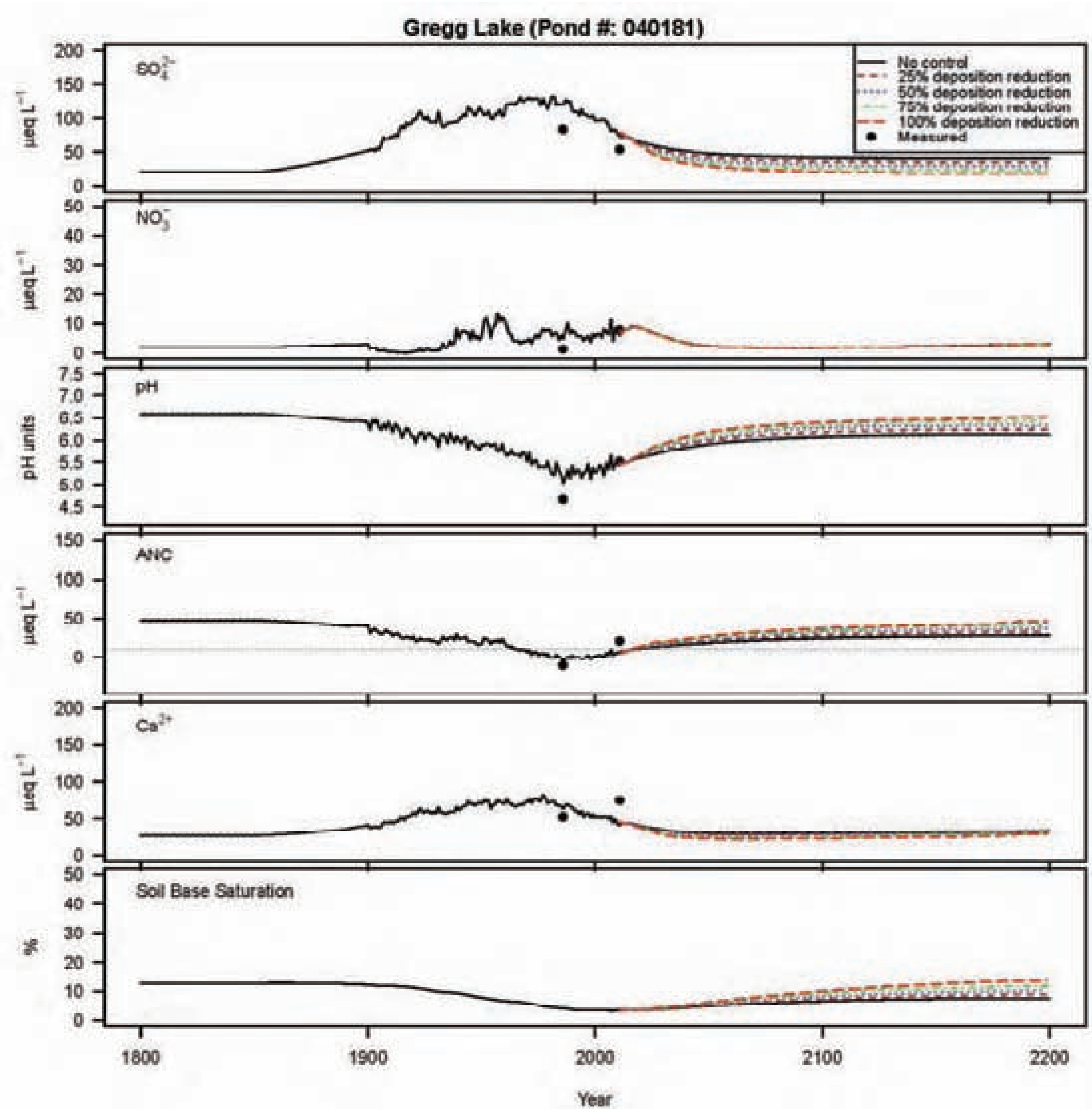
Time-series results of model simulated concentrations of SO_4^{2-}, NO_3^-, pH, ANC, Ca^{2+} and soil percent base saturation for the 128 TMDL lakes.

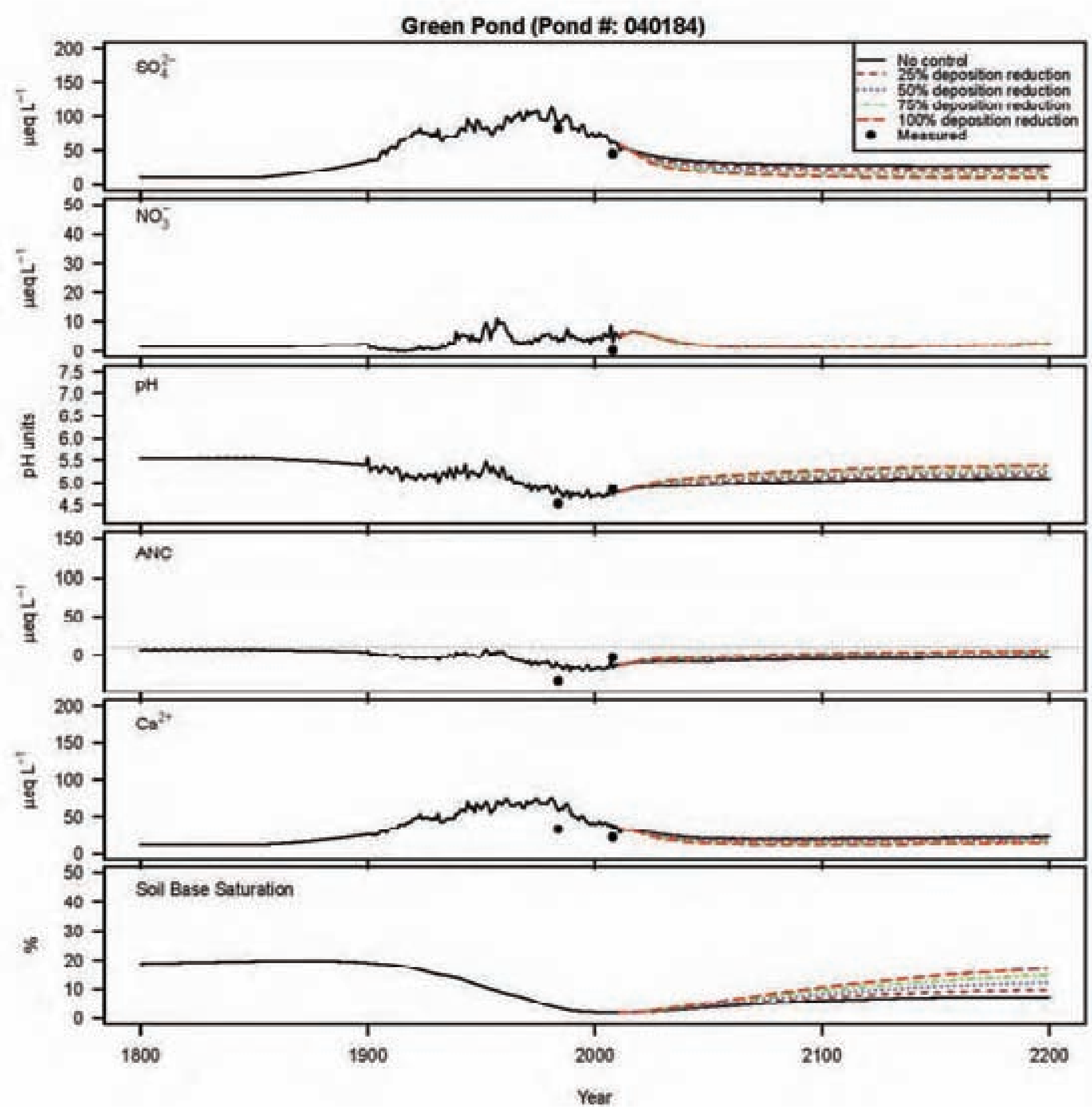

East Copperas Pond (Pond #: 020138)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

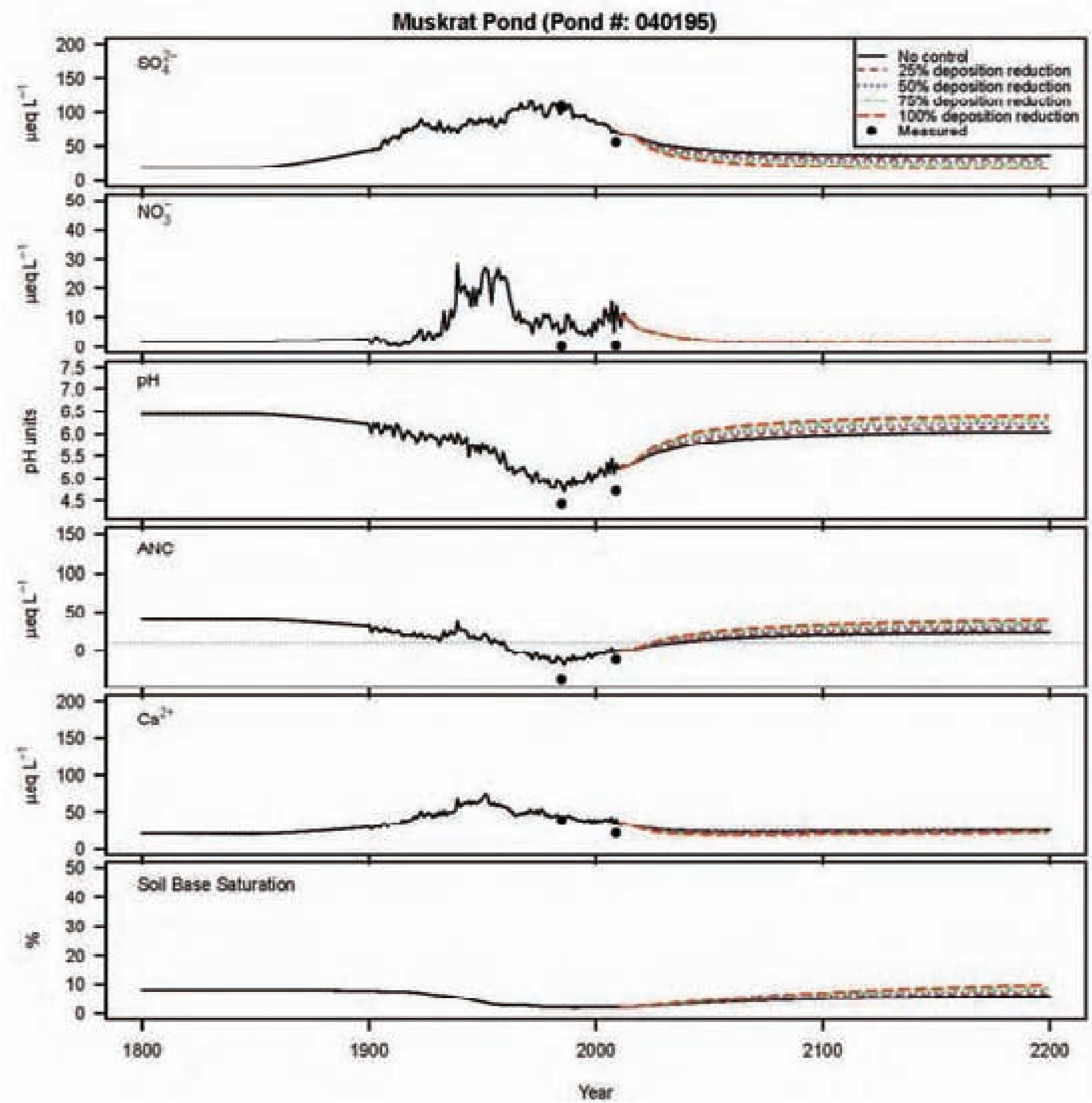

St. Germain Pond (Pond #: 020201)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200


Benz Pond (Pond #: 030221)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

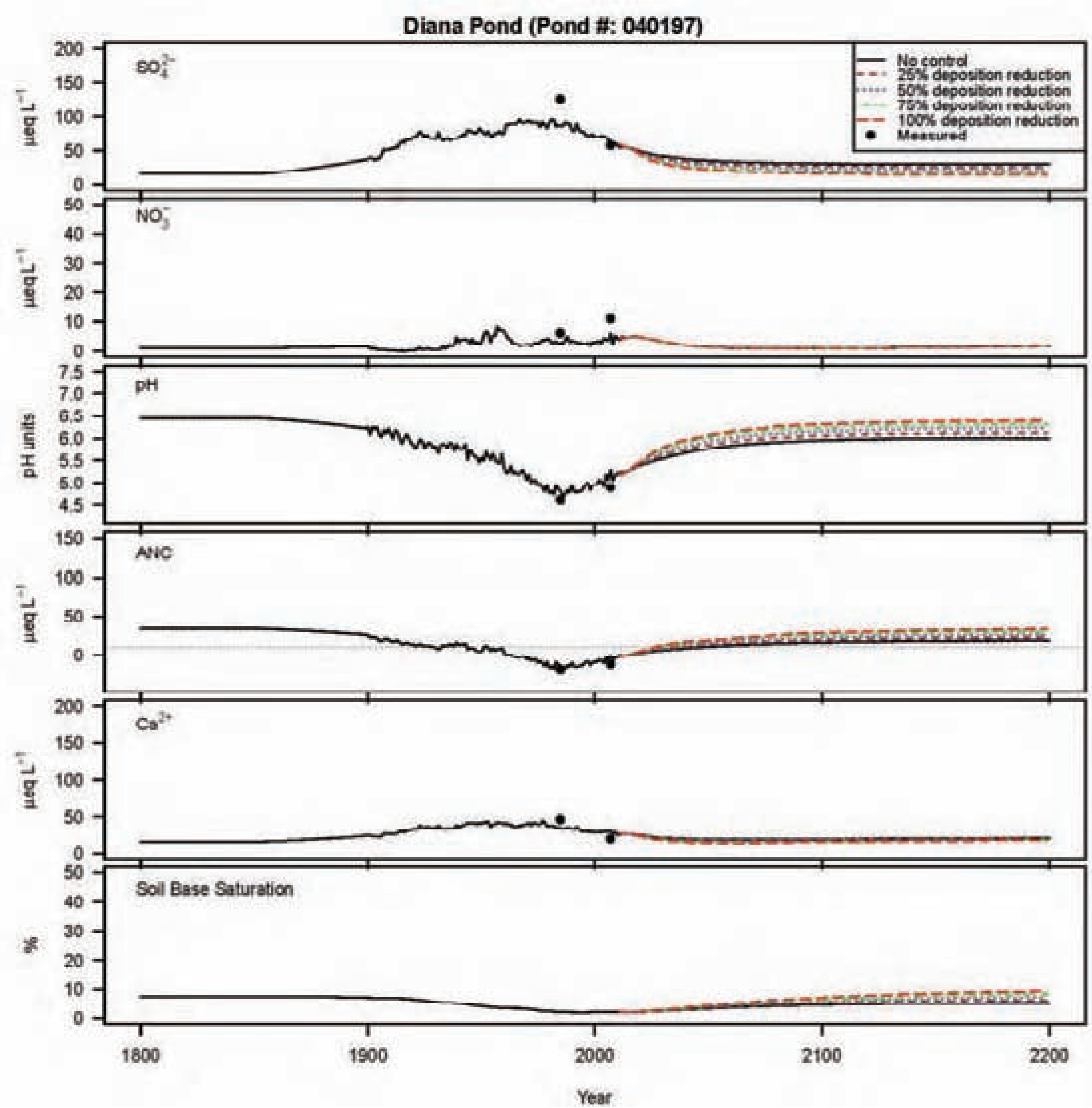

Duck Pond (Pond #: 035219)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

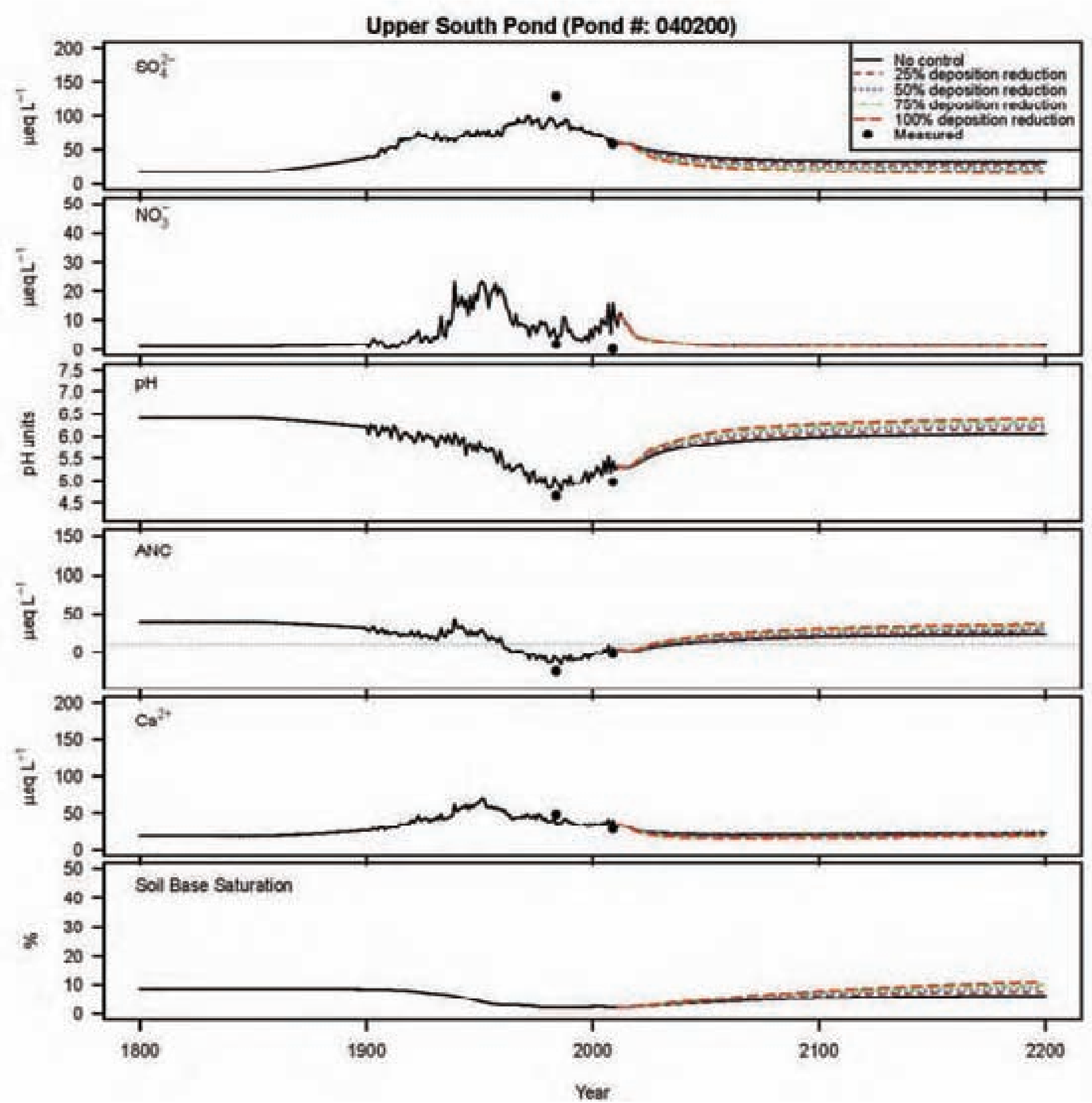

Gregg Lake (Pond #: 040181)
SO_4^{2-}
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
μeq L^{-1}
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year


Green Pond (Pond #: 040184)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

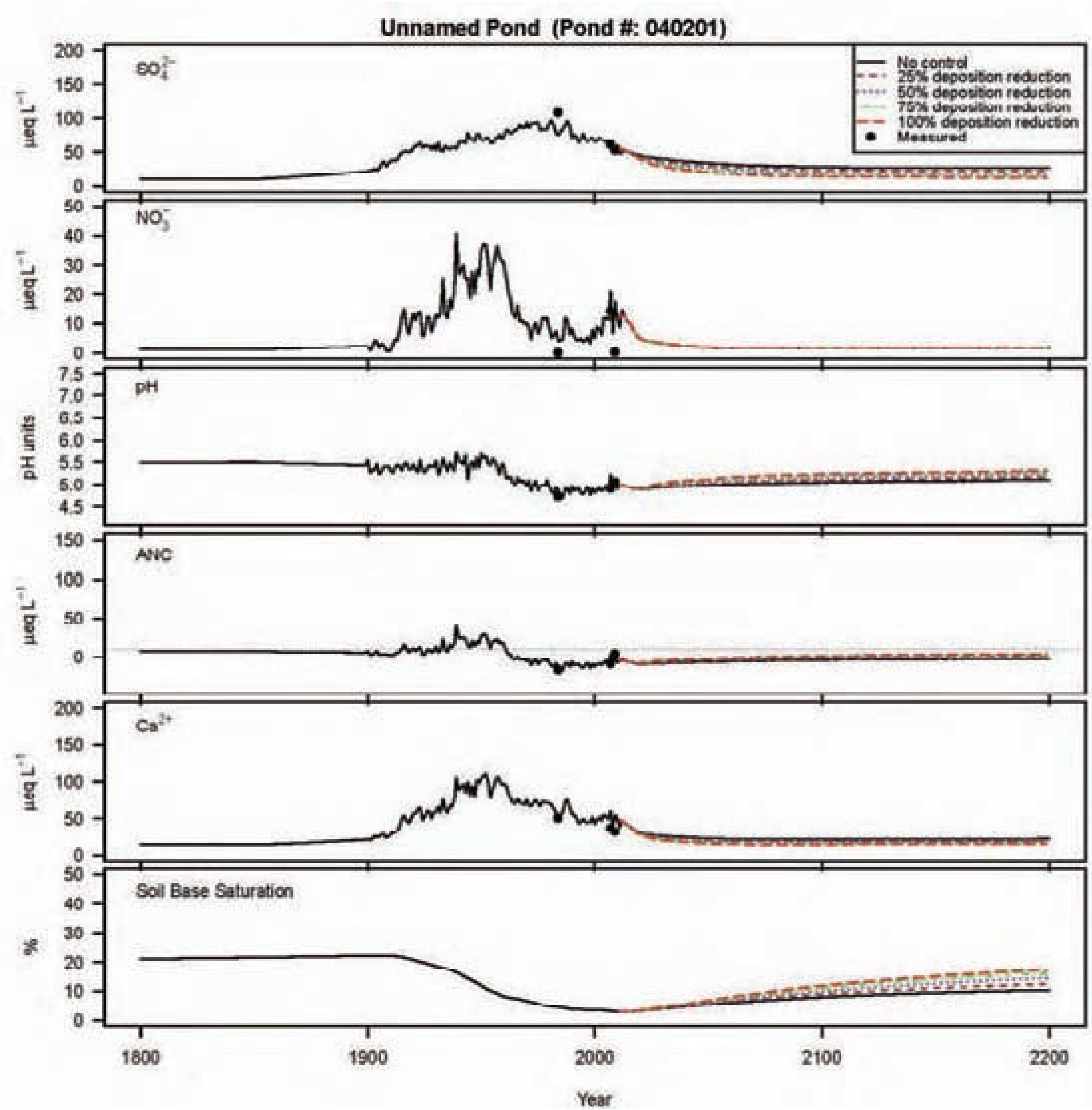


Muskrat Pond (Pond #: 040195)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year

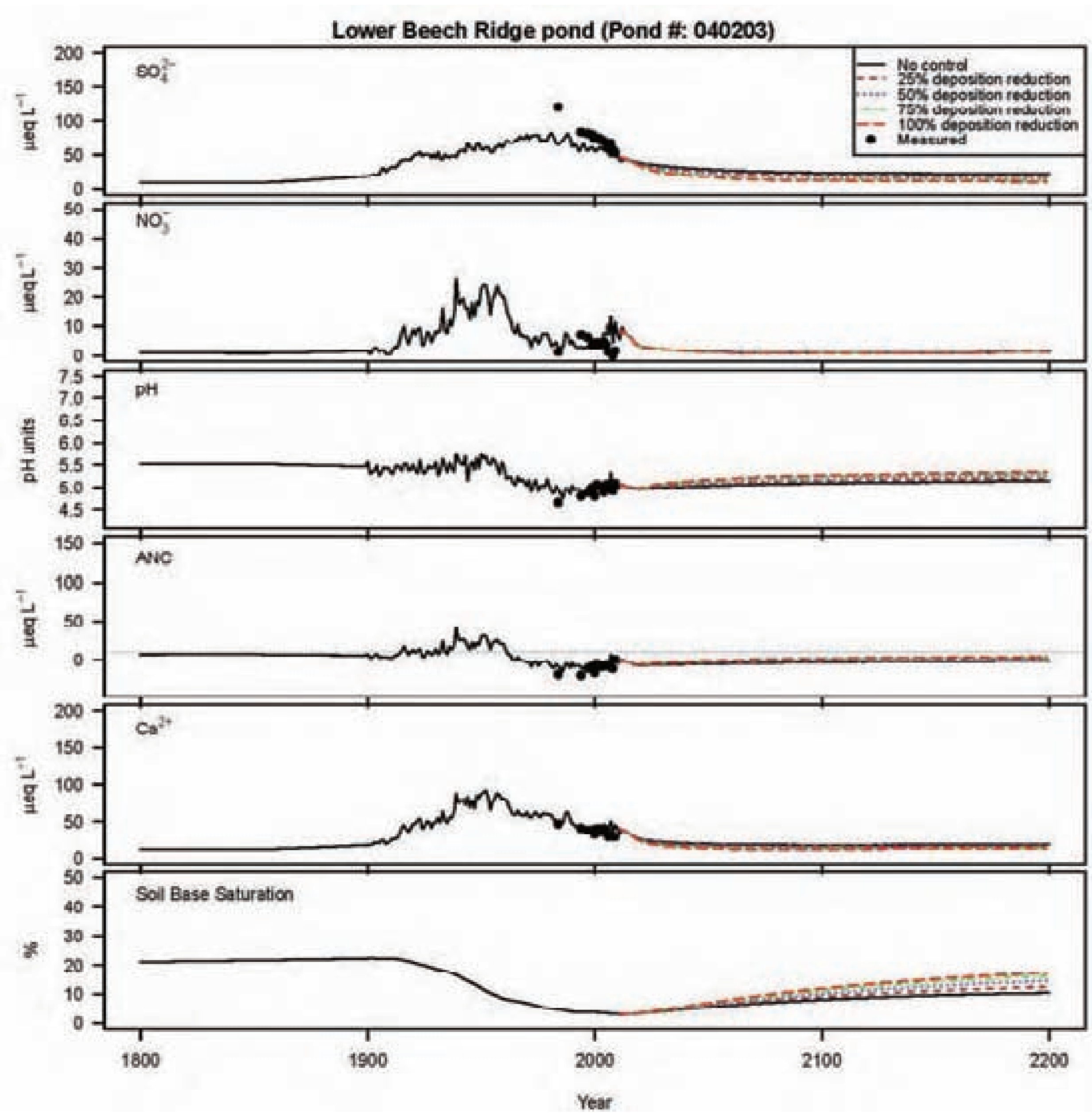

Diana Pond (Pond #: 040197)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

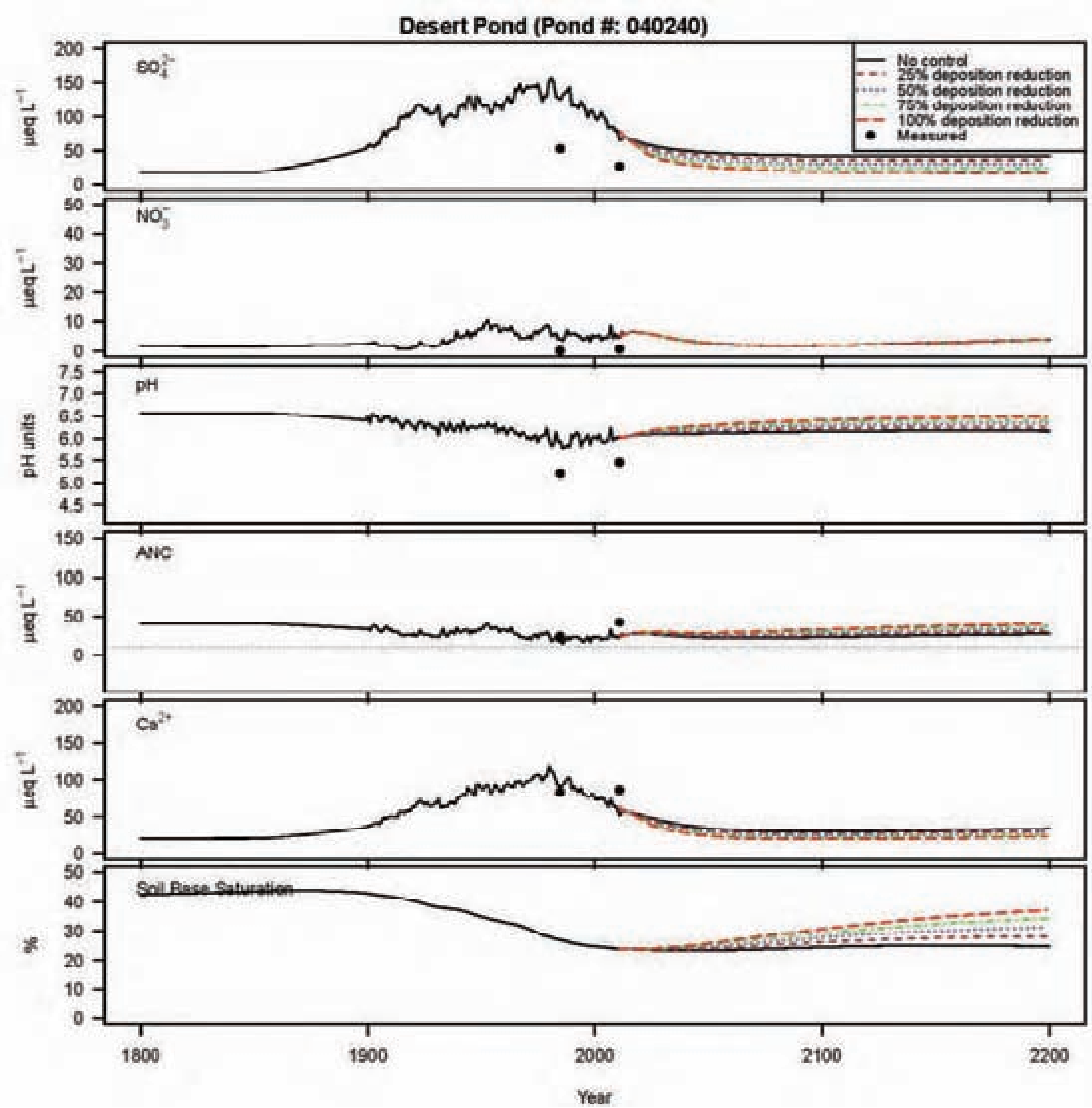


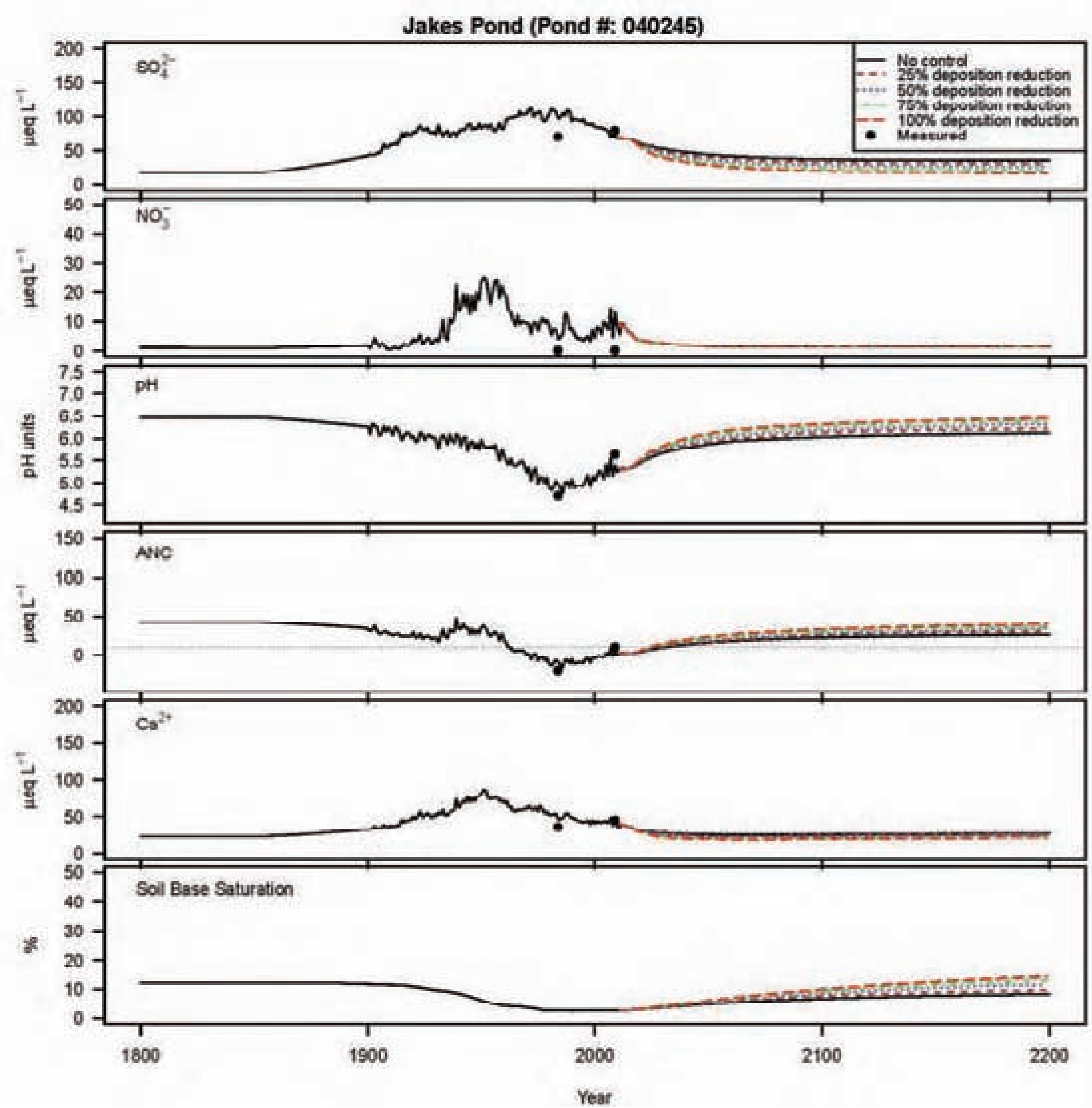
Upper South Pond (Pond #: 040200)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year

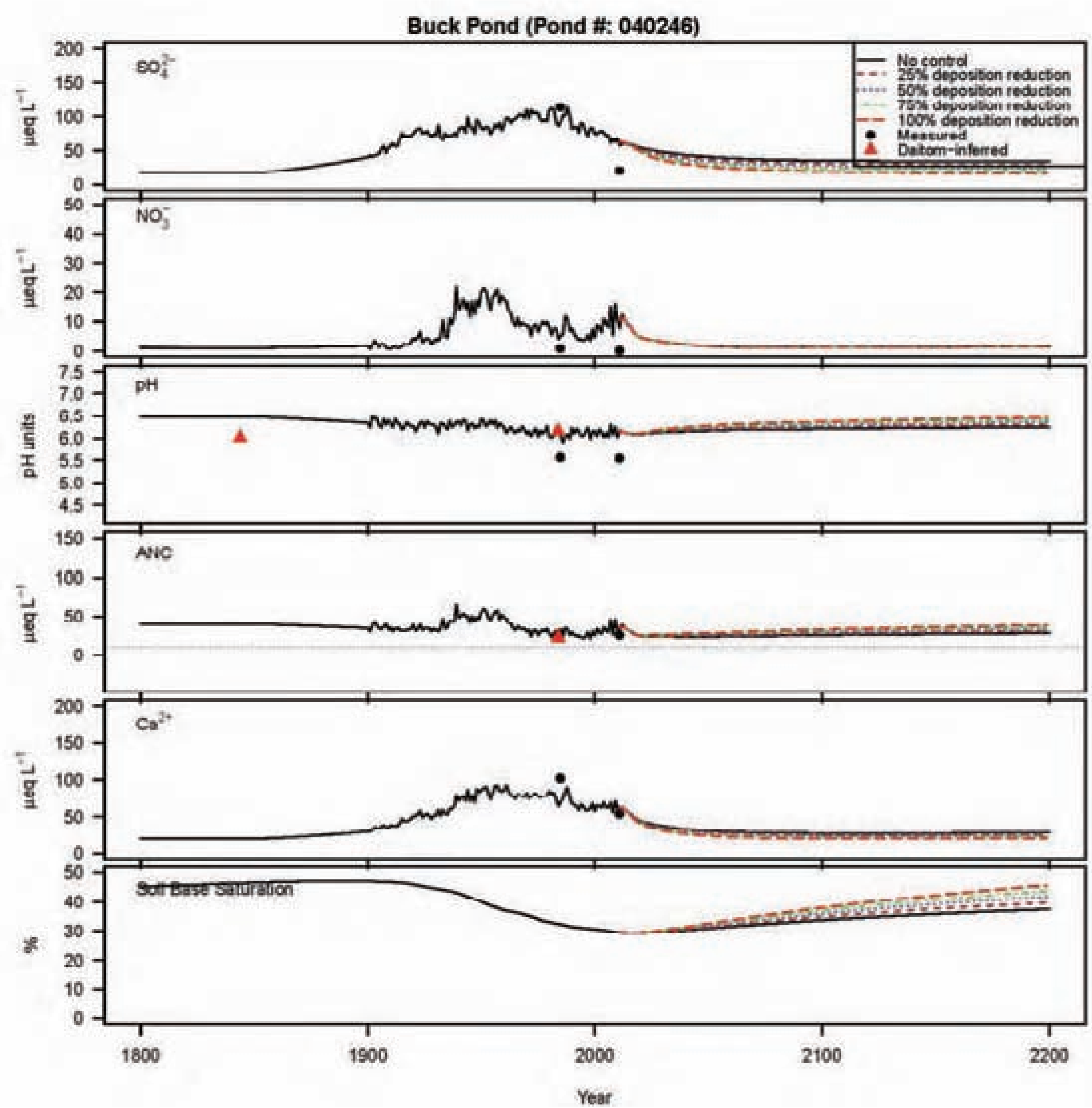


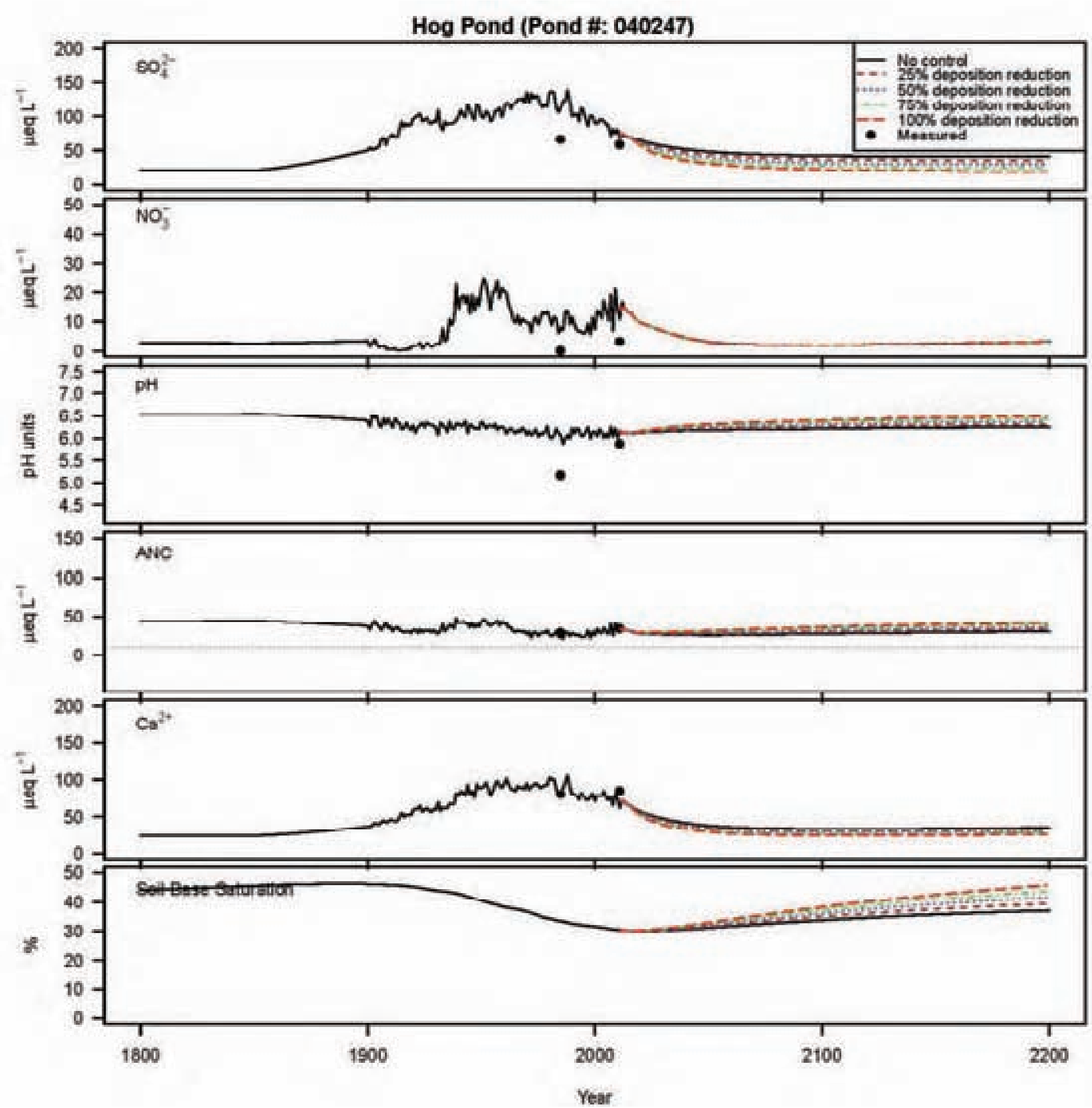
Unnamed Pond (Pond #: 040201)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

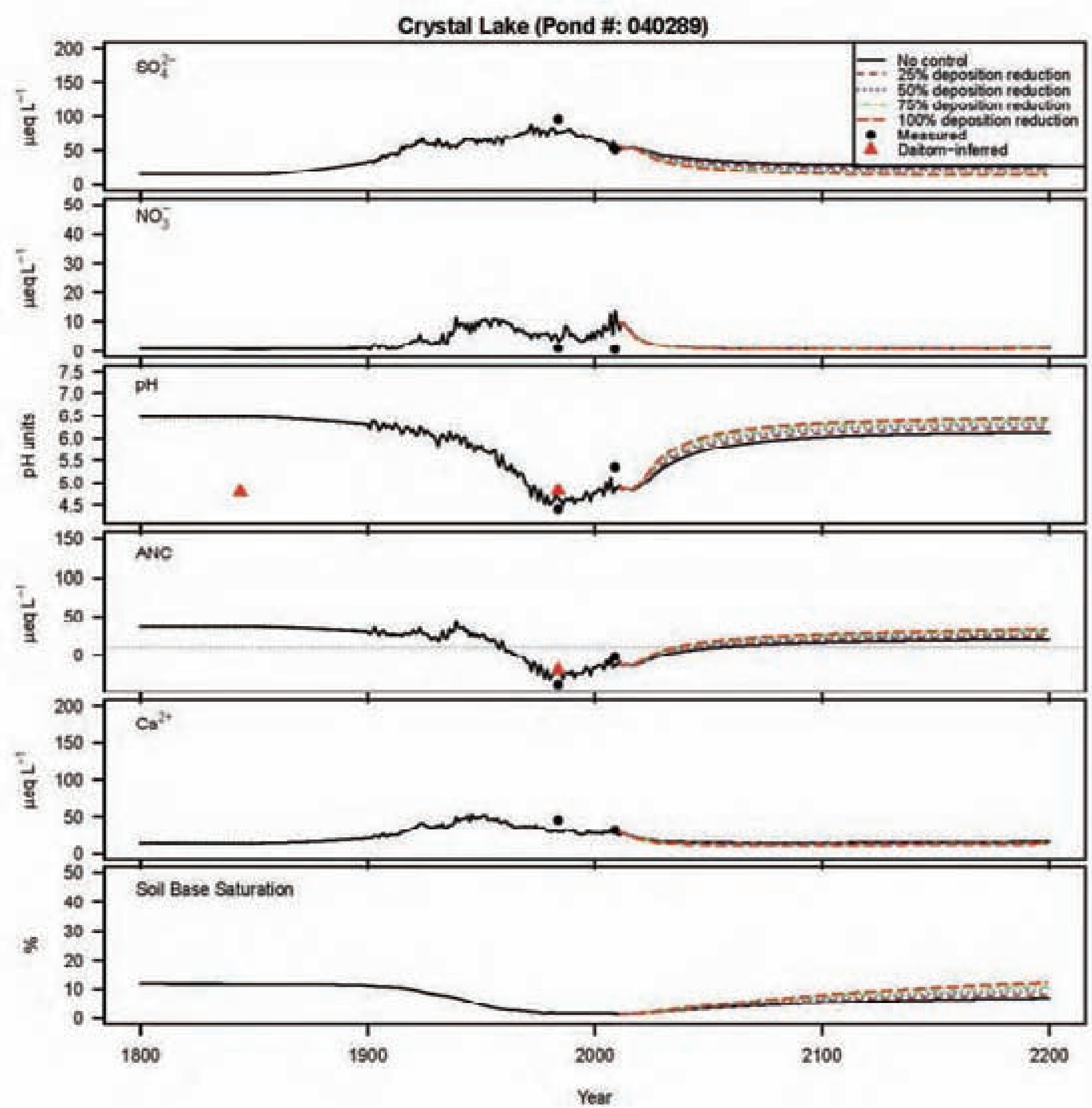

Lower Beech Ridge pond (Pond #: 040203)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO42-
NO3-
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200


Desert Pond (Pond #: 040240)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
µeq L^{-1}
NO$_3^-$
µeq L^{-1}
pH
pH units
ANC
µeq L^{-1}
Ca^{2+}
µeq L^{-1}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

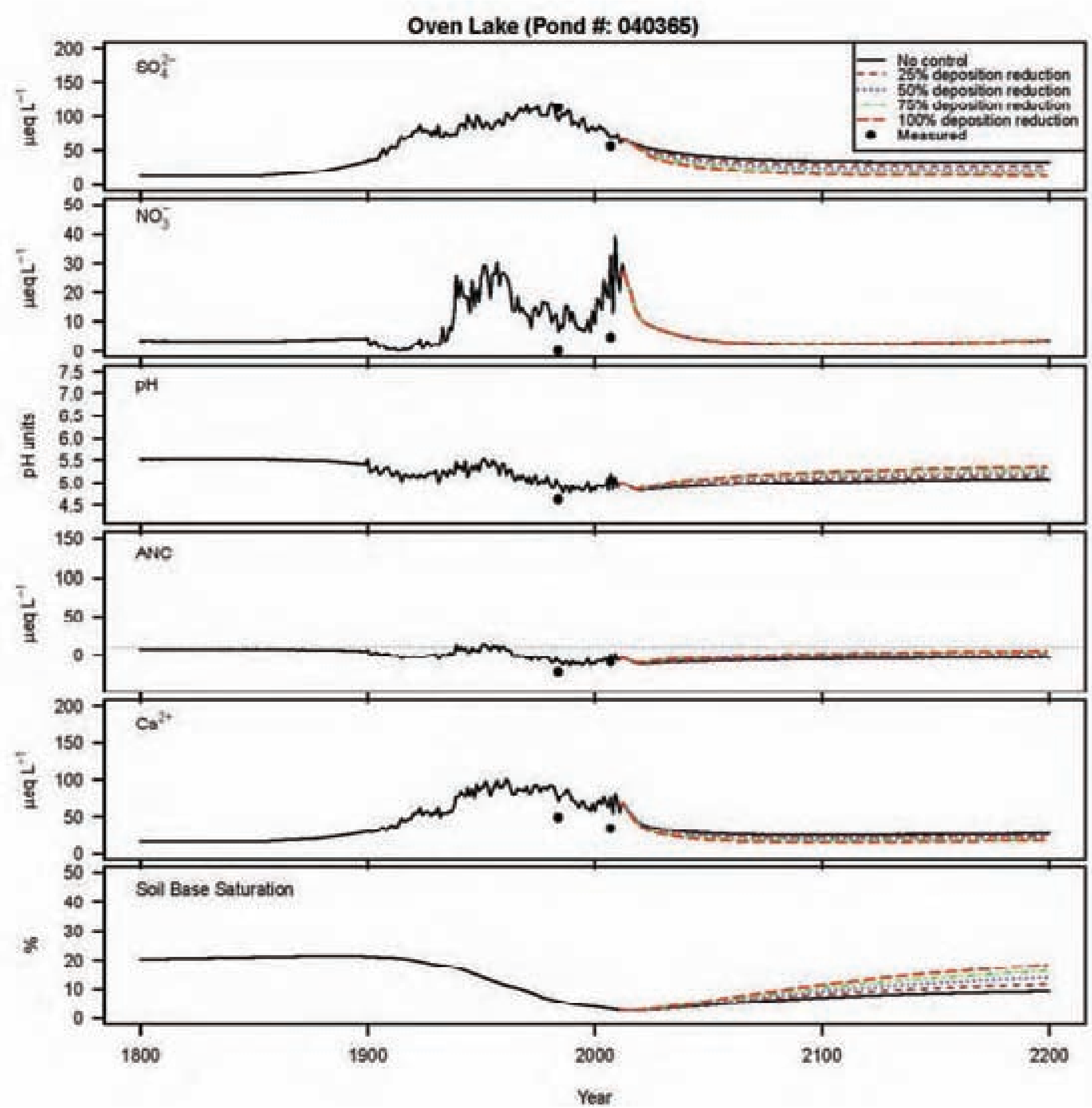

Jakes Pond (Pond #: 040245)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Buck Pond (Pond #: 040246)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
µeq L⁻¹
NO_3^-
µeq L⁻¹
pH
pH units
ANC
µeq L⁻¹
Ca^{2+}
µeq L⁻¹
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

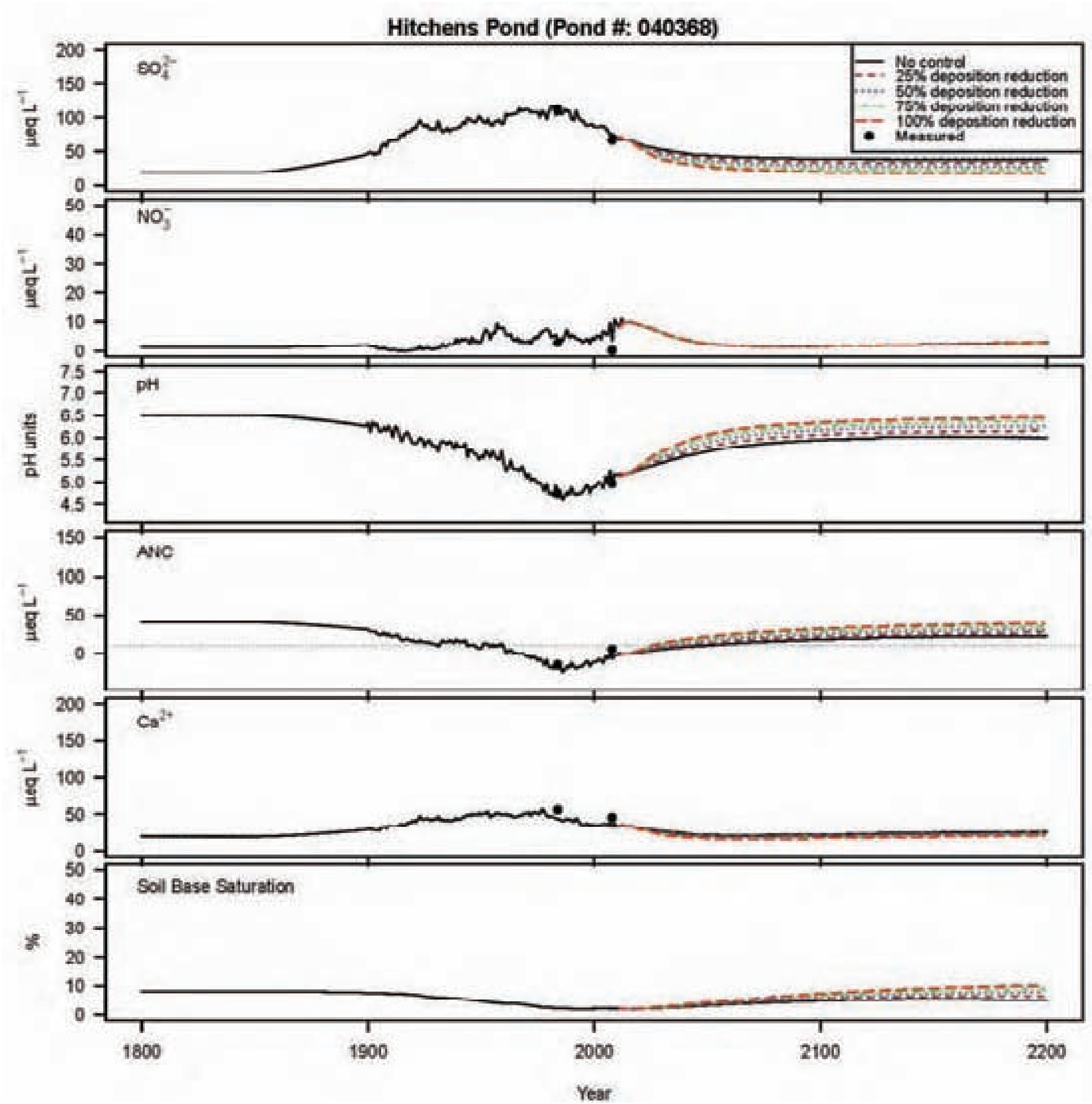

Hog Pond (Pond #: 040247)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



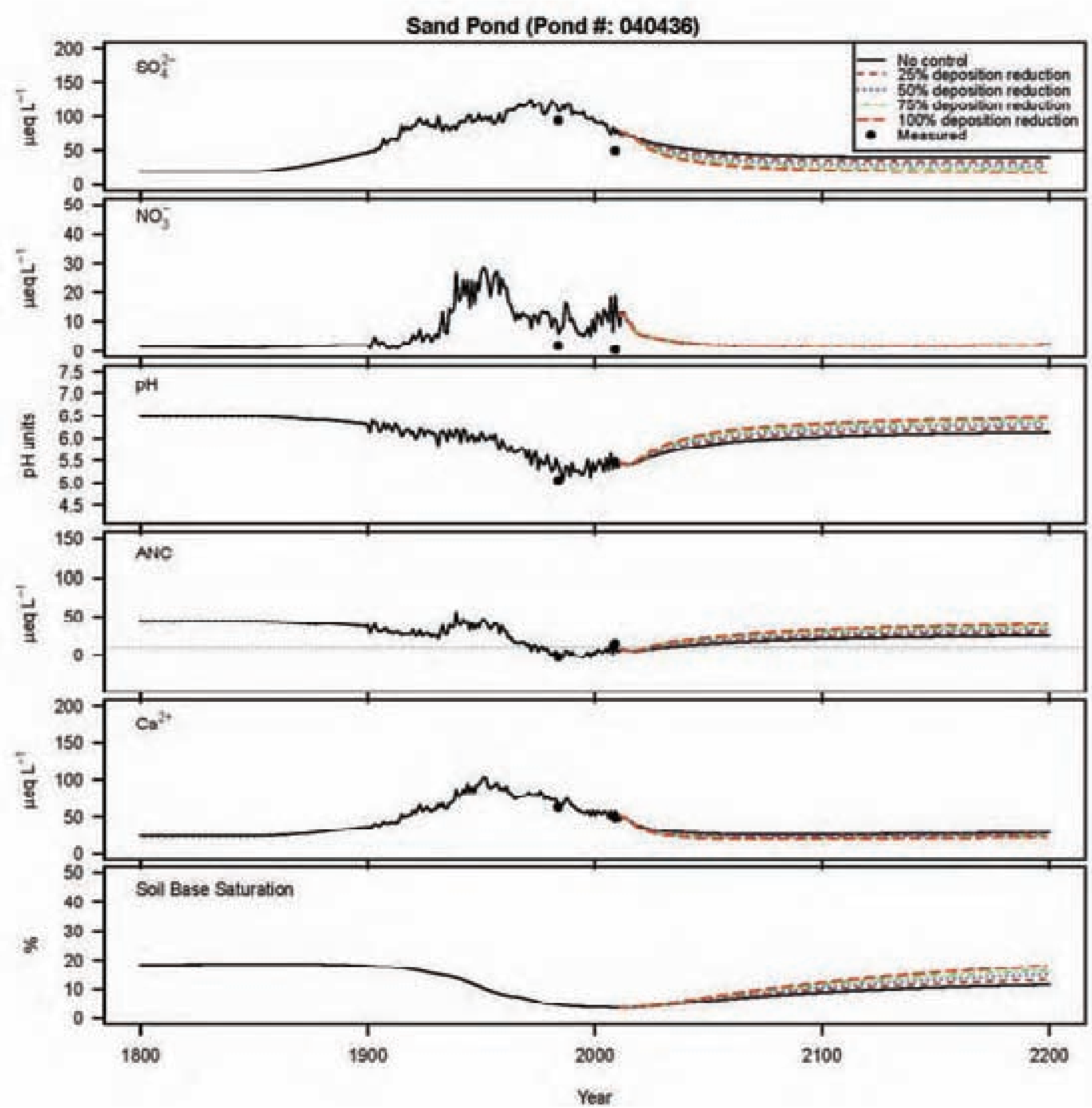
Crystal Lake (Pond #: 040289)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



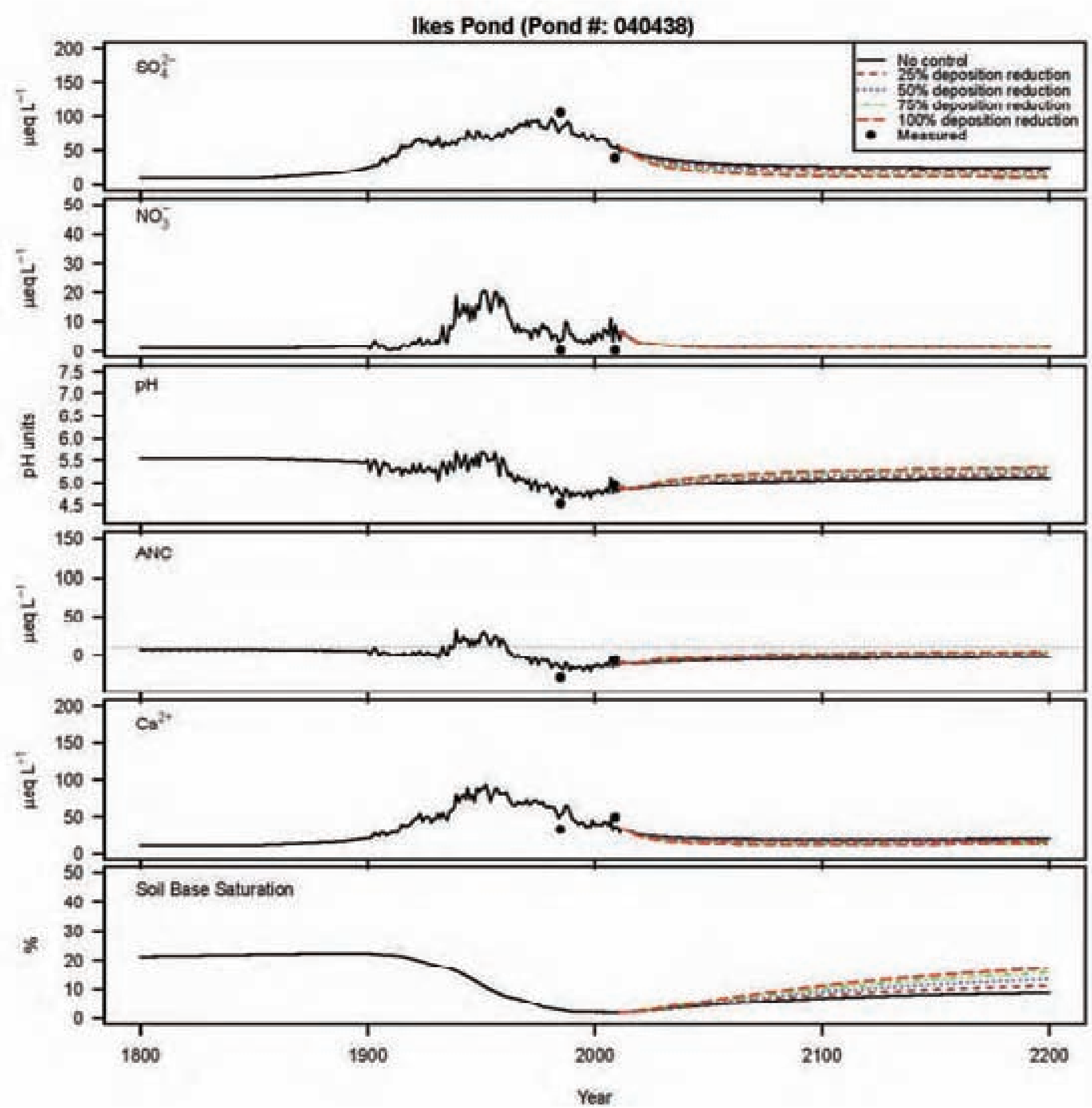
Oven Lake (Pond #: 040365)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

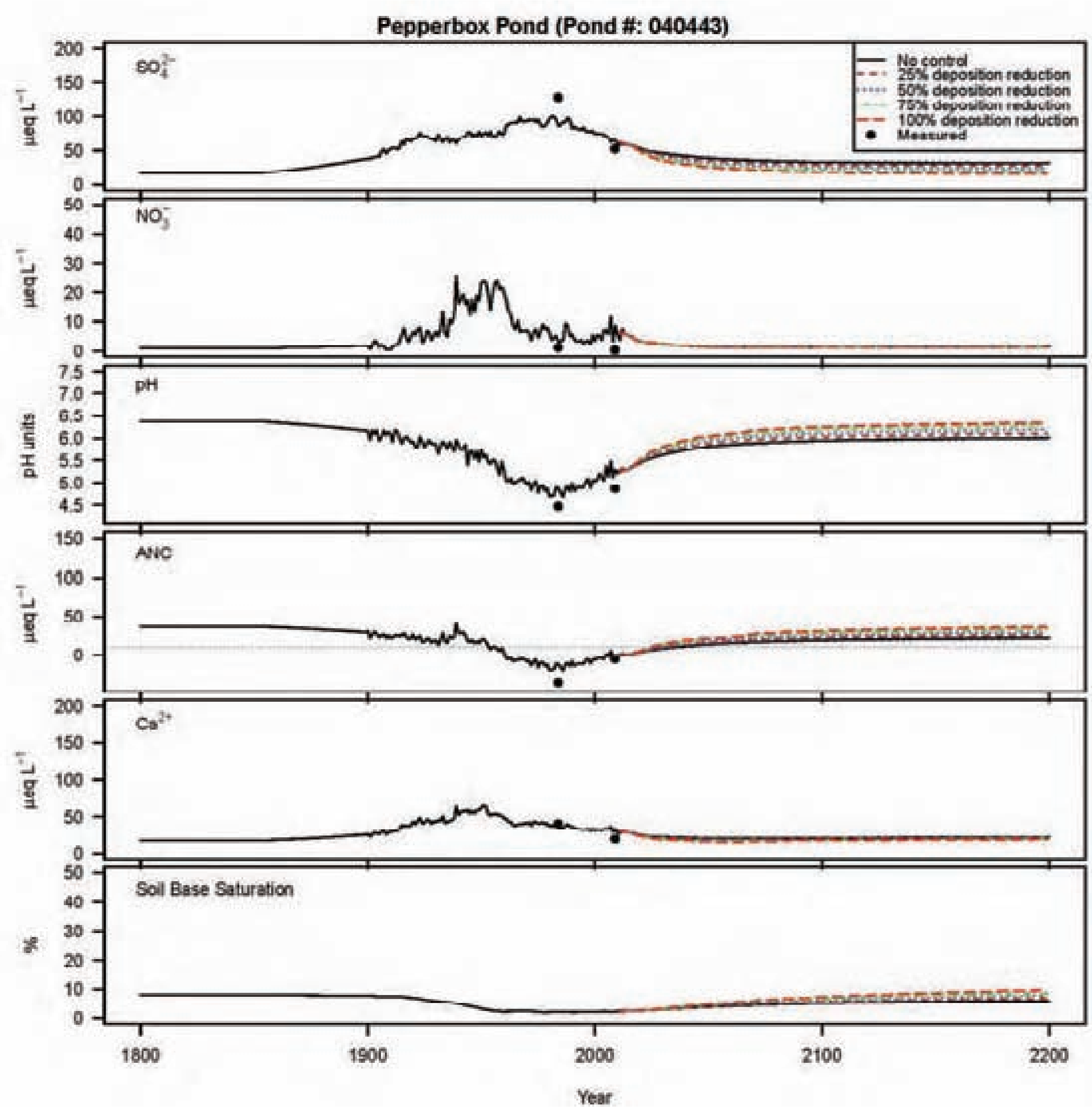


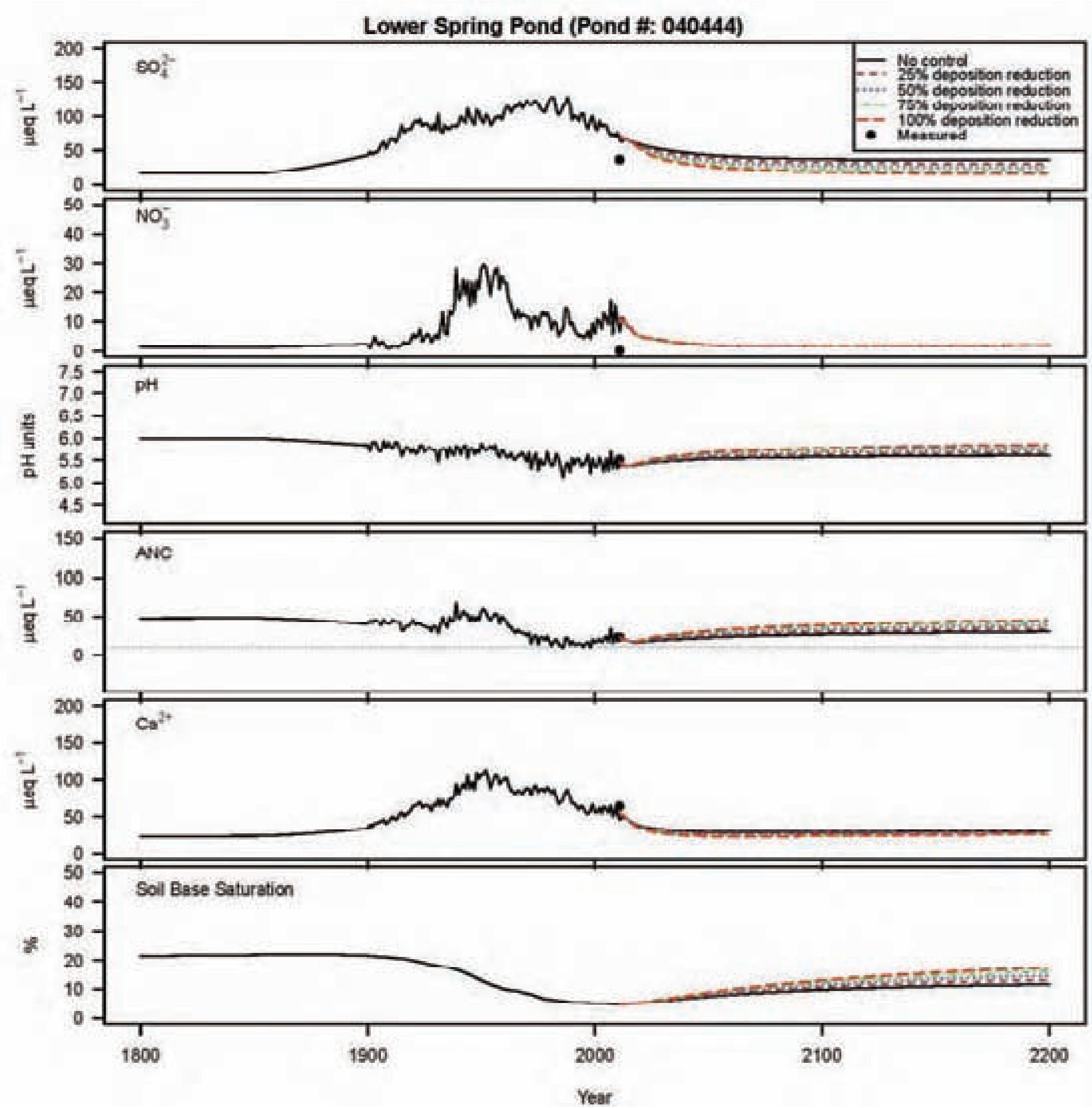
Hitchens Pond (Pond #: 040368)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
$\mu eq\ L^{-1}$
pH units
%
Year
1800
1900
2000
2100
2200

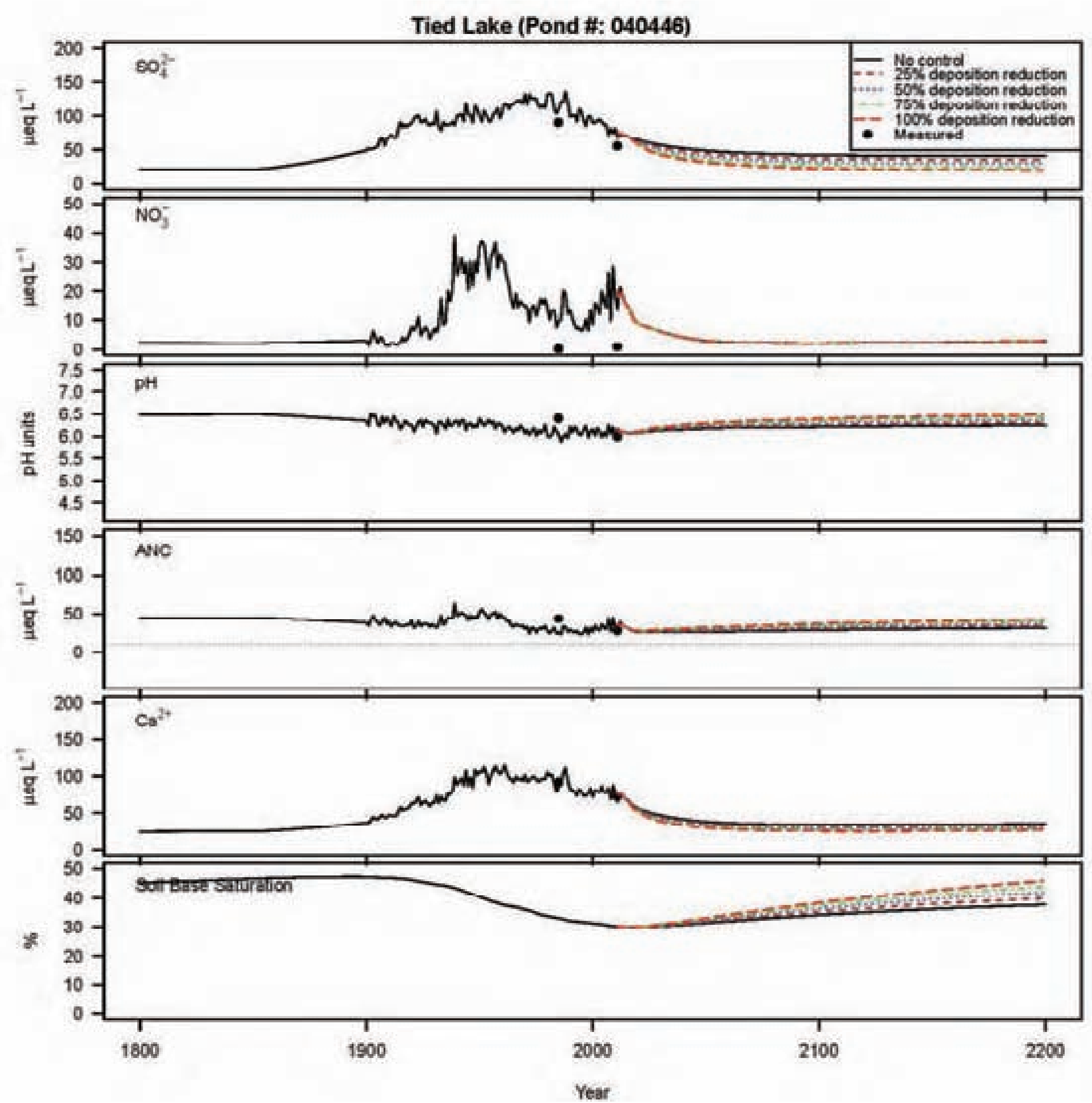


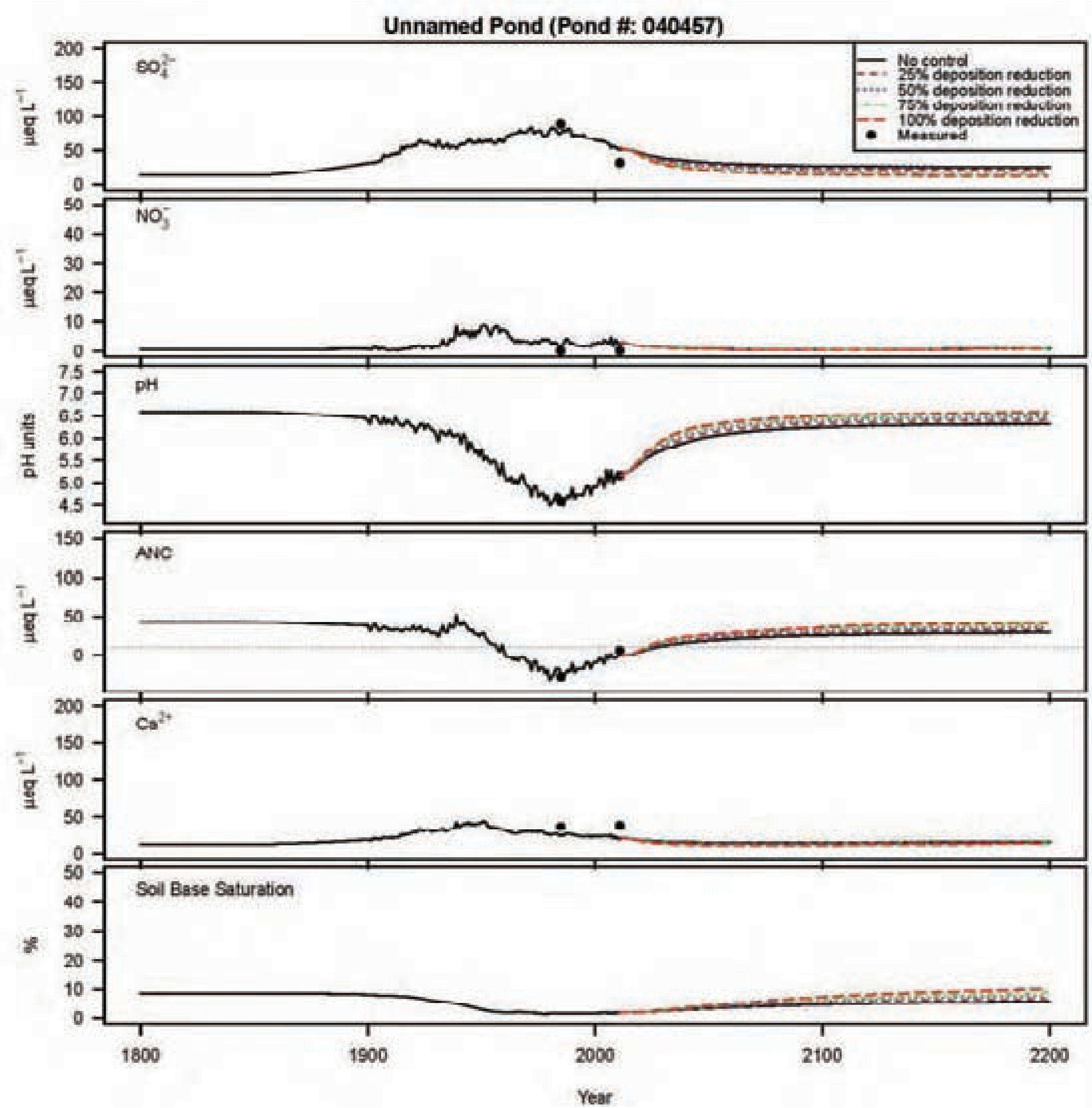
Sand Pond (Pond #: 040436)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Ikes Pond (Pond #: 040438)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

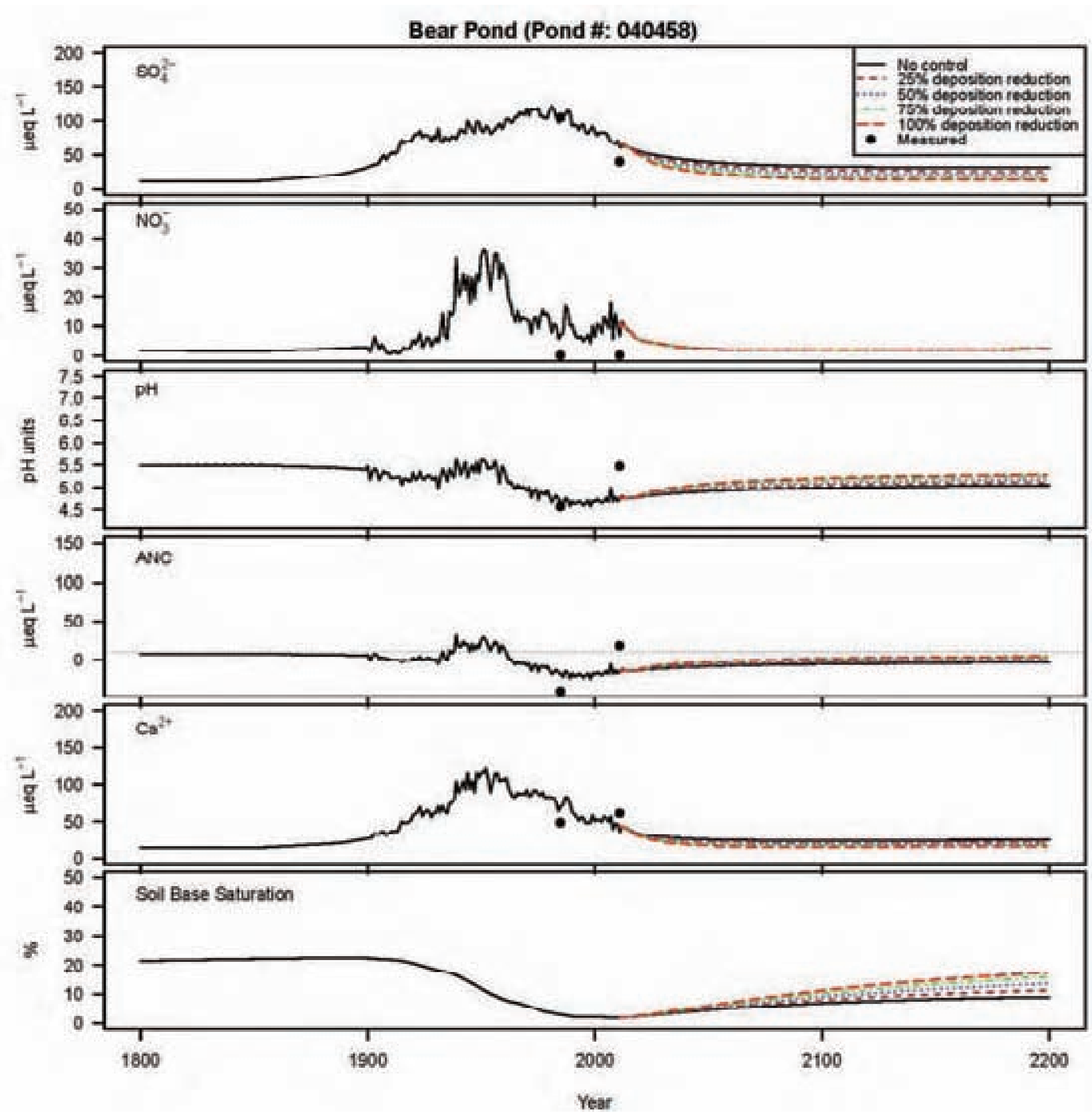

Pepperbox Pond (Pond #: 040443)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

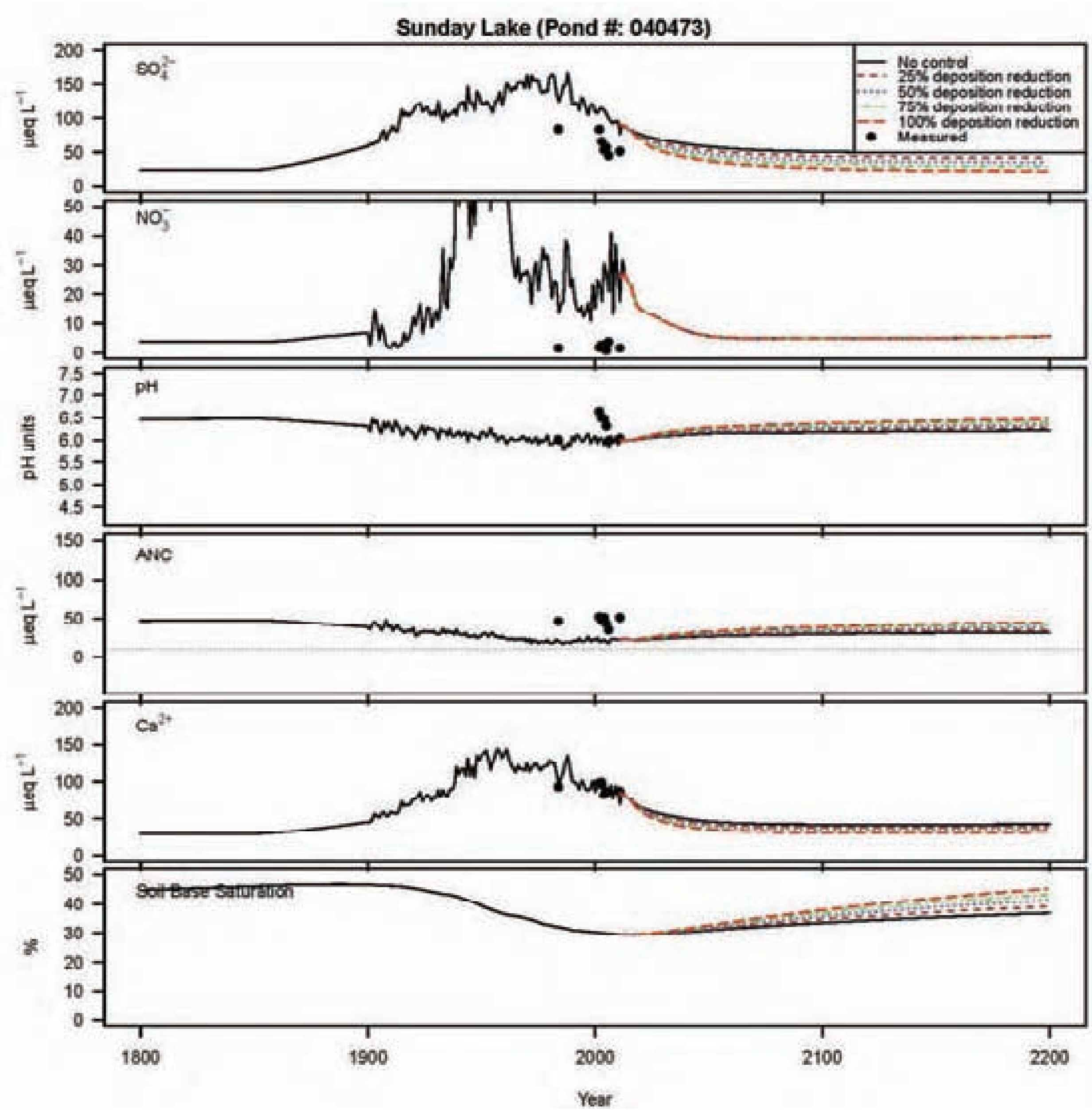

Lower Spring Pond (Pond #: 040444)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

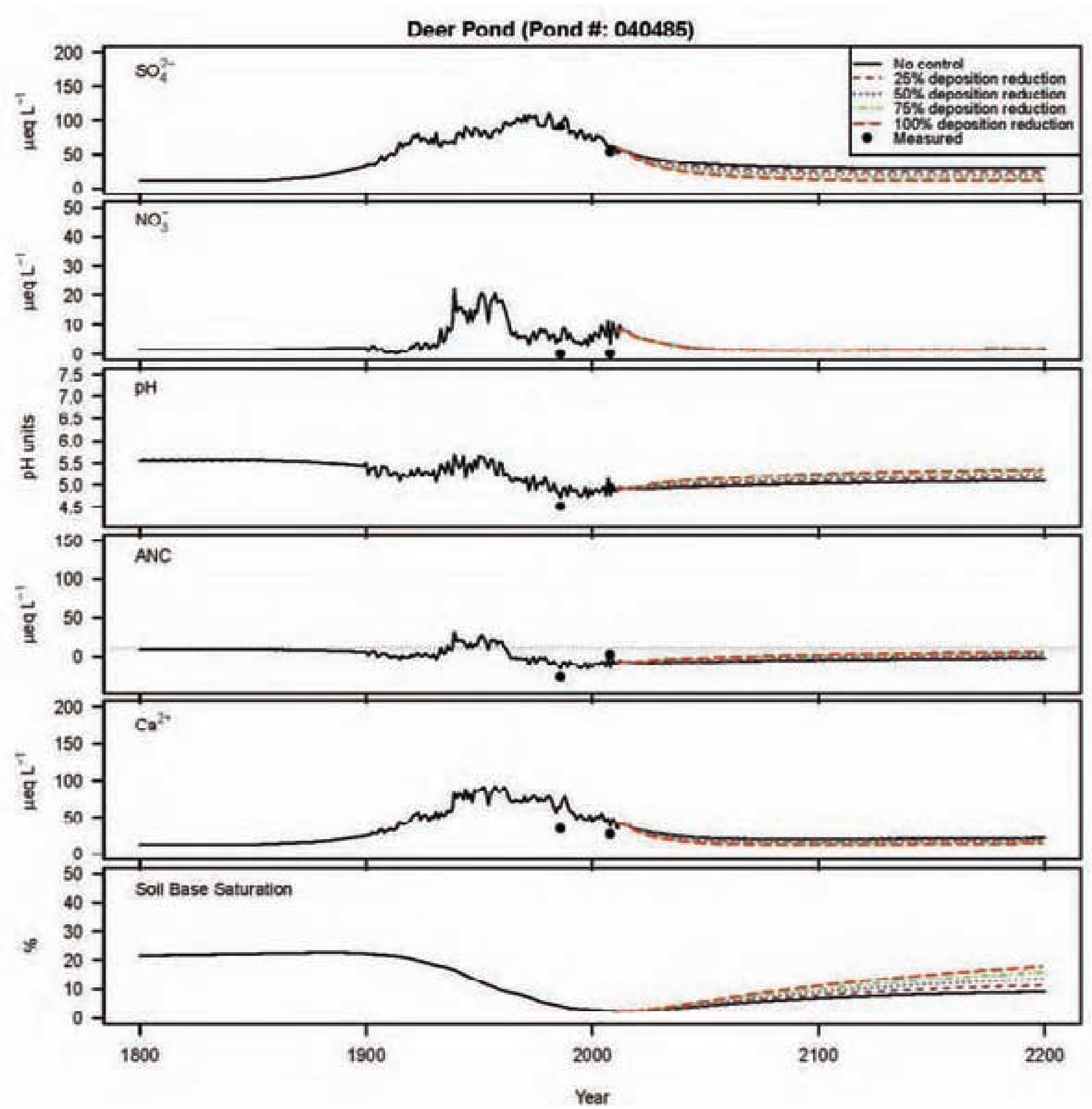

Tied Lake (Pond #: 040446)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

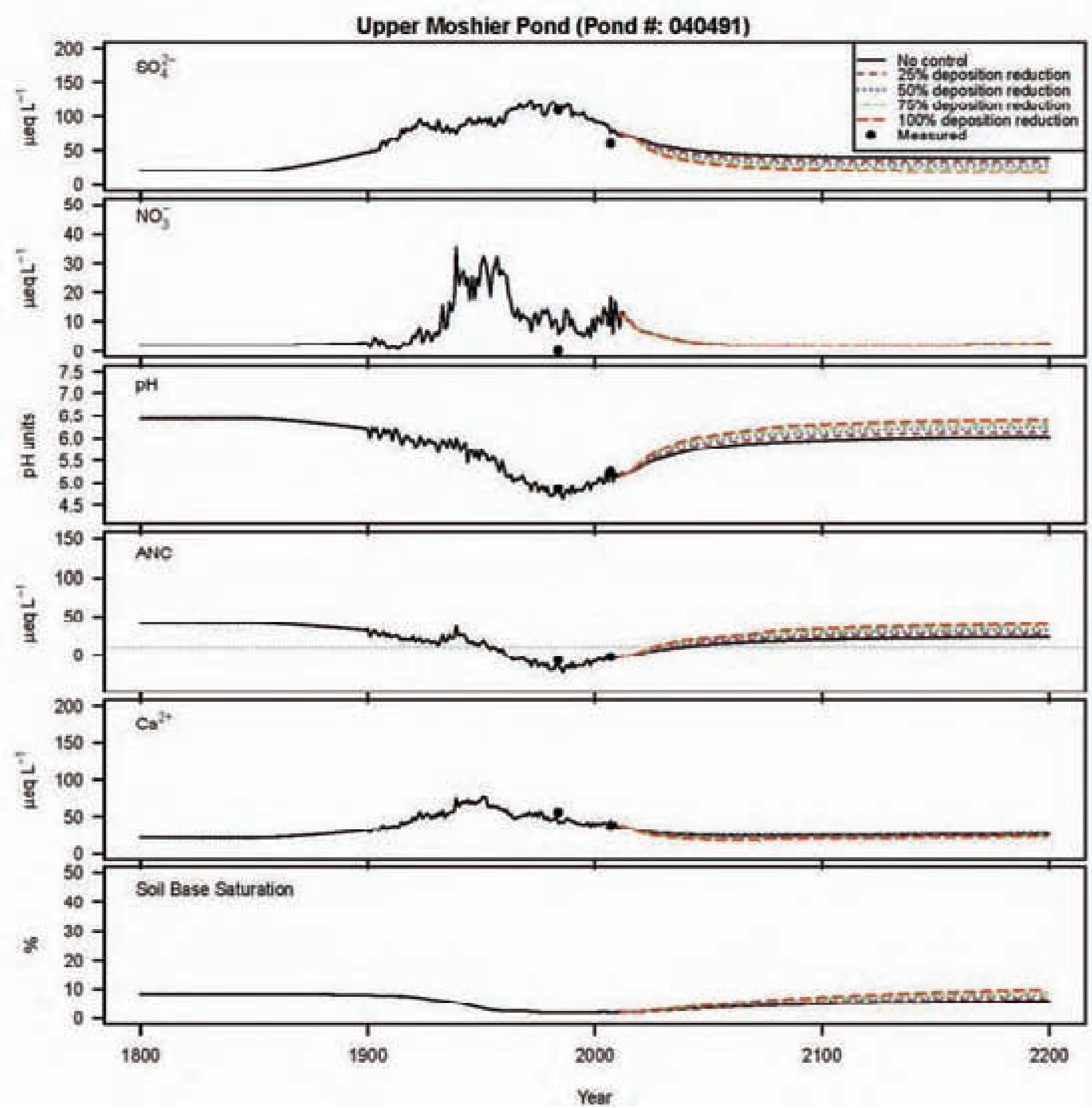


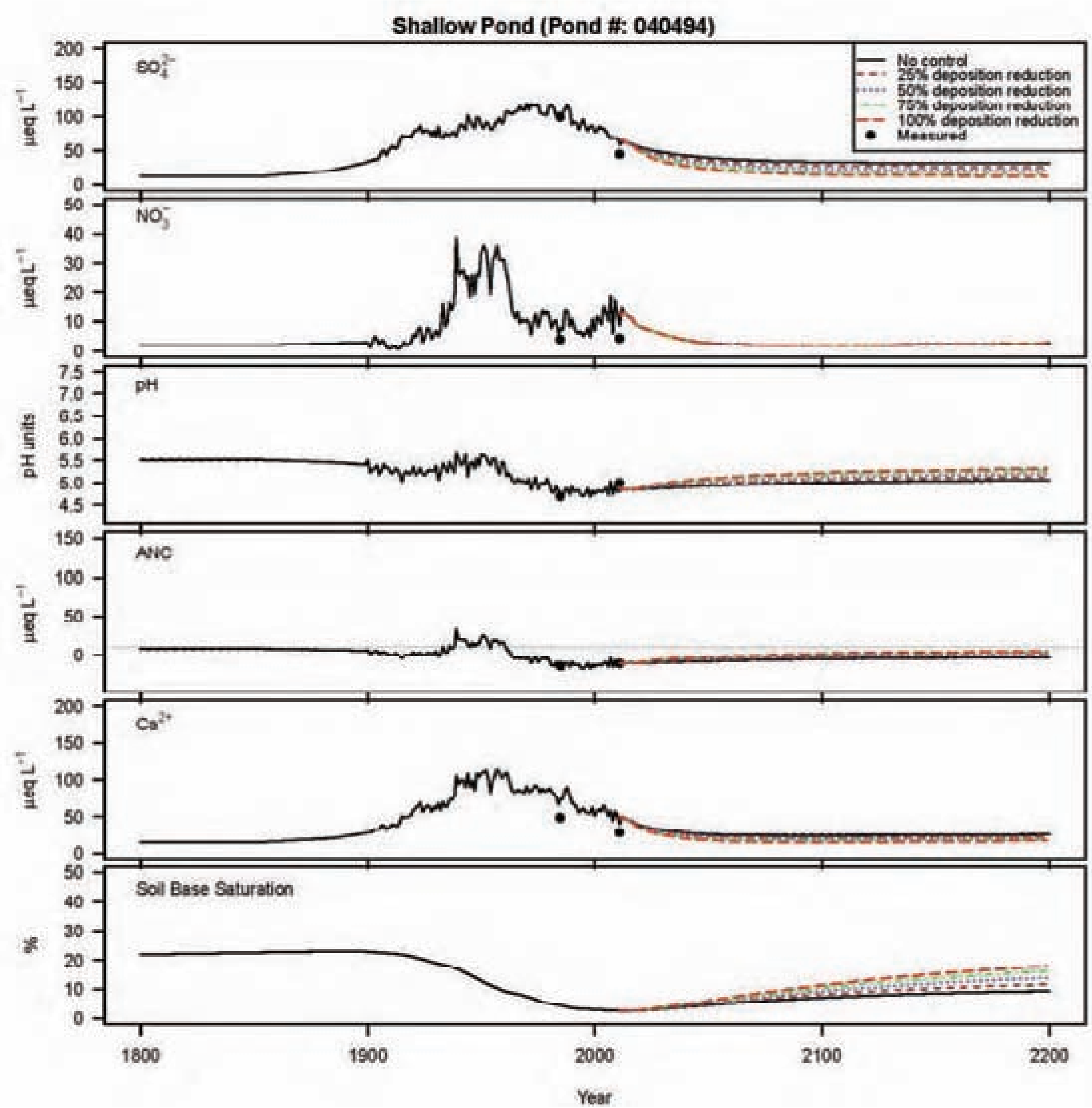
Unnamed Pond (Pond #: 040457)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

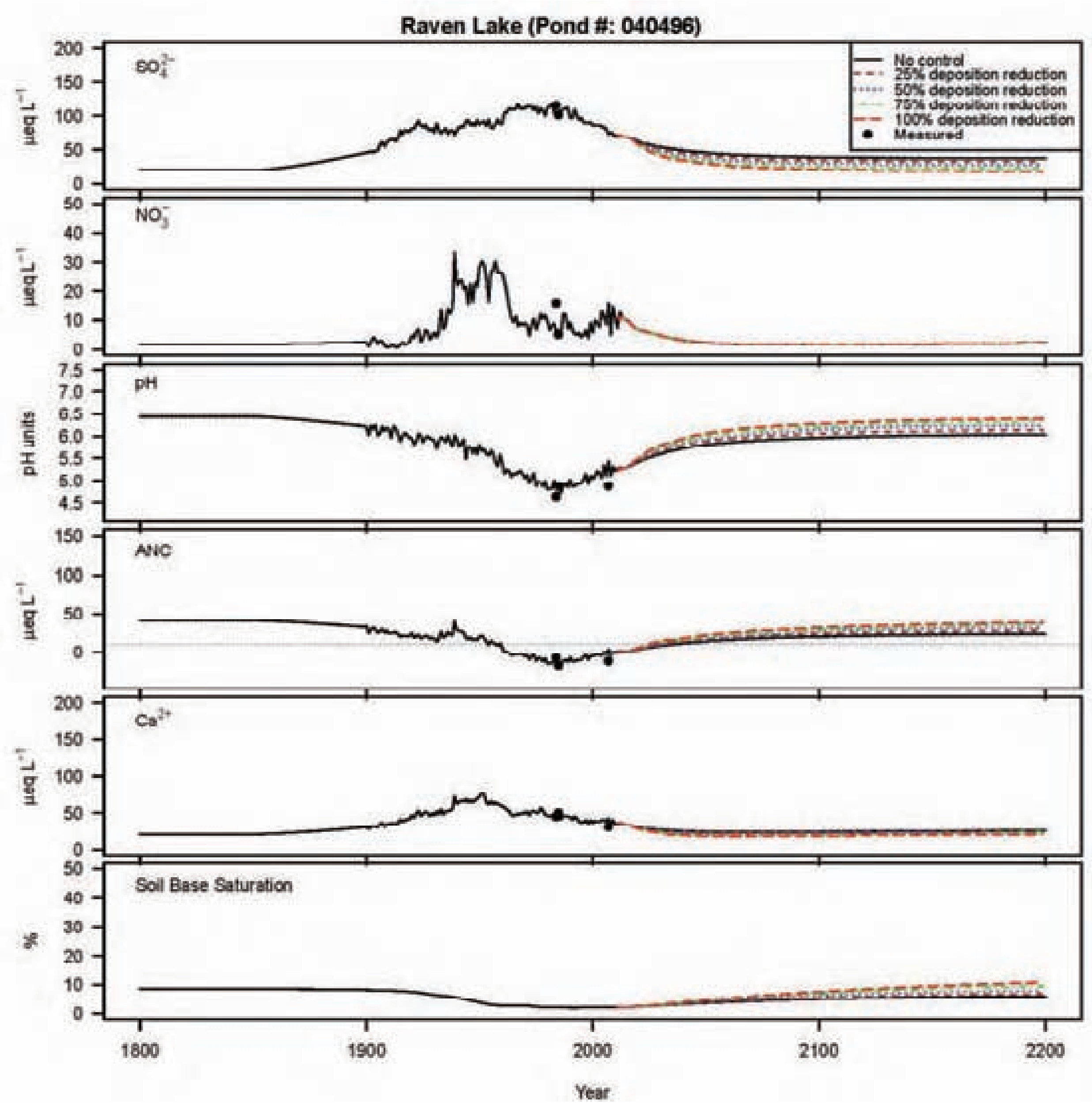

Bear Pond (Pond #: 040458)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
$\mu eq\ L^{-1}$
pH units
%
Year
1800
1900
2000
2100
2200

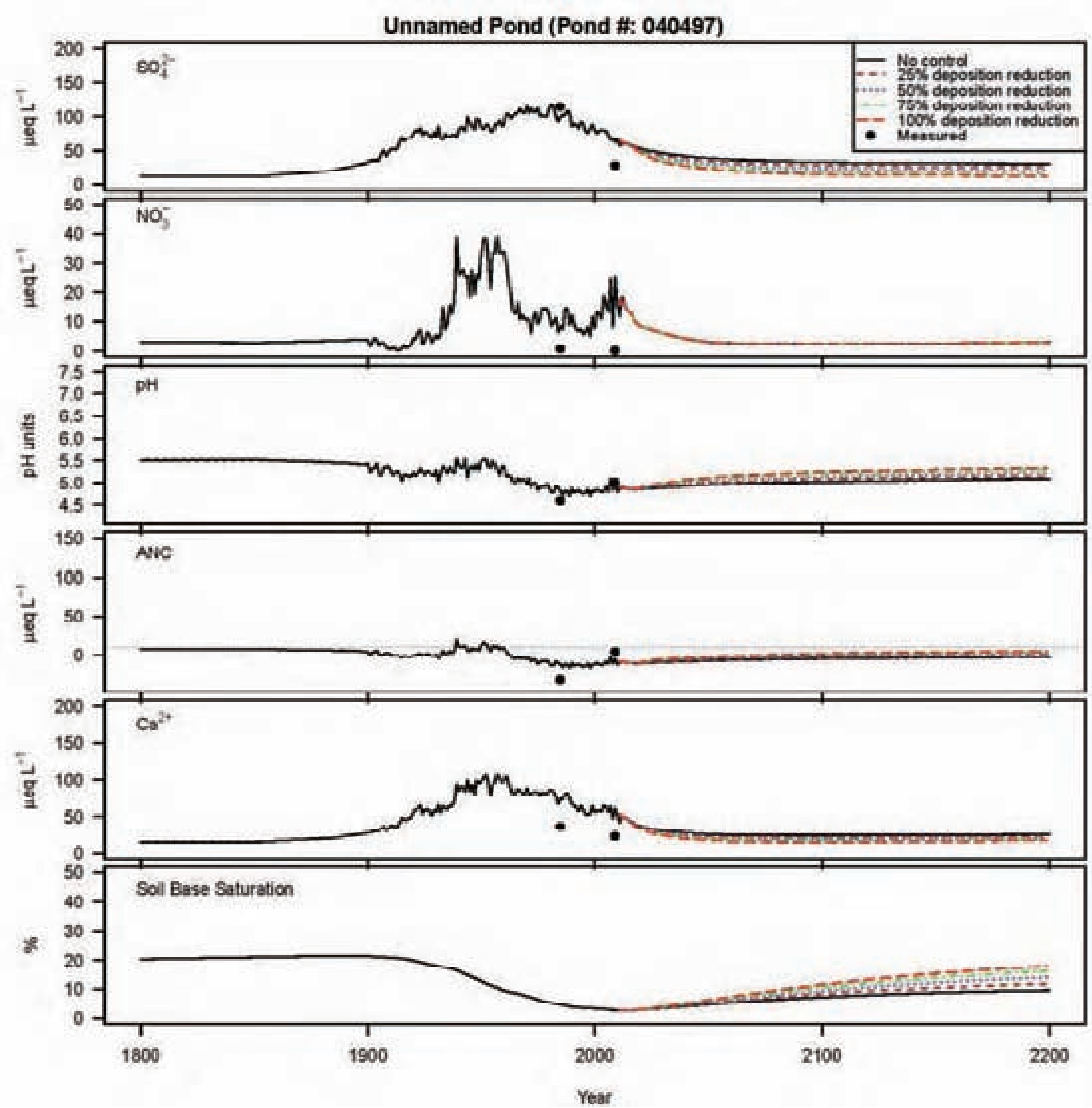

Sunday Lake (Pond #: 040473)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Deer Pond (Pond #: 040485)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
µeq L⁻¹
pH
pH units
ANC
µeq L⁻¹
Ca^{2+}
µeq L⁻¹
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

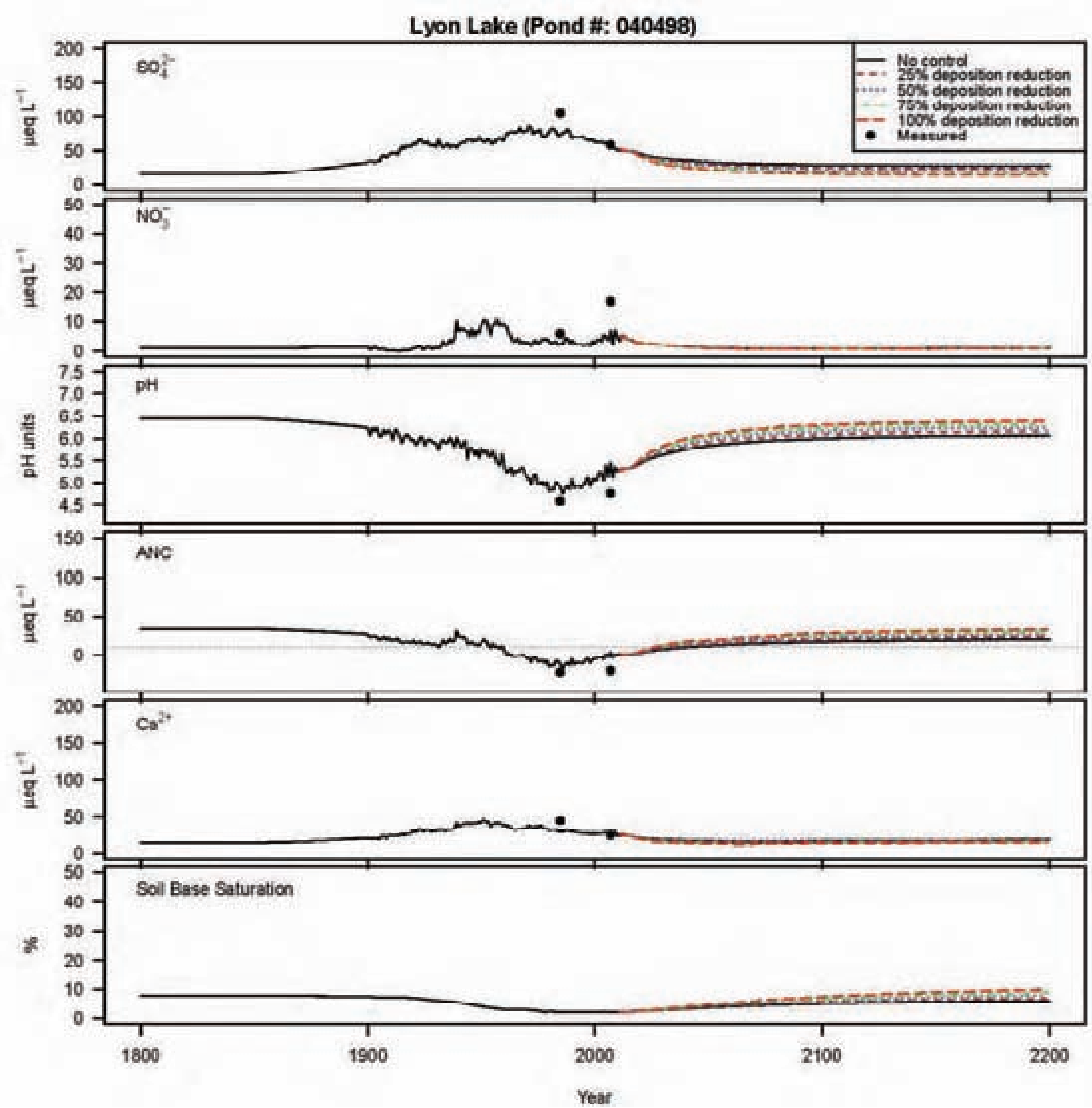

Upper Moshier Pond (Pond #: 040491)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Shallow Pond (Pond #: 040494)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

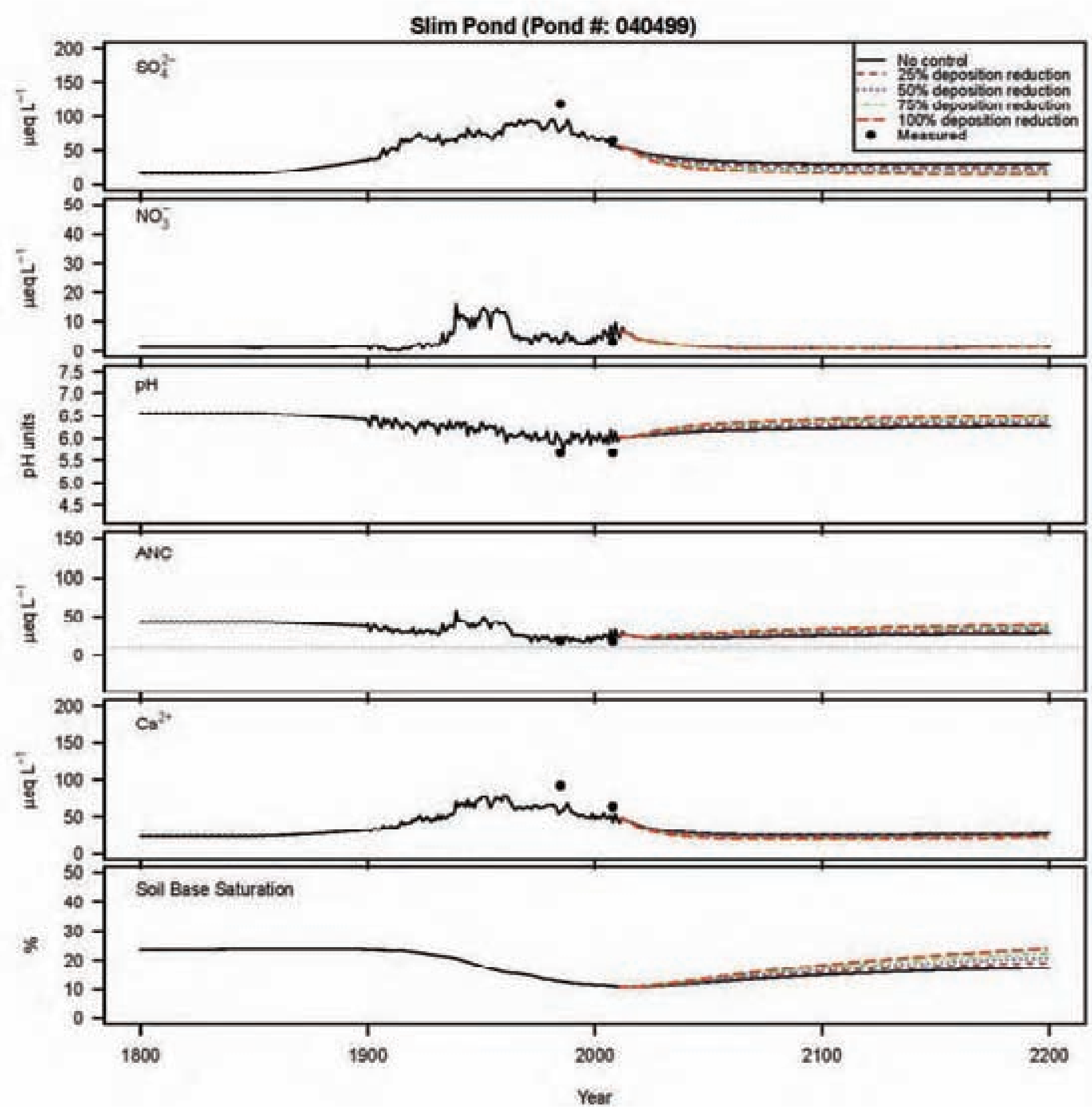

Raven Lake (Pond #: 040496)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



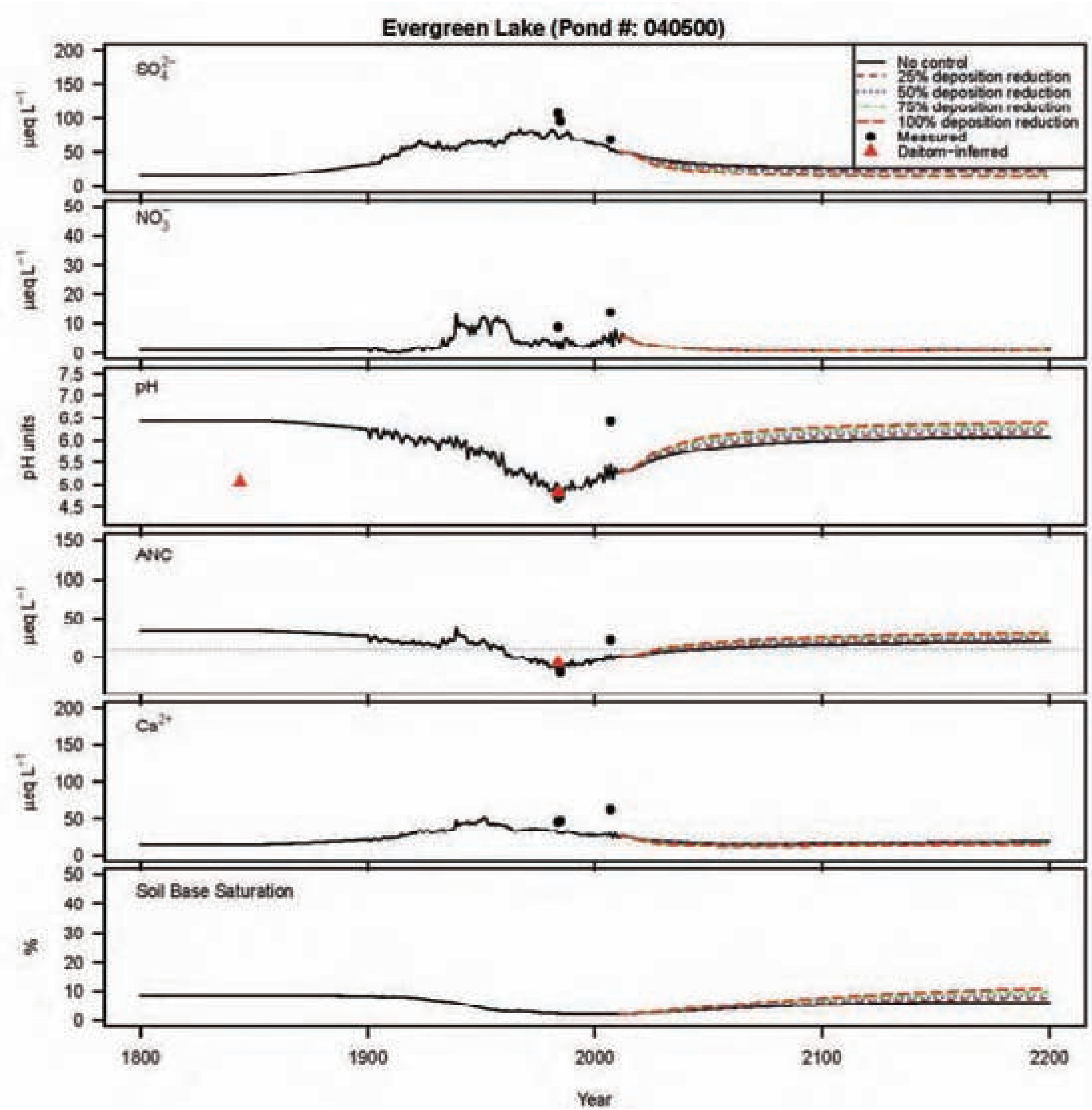
Unnamed Pond (Pond #: 040497)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



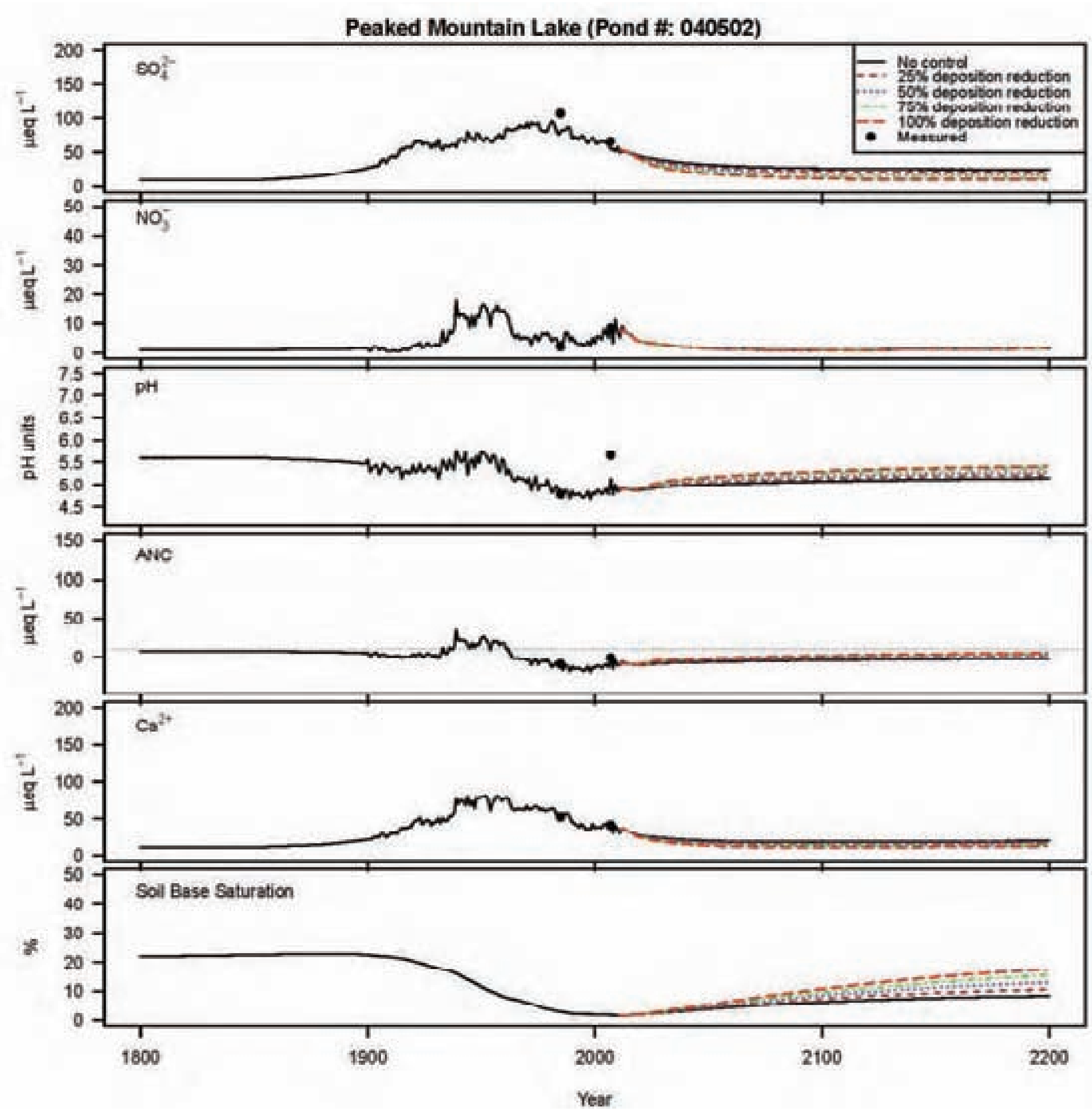
Lyon Lake (Pond #: 040498)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year

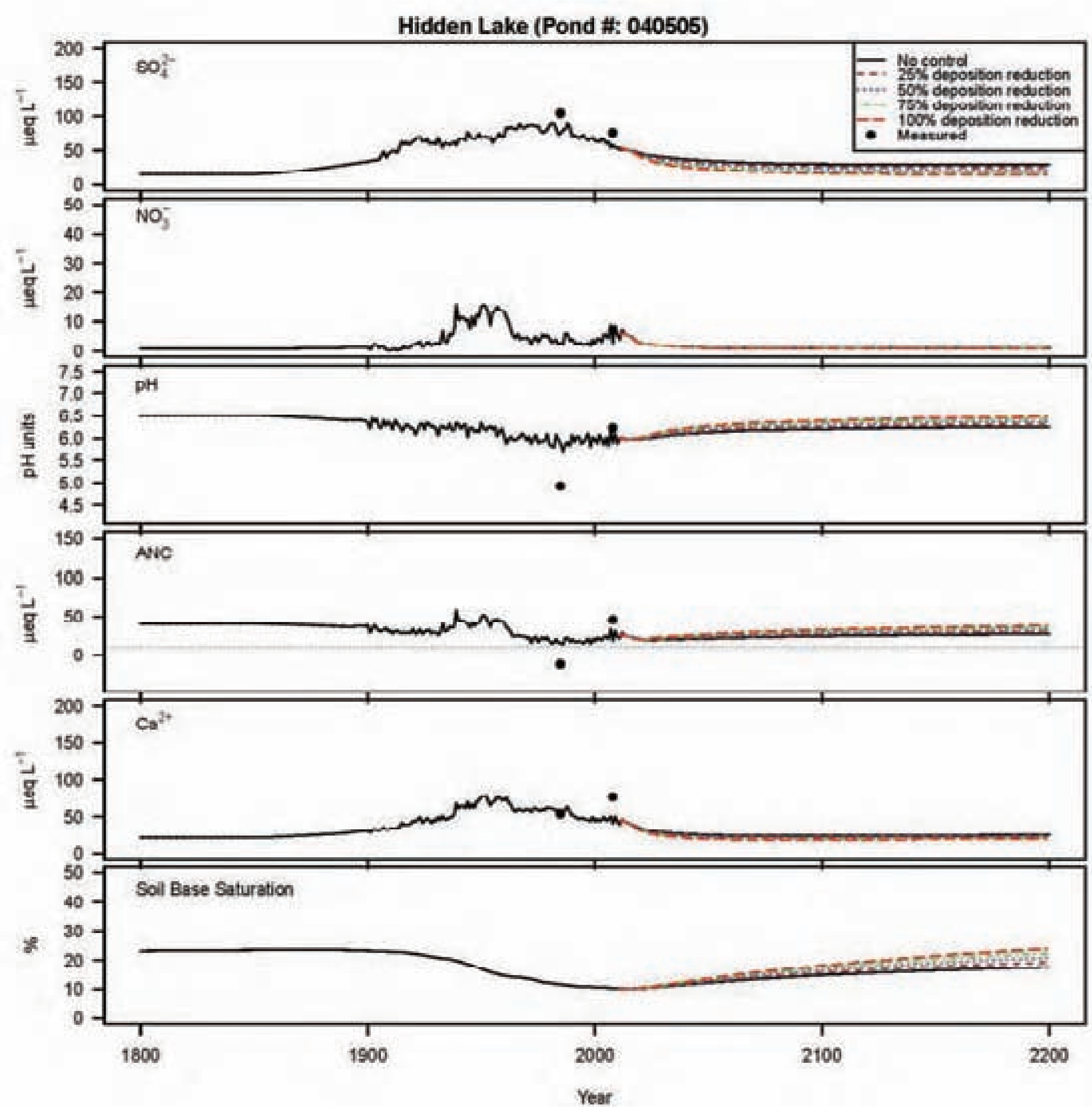


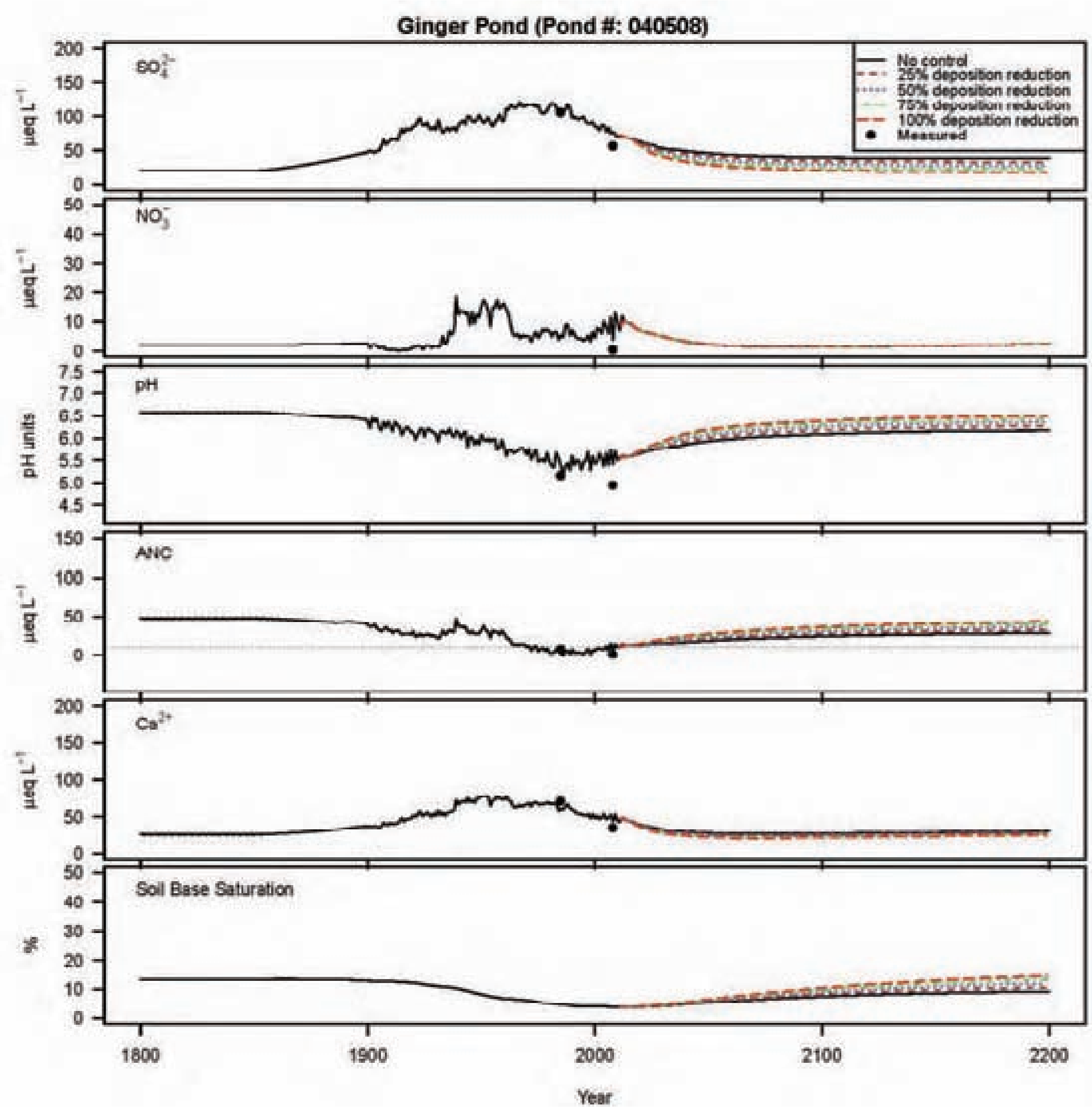
Slim Pond (Pond #: 040499)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

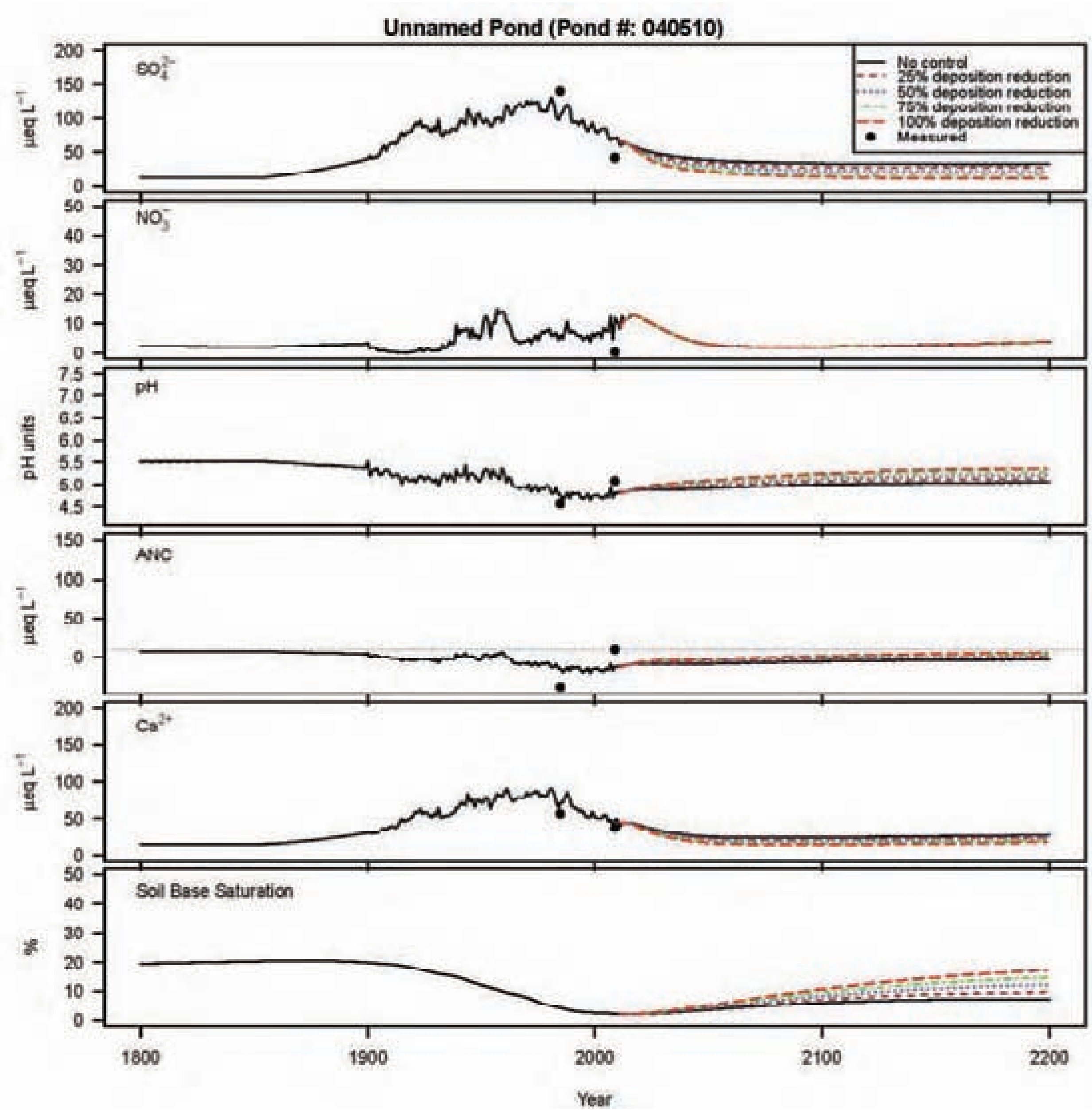


Evergreen Lake (Pond #: 040500)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

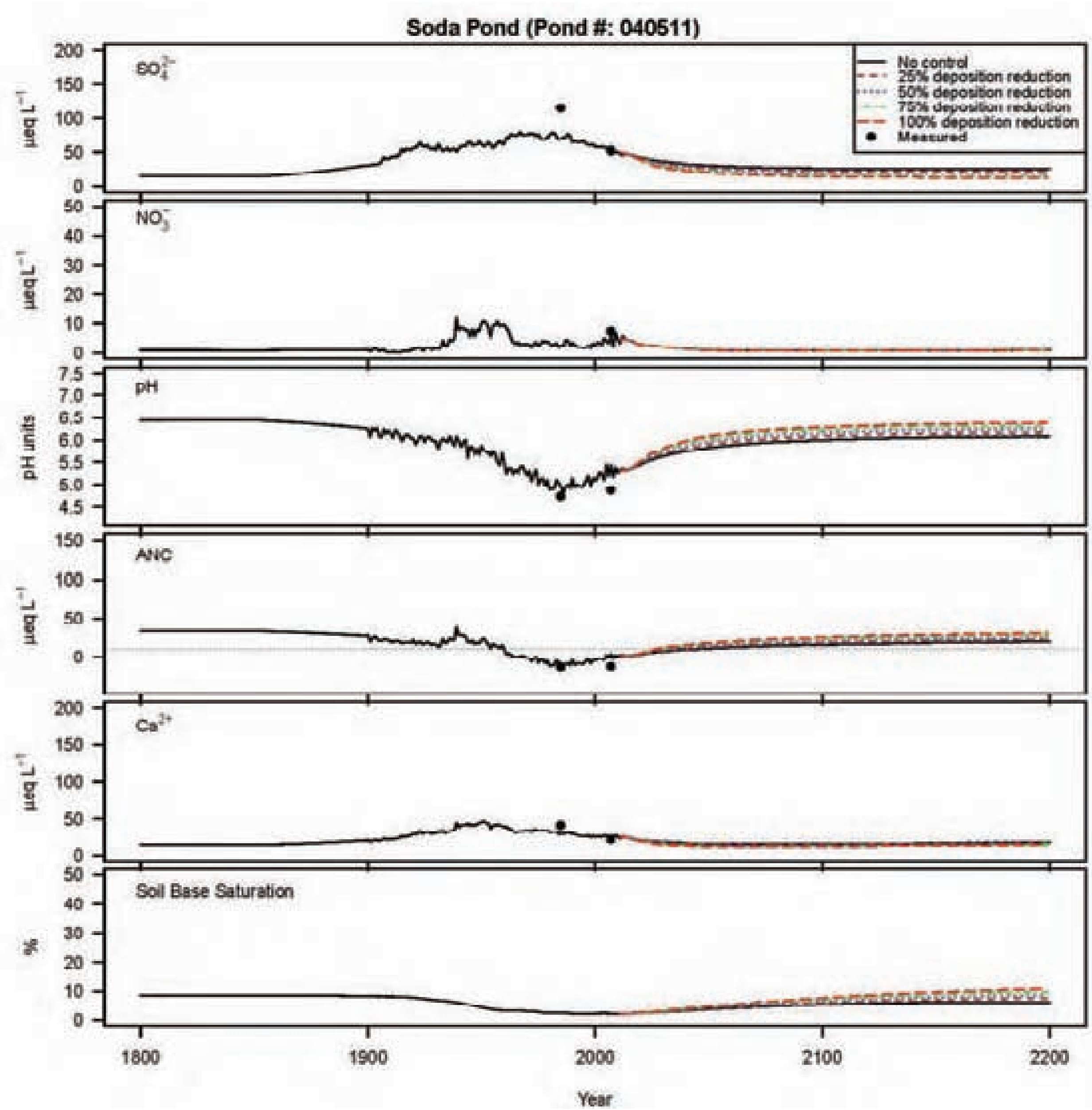

Peaked Mountain Lake (Pond #: 040502)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L^{-1}
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

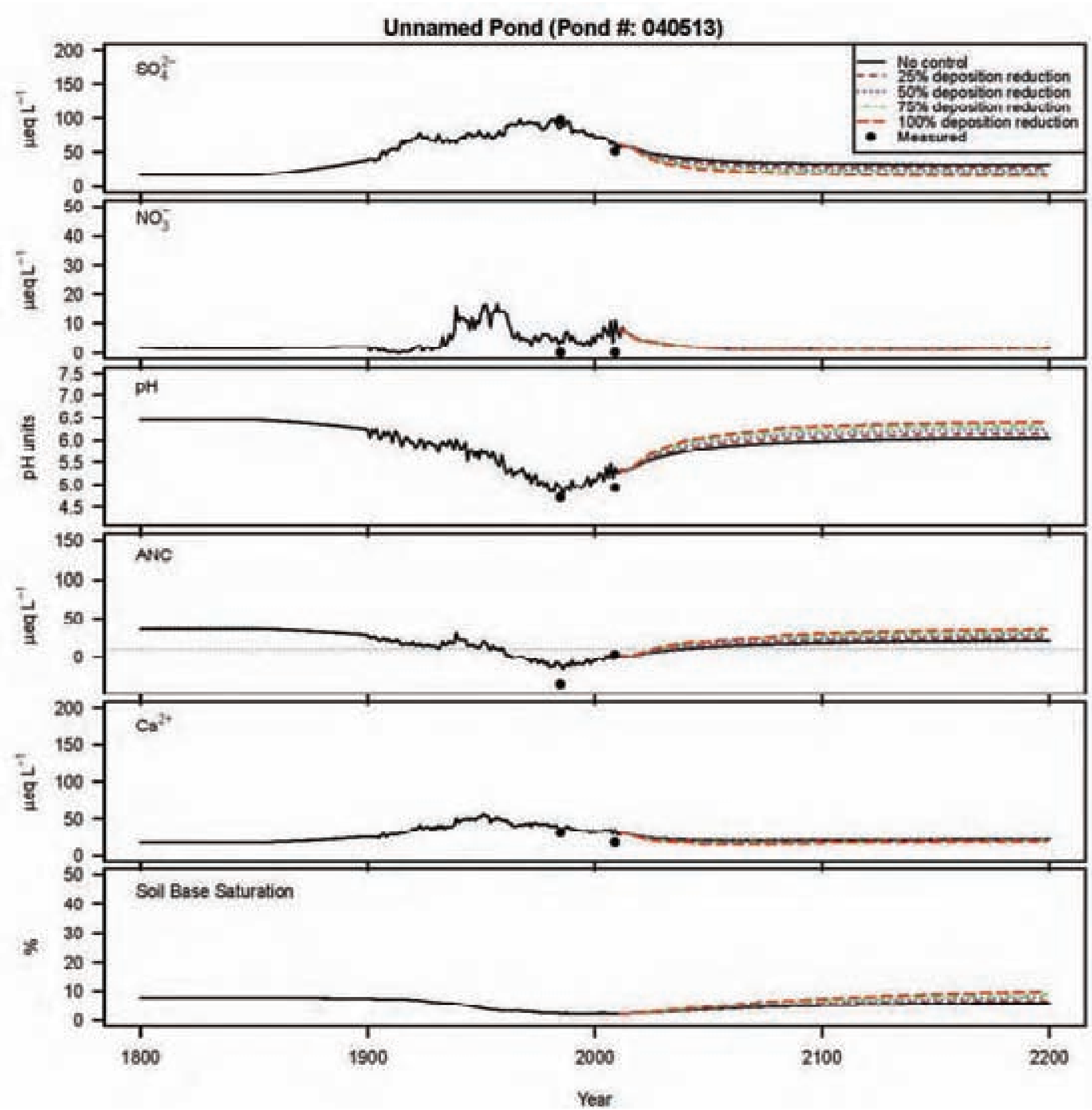

Hidden Lake (Pond #: 040505)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

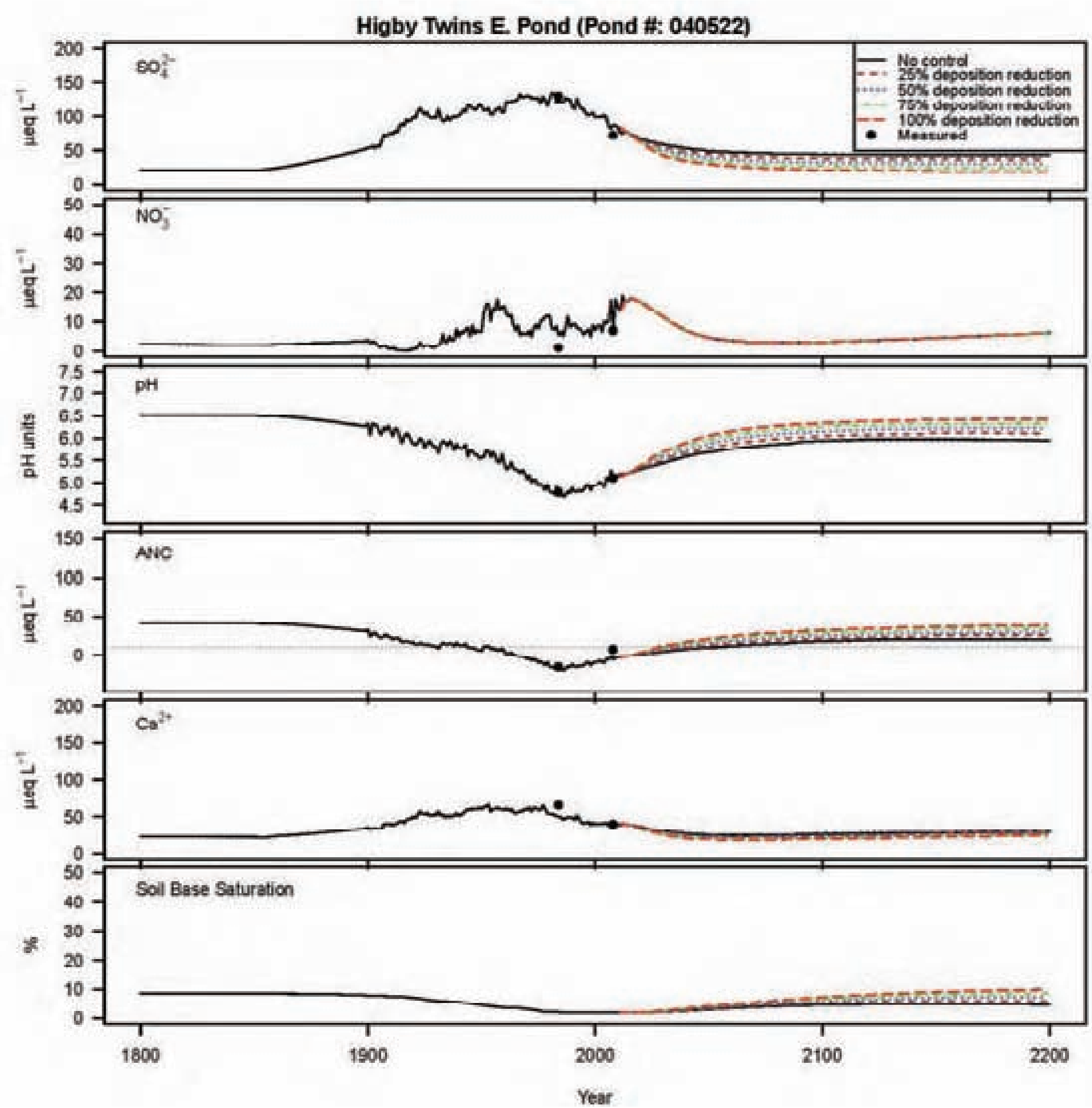

Ginger Pond (Pond #: 040508)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



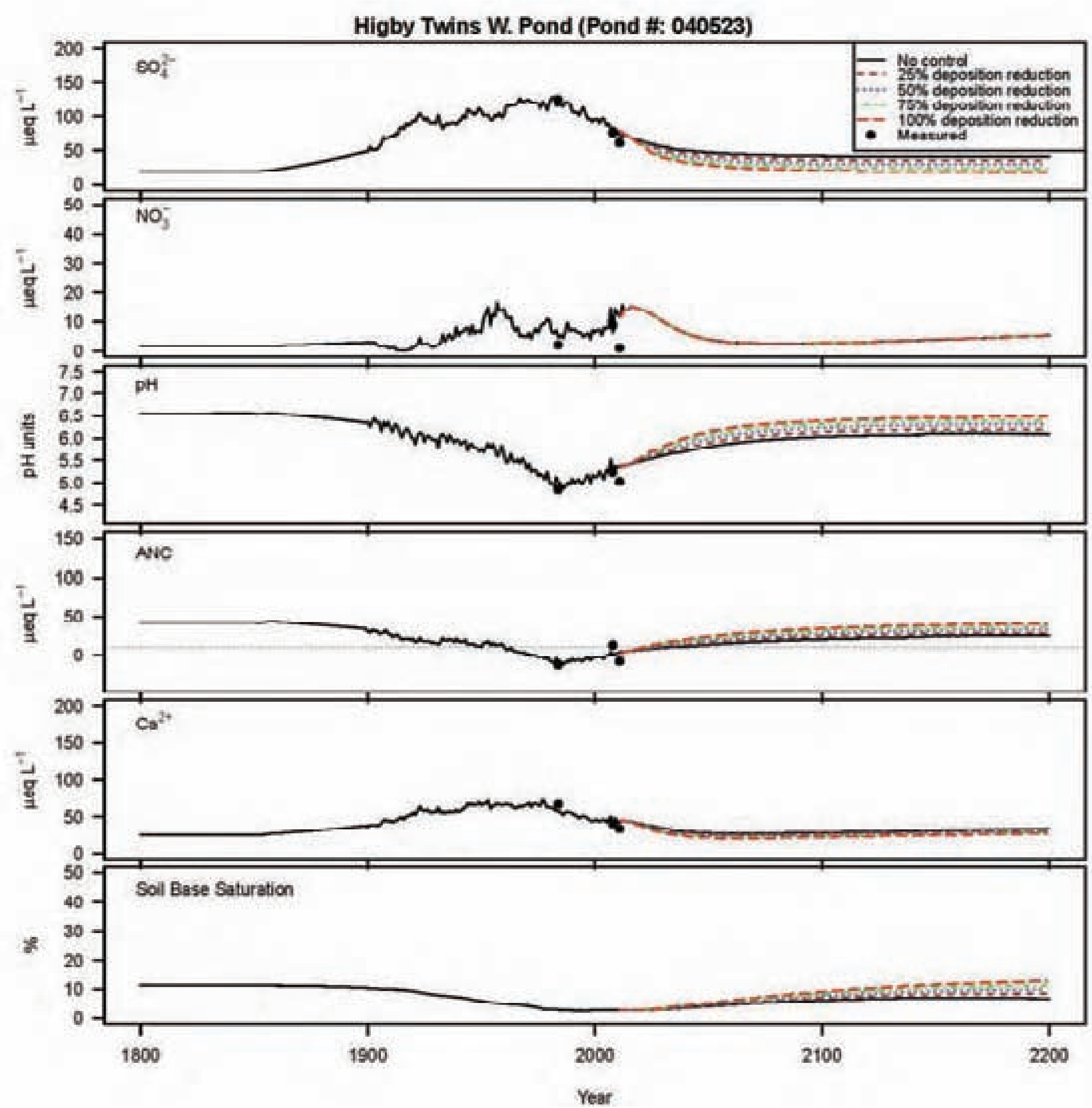
Unnamed Pond (Pond #: 040510)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

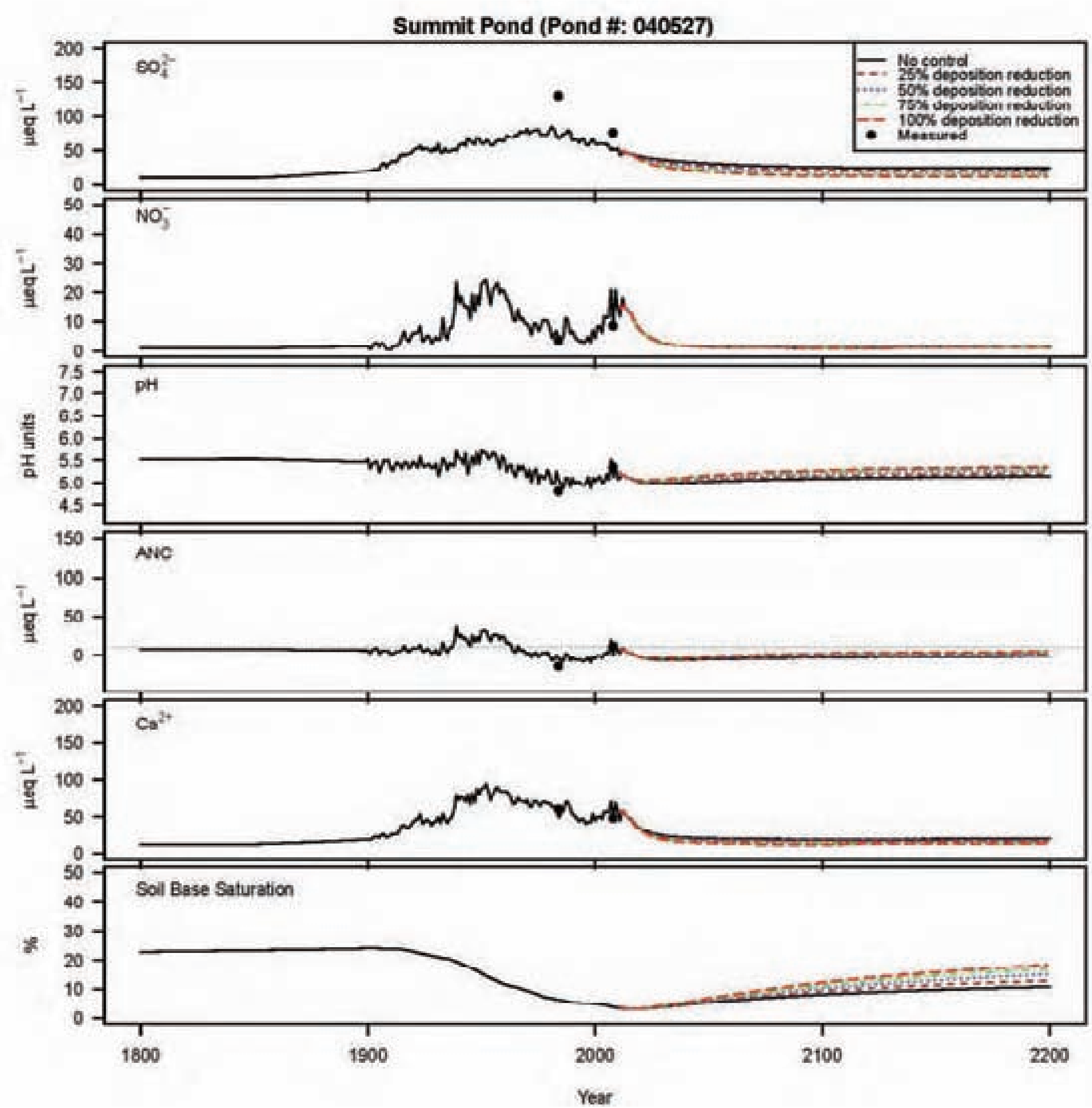

Soda Pond (Pond #: 040511)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Unnamed Pond (Pond #: 040513)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

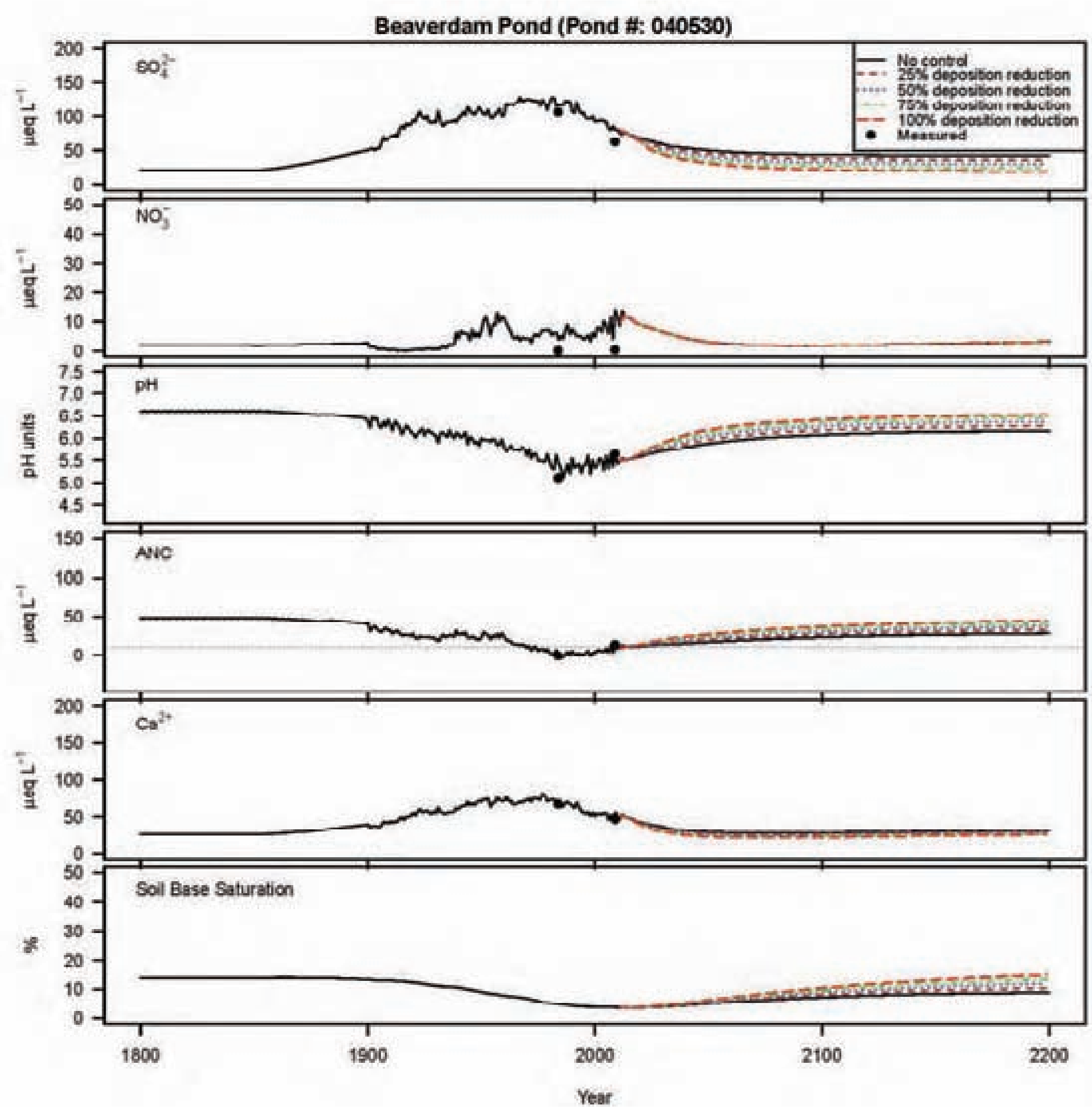


Higby Twins E. Pond (Pond #: 040522)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

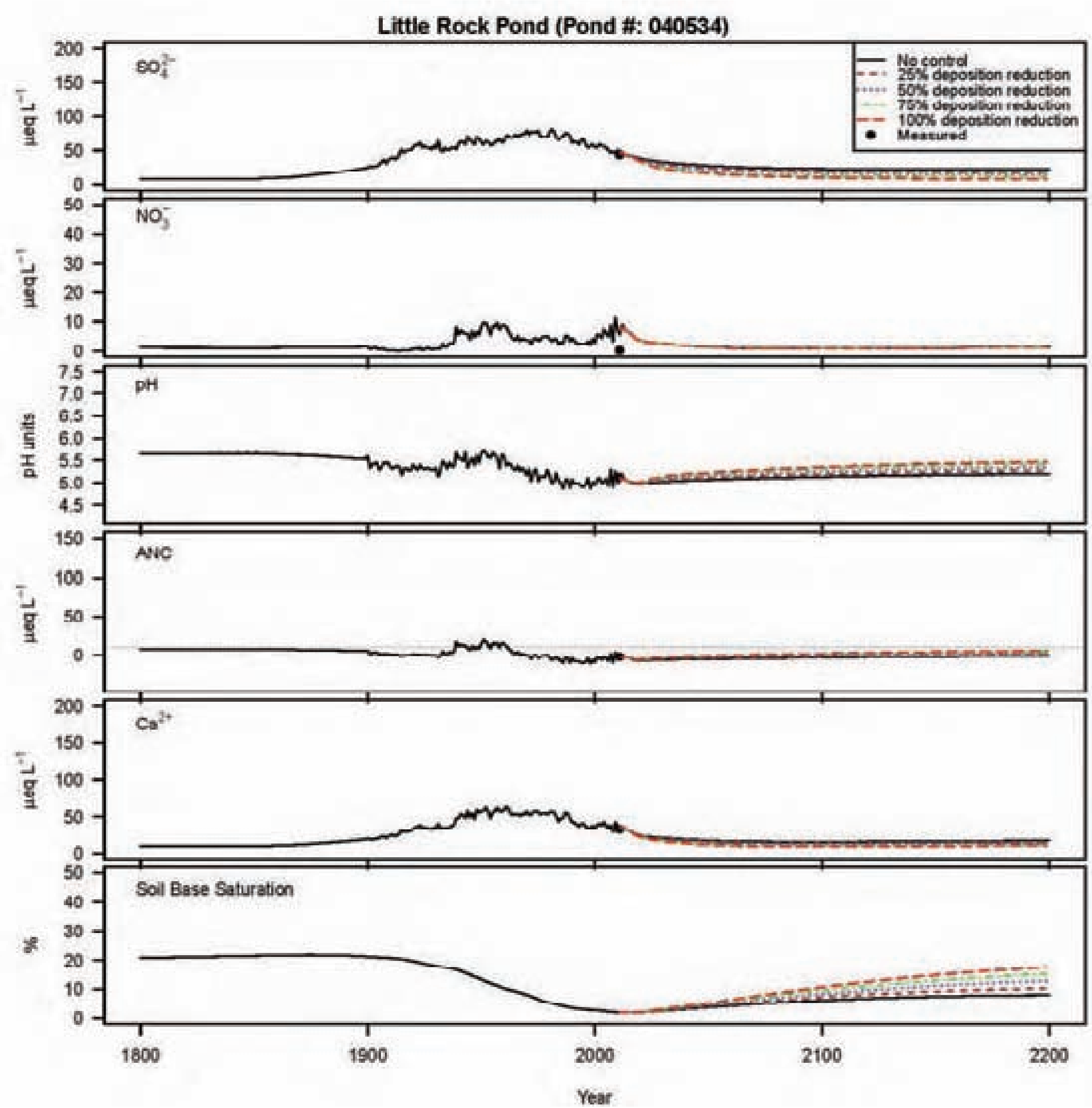

Higby Twins W. Pond (Pond #: 040523)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

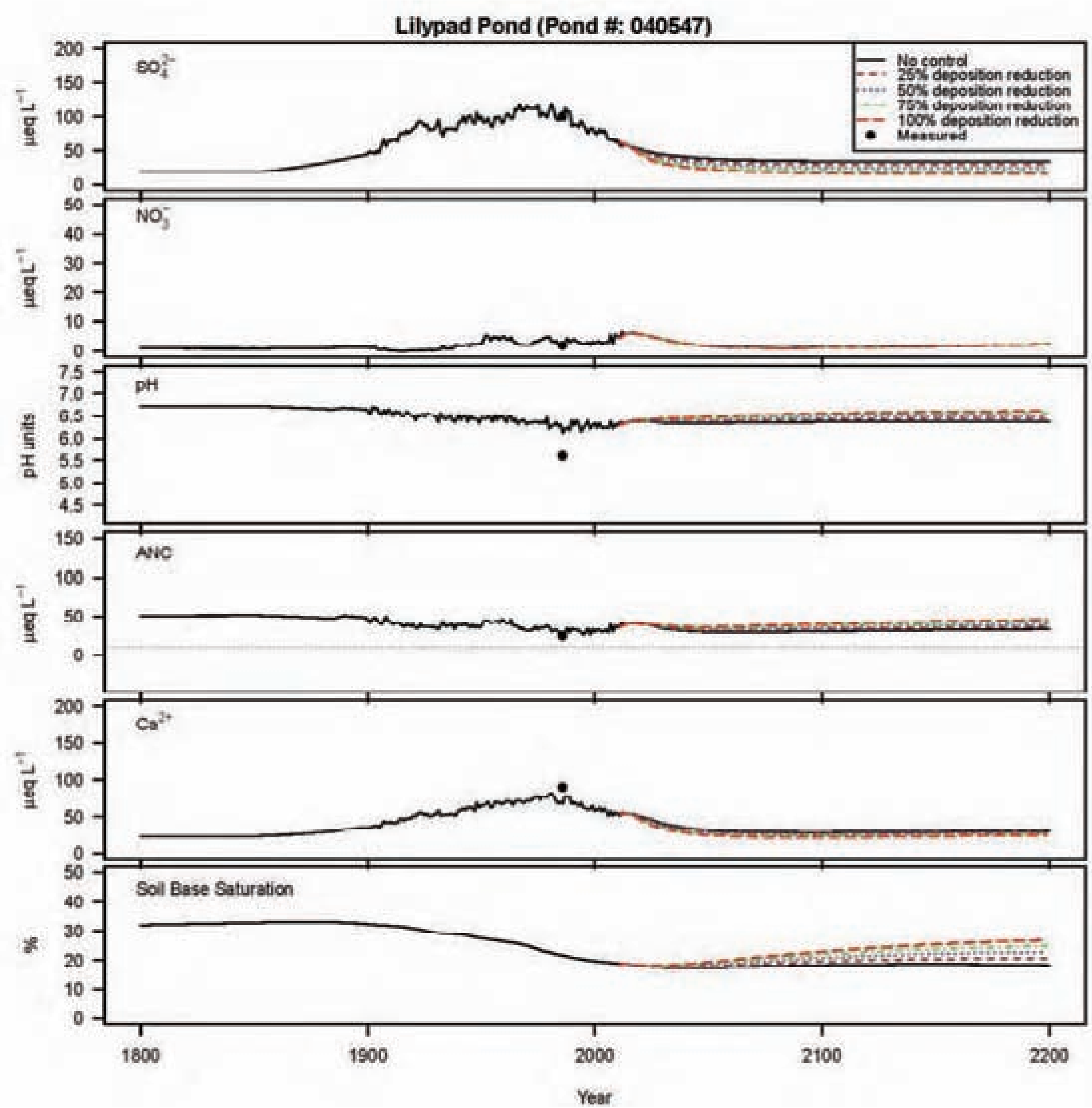


Summit Pond (Pond #: 040527)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

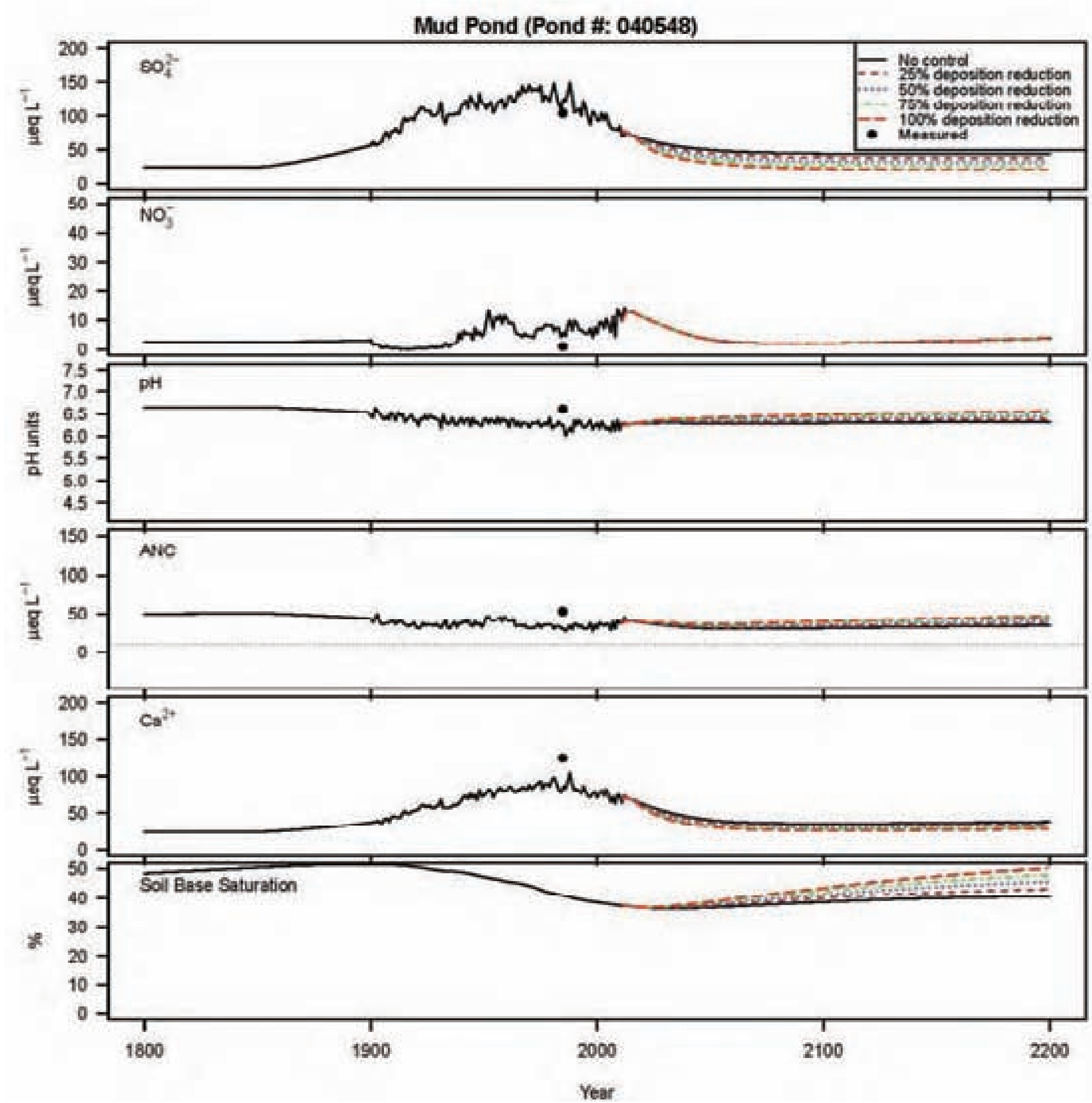


Beaverdam Pond (Pond #: 040530)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

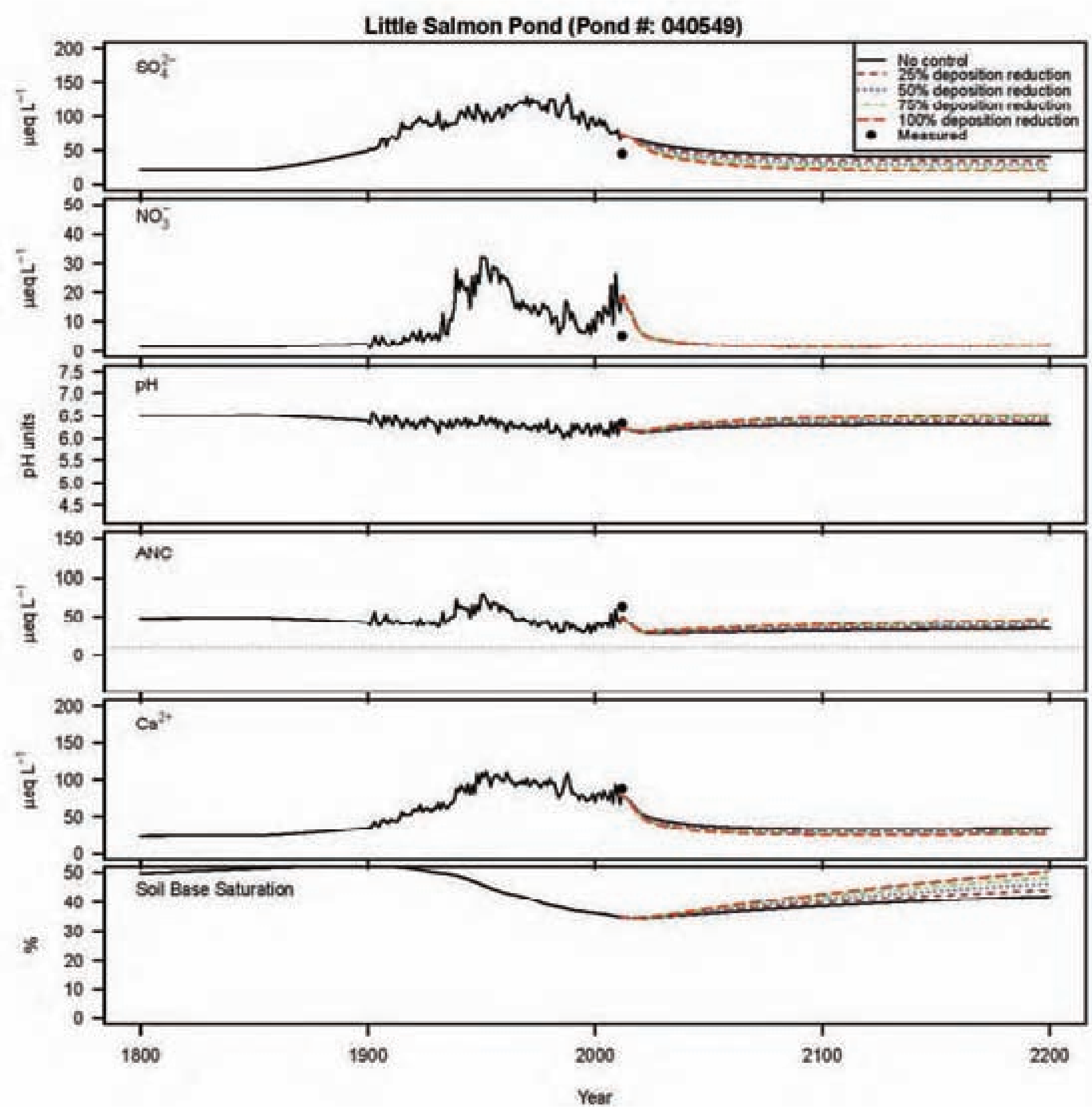

Little Rock Pond (Pond #: 040534)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

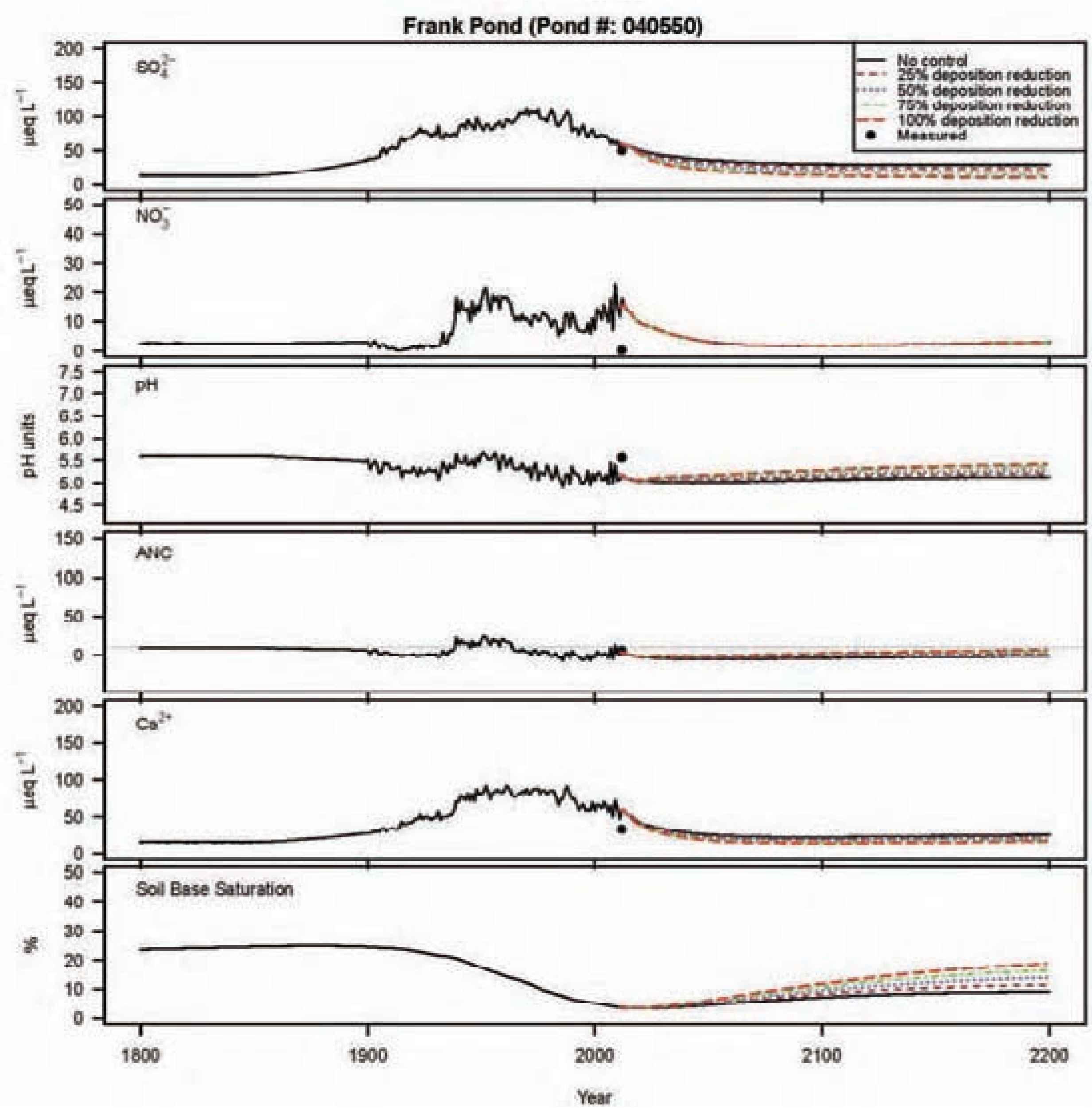


Lilypad Pond (Pond #: 040547)
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
1800
1900
2000
2100
2200
Year

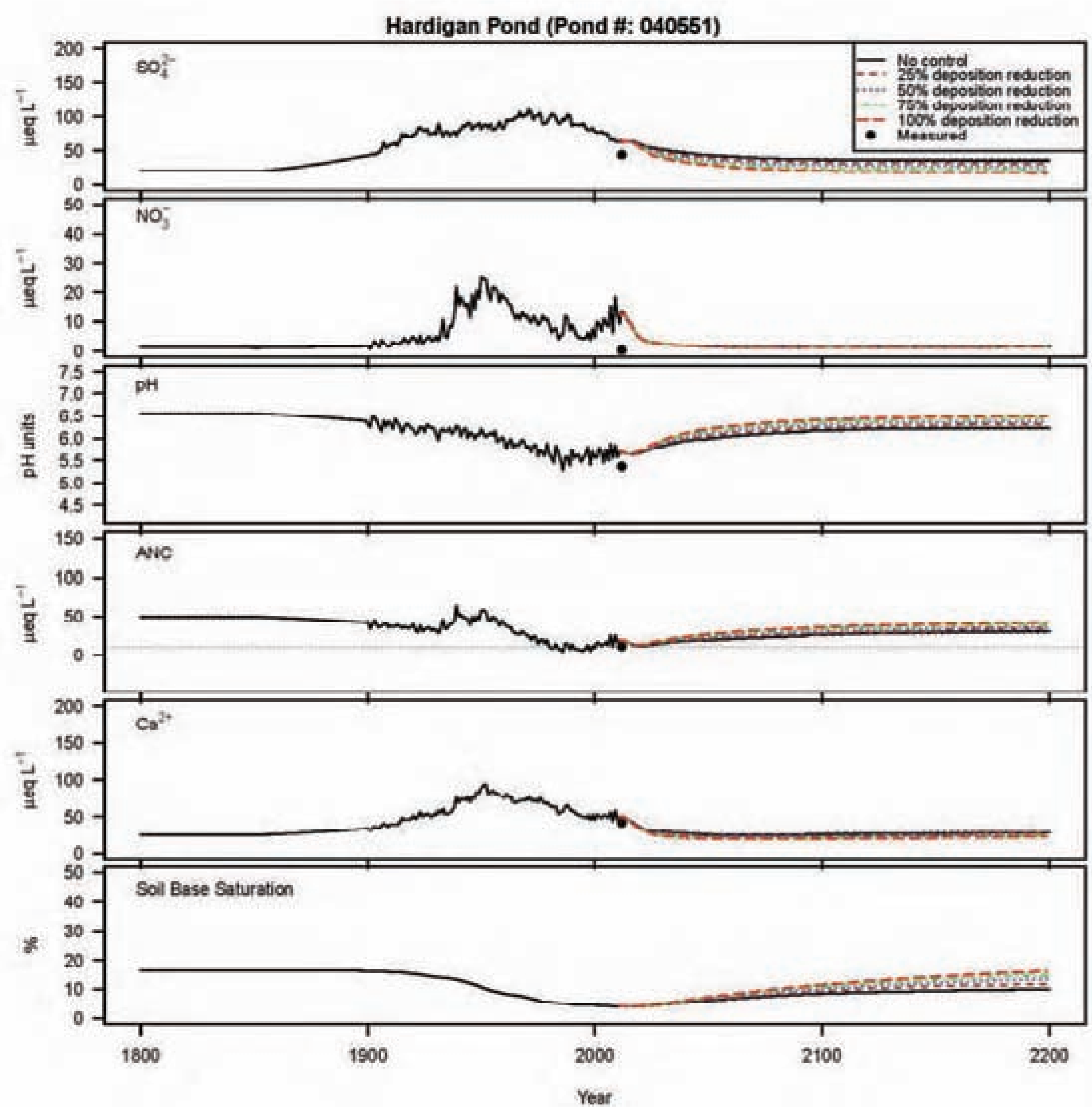


Mud Pond (Pond #: 040548)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

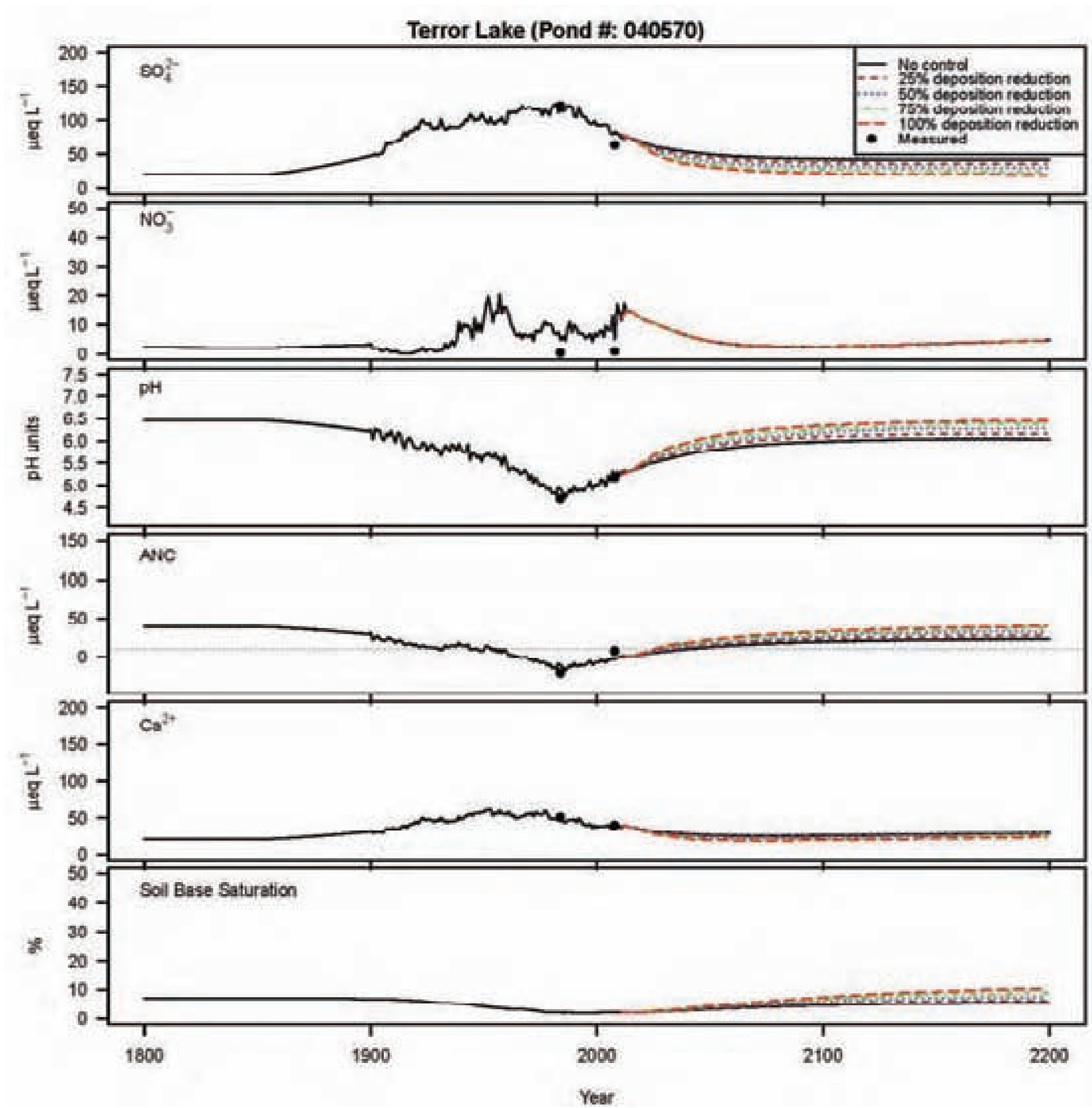

Little Salmon Pond (Pond #: 040549)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



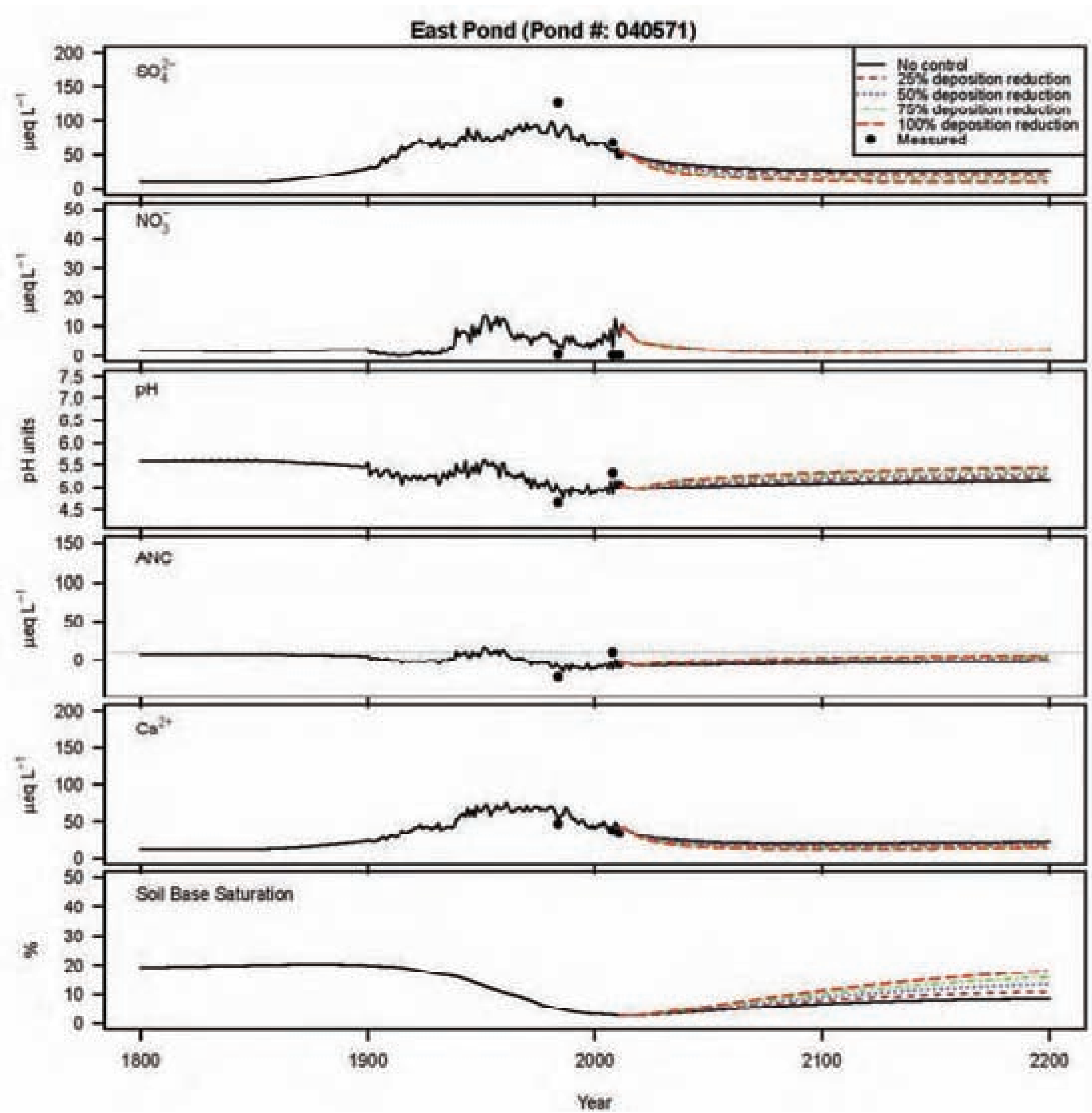
Frank Pond (Pond #: 040550)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L^{-1}
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

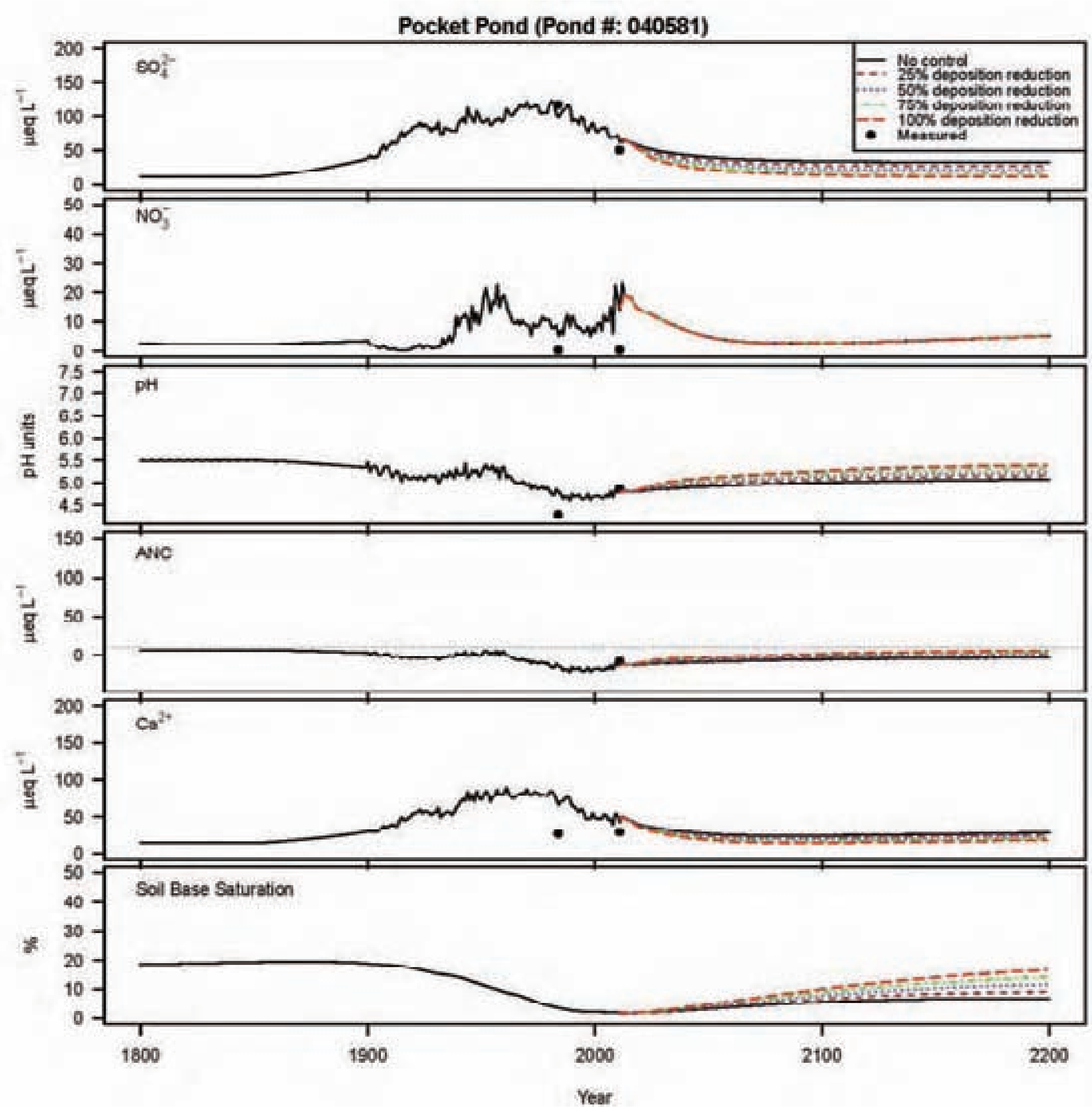


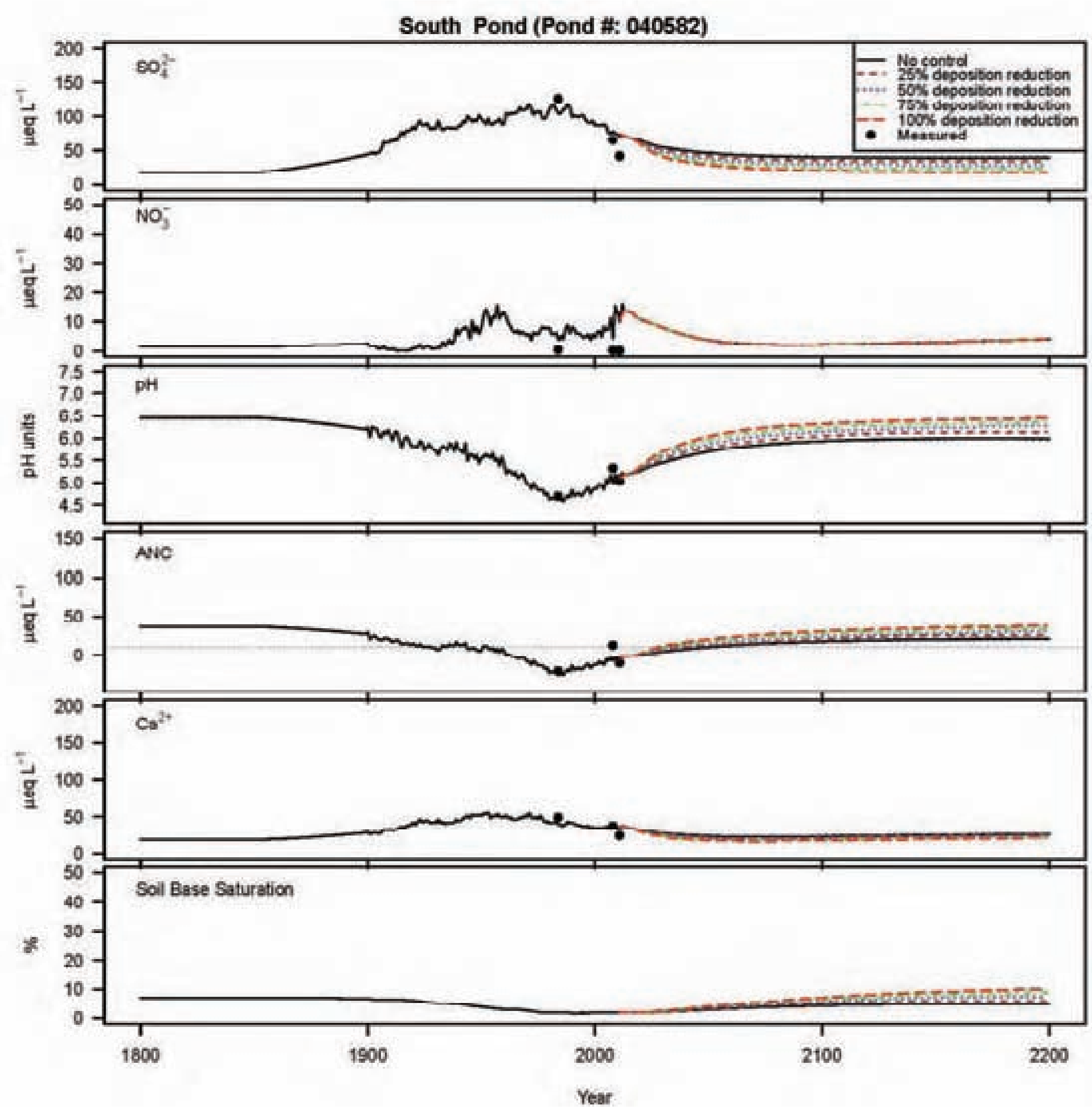
Hardigan Pond (Pond #: 040551)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

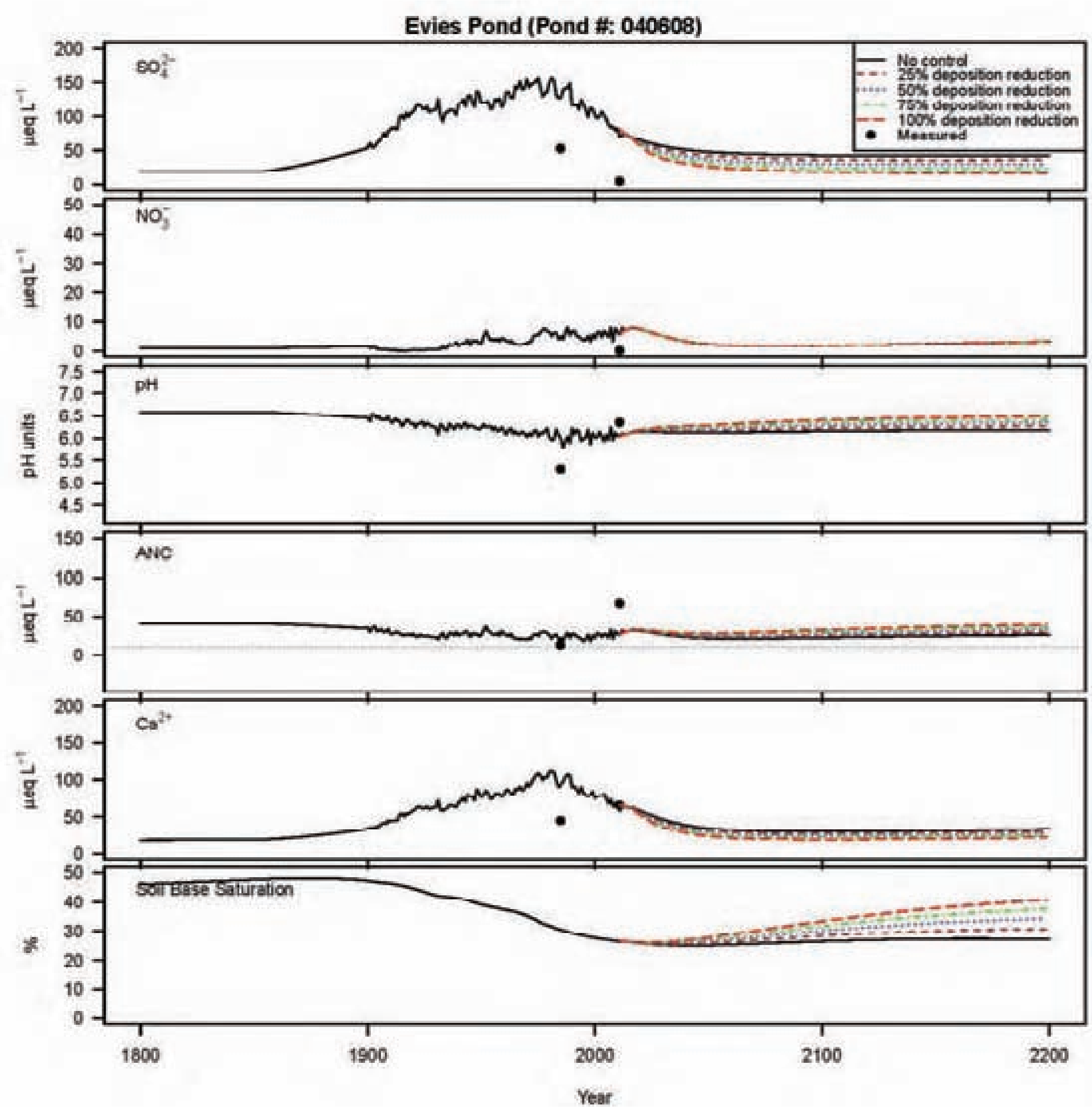


Terror Lake (Pond #: 040570)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

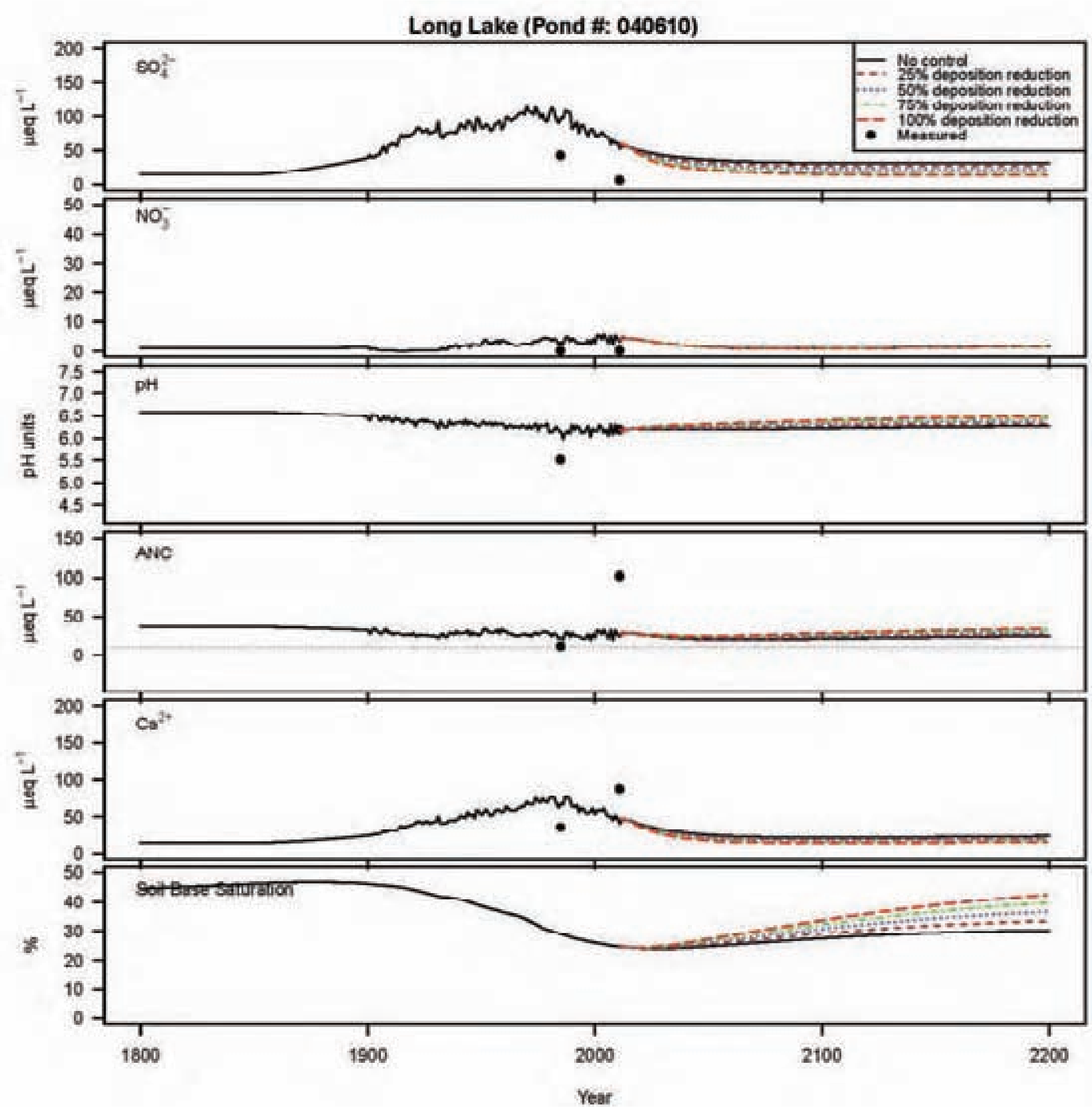

East Pond (Pond #: 040571)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

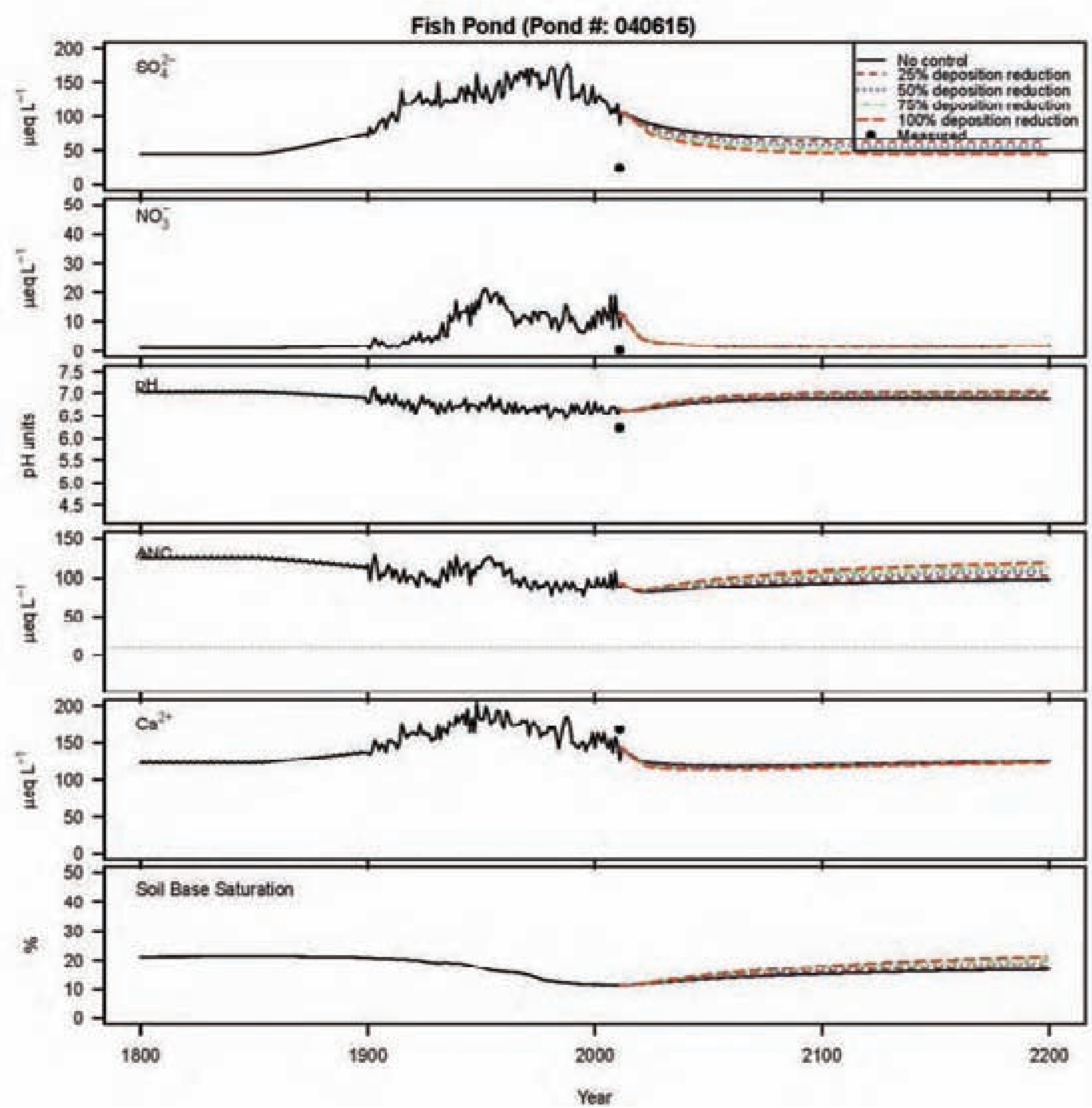

Pocket Pond (Pond #: 040581)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
µeq L^{-1}
NO$_3^-$
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200


South Pond (Pond #: 040582)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

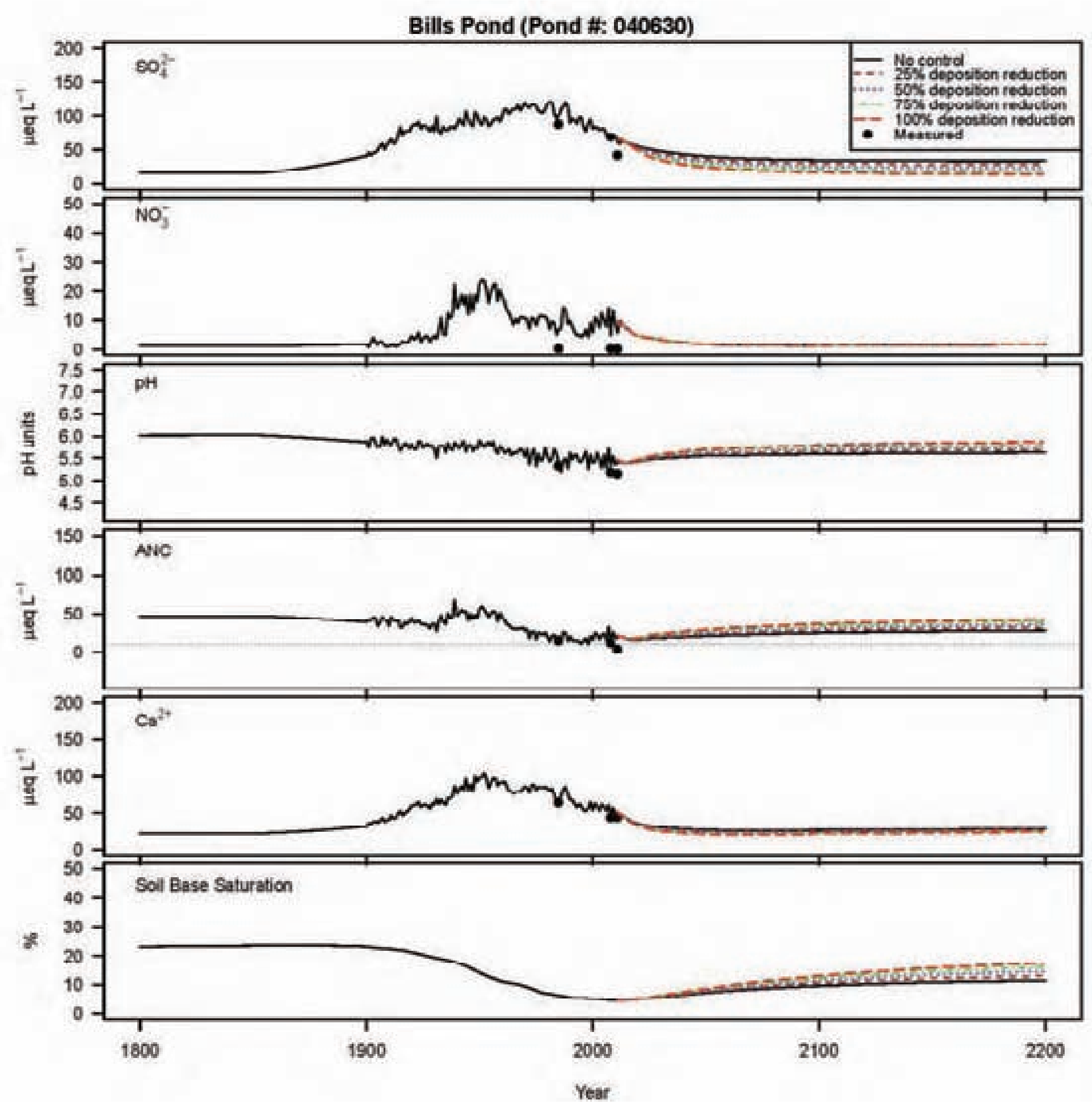


Evies Pond (Pond #: 040608)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

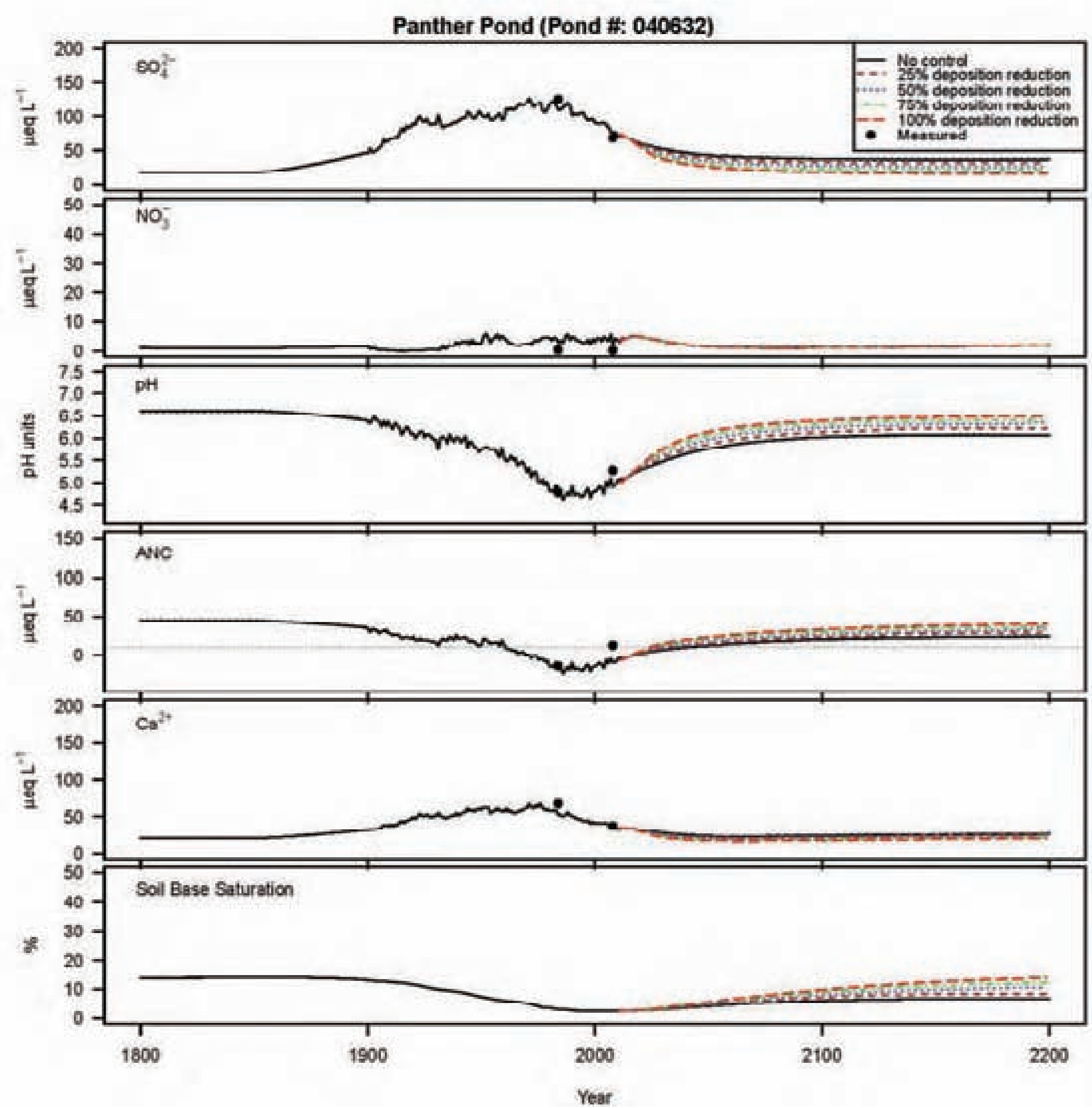

Long Lake (Pond #: 040610)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO42-
NO3-
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

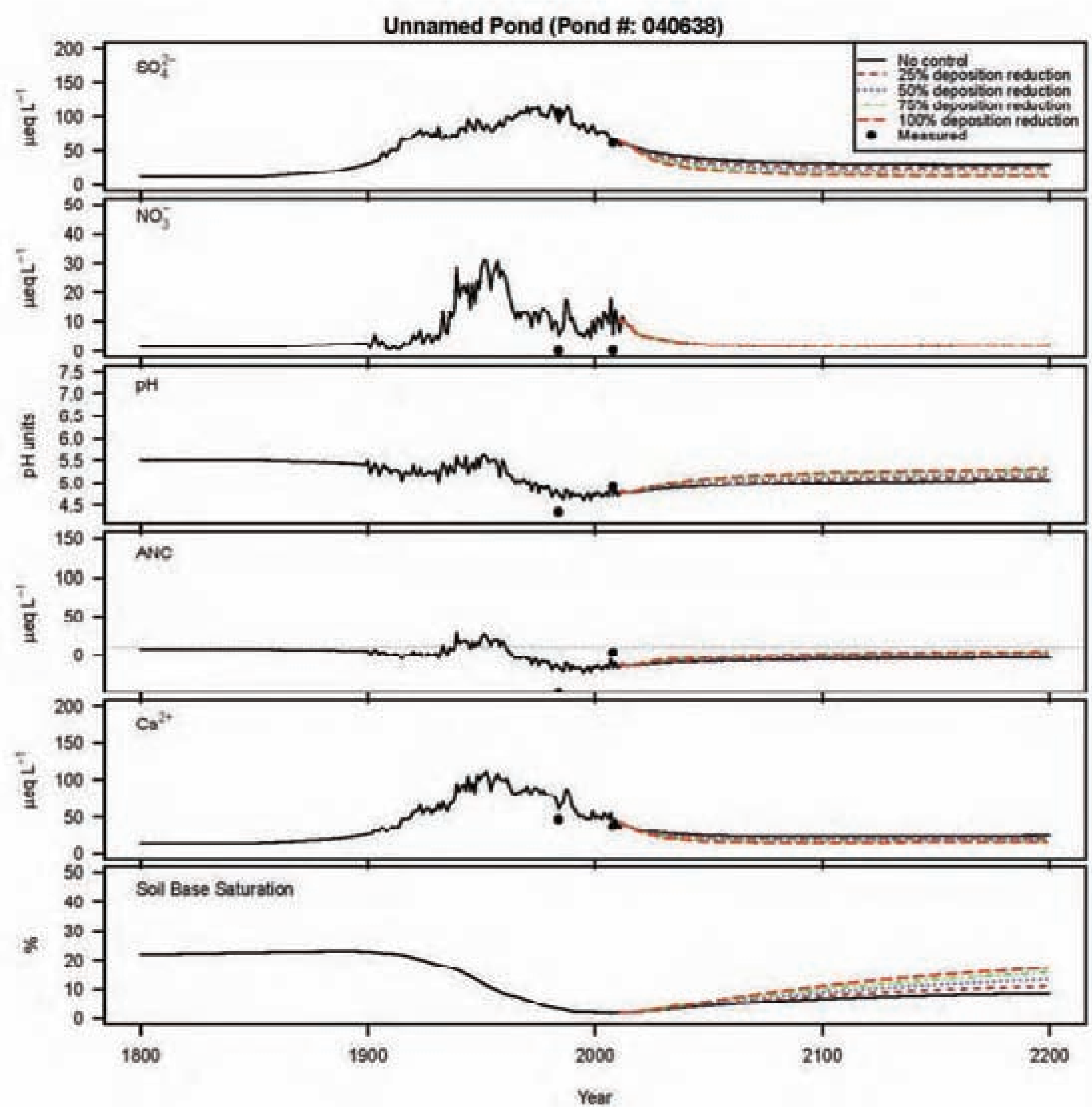


Fish Pond (Pond #: 040615)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

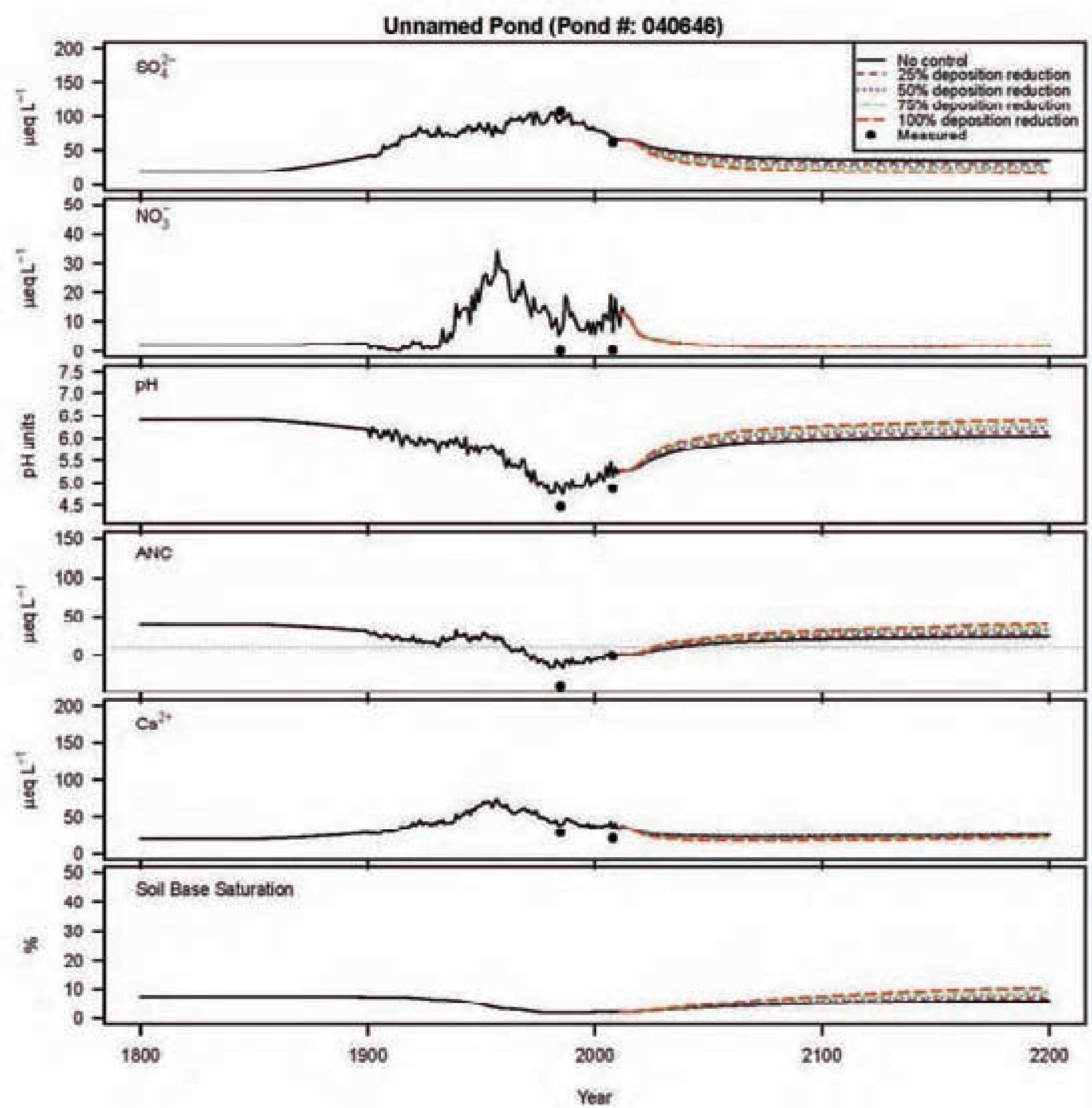


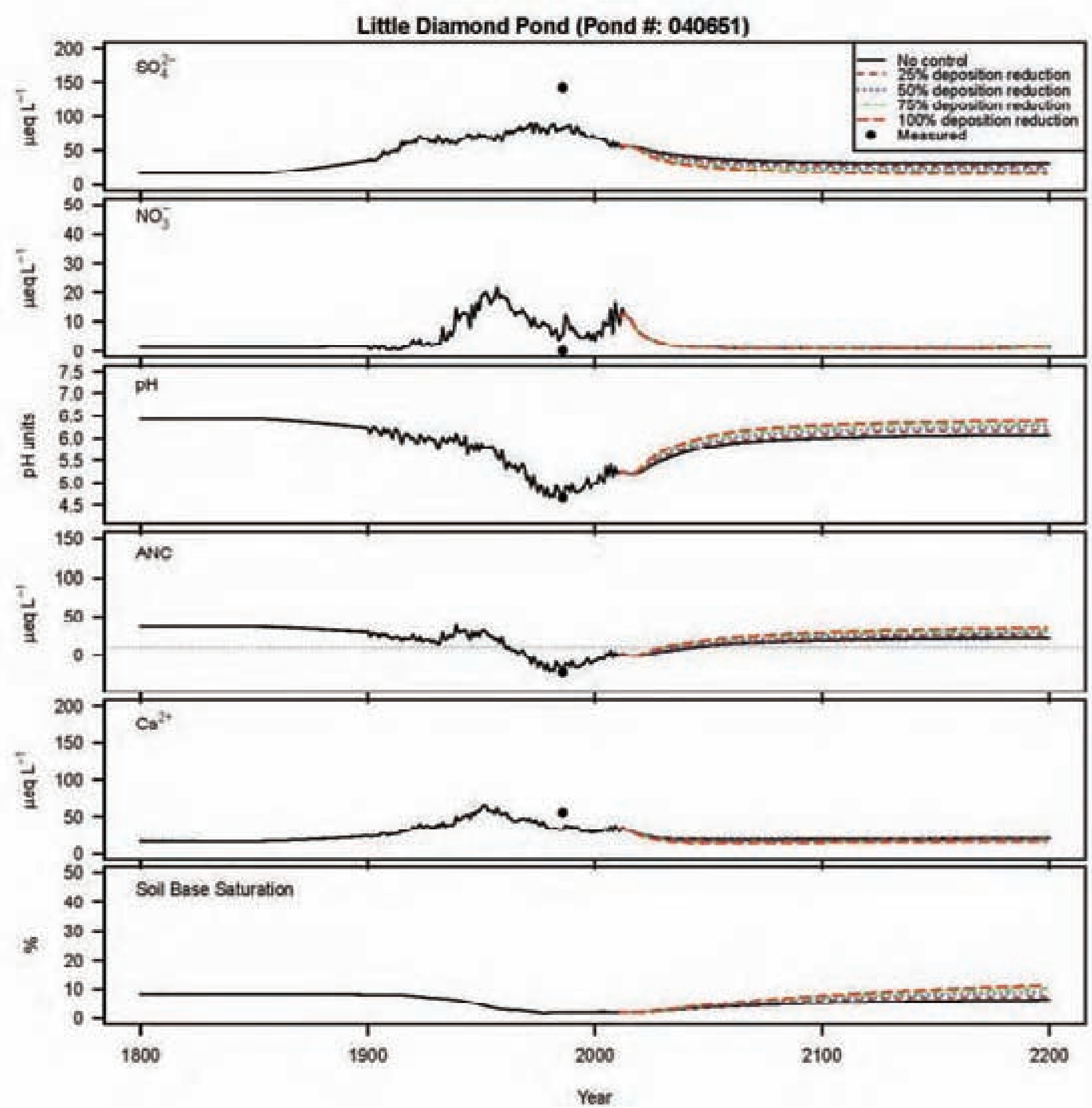
Bills Pond (Pond #: 040630)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year


Panther Pond (Pond #: 040632)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

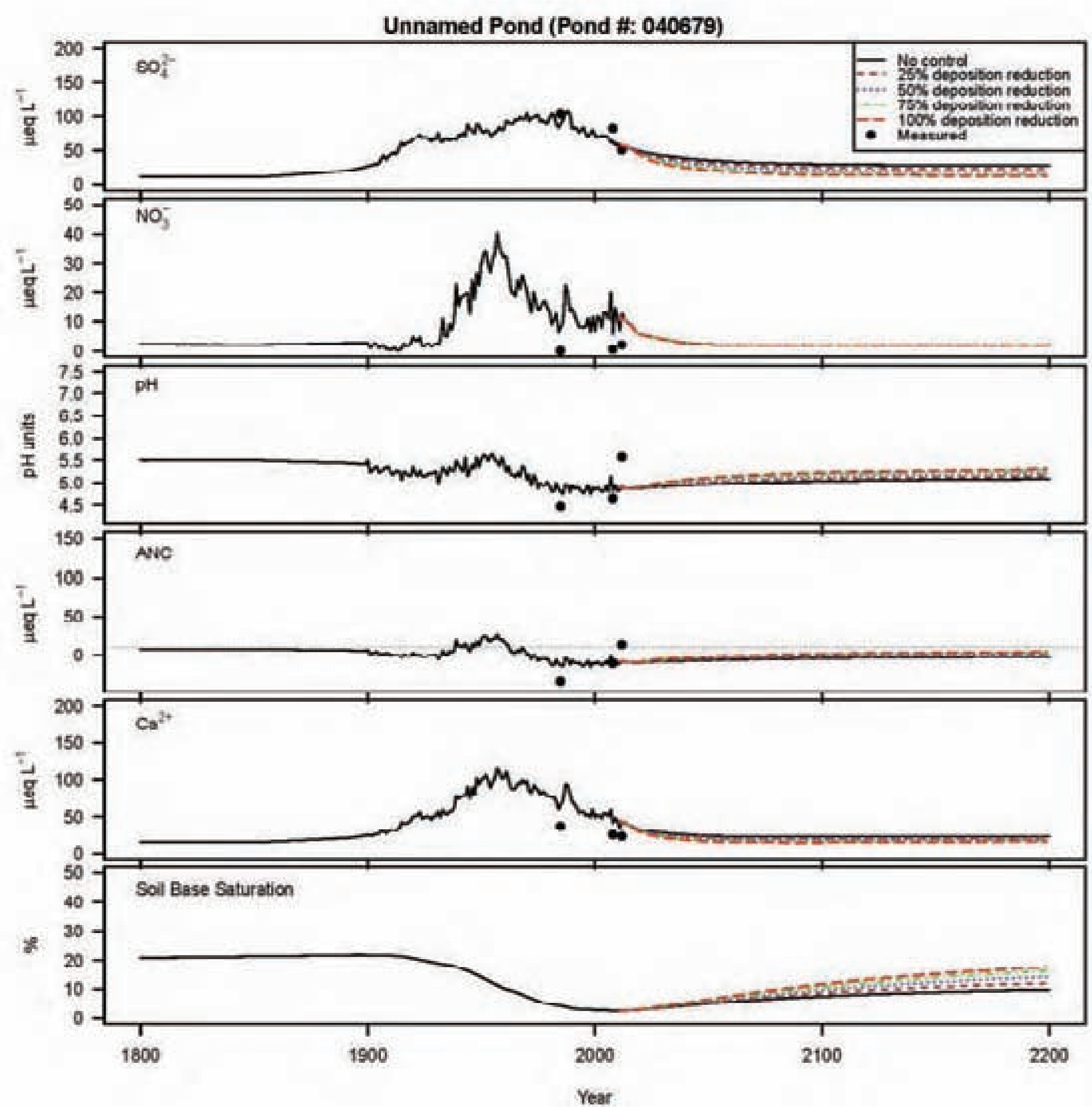


Unnamed Pond (Pond #: 040638)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

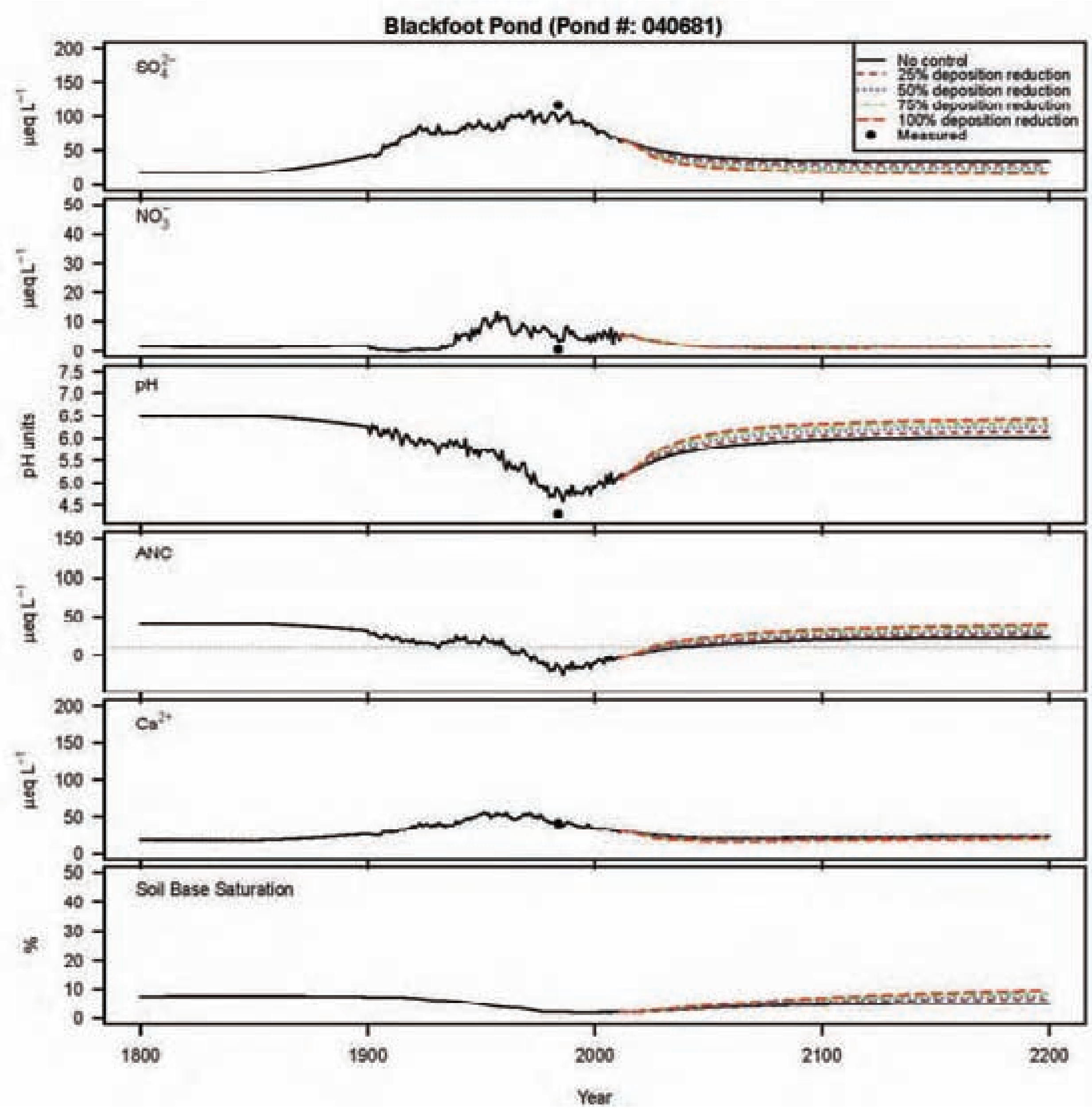

Unnamed Pond (Pond #: 040646)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
µeq L^{-1}
NO$_3^-$
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year



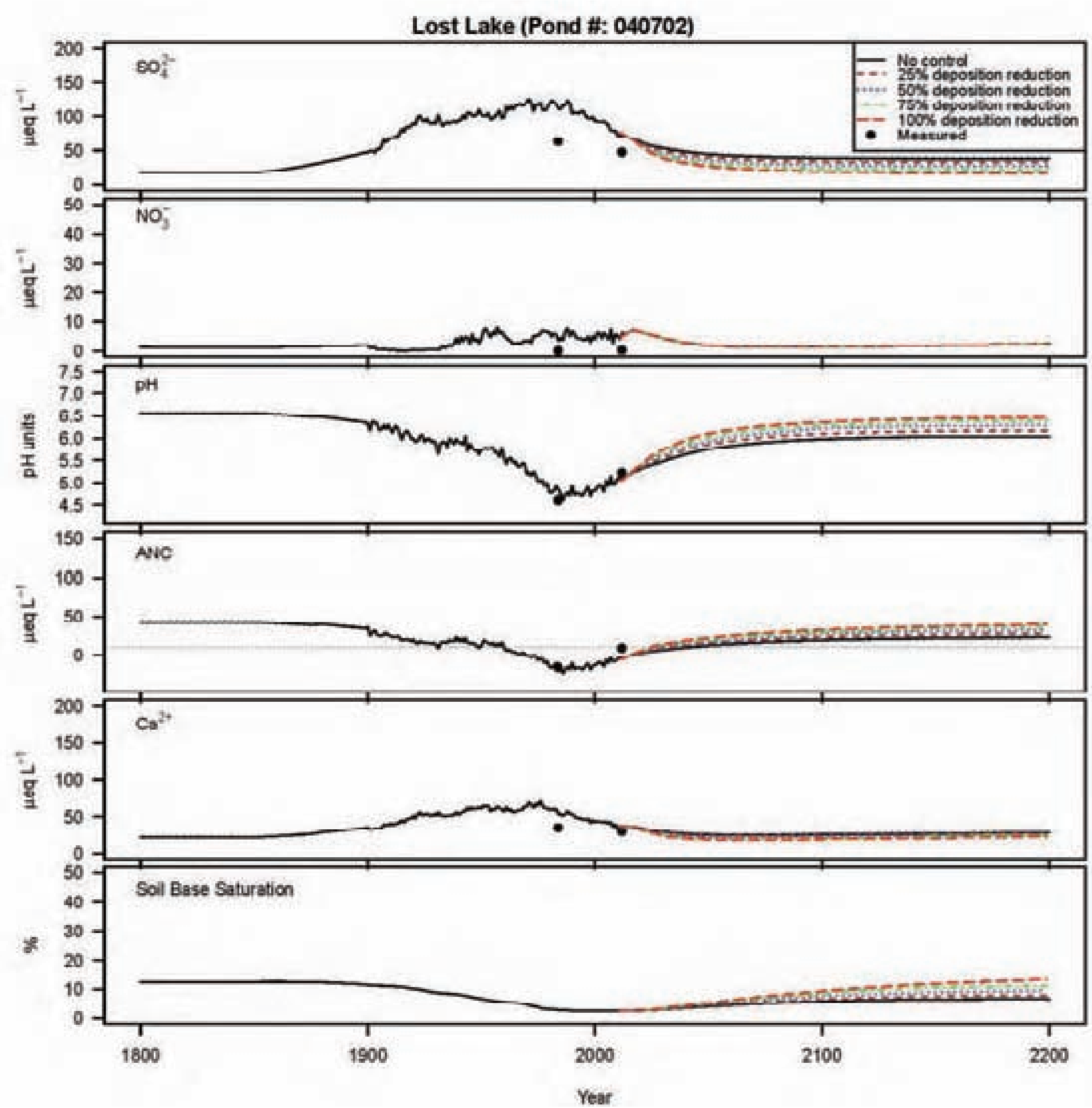
Little Diamond Pond (Pond #: 040651)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



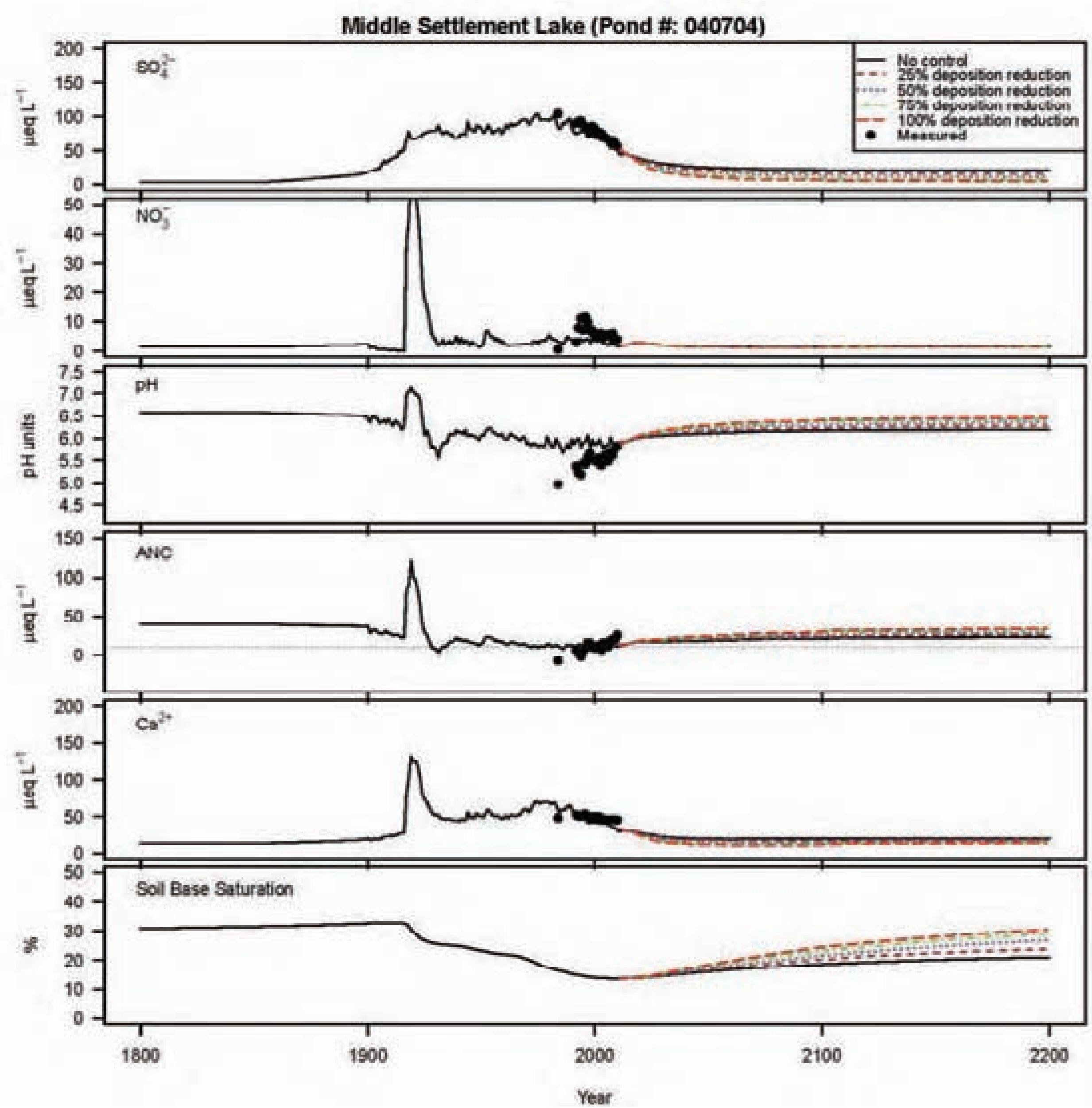
Unnamed Pond (Pond #: 040679)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
$\mu eq\,L^{-1}$
pH units
%
Year
1800
1900
2000
2100
2200



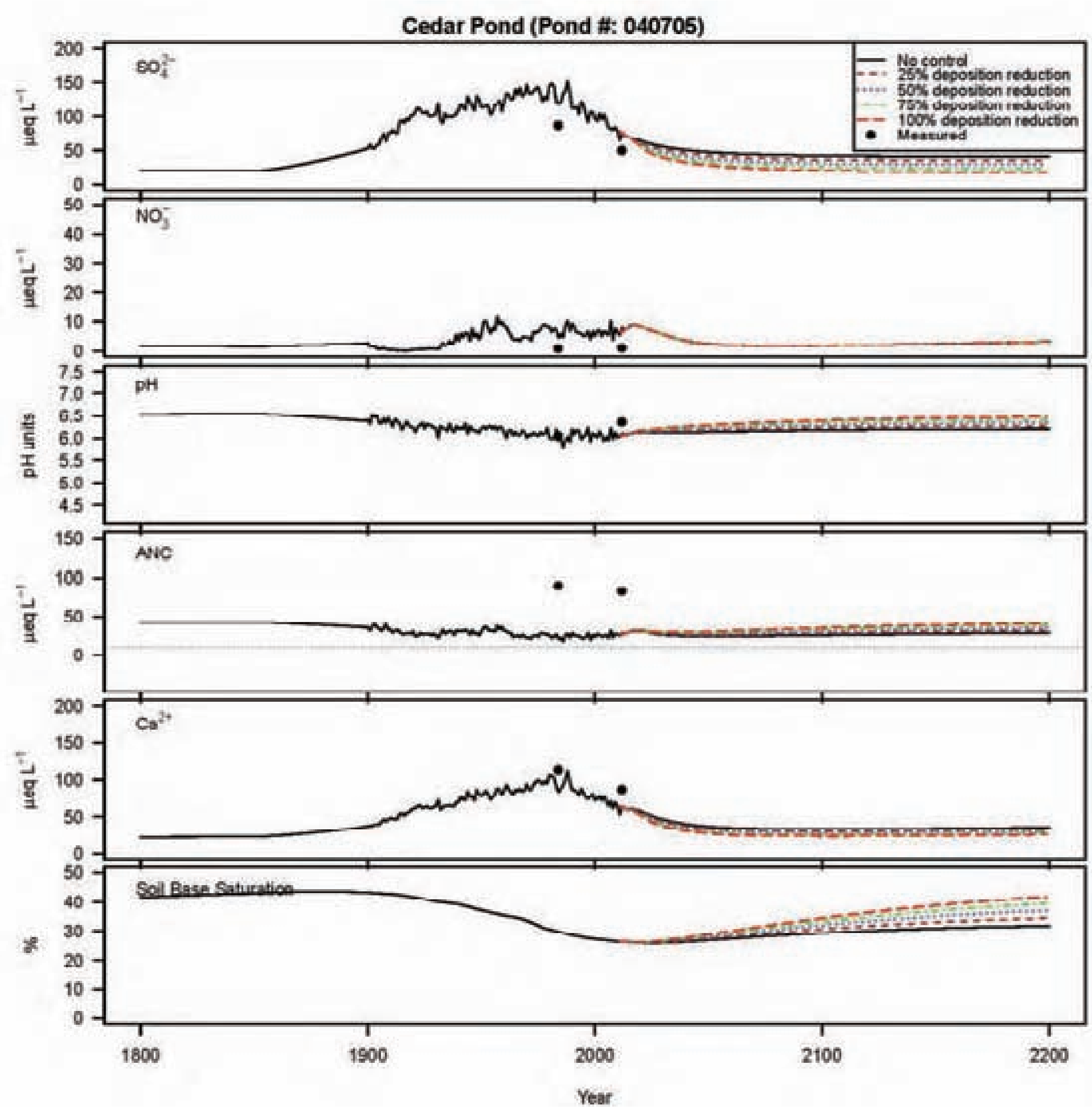
Blackfoot Pond (Pond #: 040681)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

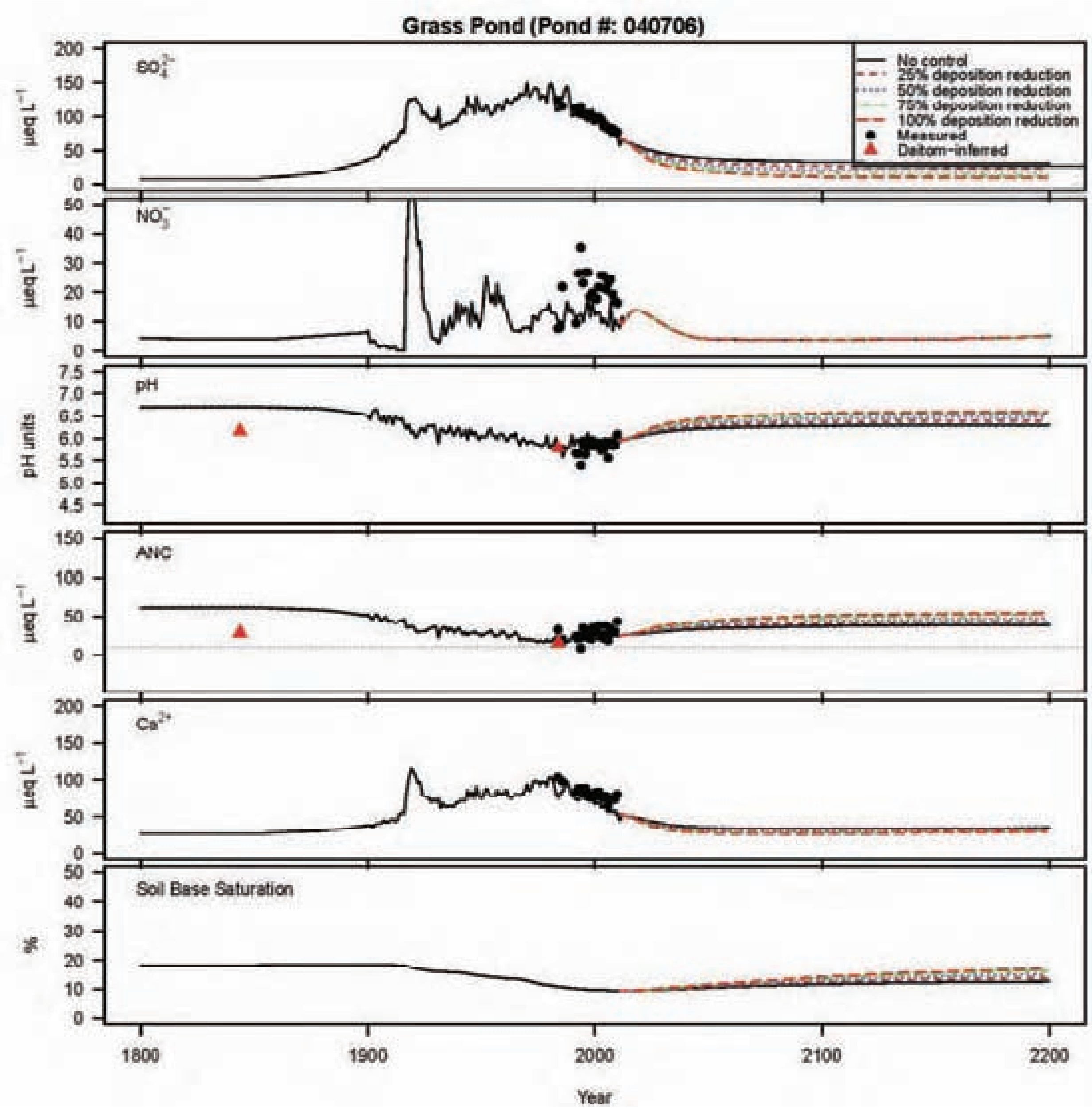


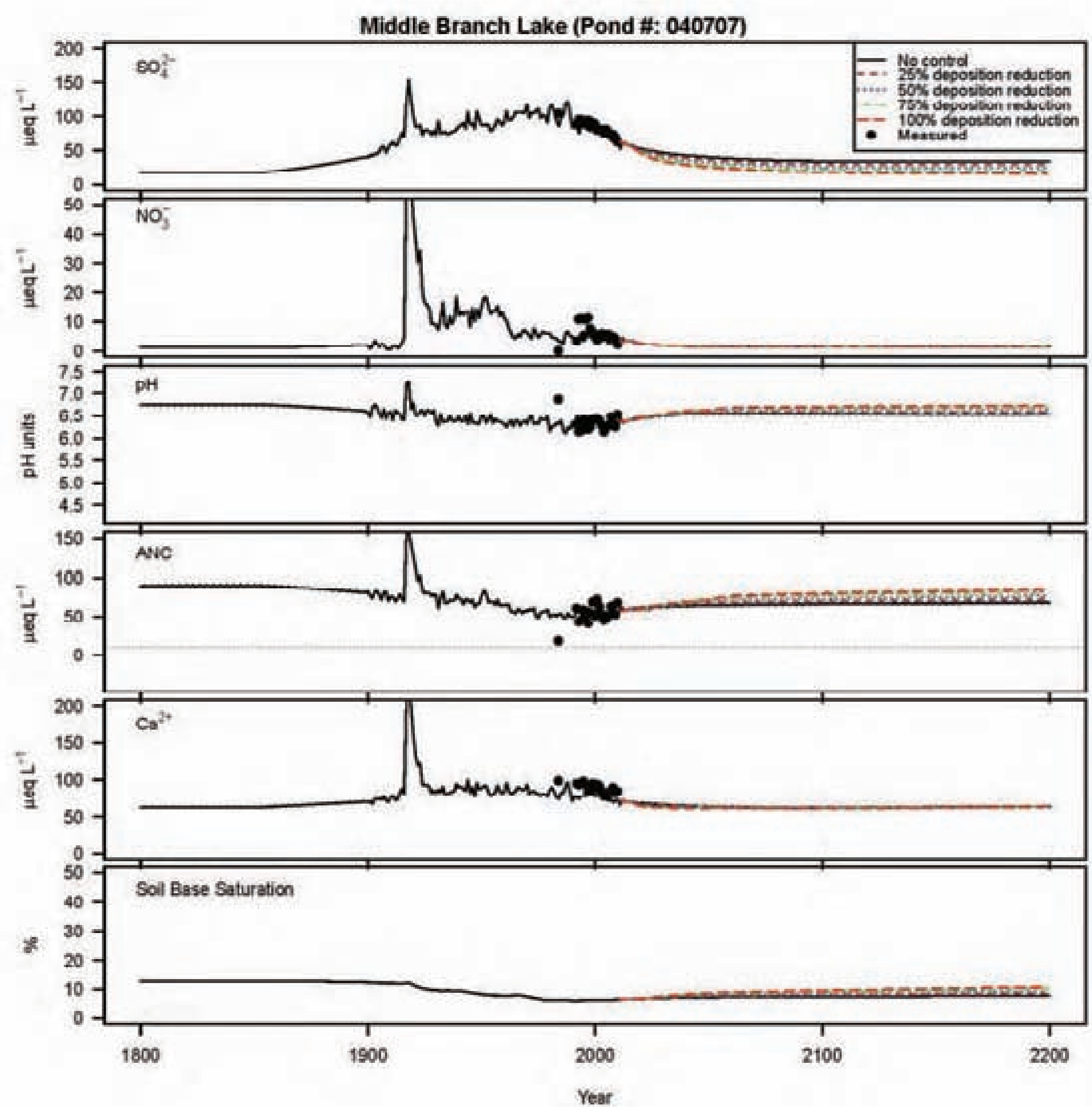
Lost Lake (Pond #: 040702)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200



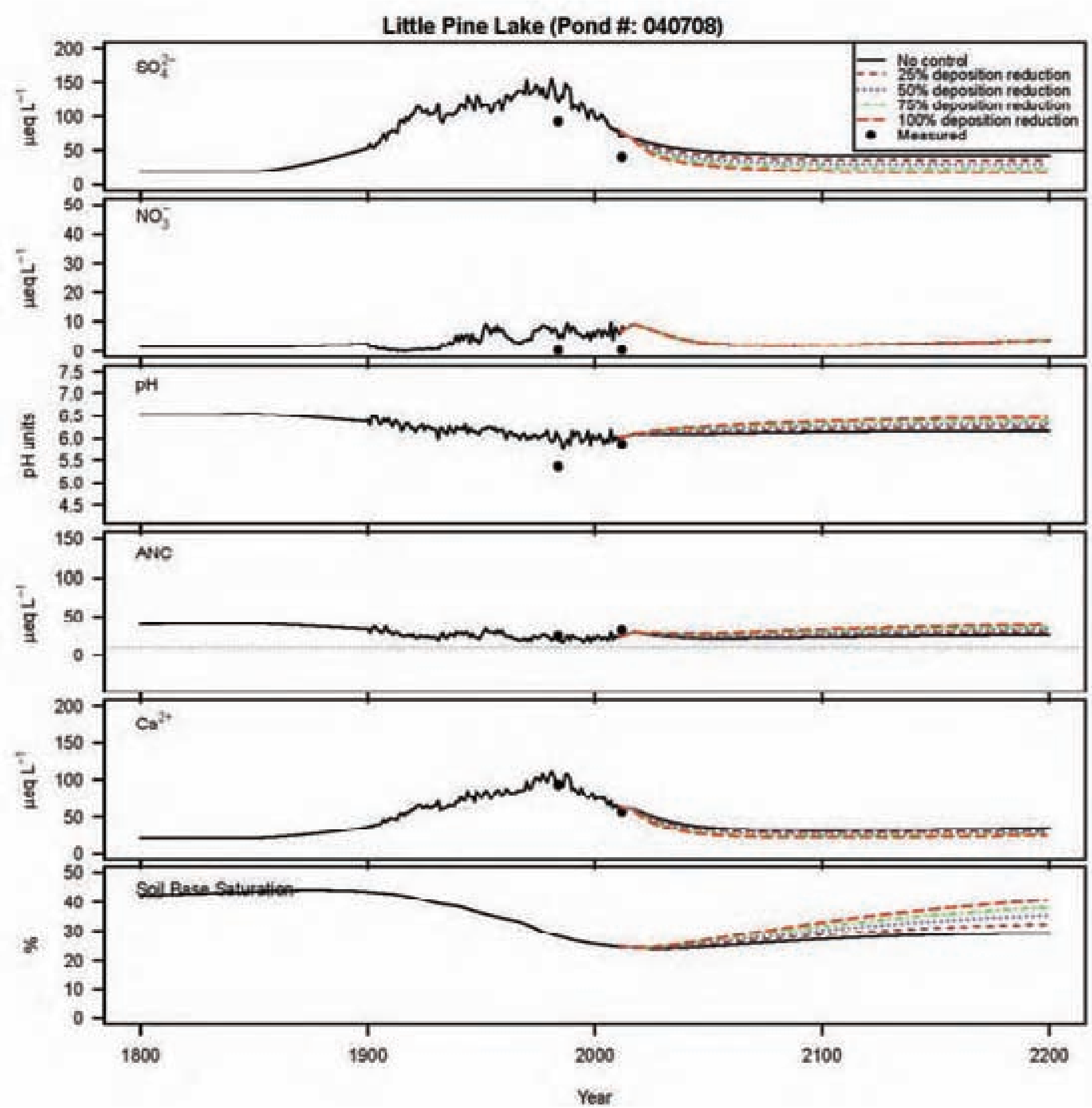
Middle Settlement Lake (Pond #: 040704)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year


Cedar Pond (Pond #: 040705)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

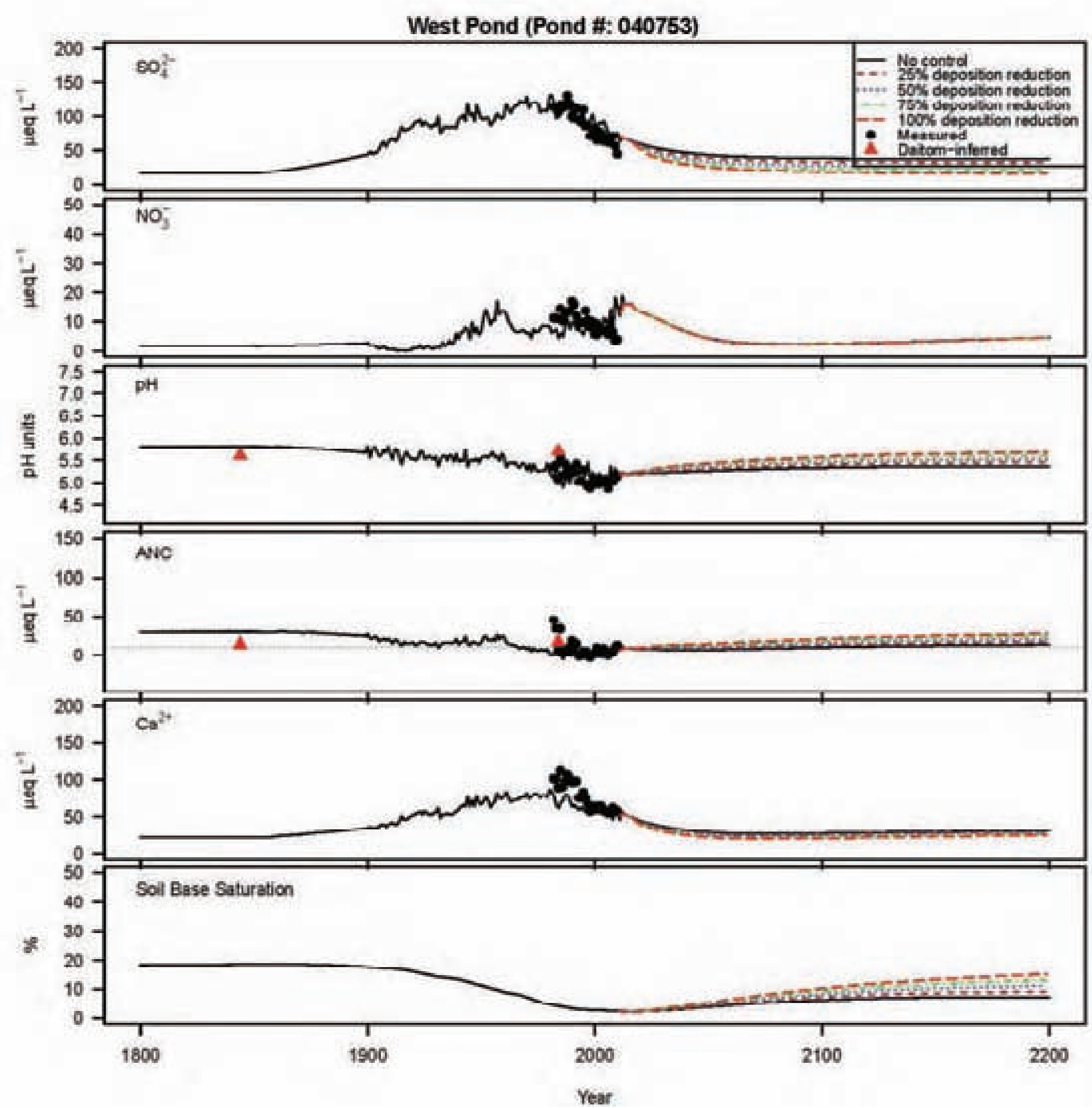

Grass Pond (Pond #: 040706)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

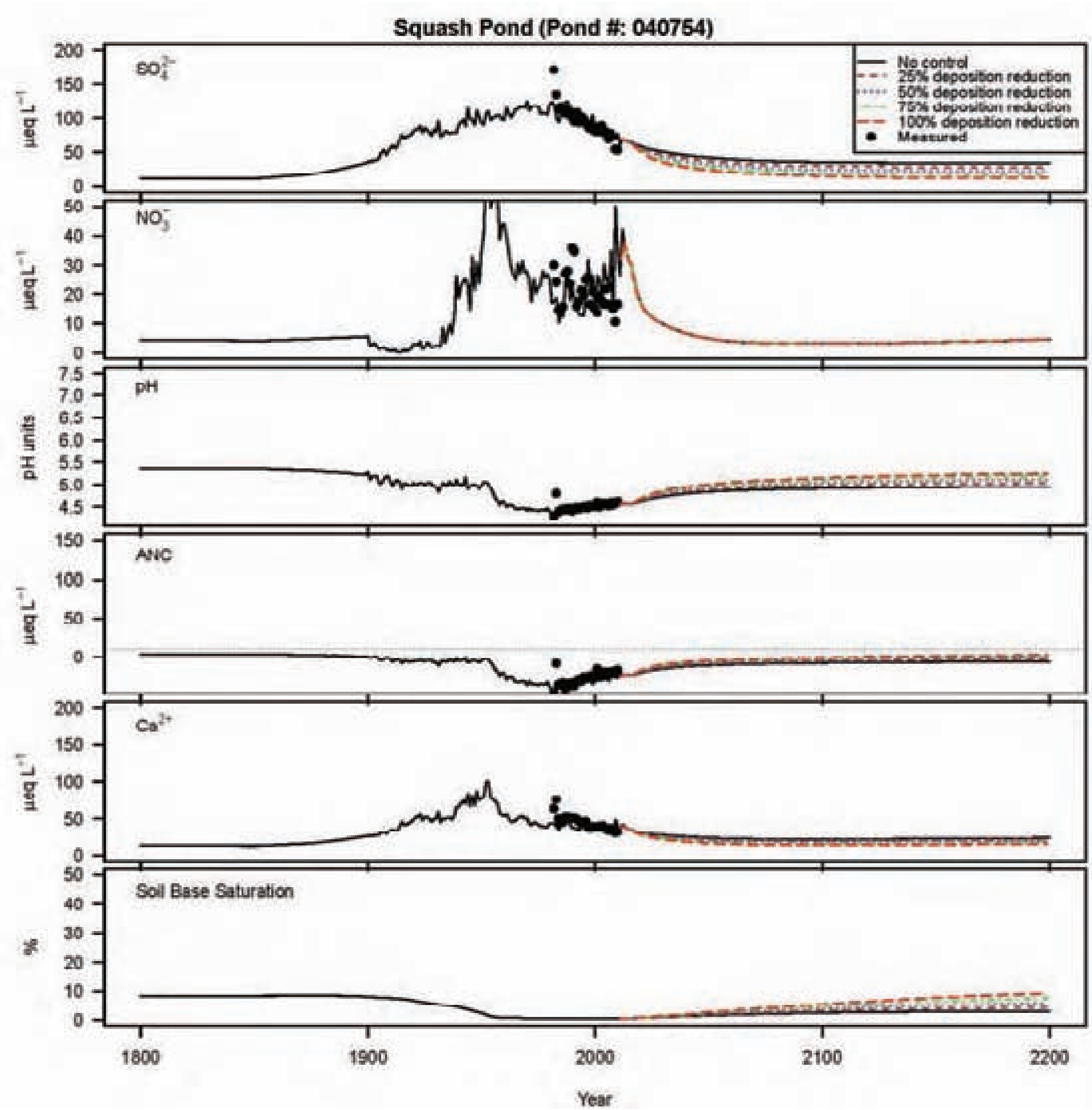


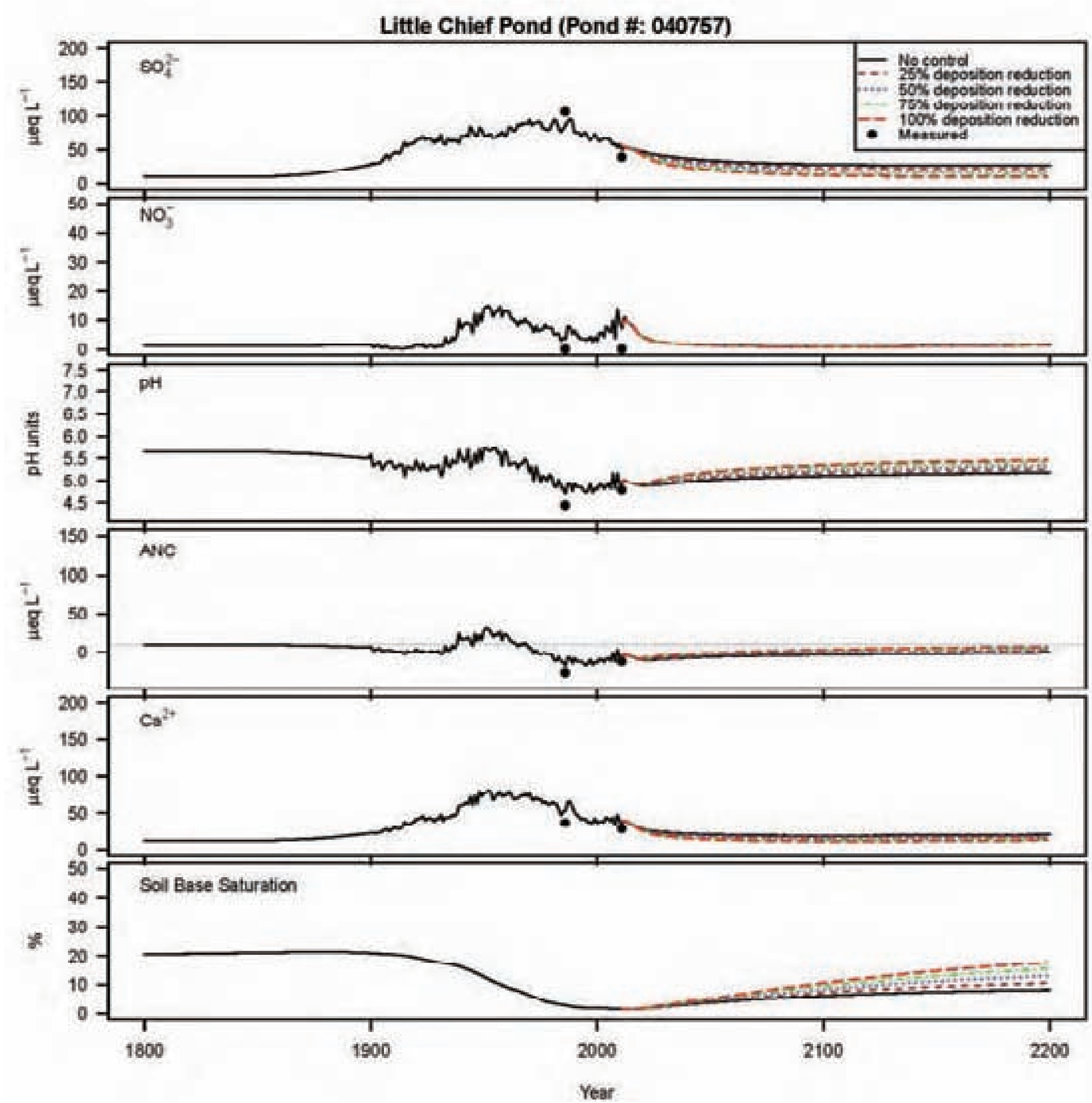
Middle Branch Lake (Pond #: 040707)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



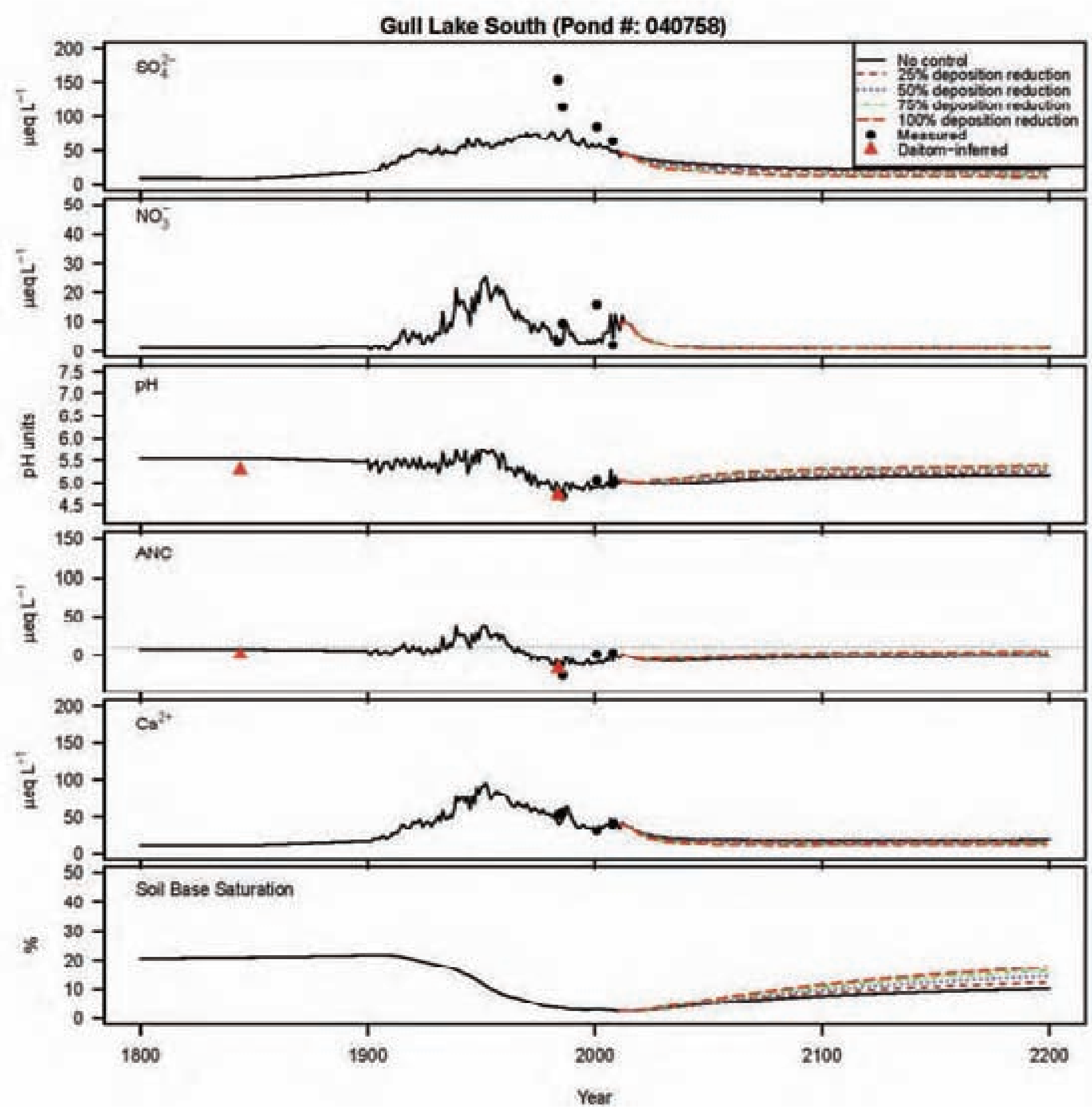
Little Pine Lake (Pond #: 040708)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200


West Pond (Pond #: 040753)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

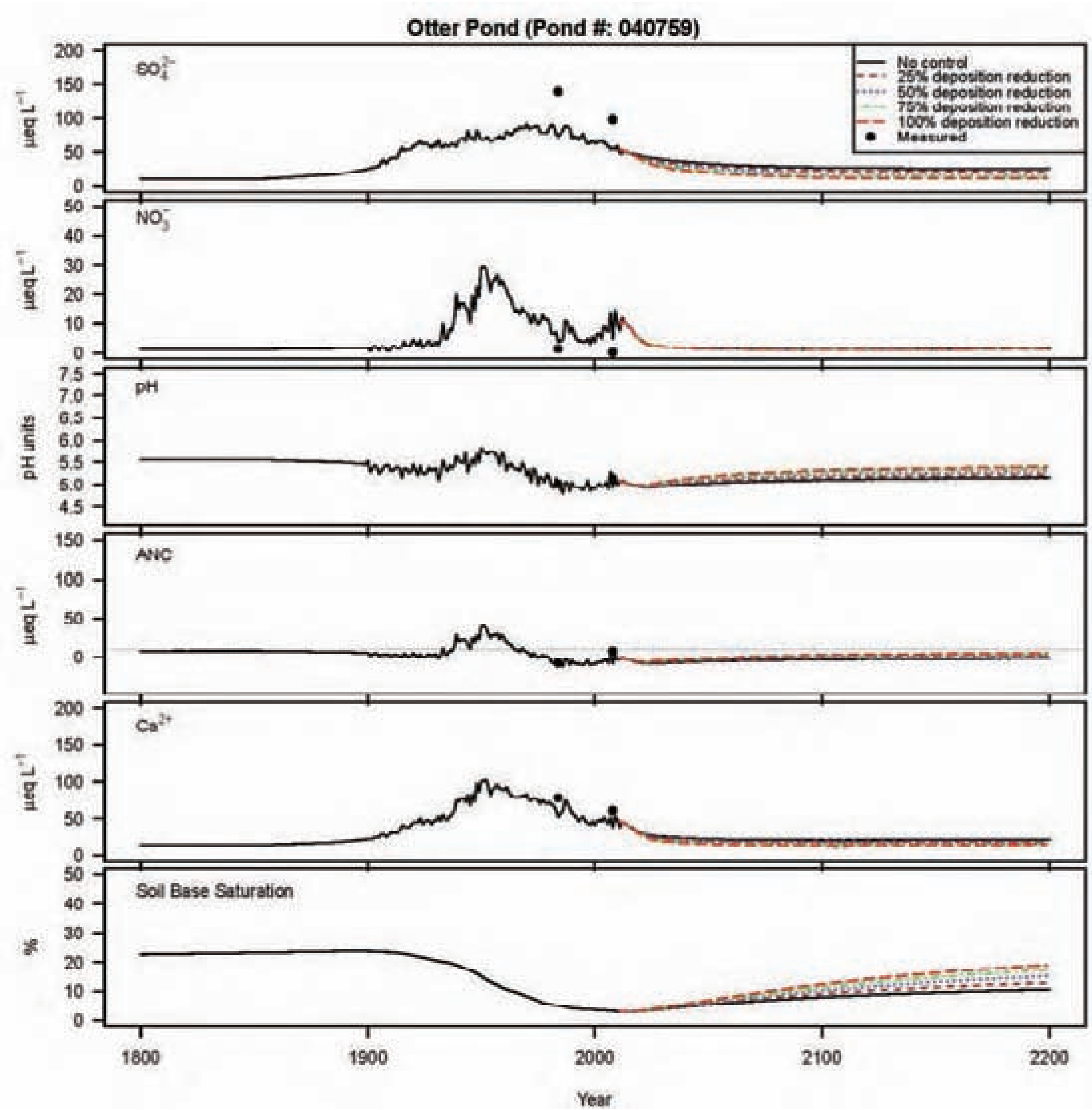

Squash Pond (Pond #: 040754)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

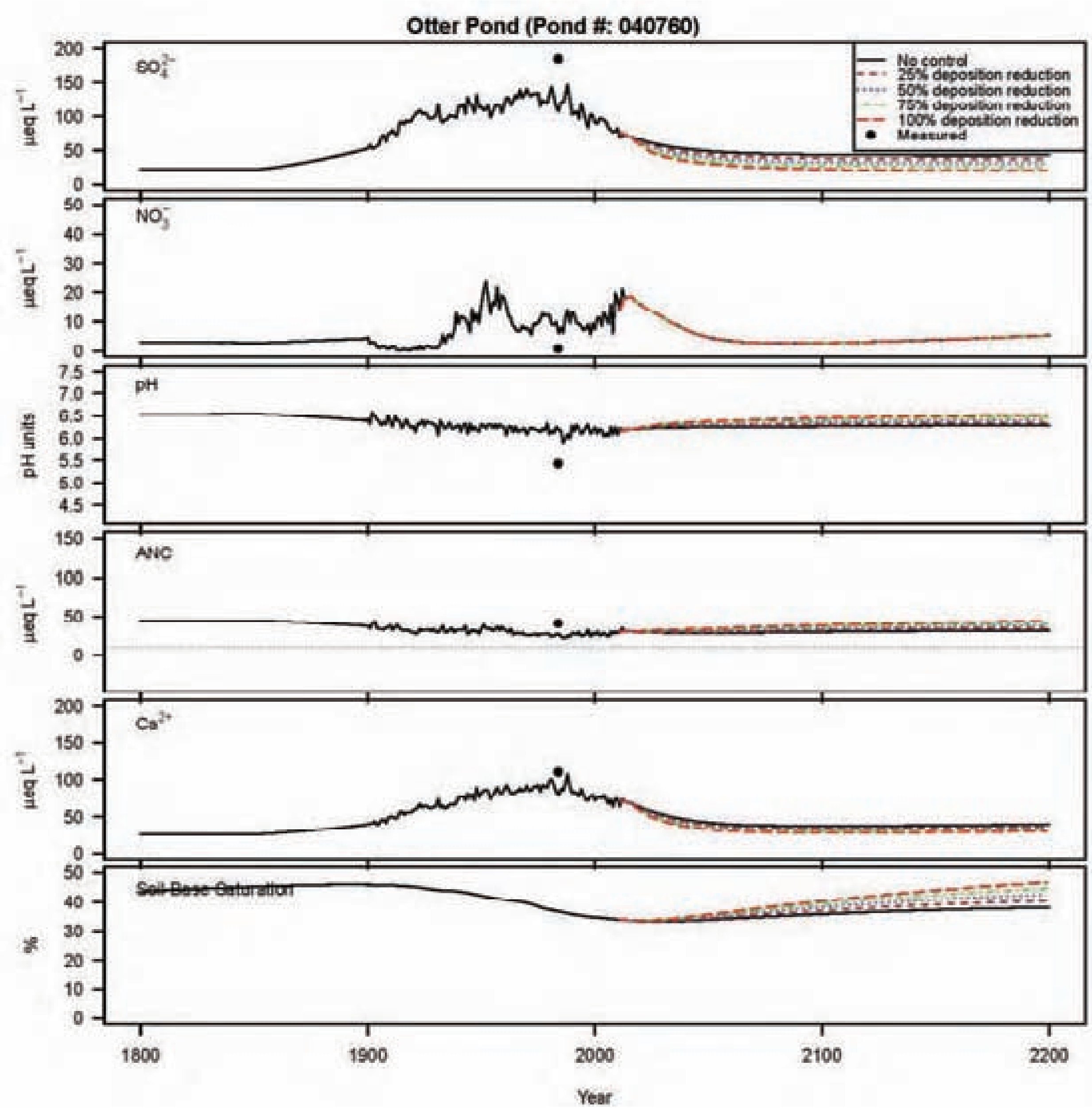


Little Chief Pond (Pond #: 040757)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

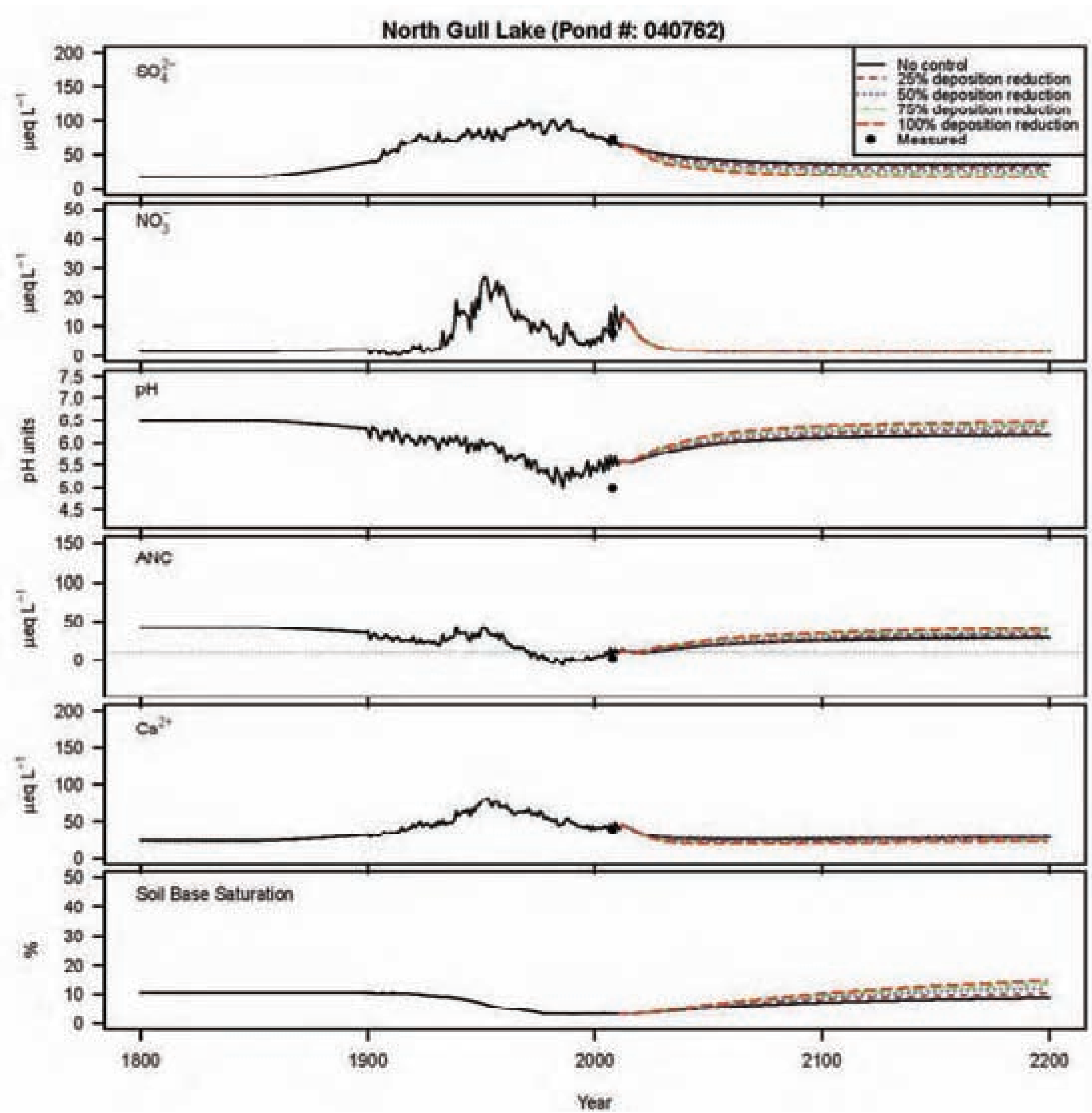


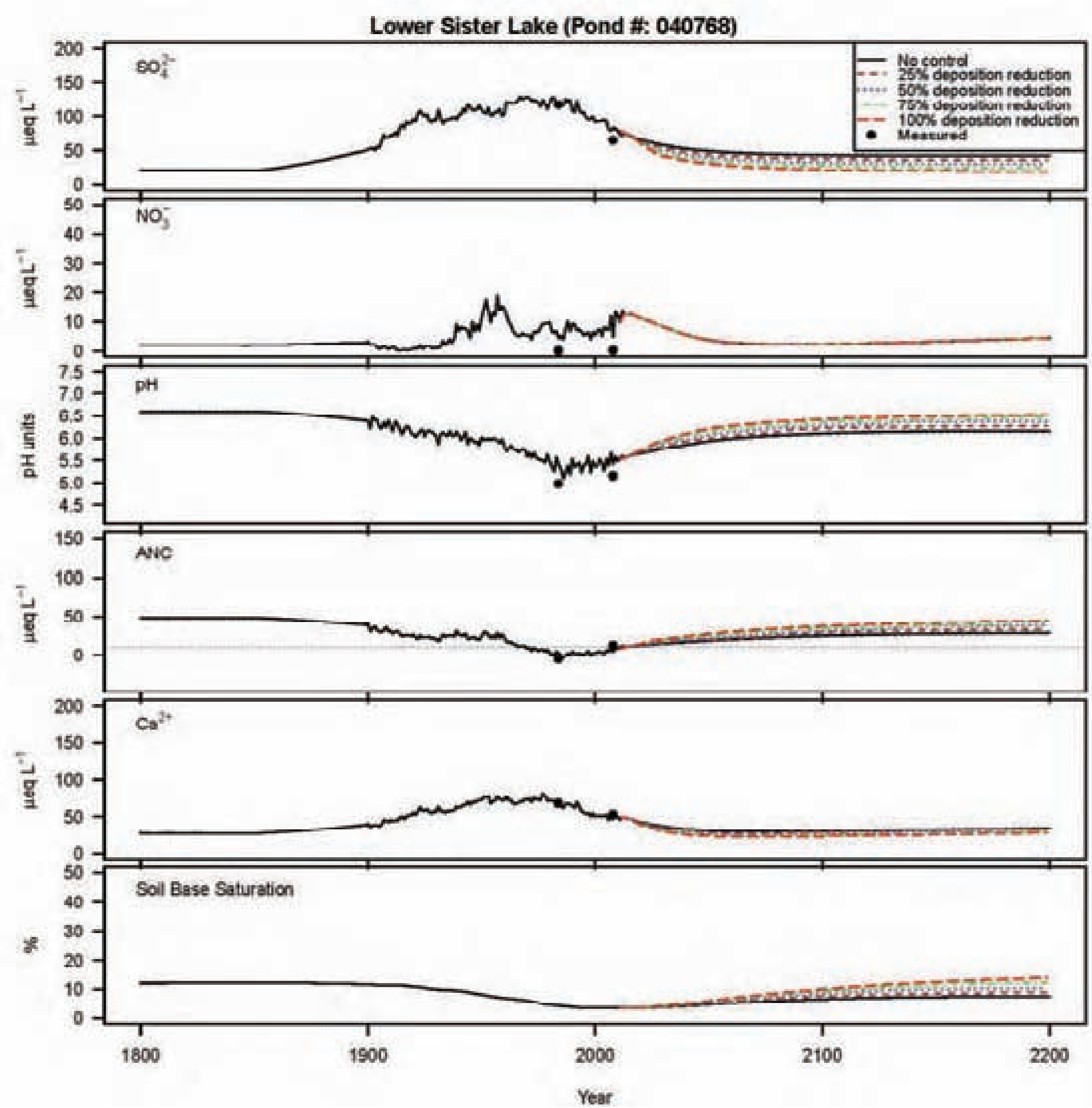
Gull Lake South (Pond #: 040758)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

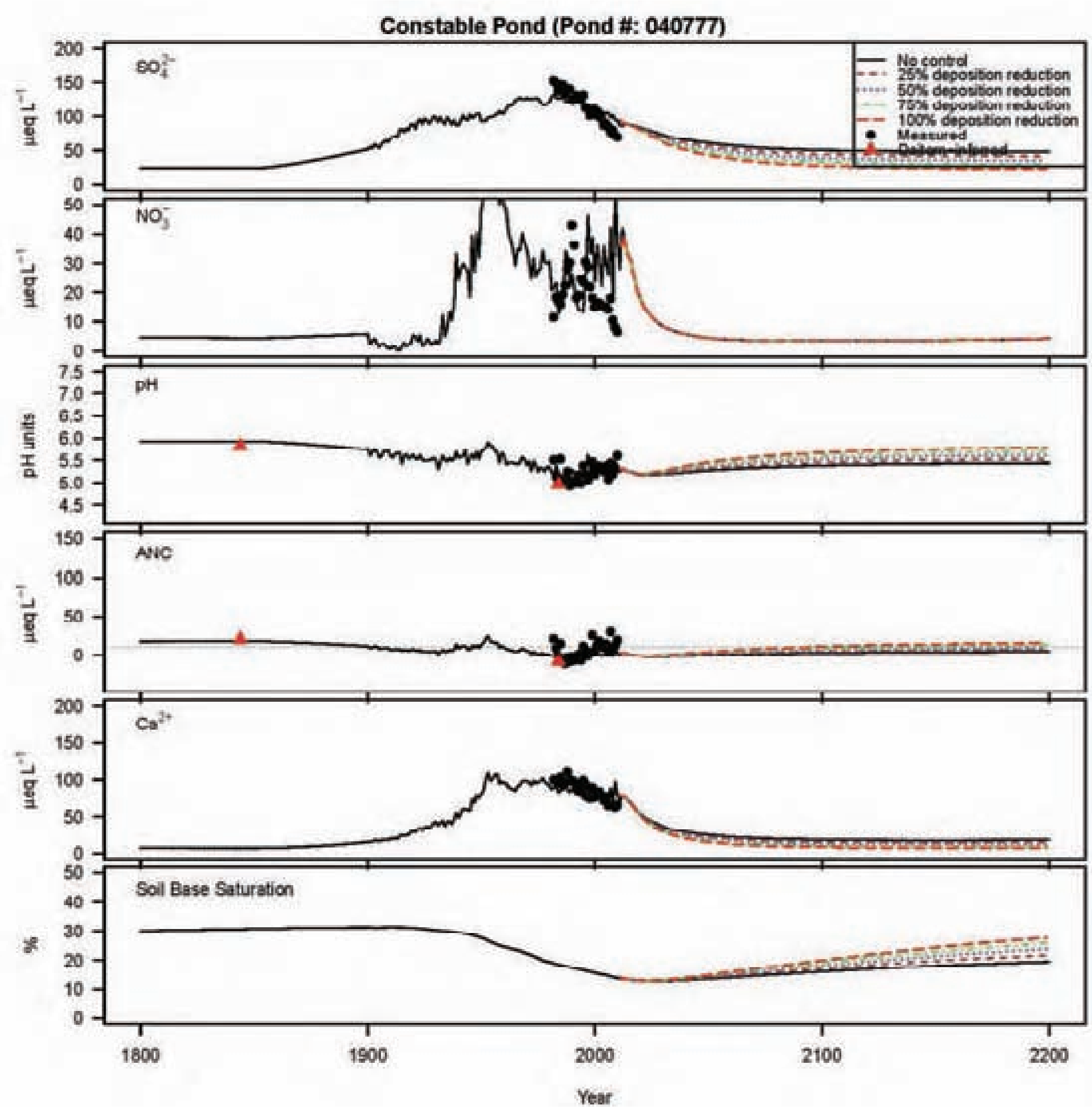

Otter Pond (Pond #: 040759)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



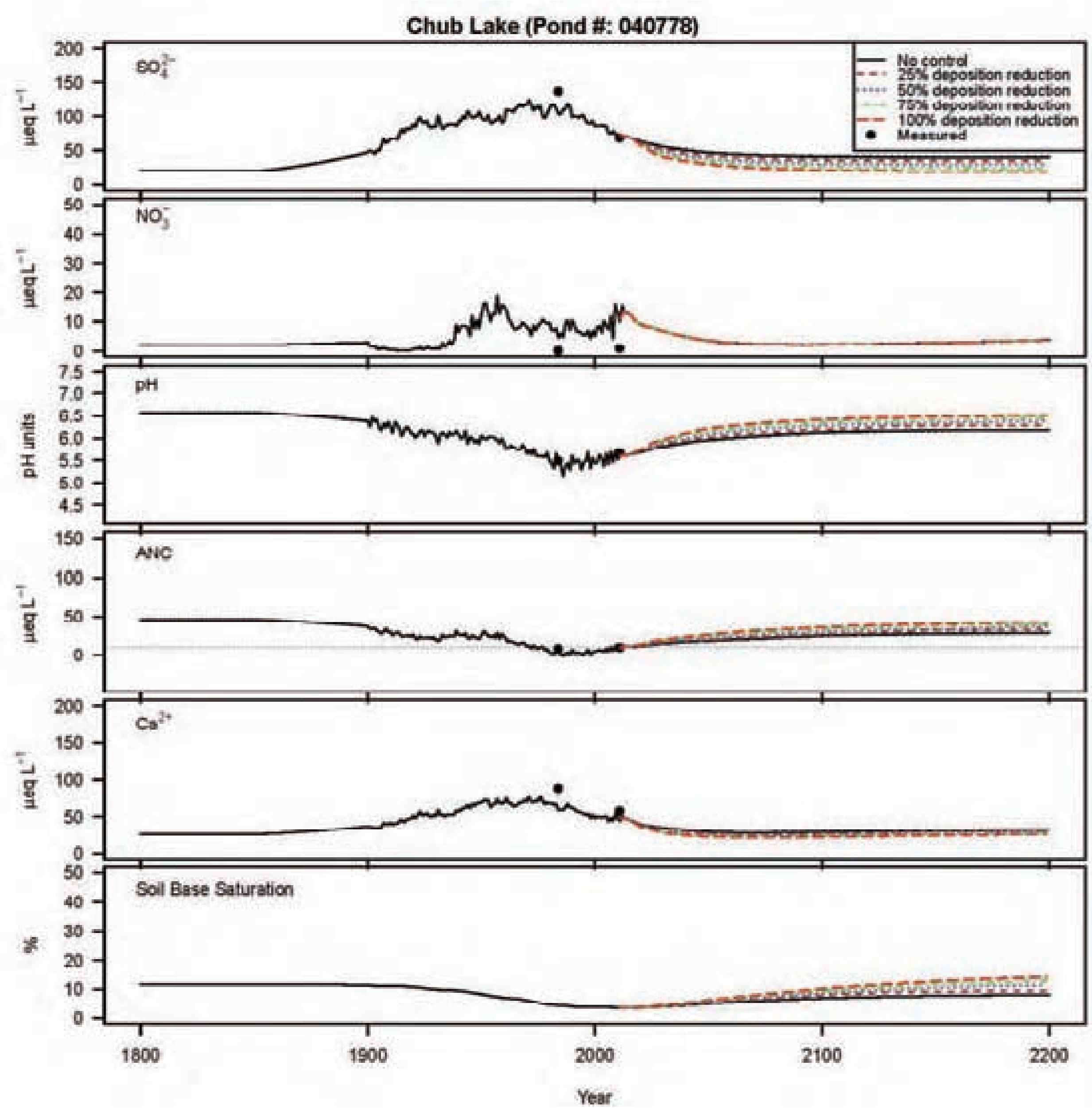
Otter Pond (Pond #: 040760)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

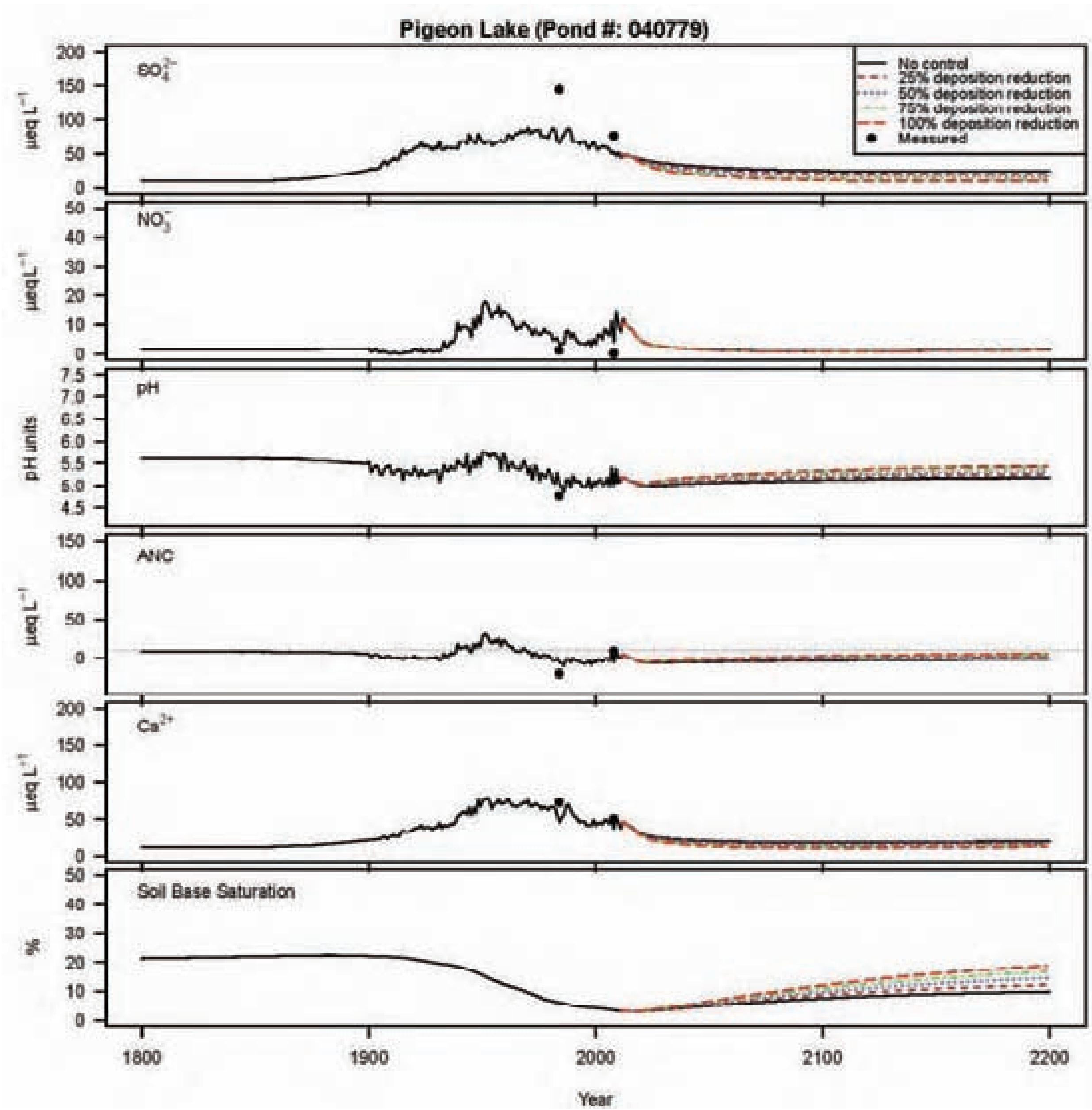

North Gull Lake (Pond #: 040762)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

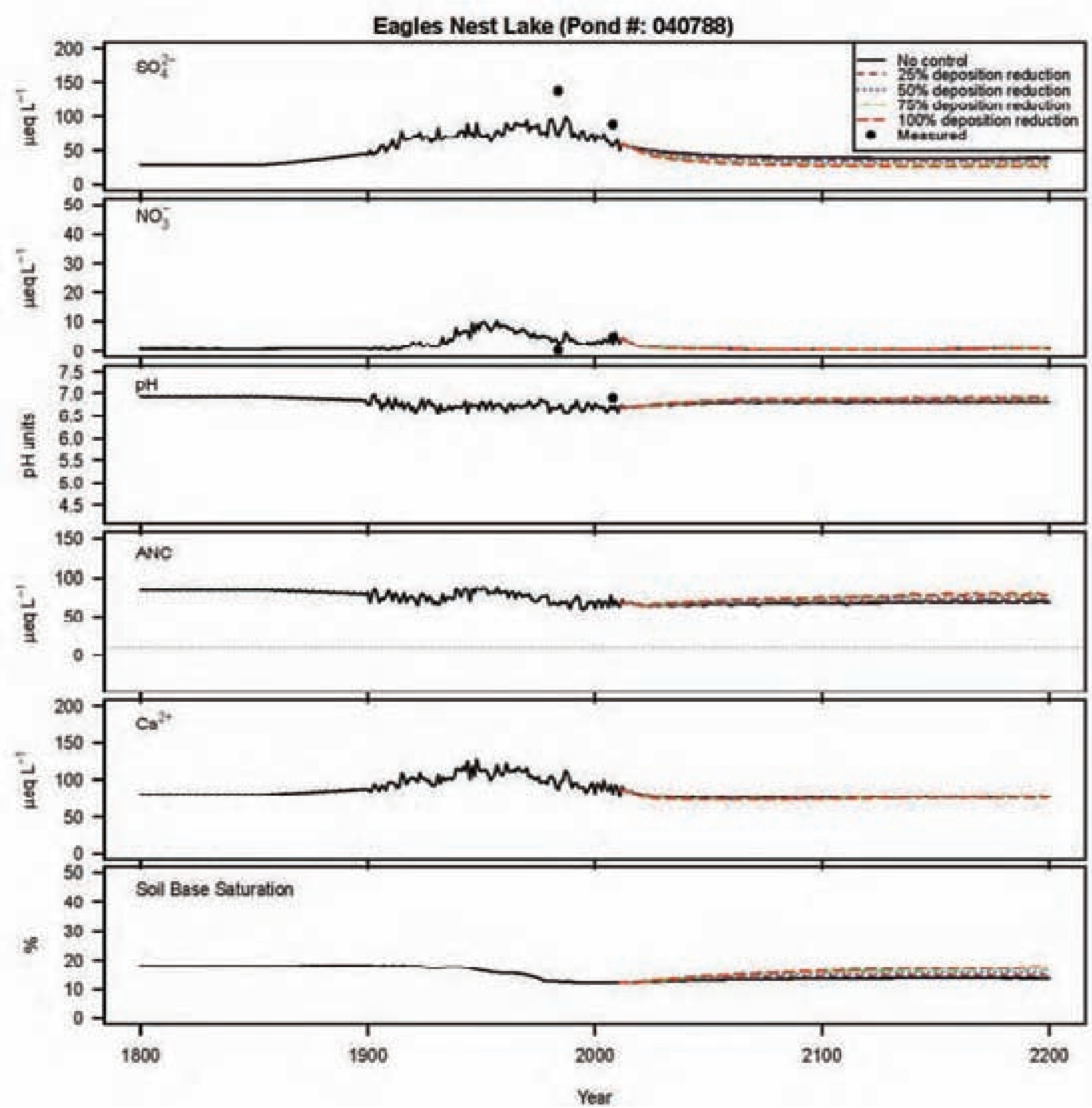

Lower Sister Lake (Pond #: 040768)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



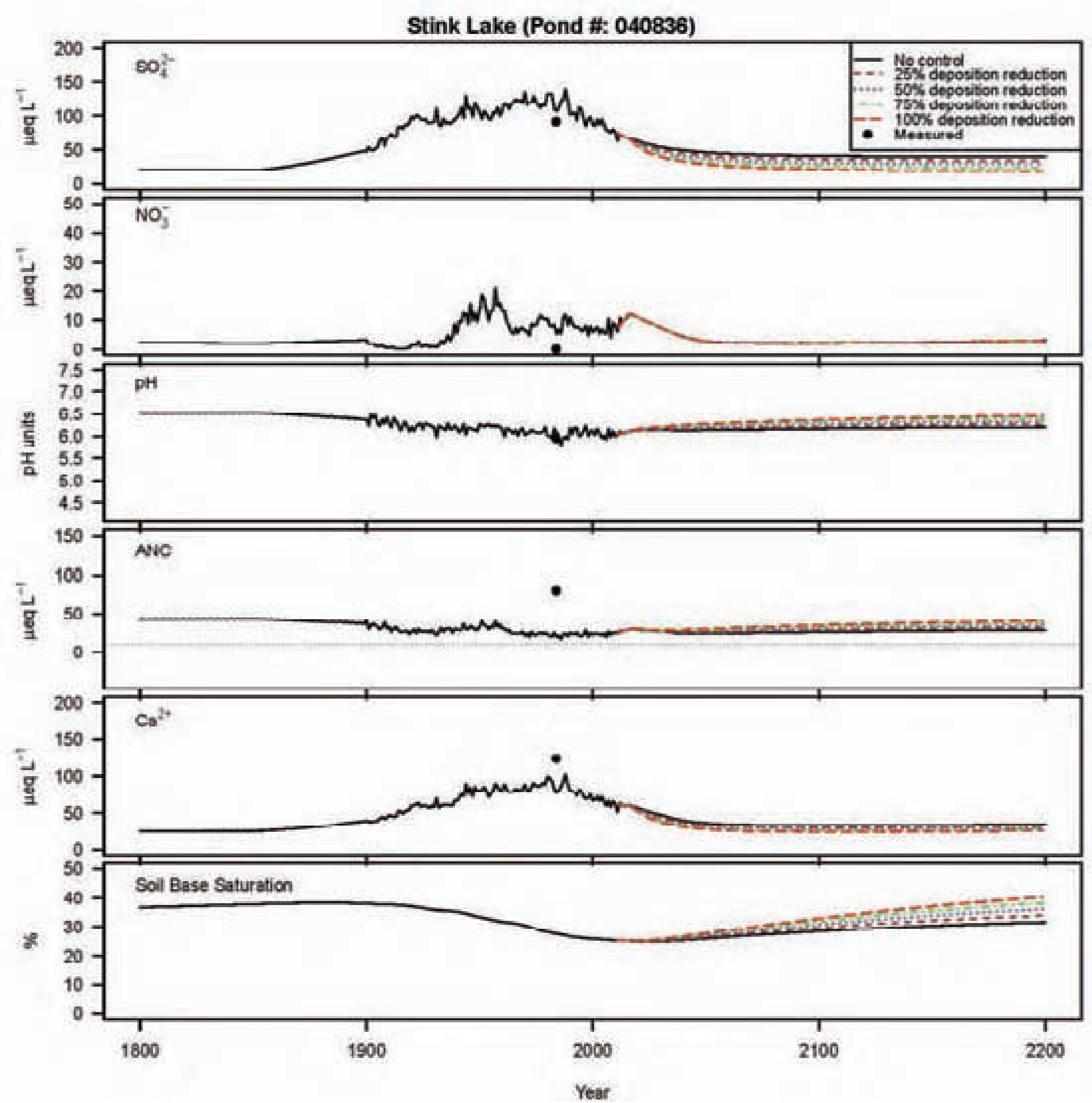
Constable Pond (Pond #: 040777)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Diatom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Chub Lake (Pond #: 040778)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

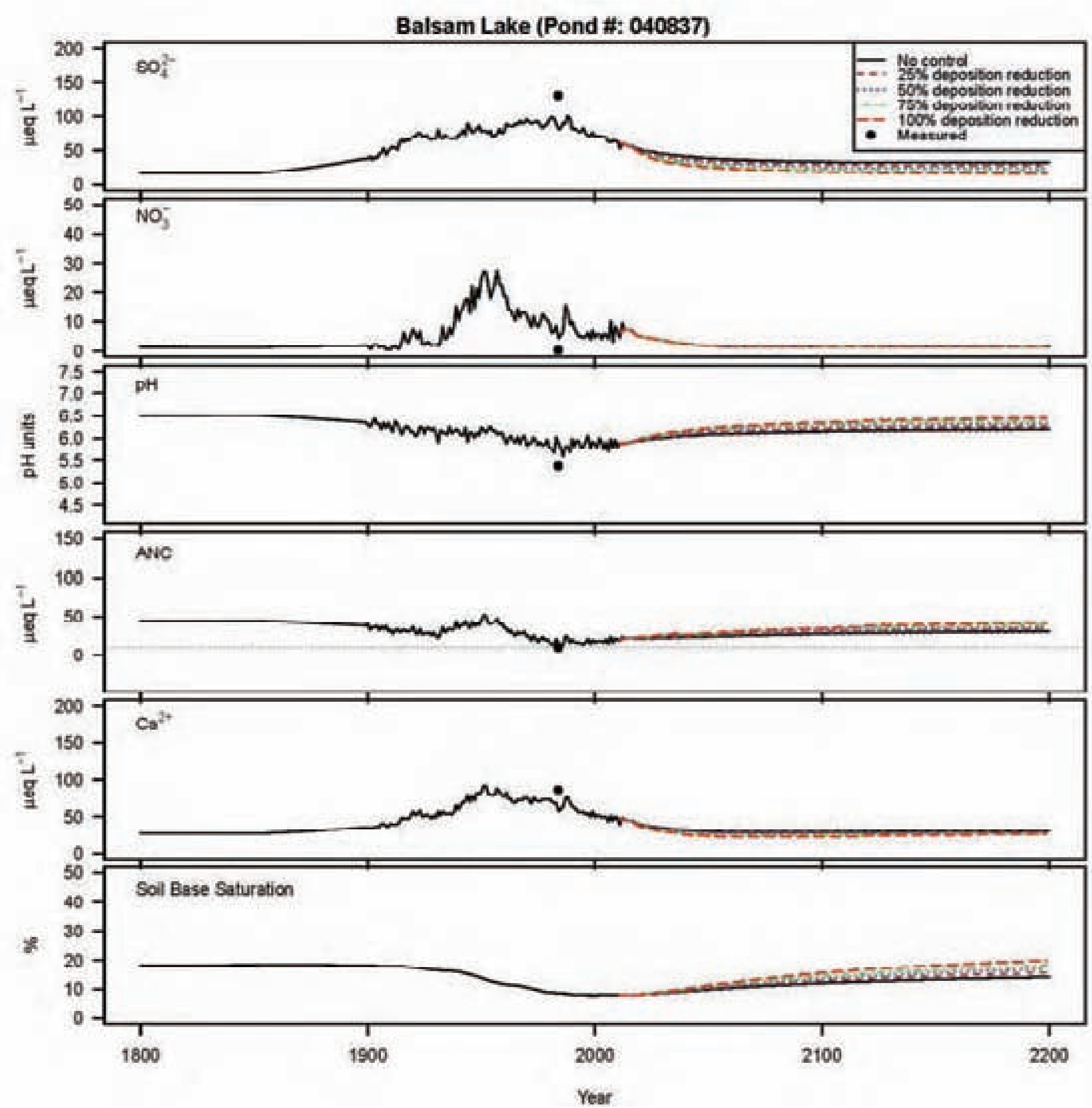

Pigeon Lake (Pond #: 040779)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



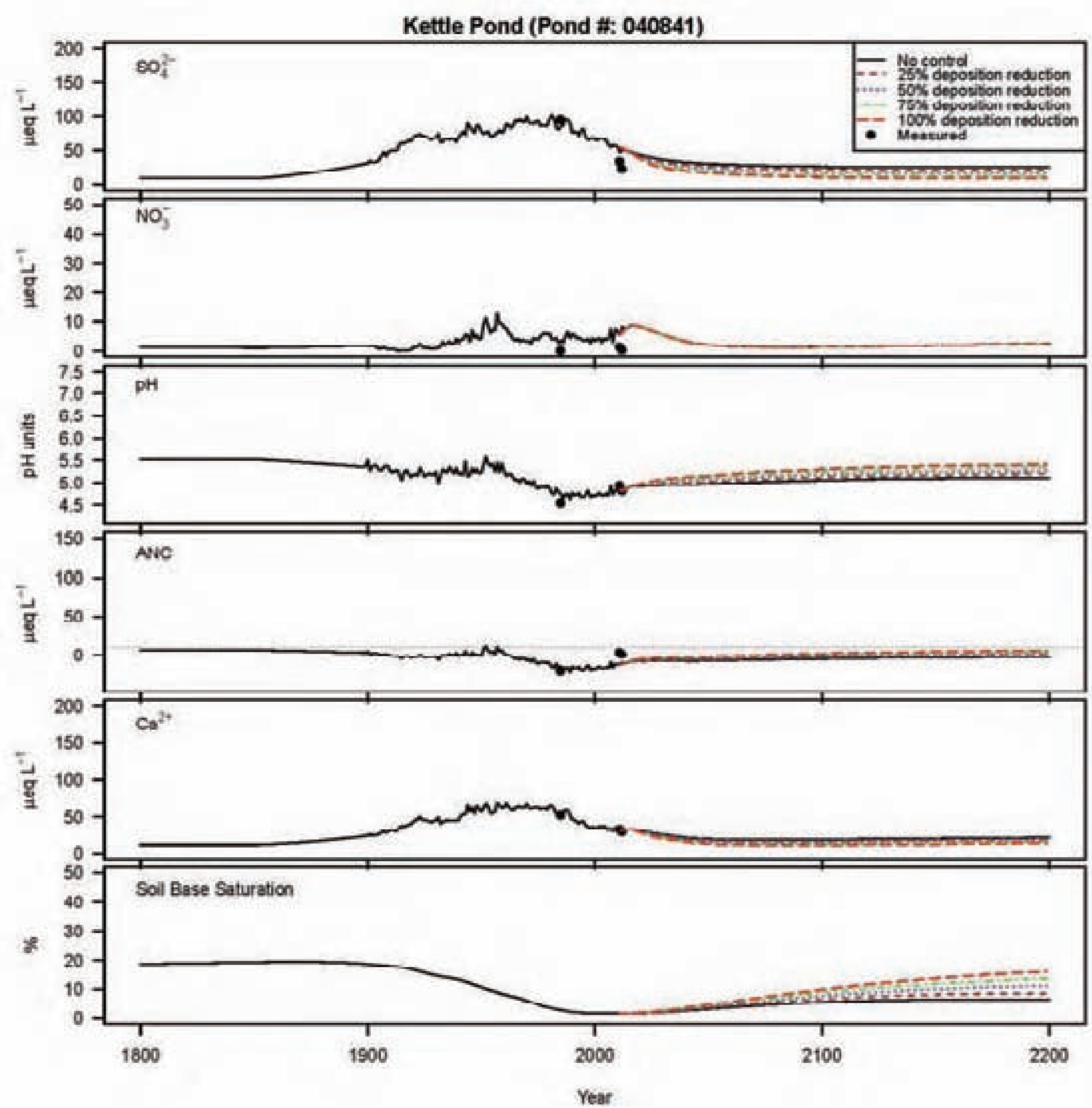
Eagles Nest Lake (Pond #: 040788)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year

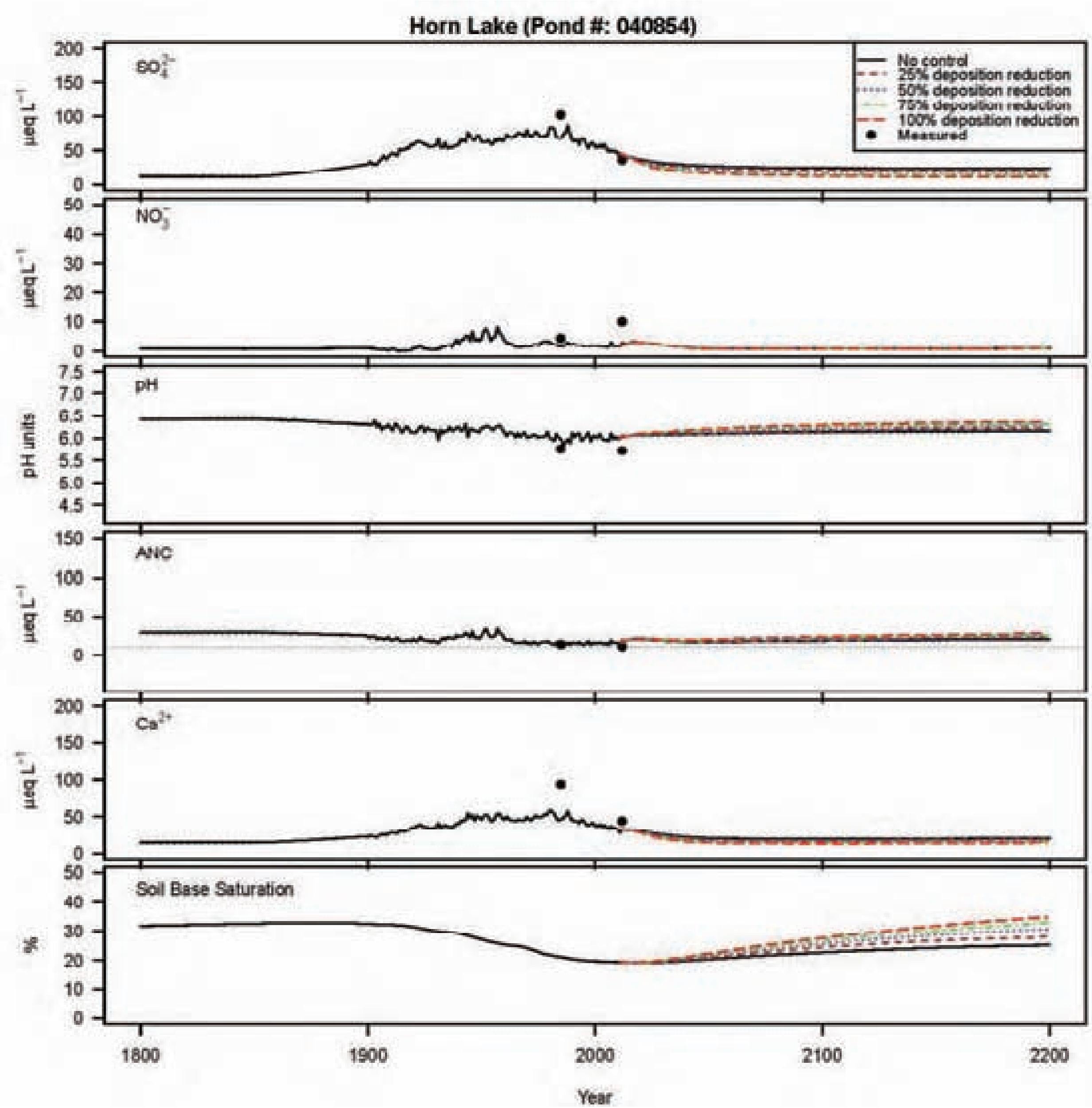


Stink Lake (Pond #: 040836)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

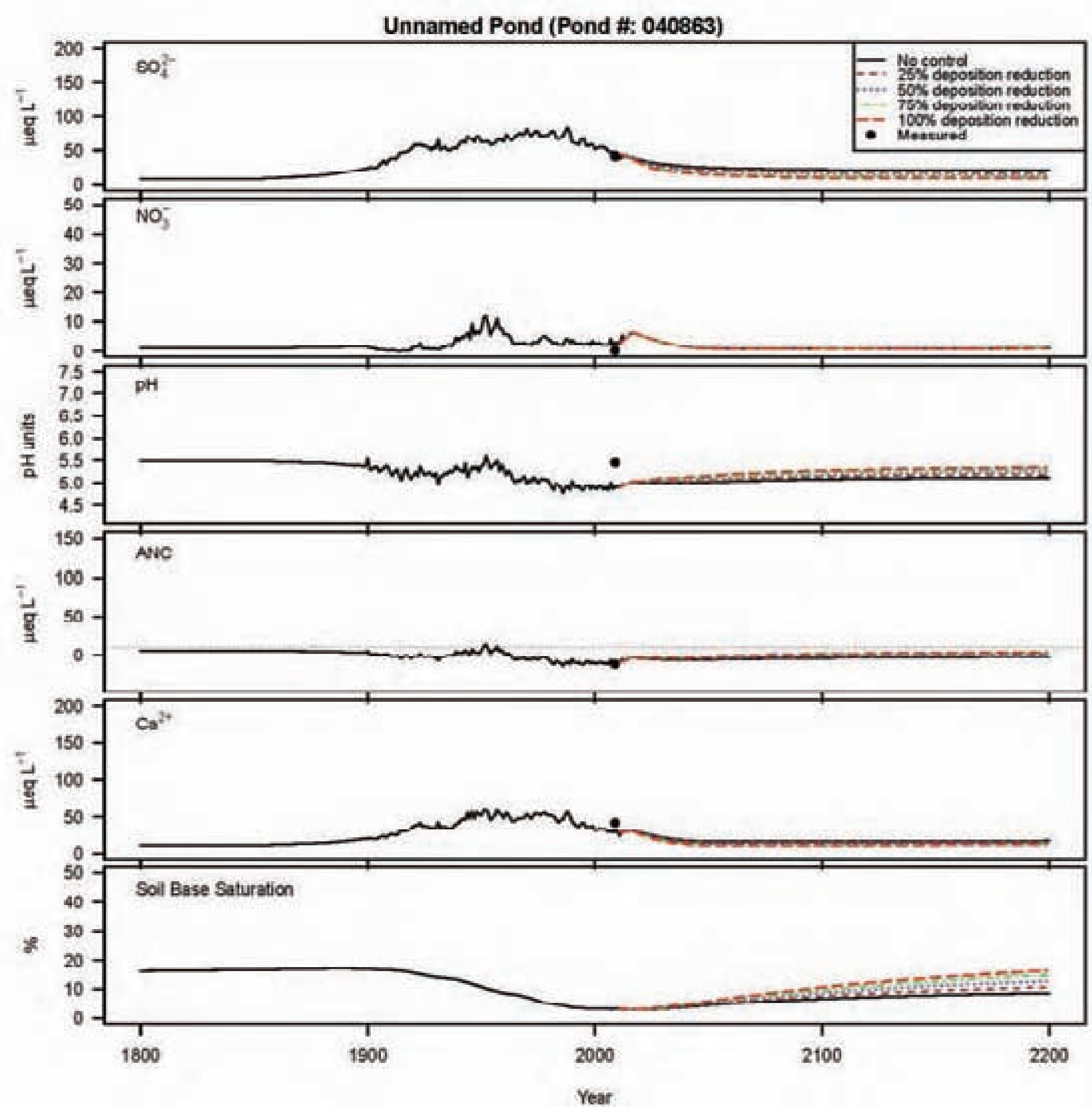


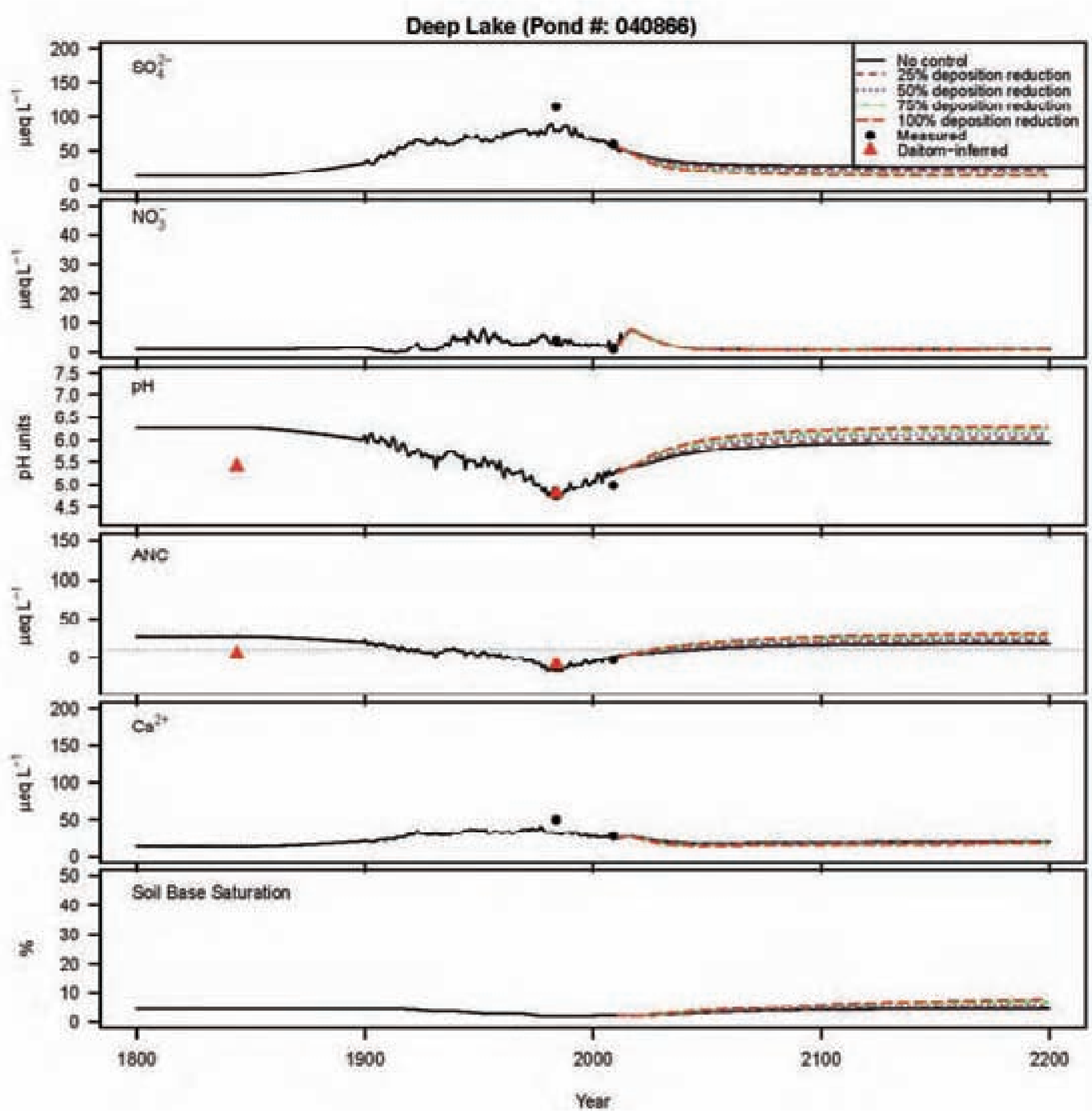
Balsam Lake (Pond #: 040837)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Kettle Pond (Pond #: 040841)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

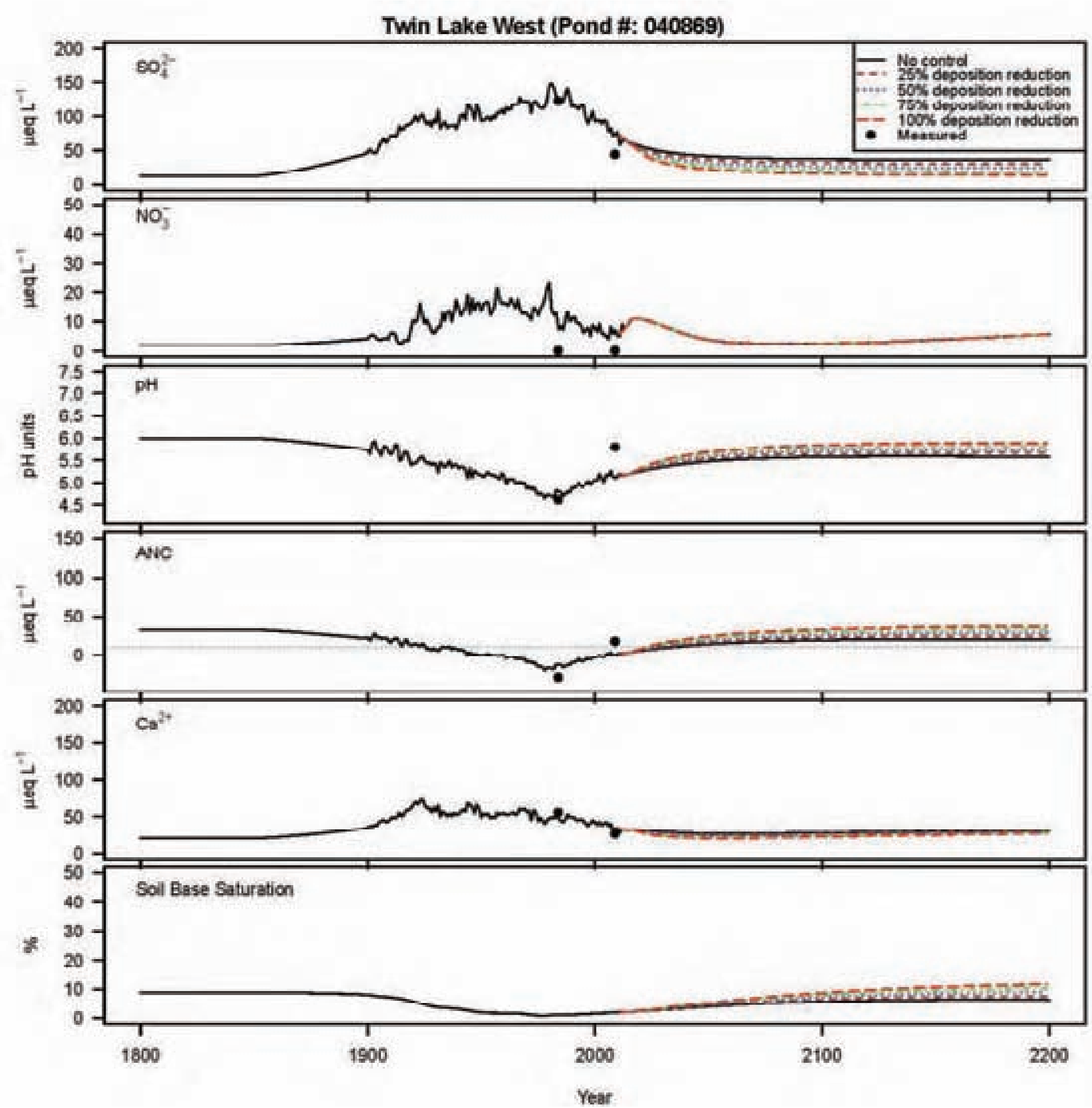


Horn Lake (Pond #: 040854)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

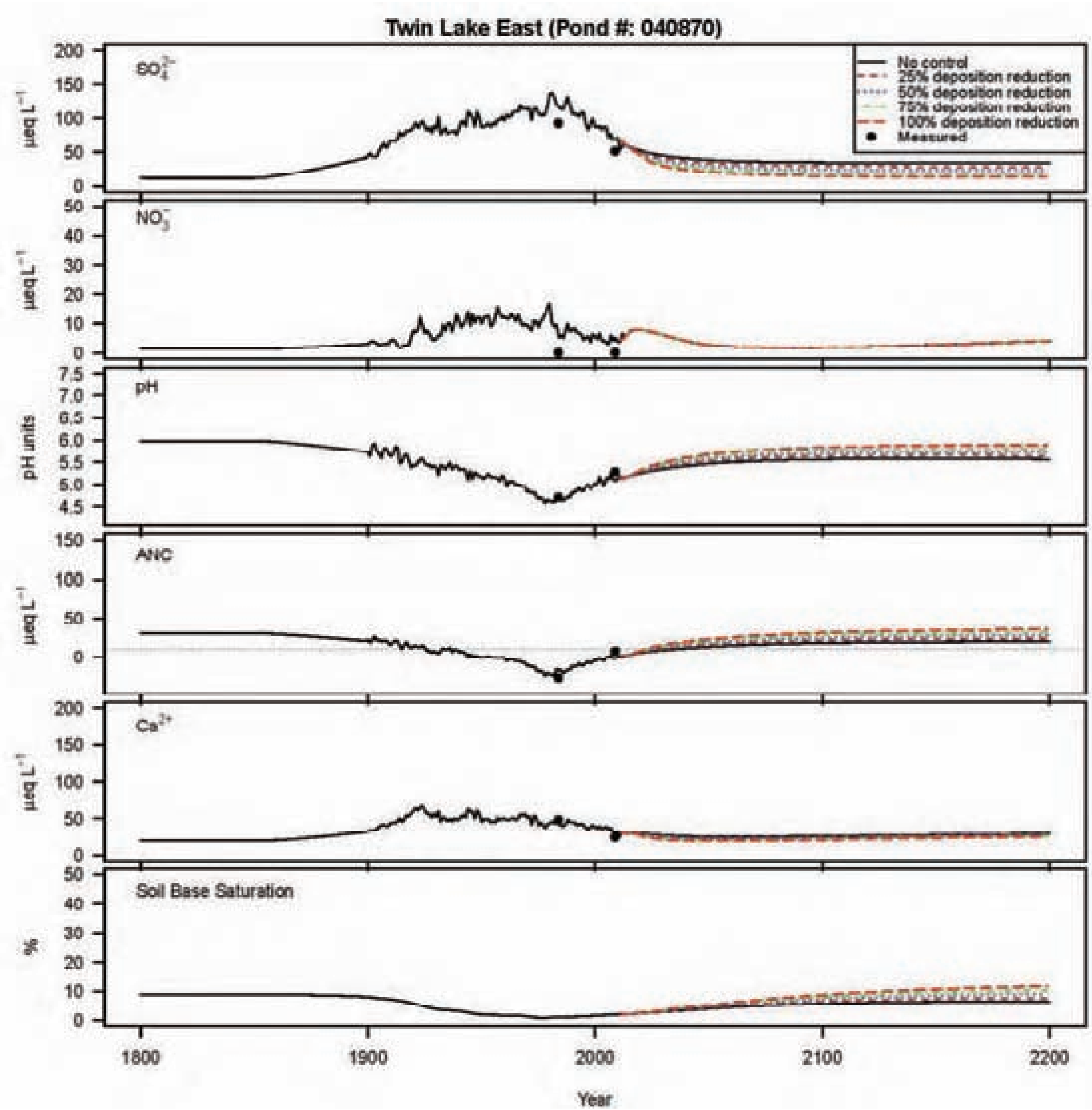

Unnamed Pond (Pond #: 040863)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

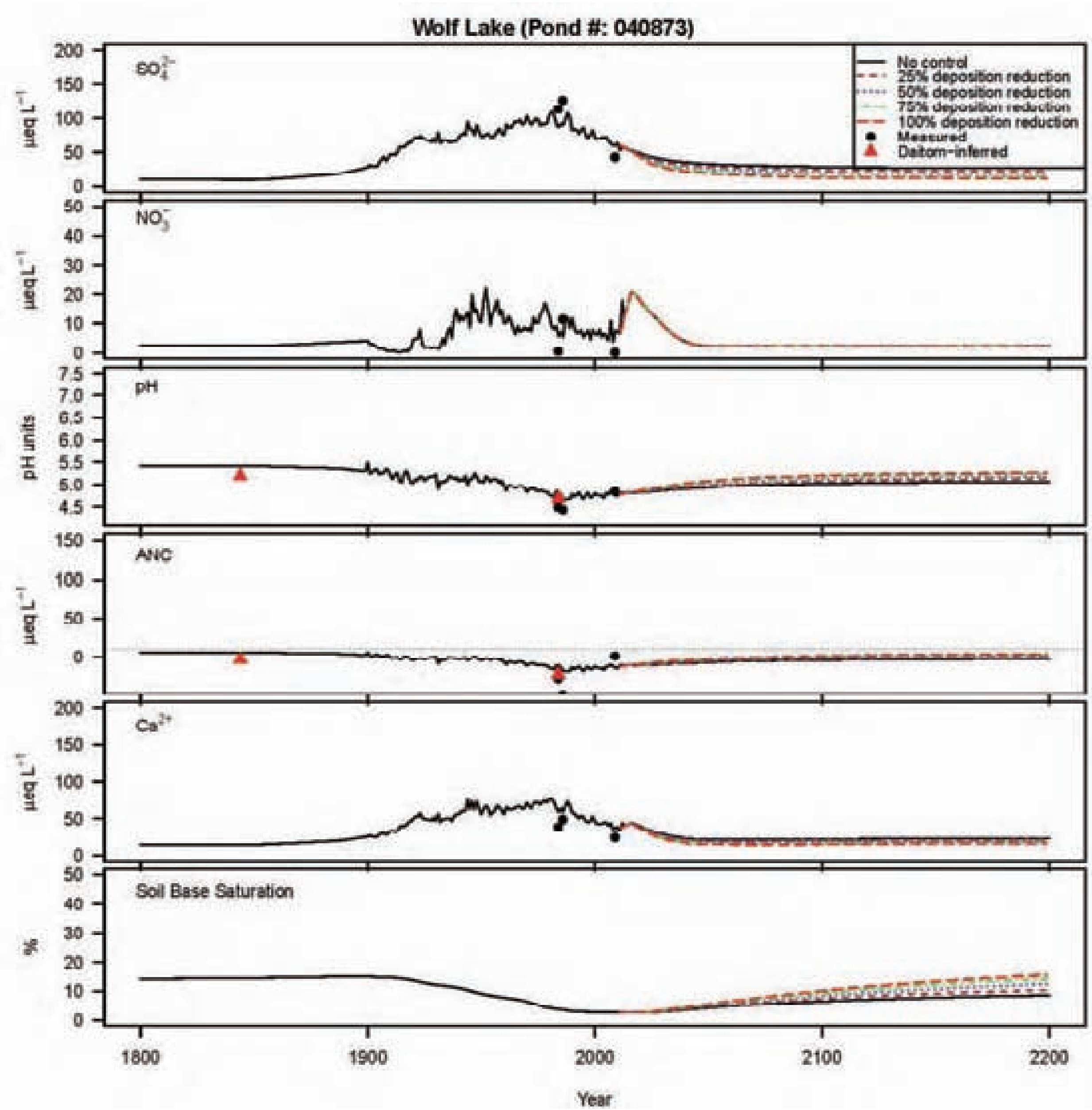


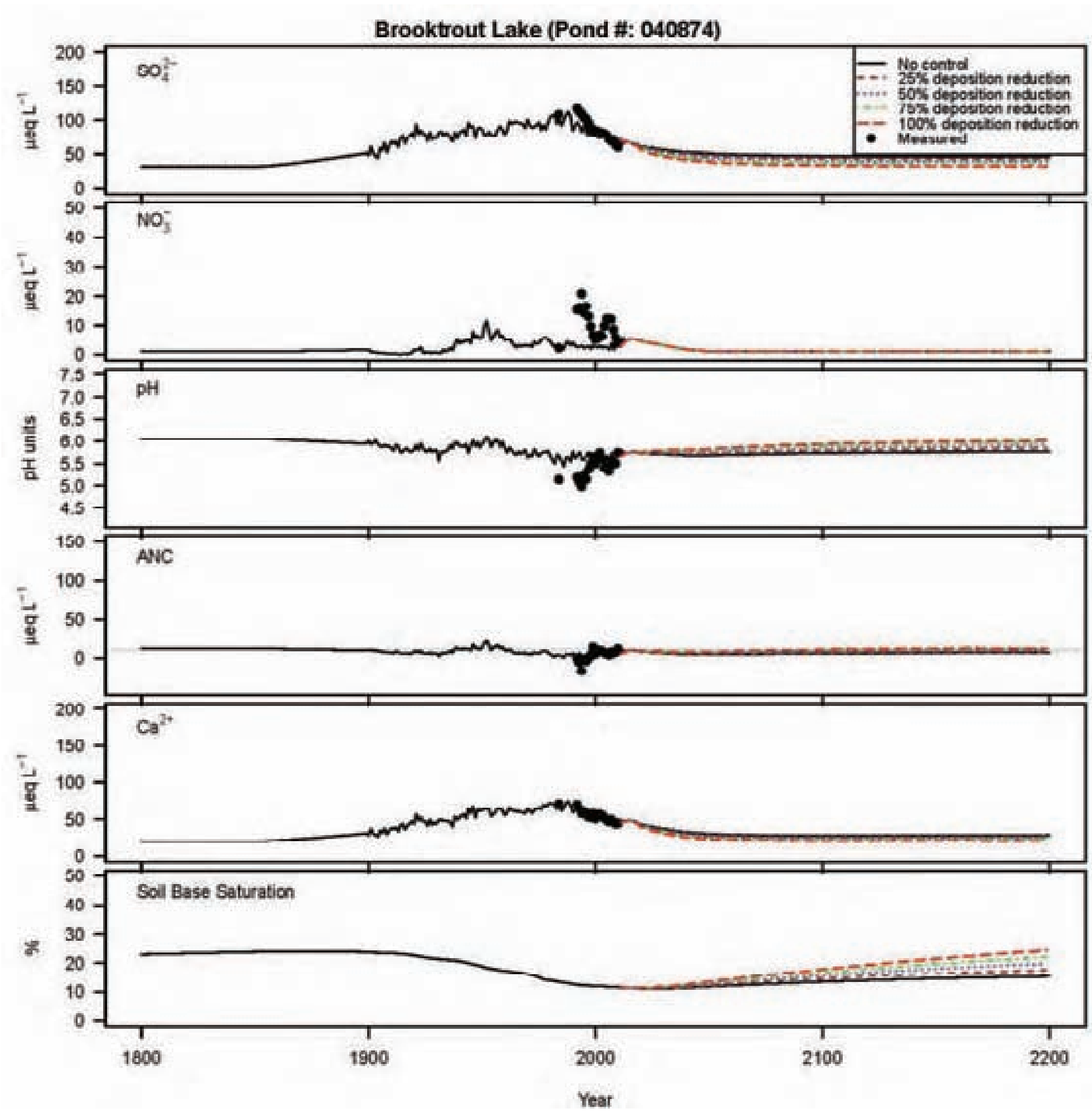
Deep Lake (Pond #: 040866)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

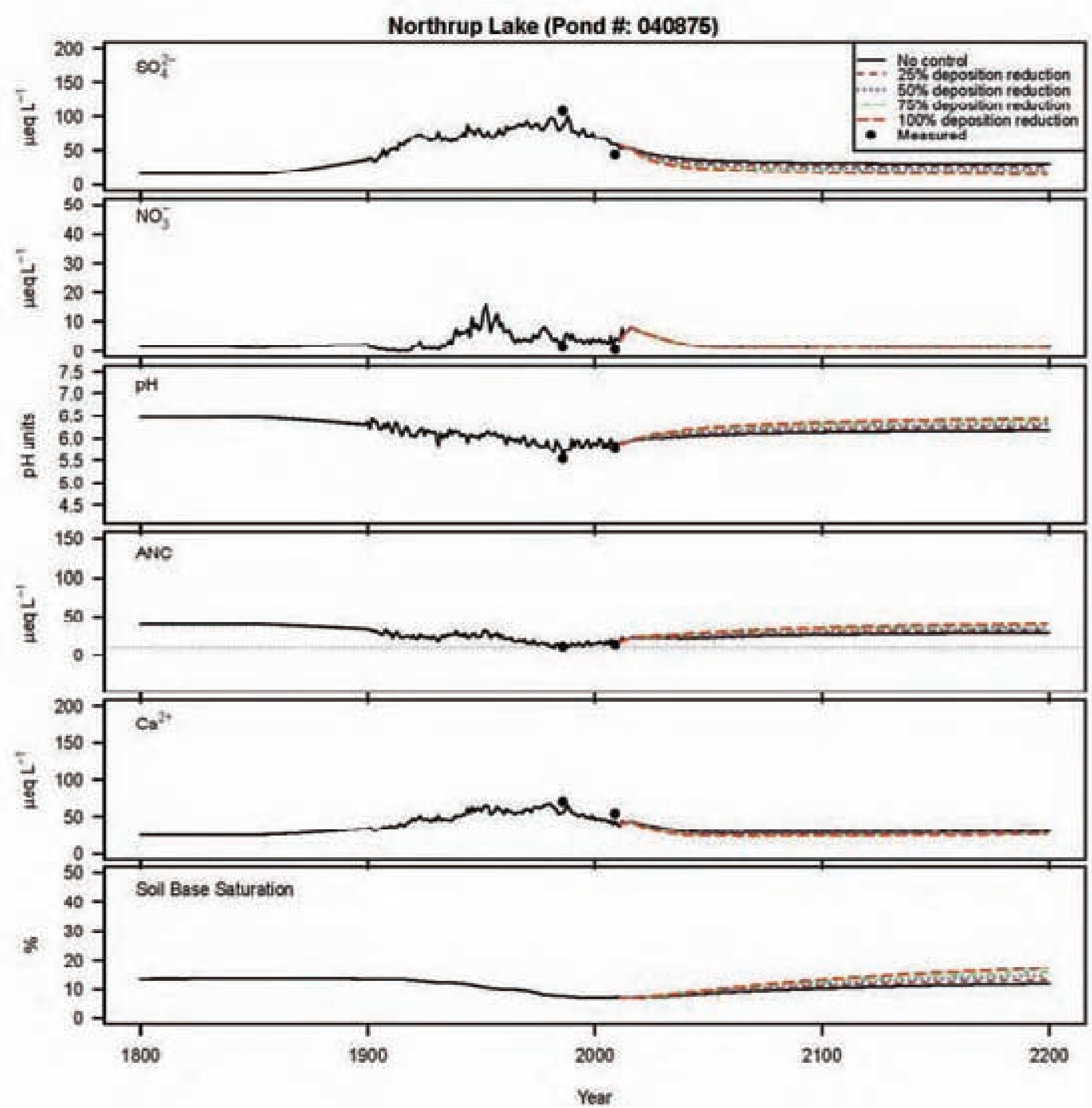


Twin Lake West (Pond #: 040869)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

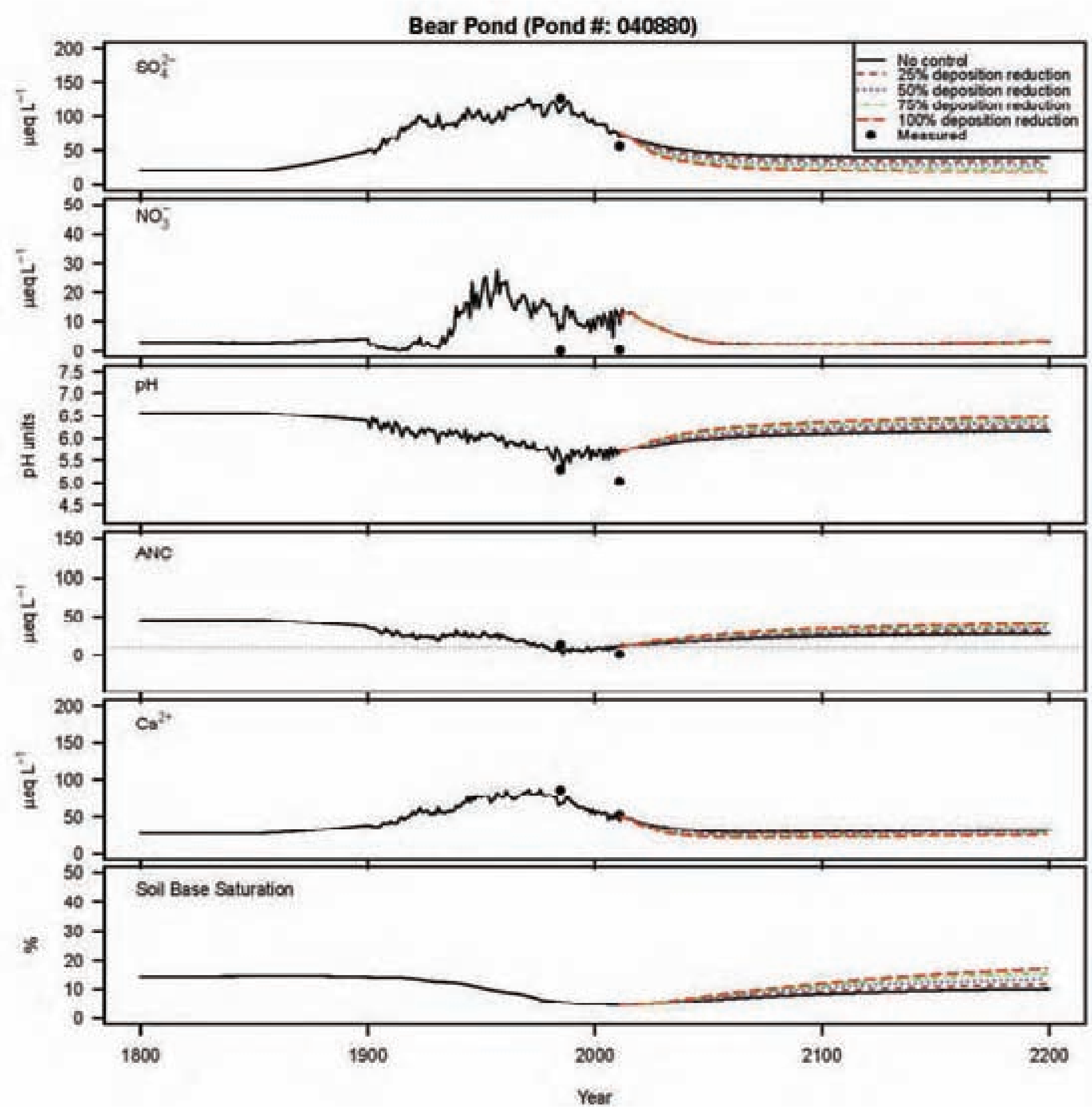

Twin Lake East (Pond #: 040870)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

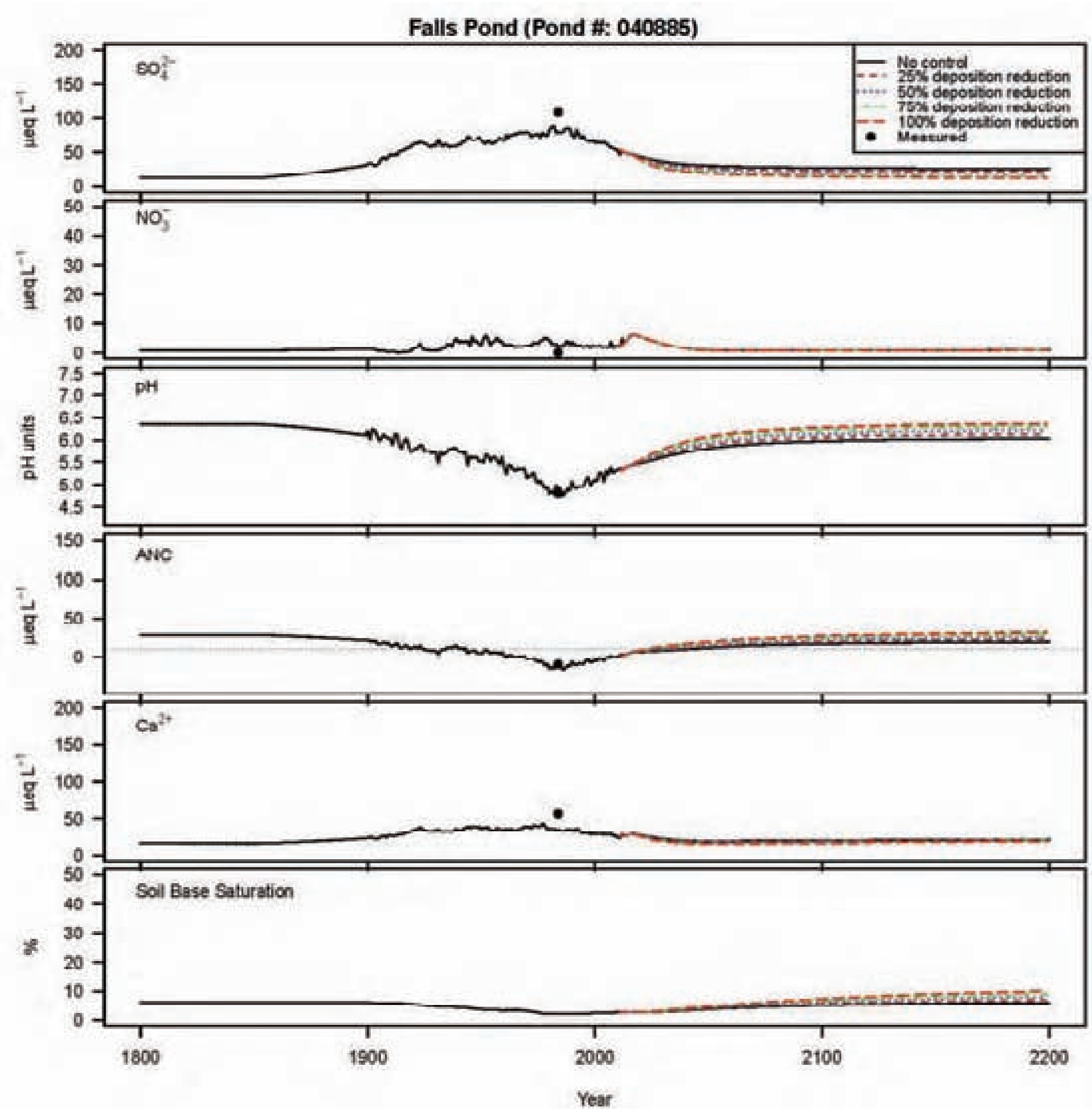

Wolf Lake (Pond #: 040873)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Daitom-inferred
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

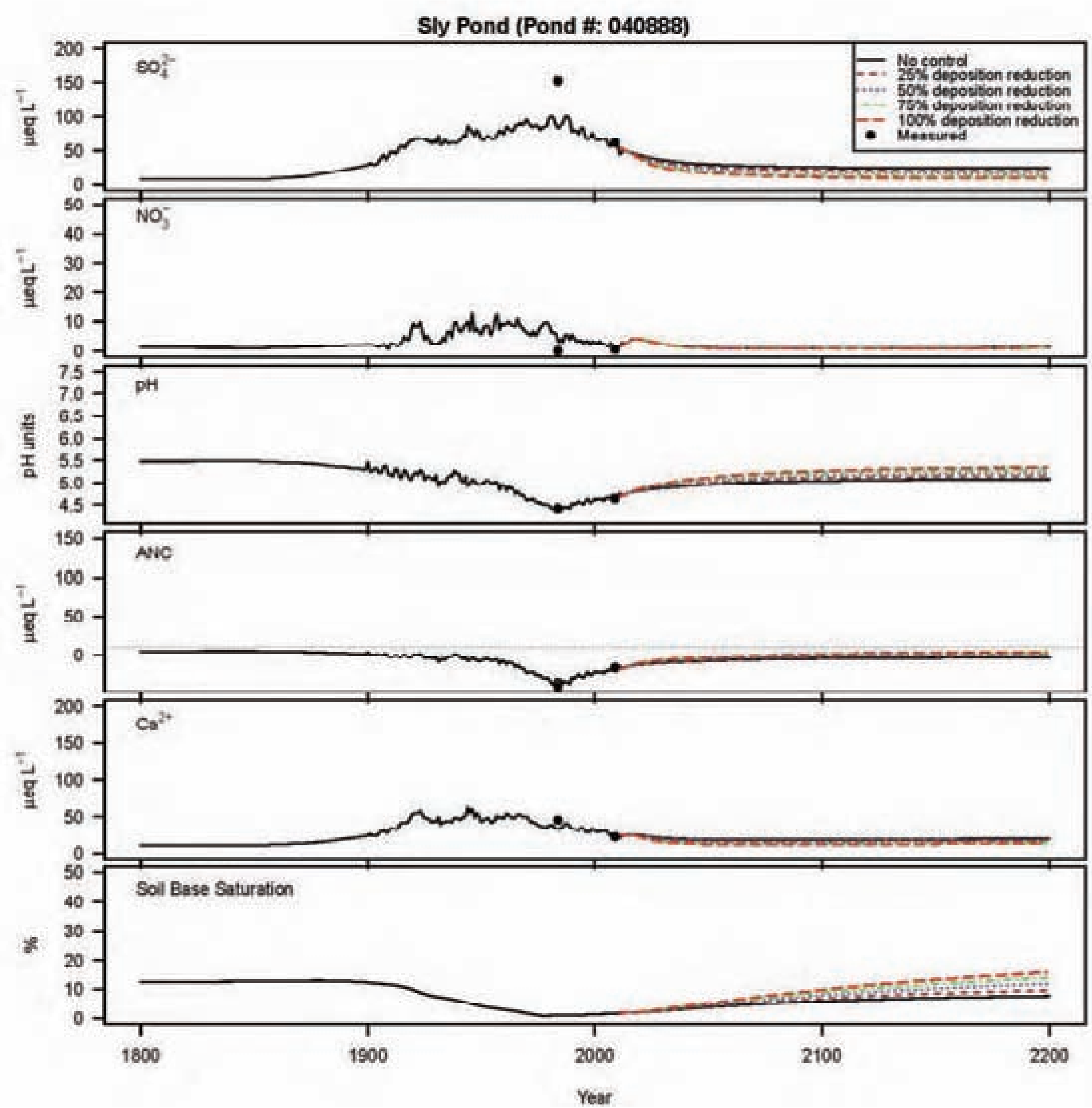

Brooktrout Lake (Pond #: 040874)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

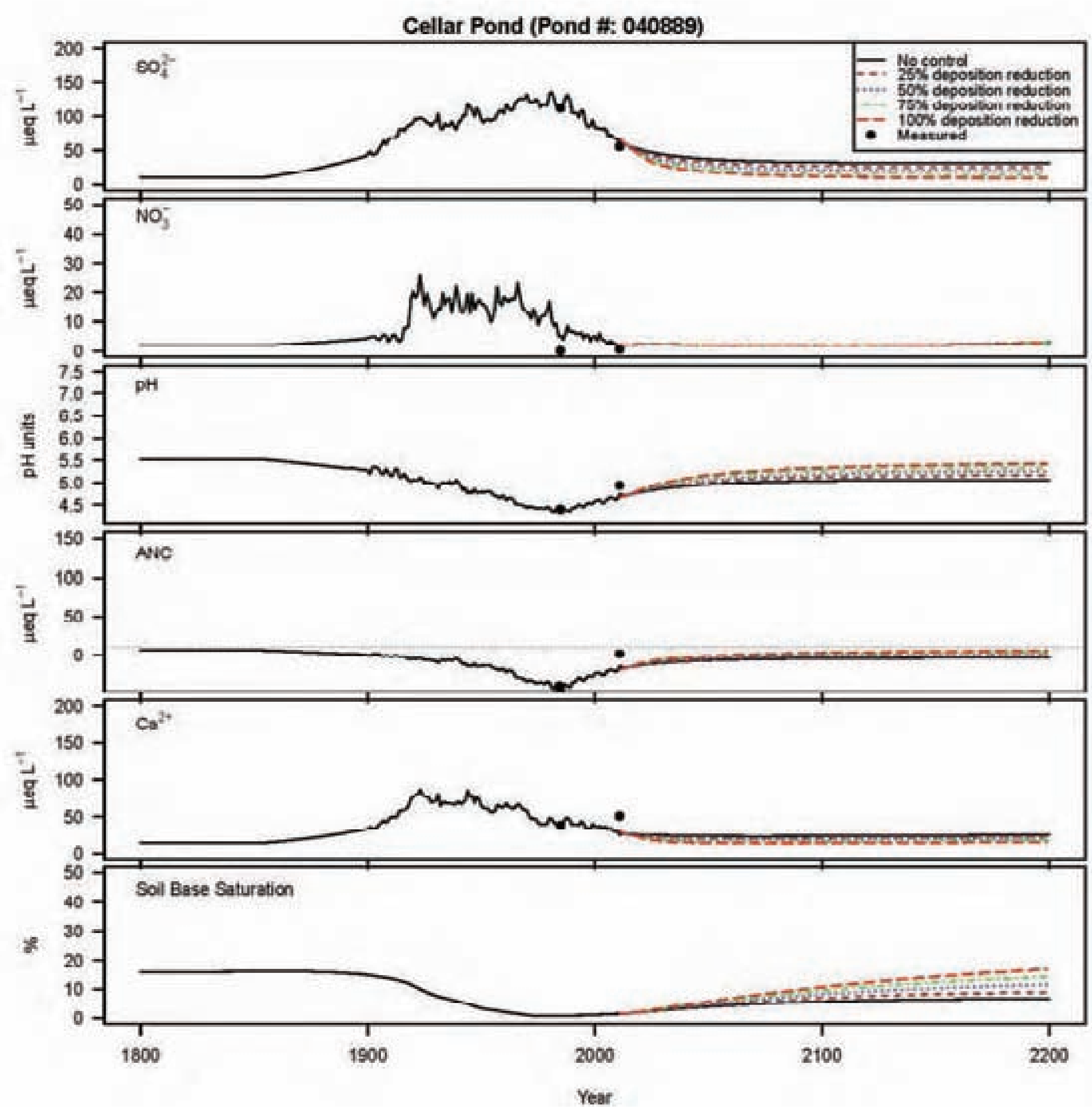


Northrup Lake (Pond #: 040875)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

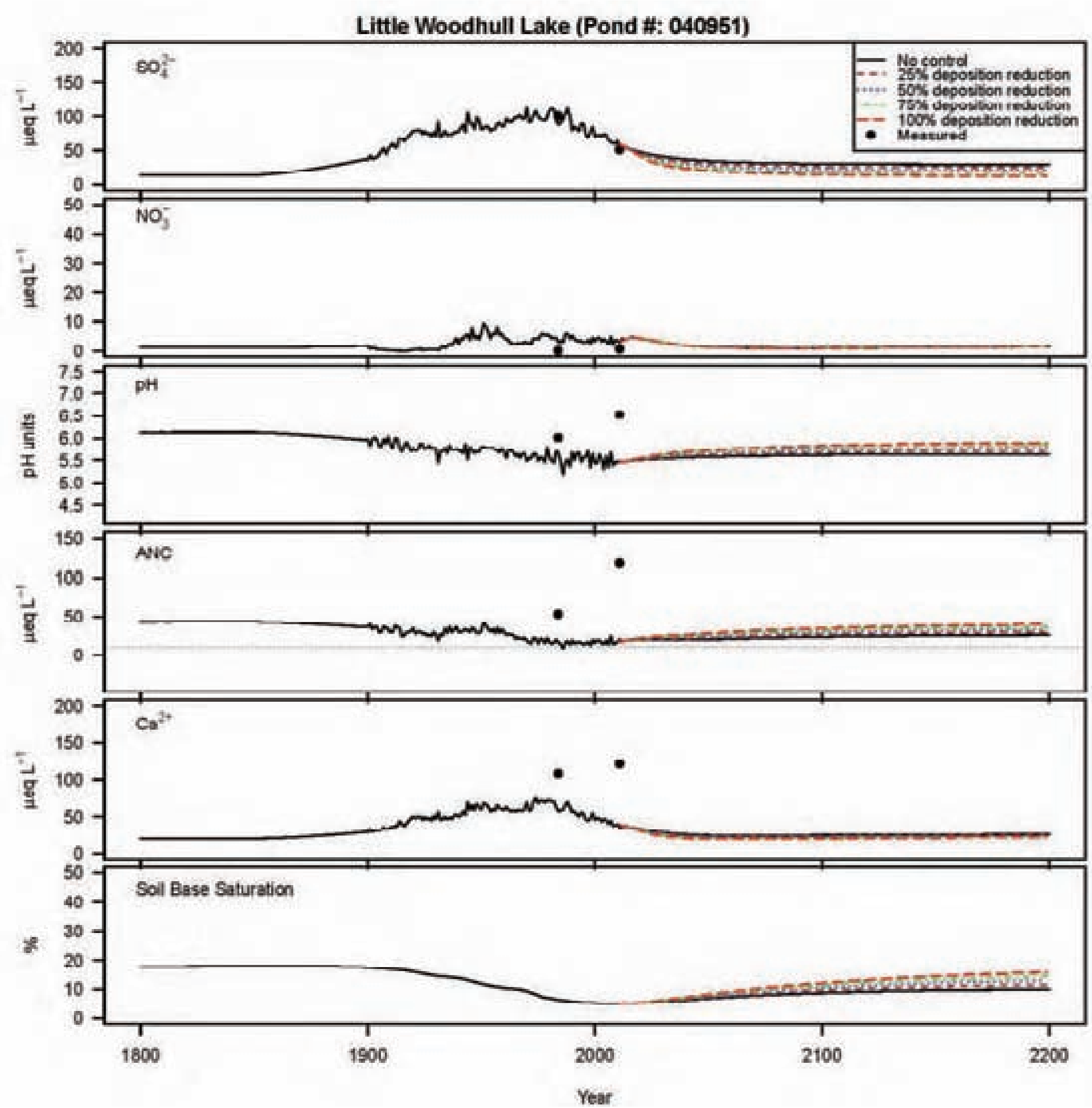

Bear Pond (Pond #: 040880)
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Year


Falls Pond (Pond #: 040885)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

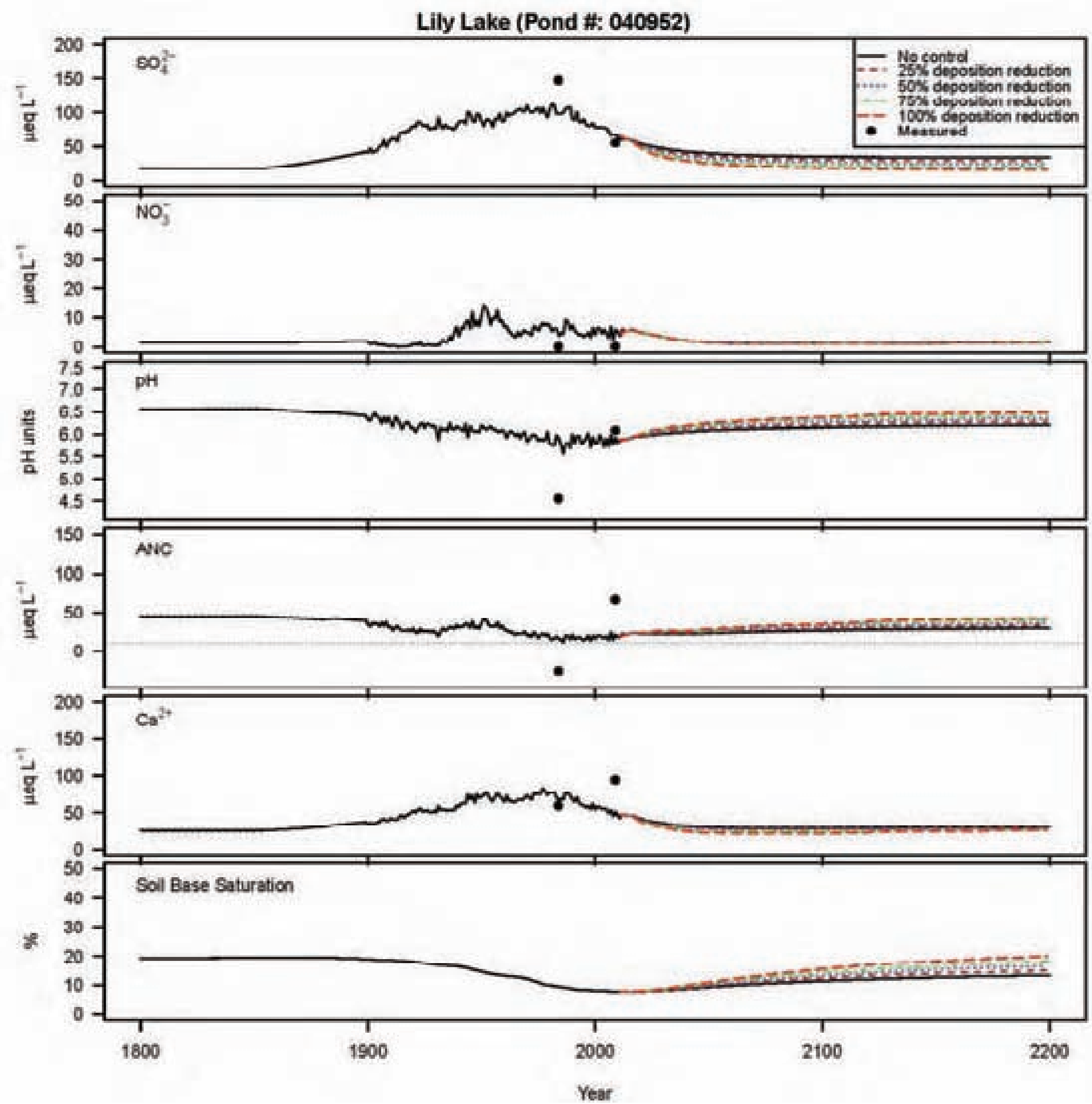

Sly Pond (Pond #: 040888)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



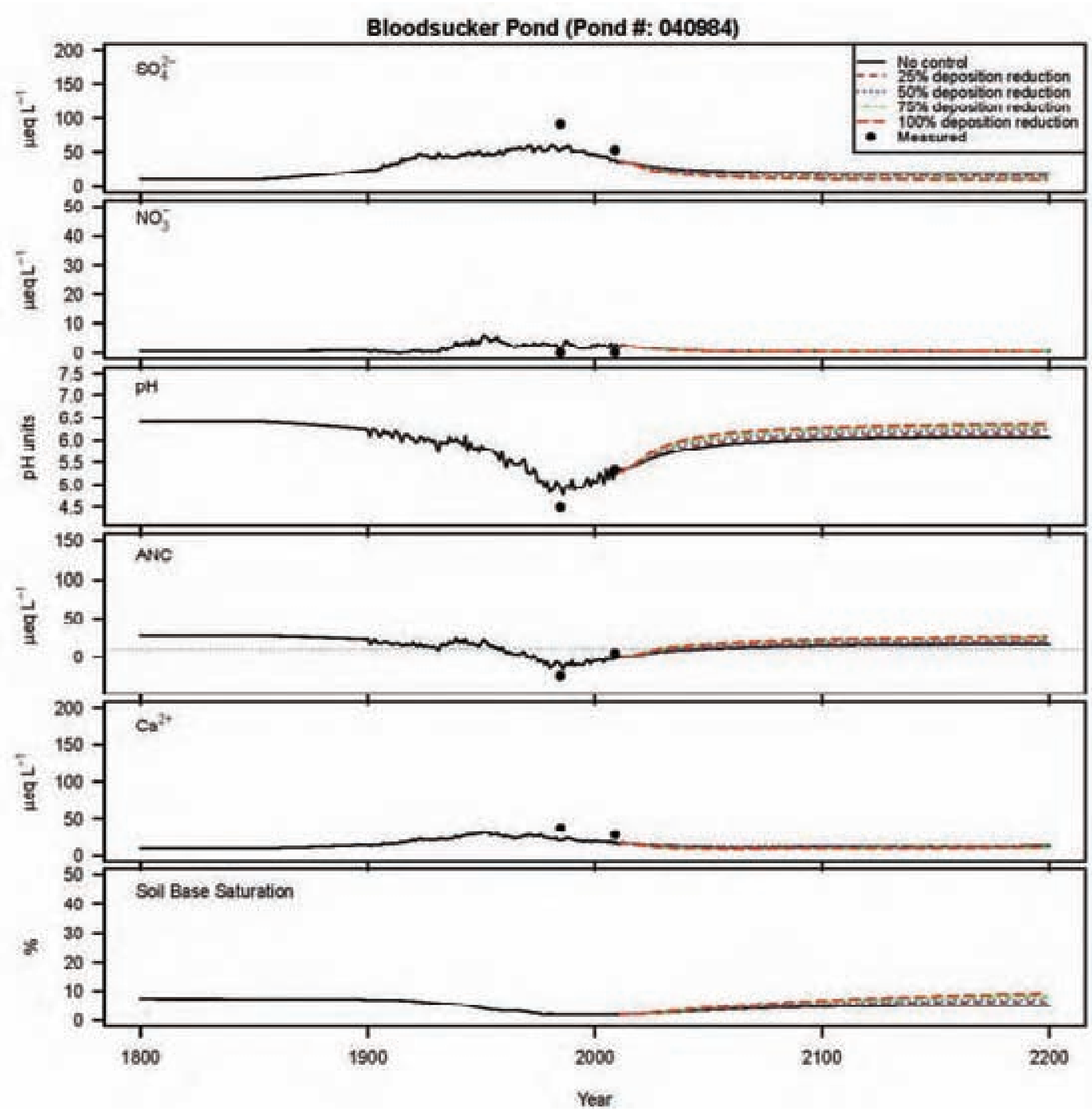
Cellar Pond (Pond #: 040889)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year



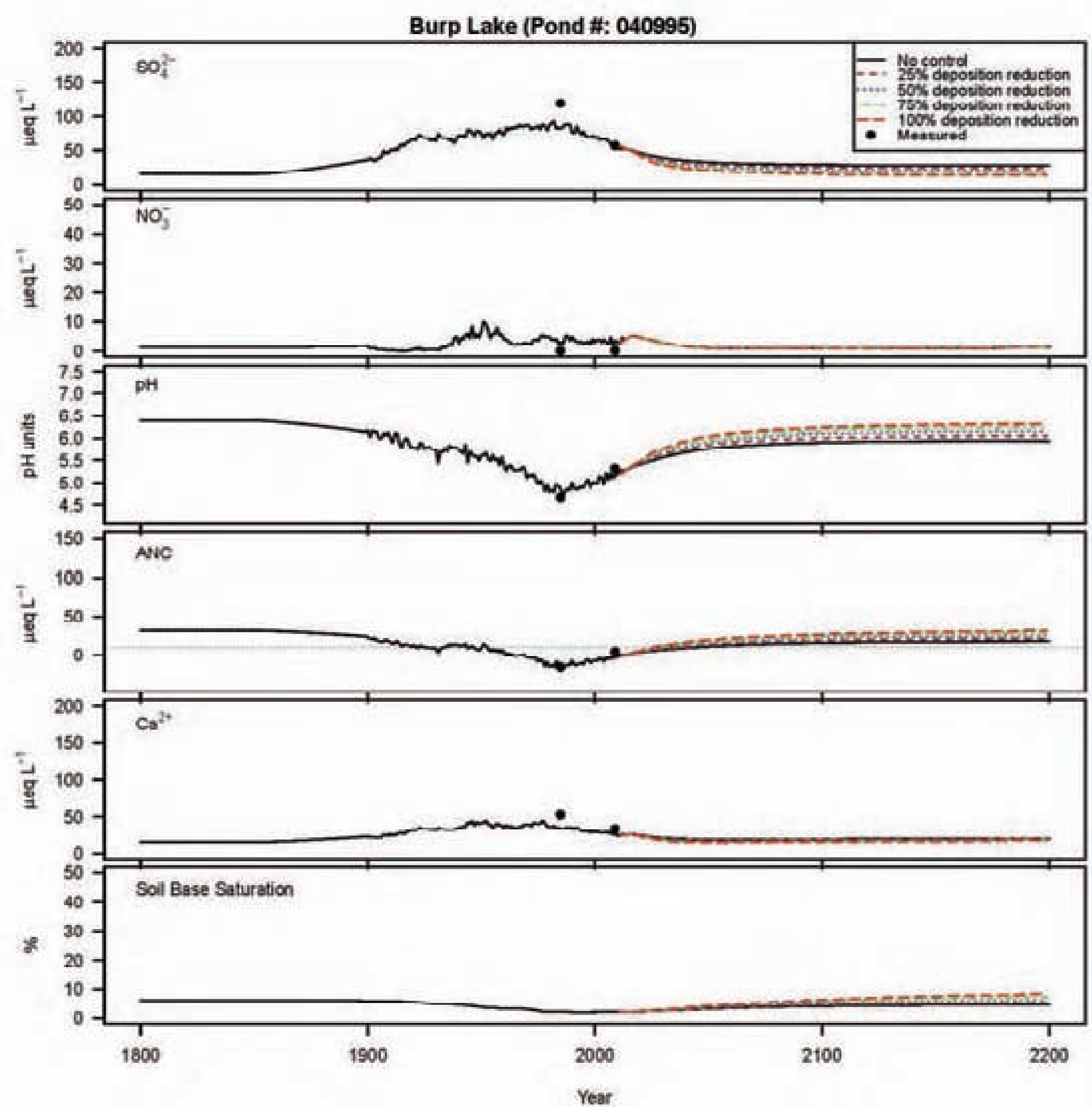
Little Woodhull Lake (Pond #: 040951)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

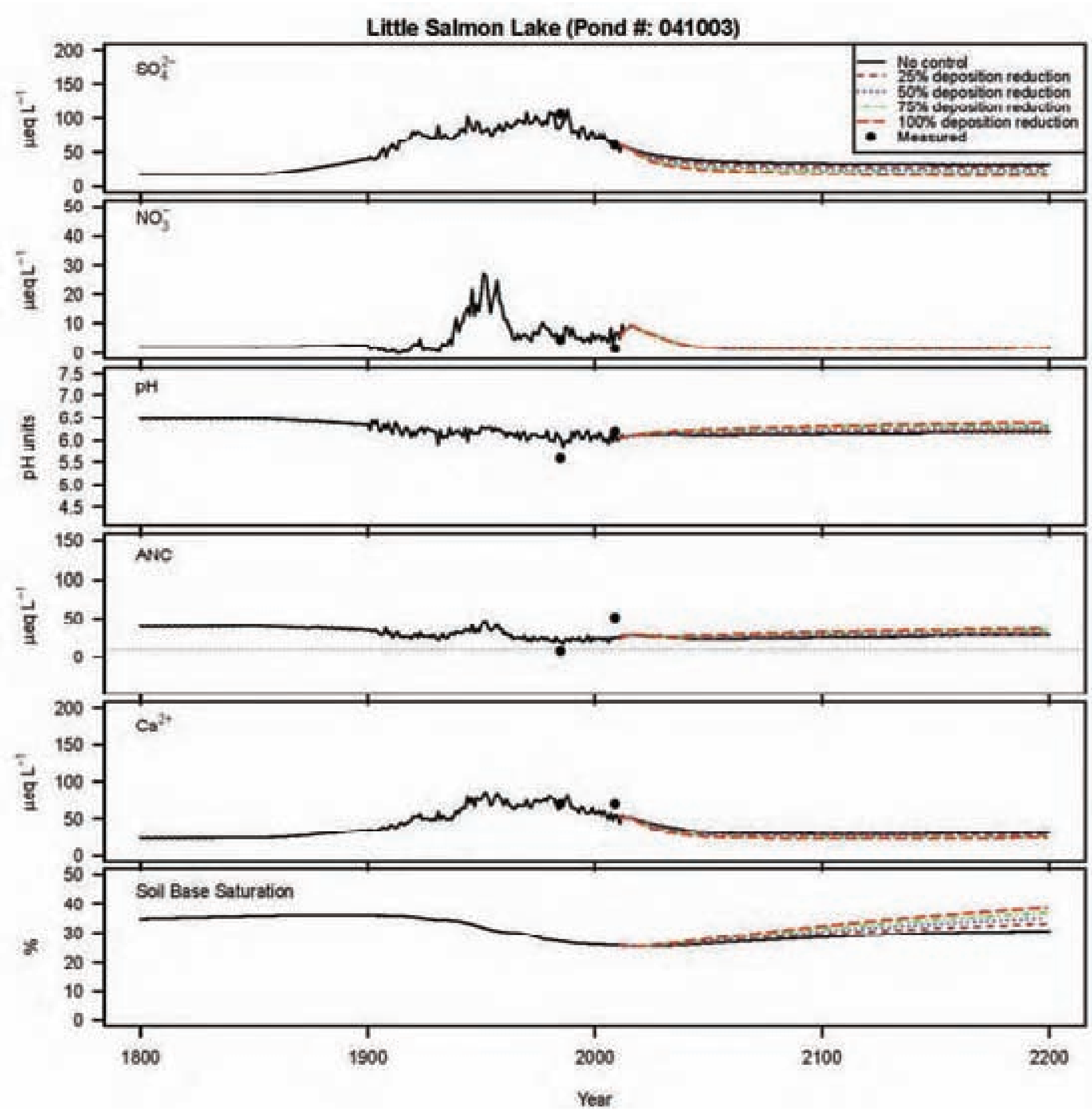


Lily Lake (Pond #: 040952)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

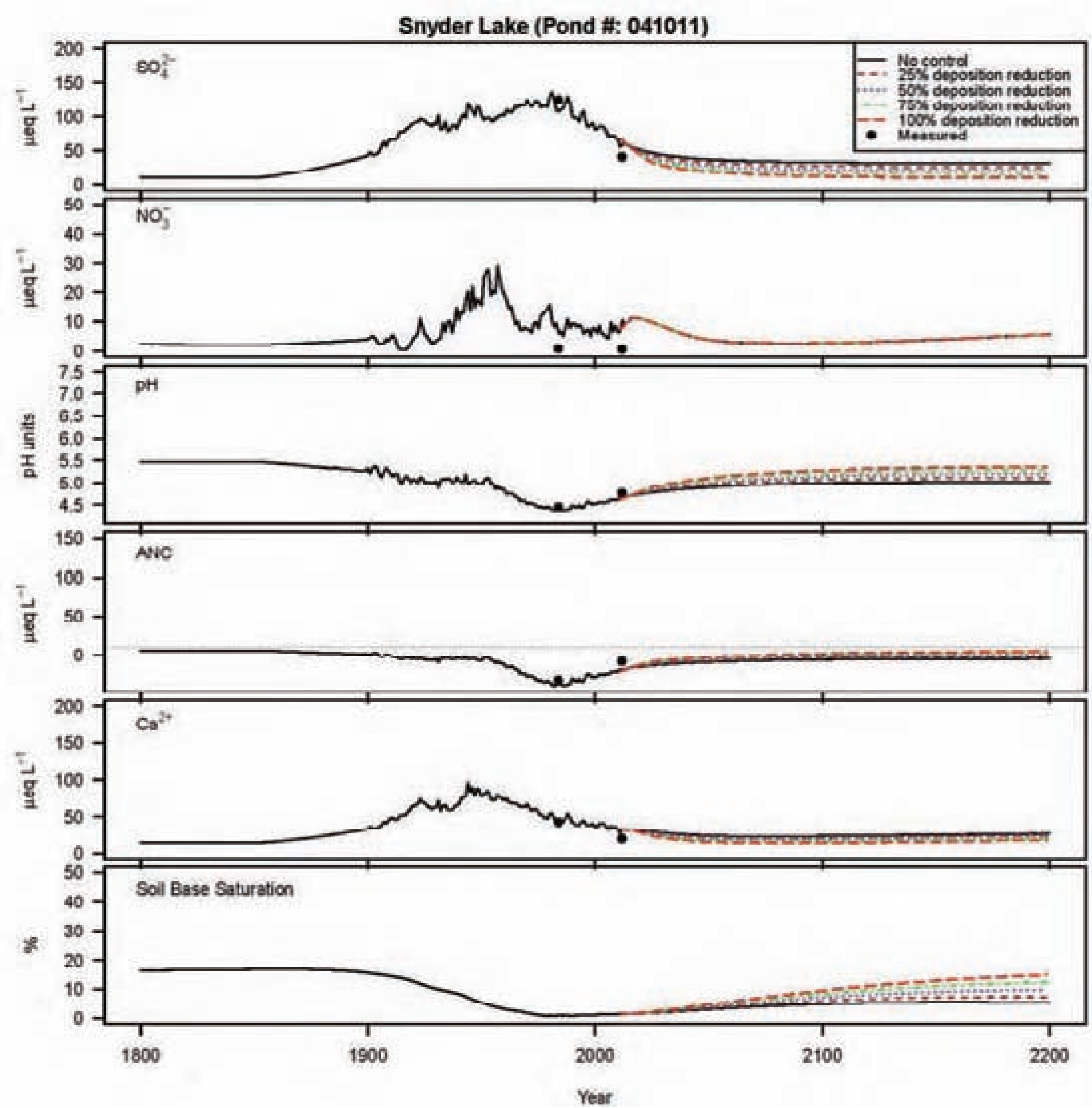


Bloodsucker Pond (Pond #: 040984)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

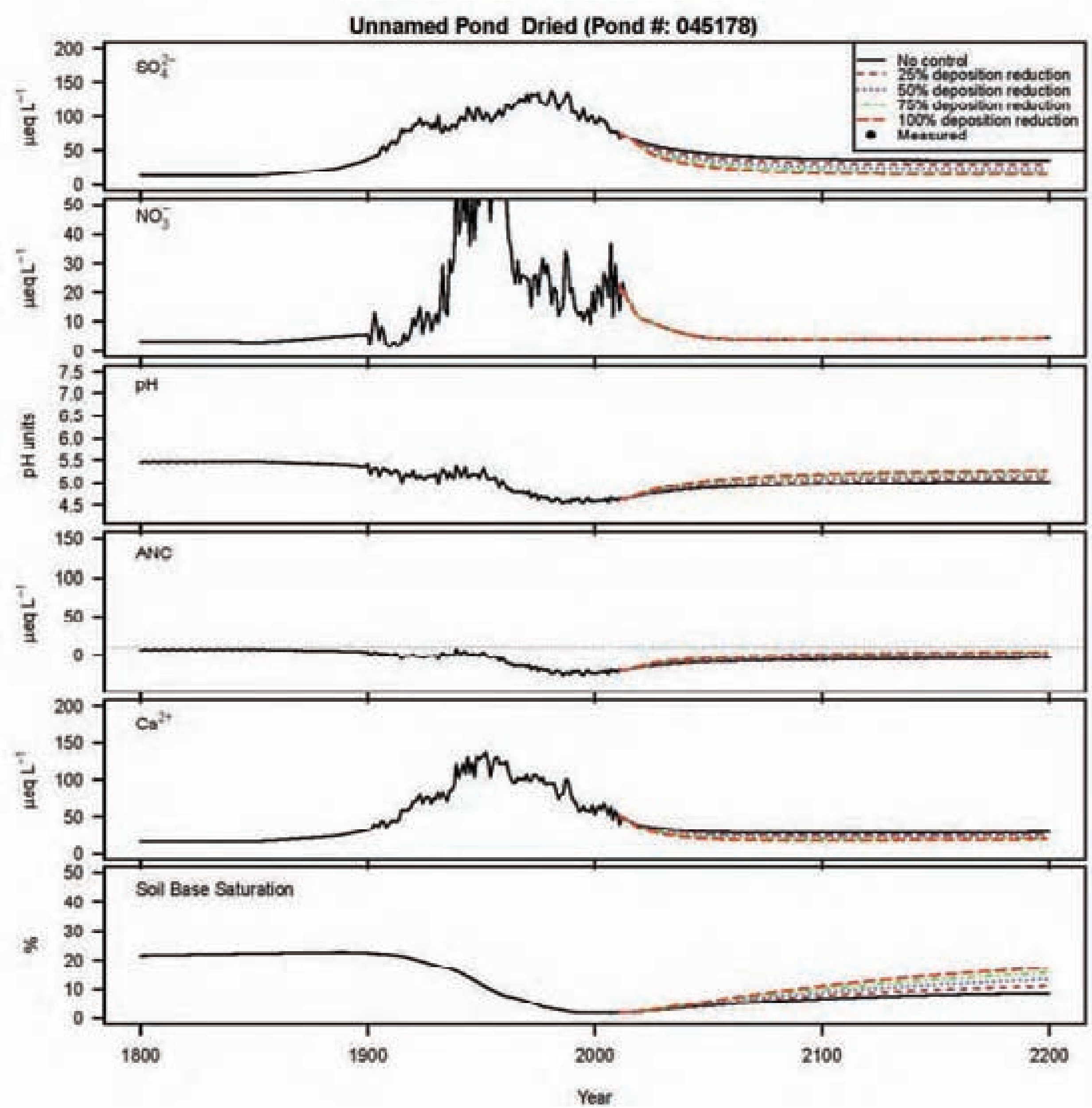

Burp Lake (Pond #: 040995)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
µeq L⁻¹
pH
pH units
ANC
µeq L⁻¹
Ca^{2+}
µeq L⁻¹
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200

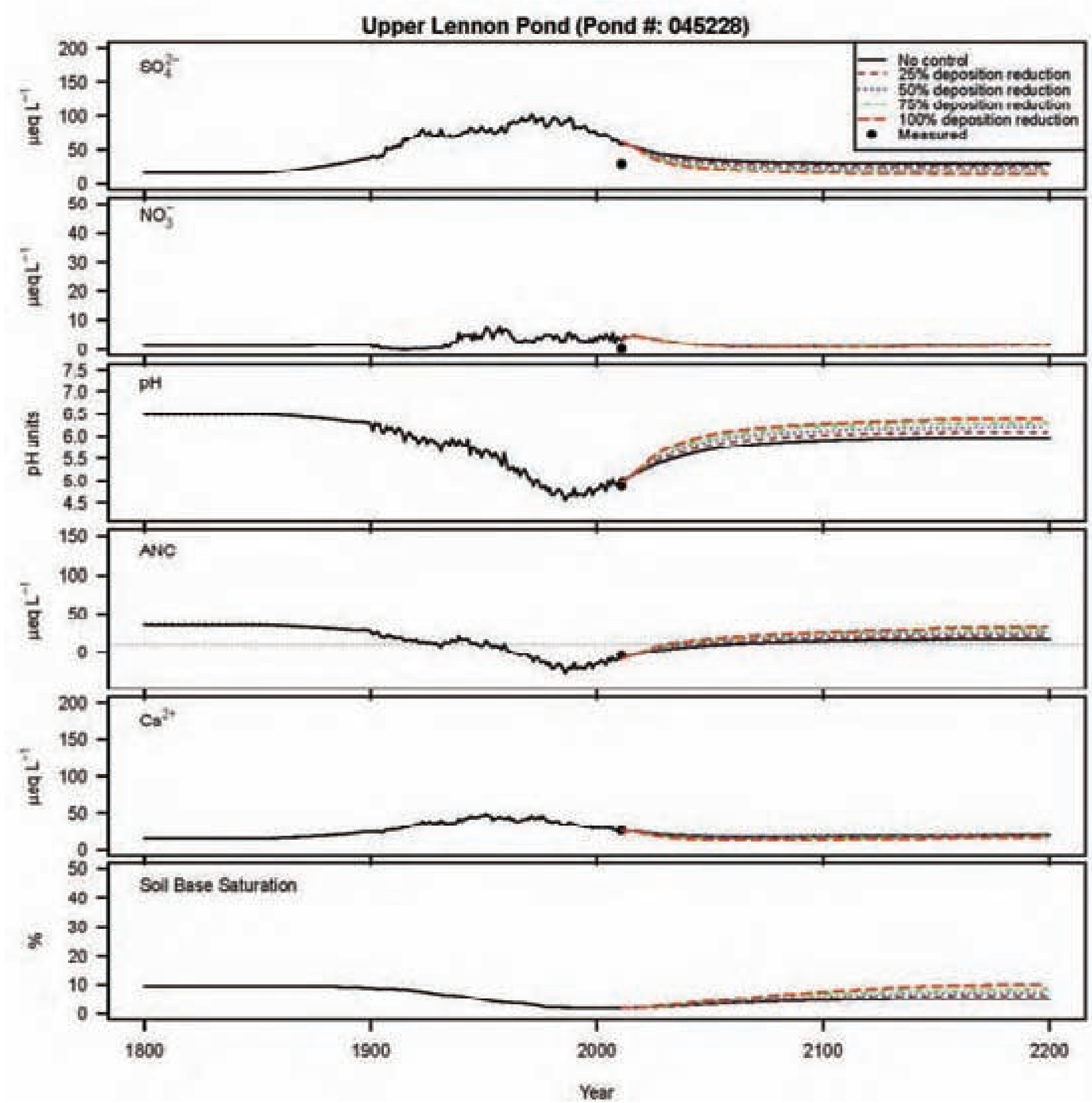


Little Salmon Lake (Pond #: 041003)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

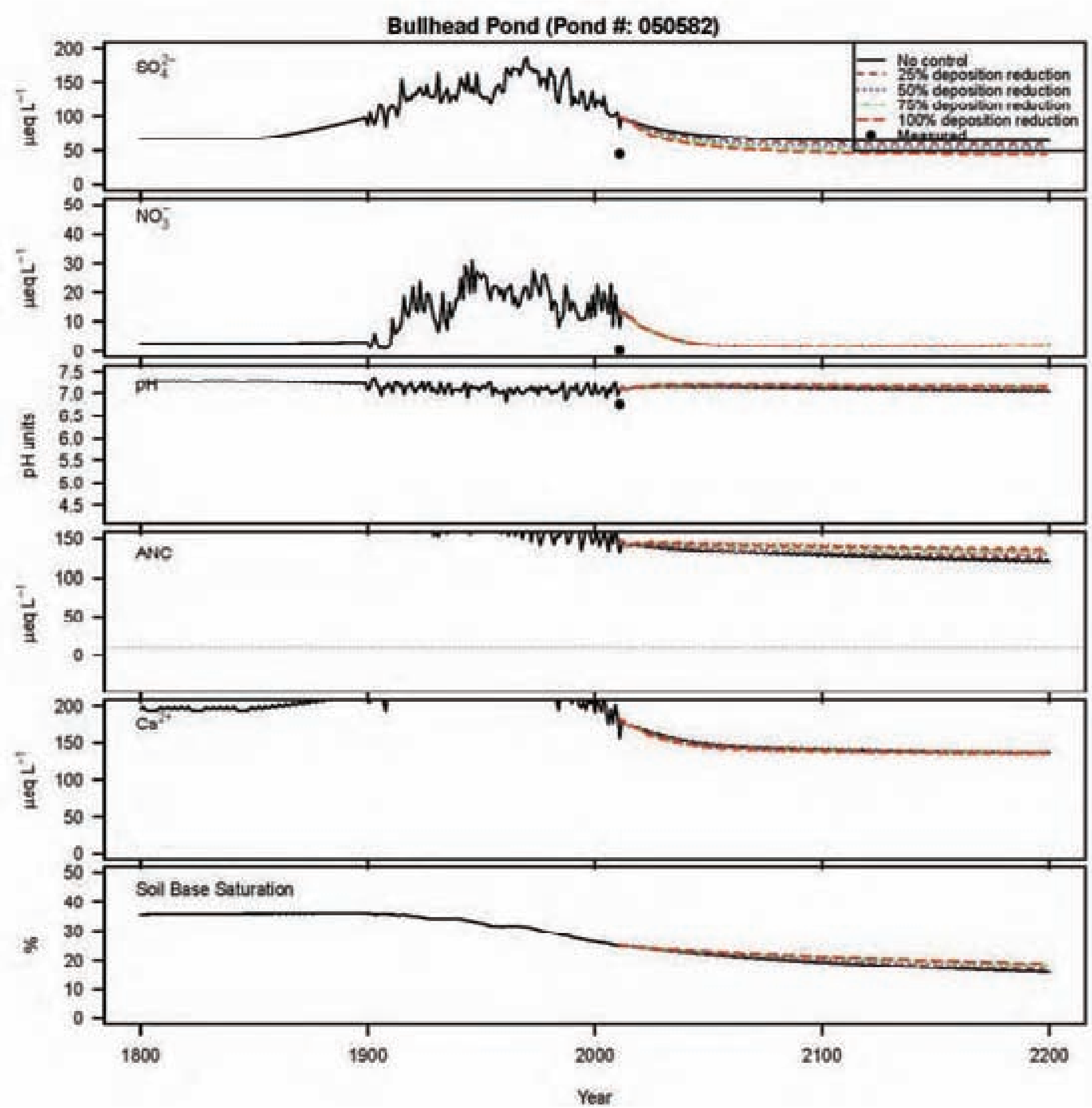


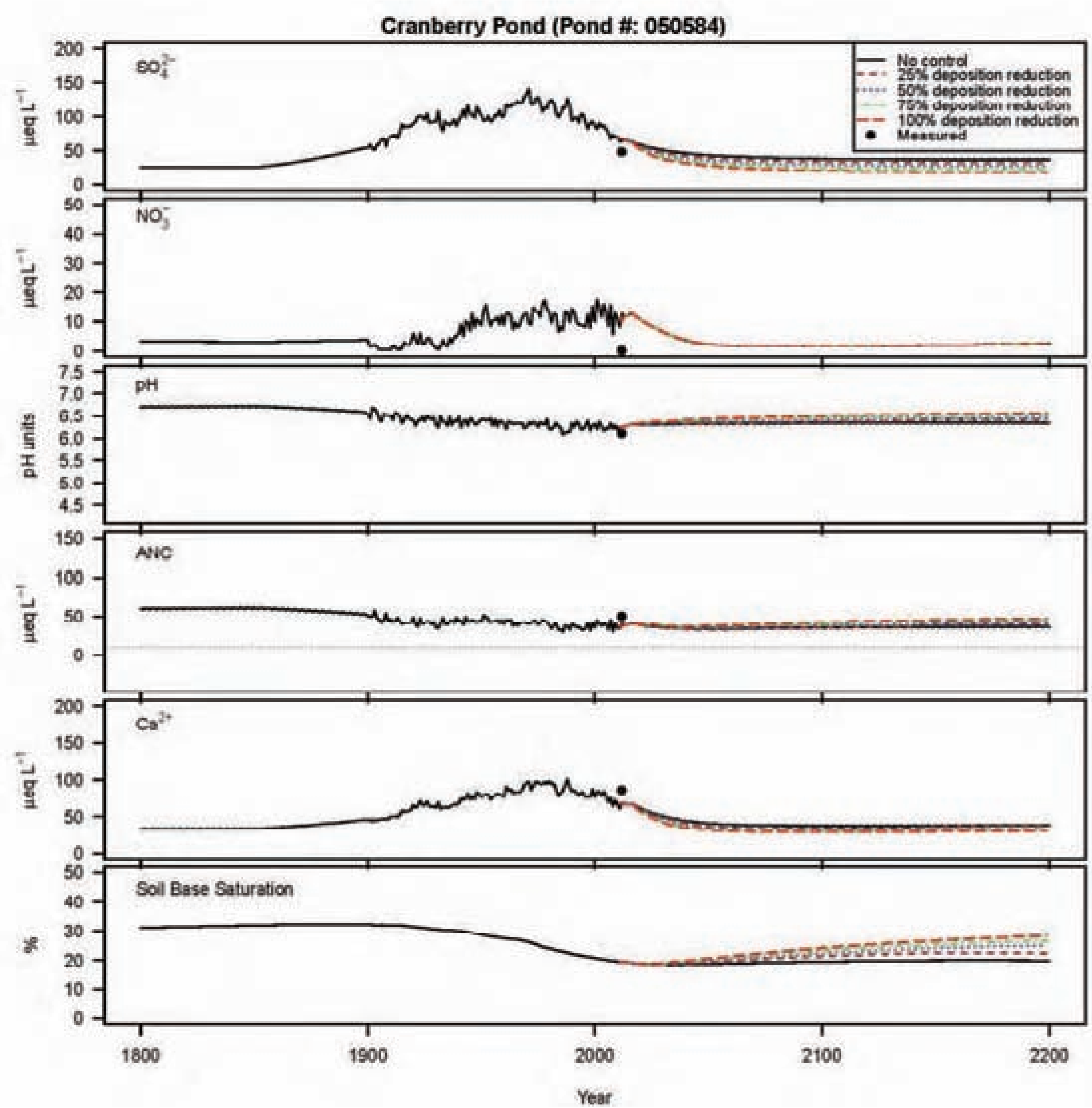
Snyder Lake (Pond #: 041011)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

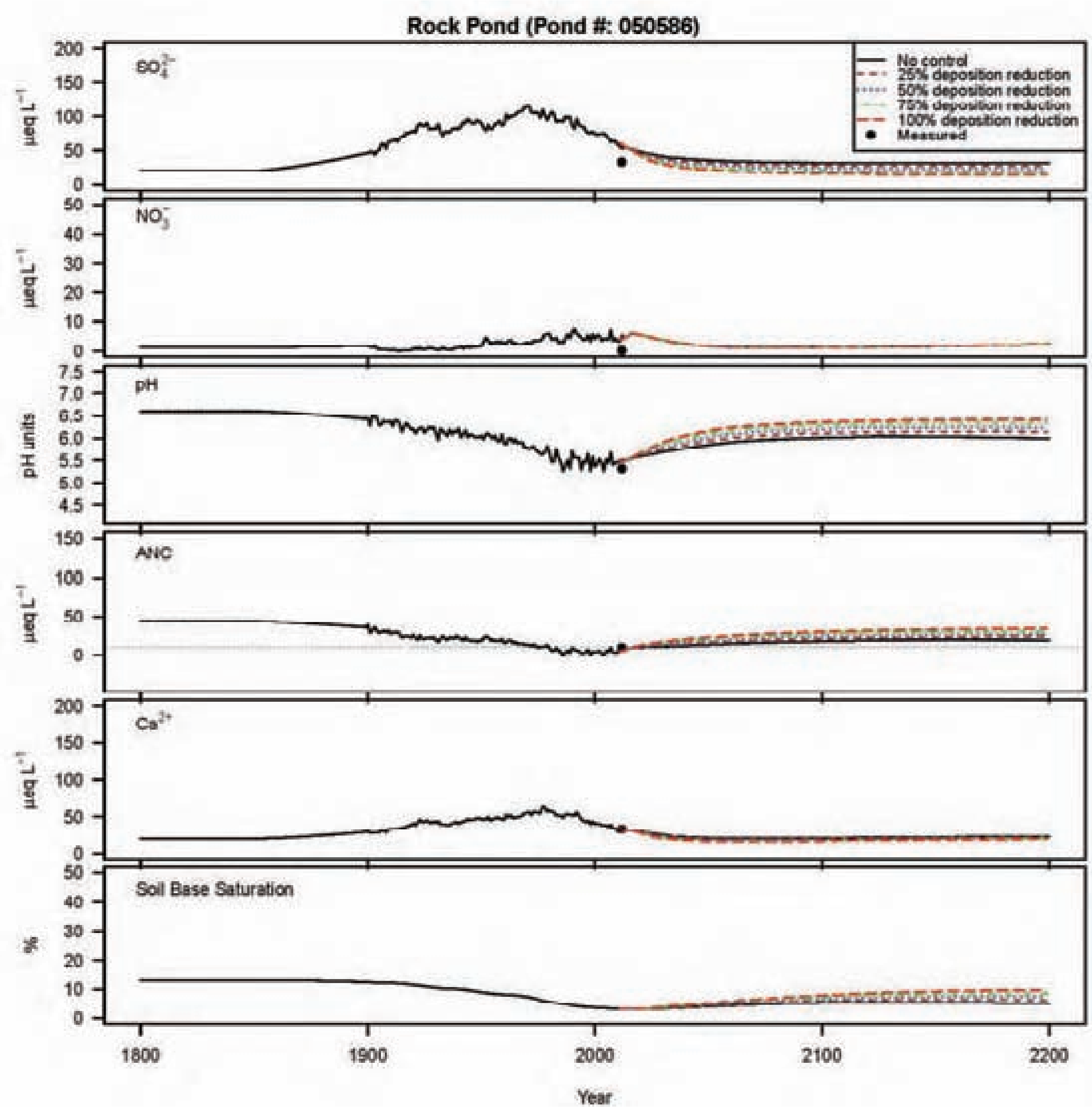

Unnamed Pond Dried (Pond #: 045178)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

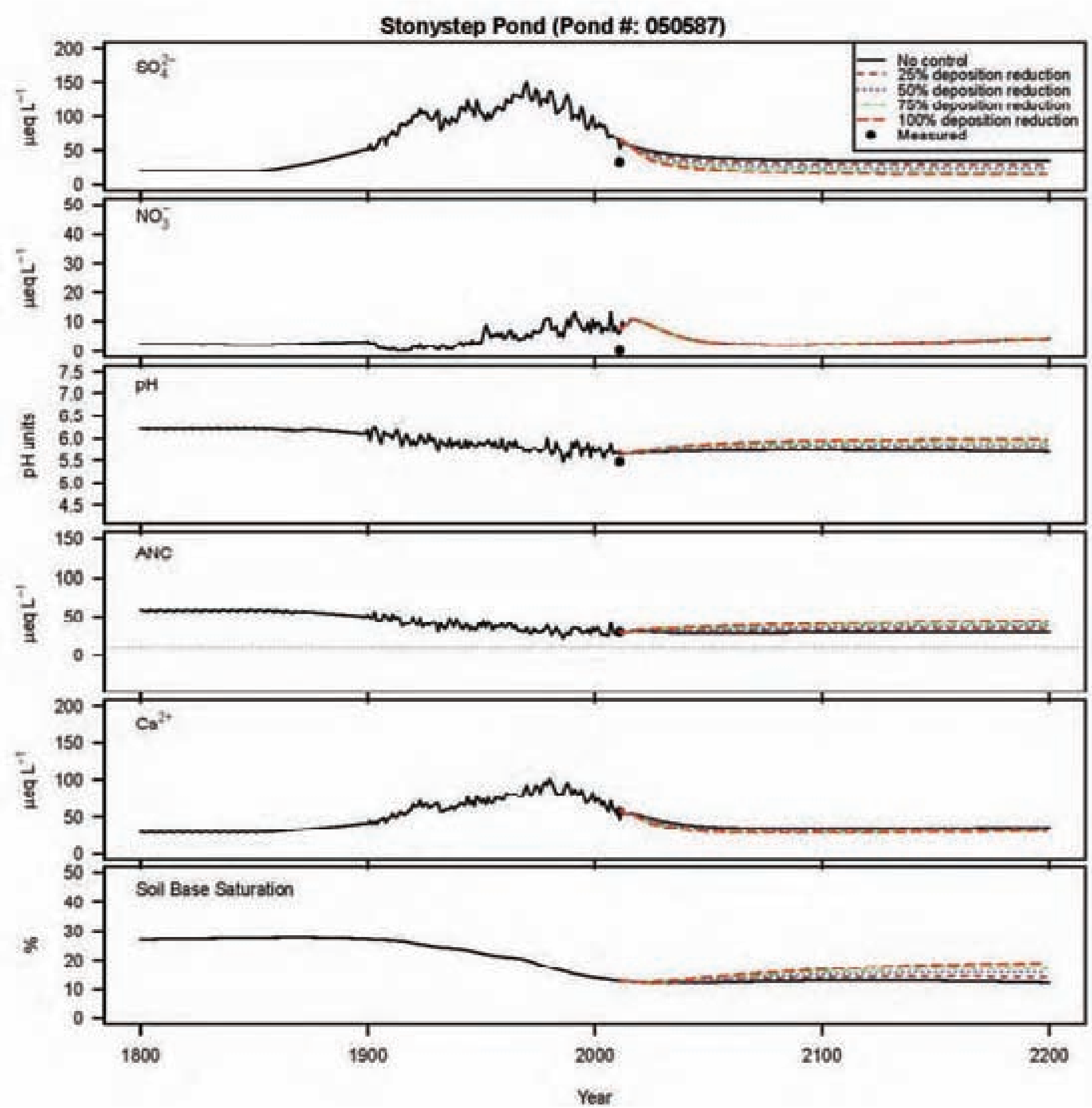


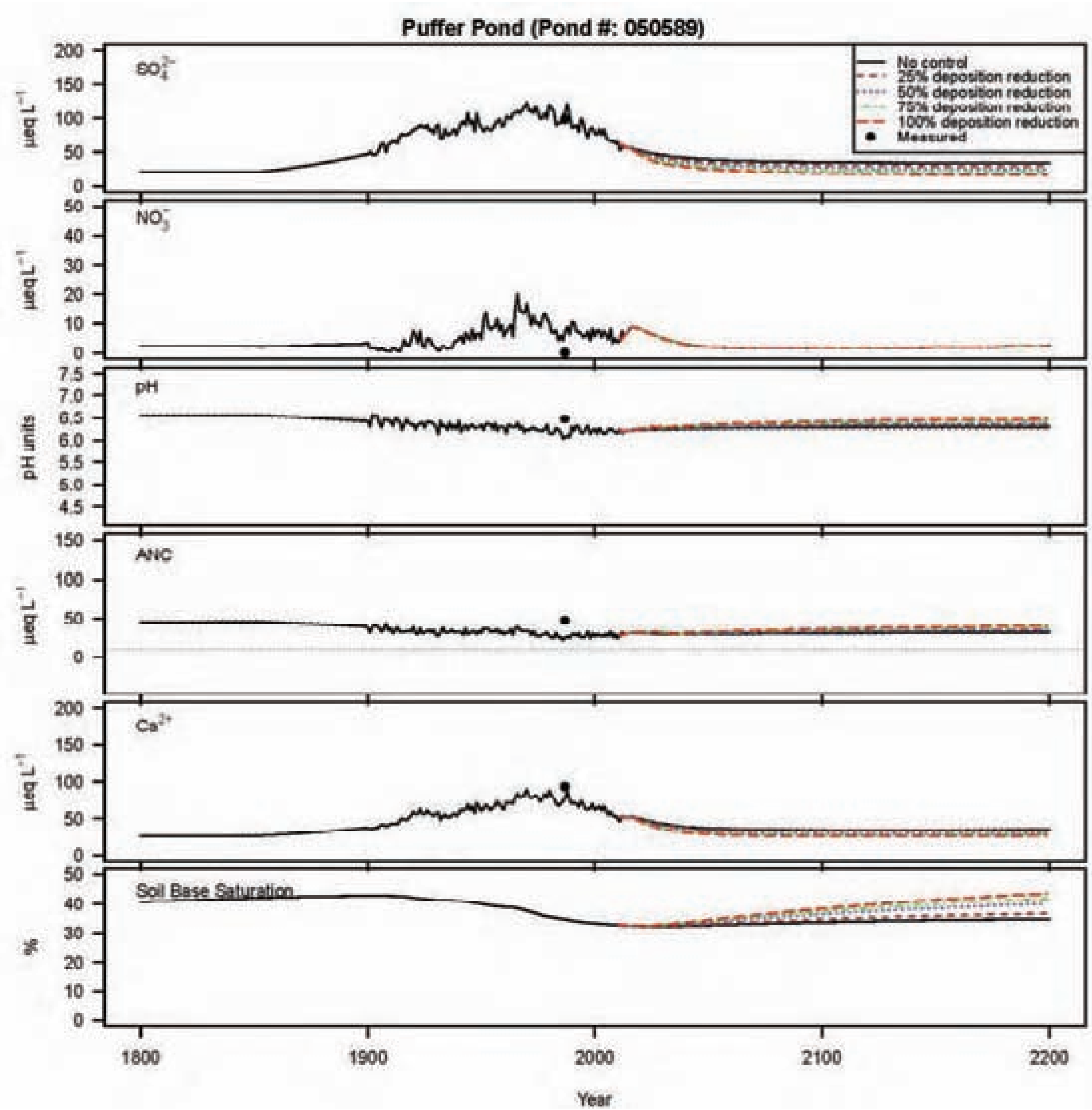
Upper Lennon Pond (Pond #: 045228)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year

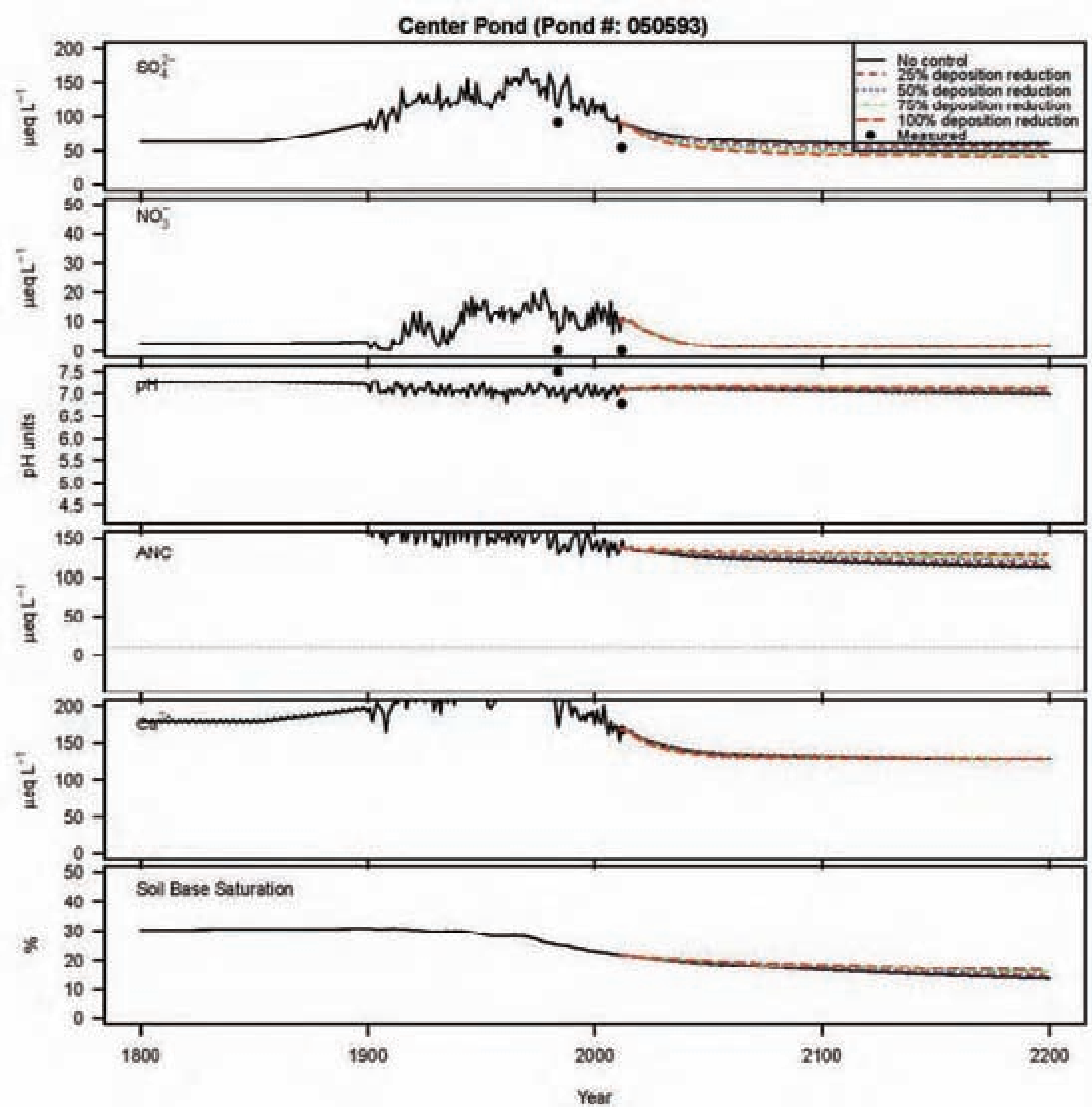

Bullhead Pond (Pond #: 050582)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

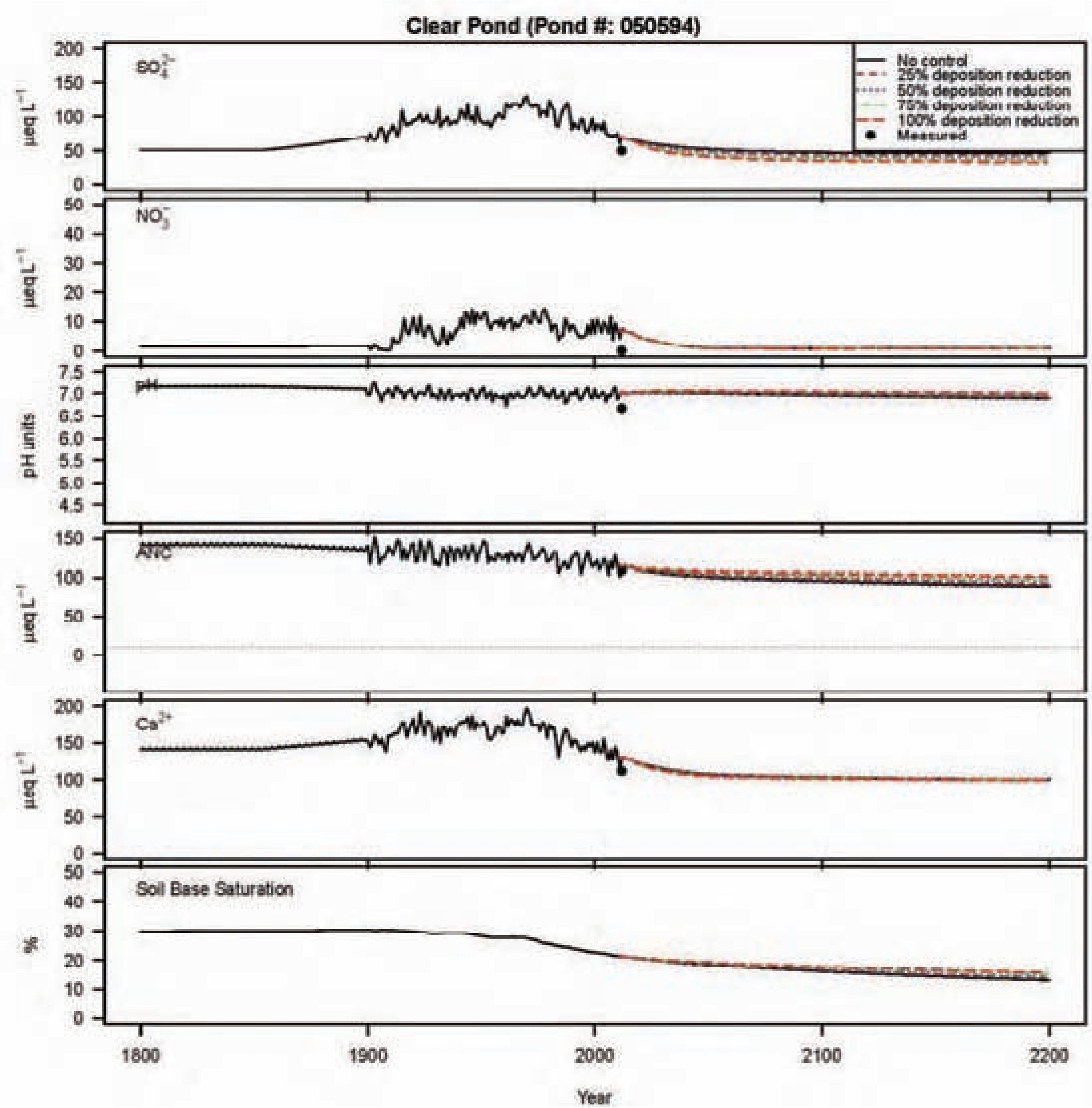

Cranberry Pond (Pond #: 050584)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

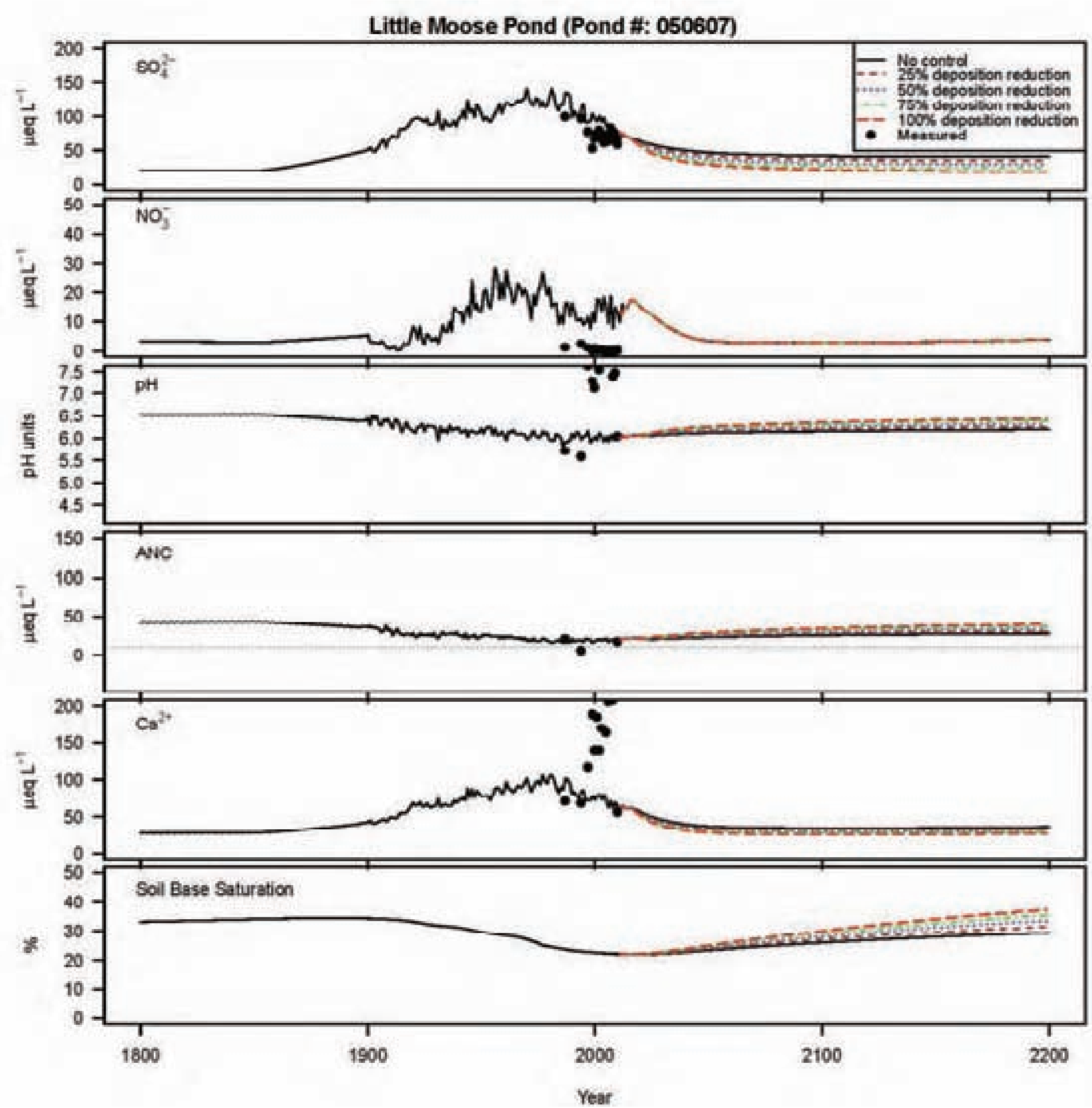

Rock Pond (Pond #: 050586)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

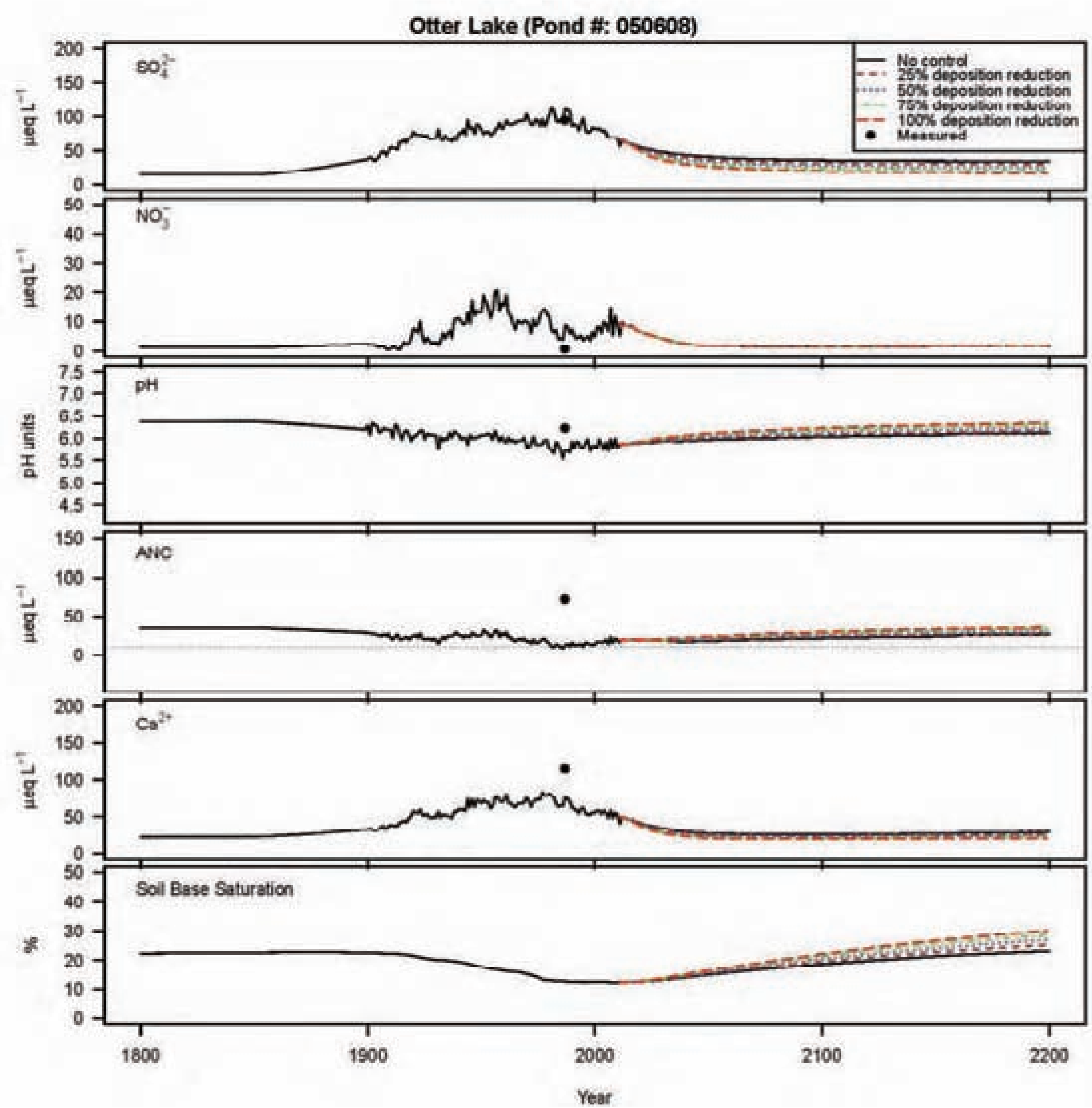

Stonystep Pond (Pond #: 050587)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L⁻¹
NO_3^-
µeq L⁻¹
pH
pH units
ANC
µeq L⁻¹
Ca^{2+}
µeq L⁻¹
Soil Base Saturation
%
1800
1900
2000
2100
2200
Year

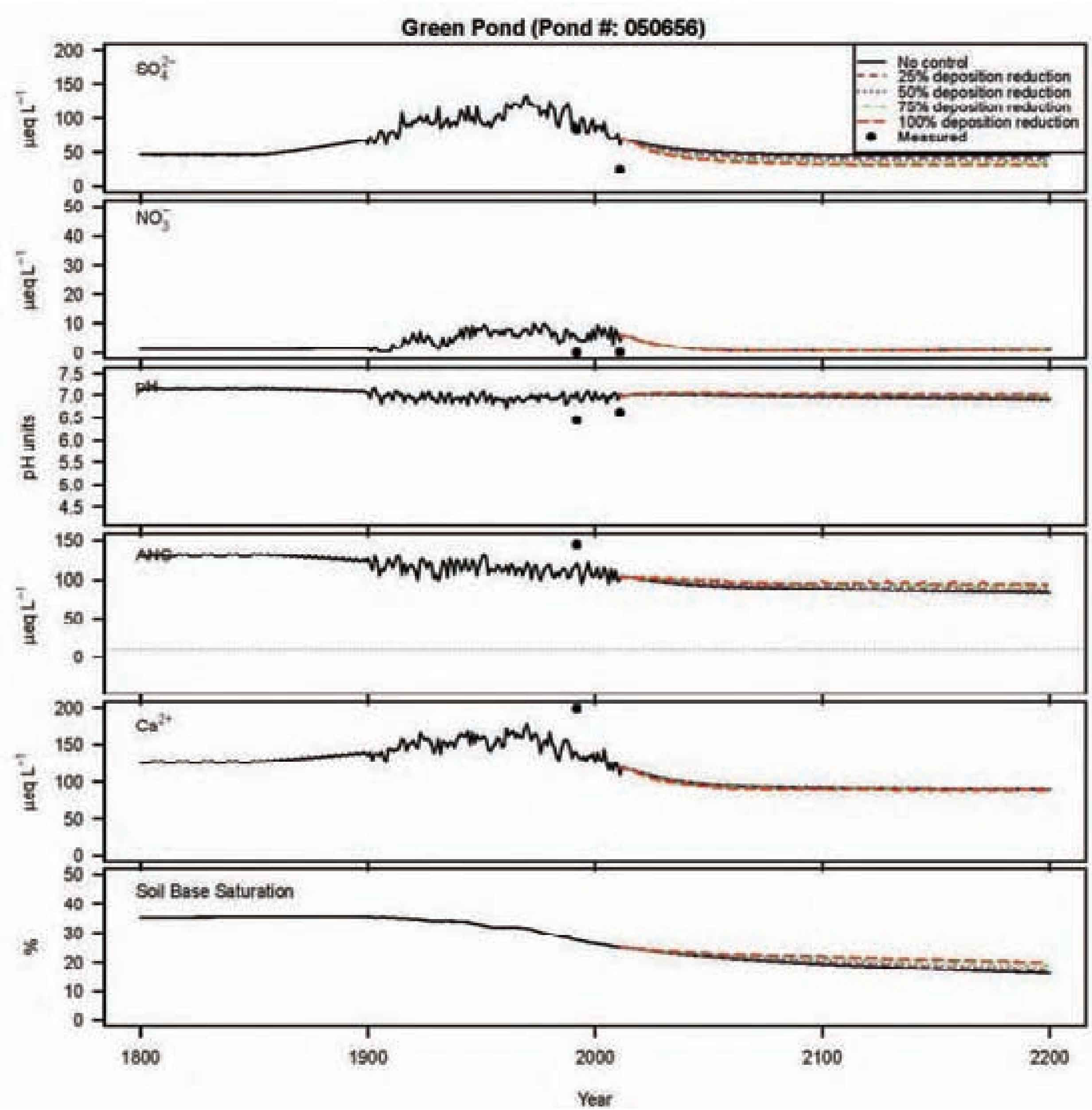

Puffer Pond (Pond #: 050589)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

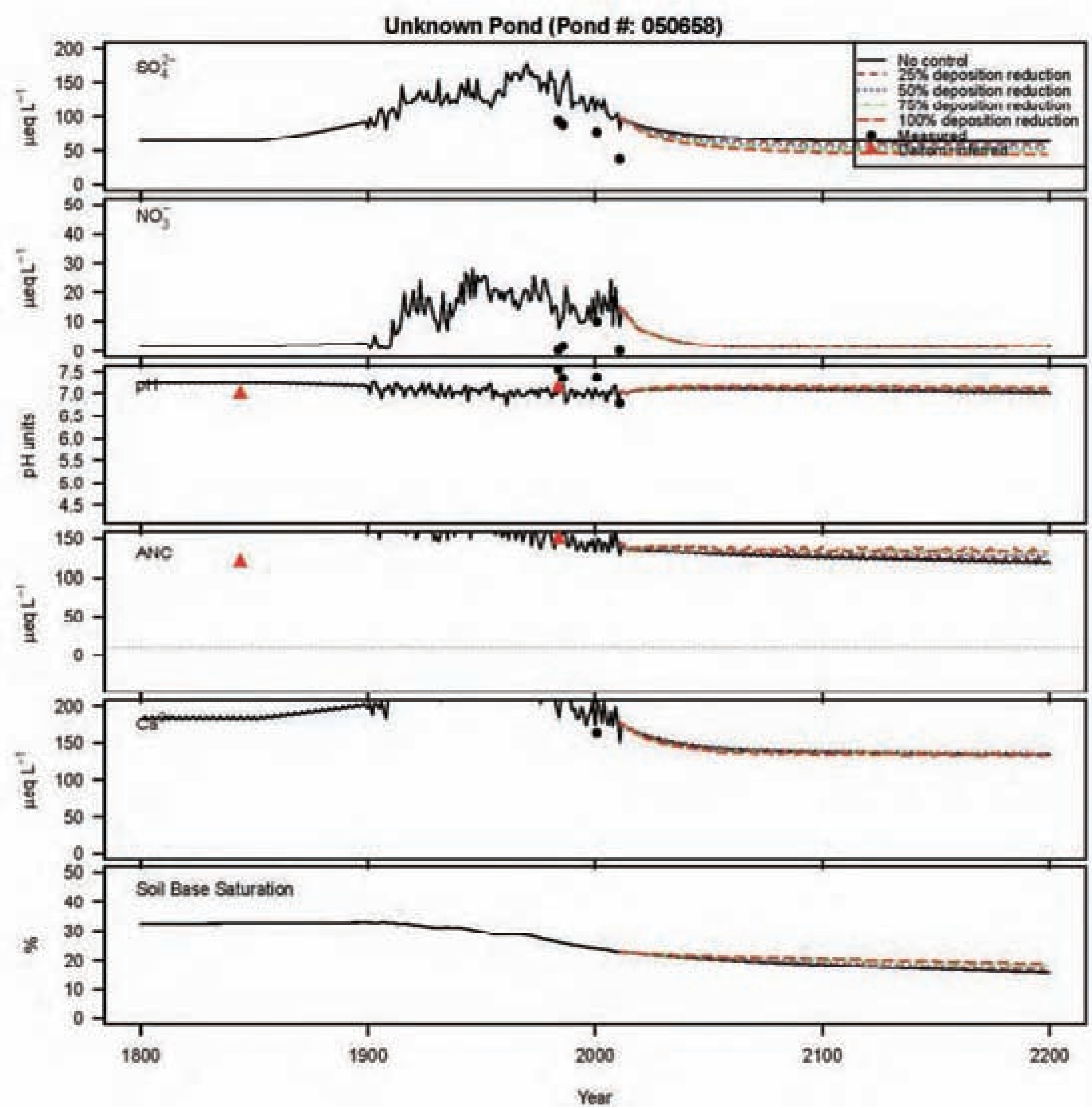

Center Pond (Pond #: 050593)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
µeq L^{-1}
NO_3^-
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200


Clear Pond (Pond #: 050594)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

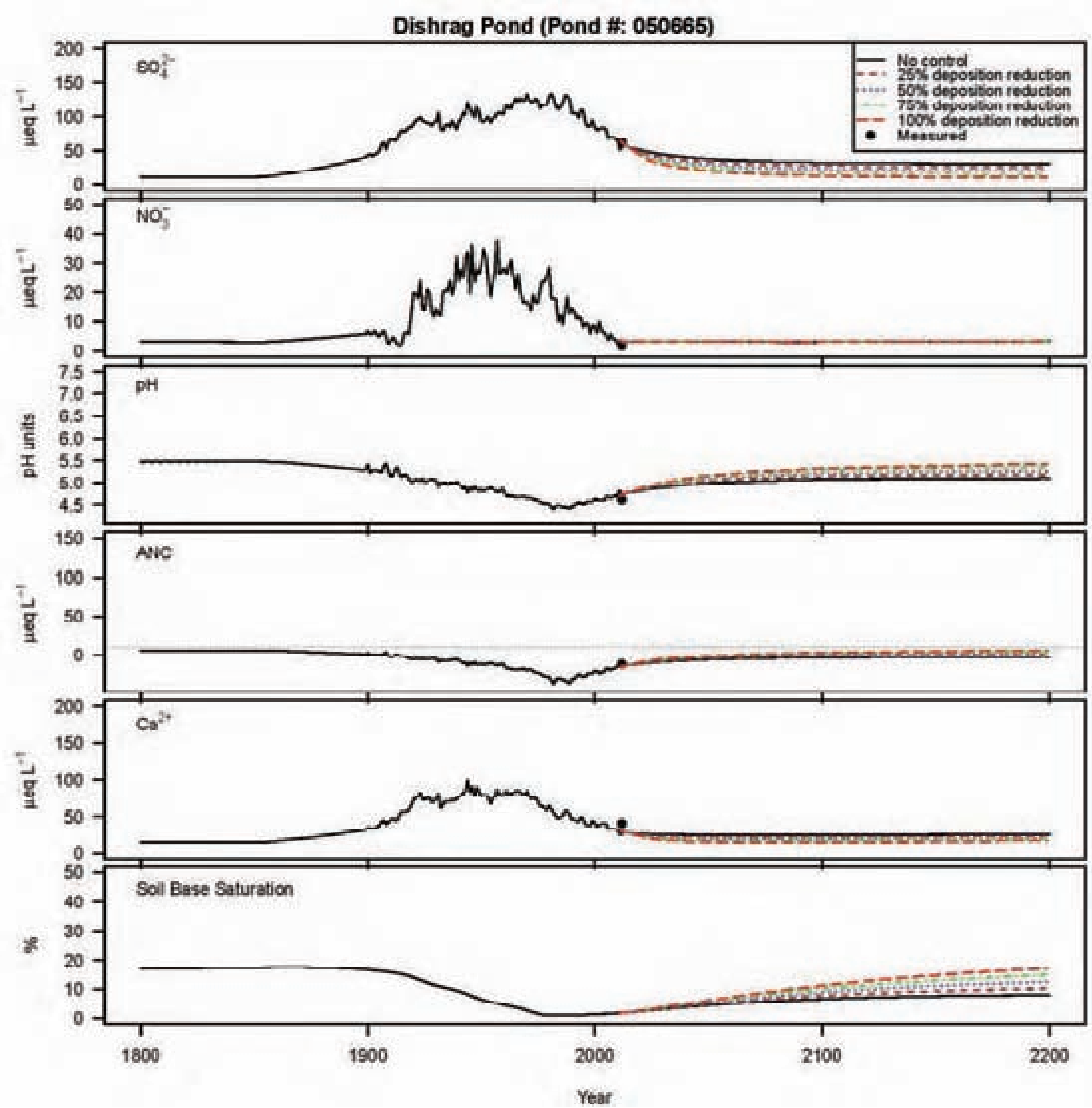

Little Moose Pond (Pond #: 050607)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

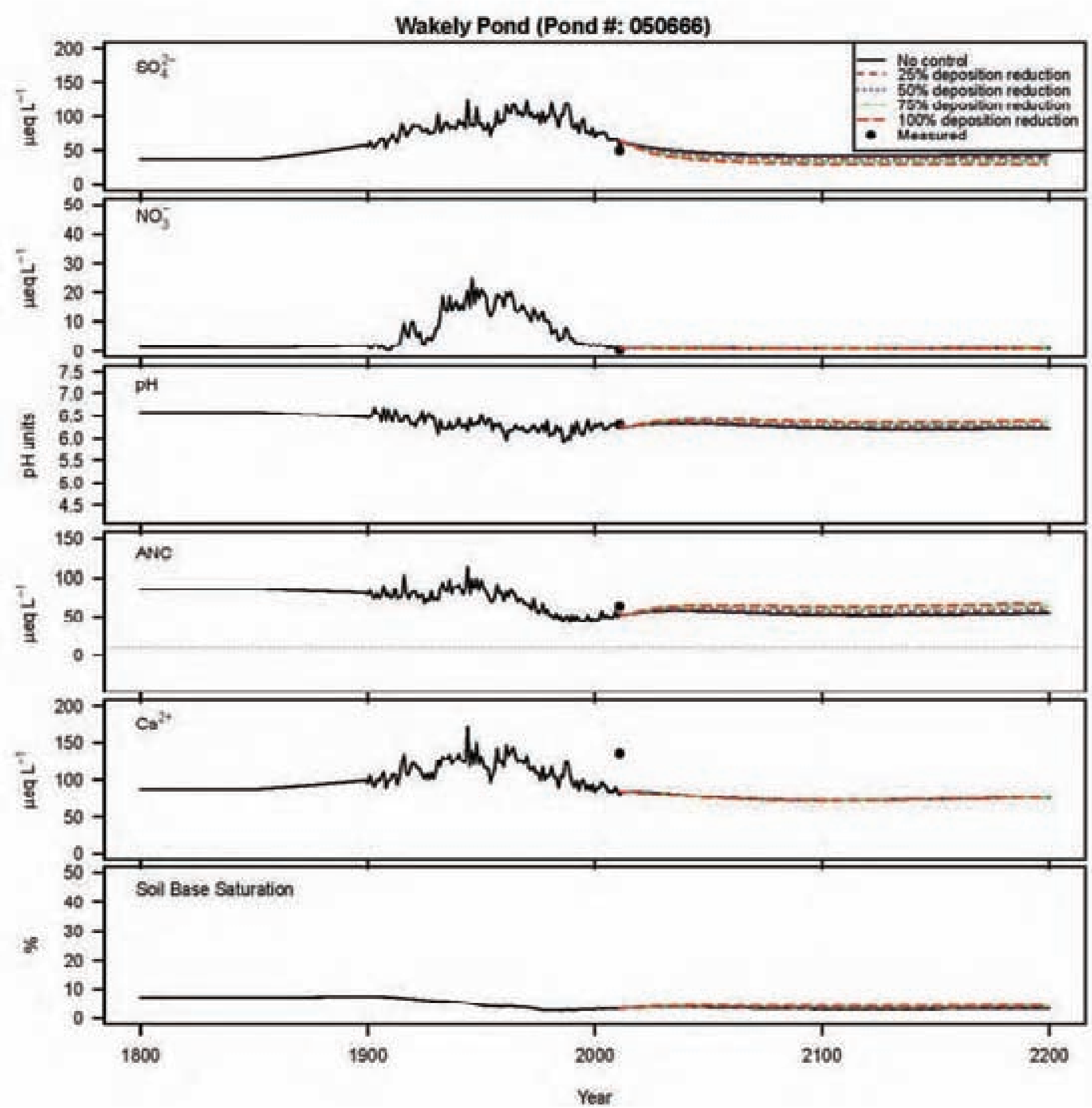

Otter Lake (Pond #: 050608)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
µeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

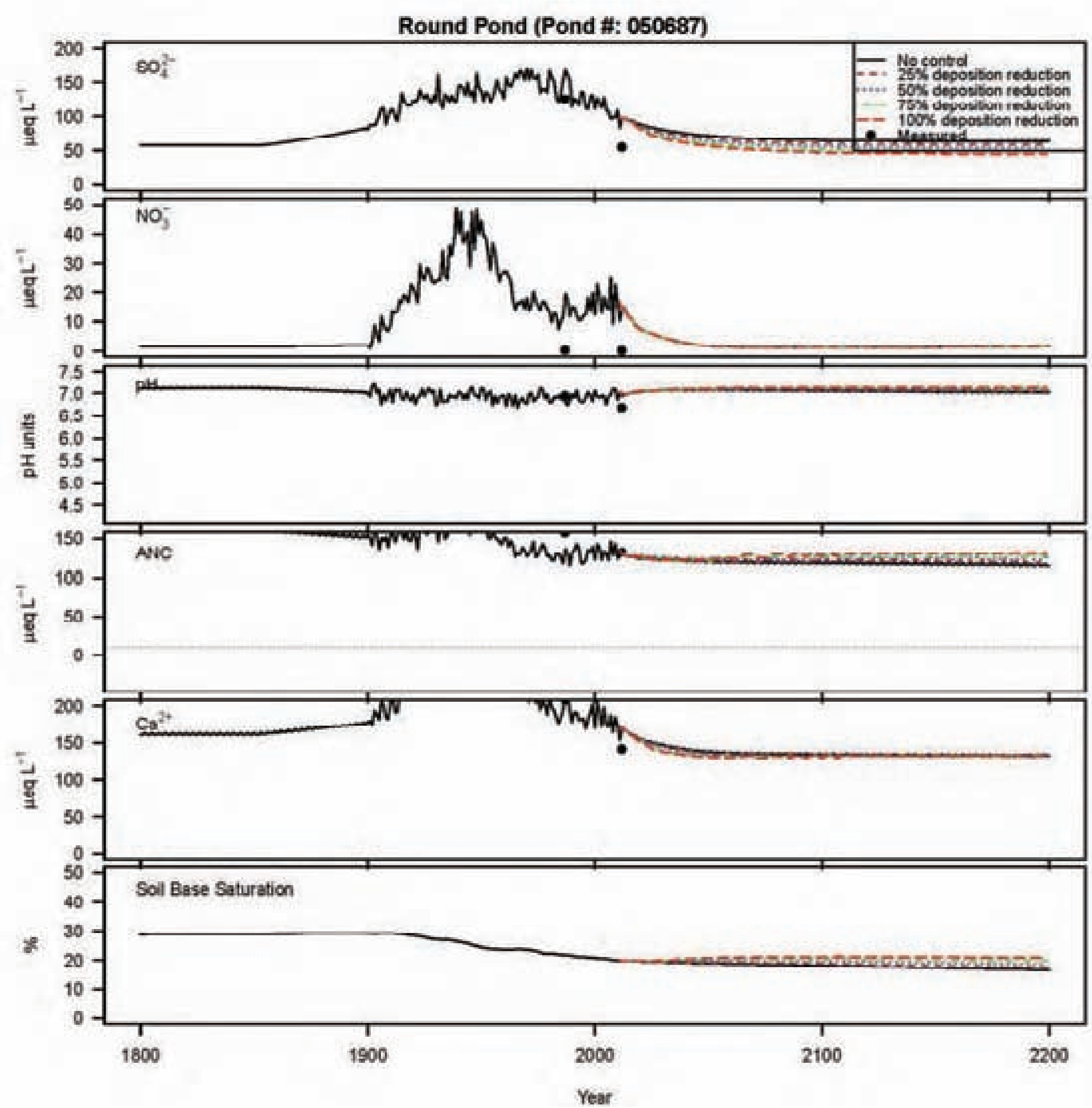

Green Pond (Pond #: 050656)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
μeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

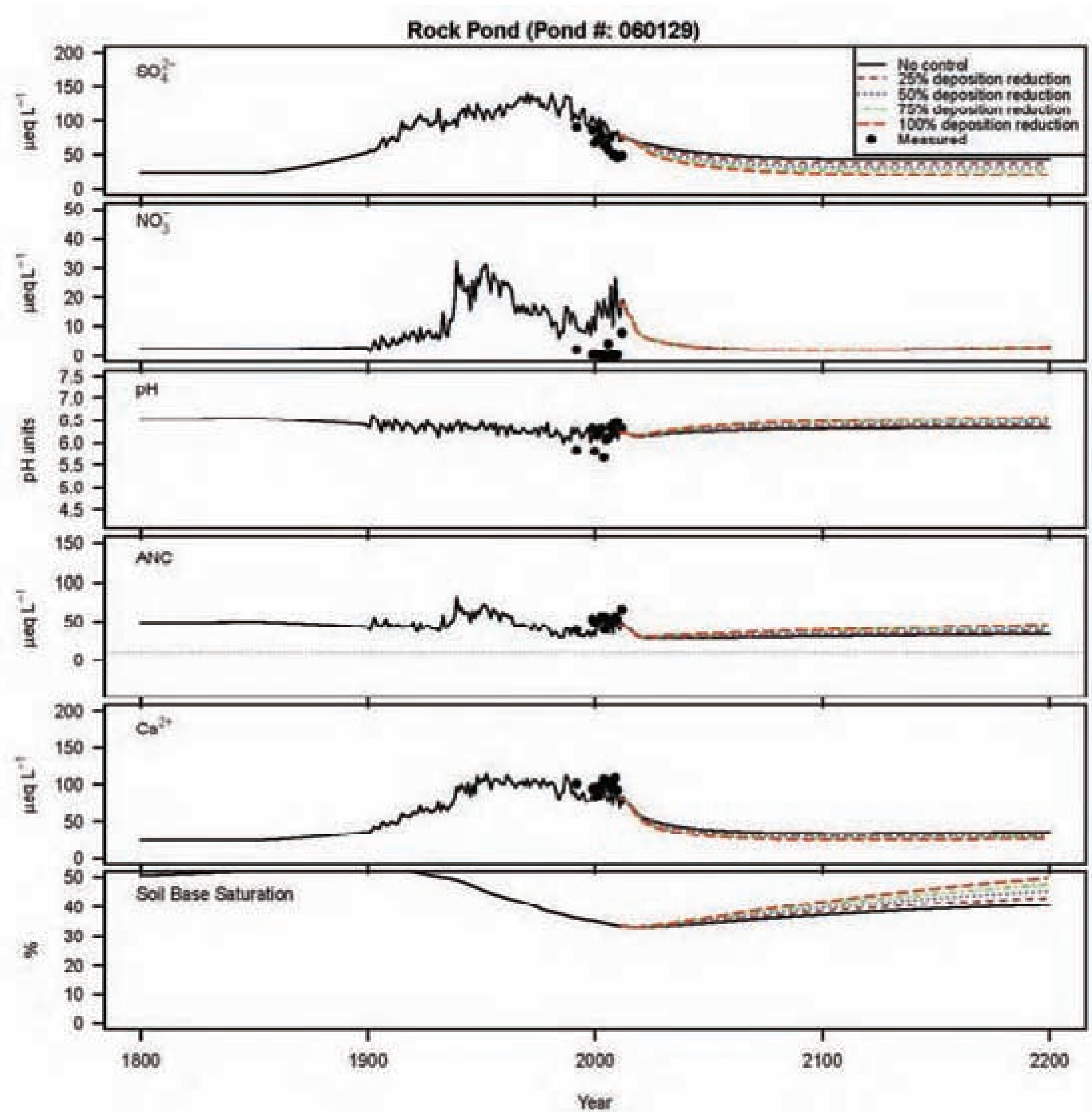


Unknown Pond (Pond #: 050658)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
Diatom inferred
SO_4^{2-}
NO_3^-
pH
ANC
C_B
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

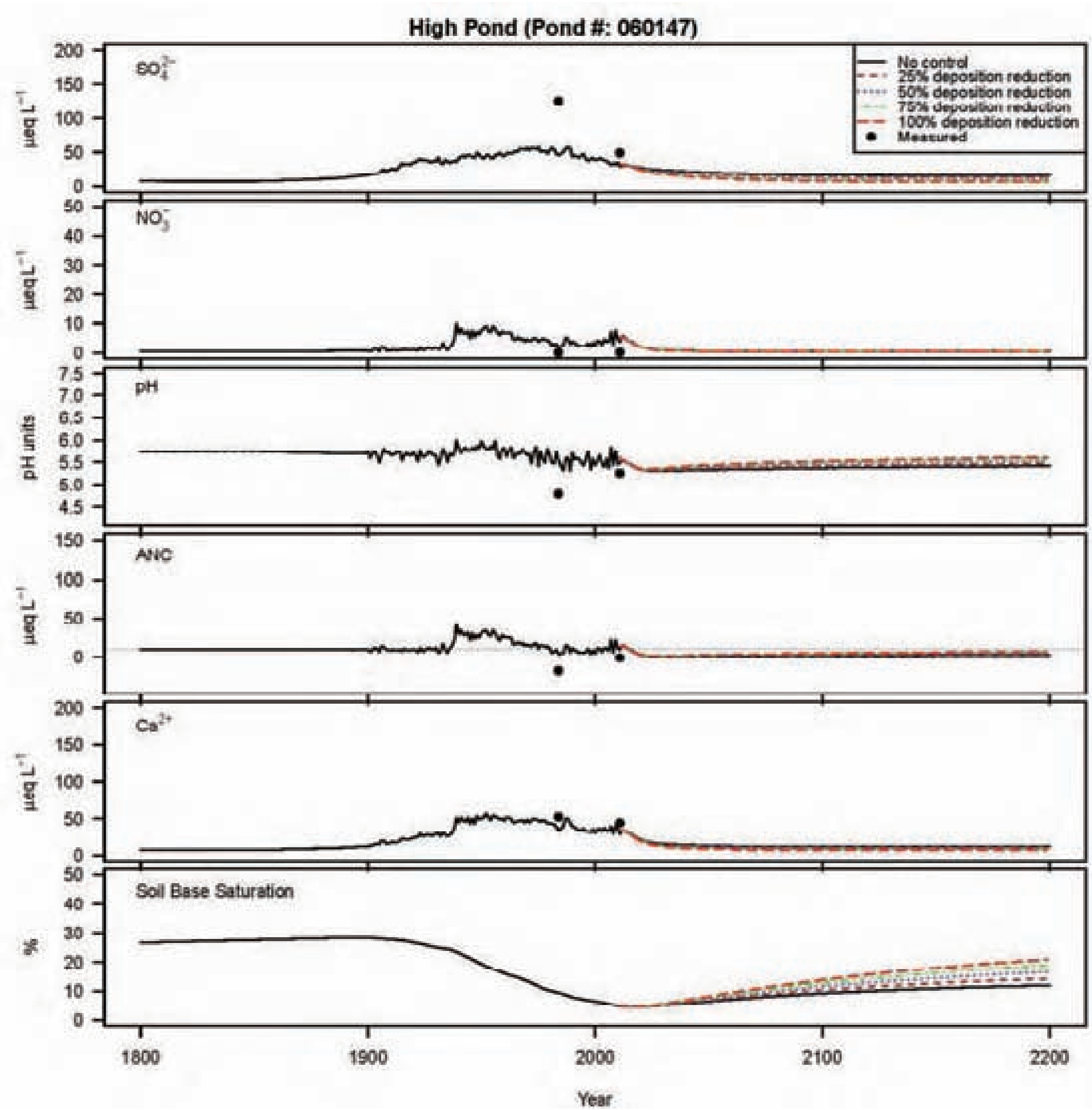

Dishrag Pond (Pond #: 050665)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Wakely Pond (Pond #: 050666)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

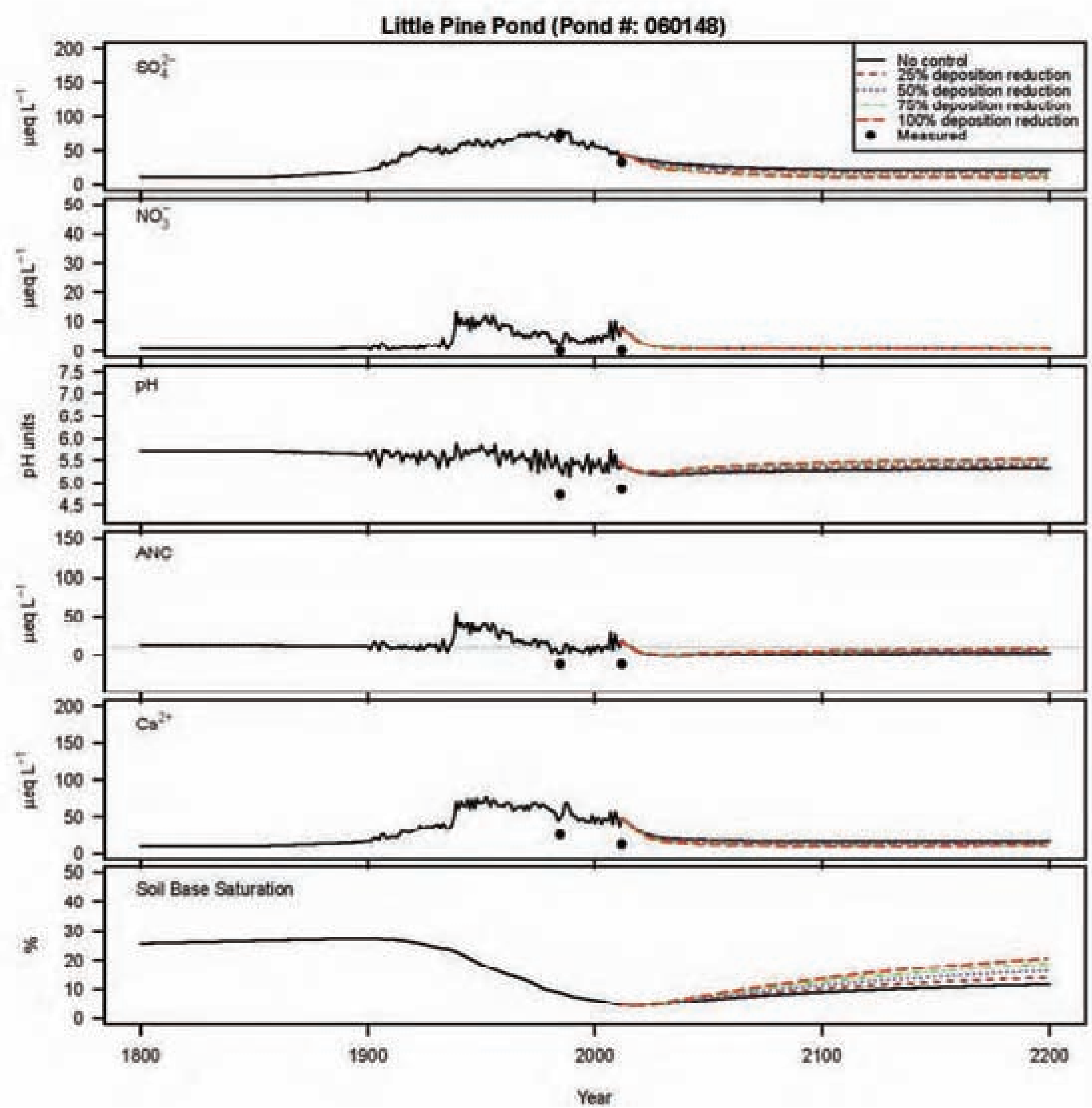

Round Pond (Pond #: 050687)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO42-
NO3-
pH
ANC
Ca2+
Soil Base Saturation
μeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

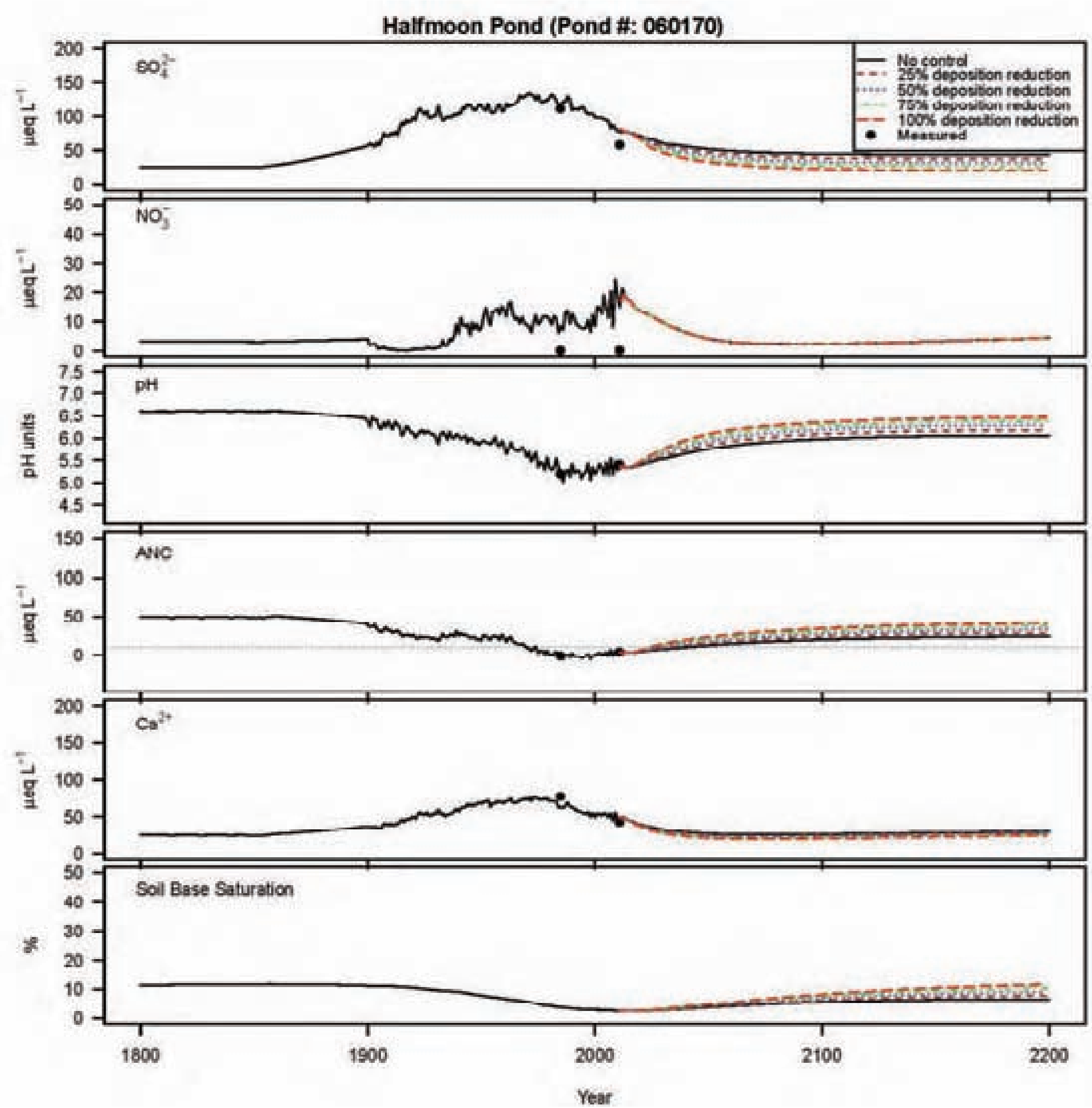


Rock Pond (Pond #: 060129)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO4 2-
NO3 -
pH
ANC
Ca 2+
Soil Base Saturation
μeq L-1
pH units
%
Year
1800
1900
2000
2100
2200

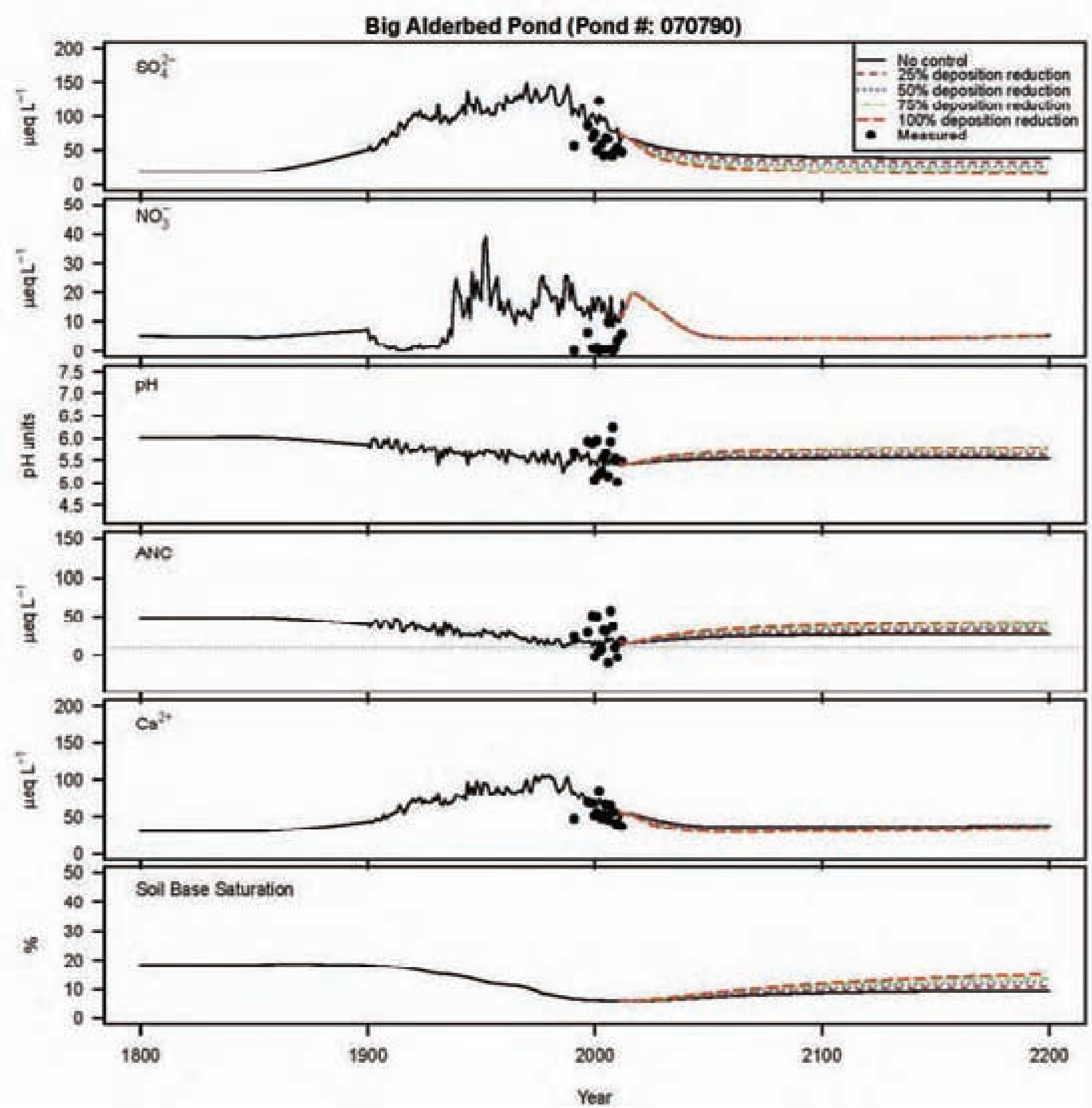


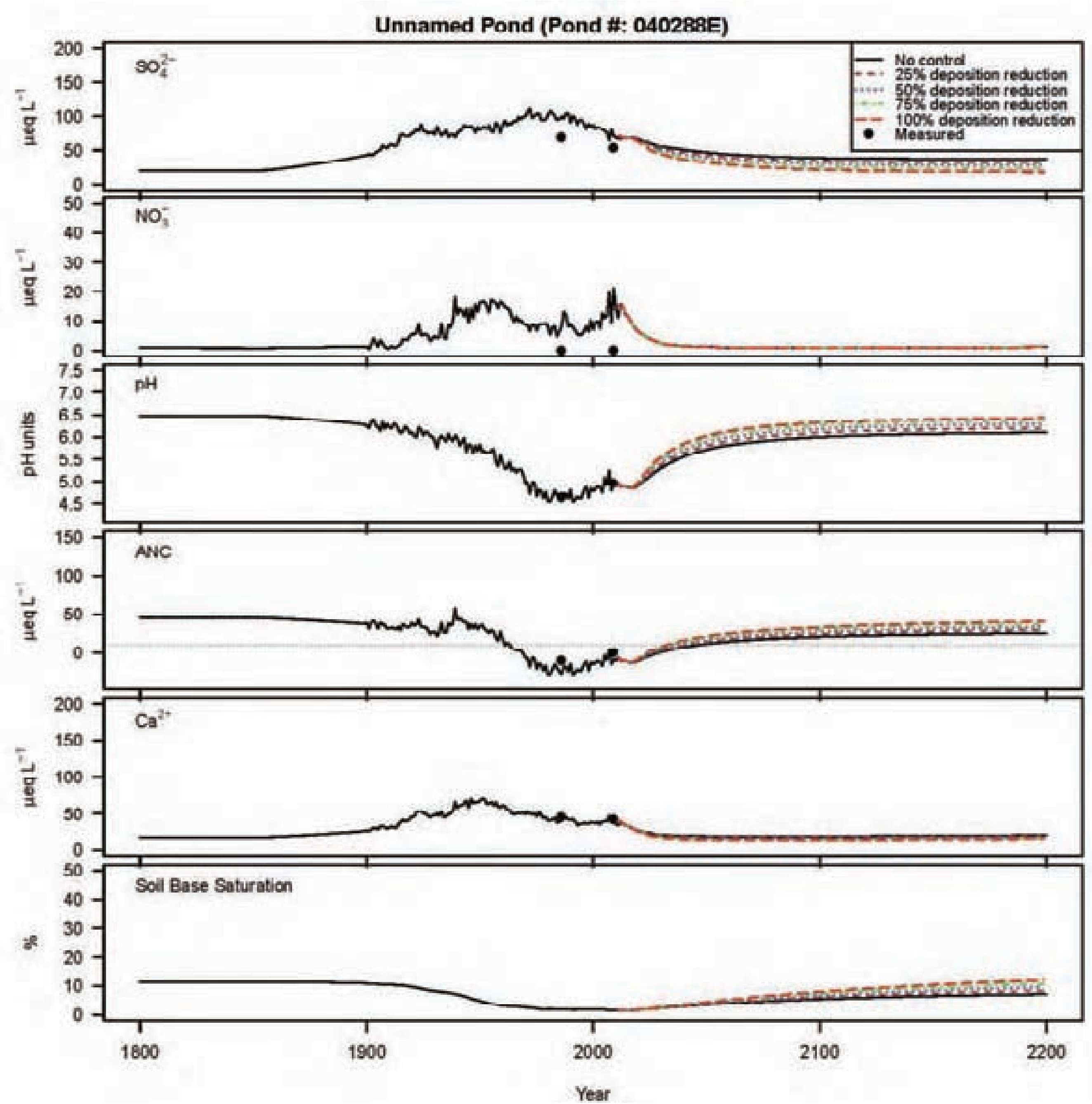
High Pond (Pond #: 060147)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200


Little Pine Pond (Pond #: 060148)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

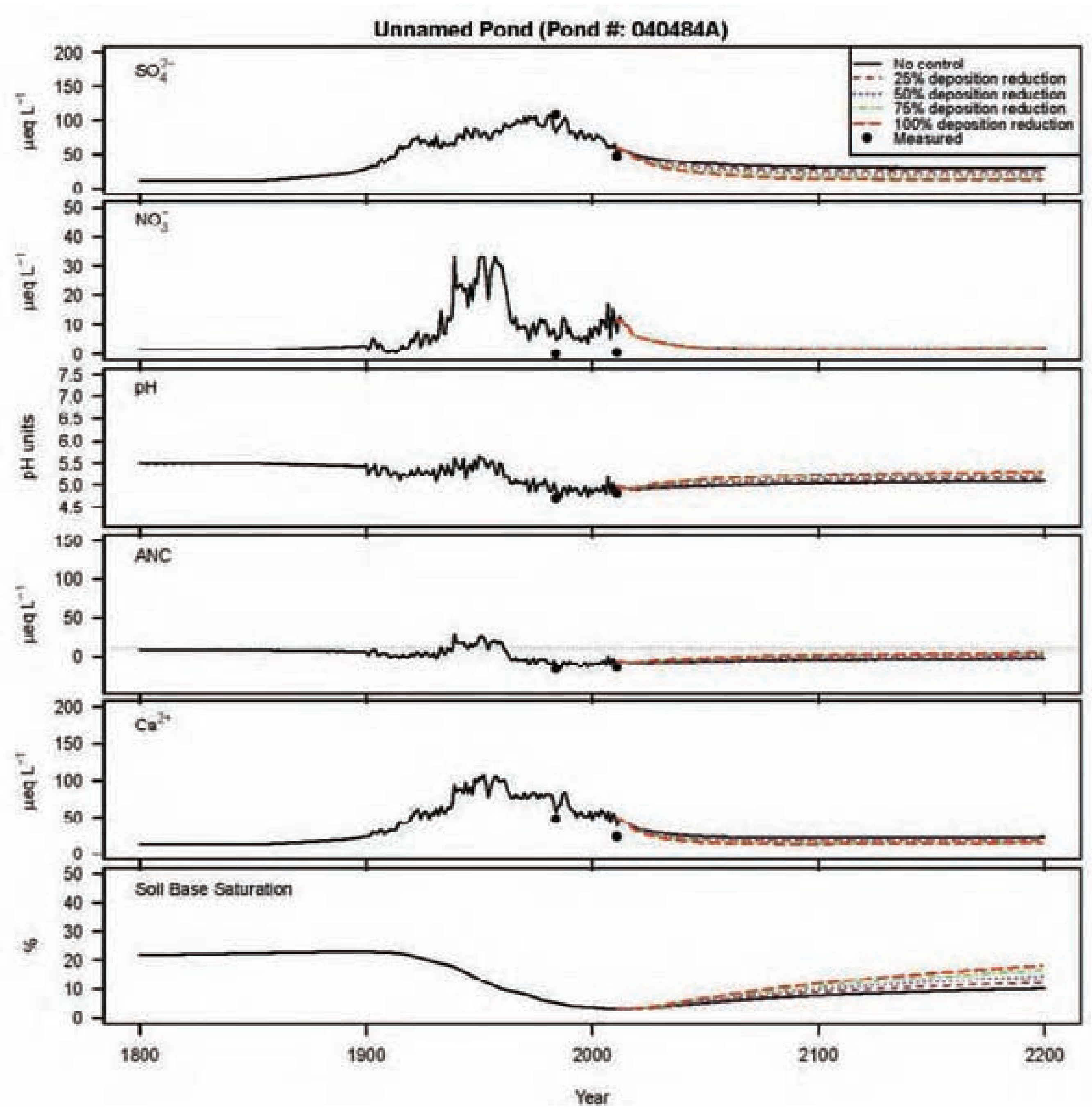


Halfmoon Pond (Pond #: 060170)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

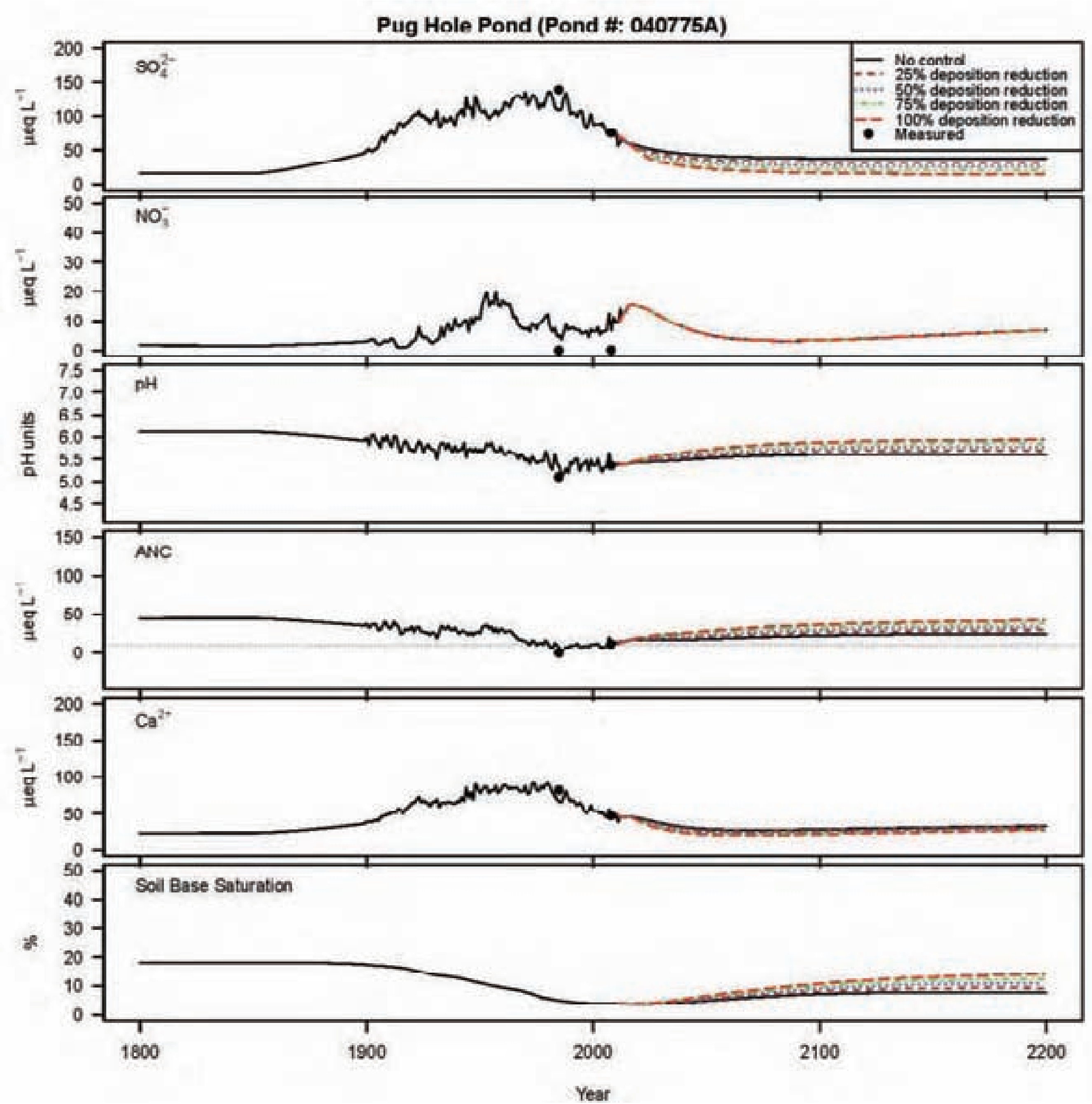

Big Alderbed Pond (Pond #: 070790)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200

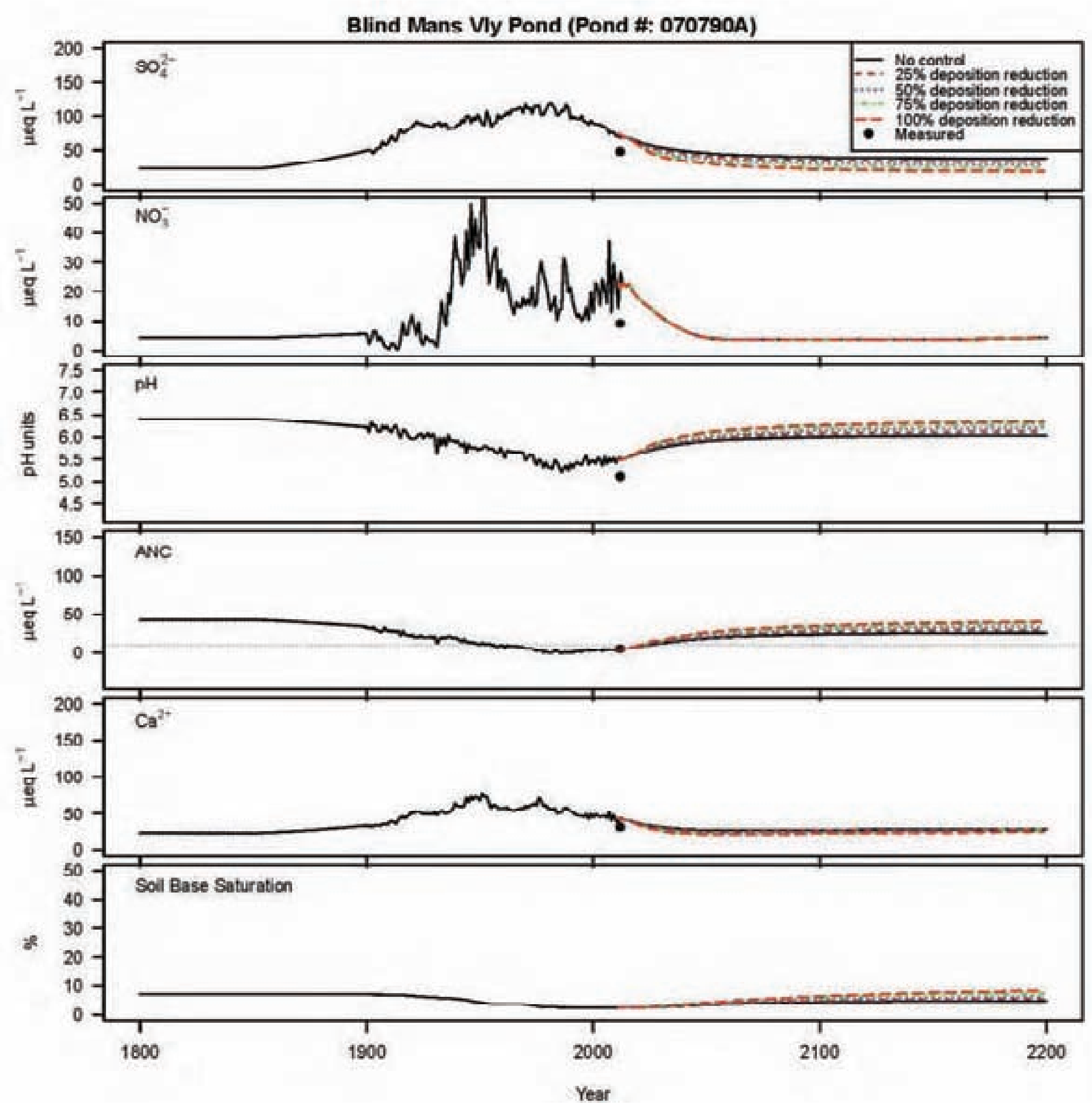


Unnamed Pond (Pond #: 040288E)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO_4^{2-}
NO_3^-
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L⁻¹
pH units
%
Year
1800
1900
2000
2100
2200



Unnamed Pond (Pond #: 040484A)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
µeq L^{-1}
NO$_3^-$
pH
pH units
ANC
Ca^{2+}
Soil Base Saturation
%
Year
1800
1900
2000
2100
2200


Pug Hole Pond (Pond #: 040775A)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200



Blind Mans Vly Pond (Pond #: 070790A)
No control
25% deposition reduction
50% deposition reduction
75% deposition reduction
100% deposition reduction
Measured
SO$_4^{2-}$
NO$_3^-$
pH
ANC
Ca^{2+}
Soil Base Saturation
µeq L^{-1}
pH units
%
Year
1800
1900
2000
2100
2200

Appendix 4
Model predicted ANC values in years 2050 and 2200 in response to scenarios involving reductions in atmospheric deposition of SO_4^{2-}, NO_3^-+NH_4^+ and combined SO_4^{2-} plus NO_3^-+NH_4^+

Model predicted ANC values in years 2050 and 2200 in response to scenarios involving reductions in atmospheric deposition of SO_4^{2-}, NO_3^-+NH_4^+ and combined SO_4^{2-} plus NO_3^-+NH_4^+.

ANC corresponding to the year 2050 are shown in pages A4-1 to A4-5

ANC corresponding to the year 2200 are shown in pages A4-6 to A4-10

ANC (μeq/L) in 2050 Corresponding to Percent Reduction in Atmospheric SO4, NO3 and NH4 Loadings

Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
020138	East Copperas Pond	-10	-9.4	-8.6	-7.7	-7.1	-6.5	-5.7	-4.9	-4.4	-10	-9.5	-10	-8.9	-11	-8.3	-11	-7.9	-11	-7.4	-11	-6.9	-11	-6.3	-11	-6
020201	St. Germain Pond	-4.1	-3.7	-3.1	-2.7	-2.4	-2	-1.4	-0.9	-0.5	-4.3	-3.8	-4.5	-3.6	-4.8	-3.4	-4.9	-3.2	-5	-3	-5.2	-2.6	-5.3	-2.3	-5.5	-2
030221	Benz Pond	-3.7	-3.2	-2.3	-1.7	-1.1	-0.7	0	0.7	1.1	-3.9	-3.4	-4.2	-3	-4.5	-2.6	-4.7	-2.3	-4.9	-2.1	-5.1	-1.8	-5.4	-1.5	-5.7	-1.2
035219	Duck Pond	14	15	16	17	18	19	20	21	21	14	15	14	16	14	17	14	18	14	18	14	19	14	20	14	21
040181	Gregg Lake	19	20	22	21	22	23	25	26	27	19	20	19	21	18	21	19	22	19	23	19	25	19	26	19	27
040184	Green Pond	-7.9	-7.1	-6.2	-5.4	-4.8	-4.3	-3.5	-2.7	-2.2	-8	-7.2	-8	-6.5	-8.1	-5.8	-8.2	-5.4	-8.3	-4.9	-8.4	-4.3	-8.5	-3.6	-8.6	-3.2
040195	Muskrat Pond	14	16	17	19	20	21	21	23	23	14	16	15	17	15	18	15	19	15	20	15	22	15	23	15	22
040197	Diana Pond	11	12	14	15	16	17	18	18	19	11	12	12	14	12	15	11	16	11	17	12	17	12	19	12	19
040200	Upper South Pond	15	14	15	17	18	18	20	21	22	14	14	13	16	13	17	14	18	14	18	14	20	14	21	14	22
040201	Unnamed P #4-201	-6.1	-5.6	-5	-4.3	-3.8	-3.4	-2.7	-2.1	-1.6	-6.3	-5.8	-6.5	-5.3	-6.6	-4.8	-6.8	-4.5	-6.9	-4.2	-7	-3.7	-7.2	-3.2	-7.3	-2.9
040203	Unnamed P #4-203	-5.1	-4.6	-4	-3.4	-3	-2.6	-2	-1.4	-1	-5.2	-4.8	-5.4	-4.4	-5.6	-4	-5.8	-3.7	-5.9	-3.4	-6.1	-3	-6.3	-2.6	-6.4	-2.3
040210	Willys Lake	9.8	11	12	14	15	16	17	19	19	9.8	11	9.9	12	10	14	10	15	10	16	10	17	10	19	10	20
040240	Desert Pond	22	23	24	25	25	26	27	28	29	22	23	21	23	21	23	20	23	20	24	20	24	19	25	19	25
040245	Jakes Pond	17	17	17	19	20	21	22	23	24	17	17	16	17	16	19	17	20	16	20	15	22	15	23	15	24
040246	Buck Pond	24	24	25	25	26	26	27	28	28	24	24	23	24	23	25	23	25	23	25	22	26	22	26	22	27
040247	Hog Pond	26	26	27	28	28	29	30	31	31	26	26	25	27	25	27	25	28	25	28	25	29	24	29	24	30
040289	Crystal Lake	9.7	11	12	13	14	15	16	17	18	9.7	11	9.7	12	9.8	13	9.8	14	9.8	15	9.8	16	9.9	17	9.9	17
040365	Oven Lake	-7.8	-7.3	-6.5	-5.7	-5.1	-4.6	-3.9	-3.2	-2.9	-8	-7.4	-8.2	-6.8	-8.3	-6.2	-8.4	-5.7	-8.4	-5.3	-8.5	-4.9	-8.6	-4.1	-8.7	-3.8
040368	Hitchens Pond	11	12	14	16	17	18	20	21	22	11	12	11	14	11	16	12	17	12	18	12	20	12	21	12	22
040436	Sand Pond	15	16	17	18	19	20	21	22	23	15	16	15	17	15	18	15	19	15	20	15	21	15	22	15	23
040438	Ike's Pond	-6.7	-6.1	-5.4	-4.6	-4.1	-3.7	-3	-2.3	-1.8	-6.8	-6.3	-7	-5.8	-7.3	-5.3	-7.4	-5	-7.6	-4.7	-7.8	-4.2	-8.1	-3.8	-8.2	-3.5
040443	Pepperbox Pond	14	15	16	18	19	20	21	22	21	14	15	14	17	14	18	15	19	15	20	15	20	15	21	15	21
040444	Lower Spring Pond	23	24	25	26	27	28	29	31	31	23	24	23	25	23	26	23	27	23	28	22	29	22	30	22	29
040446	Tied Lake	26	27	28	28	29	29	30	31	32	26	27	26	27	26	28	26	28	26	29	25	29	25	30	25	31
040457	Unnamed	20	20	22	23	24	25	26	26	26	19	20	19	22	20	23	20	24	20	25	20	25	20	26	20	27
040458	Bear Pond	-8.5	-7.8	-6.9	-6.1	-5.5	-5	-4.2	-3.4	-2.8	-8.7	-8	-8.8	-7.3	-9	-6.7	-9.2	-6.3	-9.3	-5.9	-9.5	-5.2	-9.7	-4.6	-9.9	-4.2
040473	Sunday Lake	27	27	28	29	30	30	31	32	33	27	27	27	28	27	30	27	30	27	31	27	32	27	33	28	34
040485	Deer Pond	-7	-6.4	-5.6	-4.8	-4.3	-3.8	-3	-2.3	-1.8	-7.2	-6.6	-7.6	-6.2	-7.7	-5.6	-7.9	-5.2	-8	-4.9	-8.1	-4.3	-8.3	-4	-8.4	-3.8
040491	Upper Moshier Pond	14	15	17	18	19	20	21	22	22	14	15	14	17	15	18	15	19	14	20	14	21	14	22	14	23
040494	Shallow Pond	-7.7	-7.2	-6.3	-5.5	-5	-4.4	-3.9	-3.1	-2.6	-7.9	-7.3	-8.1	-6.7	-8.3	-6.4	-8.5	-6	-8.7	-5.6	-8.8	-5	-8.9	-4.5	-9.2	-4.2
040496	Raven Lake	15	16	17	18	18	19	20	22	22	15	16	15	17	15	17	15	18	15	19	15	21	15	22	15	23
040497	Unnamed P #4-497	-7.1	-6.5	-5.8	-5	-4.5	-4	-3.5	-2.8	-2.3	-7.2	-6.6	-7.3	-6	-7.5	-5.4	-7.6	-5.3	-7.7	-4.9	-7.8	-4.3	-7.9	-3.7	-7.9	-3.3
040498	Lyon Lake	13	14	15	16	17	17	18	19	19	13	14	13	15	13	16	13	17	13	18	13	17	13	19	13	19

ANC (μeq/L) in 2050 Corresponding to Percent Reduction in Atmospheric SO4, NO3 and NH4 Loadings

Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
040499	Slim Pond	22	23	24	25	25	26	27	27	28	22	23	22	24	22	24	22	25	22	25	22	26	22	27	21	27
040500	Evergreen Lake	11	12	13	14	15	16	17	18	19	11	12	11	13	11	14	11	15	11	16	11	17	11	18	11	18
040502	Peaked Mtn. Lake	-6.6	-6.1	-5.3	-4.5	-4	-3.5	-2.7	-2	-1.8	-6.8	-6.3	-7.1	-5.7	-7.4	-5.3	-7.6	-4.9	-7.7	-4.6	-7.8	-4.4	-8	-3.8	-8	-3.5
040505	Hidden Lake	22	22	23	24	24	25	26	26	27	22	22	21	23	21	23	21	24	21	24	21	25	21	26	21	26
040508	Ginger Pond	19	19	21	22	23	24	25	27	27	19	19	19	21	18	22	18	23	18	24	18	25	18	26	18	27
040510	Unnamed P #4-510	-8.9	-8	-7	-6	-5.4	-4.8	-3.9	-3.5	-2.8	-8.8	-8.1	-9	-7.3	-9.1	-6.5	-9.2	-6	-9.3	-5.6	-9.4	-5.3	-9.5	-4.6	-9.5	-3.9
040511	Soda Pond	12	12	14	15	15	16	17	18	19	12	12	12	14	12	15	12	15	12	16	12	17	12	18	12	19
040513	Unnamed P #4-513	13	14	15	17	17	18	19	21	20	14	14	14	15	13	17	13	18	13	19	13	18	13	20	14	20
040522	Higby Twins E. Pond	10	11	13	15	16	17	19	20	22	10	11	11	13	11	15	11	17	11	18	11	20	11	21	11	23
040523	Higby Twins W. Pond	14	15	17	18	19	20	22	23	24	14	15	14	17	14	19	14	20	14	21	15	22	15	24	15	25
040527	Summit Pond	-5.4	-4.8	-4.2	-3.5	-3.1	-2.7	-2.1	-1.8	-1.5	-5.6	-5	-5.7	-4.6	-5.9	-4.2	-6.1	-3.9	-6.2	-3.7	-6.4	-3.7	-6.6	-3.1	-6.7	-2.9
040530	Beaverdam Pond	17	18	20	21	22	23	25	26	27	17	18	17	20	17	21	17	22	17	23	17	24	17	26	17	27
040534	Little Rock Pond	-5.1	-4.6	-3.9	-3.2	-2.7	-2.3	-1.7	-1.1	-0.9	-5.2	-4.7	-5.4	-4.3	-5.6	-3.8	-5.8	-3.5	-5.9	-3.2	-6.1	-3.1	-6.2	-2.7	-6.3	-2.4
040547	Lilypad Pond	30	30	31	32	33	33	34	35	36	29	30	29	31	29	31	28	32	28	32	28	33	28	34	28	34
040548	Mud Pond	30	31	32	33	33	34	35	36	36	30	31	30	31	29	31	29	32	29	32	28	33	28	33	28	34
040549	Little Salmon Lake	29	30	31	31	32	33	33	34	35	29	30	29	30	29	31	28	31	28	31	28	32	28	33	28	33
040550	Frank Pond	-5.5	-4.9	-4	-3.2	-2.7	-2.2	-2	-1.2	-0.6	-5.7	-5	-5.8	-4.5	-6.1	-4	-6.3	-3.9	-6.5	-3.9	-6.7	-3.5	-6.9	-3	-7.1	-2.6
040551	Hardigan Pond	19	20	22	23	24	24	26	27	27	19	20	19	21	19	23	19	23	19	24	19	25	19	26	19	27
040570	Terror Lake	14	15	16	17	18	18	20	22	23	14	15	14	16	14	16	14	18	14	19	14	21	14	22	14	23
040571	East Pond	-5.8	-5.2	-4.4	-3.6	-3.1	-2.6	-2	-1.3	-0.8	-5.9	-5.4	-6.1	-4.8	-6.3	-4.3	-6.5	-3.9	-6.6	-3.6	-6.8	-3.1	-6.9	-2.9	-7.1	-2.7
040581	Pocket Pond	-8.9	-8.2	-7.1	-6.1	-5.4	-4.8	-3.9	-2.8	-2.3	-9	-8.2	-9	-7.3	-9.1	-6.4	-9.1	-5.7	-9.2	-5.2	-9.3	-4.6	-9.3	-4.2	-9.4	-3.8
040582	South Pond	11	12	13	14	16	17	18	20	21	11	12	11	13	11	15	11	16	11	17	10	18	10	20	11	21
040608	Evies Pond	22	22	23	24	24	25	26	27	27	21	22	20	22	20	22	20	23	19	23	19	23	18	24	18	24
040610	Long Lake	20	21	21	22	22	23	23	24	24	20	20	19	20	19	21	19	21	18	21	18	21	18	21	17	22
040615	Fish Pond	87	88	90	91	93	94	95	97	98	87	88	87	90	87	92	87	93	87	94	88	95	88	97	88	98
040630	Bill's Pond	21	22	23	24	25	26	27	29	29	21	22	21	23	21	24	21	25	21	26	21	27	21	26	20	27
040632	Panther Pond	13	14	16	17	18	19	21	23	24	13	14	13	16	13	17	13	18	13	19	13	21	13	22	13	23
040638	Unnamed P #4-638	-8.2	-7.6	-6.8	-5.9	-5.3	-4.7	-4	-3.2	-2.7	-8.4	-7.8	-8.6	-7.2	-8.8	-6.5	-9	-6.1	-9.1	-5.7	-9.2	-5.2	-9.4	-4.6	-9.6	-4.2
040646	Unnamed P #4-646	15	16	17	18	19	20	20	21	22	15	16	15	17	15	19	15	20	15	19	15	20	15	22	15	23
040651	Little Diamond Pond	13	14	15	15	16	17	18	19	20	13	14	13	14	13	15	13	16	13	17	13	18	12	19	12	20
040679	Unnamed P #4-679	-6.7	-6.2	-5.5	-4.7	-4.3	-3.8	-3.3	-2.6	-2.2	-6.9	-6.4	-7.1	-5.8	-7.3	-5.3	-7.4	-5.2	-7.5	-4.8	-7.7	-4.3	-7.9	-3.8	-8	-3.5
040681	Black Foot Pond	13	15	16	18	19	19	21	23	23	14	15	14	17	14	18	14	19	14	20	14	22	14	22	14	23
040702	Lost Pond	13	14	16	17	17	19	20	22	23	13	14	13	16	13	16	13	17	13	18	13	20	13	22	13	23

ANC (µeq/L) in 2050 Corresponding to Percent Reduction in Atmospheric SO4, NO3 and NH4 Loadings																									
Lake_ID	***Lake_Name***	***SO4 = 0; NO3+NH4 = 0***	***SO4 = 0.1; NO3+NH4 = 0***	***SO4 = 0.25; NO3+NH4 = 0***	***SO4 = 0.4; NO3+NH4 = 0***	***SO4 = 0.5; NO3+NH4 = 0***	***SO4 = 0.6; NO3+NH4 = 0***	***SO4 = 0.75; NO3+NH4 = 0***	***SO4 = 0.9; NO3+NH4 = 0***	***SO4 = 1; NO3+NH4 = 0***	***SO4 = 0; NO3+NH4 = 0.1***	***SO4 = 0.1; NO3+NH4 = 0.1***	***SO4 = 0; NO3+NH4 = 0.25***	***SO4 = 0.25; NO3+NH4 = 0.25***	***SO4 = 0; NO3+NH4 = 0.4***	***SO4 = 0.4; NO3+NH4 = 0.4***	***SO4 = 0; NO3+NH4 = 0.5***	***SO4 = 0.5; NO3+NH4 = 0.5***	***SO4 = 0; NO3+NH4 = 0.6***	***SO4 = 0.6; NO3+NH4 = 0.6***	***SO4 = 0; NO3+NH4 = 0.75***	***SO4 = 0.75; NO3+NH4 = 0.75***	***SO4 = 0; NO3+NH4 = 0.9***	***SO4 = 0.9; NO3+NH4 = 0.9***	***SO4 = 0; NO3+NH4 = 1***	***SO4 = 1; NO3+NH4 = 1***
040704	Middle Settlement Pond	19	20	21	22	23	22	23	24	25	19	20	19	21	19	22	18	21	18	22	19	23	18	24	18	24
040705	Cedar Pond	24	24	25	26	27	27	28	29	30	24	24	23	25	23	25	23	26	23	26	22	27	22	28	22	28
040706	Grass Pond	34	35	36	38	39	40	42	43	44	34	35	34	37	34	39	35	40	35	41	35	43	35	45	35	47
040707	Middle Branch Pond	64	65	67	68	69	72	72	72	73	64	66	64	66	65	68	64	71	64	70	64	71	65	69	65	70
040708	Little Pine Pond	22	22	23	24	24	25	26	27	28	21	22	21	22	20	23	20	23	20	24	20	24	19	25	19	26
040748	Bubb Lake	25	26	27	27	28	28	29	30	31	25	26	25	26	24	26	24	27	24	27	23	28	23	28	23	29
040753	West Pond	7.3	8.1	9.3	10	11	12	13	14	15	7.2	7.9	7	8.8	6.8	9.7	6.7	10	6.4	11	6.2	12	6.1	13	6	14
040754	Squash Pond	-11	-10	-9	-8	-7.4	-6.8	-6.2	-5.6	-5	-11	-10	-11	-9	-11	-8	-11	-7.5	-11	-7.2	-11	-6.4	-11	-5.5	-11	-5
040757	Little Chief Pond	-6	-5.4	-4.5	-3.7	-3.2	-2.7	-1.9	-1.2	-0.7	-6.1	-5.6	-6.4	-4.9	-6.6	-4.4	-6.7	-4	-6.9	-3.7	-7.1	-3.2	-7.3	-2.9	-7.4	-2.8
040758	Gull Lake South	-5.4	-5	-4.3	-3.7	-3.3	-2.9	-2.3	-1.7	-1.3	-5.5	-5.1	-5.7	-4.6	-5.9	-4.2	-6	-3.9	-6.1	-3.6	-6.3	-3.2	-6.5	-2.8	-6.6	-2.5
040759	Unnamed P #4-759	-5.3	-4.9	-4.2	-3.5	-3.1	-2.6	-2	-1.3	-0.9	-5.5	-5	-5.7	-4.6	-6	-4.1	-6.1	-3.8	-6.3	-3.6	-6.5	-3.2	-6.6	-2.7	-6.7	-2.9
040760	Otter Pond	28	29	30	31	31	32	33	33	34	28	29	28	29	28	30	28	31	28	31	28	32	28	33	28	34
040762	North Gull Lake	20	20	20	21	22	23	24	25	26	20	20	20	20	20	21	19	22	18	23	18	24	18	25	18	26
040768	Lower Sister Lake	19	20	20	22	23	24	25	27	28	19	20	19	20	19	22	19	23	17	24	18	25	18	27	18	28
040777	Constable Pond	0.1	0.5	1.2	1.8	2.3	2.7	3.4	4.1	4.6	0.1	0.5	0.1	1.1	0	1.7	-0	2.1	-0	2.6	-0.1	3.3	-0.1	4.2	-0.2	4.7
040778	Chub Pond	19	20	20	22	22	23	25	26	27	19	19	19	20	18	21	18	22	18	23	18	25	18	26	18	27
040779	Pigeon Lake	-4.8	-4.4	-3.7	-3	-2.6	-2.2	-1.5	-0.9	-0.8	-5	-4.5	-5.2	-4.1	-5.4	-3.6	-5.5	-3.3	-5.6	-3	-5.8	-2.9	-6	-2.6	-6.1	-2.2
040788	Eagles Nest Lake	66	67	68	67	67	68	69	70	70	66	67	66	66	67	67	64	68	65	68	65	69	65	70	65	70
040826	Limekiln Lake	23	23	24	24	25	25	26	26	27	22	23	22	23	22	24	22	24	22	24	22	25	22	25	21	26
040836	Stink Lake	24	25	25	26	27	27	28	29	30	24	24	24	25	24	26	23	26	23	27	23	28	23	28	23	29
040837	Balsam Lake	24	24	25	26	27	27	27	28	28	24	24	24	25	24	26	23	26	23	25	23	26	23	27	23	28
040841	Kettle Pond (also, Unnamed P #4-841)	-7.4	-7	-6	-5.1	-4.5	-3.9	-3	-2.2	-1.7	-7.7	-7.1	-7.9	-6.3	-8	-5.6	-8	-5	-8.1	-4.6	-8.3	-4	-8.4	-3.4	-8.4	-3
040852	Indian Lake	-6.2	-5.7	-5.1	-4.7	-4.3	-3.9	-3.2	-2.4	-2	-6.2	-5.8	-6.2	-5.2	-6.3	-4.8	-6.3	-4.2	-6.4	-3.8	-6.4	-3.2	-6.7	-2.6	-6.7	-2.2
040854	Horn Pond	17	18	17	18	18	18	19	20	20	17	18	17	17	17	17	17	18	17	18	16	18	15	19	15	19
040863	Unnamed P #4-863	-5.9	-5.4	-4.9	-4.4	-4	-3.6	-2.9	-2.2	-1.8	-6	-5.7	-6.1	-5.3	-6.1	-4.7	-6.2	-4.3	-6.3	-3.9	-6.4	-3.4	-6.4	-2.8	-6.5	-2.4
040866	Deep Lake	12	12	14	15	16	16	17	18	19	12	13	12	14	12	15	12	16	12	17	12	18	12	19	12	20
040869	Twin Lake West	15	16	17	19	20	21	22	24	24	15	16	15	18	15	19	16	20	16	22	16	23	16	25	16	26
040870	Twin Lake East	14	15	16	18	19	20	21	22	23	14	15	14	16	14	18	14	19	14	20	14	22	15	23	15	24
040873	Wolf Lake	-7.1	-6.6	-5.8	-5.1	-4.6	-4	-3.3	-2.6	-2.2	-7.1	-6.6	-7.1	-5.7	-7	-4.8	-6.8	-4.3	-6.8	-3.9	-6.8	-3.2	-6.8	-2.6	-6.8	-2.1
040874	Brooktrout Lake	4.7	5.3	5.4	6.2	6.1	6.4	7.2	7.7	8	4.9	5.2	4.8	5.5	4.3	5.5	4.3	6.1	4.2	6.3	4.4	6.2	4.3	6.6	4.2	6.8
040875	Northrup Lake	23	24	25	25	26	27	28	28	29	23	23	22	25	22	26	23	26	23	26	23	27	23	28	23	29
040880	Bear Pond	20	21	20	21	22	23	24	25	26	20	21	20	20	20	21	20	22	19	23	19	24	20	25	20	26
040885	Falls Pond	12	13	14	15	16	17	18	19	20	13	14	13	14	13	16	13	17	13	17	13	18	13	20	13	20

ANC (μeq/L) in 2050 Corresponding to Percent Reduction in Atmospheric SO4, NO3 and NH4 Loadings

Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
040888	Sly Pond	-7.3	-6.8	-6.4	-5.5	-5	-4.5	-3.6	-2.9	-2.4	-7.3	-6.8	-7.3	-6.4	-7.3	-5.6	-7.4	-4.9	-7.4	-4.5	-7.4	-3.8	-7.4	-3.1	-7.4	-2.6
040889	Cellar Pond	-6.7	-6	-5.2	-4.8	-4	-3.4	-2.5	-1.6	-1	-6.7	-6	-6.6	-5.6	-6.5	-4.6	-6.5	-3.8	-6.5	-3.2	-6.4	-2.2	-6.4	-1.3	-6.3	-0.6
040951	Little Woodhull Lake	20	21	22	24	24	25	26	27	28	20	21	20	22	20	23	20	24	20	25	20	26	20	27	20	28
040952	Lily Lake	23	24	25	26	27	28	26	28	28	23	24	23	25	23	26	23	27	23	25	23	26	23	27	23	28
040984	Bloodsucker Pond	11	12	12	14	14	15	15	16	17	11	12	11	13	11	14	11	14	11	15	12	16	11	17	11	17
040995	Burp Lake	12	13	14	15	16	16	18	19	19	12	13	12	14	12	15	12	16	12	16	12	18	12	19	13	20
041003	Little Salmon Lk.	23	24	24	25	25	26	27	27	28	23	24	23	24	23	25	23	25	23	26	23	26	23	27	23	27
041007	North Lake	20	21	22	23	24	25	25	26	27	20	20	19	22	20	23	20	24	21	25	21	26	20	28	20	29
041011	Snyder Lake	-8.8	-8.1	-7	-6.4	-5.6	-5.2	-4.3	-3.2	-2.6	-8.8	-8	-8.7	-6.9	-8.6	-6.2	-8.6	-5.7	-8.5	-4.9	-8.4	-3.8	-8.4	-2.8	-8.3	-2.2
045178	Unnamed	-8.6	-8.4	-7.5	-6.7	-6.2	-5.7	-4.9	-4.2	-3.7	-8.9	-8.4	-8.9	-7.5	-8.9	-6.7	-8.9	-6.2	-8.9	-5.7	-8.9	-5	-8.9	-4.2	-8.9	-3.7
045228	Upper Lennon Pond	9.3	10	12	13	14	15	15	17	18	9.4	10	9.5	12	9.6	13	9.6	14	9.4	14	9.5	16	9.6	17	9.6	18
050215	Willis Lake	64	66	68	70	73	74	76	77	79	64	66	65	68	65	72	65	73	65	74	66	77	66	79	66	80
050259	Jockeybush Lake	20	21	22	23	24	24	26	26	25	20	21	20	22	20	23	20	24	20	25	20	25	20	25	20	25
050458	Clear Pond	103	103	105	106	107	107	109	110	111	103	104	103	105	103	106	103	107	103	108	104	110	104	111	104	112
050582	Bullhead Pond	135	136	137	139	139	140	142	143	144	135	136	135	137	135	139	135	140	136	141	136	143	136	144	136	146
050584	Cranberry Pond	34	32	33	34	34	35	36	37	38	34	31	31	32	31	33	31	34	31	35	30	35	30	36	30	37
050586	Rock Pond	14	15	16	18	19	20	21	22	23	14	15	14	16	14	18	14	19	14	19	14	21	14	22	14	22
050587	Stonystep Pond	28	29	30	31	32	33	34	36	36	28	29	28	30	28	31	28	32	28	33	28	34	28	36	28	35
050589	Puffer Pond	29	30	31	29	30	30	31	32	32	29	30	29	28	29	29	29	29	29	30	29	31	29	31	29	32
050593	Center Pond	126	126	128	129	130	131	132	134	134	126	127	126	128	126	130	126	131	126	132	126	133	127	135	127	136
050594	Clear Pond	100	101	102	103	103	104	105	106	106	100	101	100	102	100	103	100	104	100	104	100	105	101	106	101	107
050607	Little Moose Pond	23	24	25	25	26	27	27	28	29	23	24	23	25	23	26	23	26	23	27	23	28	23	29	24	30
050608	Otter Pond	18	19	20	20	21	22	22	23	24	18	19	18	20	18	20	18	21	18	21	18	22	18	23	18	23
050656	Green Pond	92	92	93	94	95	96	97	98	98	92	92	92	93	92	94	92	95	92	96	92	95	92	97	92	95
050658	Unknown Pond	131	132	133	134	135	136	138	139	140	131	132	131	133	131	135	131	136	131	137	132	134	132	134	132	133
050665	Dishrag Pond	-5.5	-5	-4.2	-3.4	-2.9	-3.2	-2	-1.3	-0.8	-5.4	-4.9	-5.3	-4	-5.1	-3.1	-5	-2.4	-5	-2.4	-4.8	-1.3	-4.7	-0.4	-4.6	0.2
050666	Wakely Pond	57	58	59	60	61	61	62	64	64	57	58	57	59	57	60	57	61	57	62	57	63	57	64	57	65
050669	Carry Pond	1.5	1.9	2.7	3.4	3.8	4.2	4.8	5.4	5.8	1.5	2	1.3	2.6	1.4	3.1	1.3	3.4	1.3	3.8	1.2	4.2	1.1	4.7	1	5.1
050684	Arbutus Lake	78	79	81	82	82	83	85	86	87	79	79	79	81	79	82	79	83	79	84	79	86	80	87	80	88
050687	Round Pond	118	119	119	121	122	123	120	122	123	118	119	119	120	117	120	117	123	120	119	118	122	118	123	118	124
060129	Rock Pond, P-129	29	29	30	31	31	32	33	33	34	28	29	28	29	28	30	27	30	27	30	27	31	27	32	26	32
060147	High Pond	0.7	1	1.3	1.7	1.9	2.2	2.3	2.6	2.9	0.6	0.8	0.3	1	0.1	1.1	-0	1.2	-0.1	1.1	-0.2	1.3	-0.3	1.5	-0.4	1.6
060148	Little Pine Pond	0.1	0.4	1	1.5	1.6	1.8	2.3	2.9	3.2	-0.1	0.3	-0.3	0.6	-0.5	0.5	-0.7	0.7	-0.9	1	-1.1	1.2	-1.3	1.3	-1.5	1.5

ANC (μeq/L) in 2050 Corresponding to Percent Reduction in Atmospheric SO4, NO3 and NH4 Loadings

Lake_ID	Lake_Name	SO4 = 0; N03+NH4 = 0	SO4 = 0.1; N03+NH4 = 0	SO4 = 0.25; N03+NH4 = 0	SO4 = 0.4; N03+NH4 = 0	SO4 = 0.5; N03+NH4 = 0	SO4 = 0.6; N03+NH4 = 0	SO4 = 0.75; N03+NH4 = 0	SO4 = 0.9; N03+NH4 = 0	SO4 = 1; N03+NH4 = 0	SO4 = 0; N03+NH4 = 0.1	SO4 = 0.1; N03+NH4 = 0.1	SO4 = 0; N03+NH4 = 0.25	SO4 = 0.25; N03+NH4 = 0.25	SO4 = 0; N03+NH4 = 0.4	SO4 = 0.4; N03+NH4 = 0.4	SO4 = 0; N03+NH4 = 0.5	SO4 = 0.5; N03+NH4 = 0.5	SO4 = 0; N03+NH4 = 0.6	SO4 = 0.6; N03+NH4 = 0.6	SO4 = 0; N03+NH4 = 0.75	SO4 = 0.75; N03+NH4 = 0.75	SO4 = 0; N03+NH4 = 0.9	SO4 = 0.9; N03+NH4 = 0.9	SO4 = 0; N03+NH4 = 1	SO4 = 1; N03+NH4 = 1
060170	Halfmoon Pond	13	14	16	18	19	20	21	23	24	13	14	13	16	13	18	13	19	14	20	14	21	14	23	14	24
060313	Sagamore Lake	27	27	28	29	30	30	31	32	33	27	27	27	28	27	29	27	30	27	31	27	32	27	33	27	34
060329	Queer Lake	17	18	19	20	21	21	22	24	24	17	17	16	18	16	19	16	20	16	21	16	22	16	23	16	23
070790	Big Alderbed Pond	23	24	25	27	28	28	30	31	32	24	24	24	26	24	28	24	29	25	30	25	31	25	33	25	34
040288E	Unnamed P #4-288e	12	13	15	17	18	19	20	21	22	12	14	13	15	13	17	13	18	13	19	13	20	13	21	13	22
040484A	Unnamed P #4-484a	-6.3	-5.8	-5.1	-4.4	-3.9	-3.4	-2.8	-2.1	-1.6	-6.5	-6	-6.7	-5.5	-6.9	-4.9	-7	-4.6	-7.1	-4.3	-7.3	-3.8	-7.5	-3.3	-7.6	-3.4
040775A	Pug Hole Pond	18	19	21	22	23	24	26	27	28	18	19	18	21	18	22	18	23	18	25	18	26	18	28	19	29
060315A	Raquette Lake Reservoir	27	28	29	30	31	32	34	35	36	27	28	27	30	28	32	28	33	28	34	29	36	29	38	29	38
070790A	Blind Mans Vly	19	19	20	21	23	23	24	26	27	20	20	20	21	20	22	20	24	20	24	20	26	20	28	20	29

ANC (μeq/L) in 2200 Corresponding to Percent Reduction of Atmospheric SO4, NO3 and NH4 Loading

Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
020138	East Copperas Pond	-4.9	-3.7	-2	-0.8	0.3	1.1	2.3	3	3.5	-4.9	-3.8	-5.1	-2.7	-5.3	-1.9	-5.5	-1.4	-5.7	-1	-6	-0.1	-5.9	0.7	-6	1.2
020201	St. Germain Pond	0.3	1	2.1	3.1	3.5	4.3	5.1	5.9	6.3	-0	0.7	-0	1.6	-0.1	2.7	-0.1	3	-0.1	3.9	-0.2	4.4	-0.4	5.2	-0.5	5.6
030221	Benz Pond	1.5	2.4	3.7	4.9	5.7	6.2	7.4	8.4	8.9	1.2	2	0.7	2.6	0.2	3.2	-0	3.5	-0.3	3.8	-0.6	4.5	-0.7	5.2	-0.8	5.8
035219	Duck Pond	28	29	31	32	33	34	36	38	39	28	29	28	31	28	32	28	33	28	34	28	36	28	38	28	39
040181	Gregg Lake	28	30	32	35	37	39	41	44	46	28	30	28	32	28	35	28	37	28	39	28	42	29	42	29	44
040184	Green Pond	-2.7	-2	-0.3	0.7	1.9	2.8	4.1	5.3	6	-2.9	-1.9	-2.9	-1	-3.8	0.1	-3.1	0.9	-3.8	1.7	-3.8	3	-3.4	4.3	-3.2	5.2
040195	Muskrat Pond	24	25	27	30	31	33	35	37	39	24	25	24	28	24	30	24	31	24	33	24	35	24	37	24	39
040197	Diana Pond	19	21	23	25	26	28	30	32	33	19	21	19	23	19	25	19	26	19	28	20	30	20	32	20	33
040200	Upper South Pond	23	25	27	28	29	30	32	34	36	23	25	23	26	24	28	24	29	24	31	24	32	24	34	24	36
040201	Unnamed P #4-201	-2.1	-1.4	-0.2	0.9	1.7	2.4	3.1	3.8	4.3	-1.7	-1.5	-2.4	-0.6	-2.7	0.4	-2.8	1.1	-2.9	1.7	-3	2.5	-3	3.1	-3.1	3.6
040203	Unnamed P #4-203	-1.5	-0.8	0.3	1.3	2	2.7	3.3	3.9	4.4	-1.2	-1	-1.9	-0.1	-2.1	0.7	-2.2	1.3	-2.3	1.9	-2.4	2.5	-2.5	3.1	-2.6	3.4
040210	Willys Lake	20	21	24	25	27	28	31	33	34	20	22	20	23	20	26	21	27	20	28	20	30	22	33	20	34
040240	Desert Pond	27	29	30	32	34	35	37	39	40	27	28	26	29	25	30	24	31	24	32	23	33	23	35	23	37
040245	Jakes Pond	26	28	30	33	35	34	36	38	40	26	28	26	30	27	32	27	33	27	34	27	36	27	38	27	40
040246	Buck Pond	28	29	31	32	33	34	35	37	38	28	29	28	30	28	31	28	32	28	33	27	35	27	36	27	37
040247	Hog Pond	31	32	33	35	36	37	39	41	42	30	31	30	33	30	34	30	35	30	37	30	38	30	40	30	41
040289	Crystal Lake	21	22	24	26	27	28	30	32	33	21	22	21	24	21	26	21	27	21	28	21	30	21	31	21	32
040365	Oven Lake	-2.6	-1.7	-0.3	1	1.9	2.7	4.1	4.9	5.4	-2.7	-1.8	-3	-0.7	-3.1	0.5	-3.1	1.3	-3.1	2.1	-3	3.3	-3	4.3	-3	5.2
040368	Hitchens Pond	23	25	28	29	31	33	35	37	39	23	25	22	27	23	29	23	31	23	32	23	35	23	37	23	39
040436	Sand Pond	26	27	29	31	33	34	36	38	40	25	27	25	29	25	31	25	32	25	34	25	36	25	38	26	39
040438	Ike's Pond	-2.3	-1.1	-0.6	0.6	1.4	2.1	3.2	3.9	4.3	-2.4	-2	-2.7	-1	-3.2	-0.1	-2.7	0.6	-3.1	1.2	-2.9	2.2	-3.8	2.9	-3.9	3.3
040443	Pepperbox Pond	22	24	26	28	29	31	33	34	36	22	24	22	26	22	28	23	29	23	31	23	33	23	35	23	36
040444	Lower Spring Pond	30	32	34	36	38	39	42	44	45	30	32	30	34	30	36	30	38	30	39	30	41	30	41	30	44
040446	Tied Lake	31	32	34	36	37	38	40	41	43	31	32	31	34	31	35	31	36	31	38	31	39	31	41	31	42
040457	Unnamed	29	31	33	35	36	37	39	41	42	29	31	30	33	30	35	30	36	30	37	30	39	30	41	30	43
040459	Bear Pond	-3.1	-2.8	-1.3	0	0.9	1.8	3.1	3.9	4.5	-3.4	-3	-3.2	-1.8	-4.2	-0.6	-3.4	0.2	-4.5	1	-4.6	2.3	-4.7	3.3	-4.8	3.8
040473	Sunday Lake	32	33	35	37	38	40	42	44	45	32	33	32	36	33	38	33	39	33	41	33	43	33	45	34	47
040485	Deer Pond	-2.3	-1.4	-0.1	1.2	2.4	3.2	4.5	5.6	6.1	-2.6	-1.7	-3.1	-0.9	-3.3	0.5	-3.3	1.3	-3.3	2.1	-3.1	3.4	-3.1	4.2	-3.1	5.1
040491	Upper Moshier Pond	24	25	28	30	32	34	36	38	40	24	26	24	28	24	31	24	32	24	34	24	36	25	39	25	41
040494	Shallow Pond	-3.1	-2.1	-0.4	1	1.9	2.8	3.9	4.8	5.4	-3.3	-2	-3.2	-0.9	-3.4	0	-3.4	0.9	-3.4	1.7	-3.4	3.1	-3.4	4.4	-3.6	4.7
040496	Raven Lake	24	25	28	30	32	34	37	37	38	24	26	24	28	24	31	24	32	24	34	24	35	25	37	25	38
040497	Unnamed P #4-497	-2.1	-1.5	-0.2	1.1	2	2.8	3.8	4.7	5.2	-2.8	-1.6	-2.7	-0.5	-2.9	0.6	-2.8	1.2	-2.8	2	-2.8	3.3	-2.7	4.6	-2.7	5.2
040498	Lyon Lake	20	22	24	25	27	28	30	31	33	20	22	20	24	20	25	20	27	20	28	21	29	21	31	21	33

ANC (μeq/L) in 2200 Corresponding to Percent Reduction of Atmospheric SO4, NO3 and NH4 Loading

Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
040499	Slim Pond	28	29	31	32	33	34	36	37	39	28	29	28	30	28	32	28	33	28	34	28	35	28	37	28	38
040500	Evergreen Lake	20	21	22	24	25	26	28	30	31	20	22	20	22	19	24	19	25	19	26	19	28	19	29	19	30
040502	Peaked Mtn. Lake	-1.9	-1	0.3	1.5	2.3	3.1	4	5.2	5.7	-2.2	-1.3	-2.7	-0.6	-2.8	0.3	-2.9	1	-2.9	1.7	-2.9	2.7	-2.9	3.8	-3.1	4.4
040505	Hidden Lake	27	28	30	31	32	33	35	36	37	27	28	27	30	27	31	27	32	27	33	27	35	27	36	27	37
040508	Ginger Pond	28	30	32	35	36	38	40	42	44	28	30	28	32	28	34	28	36	28	37	28	40	28	42	29	43
040510	Unnamed P #4-510	-2.6	-2.3	-0.7	0.8	1.8	2.8	4.2	5.5	6.4	-3.6	-2.5	-3.9	-1.3	-4.1	-0.1	-4.2	0.7	-4.3	1.9	-4.3	3.1	-4.2	4.9	-4.2	5.1
040511	Soda Pond	20	22	22	24	25	26	28	29	30	20	22	20	22	19	24	19	25	19	26	19	27	19	29	20	30
040513	Unnamed P #4-513	21	23	25	27	28	30	32	34	35	21	23	21	25	22	27	22	28	22	30	22	32	22	34	22	35
040522	Higby Twins E. Pond	20	22	26	29	29	31	34	36	38	21	23	22	27	22	28	23	30	22	32	24	35	22	38	22	40
040523	Higby Twins W. Pond	25	27	29	31	33	34	37	39	41	26	27	27	29	25	32	25	33	25	35	25	38	26	40	26	42
040527	Summit Pond	-1.6	-0.8	0.3	1.4	2.1	2.8	3.6	4.6	4.8	-1.8	-1	-1.9	-0.1	-2.1	0.8	-2.2	1.4	-2.3	2	-2.4	3	-2.5	3.7	-2.5	4.1
040530	Beaverdam Pond	28	30	32	35	37	38	41	43	45	28	30	28	32	28	35	28	36	28	38	28	40	28	43	28	44
040534	Little Rock Pond	-1.1	-0.3	0.8	1.9	2.6	3.3	4.3	5.7	5.9	-1.3	-0.5	-1.6	0.2	-1.8	1	-2	1.5	-2	2.1	-2.1	3	-2.1	3.9	-2.1	4.5
040547	Lilypad Pond	33	34	36	38	39	41	43	44	46	33	34	32	36	32	37	32	38	32	39	31	41	31	42	31	44
040548	Mud Pond	34	35	37	39	40	41	43	45	47	34	35	33	36	33	38	33	39	32	40	32	42	32	44	32	45
040549	Little Salmon Lake	34	35	37	39	40	41	43	45	46	34	35	34	37	34	38	34	39	34	40	34	42	33	44	33	45
040550	Frank Pond	-1.4	-0.5	0.9	2.2	3	3.8	5	6.2	6.8	-1.6	-0.7	-1.9	0.2	-2.2	1.1	-2.4	1.8	-2.6	2.6	-2.7	3.3	-2.7	4.4	-2.7	5.2
040551	Hardigan Pond	30	32	34	37	36	37	39	41	42	30	32	30	32	30	34	31	36	31	37	31	39	31	41	31	42
040570	Terror Lake	23	25	28	31	32	34	37	40	40	23	25	24	28	24	32	24	34	24	34	25	36	25	39	25	40
040571	East Pond	-1.3	-0.8	0.5	1.8	2.6	3.4	4.9	6.1	6.6	-1.9	-1	-2.2	-0.1	-2.4	1.2	-2.5	1.9	-2.6	2.6	-2.6	3.7	-2.6	4.7	-2.4	5.3
040581	Pocket Pond	-2.6	-2.2	-0.8	0.6	1.6	2.5	3.9	5.4	6.1	-2.6	-2.5	-3.7	-1.2	-3.8	0	-3.9	1	-4	1.8	-4	3.2	-3.9	4.5	-3.9	5.3
040582	South Pond	21	23	26	29	31	33	34	36	38	21	23	22	27	22	28	22	30	22	31	22	34	23	36	23	38
040608	Evies Pond	26	28	29	31	33	34	36	38	39	26	27	25	28	24	29	24	30	23	31	23	33	22	35	22	36
040610	Long Lake	24	25	27	28	29	30	32	33	34	24	25	23	26	23	27	23	27	22	28	22	29	22	31	22	32
040615	Fish Pond	98	100	103	106	108	109	112	115	117	98	100	99	104	99	107	100	109	100	112	101	115	101	118	102	120
040630	Bill's Pond	28	29	32	34	35	37	39	41	43	28	29	28	31	28	34	28	35	28	36	28	39	28	39	28	41
040632	Panther Pond	24	26	29	32	34	34	37	39	40	24	26	24	29	24	30	24	32	24	33	24	36	24	38	25	40
040638	Unnamed P #4-638	-3.5	-2.5	-1.1	0.3	0.9	1.8	3.1	3.8	4.3	-3.2	-2.7	-4	-1.6	-4	-0.6	-4.1	0.1	-4.2	0.9	-4.6	2	-4.7	2.9	-4.7	3.4
040646	Unnamed P #4-646	24	25	28	30	31	33	35	38	39	24	26	24	28	24	30	24	32	24	33	24	36	25	36	25	38
040651	Little Diamond Pond	23	24	26	29	30	30	32	33	35	23	24	23	27	23	27	23	29	23	30	23	32	22	34	23	35
040679	Unnamed P #4-679	-1.8	-1.8	0.1	1	1.9	2.7	3.4	4.1	4.6	-2.8	-1.4	-2.4	-0.6	-2.7	0.5	-3.2	1	-2.7	1.7	-2.9	2.9	-3.5	3.5	-2.9	4
040681	Black Foot Pond	23	24	28	29	31	32	34	37	38	23	25	23	27	23	29	24	31	23	32	24	34	24	36	24	38
040702	Lost Pond	23	25	28	31	32	34	37	40	41	23	25	23	28	23	31	23	32	23	34	23	35	24	37	24	39

ANC (μeq/L) in 2200 Corresponding to Percent Reduction of Atmospheric SO4, NO3 and NH4 Loading

Lake_ID	***Lake_Name***	*SO4 = 0; NO3+NH4 = 0*	*SO4 = 0.1; NO3+NH4 = 0*	*SO4 = 0.25; NO3+NH4 = 0*	*SO4 = 0.4; NO3+NH4 = 0*	*SO4 = 0.5; NO3+NH4 = 0*	*SO4 = 0.6; NO3+NH4 = 0*	*SO4 = 0.75; NO3+NH4 = 0*	*SO4 = 0.9; NO3+NH4 = 0*	*SO4 = 1; NO3+NH4 = 0*	*SO4 = 0; NO3+NH4 = 0.1*	*SO4 = 0.1; NO3+NH4 = 0.1*	*SO4 = 0; NO3+NH4 = 0.25*	*SO4 = 0.25; NO3+NH4 = 0.25*	*SO4 = 0; NO3+NH4 = 0.4*	*SO4 = 0.4; NO3+NH4 = 0.4*	*SO4 = 0; NO3+NH4 = 0.5*	*SO4 = 0.5; NO3+NH4 = 0.5*	*SO4 = 0; NO3+NH4 = 0.6*	*SO4 = 0.6; NO3+NH4 = 0.6*	*SO4 = 0; NO3+NH4 = 0.75*	*SO4 = 0.75; NO3+NH4 = 0.75*	*SO4 = 0; NO3+NH4 = 0.9*	*SO4 = 0.9; NO3+NH4 = 0.9*	*SO4 = 0; NO3+NH4 = 1*	*SO4 = 1; NO3+NH4 = 1*
040704	Middle Settlement Pond	23	24	27	29	29	30	32	33	34	23	24	23	26	23	29	23	29	23	30	23	32	23	34	23	35
040705	Cedar Pond	29	30	32	34	35	36	38	40	41	28	30	28	31	28	33	27	34	27	35	27	37	27	39	27	40
040706	Grass Pond	39	40	43	46	47	49	52	54	55	39	41	39	44	40	47	40	49	40	51	40	54	41	56	41	58
040707	Middle Branch Pond	68	70	72	75	76	78	80	83	84	68	70	68	72	68	75	68	76	68	78	68	80	68	83	68	83
040708	Little Pine Pond	27	28	30	32	33	34	36	38	39	26	27	26	29	25	30	25	31	25	32	24	34	24	36	24	37
040748	Bubb Lake	30	31	32	34	35	36	38	40	41	29	30	29	32	29	33	28	34	28	35	28	37	28	39	28	40
040753	West Pond	14	15	17	19	21	22	24	26	27	14	15	14	17	13	19	13	20	13	21	13	23	13	25	13	27
040754	Squash Pond	-6	-4.9	-3.3	-1.8	-0.8	-0.7	1	2.1	2.6	-6	-4.9	-6	-3.3	-5.8	-1.8	-5.8	-0.8	-5.7	-0.4	-5.5	0.6	-5.4	2.1	-5.3	3.4
040757	Little Chief Pond	-0.8	0.4	1.8	3.1	3.9	4.8	6	7.3	7.7	-1	-0.1	-1.3	1	-1.5	2	-1.5	2.7	-1.6	3.5	-1.6	4.7	-1.7	5.8	-1.7	6.1
040758	Gull Lake South	-1.2	-0.5	0.6	1.6	2.3	3.3	4	4.6	5.1	-1.4	-0.6	-1.5	0.3	-1.7	1.4	-1.8	2	-1.9	2.6	-1.8	3.4	-1.9	3.9	-2	4.3
040759	Unnamed P #4-759	-1.5	-0.7	0.5	1.6	2.3	3.1	4.2	5	5.4	-1.7	-0.9	-1.9	0.1	-2.1	0.9	-2.1	1.7	-2.1	2.4	-2.2	3.4	-2.3	4.4	-2.3	4.7
040760	Otter Pond	32	33	35	37	38	39	41	43	44	32	33	32	35	32	37	32	38	32	39	32	41	32	43	32	44
040762	North Gull Lake	29	31	33	35	37	36	38	40	41	29	31	29	33	29	34	30	35	30	36	30	38	29	40	30	42
040768	Lower Sister Lake	29	30	33	36	38	40	43	43	45	29	31	29	34	29	37	29	38	29	38	29	41	30	43	30	45
040777	Constable Pond	4.6	5.7	7.1	8.7	9.8	11	13	15	16	4.8	5.8	4.9	7.4	5	9.1	5.1	10	5.1	11	5.2	14	5.2	16	5.3	17
040778	Chub Pond	29	30	33	36	37	38	39	42	43	29	31	29	34	29	34	29	36	29	37	29	39	30	42	30	43
040779	Pigeon Lake	-1	-0.3	0.9	2.3	3	3.7	4.9	5.4	6.1	-1.4	-0.6	-1.6	0.6	-1.7	1.5	-1.8	2.2	-1.6	2.9	-1.6	3.5	-1.7	4.5	-1.7	5
040788	Eagles Nest Lake	68	71	71	73	71	75	79	77	80	70	71	70	71	67	74	67	77	71	74	70	78	68	78	72	80
040826	Limekiln Lake	27	28	29	31	32	33	34	35	36	27	28	27	29	27	31	27	31	27	32	27	34	27	35	27	36
040836	Stink Lake	29	30	32	33	34	36	37	39	40	29	30	29	31	28	33	28	34	28	35	28	37	28	39	28	40
040837	Balsam Lake	30	32	33	35	36	37	39	41	42	30	32	30	33	30	35	30	36	31	37	31	39	31	39	31	40
040841	Kettle Pond (also, Unnamed P #4-841)	-2.5	-1.5	0.3	1.7	2.2	3	4.3	5.5	6.2	-2.1	-1.4	-3	-0.7	-3.2	0.2	-3	0.9	-3.1	1.6	-3.1	2.7	-3.6	3.9	-3.6	4.8
040852	Indian Lake	-2.1	-2	0.4	1.2	1.8	2.1	2.9	3.3	3.8	-2.1	-0.8	-2.7	-0.8	-2.7	0.3	-2.7	1	-2.7	1.8	-1.9	2.8	-1.5	3.6	-2	4.2
040854	Horn Pond	21	21	23	23	24	24	25	27	27	20	21	20	23	20	22	20	23	20	24	20	25	20	26	20	27
040863	Unnamed P #4-863	-2.8	-1.5	-0.2	0.9	1.3	2.2	2.6	3.3	3.7	-2.8	-1.7	-2.9	-1	-3.1	0.6	-3	1.2	-2.3	1.3	-2.6	2.3	-2.5	3.4	-2.9	3.9
040866	Deep Lake	18	19	21	23	24	26	27	29	30	18	20	18	21	18	23	19	25	19	26	19	28	18	30	19	31
040869	Twin Lake West	20	22	25	27	29	30	33	35	37	21	23	22	26	22	29	23	31	23	33	23	35	23	38	24	40
040870	Twin Lake East	20	21	24	26	28	29	32	34	36	20	22	21	24	21	27	21	29	21	31	21	33	22	36	22	37
040873	Wolf Lake	-2.1	-1.6	-1	0.2	0.8	1.7	2.7	3.4	3.9	-2.1	-1.5	-2	-0.1	-2	0.2	-1.7	1.1	-2.1	1.9	-2	3.2	-1.4	4.7	-1.8	5.2
040874	Brooktrout Lake	6.6	7.9	8.1	9.8	9.5	10	12	12	12	7.2	7.8	7.2	8.7	6.4	8.8	6.4	10	6.4	11	7	11	6.9	11	6.9	11
040875	Northrup Lake	28	29	32	33	34	35	37	39	40	28	31	30	32	29	33	29	34	28	36	29	37	28	39	30	40
040880	Bear Pond	28	29	32	34	35	37	40	39	41	28	29	28	32	28	34	28	36	28	38	29	38	29	40	29	41
040885	Falls Pond	20	21	23	24	26	27	29	31	31	20	21	20	23	20	25	21	26	20	27	20	29	20	31	21	32

ANC (μeq/L) in 2200 Corresponding to Percent Reduction of Atmospheric SO4, NO3 and NH4 Loading

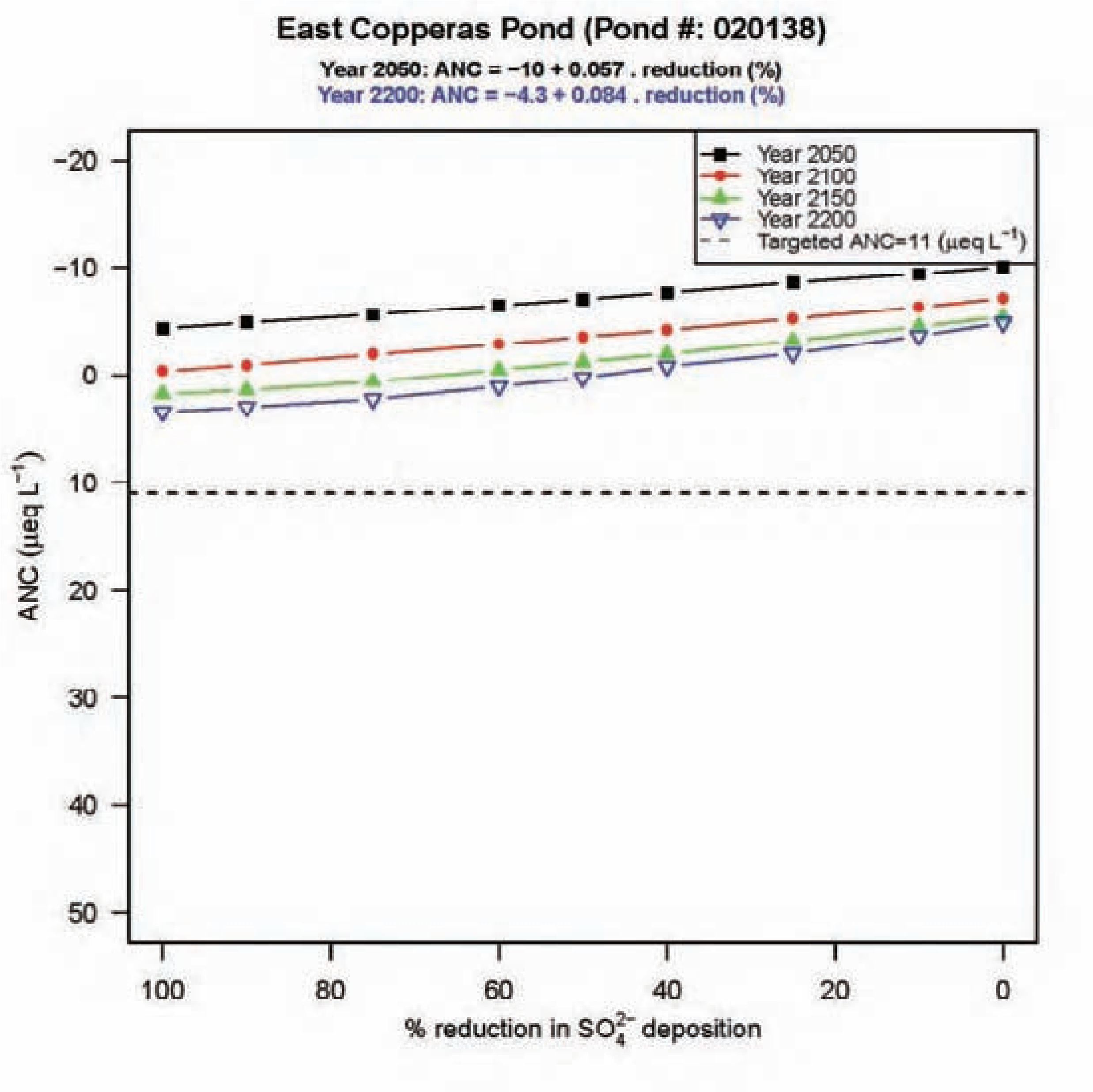
Lake_ID	Lake_Name	SO4 = 0; NO3+NH4 = 0	SO4 = 0.1; NO3+NH4 = 0	SO4 = 0.25; NO3+NH4 = 0	SO4 = 0.4; NO3+NH4 = 0	SO4 = 0.5; NO3+NH4 = 0	SO4 = 0.6; NO3+NH4 = 0	SO4 = 0.75; NO3+NH4 = 0	SO4 = 0.9; NO3+NH4 = 0	SO4 = 1; NO3+NH4 = 0	SO4 = 0; NO3+NH4 = 0.1	SO4 = 0.1; NO3+NH4 = 0.1	SO4 = 0; NO3+NH4 = 0.25	SO4 = 0.25; NO3+NH4 = 0.25	SO4 = 0; NO3+NH4 = 0.4	SO4 = 0.4; NO3+NH4 = 0.4	SO4 = 0; NO3+NH4 = 0.5	SO4 = 0.5; NO3+NH4 = 0.5	SO4 = 0; NO3+NH4 = 0.6	SO4 = 0.6; NO3+NH4 = 0.6	SO4 = 0; NO3+NH4 = 0.75	SO4 = 0.75; NO3+NH4 = 0.75	SO4 = 0; NO3+NH4 = 0.9	SO4 = 0.9; NO3+NH4 = 0.9	SO4 = 0; NO3+NH4 = 1	SO4 = 1; NO3+NH4 = 1
040888	Sly Pond	-3.1	-2.2	-1.2	0.2	1.3	1.1	2.5	3.5	4	-3.2	-2.3	-3.1	-1.6	-3	0.6	-3	0.6	-2.9	1.4	-2.8	2.7	-2.7	3.9	-2.7	4.7
040889	Cellar Pond	-4.1	-3.1	-1.6	-0.1	2	2.7	3.1	4.5	5.5	-4	-2.9	-3.8	-0.1	-3.6	1.5	-3.5	2.1	-3.3	2.4	-3.2	3.9	-3	5.5	-2.9	6.6
040951	Little Woodhull Lake	26	27	29	32	33	34	36	38	40	26	27	26	29	26	31	26	33	26	34	26	36	26	38	26	39
040952	Lily Lake	30	31	33	35	36	37	39	41	43	29	31	29	33	29	34	29	36	29	37	29	39	30	41	30	41
040984	Bloodsucker Pond	17	18	19	21	22	23	24	25	26	17	18	17	19	17	21	17	22	17	23	18	24	17	25	17	26
040995	Burp Lake	18	19	22	23	25	26	28	30	32	18	20	18	22	18	24	19	25	19	27	19	28	19	30	19	31
041003	Little Salmon Lk.	29	28	29	31	31	32	34	35	36	29	28	27	29	27	30	27	31	27	32	27	34	27	35	27	36
041007	North Lake	28	29	32	34	36	37	39	42	43	30	30	29	32	29	35	29	37	29	38	30	41	30	43	30	44
041011	Snyder Lake	-5.2	-3.5	-1.8	0.1	0.9	1.7	3.4	4.9	4.8	-4.6	-3.4	-4.4	-1.6	-4.2	-0.6	-4.1	1.2	-4	2.1	-3.8	3.1	-3.6	4.7	-3.5	5.8
045178	Unnamed	-3.5	-2.4	-1.7	-0.4	0.5	1.4	2.7	3.5	4	-3.3	-3	-4.1	-1.7	-3.4	-0.3	-4	0.6	-2.8	1.5	-3.8	2.8	-3.7	4.1	-3.6	4.8
045228	Upper Lennon Pond	17	19	21	24	25	26	29	31	32	18	19	18	21	18	24	18	25	18	26	18	29	18	32	18	31
050215	Willis Lake	71	73	76	80	82	84	88	91	93	71	73	72	77	73	82	73	84	74	87	74	91	75	95	76	97
050259	Jockeybush Lake	26	27	29	31	33	34	36	38	39	26	28	26	30	26	32	26	33	27	34	27	36	27	38	27	40
050458	Clear Pond	101	103	105	107	108	110	112	114	115	102	103	102	105	102	108	103	109	103	111	103	113	103	115	103	116
050582	Bullhead Pond	119	121	124	126	128	130	132	135	136	120	122	120	125	121	127	121	129	122	131	122	134	123	137	123	139
050584	Cranberry Pond	36	38	40	43	41	42	44	46	47	36	38	36	41	36	40	36	41	37	42	37	44	37	46	37	47
050586	Rock Pond	19	21	24	26	27	29	31	33	34	20	22	20	24	21	26	21	27	20	29	20	31	20	33	20	34
050587	Stonystep Pond	30	31	33	36	37	39	41	43	45	30	31	30	34	30	36	30	38	30	39	30	42	30	44	30	45
050589	Puffer Pond	32	33	34	34	35	36	37	39	40	32	33	32	35	32	34	32	35	32	36	32	37	32	39	32	40
050593	Center Pond	112	114	116	118	120	122	124	126	128	112	114	113	117	114	120	114	122	114	124	115	126	115	129	116	131
050594	Clear Pond	90	91	92	94	95	97	98	100	101	90	91	90	93	91	95	91	97	91	98	91	100	92	102	92	103
050607	Little Moose Pond	28	29	31	32	34	35	37	38	40	28	29	28	31	28	33	29	34	29	36	29	37	29	39	29	41
050608	Otter Pond	27	26	28	29	30	31	33	34	35	25	26	25	28	25	29	25	30	25	31	25	33	25	34	25	35
050656	Green Pond	83	84	86	88	84	91	88	92	96	83	84	83	86	84	89	84	90	84	89	84	94	85	97	85	93
050658	Unknown Pond	118	120	122	125	126	128	131	134	135	118	120	119	123	120	126	120	128	120	130	121	134	121	130	121	139
050665	Dishrag Pond	-2.9	-1.1	0.2	1.4	2.3	3.5	3.4	4.7	6.5	-1.8	-0.9	-1.6	0.6	-1.3	2.2	-1.1	2.2	-0.9	3.2	-0.7	5.5	-0.4	6.3	-0.3	7.3
050666	Wakely Pond	55	56	58	59	61	62	64	65	67	55	56	55	58	56	60	56	61	56	63	56	65	56	66	56	68
050669	Carry Pond	5.9	7.6	7.9	9.1	9.9	11	12	13	14	6.6	6.7	6.4	7.7	6.6	8.8	7	9.6	6.4	10	5.8	11	7	12	5.8	13
050684	Arbutus Lake	71	73	76	79	80	82	85	87	89	72	74	72	77	73	80	73	82	74	85	75	88	76	91	76	93
050687	Round Pond	115	117	119	122	124	126	126	128	134	115	117	116	120	116	124	117	126	117	128	118	124	118	132	119	129
060129	Rock Pond, P-129	34	35	37	38	40	41	43	44	46	33	35	33	36	33	38	33	39	33	40	32	41	32	43	32	45
060147	High Pond	3.1	3.6	4.4	5.1	5.6	5.8	6.7	7.2	7.3	3	3.5	2.7	3.9	2.7	4.6	2.7	5.1	2.7	5.3	2.7	6.1	2.6	6.5	2.6	6.8
060148	Little Pine Pond	3.1	3.8	4.8	5.8	6.7	7.4	8.4	8.8	9	3	3.7	2.8	4.5	2.6	5.4	2.5	5.8	2.4	6.3	2.4	7	2.2	7.7	2.2	8

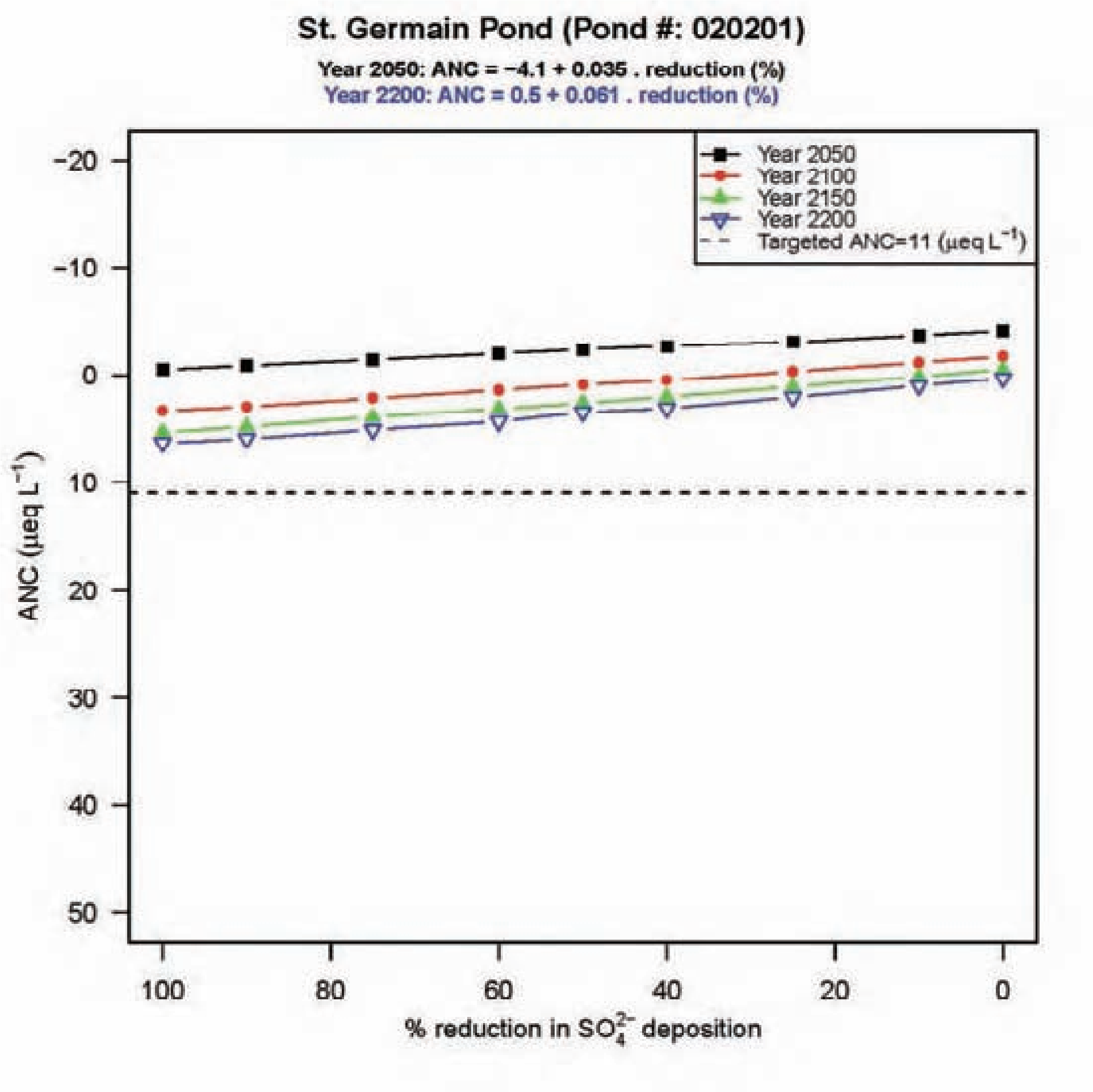
ANC (μeq/L) in 2200 Corresponding to Percent Reduction of Atmospheric SO4, NO3 and NH4 Loading

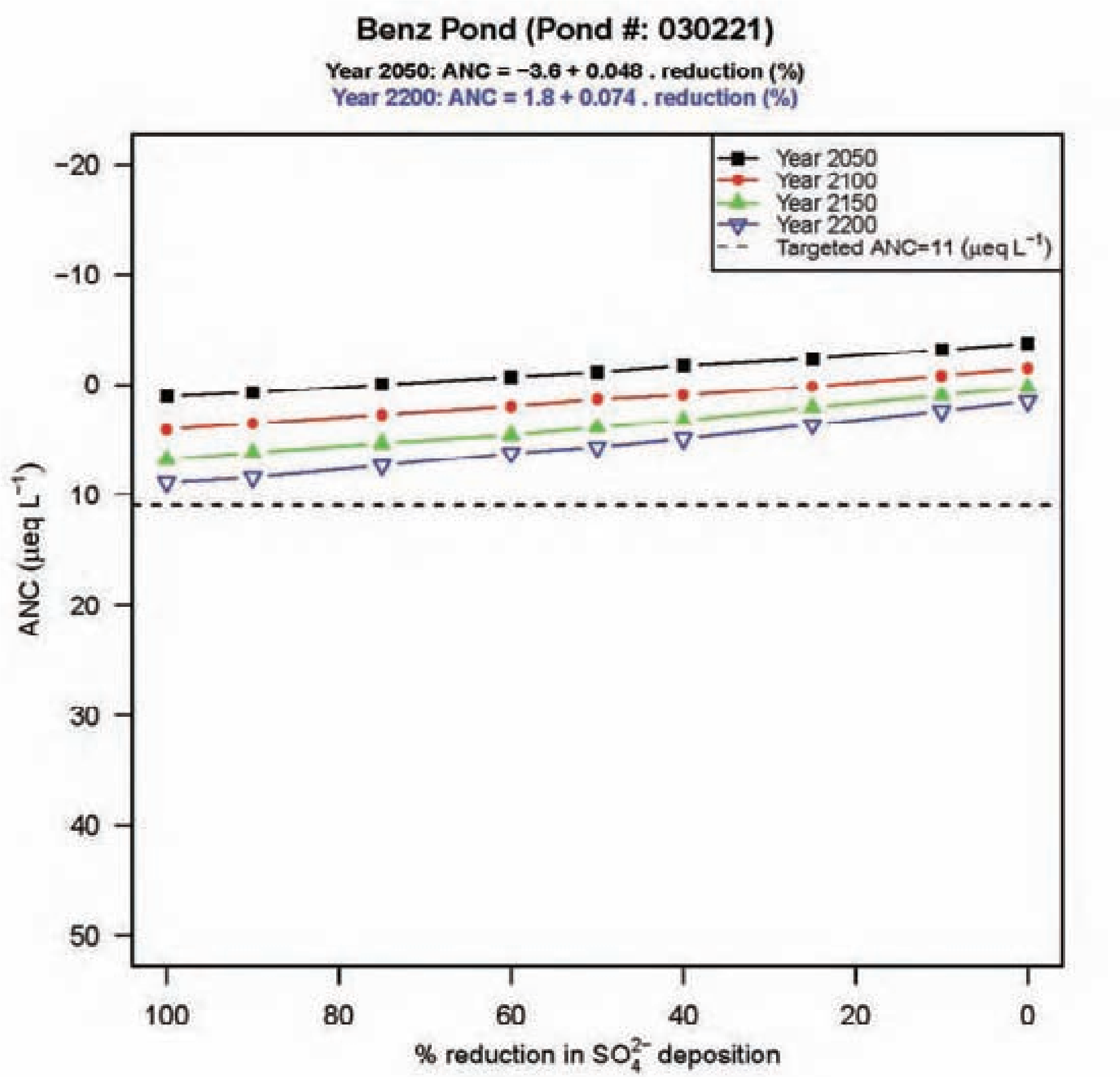
Lake_ID	*Lake_Name*	*SO4 = 0; NO3+NH4 = 0*	*SO4 = 0.1; NO3+NH4 = 0*	*SO4 = 0.25; NO3+NH4 = 0*	*SO4 = 0.4; NO3+NH4 = 0*	*SO4 = 0.5; NO3+NH4 = 0*	*SO4 = 0.6; NO3+NH4 = 0*	*SO4 = 0.75; NO3+NH4 = 0*	*SO4 = 0.9; NO3+NH4 = 0*	*SO4 = 1; NO3+NH4 = 0*	*SO4 = 0; NO3+NH4 = 0.1*	*SO4 = 0.1; NO3+NH4 = 0.1*	*SO4 = 0; NO3+NH4 = 0.25*	*SO4 = 0.25; NO3+NH4 = 0.25*	*SO4 = 0; NO3+NH4 = 0.4*	*SO4 = 0.4; NO3+NH4 = 0.4*	*SO4 = 0; NO3+NH4 = 0.5*	*SO4 = 0.5; NO3+NH4 = 0.5*	*SO4 = 0; NO3+NH4 = 0.6*	*SO4 = 0.6; NO3+NH4 = 0.6*	*SO4 = 0; NO3+NH4 = 0.75*	*SO4 = 0.75; NO3+NH4 = 0.75*	*SO4 = 0; NO3+NH4 = 0.9*	*SO4 = 0.9; NO3+NH4 = 0.9*	*SO4 = 0; NO3+NH4 = 1*	*SO4 = 1; NO3+NH4 = 1*
060170	Halfmoon Pond	24	26	29	31	33	35	38	40	42	24	26	25	29	25	32	25	34	25	35	25	38	25	40	25	42
060313	Sagamore Lake	31	32	34	36	37	38	40	42	44	31	33	32	35	32	37	32	38	32	40	32	42	32	44	33	45
060329	Queer Lake	26	27	28	30	31	33	35	36	38	26	26	25	28	24	30	24	31	24	32	24	34	24	36	24	37
070790	Big Alderbed Pond	28	29	31	34	35	37	39	42	43	28	29	28	32	29	35	29	37	29	39	30	42	30	44	31	46
040288E	Unnamed P #4-288e	25	27	29	32	33	35	37	39	41	26	27	26	29	26	32	26	33	26	35	26	37	26	39	26	40
040484A	Unnamed P #4-484a	-2.3	-1.4	-0.2	1.1	1.9	2.7	3.8	4.5	5	-2.4	-1.6	-2.6	-0.5	-2.8	0.5	-2.8	1.3	-2.9	2	-3.1	3.1	-3.1	3.9	-3.2	3.8
040775A	Pug Hole Pond	25	26	29	32	33	35	37	40	42	25	27	25	29	26	32	26	34	26	36	26	39	26	41	26	43
060315A	Raquette Lake Reservoir	31	33	35	38	40	41	44	47	48	32	33	33	37	33	40	34	42	34	44	34	47	35	50	35	51
070790A	Blind Mans Vly	26	27	29	31	33	35	37	38	40	26	28	27	30	26	32	27	34	27	37	27	38	27	40	28	42

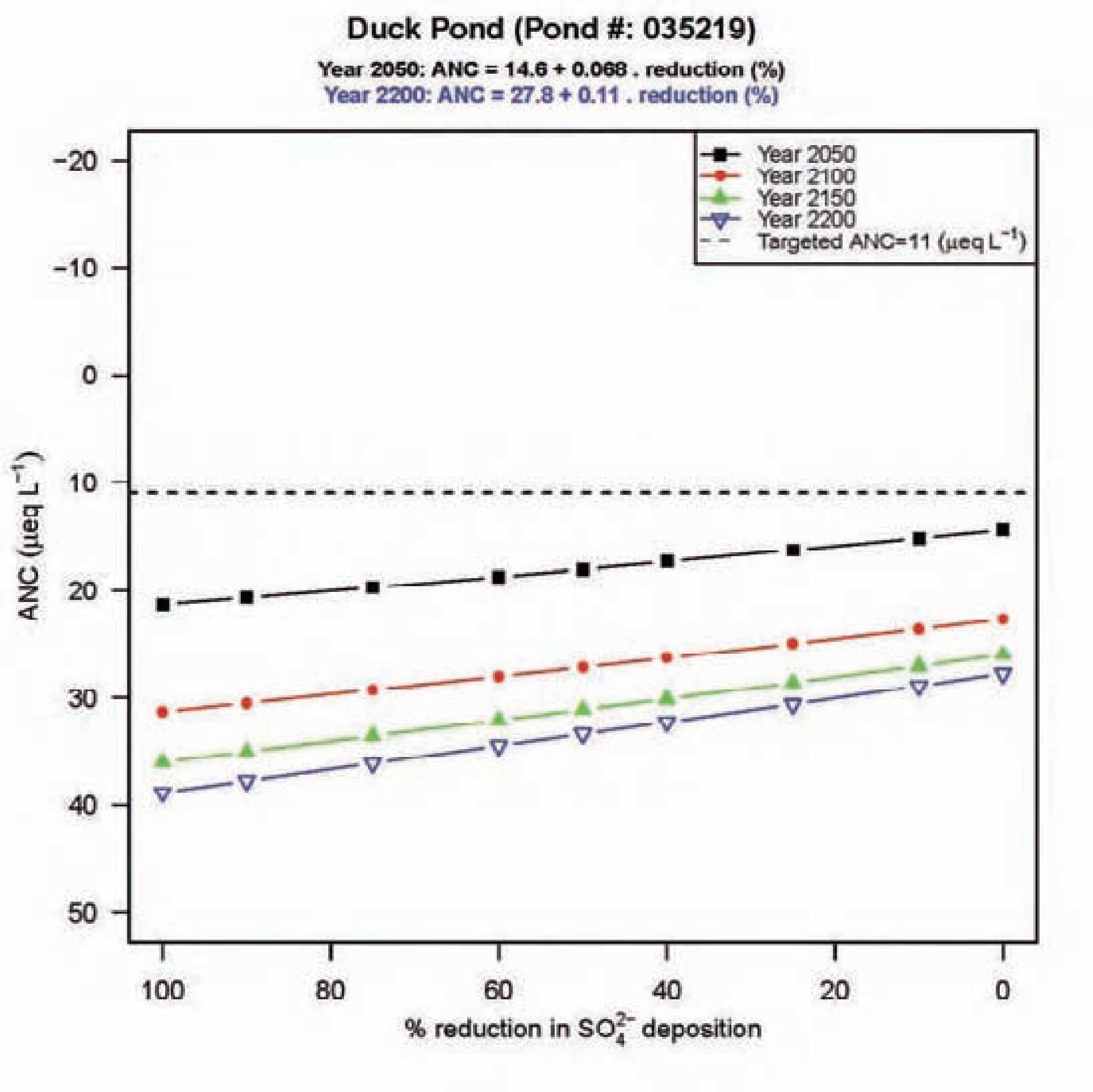
Appendix 5
Load-response plots for scenarios involving reductions in atmospheric SO_4^{2-} deposition

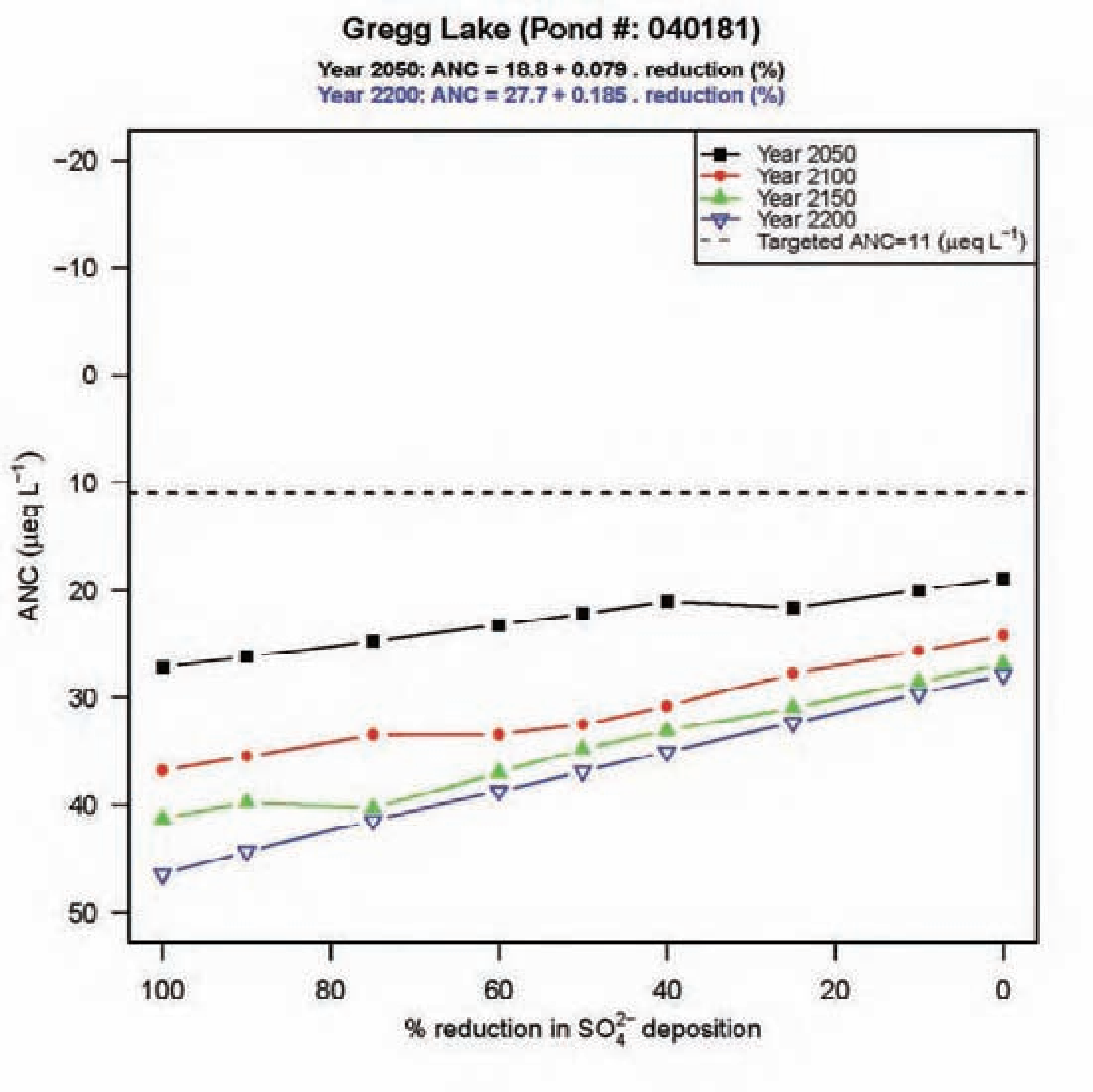
Load-response plots for scenarios involving reductions in atmospheric SO_4^{2-} deposition. The percent reduction in atmospheric loading is along the x-axis and the corresponding model simulated ANC is along the y-axis. Results are shown for the years 2050, 2100, 2150 and 2200. For each lake, linear regression models were developed for 2050 and 2200 ANC values as a function of percent load reduction as follows: ANC = [intercept] ± [slope * reduction (%)].

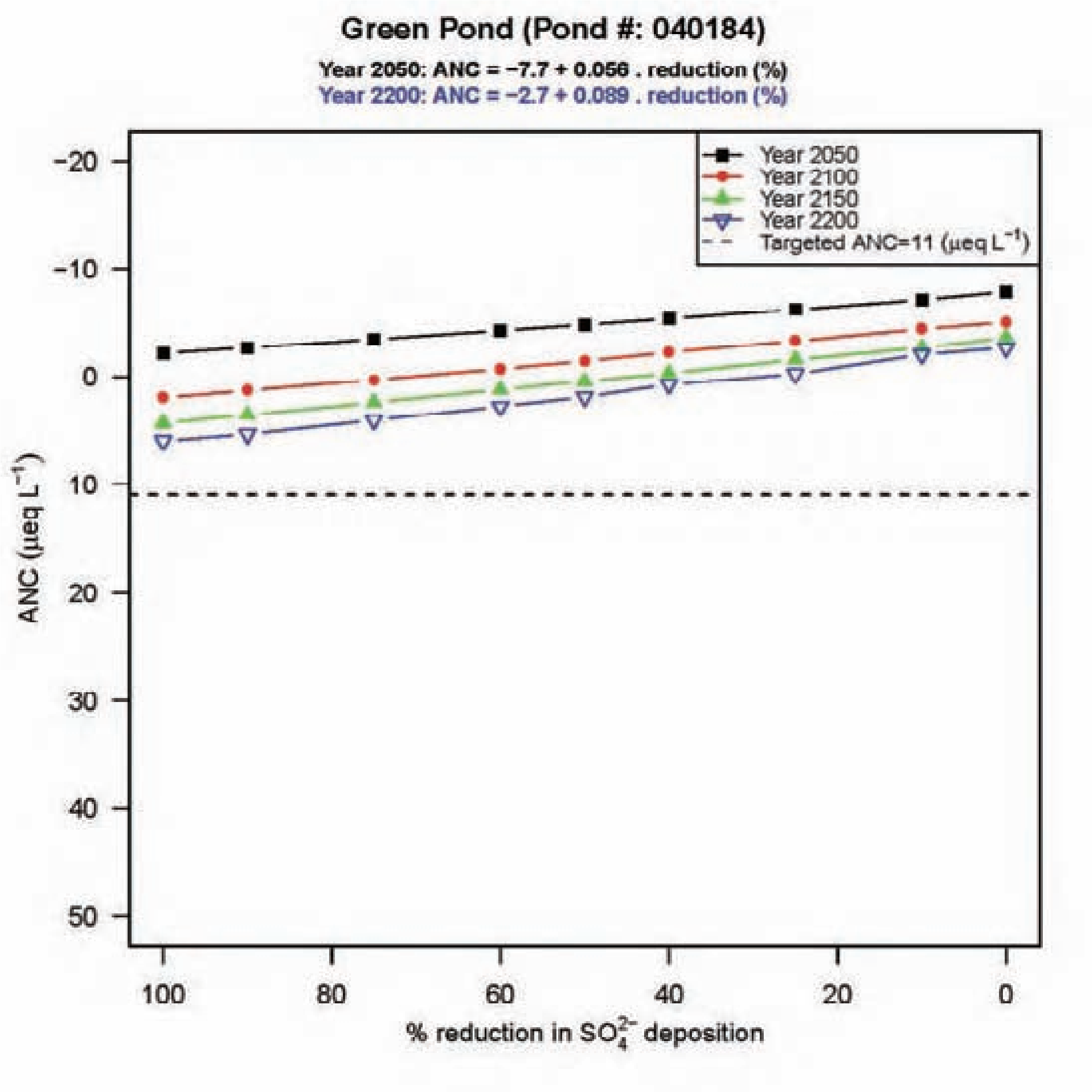

East Copperas Pond (Pond #: 020138)
Year 2050: ANC = −10 + 0.057 . reduction (%)
Year 2200: ANC = −4.3 + 0.084 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2− deposition

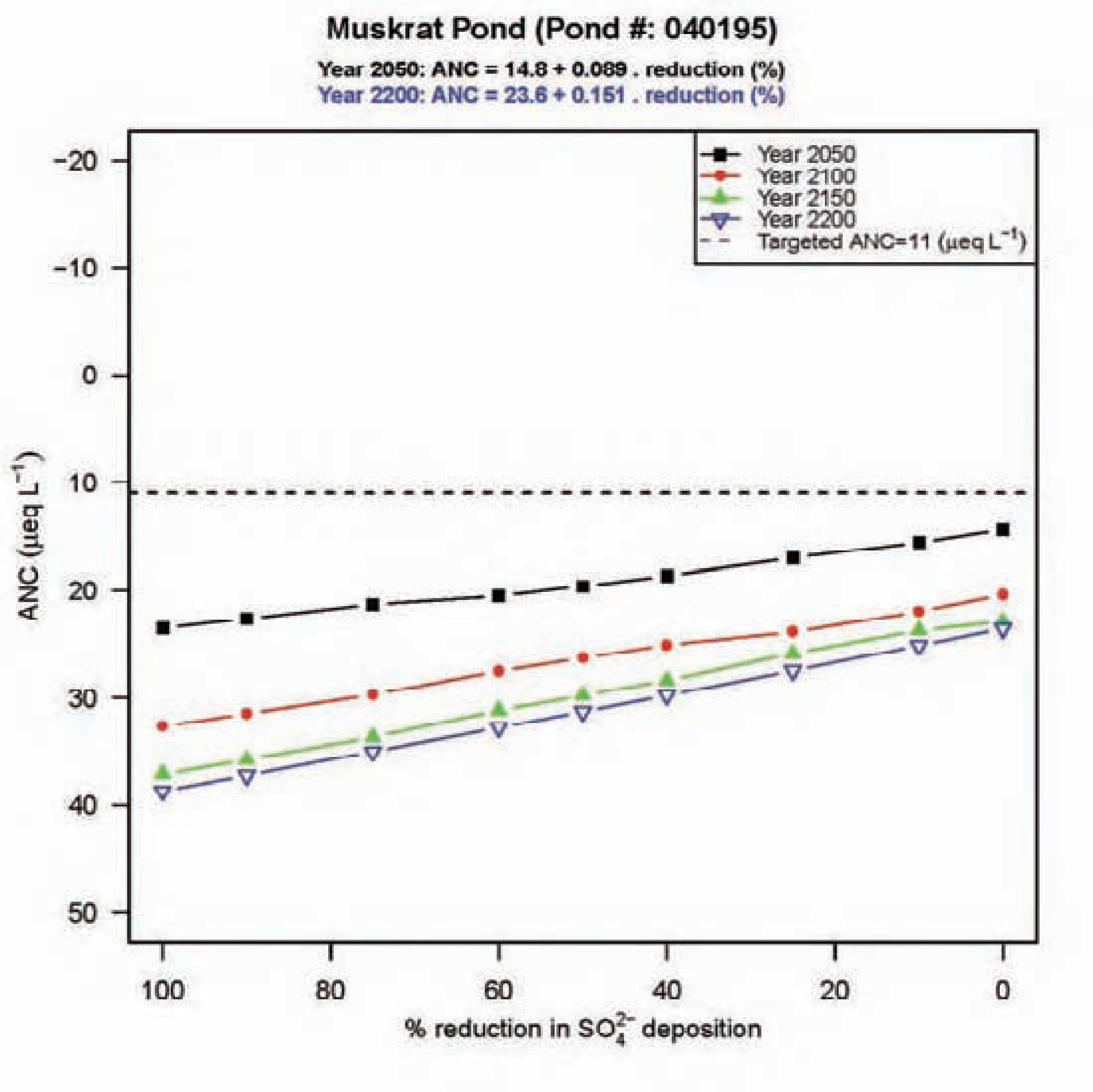

St. Germain Pond (Pond #: 020201)
Year 2050: ANC = −4.1 + 0.035 . reduction (%)
Year 2200: ANC = 0.5 + 0.061 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

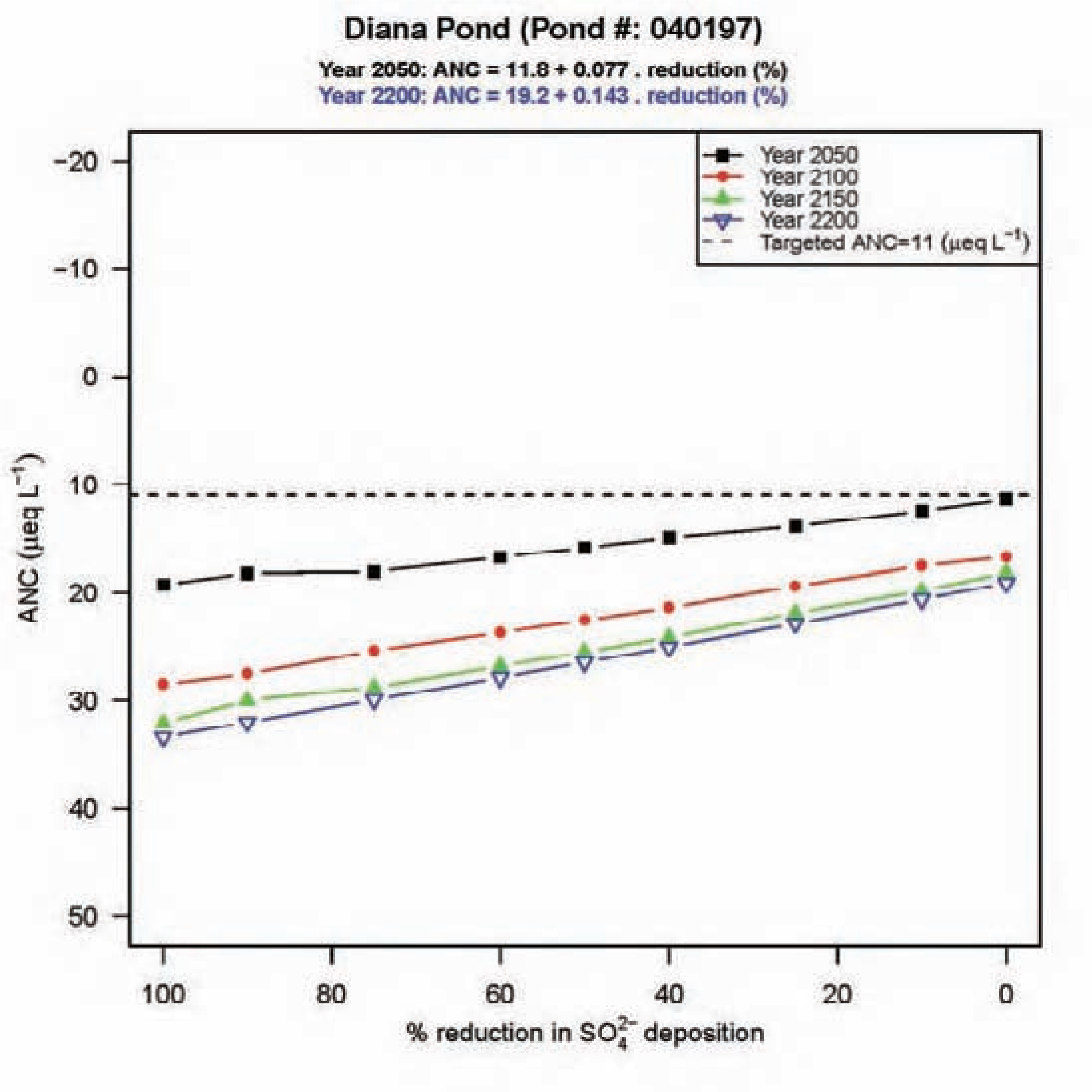

Benz Pond (Pond #: 030221)
Year 2050: ANC = −3.6 + 0.048 . reduction (%)
Year 2200: ANC = 1.8 + 0.074 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L−1)
ANC (µeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

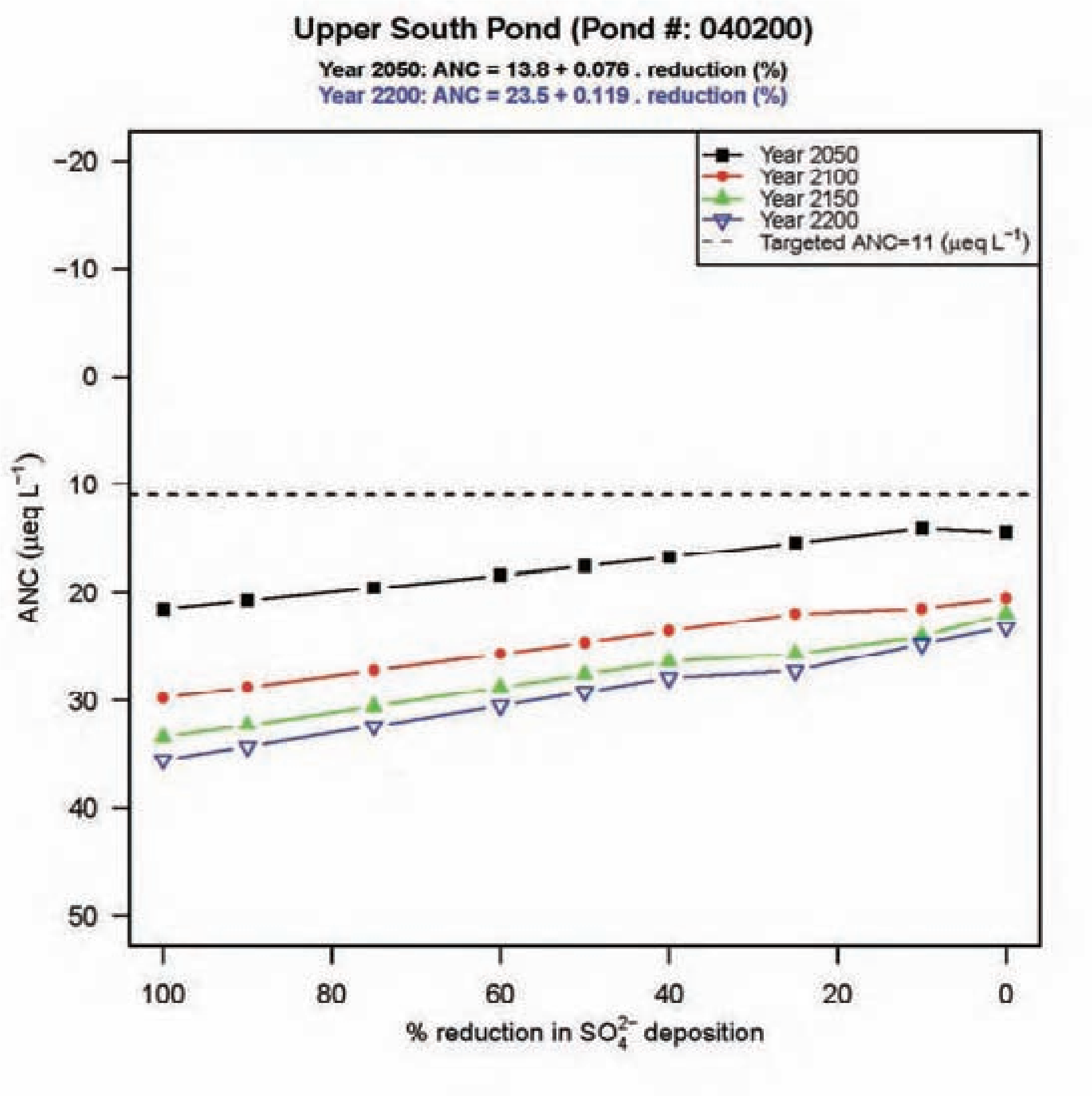

Duck Pond (Pond #: 035219)
Year 2050: ANC = 14.6 + 0.068 . reduction (%)
Year 2200: ANC = 27.8 + 0.11 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Gregg Lake (Pond #: 040181)
Year 2050: ANC = 18.8 + 0.079 . reduction (%)
Year 2200: ANC = 27.7 + 0.185 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

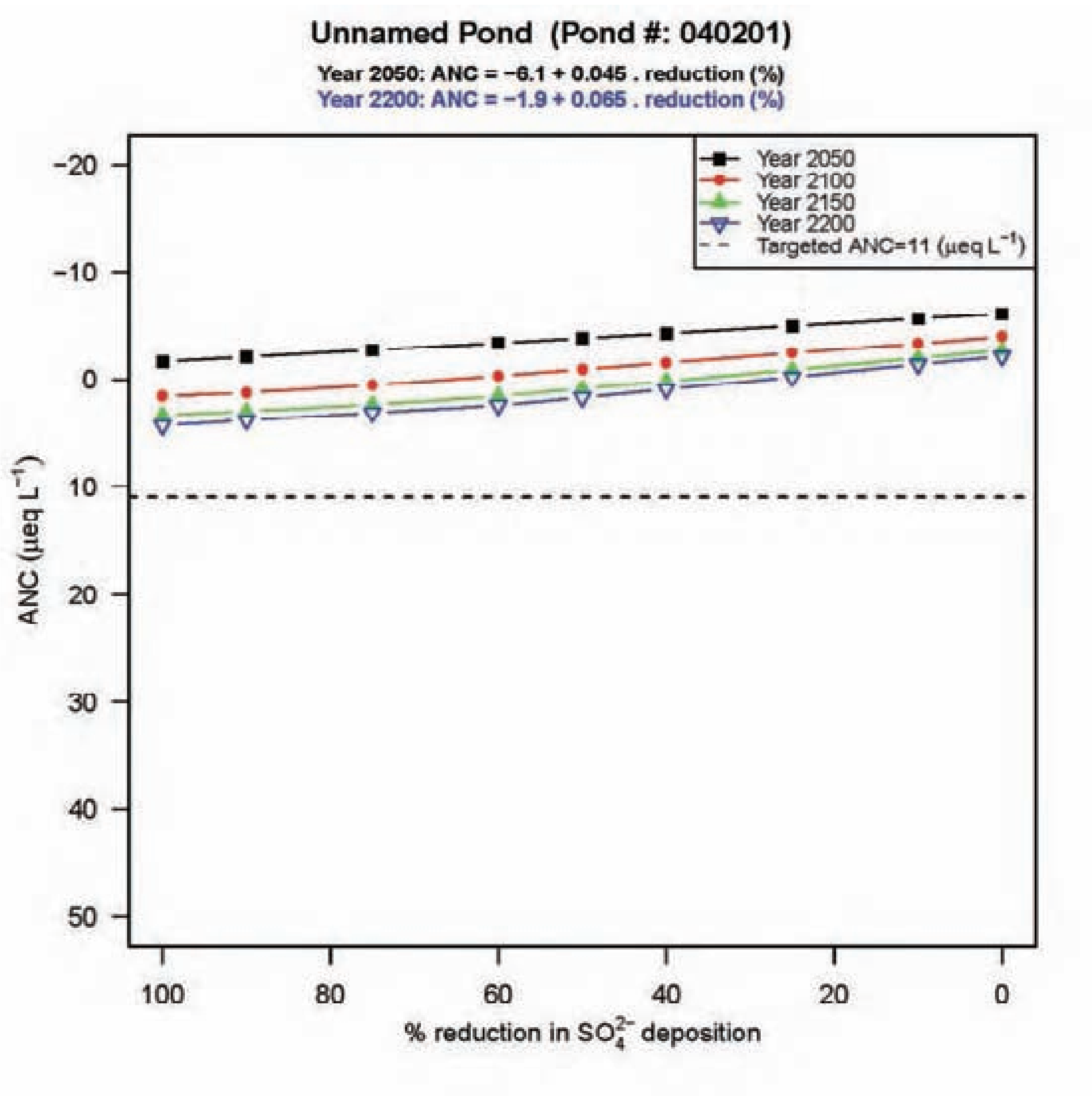

Green Pond (Pond #: 040184)
Year 2050: ANC = −7.7 + 0.056 . reduction (%)
Year 2200: ANC = −2.7 + 0.089 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition


Muskrat Pond (Pond #: 040195)
Year 2050: ANC = 14.8 + 0.089 . reduction (%)
Year 2200: ANC = 23.6 + 0.151 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

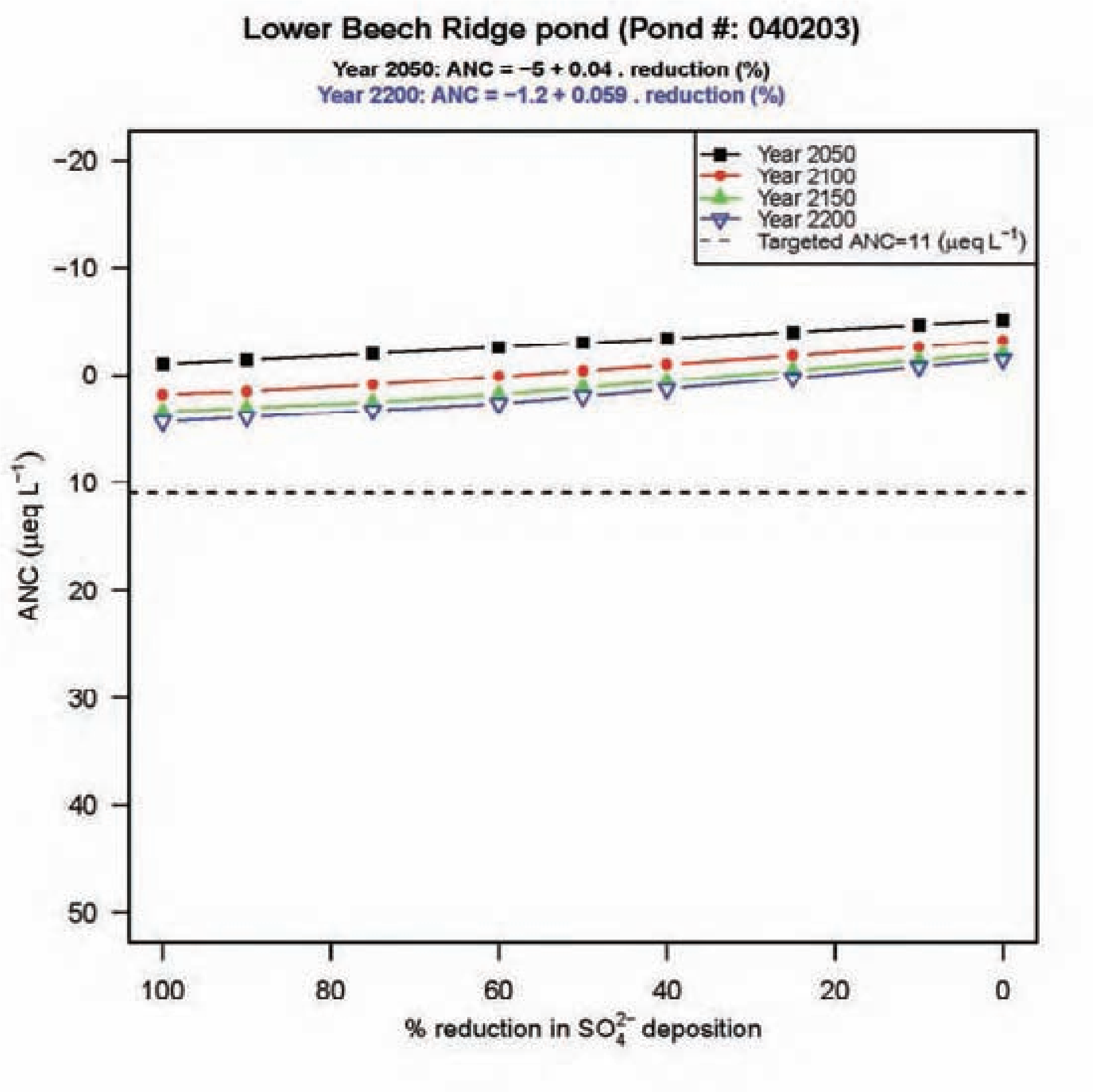

Diana Pond (Pond #: 040197)
Year 2050: ANC = 11.8 + 0.077 . reduction (%)
Year 2200: ANC = 19.2 + 0.143 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



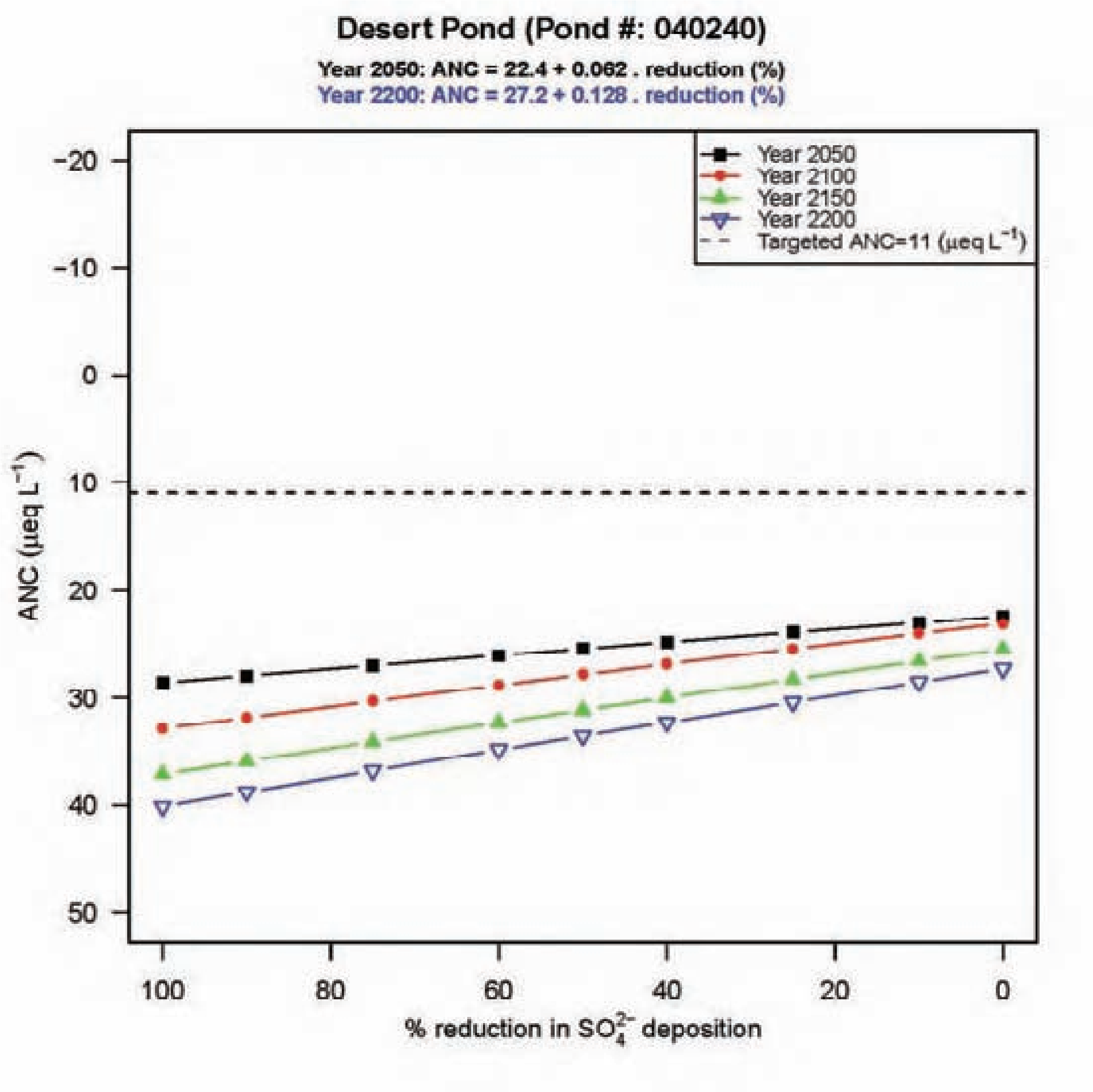
Upper South Pond (Pond #: 040200)
Year 2050: ANC = 13.8 + 0.076 . reduction (%)
Year 2200: ANC = 23.5 + 0.119 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

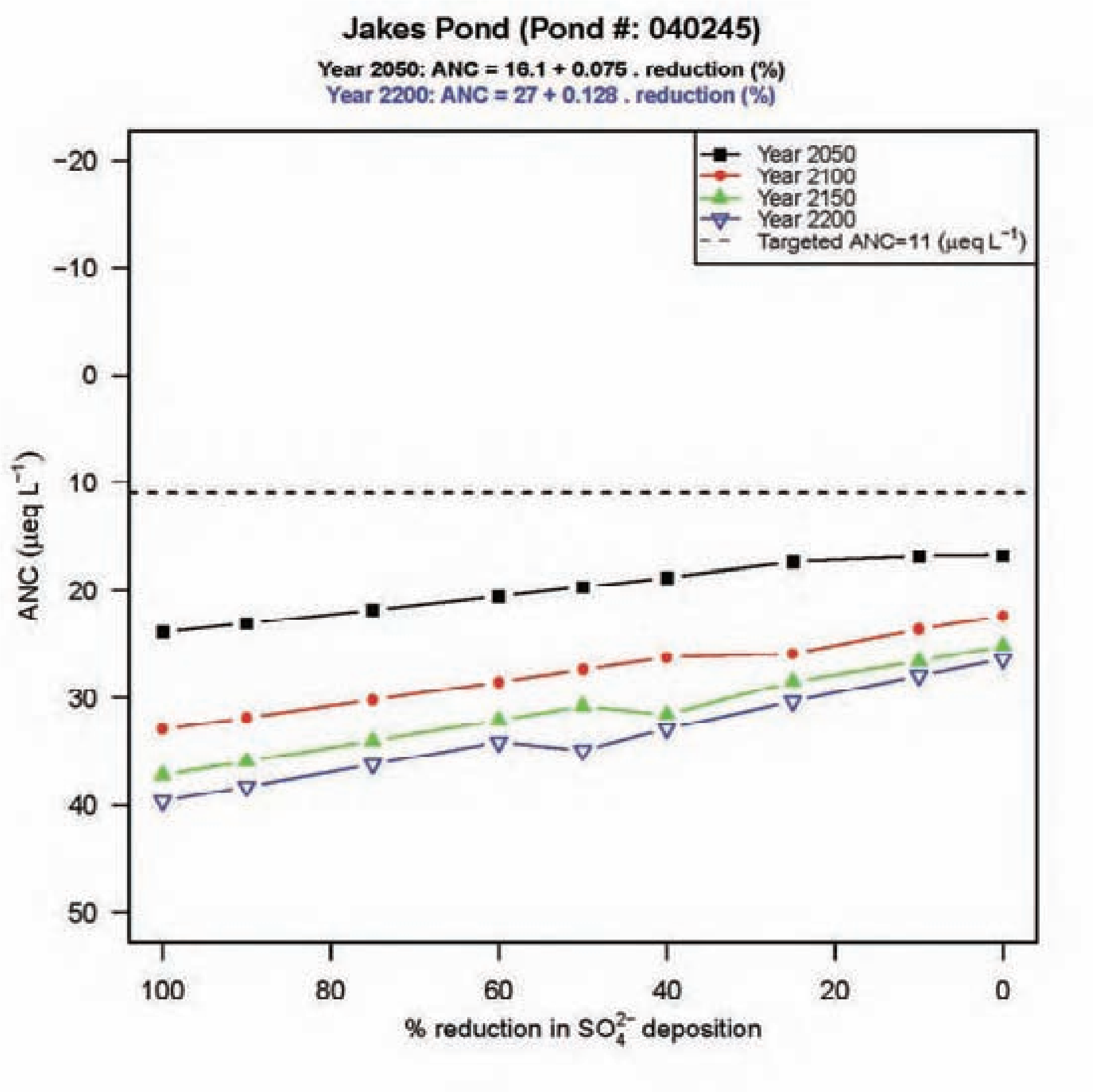


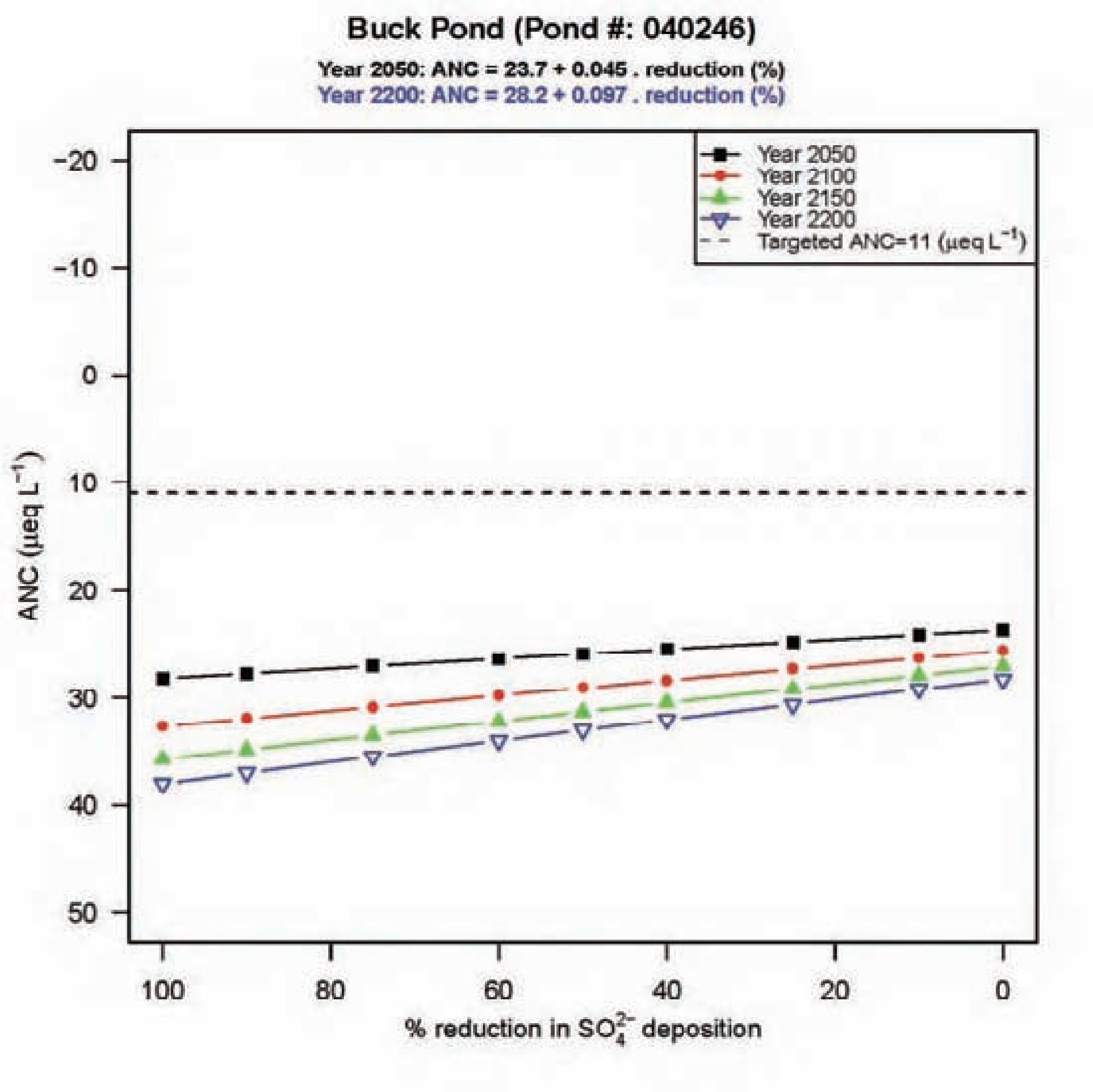
Unnamed Pond (Pond #: 040201)
Year 2050: ANC = −6.1 + 0.045 . reduction (%)
Year 2200: ANC = −1.9 + 0.065 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

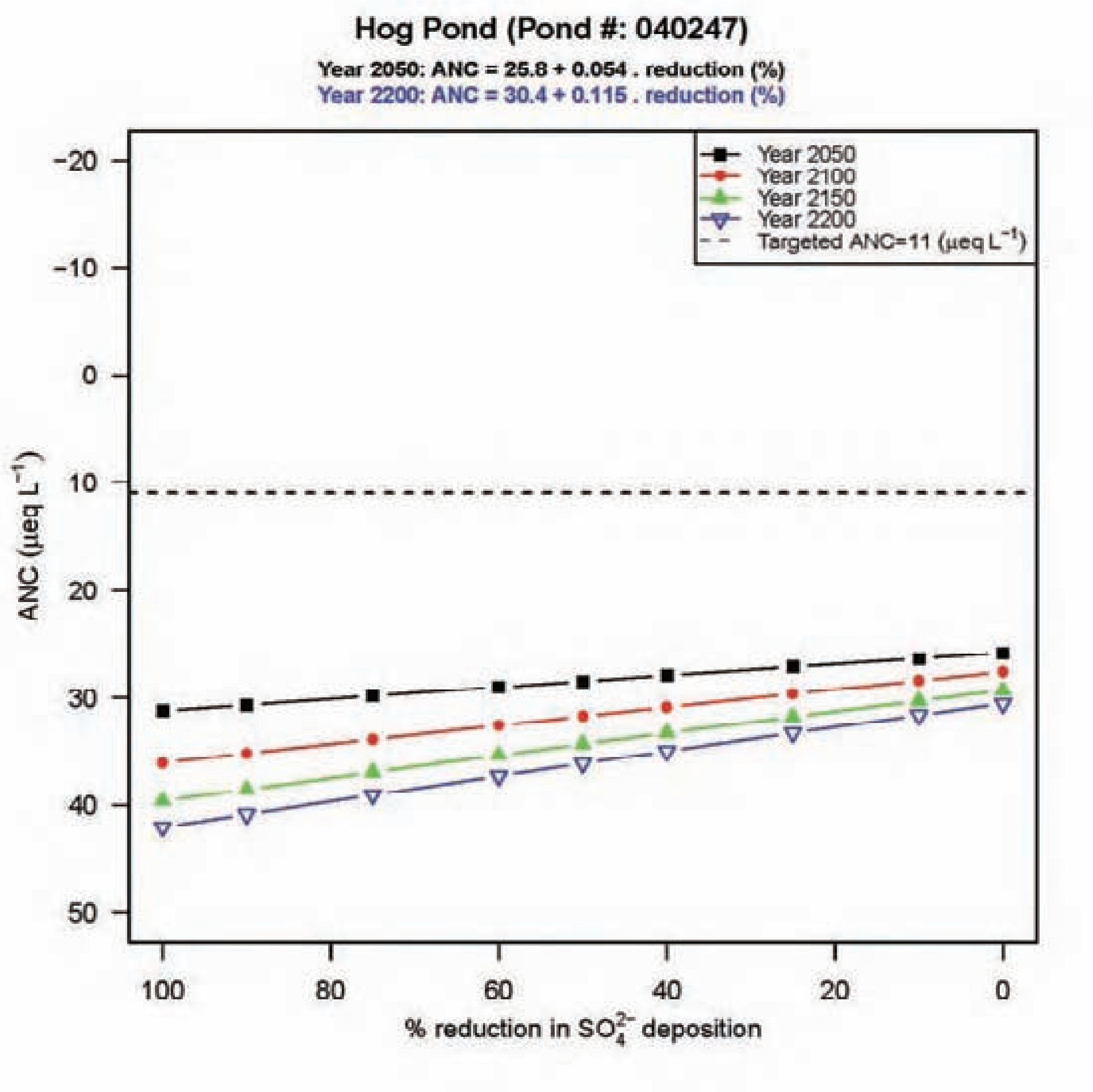


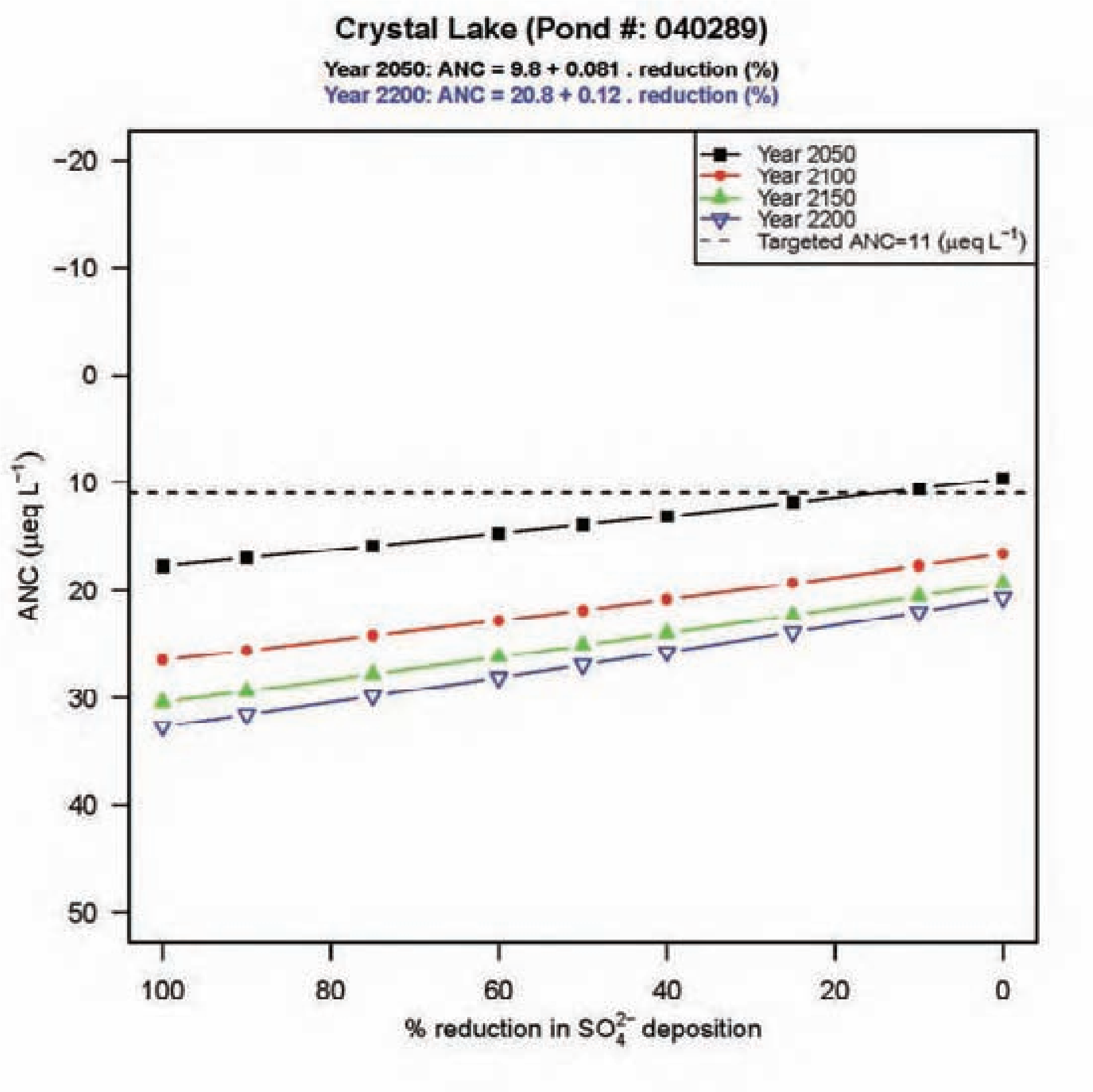
Lower Beech Ridge pond (Pond #: 040203)
Year 2050: ANC = −5 + 0.04 . reduction (%)
Year 2200: ANC = −1.2 + 0.059 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

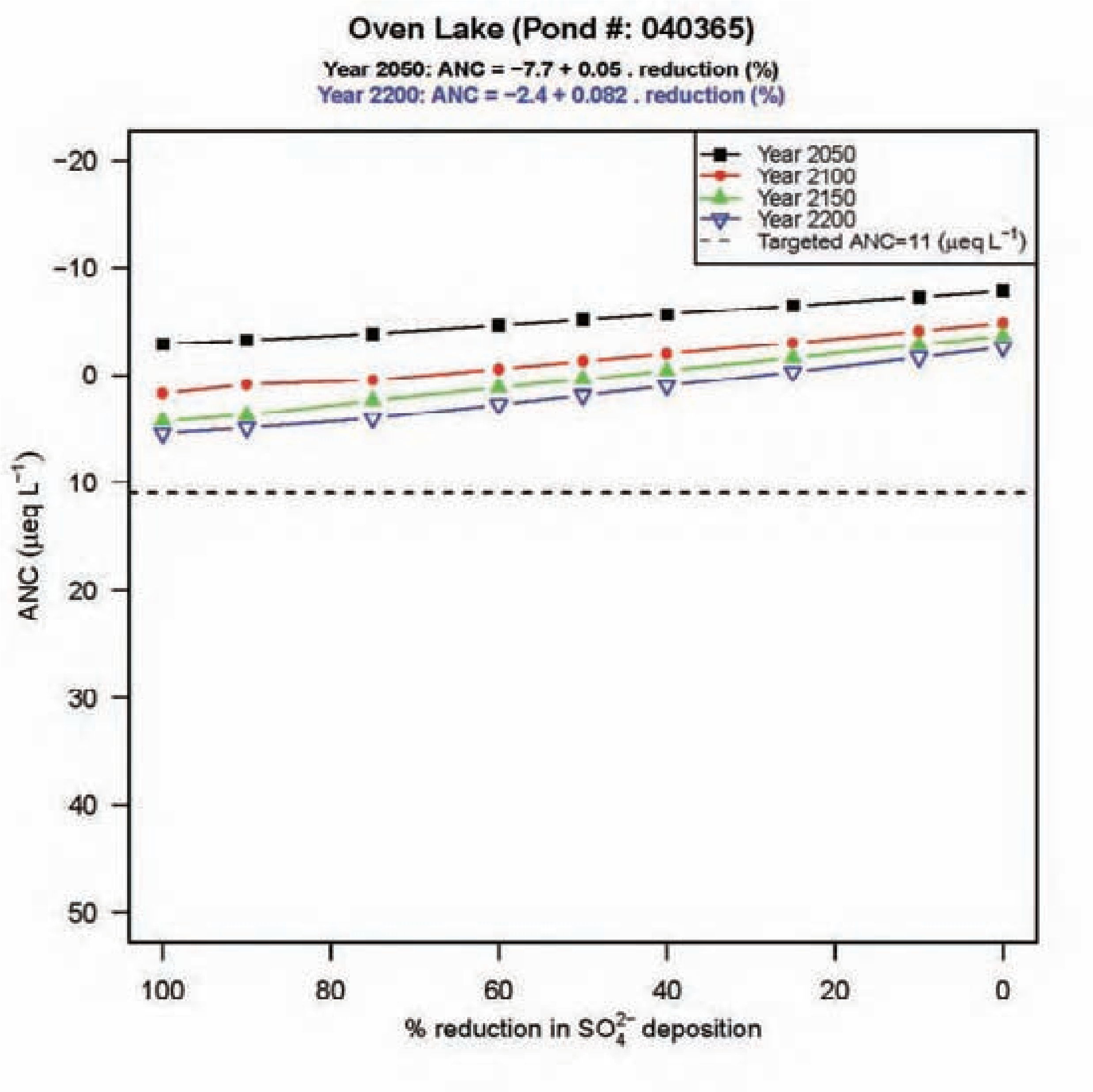

Desert Pond (Pond #: 040240)
Year 2050: ANC = 22.4 + 0.062 . reduction (%)
Year 2200: ANC = 27.2 + 0.128 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

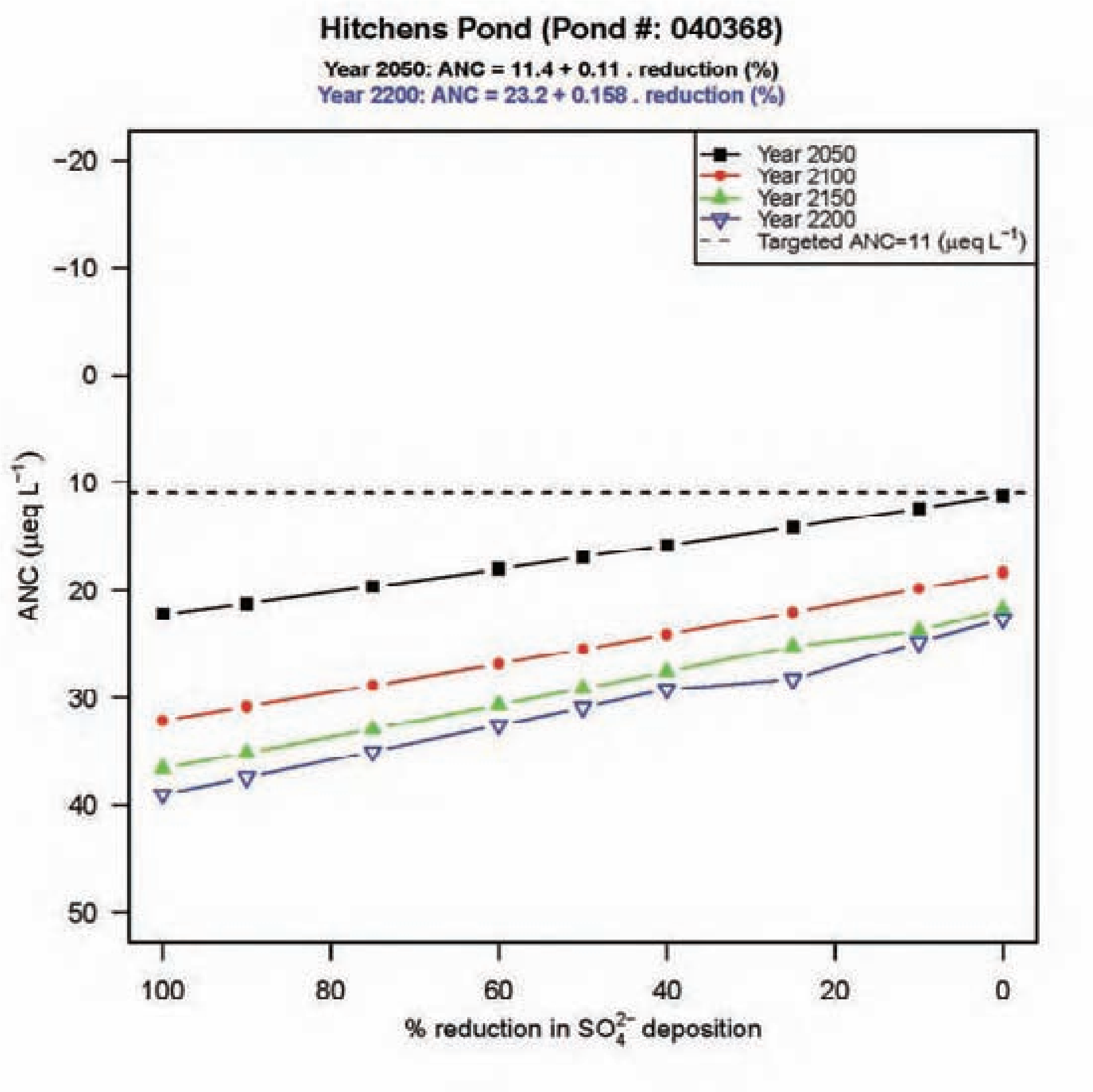

Jakes Pond (Pond #: 040245)
Year 2050: ANC = 16.1 + 0.075 . reduction (%)
Year 2200: ANC = 27 + 0.128 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

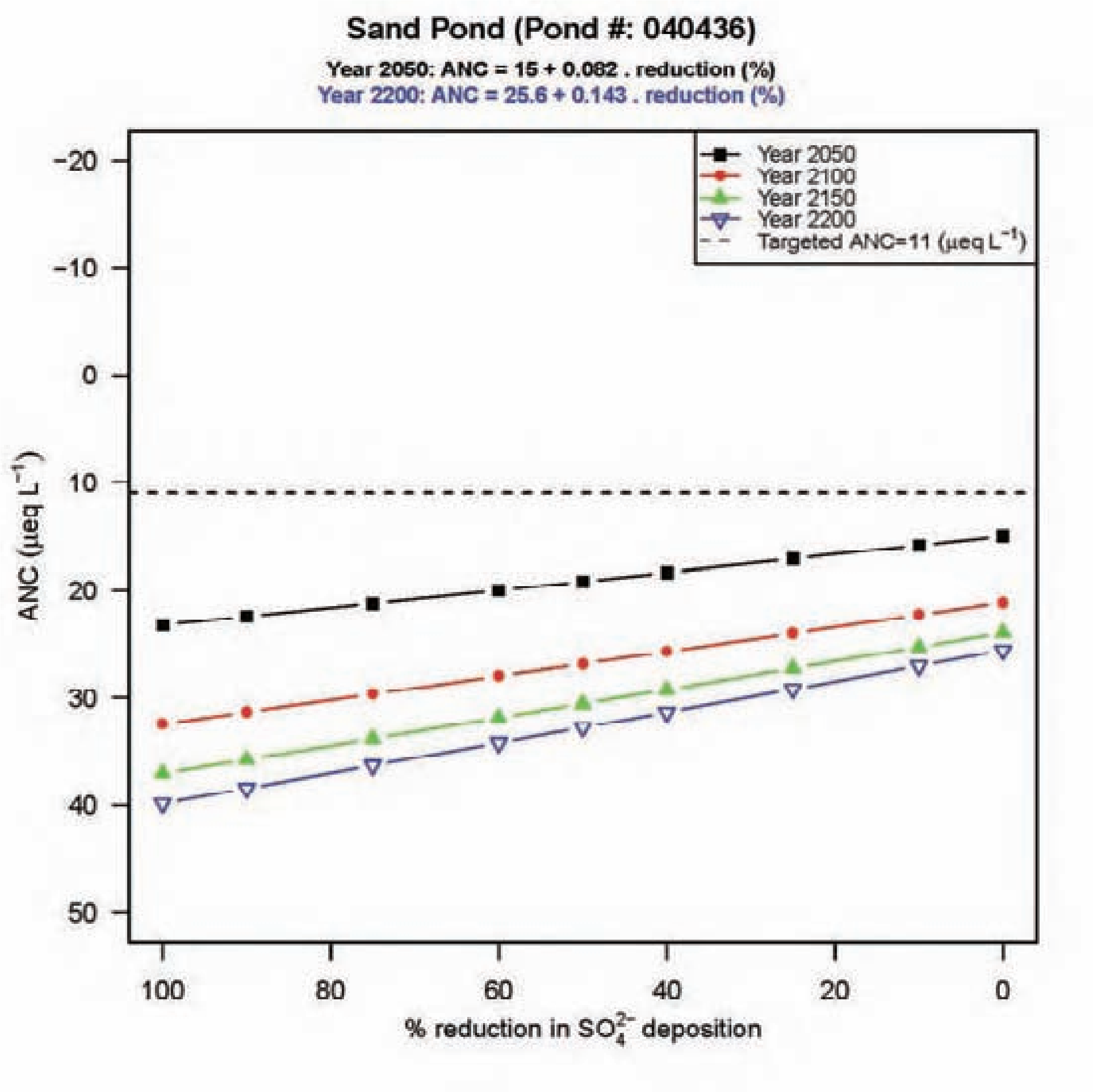

Buck Pond (Pond #: 040246)
Year 2050: ANC = 23.7 + 0.045 . reduction (%)
Year 2200: ANC = 28.2 + 0.097 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2− deposition


Hog Pond (Pond #: 040247)
Year 2050: ANC = 25.8 + 0.054 . reduction (%)
Year 2200: ANC = 30.4 + 0.115 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO_4^{2-} deposition

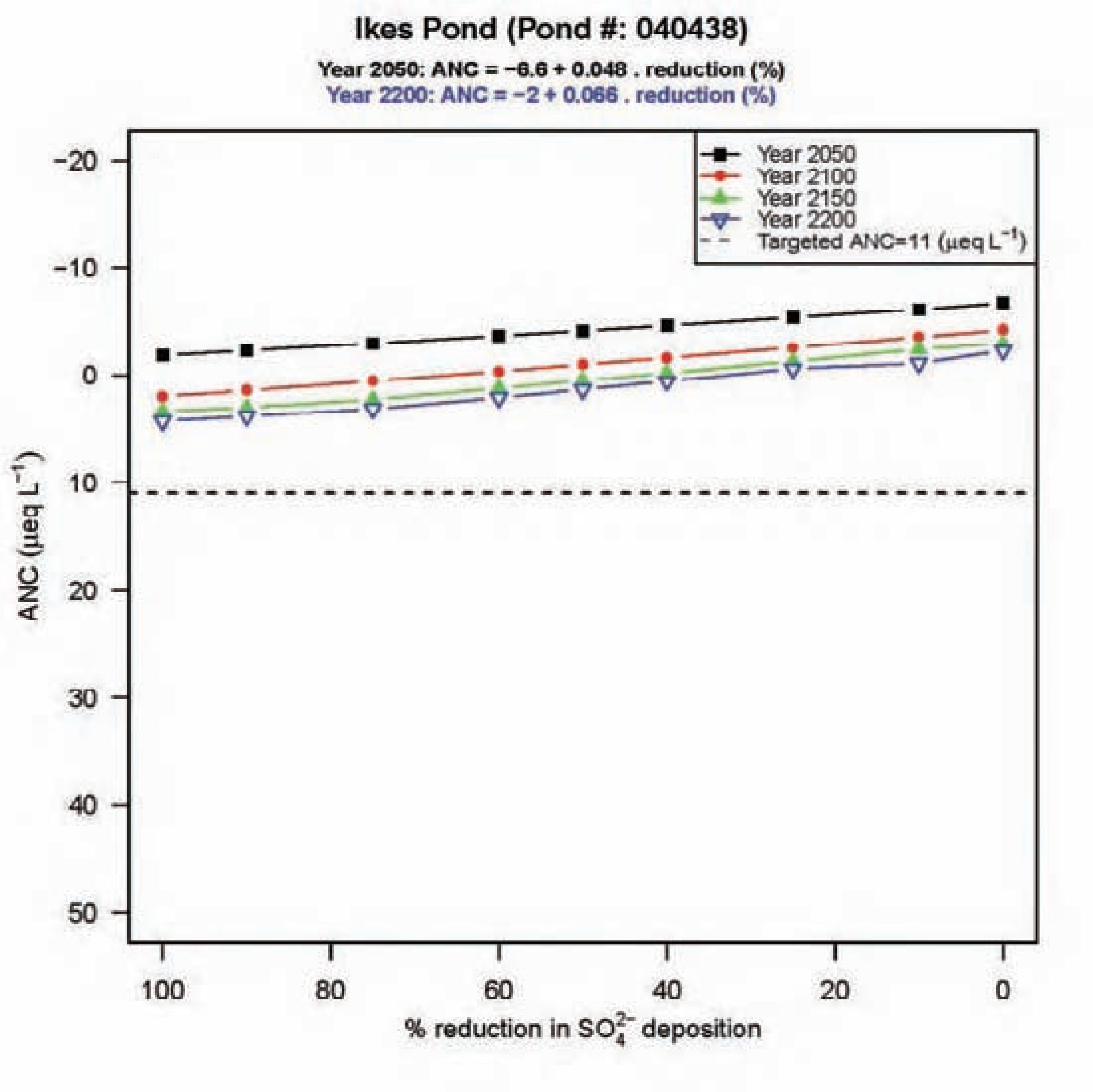

Crystal Lake (Pond #: 040289)
Year 2050: ANC = 9.8 + 0.081 . reduction (%)
Year 2200: ANC = 20.8 + 0.12 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

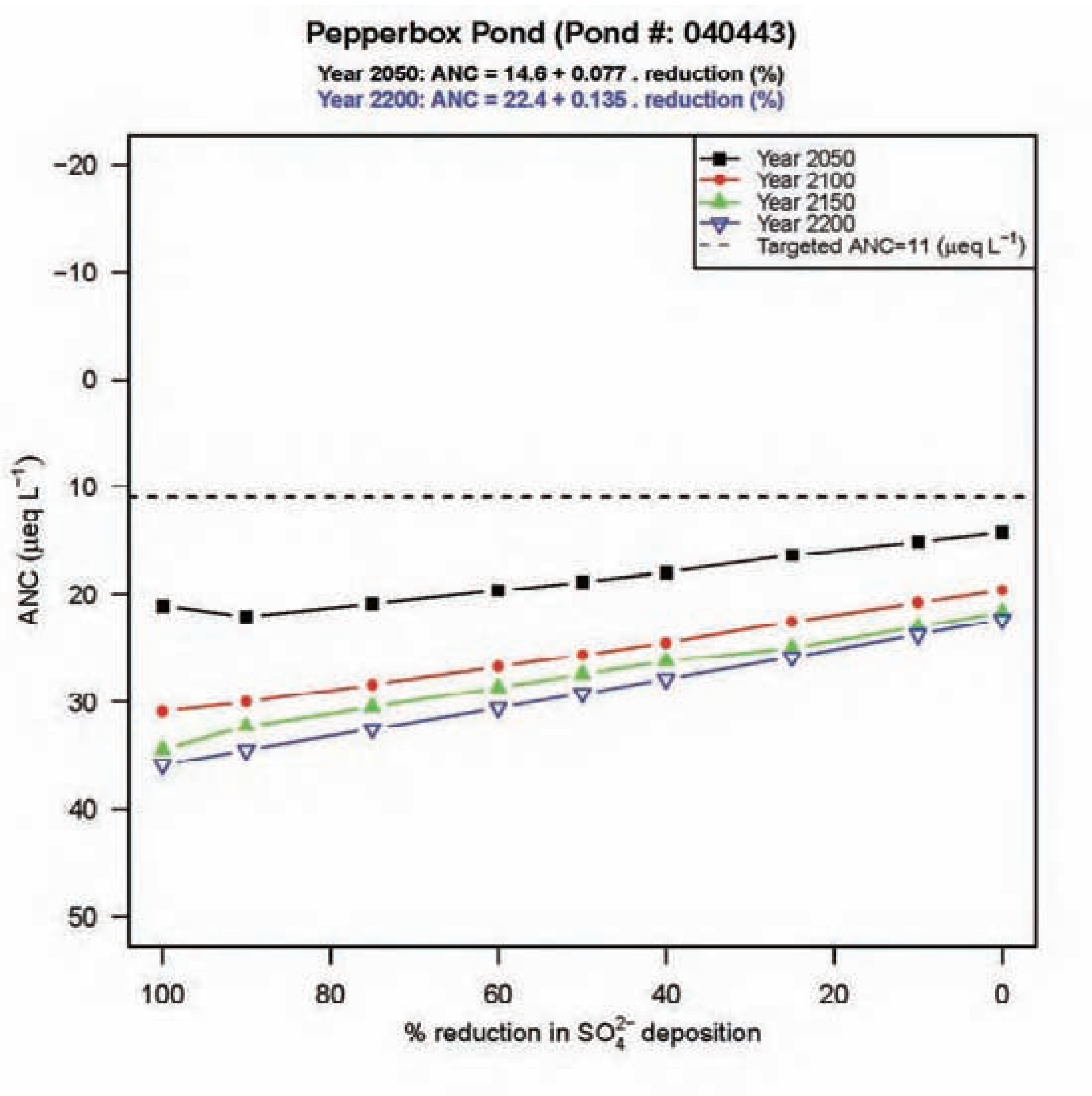

Oven Lake (Pond #: 040365)
Year 2050: ANC = −7.7 + 0.05 . reduction (%)
Year 2200: ANC = −2.4 + 0.082 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

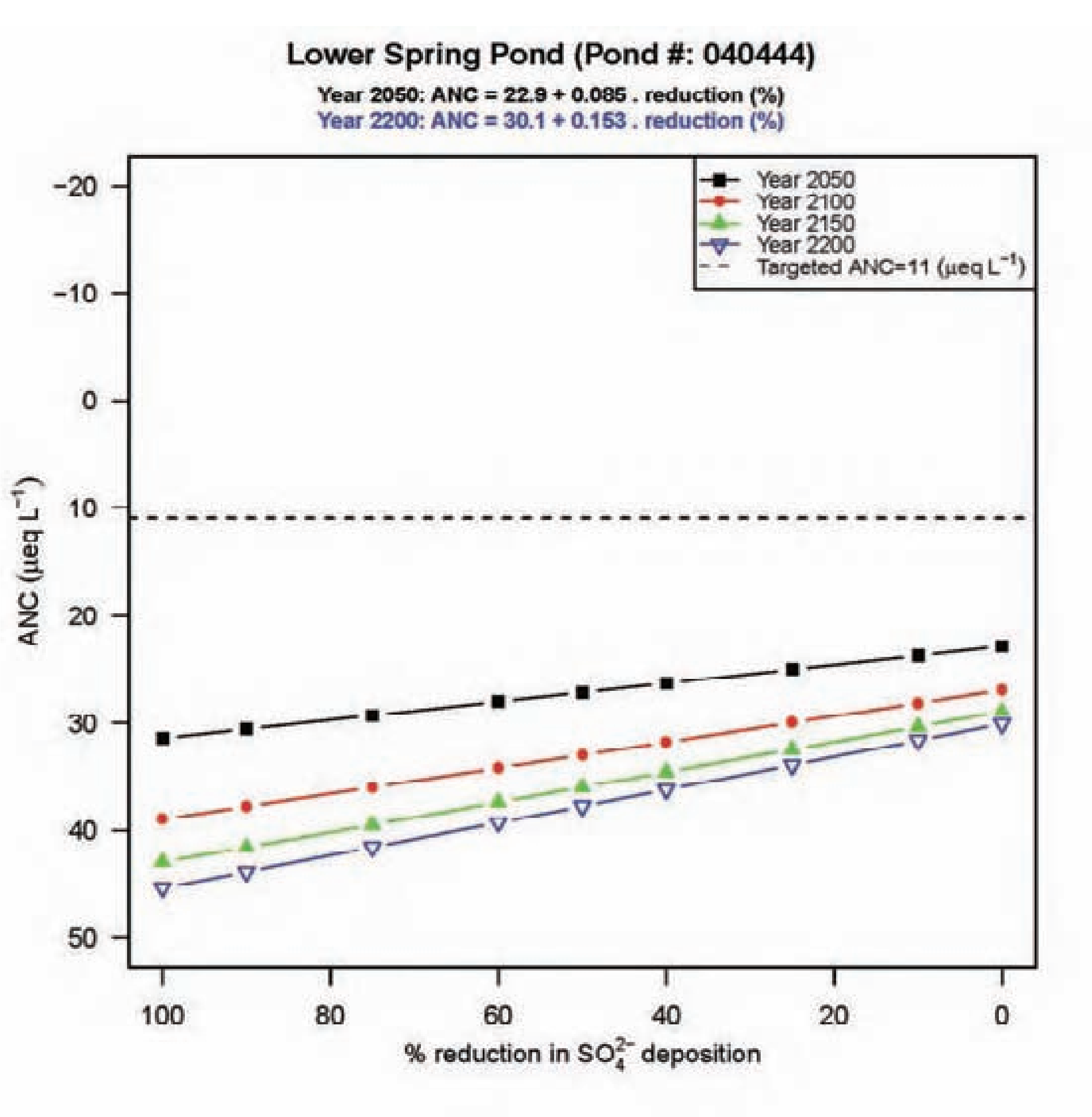

Hitchens Pond (Pond #: 040368)
Year 2050: ANC = 11.4 + 0.11 . reduction (%)
Year 2200: ANC = 23.2 + 0.158 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

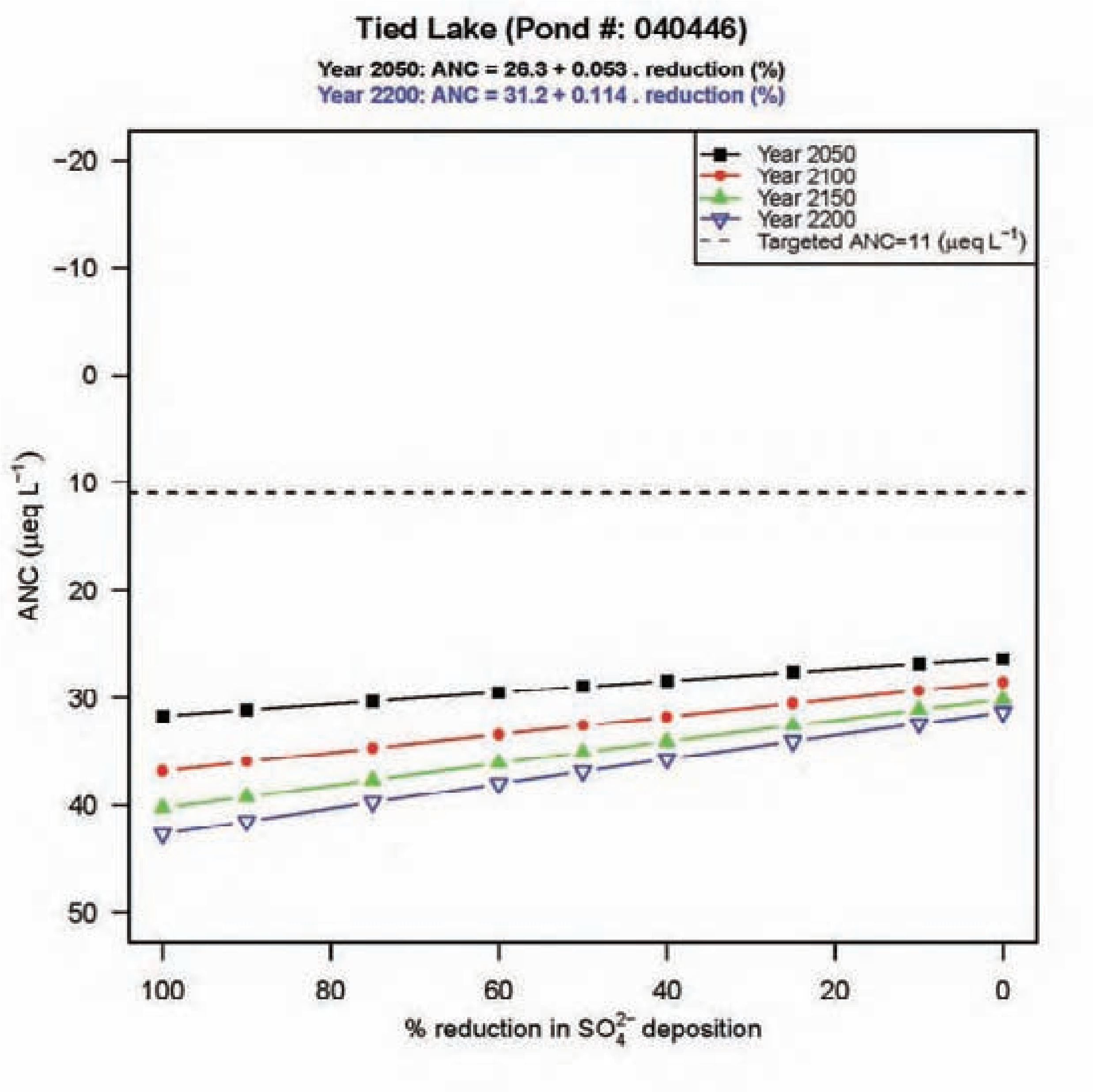


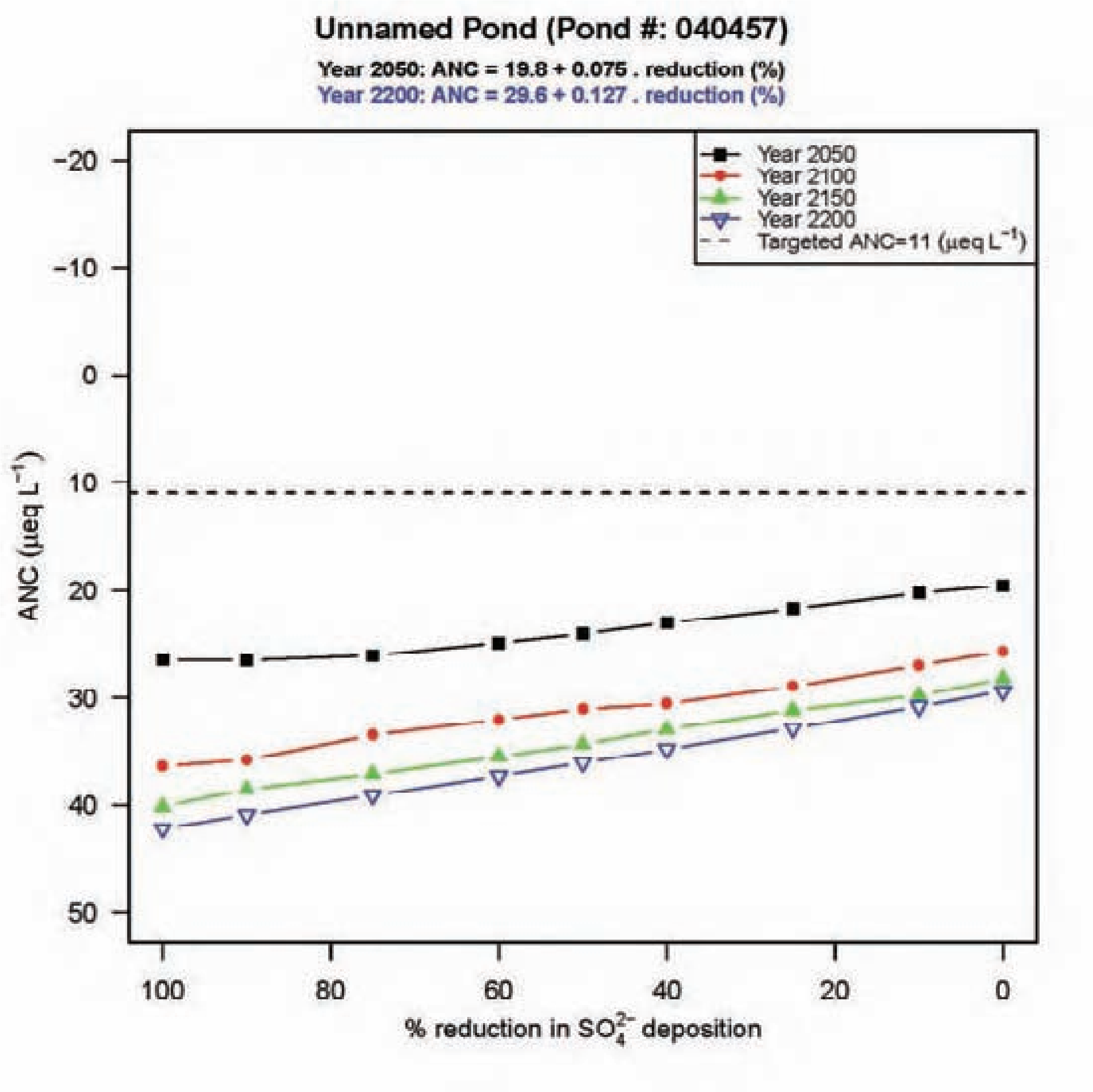
Sand Pond (Pond #: 040436)
Year 2050: ANC = 15 + 0.082 . reduction (%)
Year 2200: ANC = 25.6 + 0.143 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Ikes Pond (Pond #: 040438)
Year 2050: ANC = −6.6 + 0.048 . reduction (%)
Year 2200: ANC = −2 + 0.066 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0

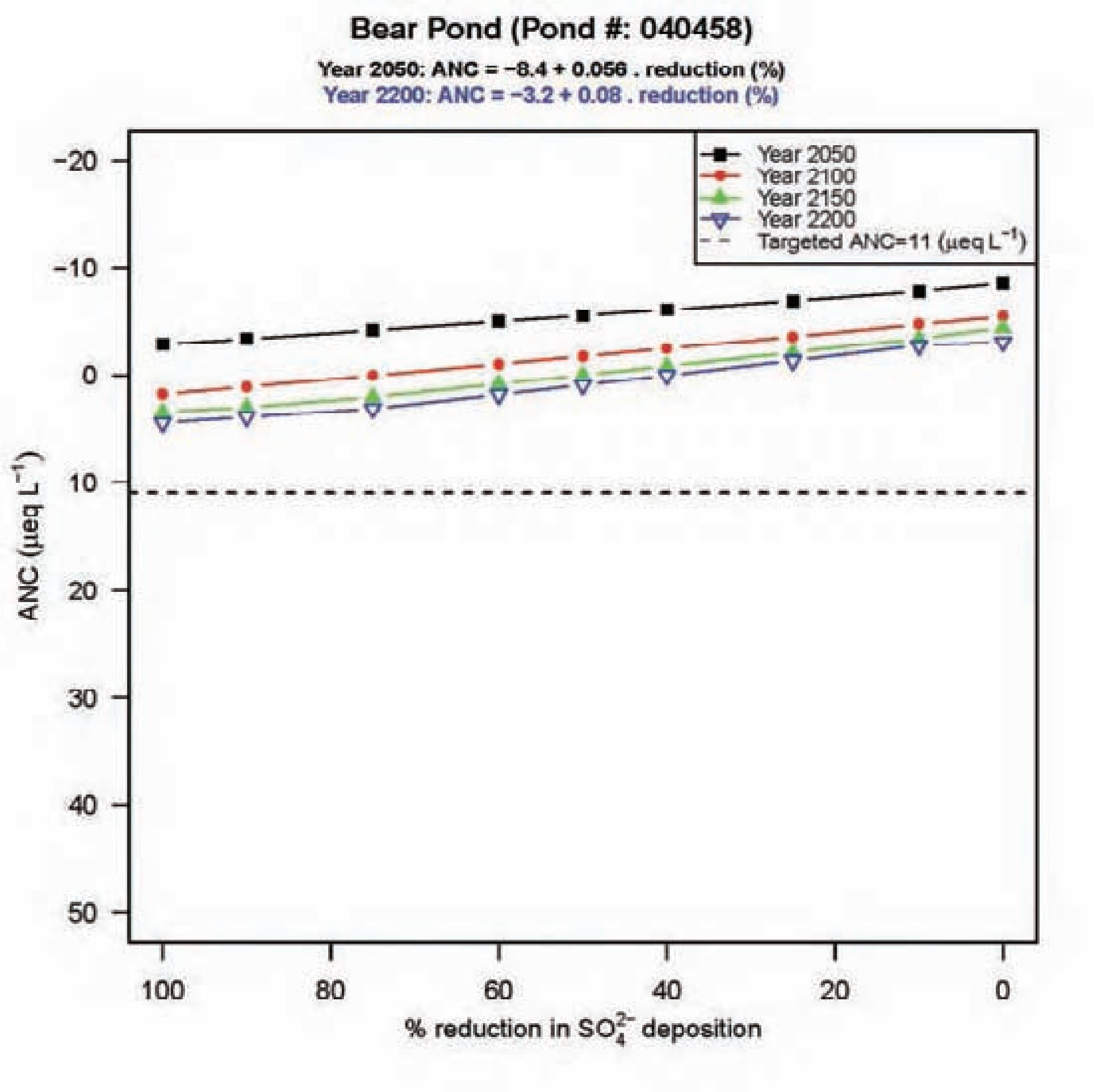

Pepperbox Pond (Pond #: 040443)
Year 2050: ANC = 14.6 + 0.077 . reduction (%)
Year 2200: ANC = 22.4 + 0.135 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

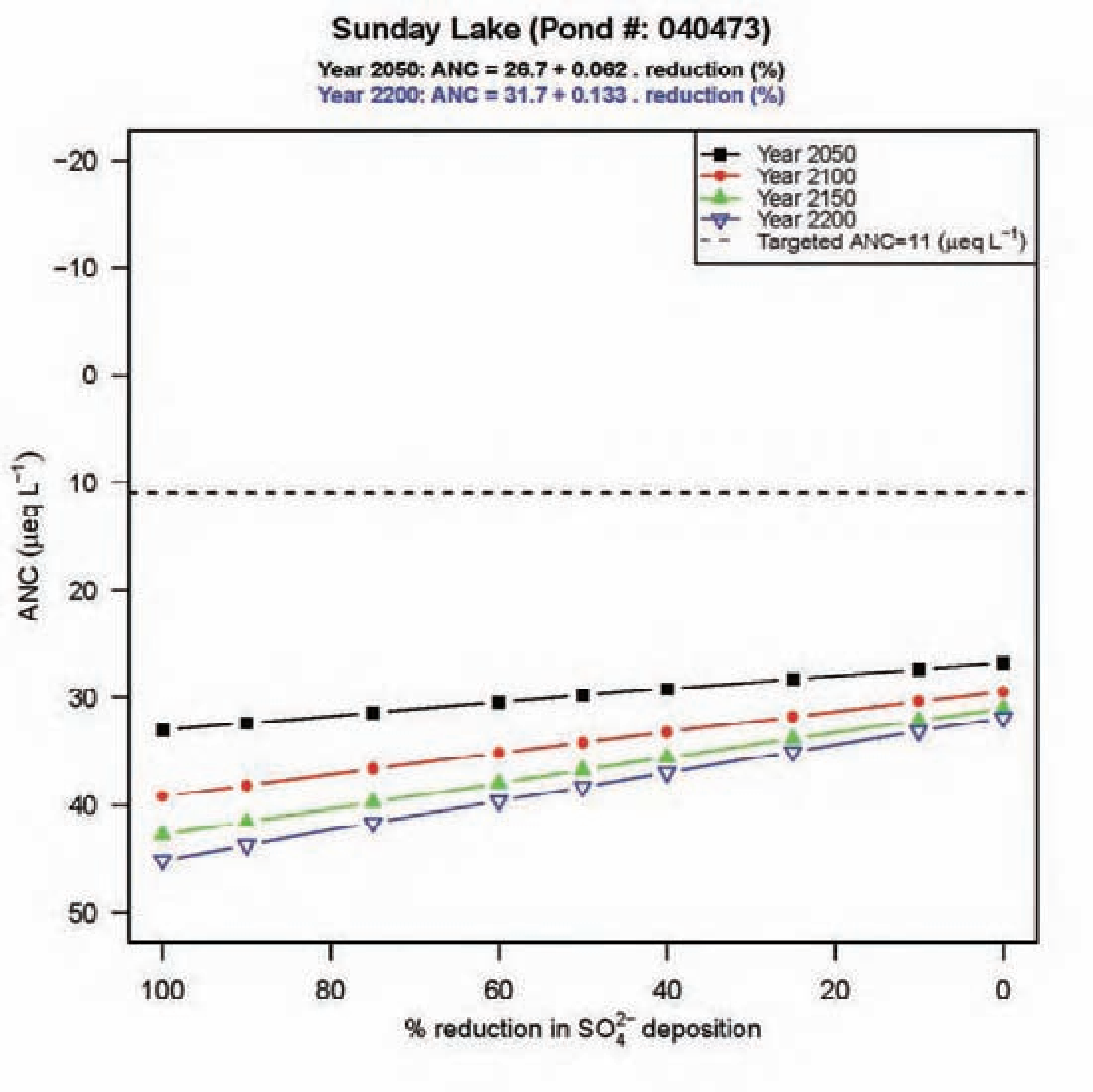

Lower Spring Pond (Pond #: 040444)
Year 2050: ANC = 22.9 + 0.085 . reduction (%)
Year 2200: ANC = 30.1 + 0.153 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Tied Lake (Pond #: 040446)
Year 2050: ANC = 26.3 + 0.053 . reduction (%)
Year 2200: ANC = 31.2 + 0.114 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

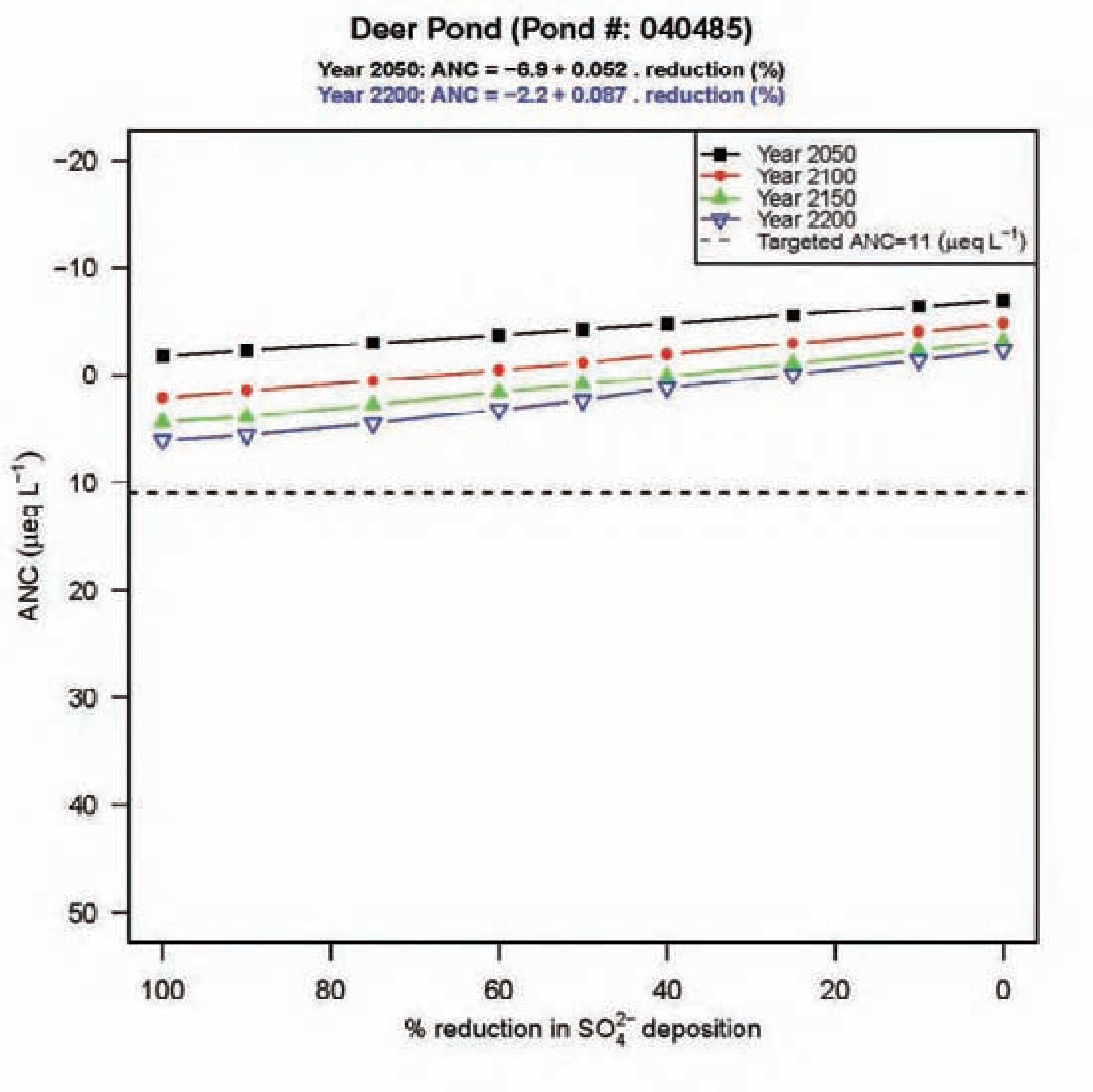


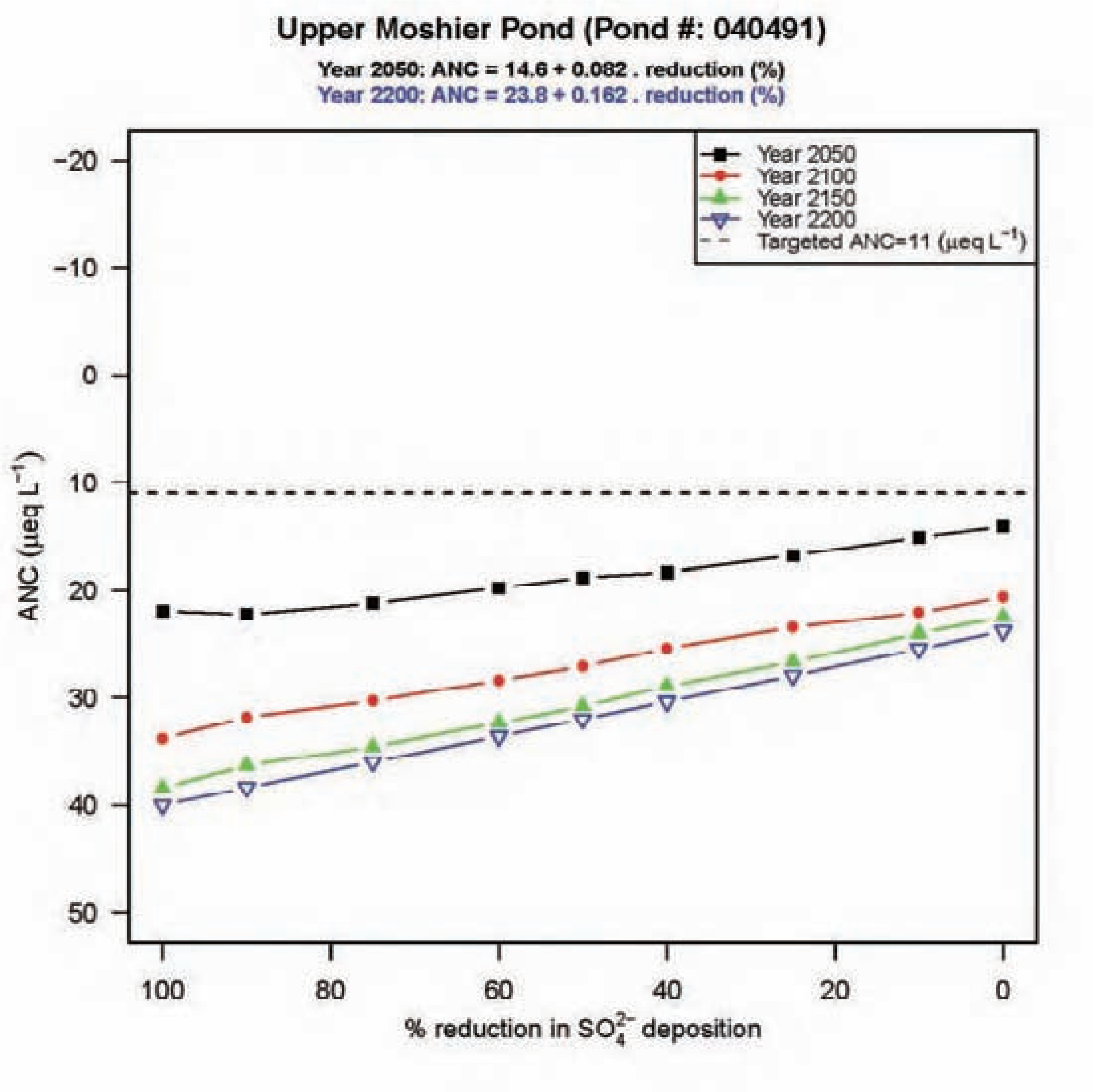
Unnamed Pond (Pond #: 040457)
Year 2050: ANC = 19.8 + 0.075 . reduction (%)
Year 2200: ANC = 29.6 + 0.127 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

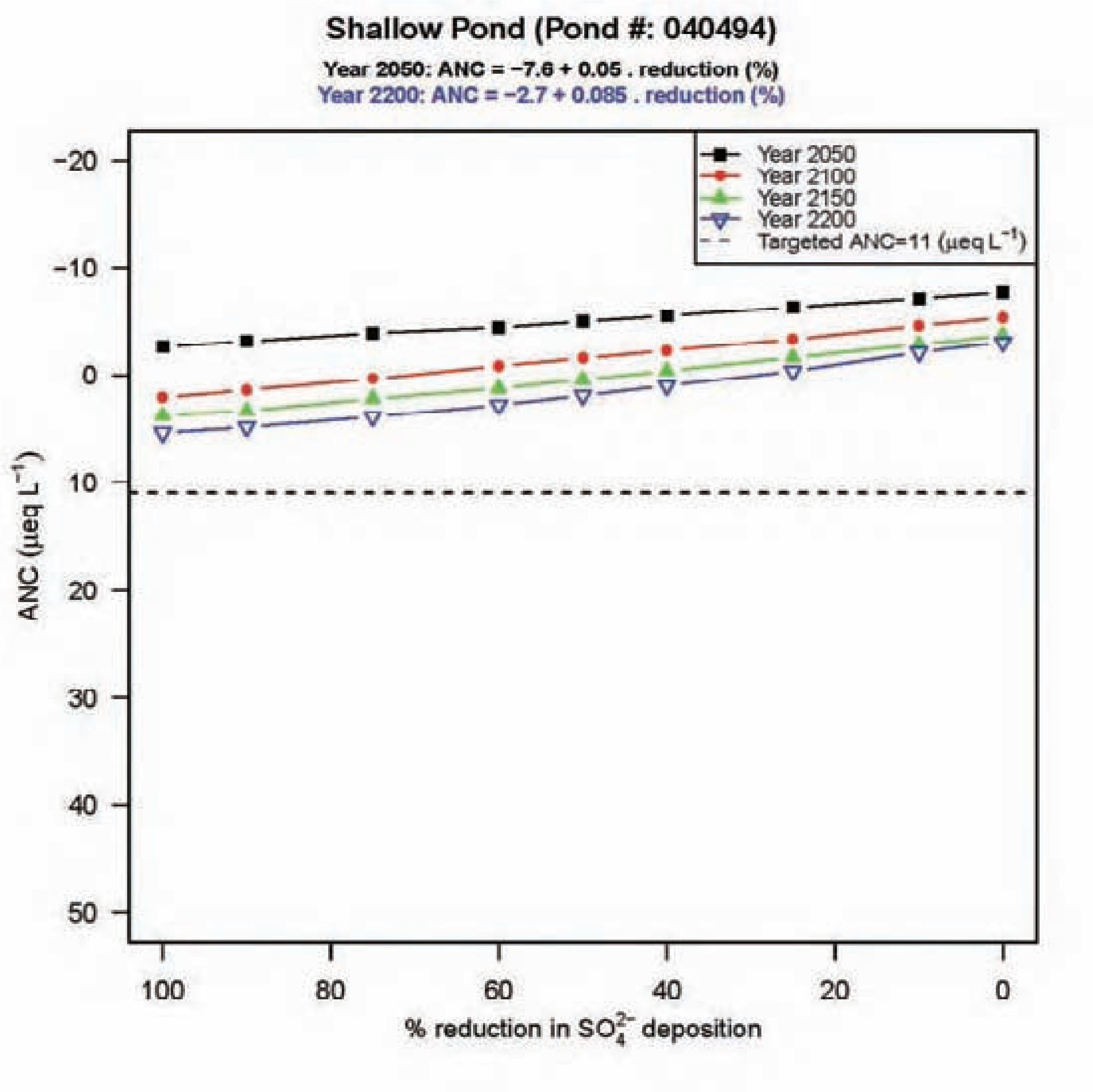

Bear Pond (Pond #: 040458)
Year 2050: ANC = −8.4 + 0.056 . reduction (%)
Year 2200: ANC = −3.2 + 0.08 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

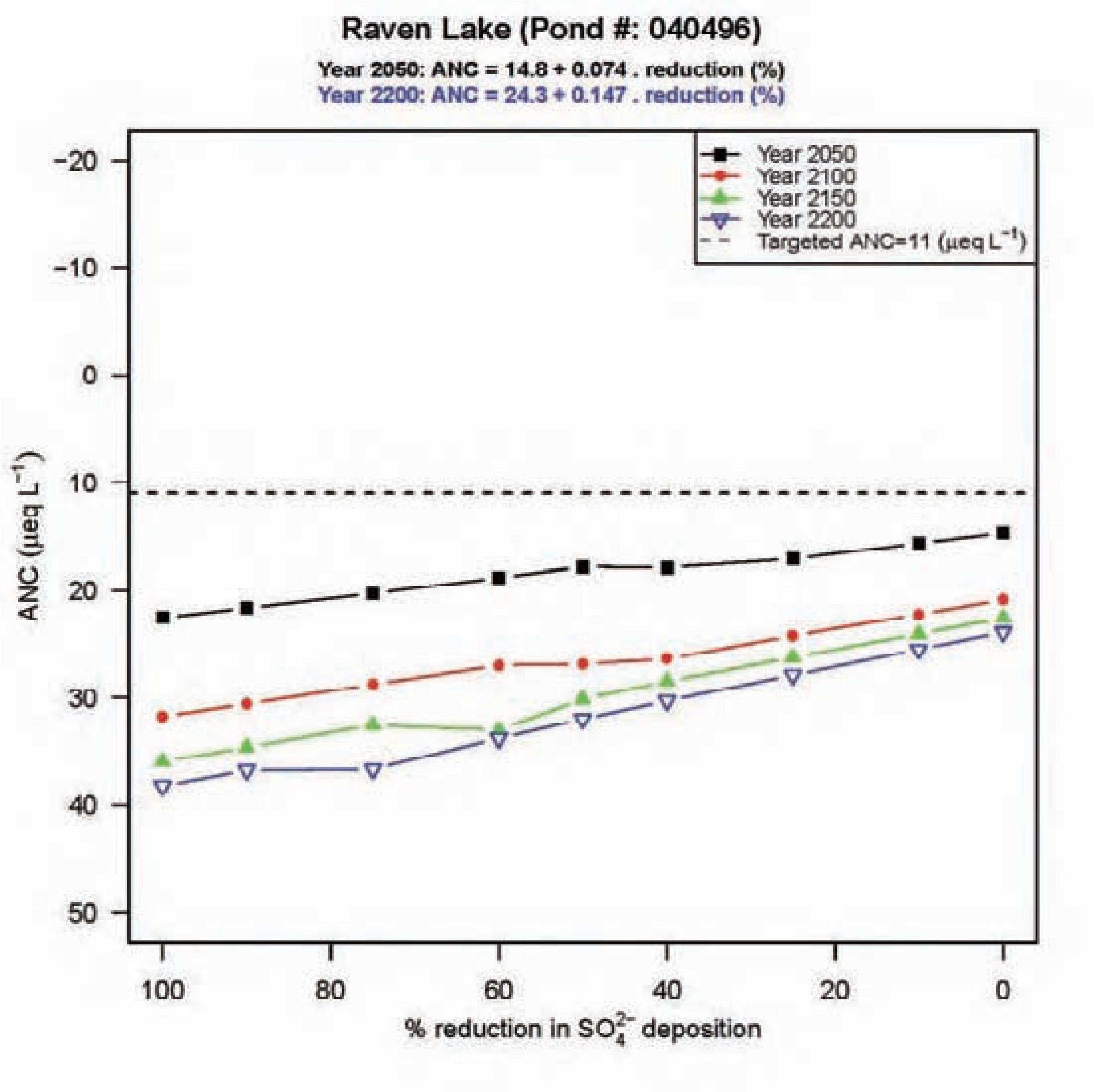


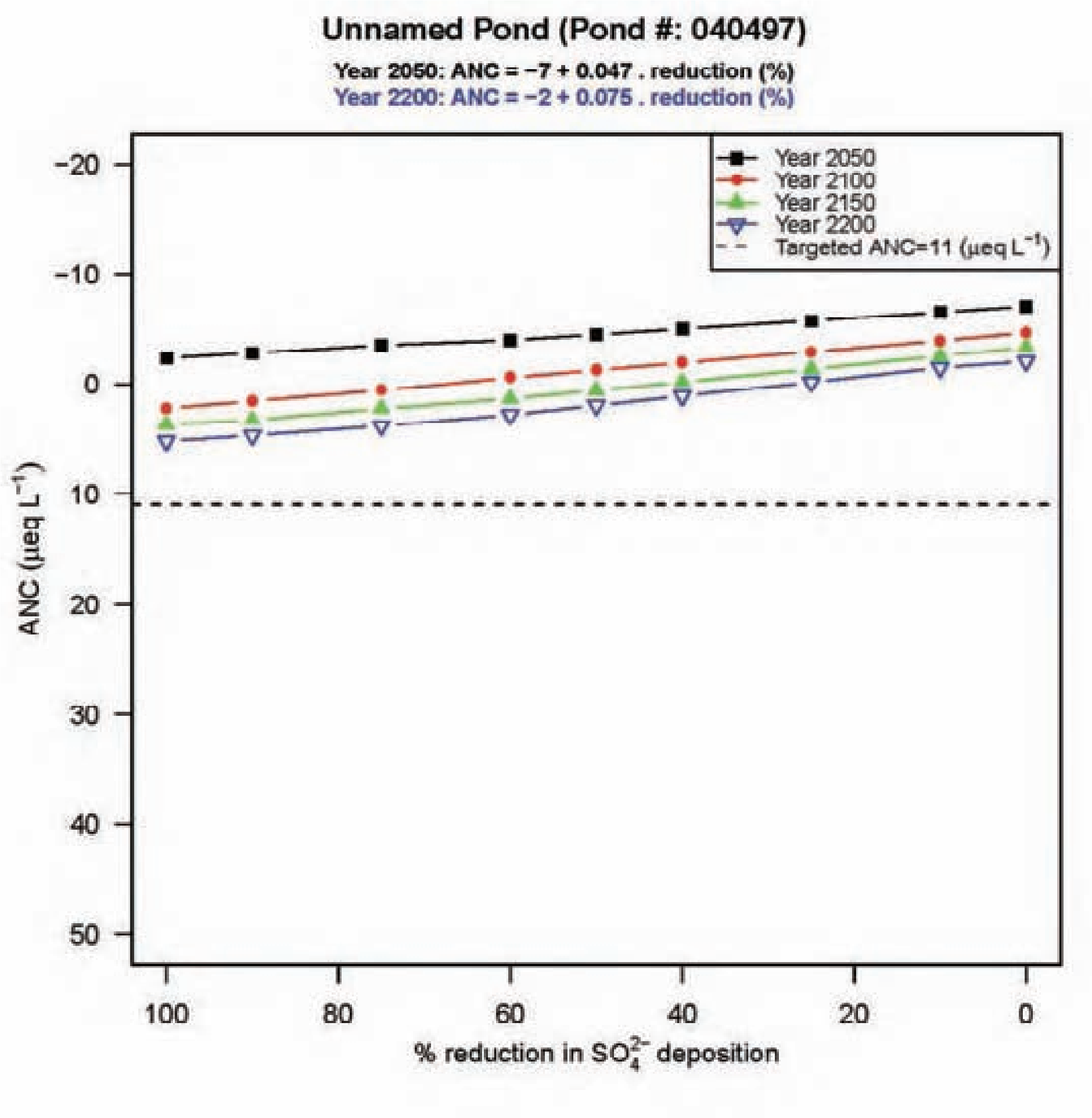
Sunday Lake (Pond #: 040473)
Year 2050: ANC = 26.7 + 0.062 . reduction (%)
Year 2200: ANC = 31.7 + 0.133 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^-1)
ANC (μeq L^-1)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4^2- deposition

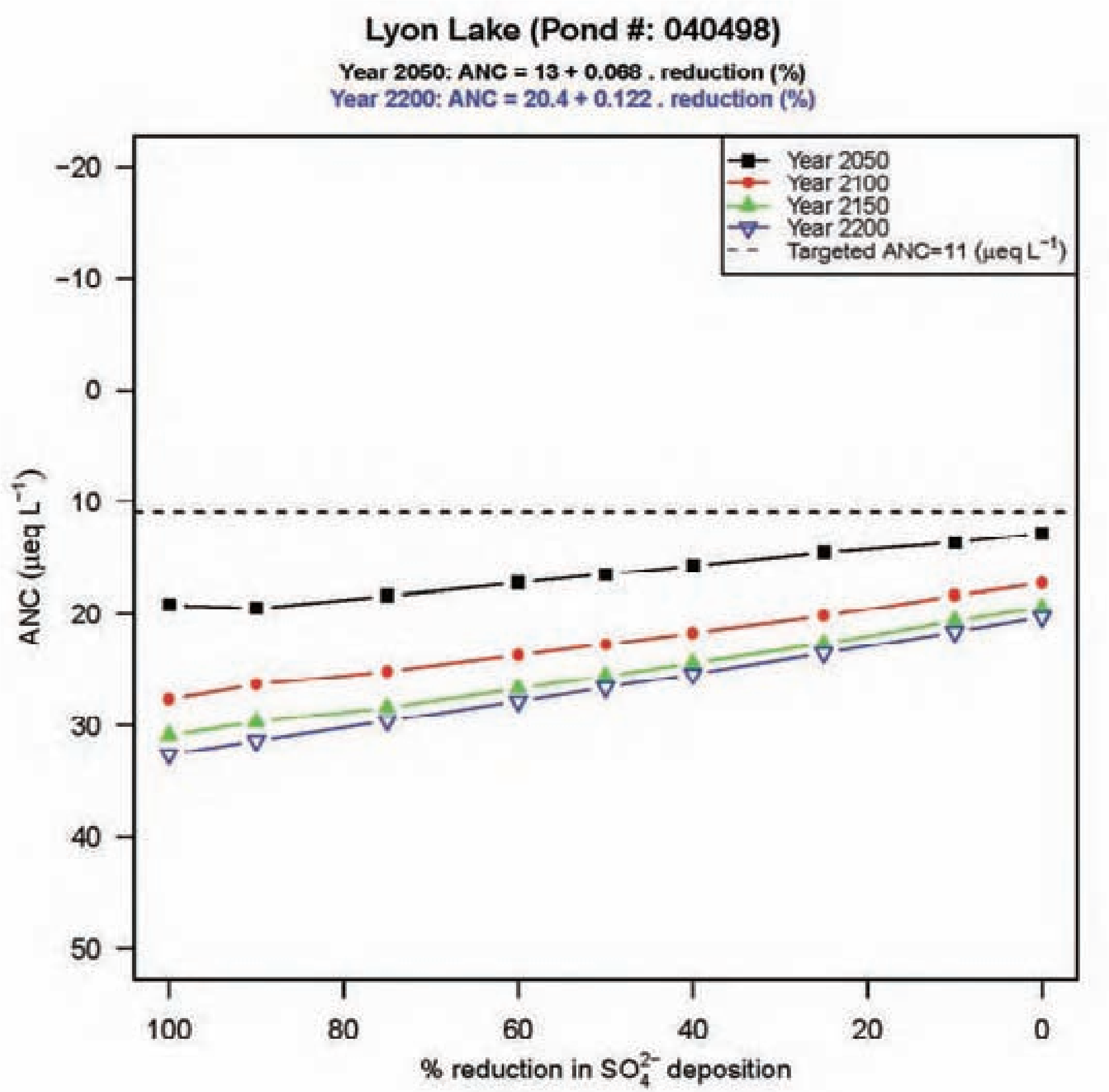

Deer Pond (Pond #: 040485)
Year 2050: ANC = −6.9 + 0.052 . reduction (%)
Year 2200: ANC = −2.2 + 0.087 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Upper Moshier Pond (Pond #: 040491)
Year 2050: ANC = 14.6 + 0.082 . reduction (%)
Year 2200: ANC = 23.8 + 0.162 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

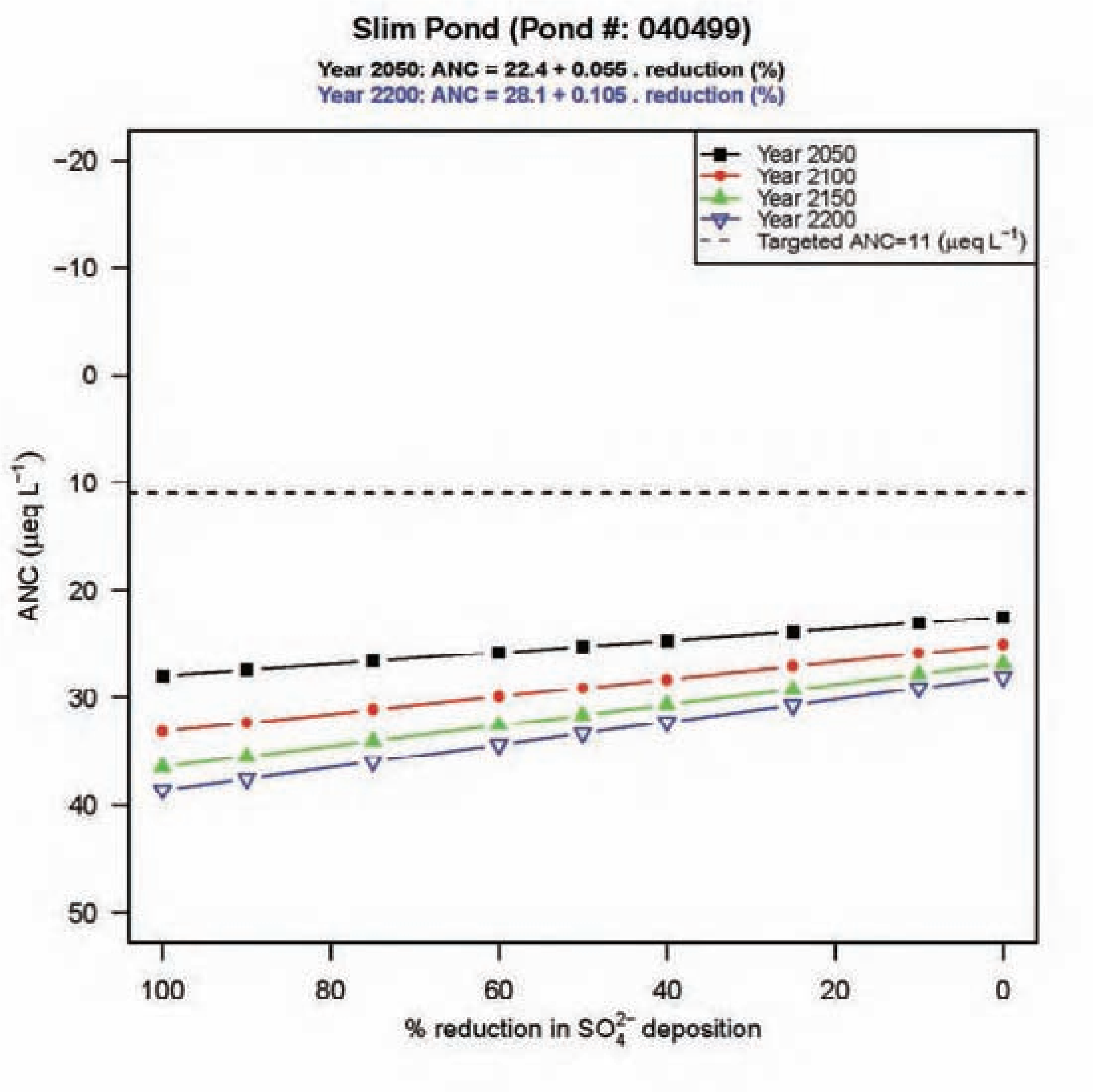

Shallow Pond (Pond #: 040494)
Year 2050: ANC = −7.6 + 0.05 . reduction (%)
Year 2200: ANC = −2.7 + 0.085 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

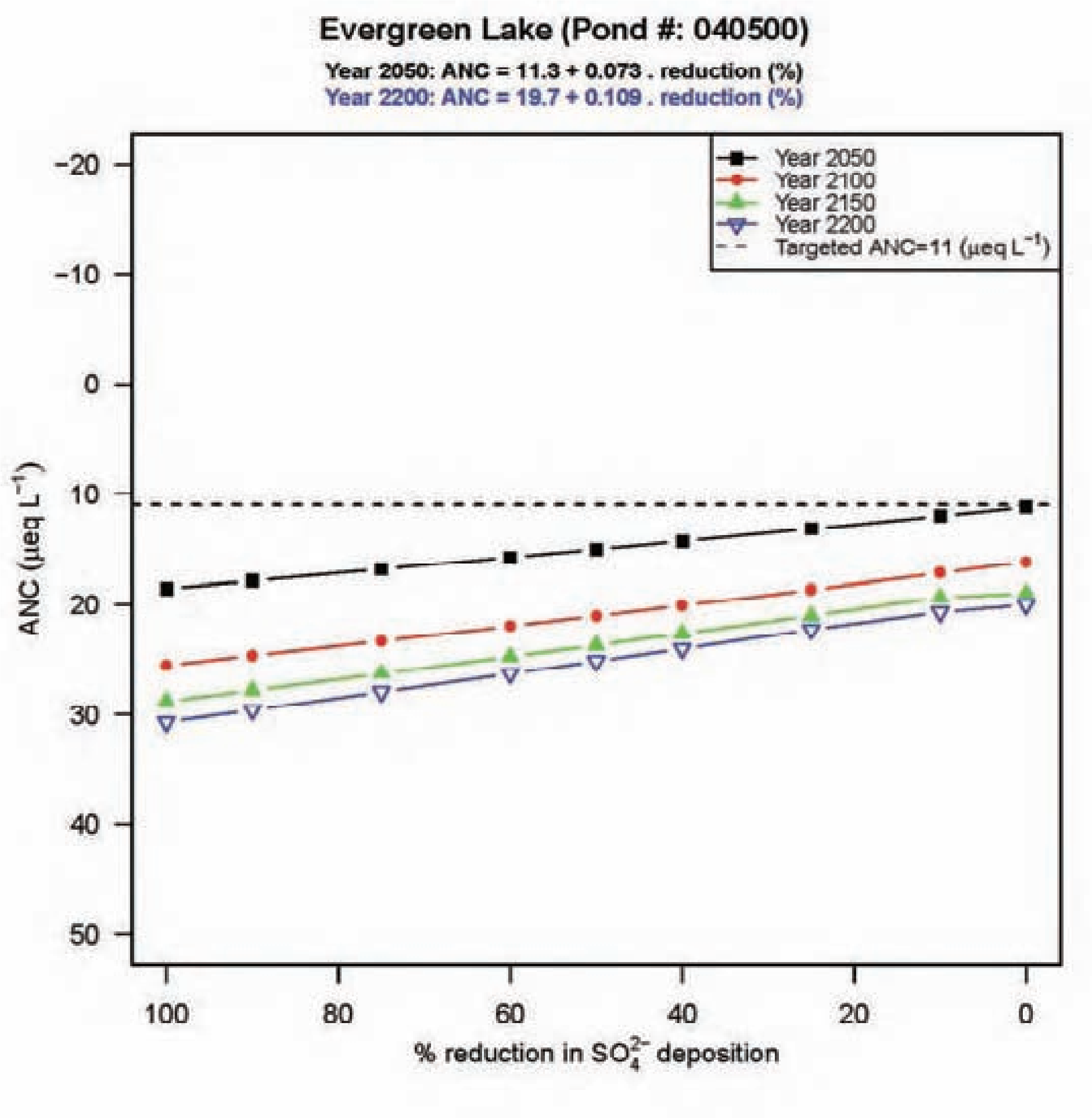

Raven Lake (Pond #: 040496)
Year 2050: ANC = 14.8 + 0.074 . reduction (%)
Year 2200: ANC = 24.3 + 0.147 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

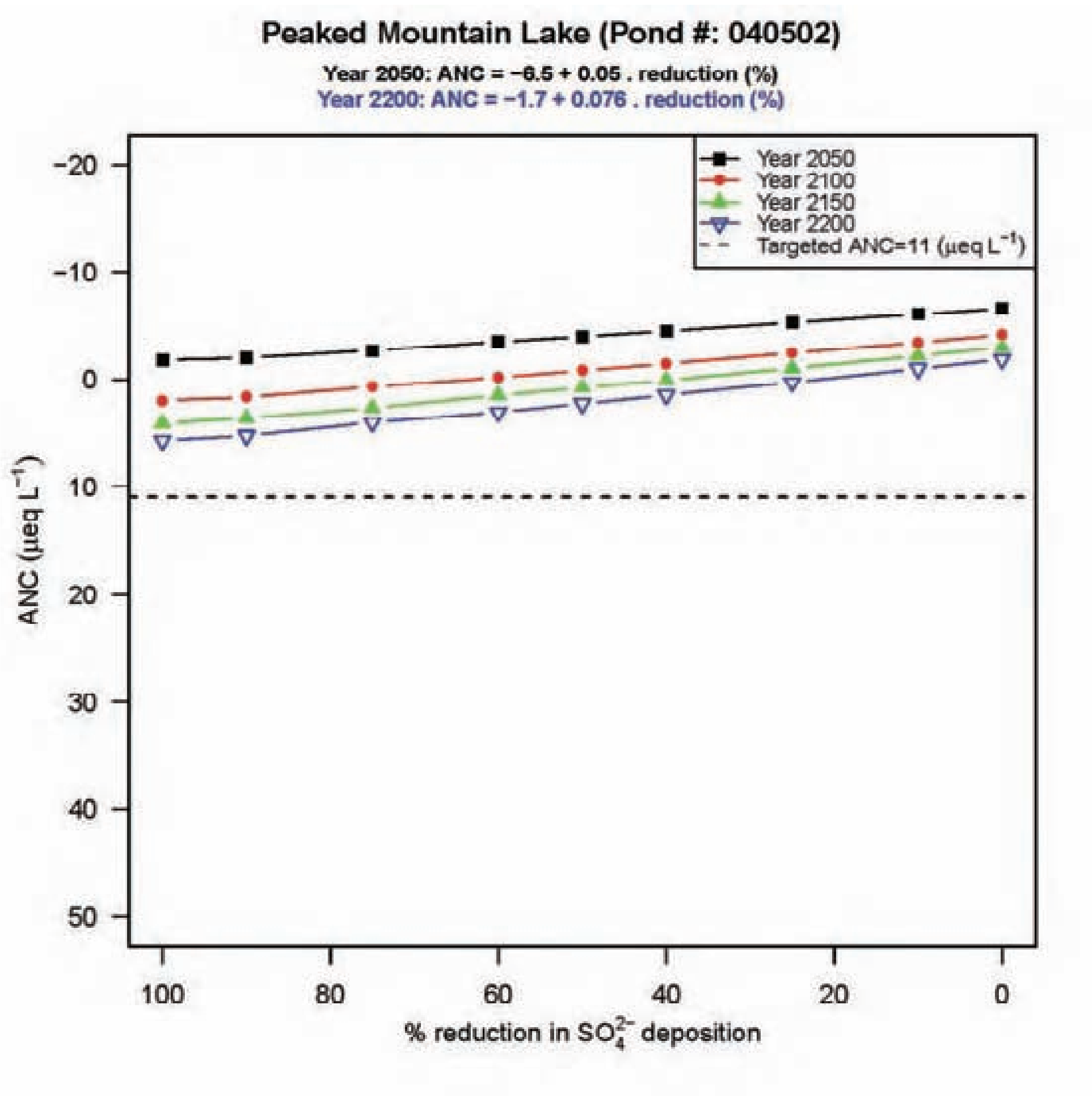

Unnamed Pond (Pond #: 040497)
Year 2050: ANC = −7 + 0.047 . reduction (%)
Year 2200: ANC = −2 + 0.075 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

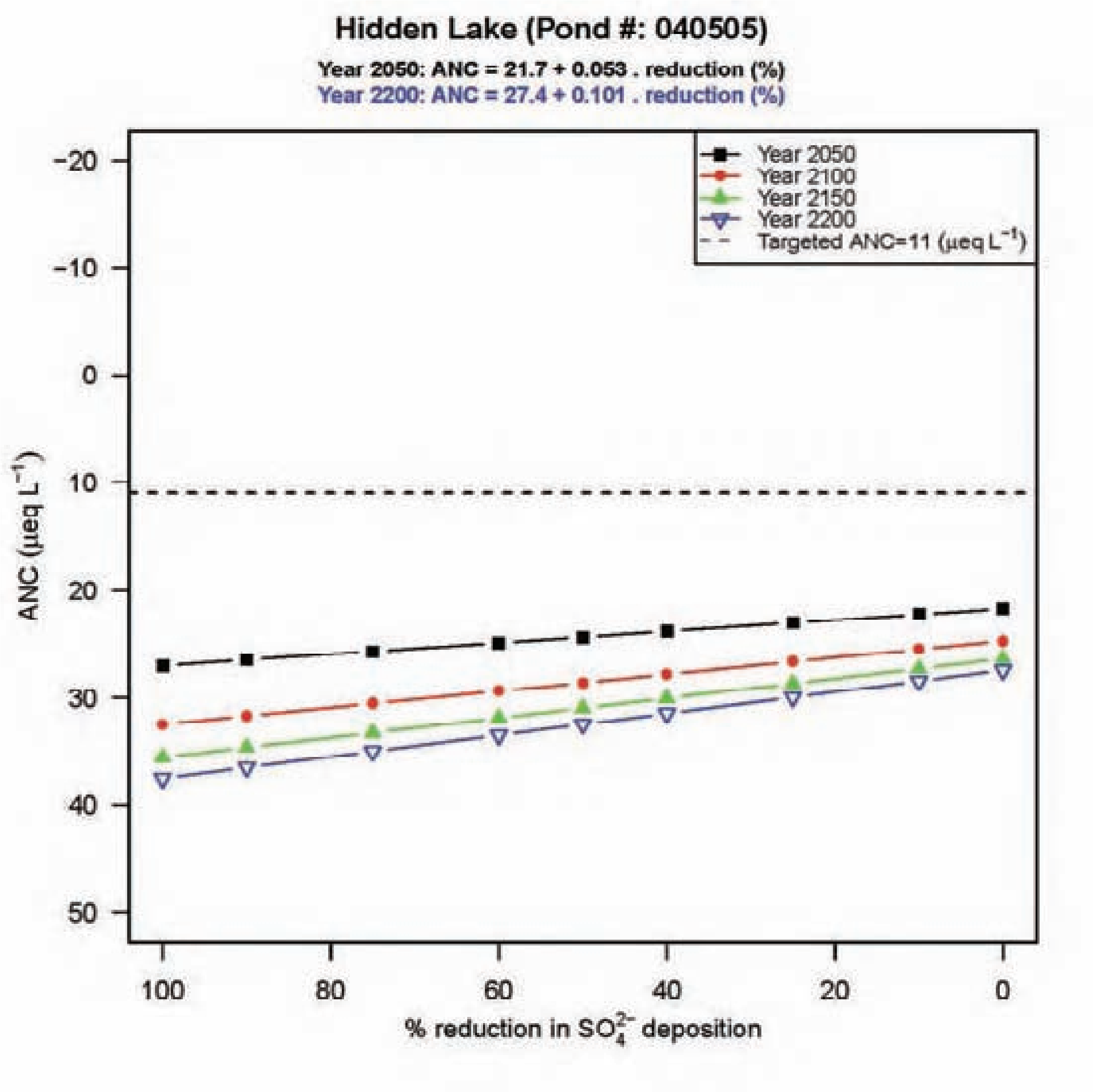


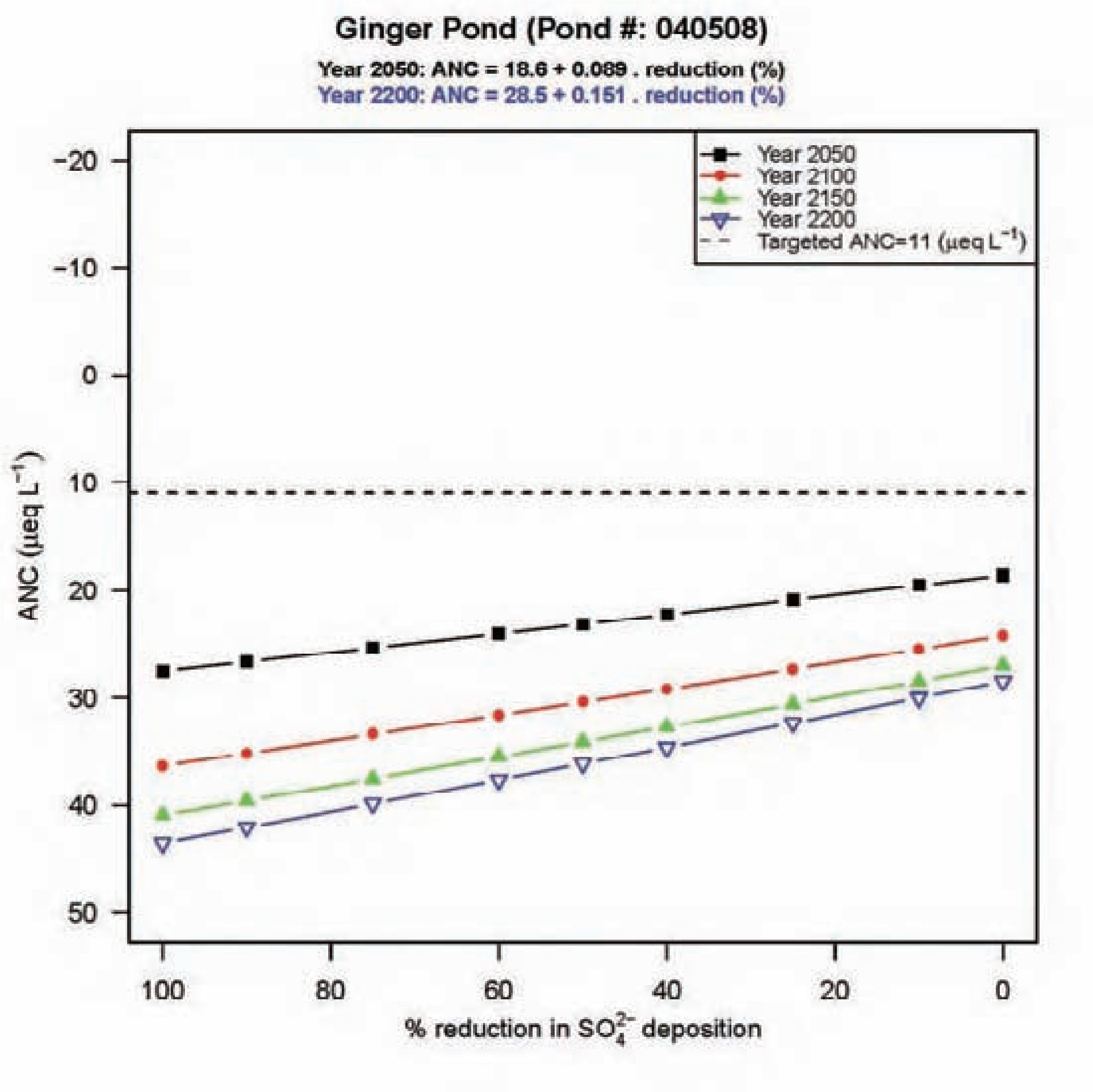
Lyon Lake (Pond #: 040498)
Year 2050: ANC = 13 + 0.068 . reduction (%)
Year 2200: ANC = 20.4 + 0.122 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Slim Pond (Pond #: 040499)
Year 2050: ANC = 22.4 + 0.055 . reduction (%)
Year 2200: ANC = 28.1 + 0.105 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

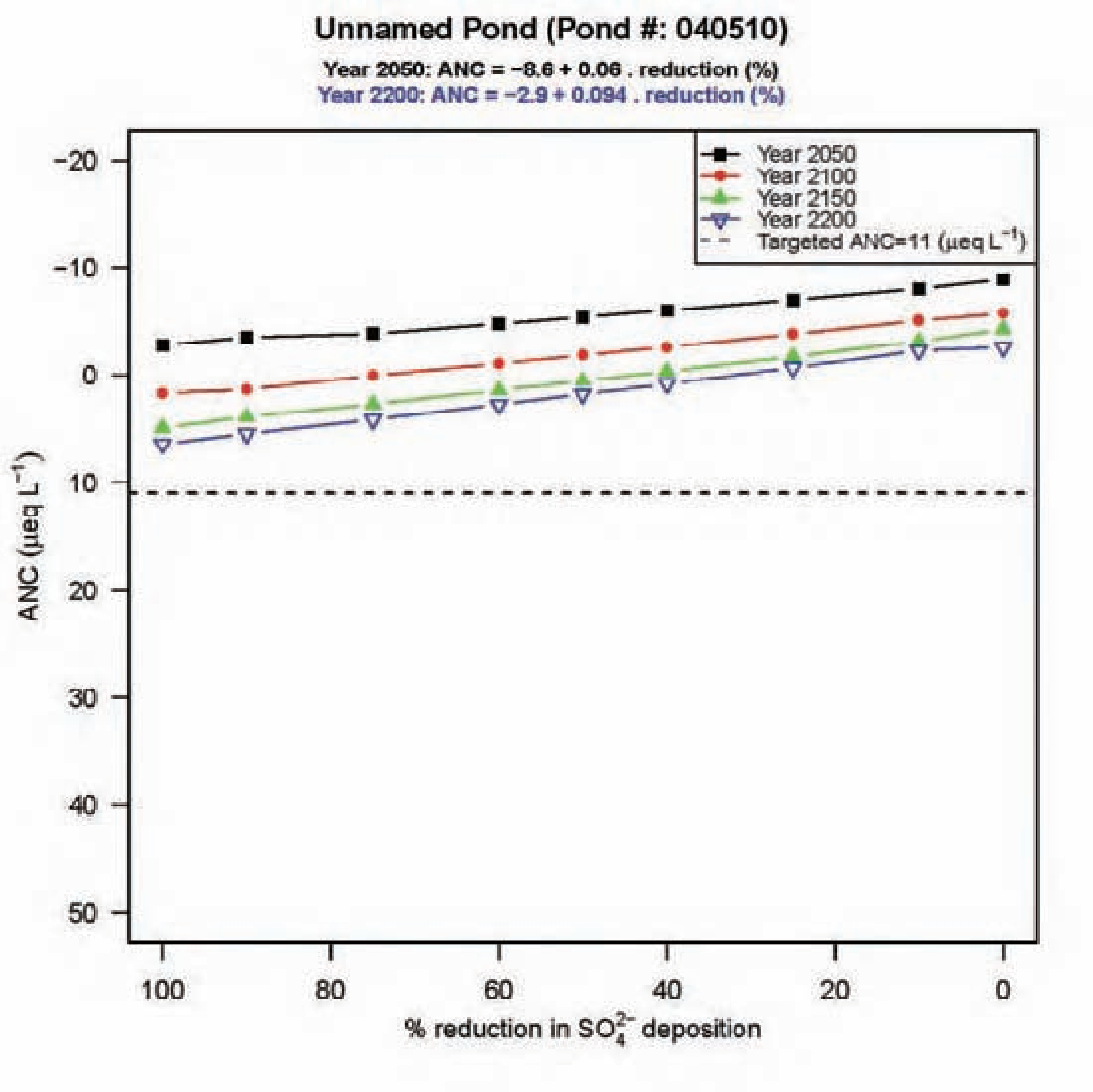

Evergreen Lake (Pond #: 040500)
Year 2050: ANC = 11.3 + 0.073 . reduction (%)
Year 2200: ANC = 19.7 + 0.109 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

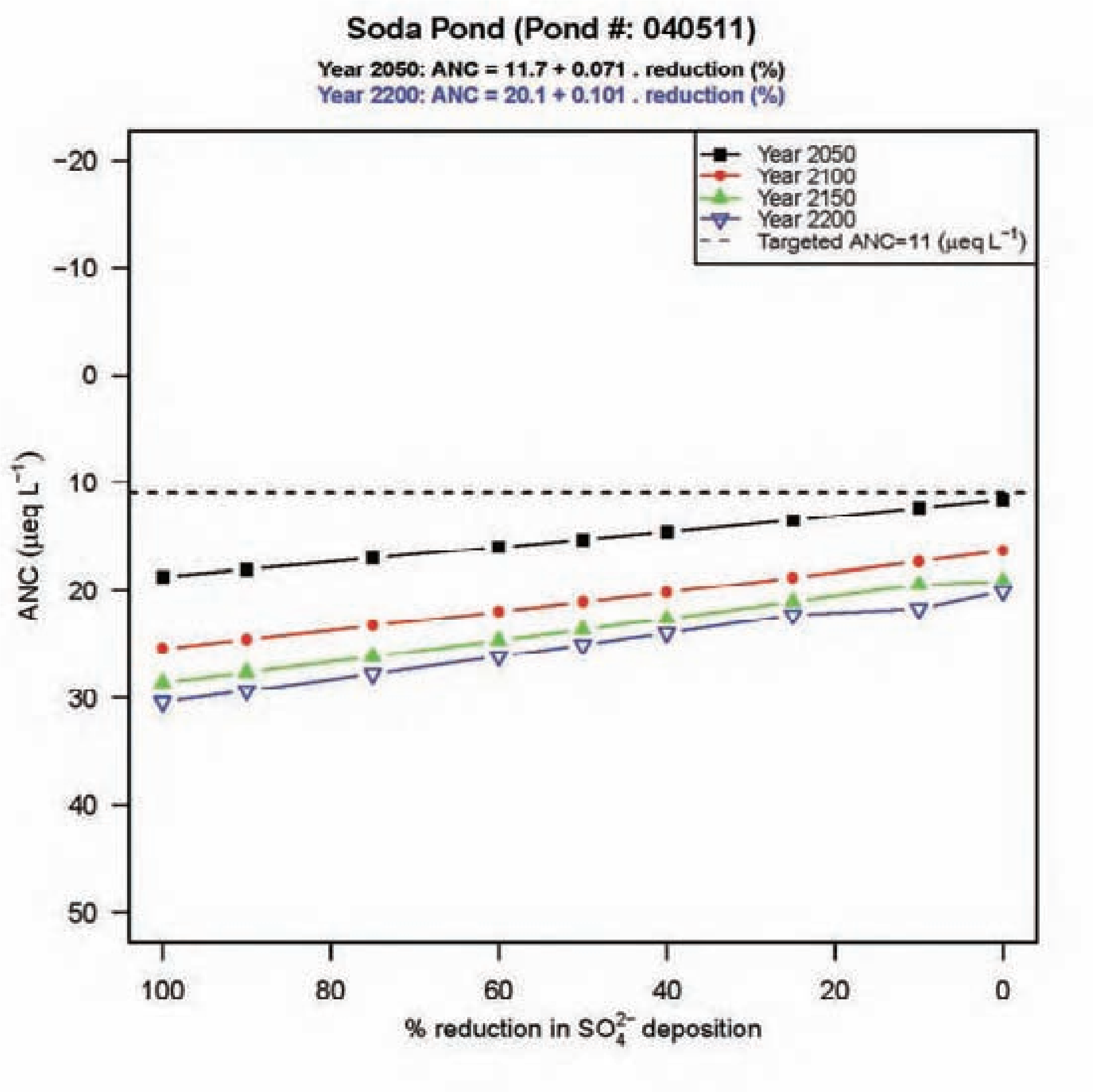

Peaked Mountain Lake (Pond #: 040502)
Year 2050: ANC = −6.5 + 0.05 . reduction (%)
Year 2200: ANC = −1.7 + 0.076 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Hidden Lake (Pond #: 040505)
Year 2050: ANC = 21.7 + 0.053 . reduction (%)
Year 2200: ANC = 27.4 + 0.101 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

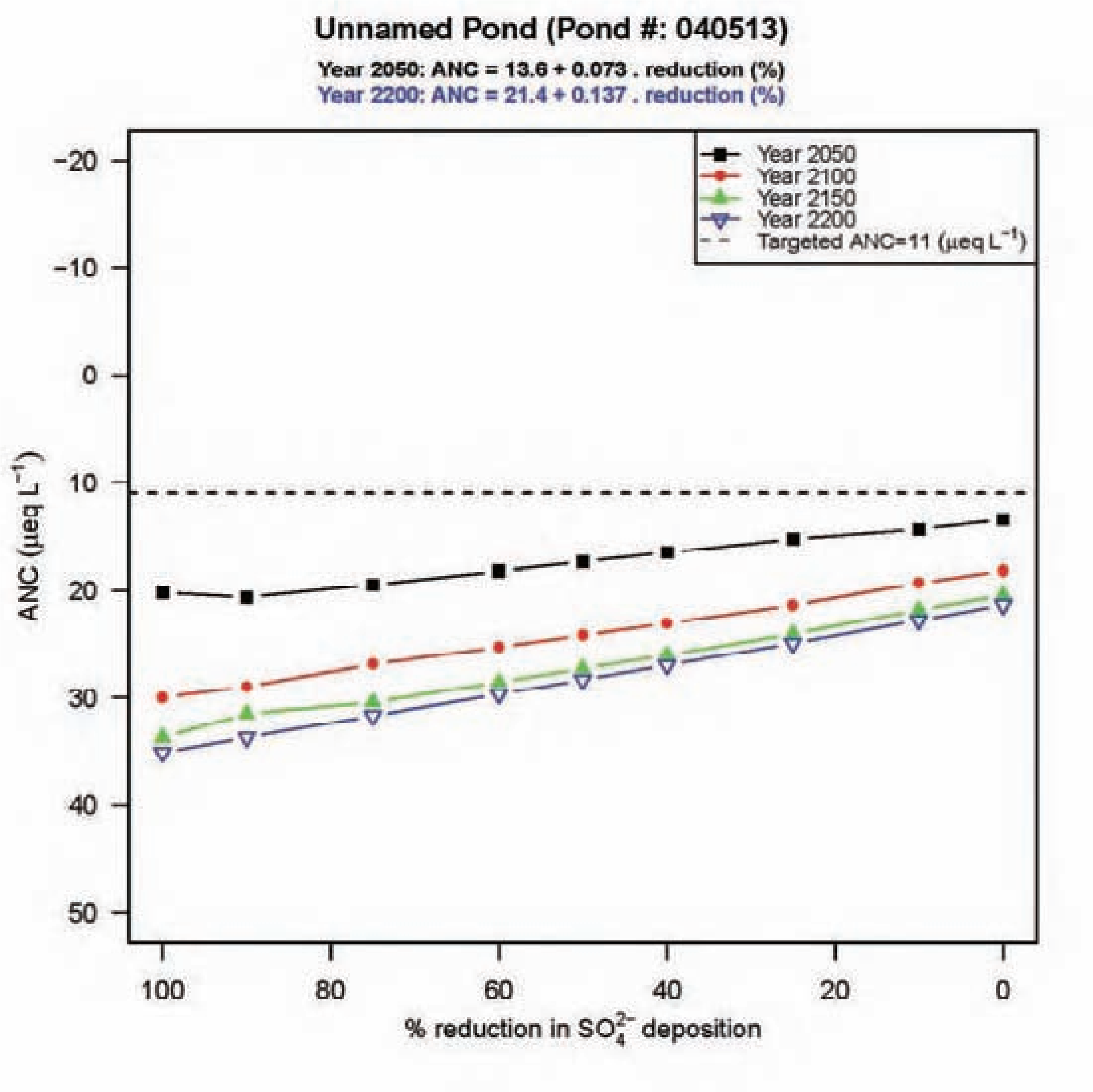


Ginger Pond (Pond #: 040508)
Year 2050: ANC = 18.6 + 0.089 . reduction (%)
Year 2200: ANC = 28.5 + 0.151 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

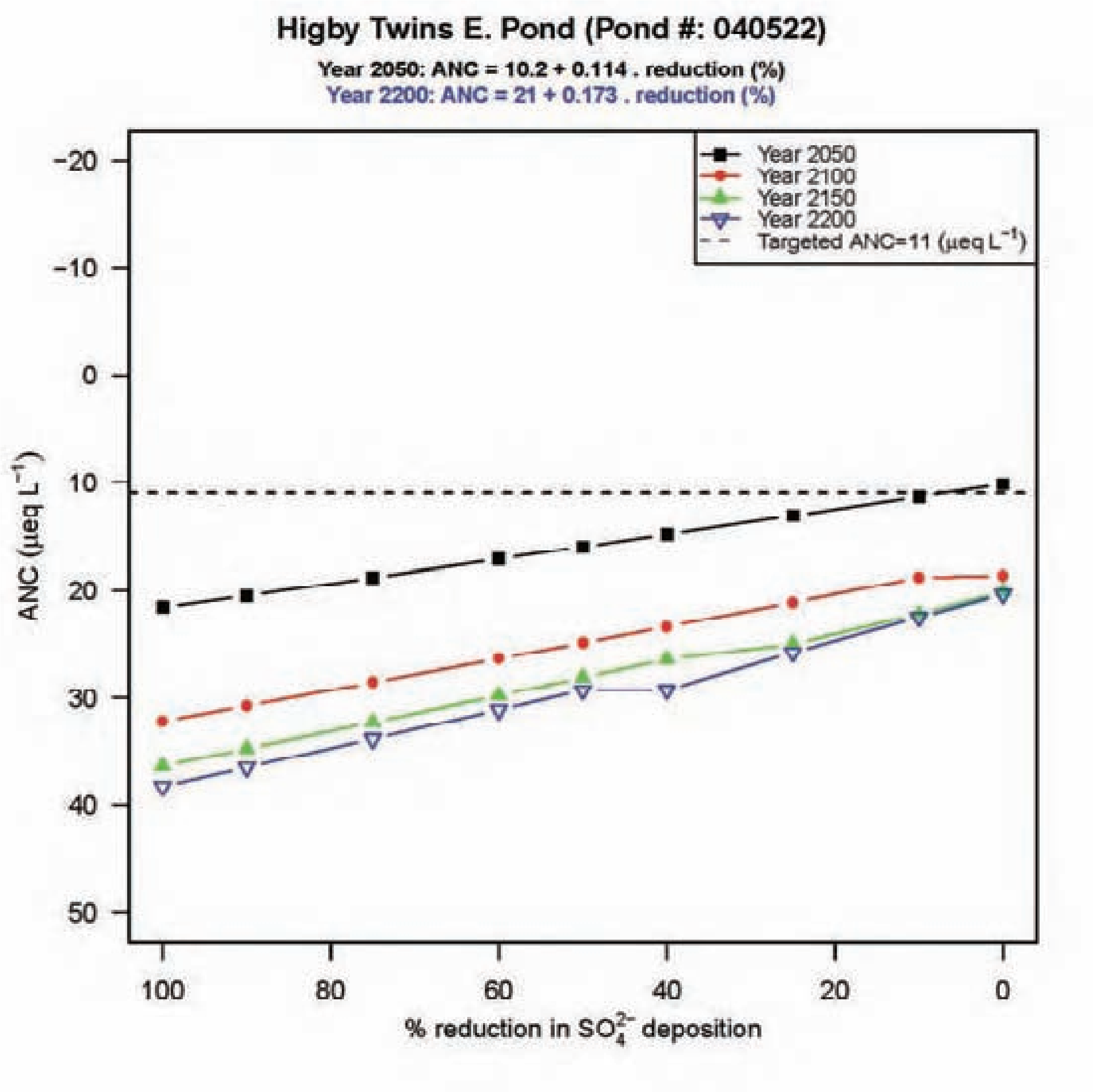

Unnamed Pond (Pond #: 040510)
Year 2050: ANC = −8.6 + 0.06 . reduction (%)
Year 2200: ANC = −2.9 + 0.094 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



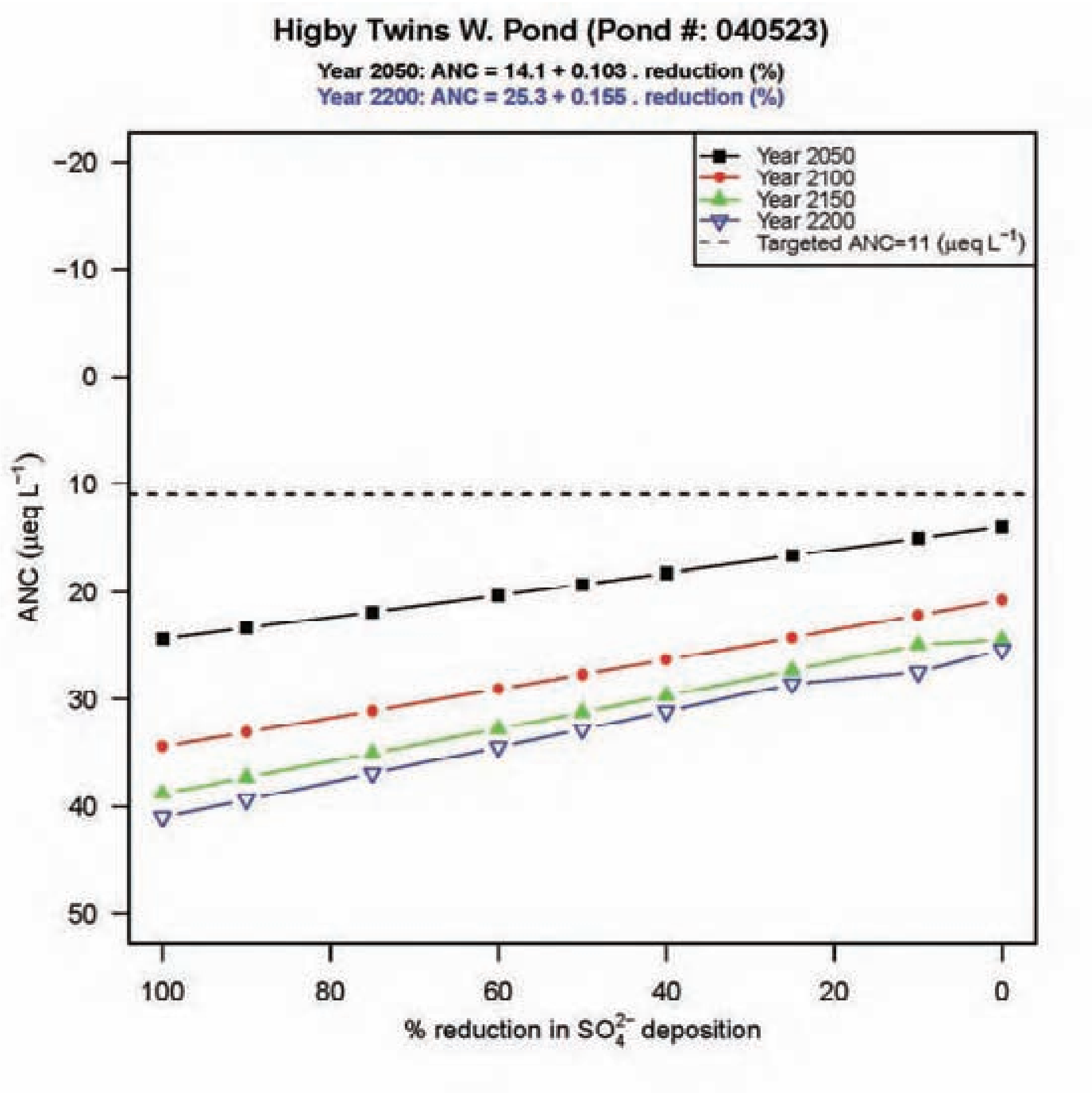
Soda Pond (Pond #: 040511)
Year 2050: ANC = 11.7 + 0.071 . reduction (%)
Year 2200: ANC = 20.1 + 0.101 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

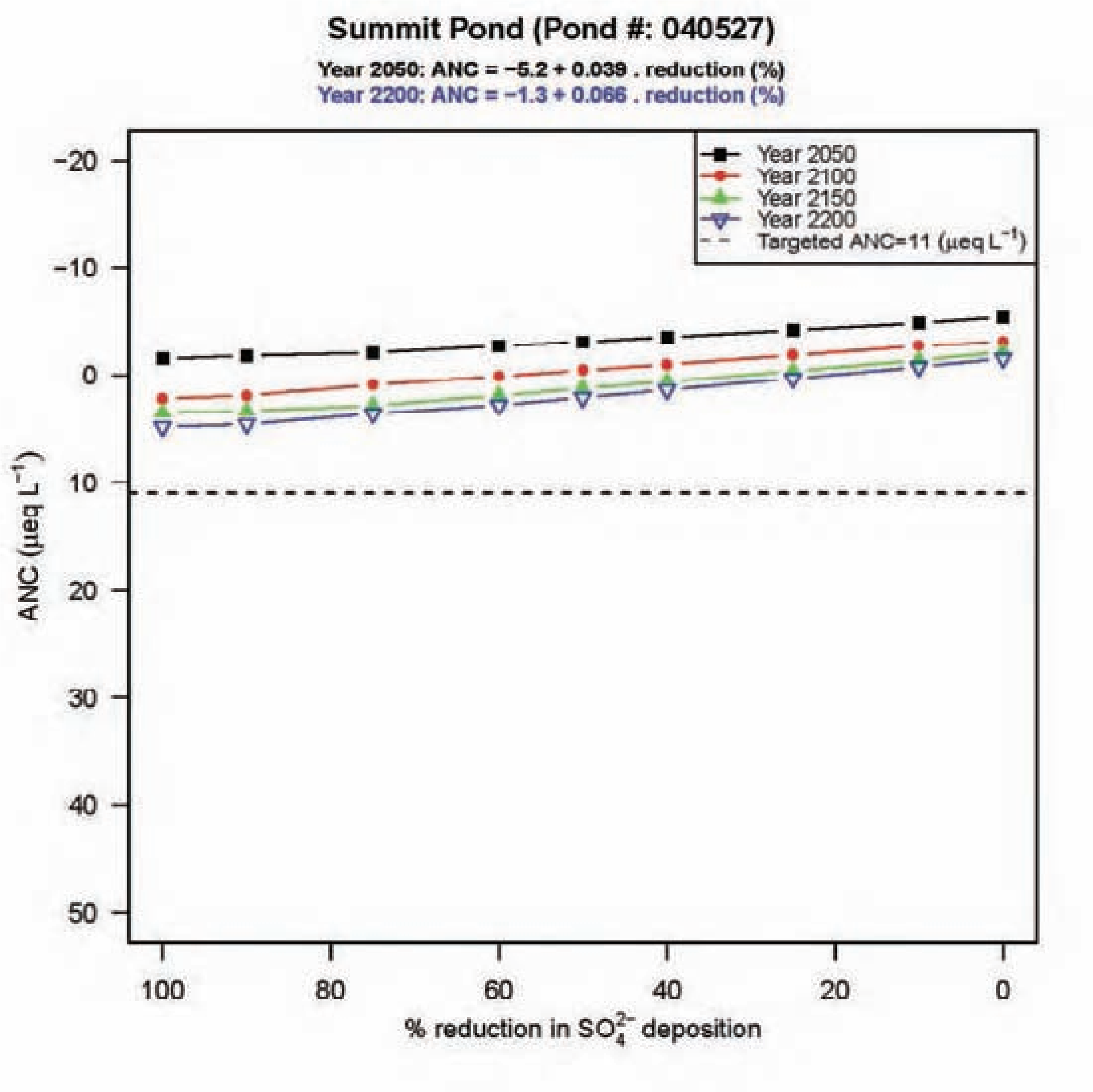


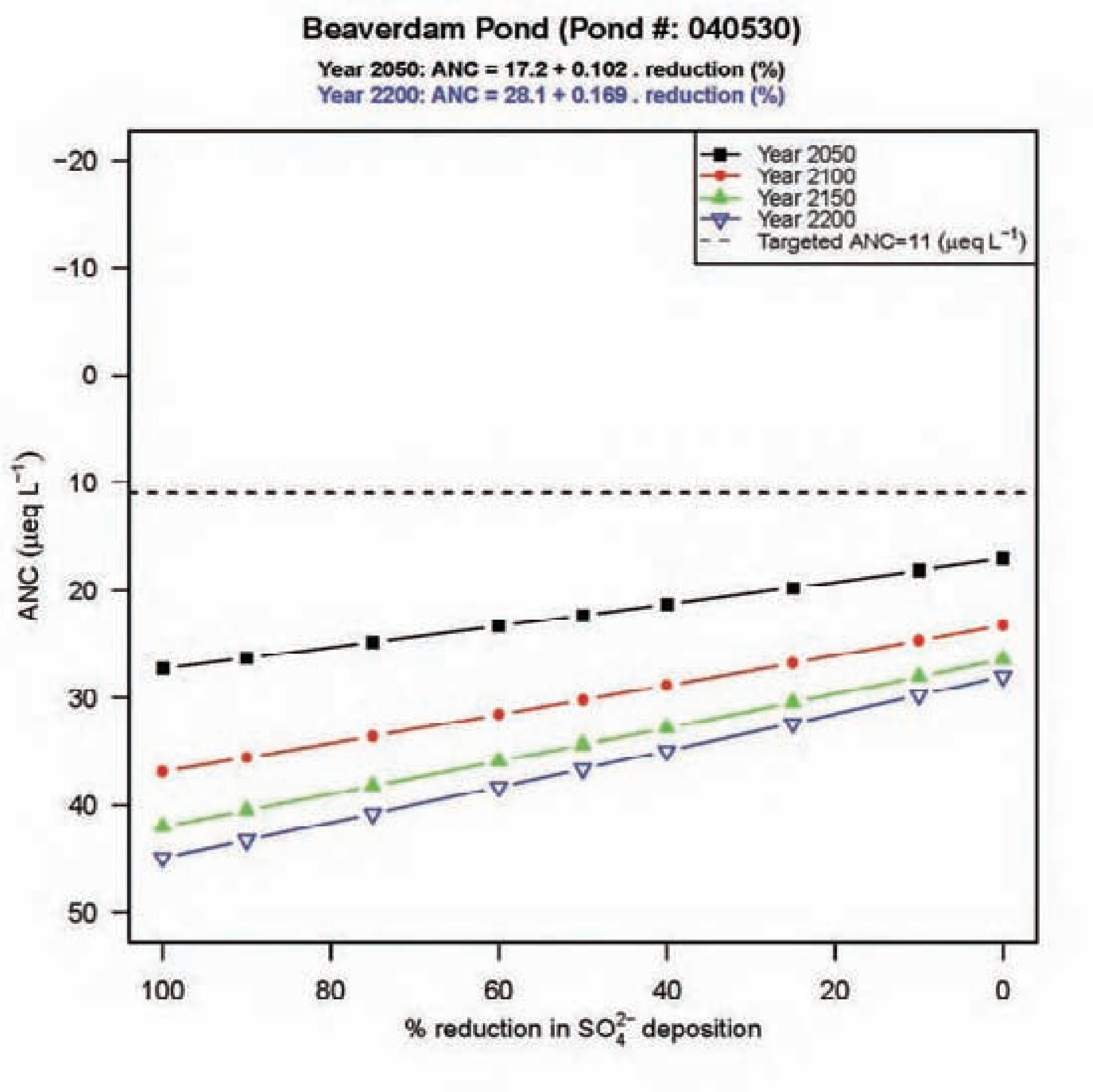
Unnamed Pond (Pond #: 040513)
Year 2050: ANC = 13.6 + 0.073 . reduction (%)
Year 2200: ANC = 21.4 + 0.137 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



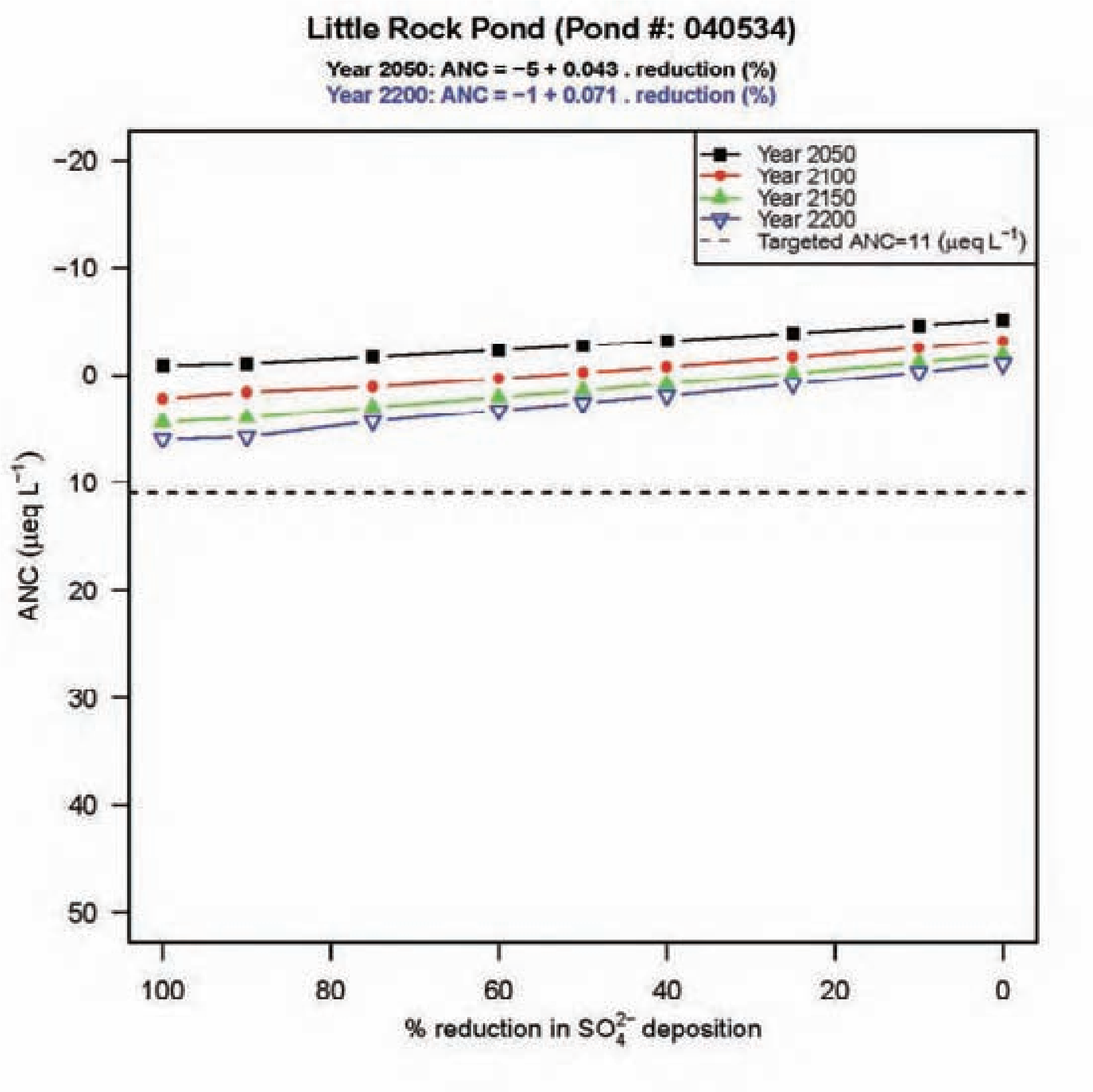
Higby Twins E. Pond (Pond #: 040522)
Year 2050: ANC = 10.2 + 0.114 . reduction (%)
Year 2200: ANC = 21 + 0.173 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

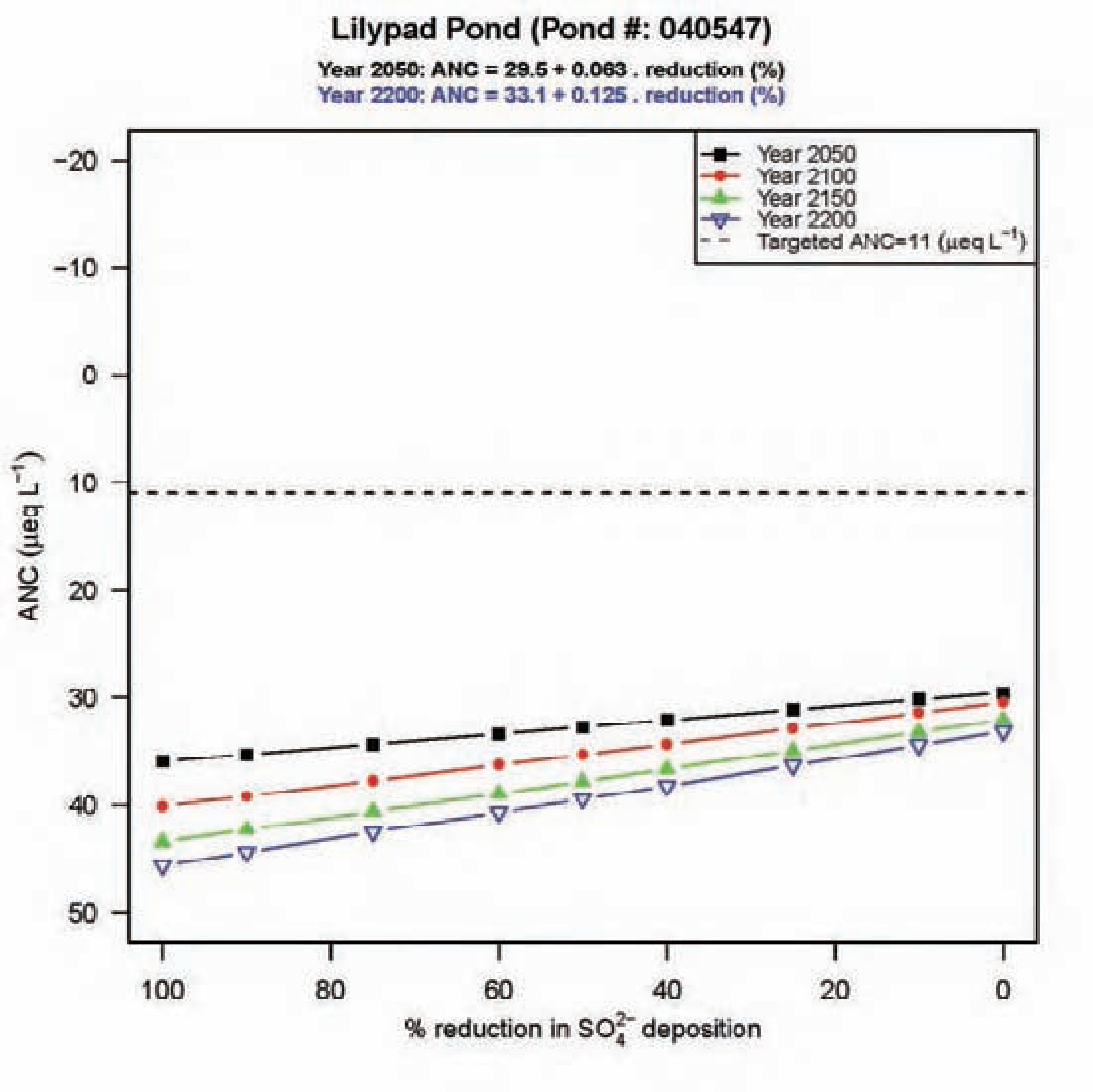

Higby Twins W. Pond (Pond #: 040523)
Year 2050: ANC = 14.1 + 0.103 . reduction (%)
Year 2200: ANC = 25.3 + 0.155 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

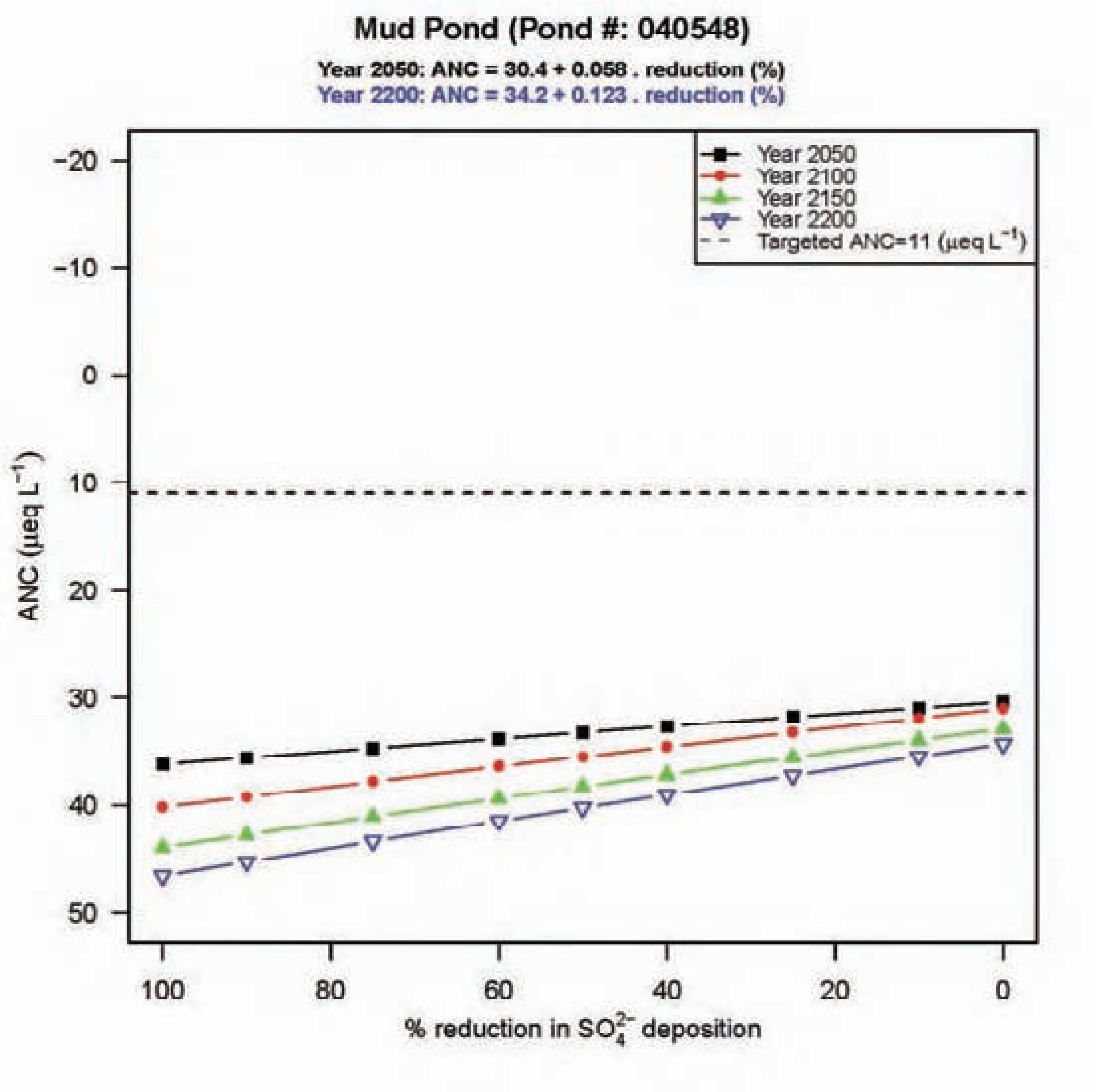

Summit Pond (Pond #: 040527)
Year 2050: ANC = −5.2 + 0.039 . reduction (%)
Year 2200: ANC = −1.3 + 0.066 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

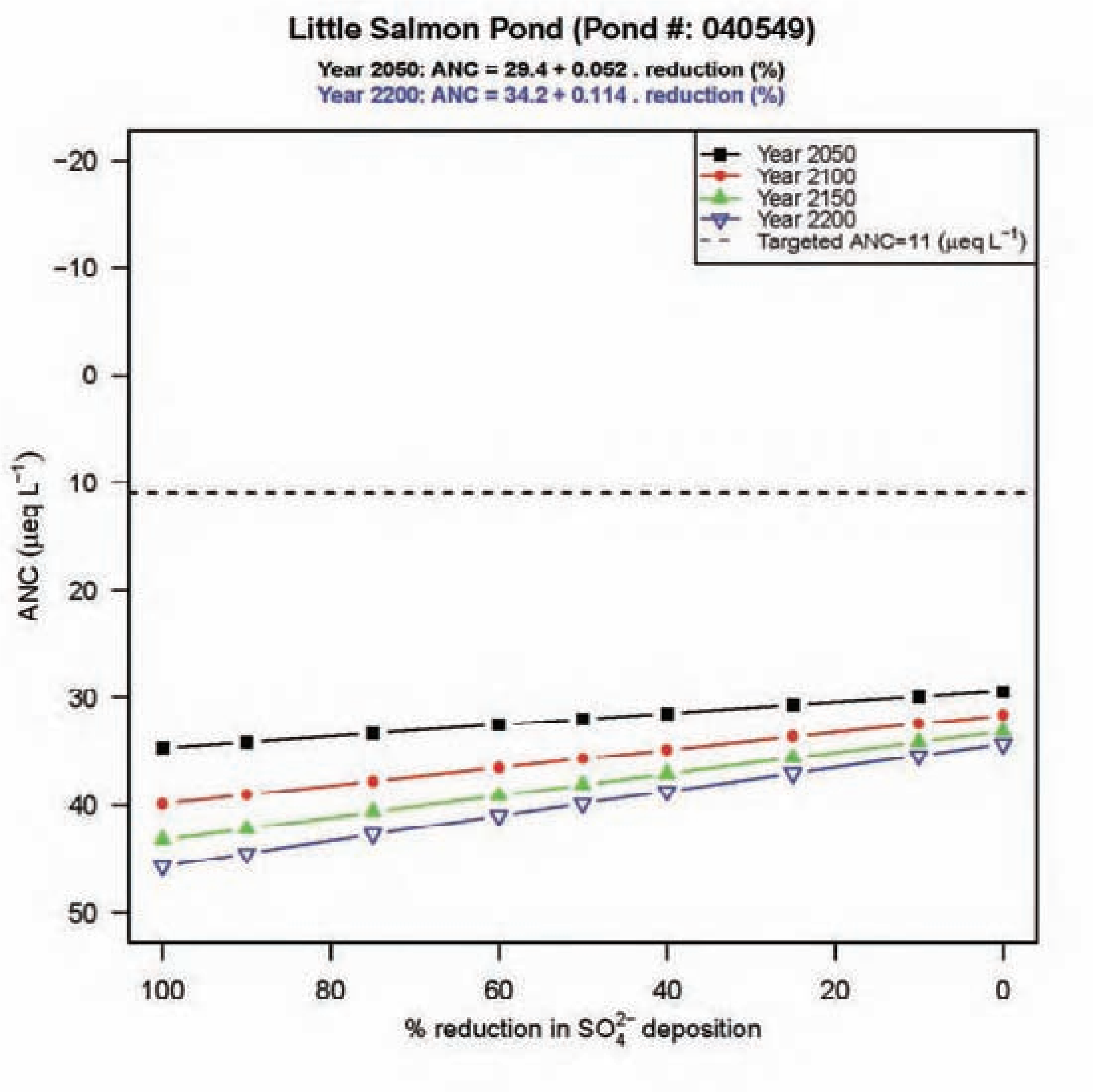


Beaverdam Pond (Pond #: 040530)
Year 2050: ANC = 17.2 + 0.102 . reduction (%)
Year 2200: ANC = 28.1 + 0.169 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

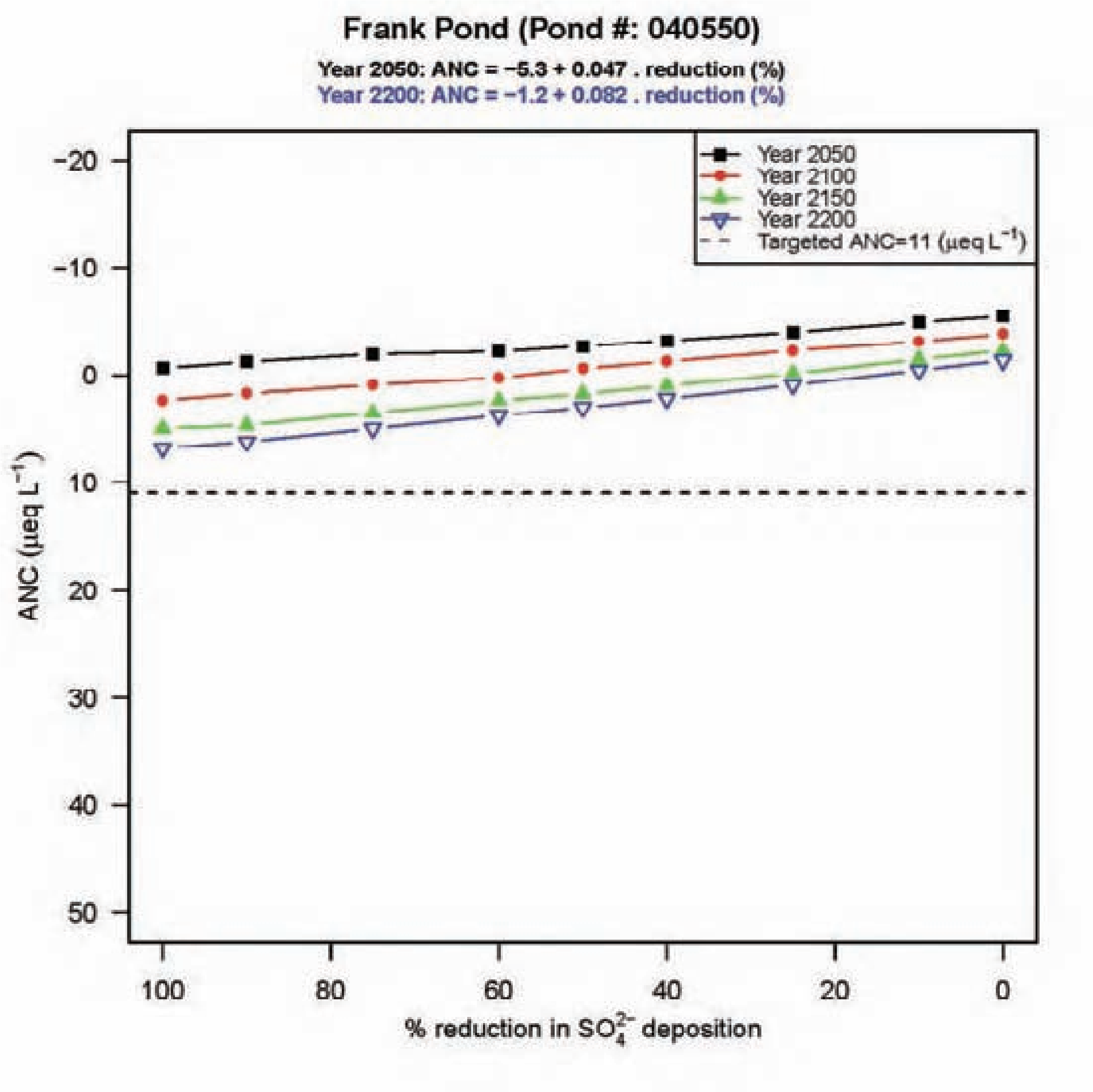

Little Rock Pond (Pond #: 040534)
Year 2050: ANC = −5 + 0.043 . reduction (%)
Year 2200: ANC = −1 + 0.071 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition


Lilypad Pond (Pond #: 040547)
Year 2050: ANC = 29.5 + 0.063 . reduction (%)
Year 2200: ANC = 33.1 + 0.125 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

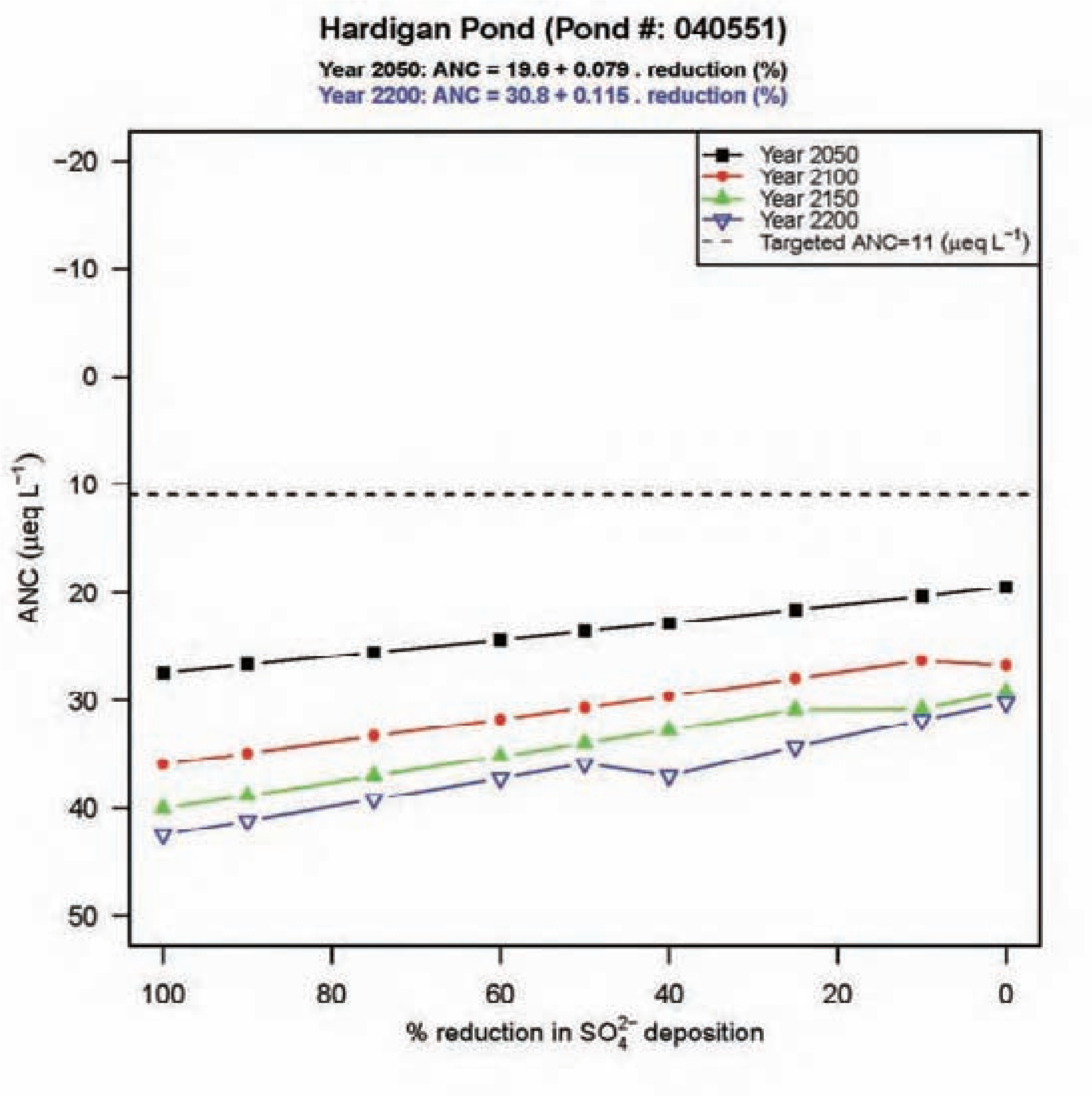

Mud Pond (Pond #: 040548)
Year 2050: ANC = 30.4 + 0.058 . reduction (%)
Year 2200: ANC = 34.2 + 0.123 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



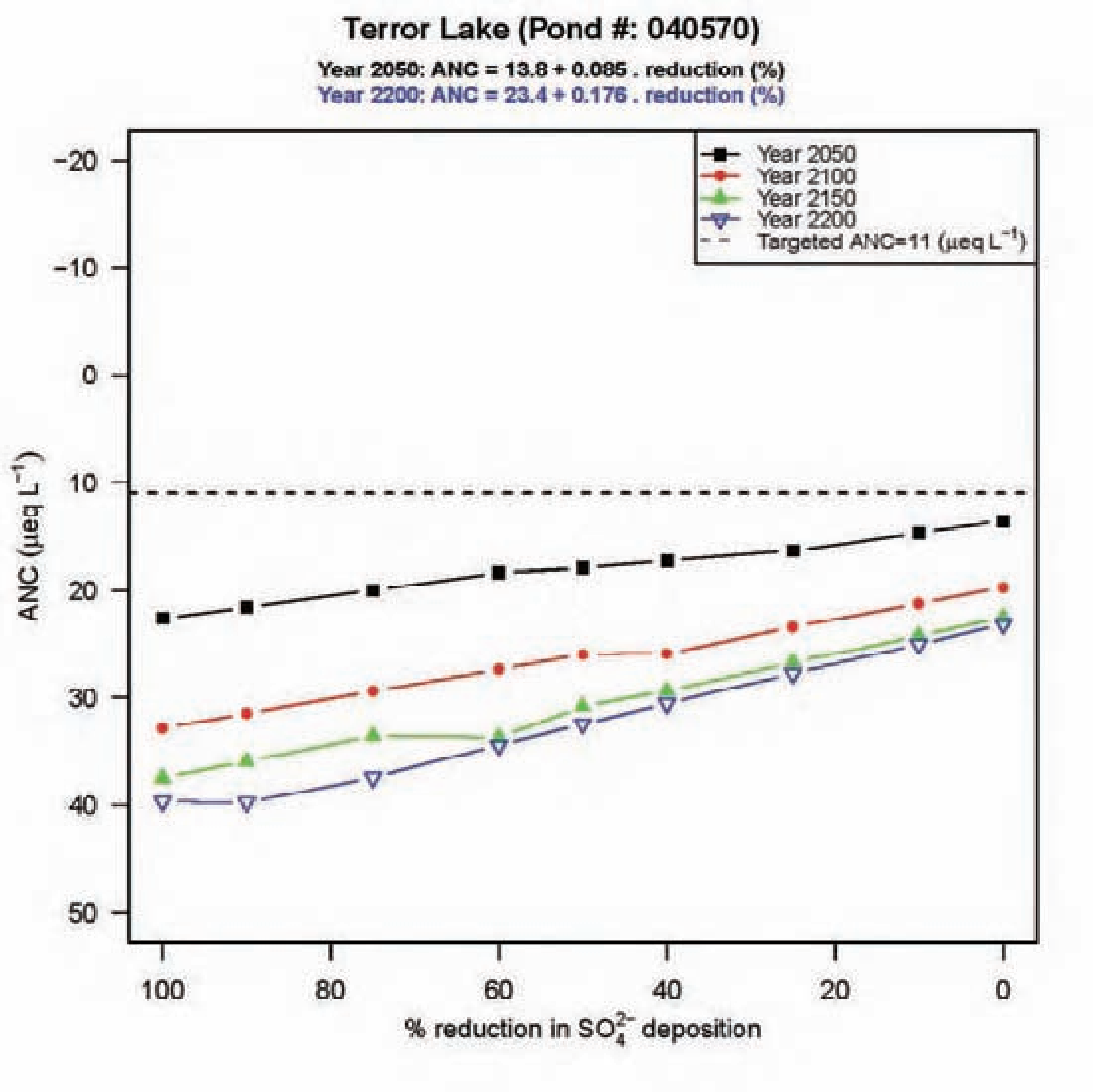
Little Salmon Pond (Pond #: 040549)
Year 2050: ANC = 29.4 + 0.052 . reduction (%)
Year 2200: ANC = 34.2 + 0.114 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

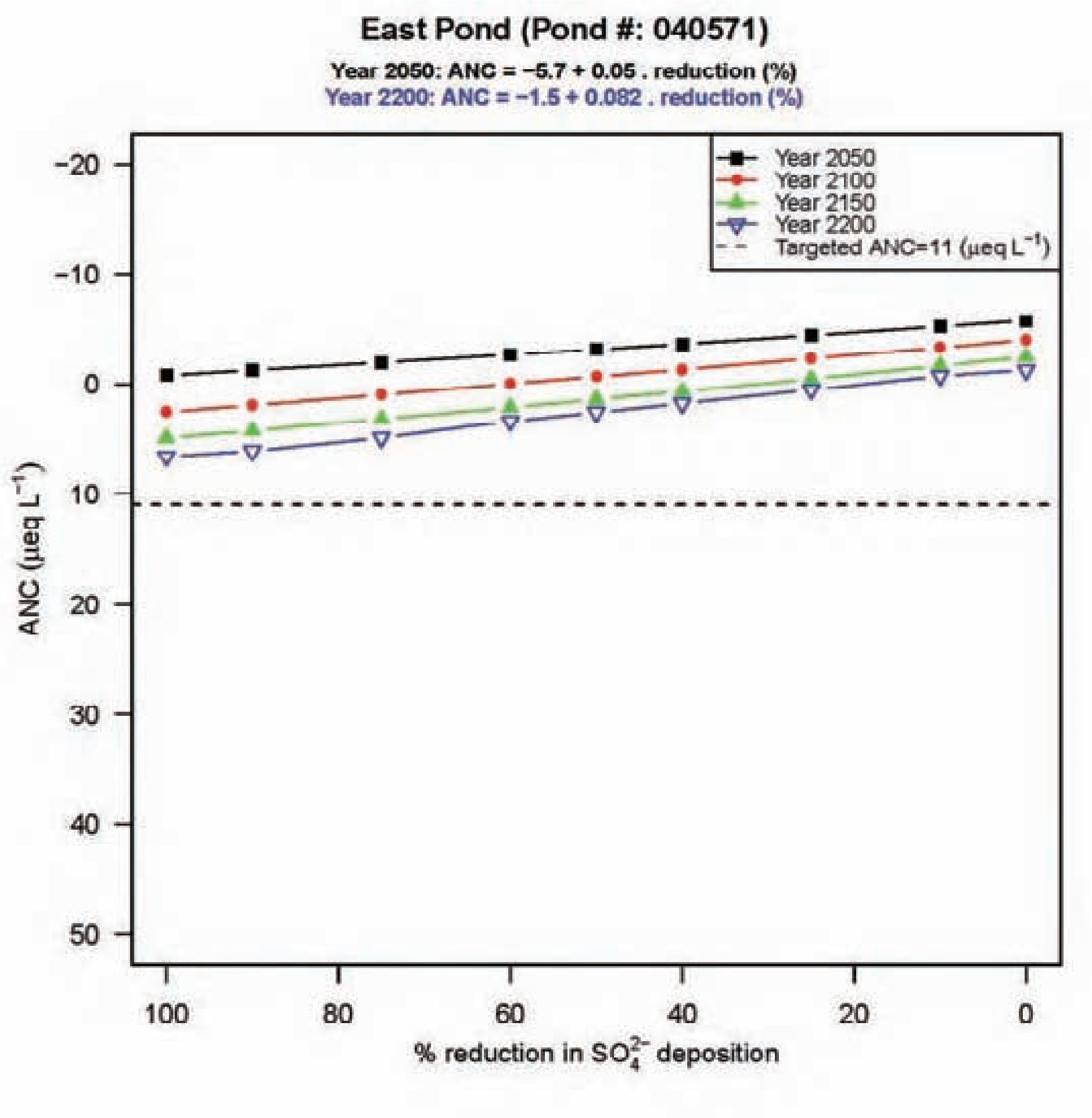


Frank Pond (Pond #: 040550)
Year 2050: ANC = −5.3 + 0.047 . reduction (%)
Year 2200: ANC = −1.2 + 0.082 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

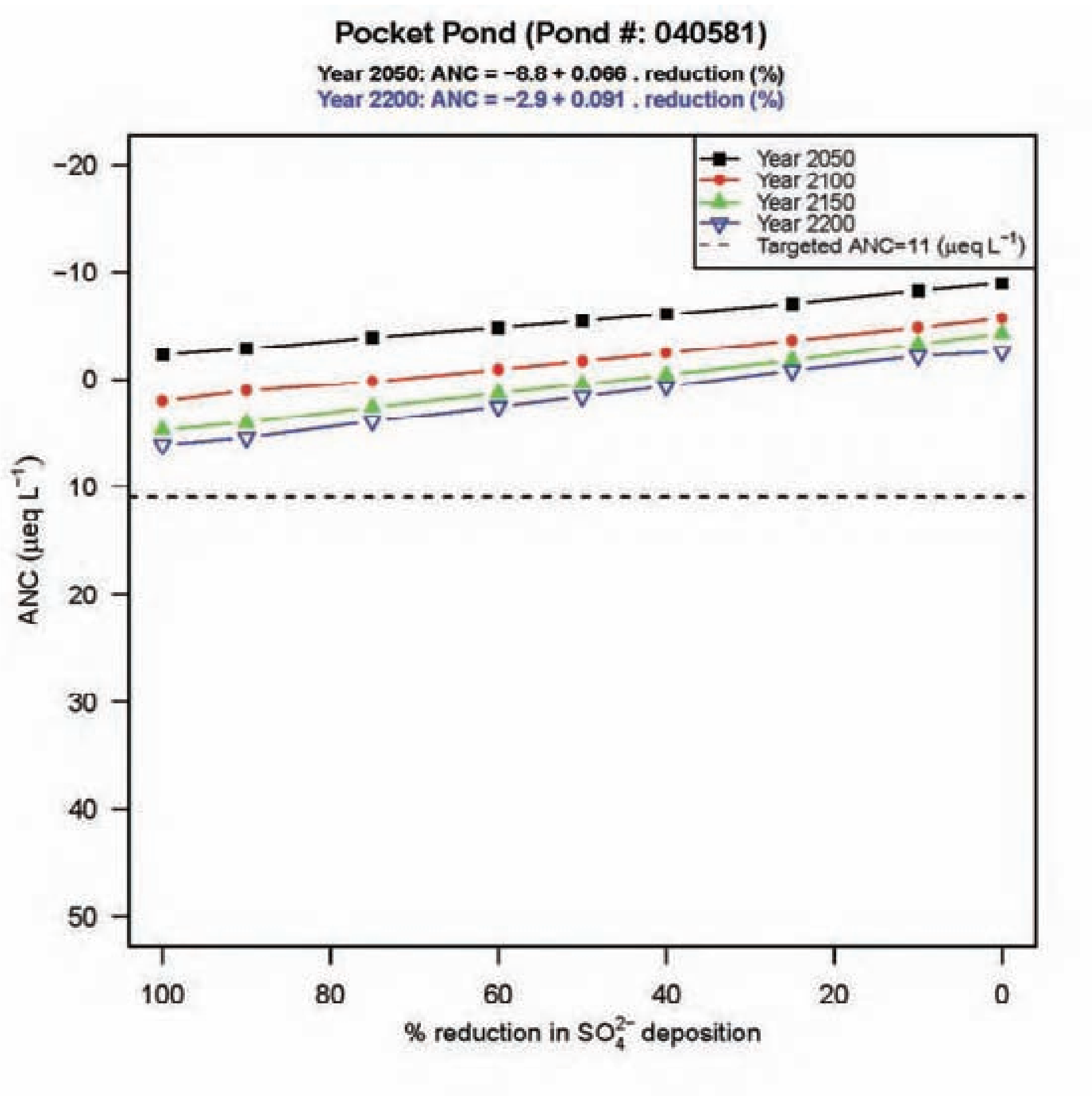


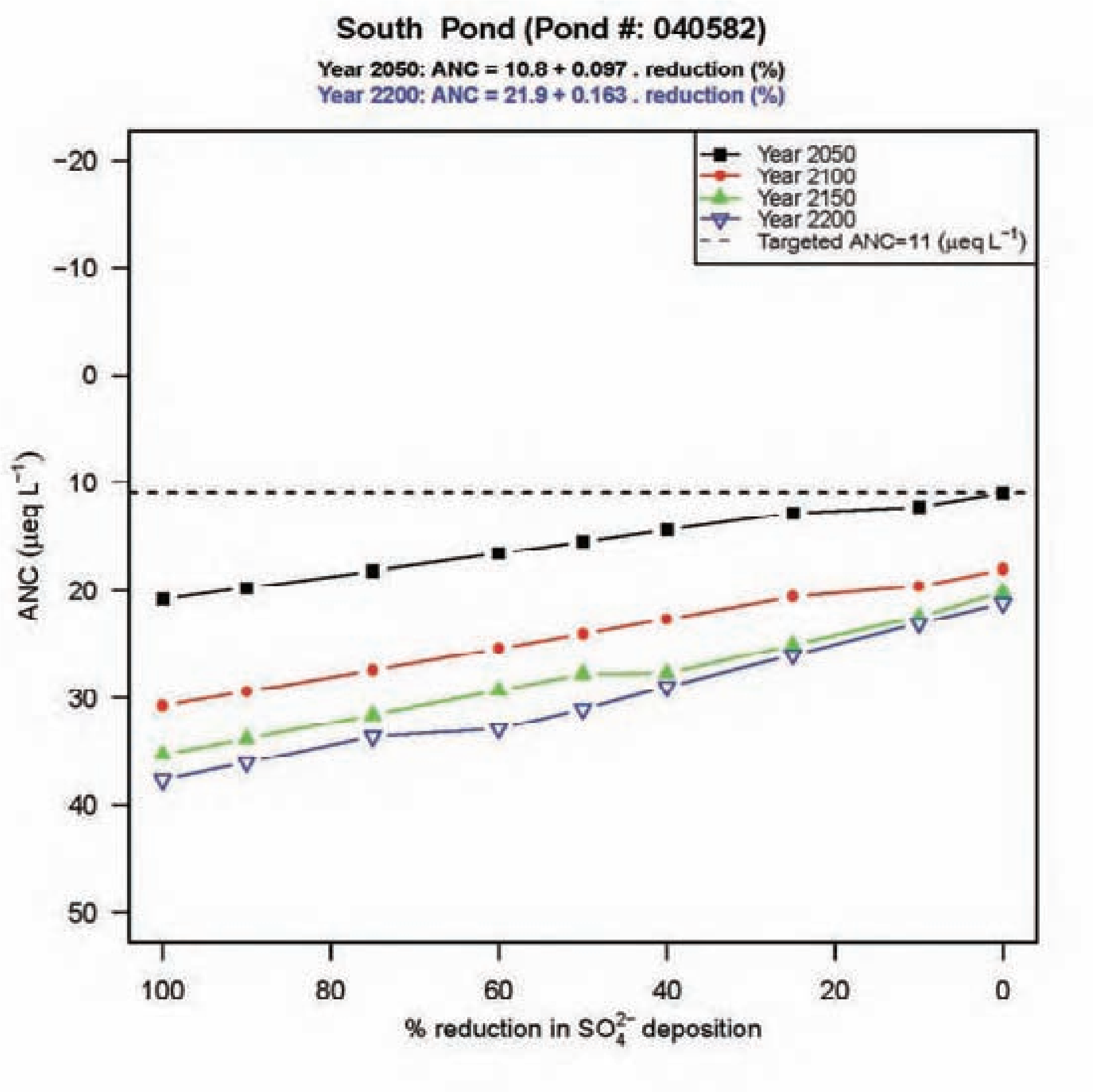
Hardigan Pond (Pond #: 040551)
Year 2050: ANC = 19.6 + 0.079 . reduction (%)
Year 2200: ANC = 30.8 + 0.115 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

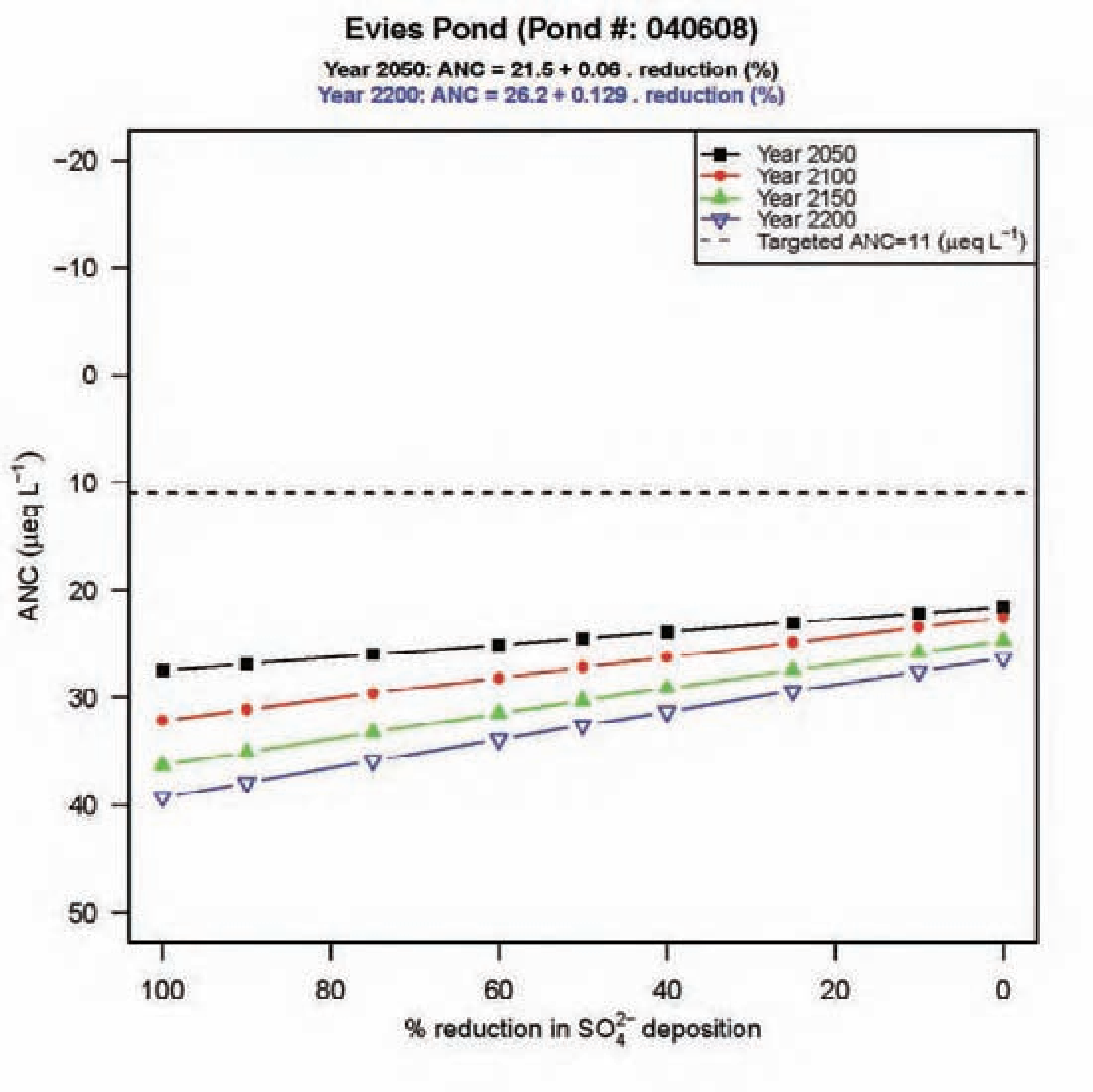

Terror Lake (Pond #: 040570)
Year 2050: ANC = 13.8 + 0.085 . reduction (%)
Year 2200: ANC = 23.4 + 0.176 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

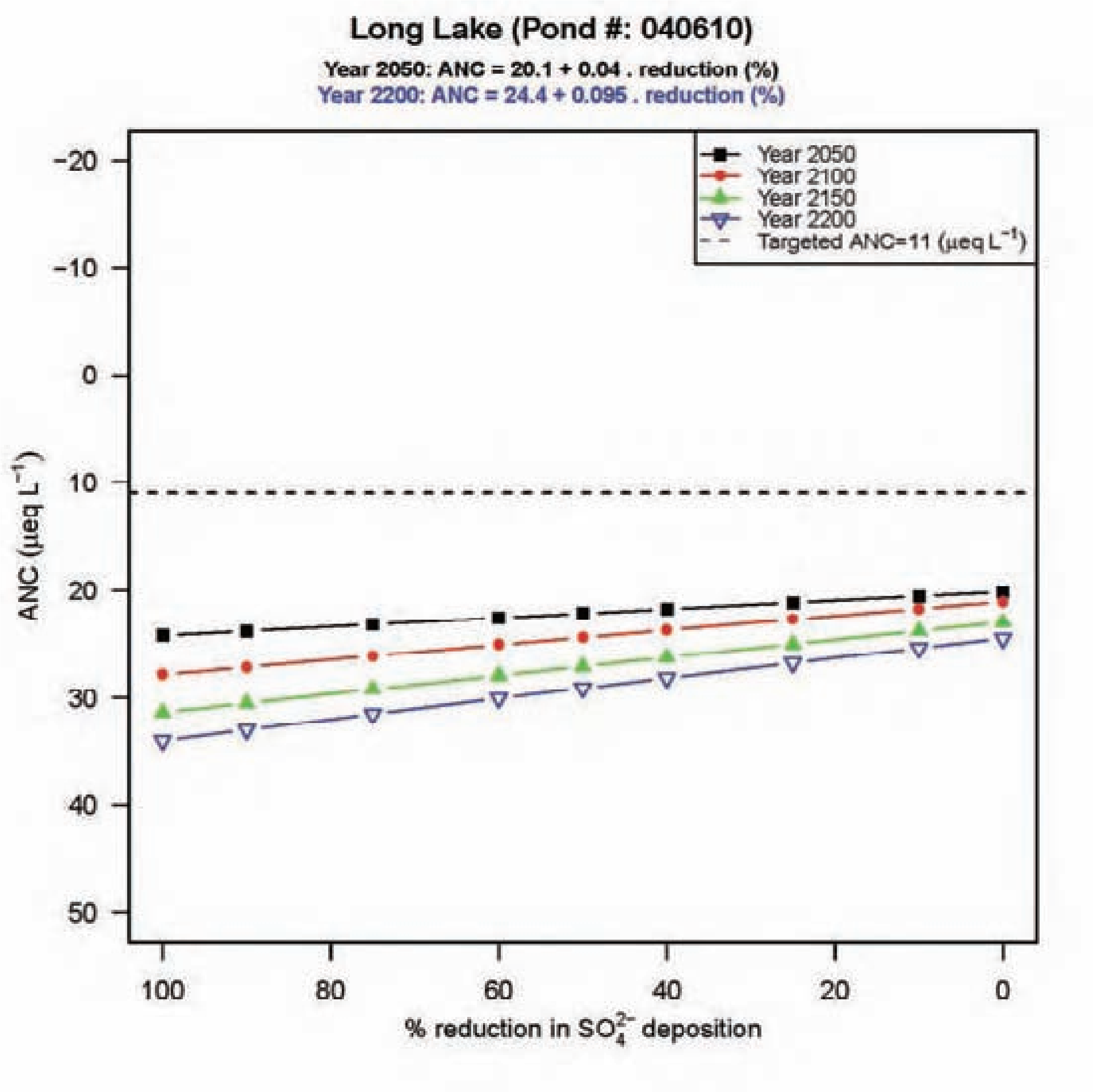


East Pond (Pond #: 040571)
Year 2050: ANC = −5.7 + 0.05 . reduction (%)
Year 2200: ANC = −1.5 + 0.082 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO_4^{2-} deposition

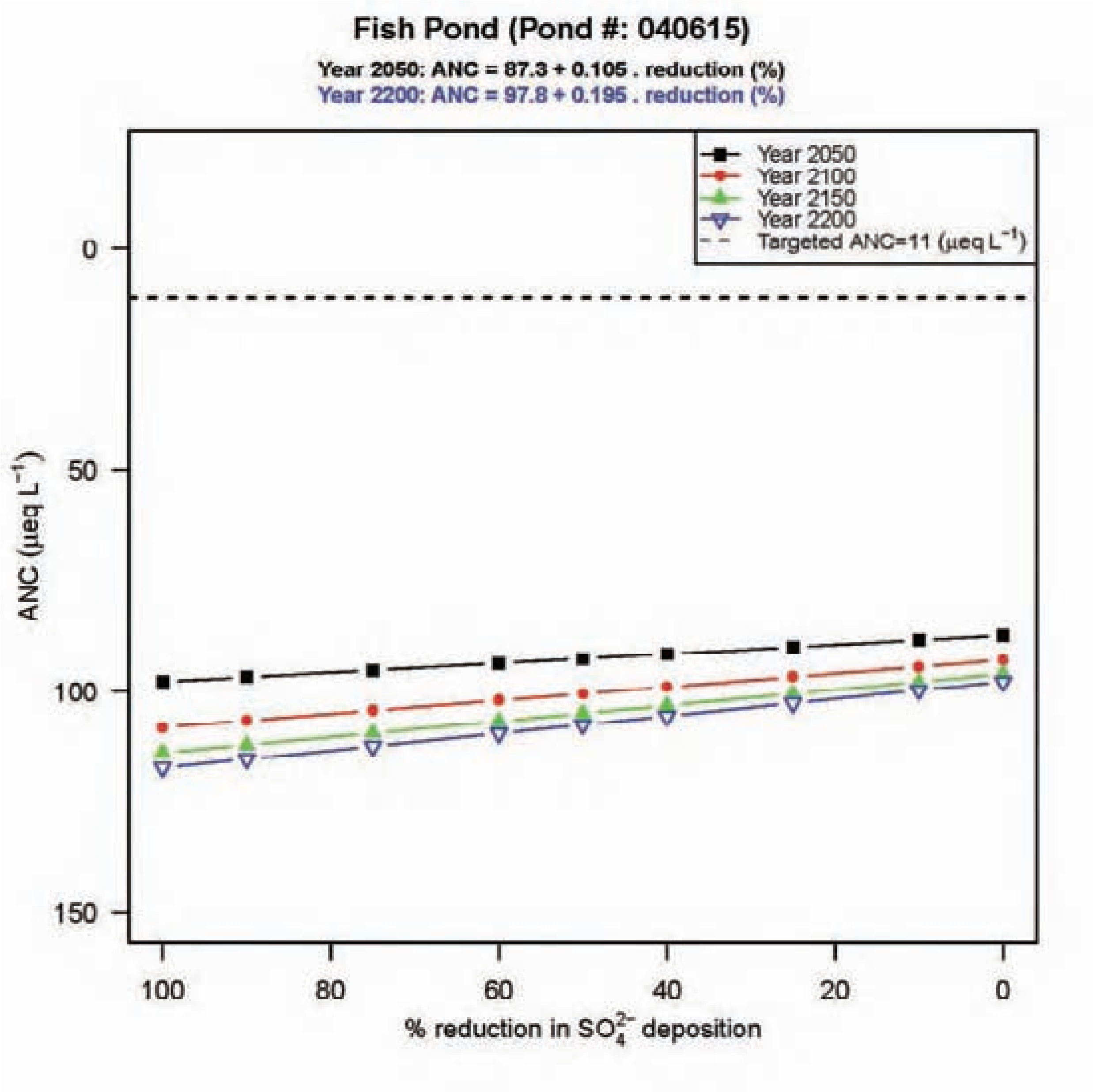

Pocket Pond (Pond #: 040581)
Year 2050: ANC = −8.8 + 0.066 . reduction (%)
Year 2200: ANC = −2.9 + 0.091 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

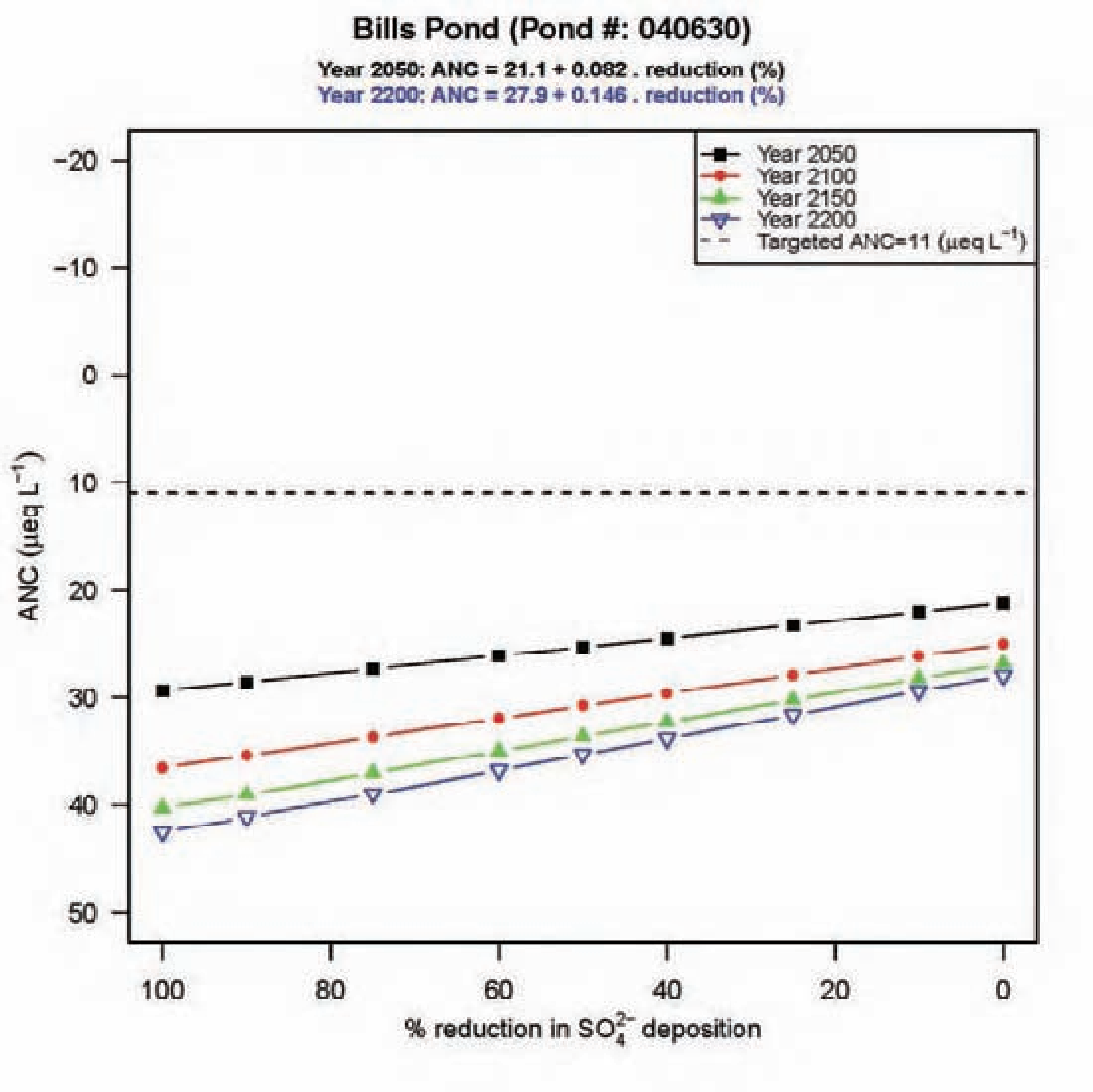

South Pond (Pond #: 040582)
Year 2050: ANC = 10.8 + 0.097 . reduction (%)
Year 2200: ANC = 21.9 + 0.163 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Evies Pond (Pond #: 040608)
Year 2050: ANC = 21.5 + 0.06 . reduction (%)
Year 2200: ANC = 26.2 + 0.129 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

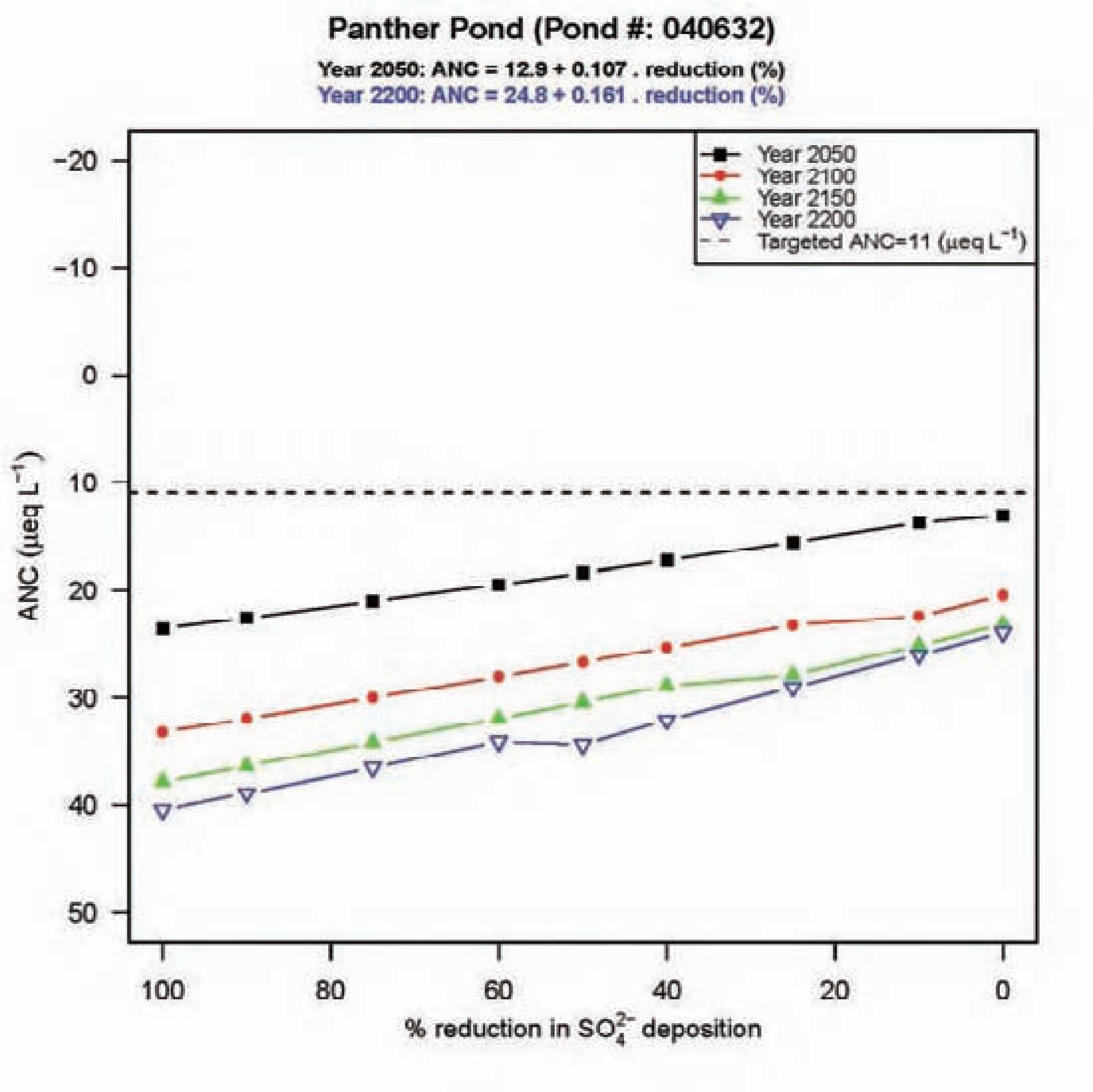


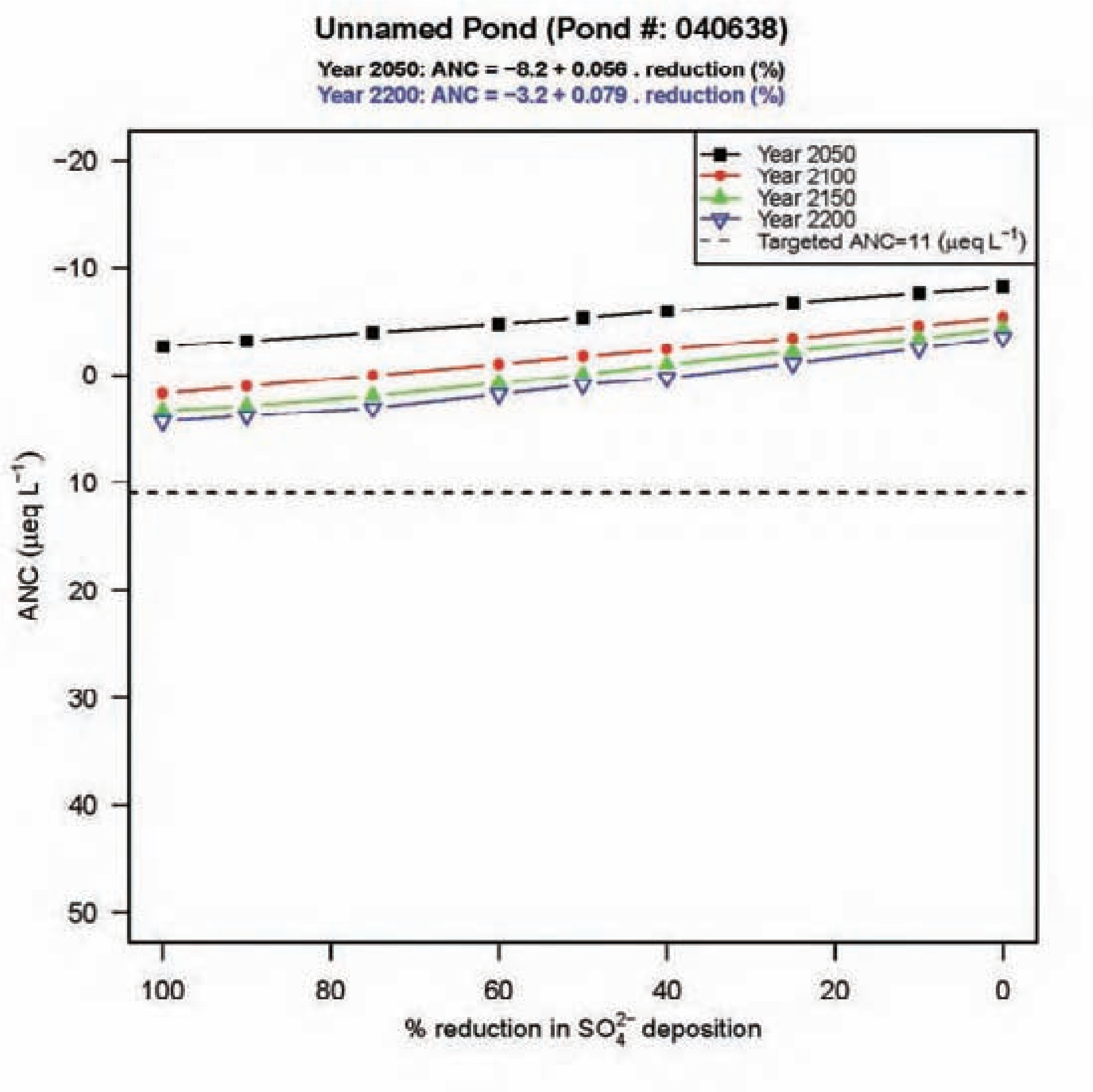
Long Lake (Pond #: 040610)
Year 2050: ANC = 20.1 + 0.04 . reduction (%)
Year 2200: ANC = 24.4 + 0.095 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition


Fish Pond (Pond #: 040615)
Year 2050: ANC = 87.3 + 0.105 . reduction (%)
Year 2200: ANC = 97.8 + 0.195 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

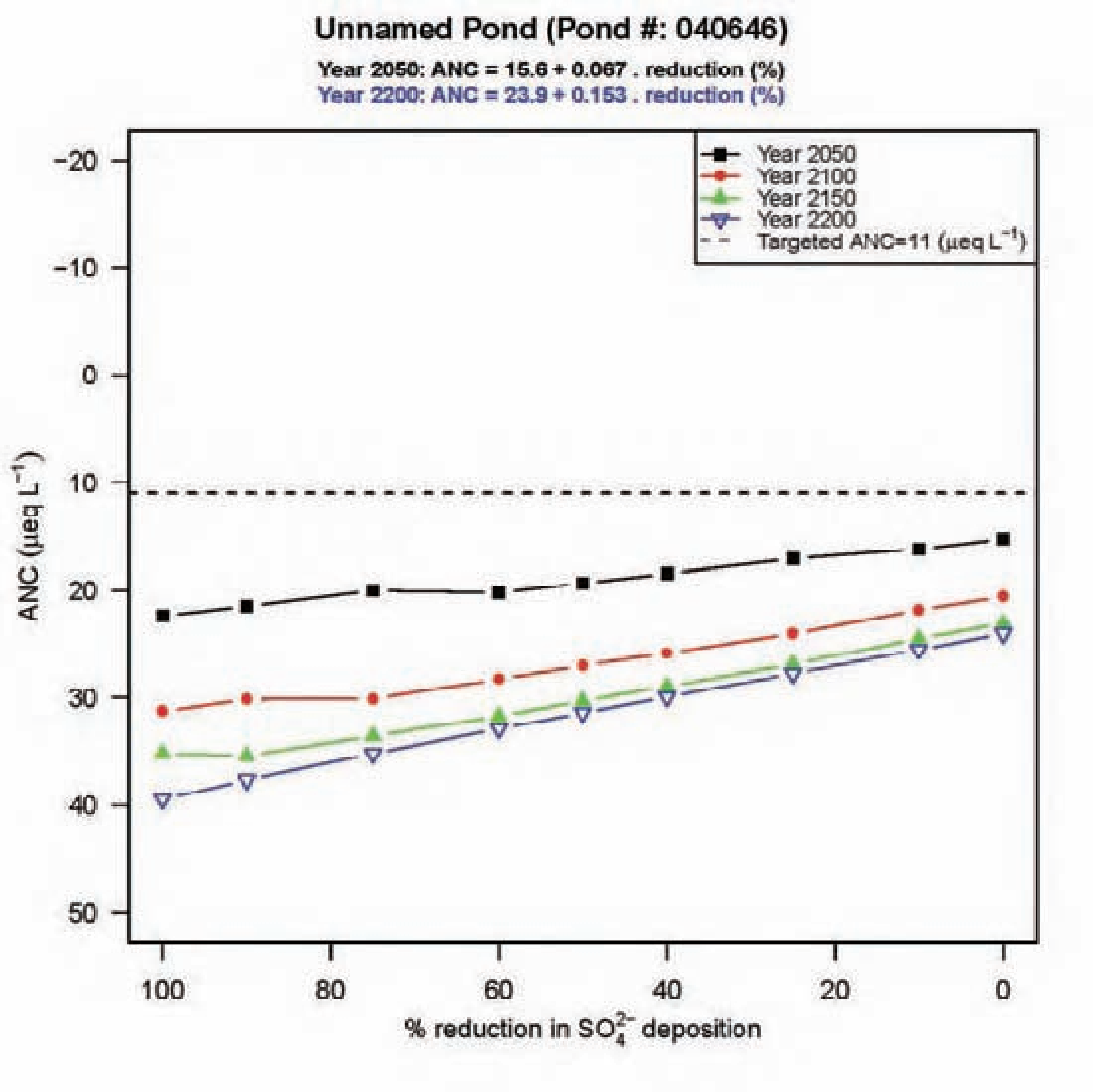


Bills Pond (Pond #: 040630)
Year 2050: ANC = 21.1 + 0.082 . reduction (%)
Year 2200: ANC = 27.9 + 0.146 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

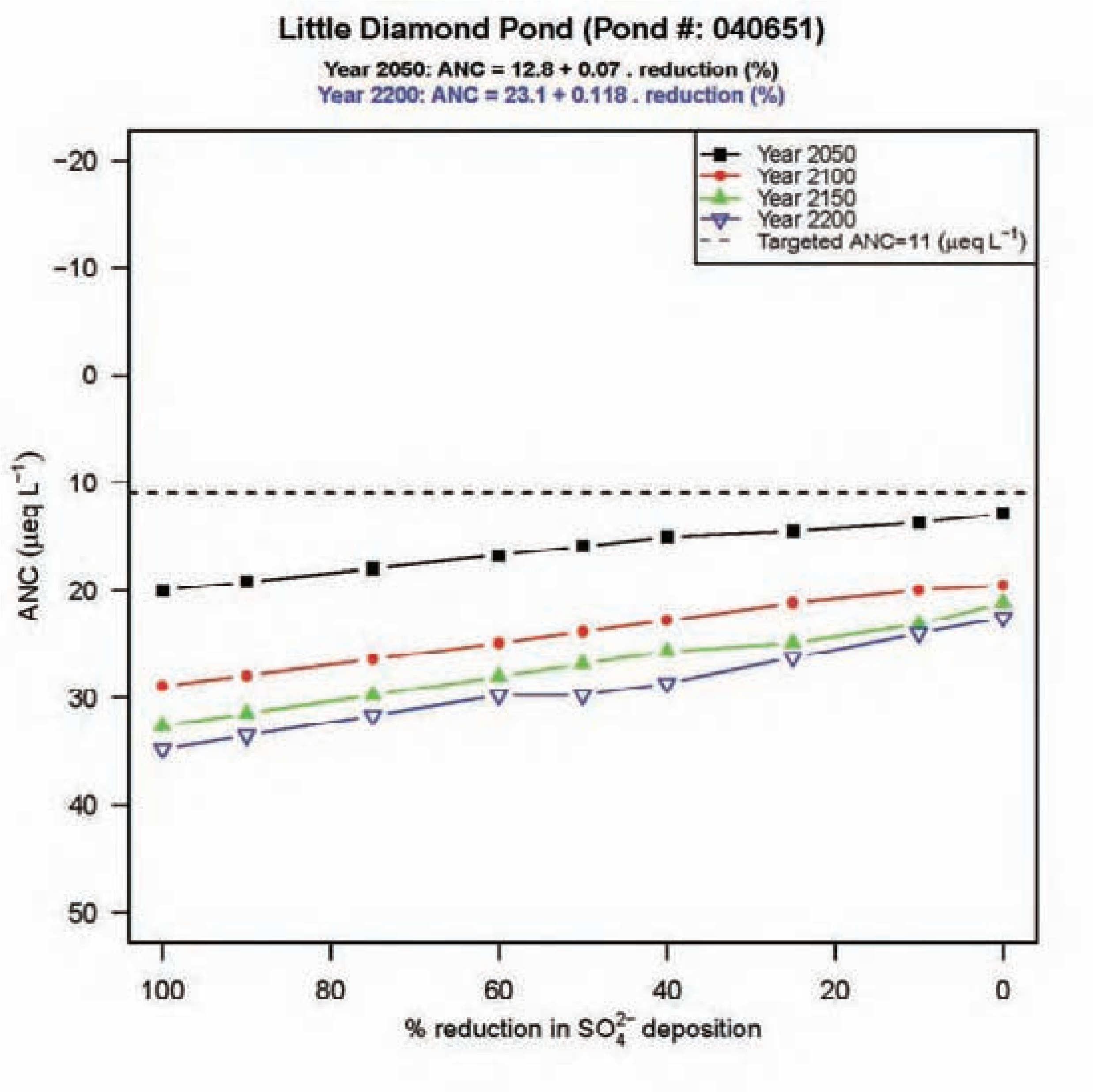

Panther Pond (Pond #: 040632)
Year 2050: ANC = 12.9 + 0.107 . reduction (%)
Year 2200: ANC = 24.8 + 0.161 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

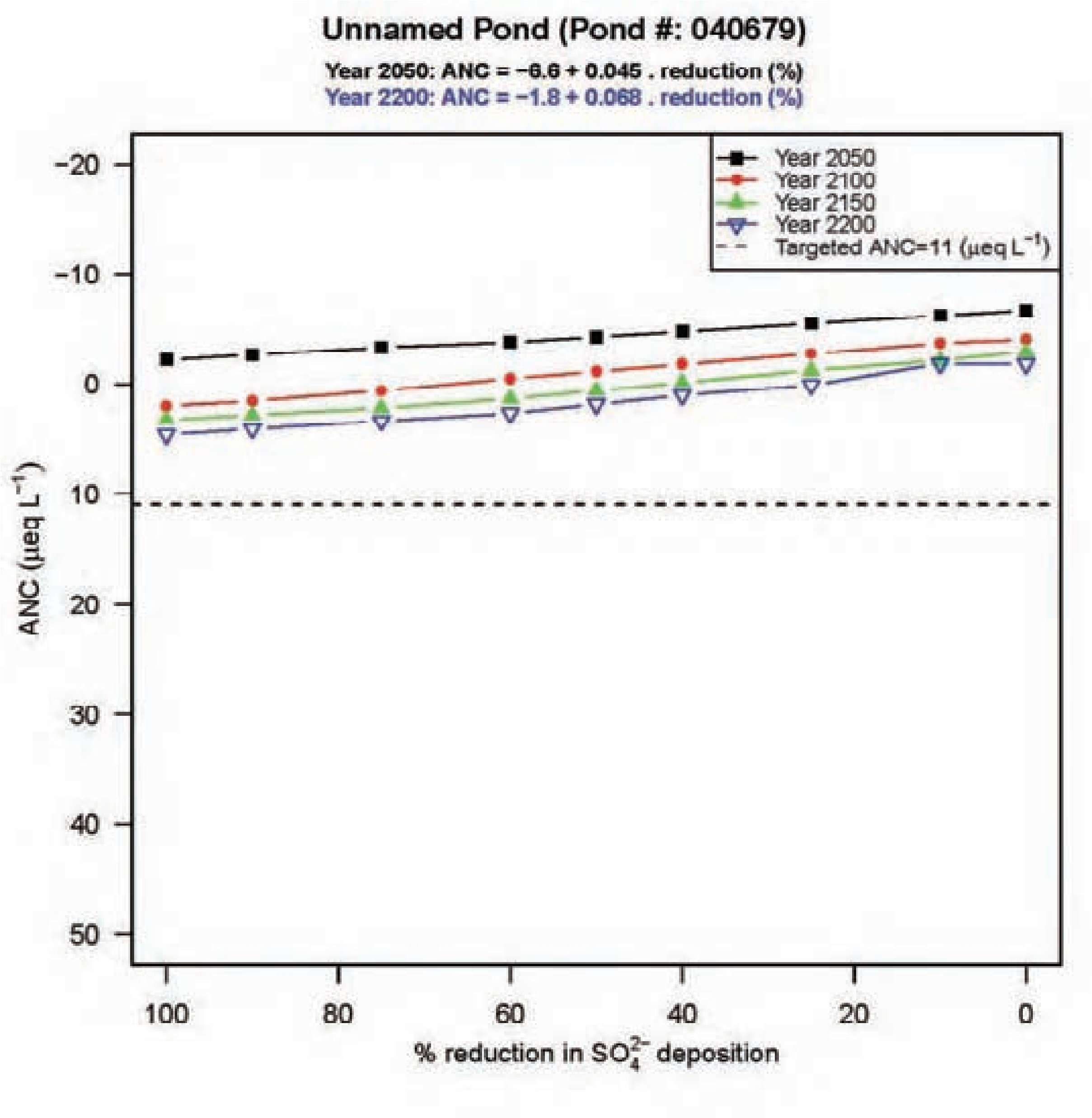


Unnamed Pond (Pond #: 040638)
Year 2050: ANC = −8.2 + 0.056 . reduction (%)
Year 2200: ANC = −3.2 + 0.079 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
−20
−10
0
10
20
30
40
50
ANC (μeq L−1)
100
80
60
40
20
0
% reduction in SO42− deposition

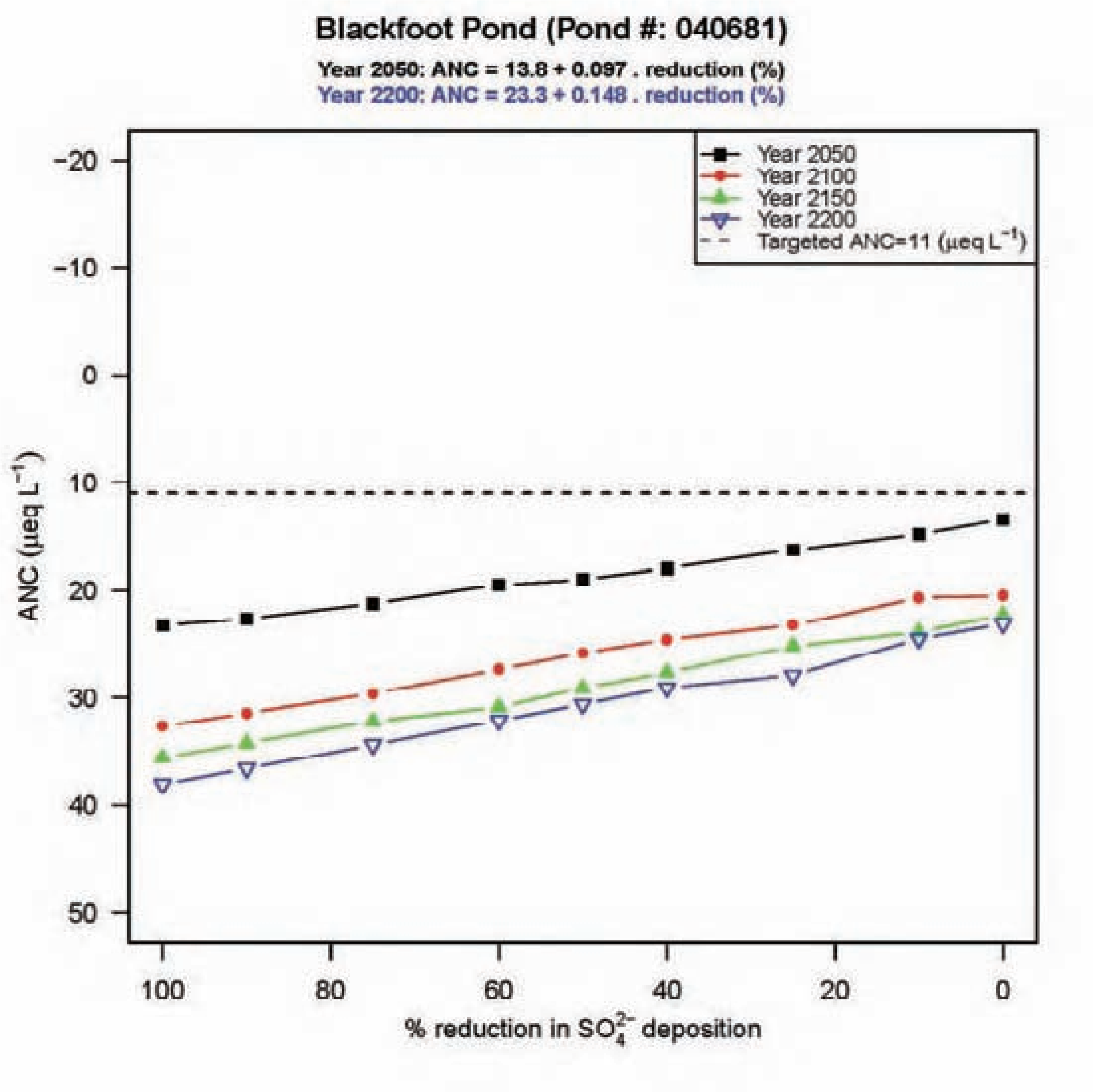


Unnamed Pond (Pond #: 040646)
Year 2050: ANC = 15.6 + 0.067 . reduction (%)
Year 2200: ANC = 23.9 + 0.153 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

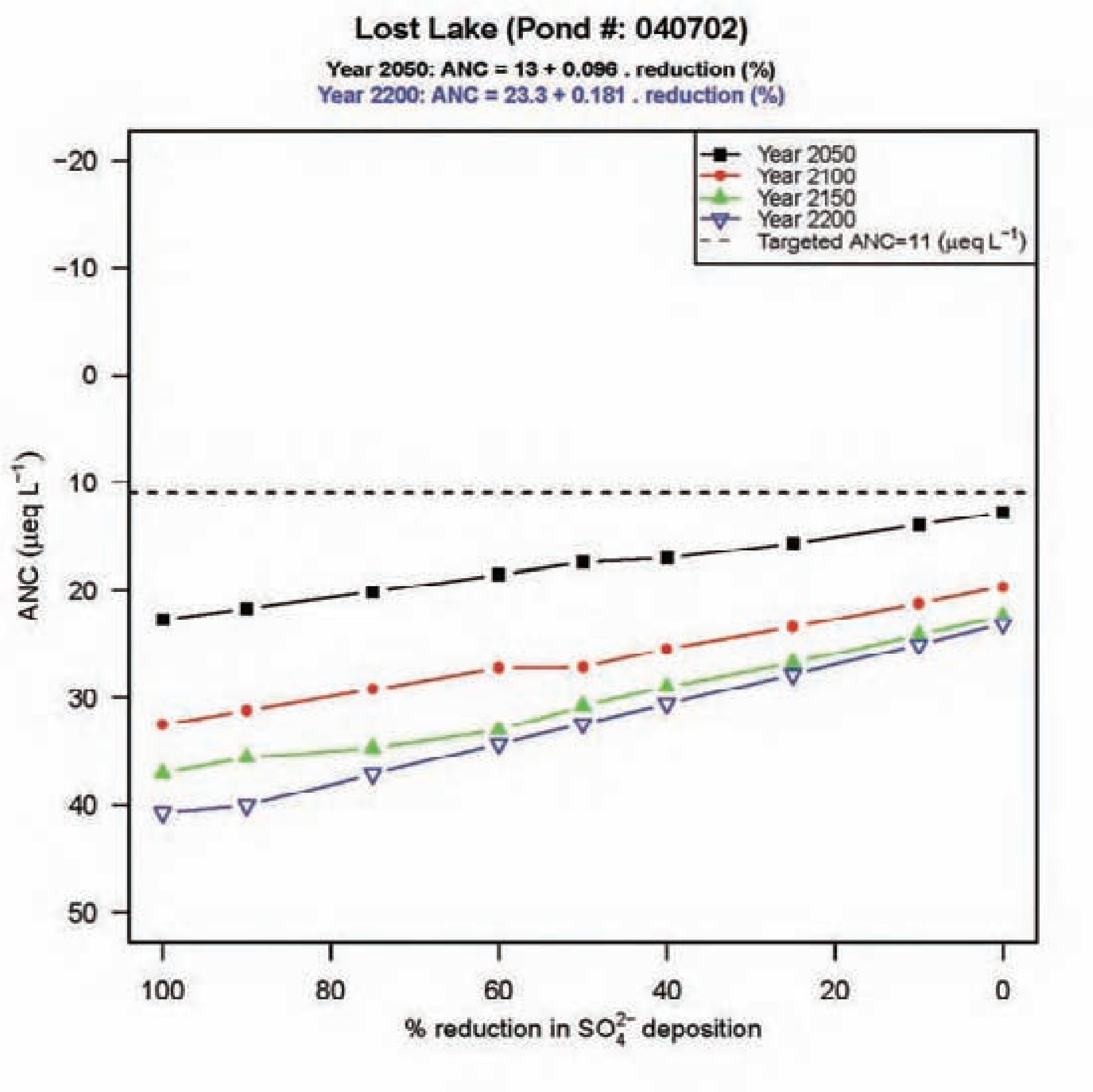

Little Diamond Pond (Pond #: 040651)
Year 2050: ANC = 12.8 + 0.07 . reduction (%)
Year 2200: ANC = 23.1 + 0.118 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO_4^{2-} deposition



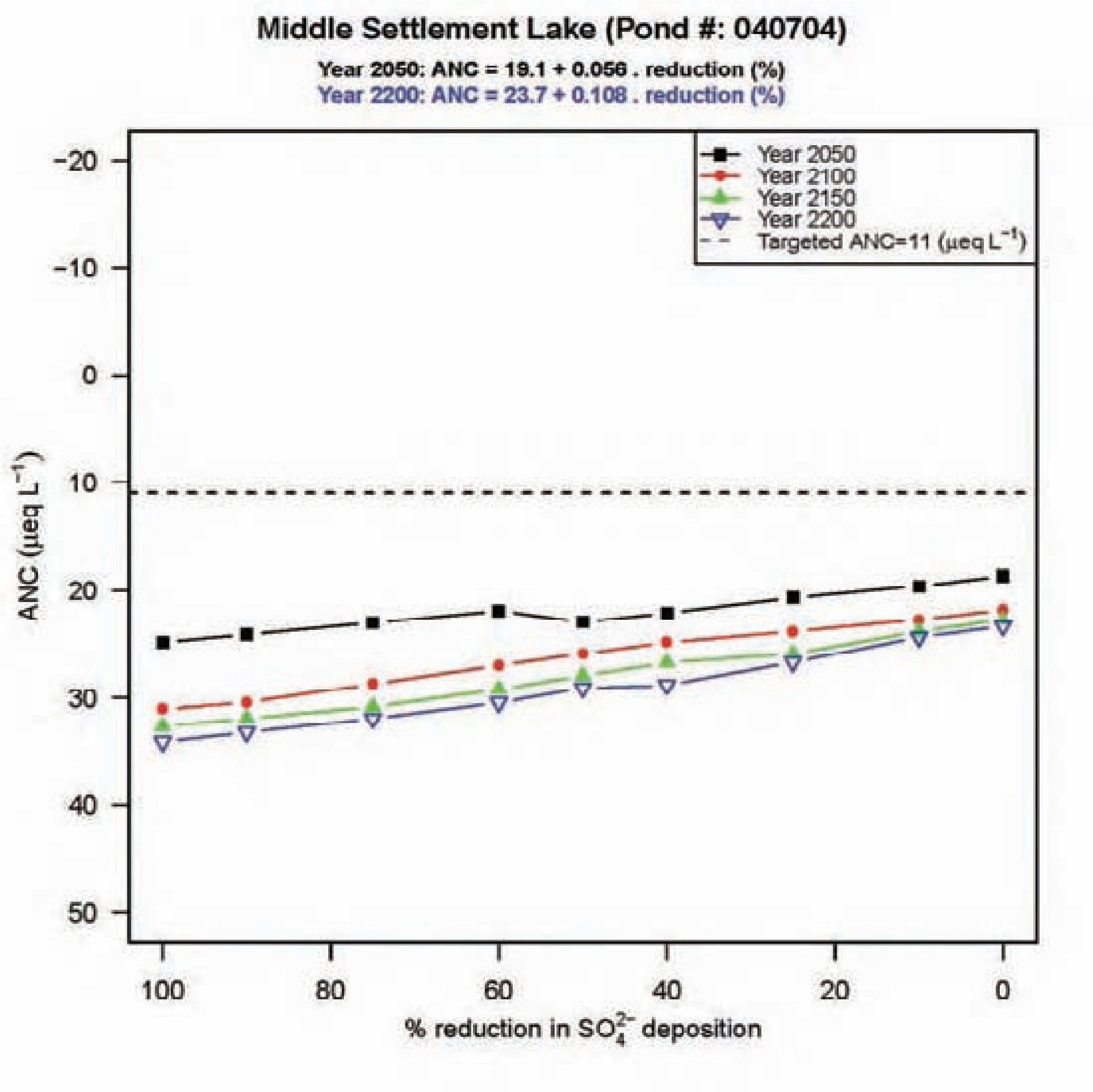
Unnamed Pond (Pond #: 040679)
Year 2050: ANC = −6.6 + 0.045 . reduction (%)
Year 2200: ANC = −1.8 + 0.068 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

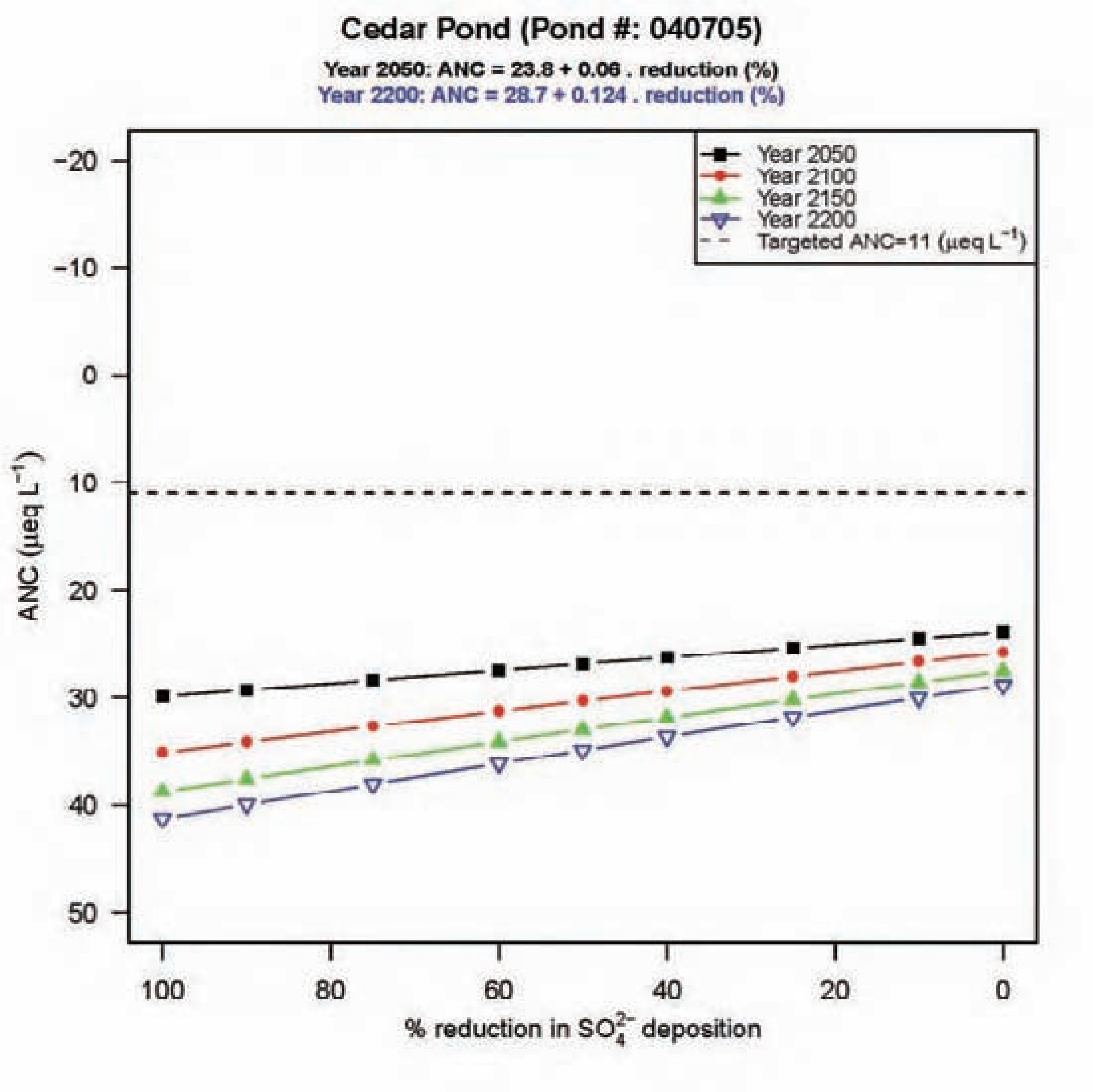


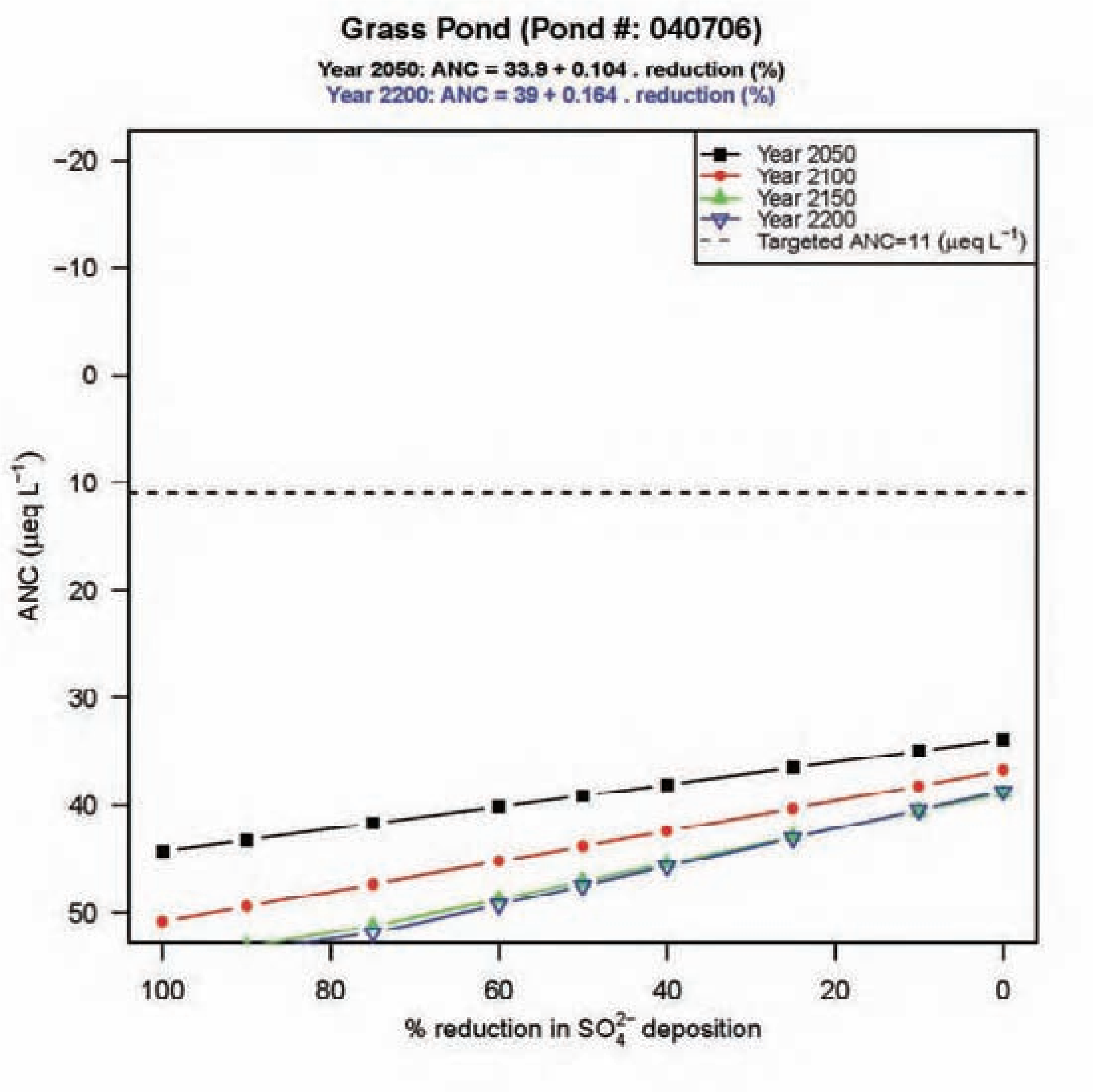
Blackfoot Pond (Pond #: 040681)
Year 2050: ANC = 13.8 + 0.097 . reduction (%)
Year 2200: ANC = 23.3 + 0.148 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



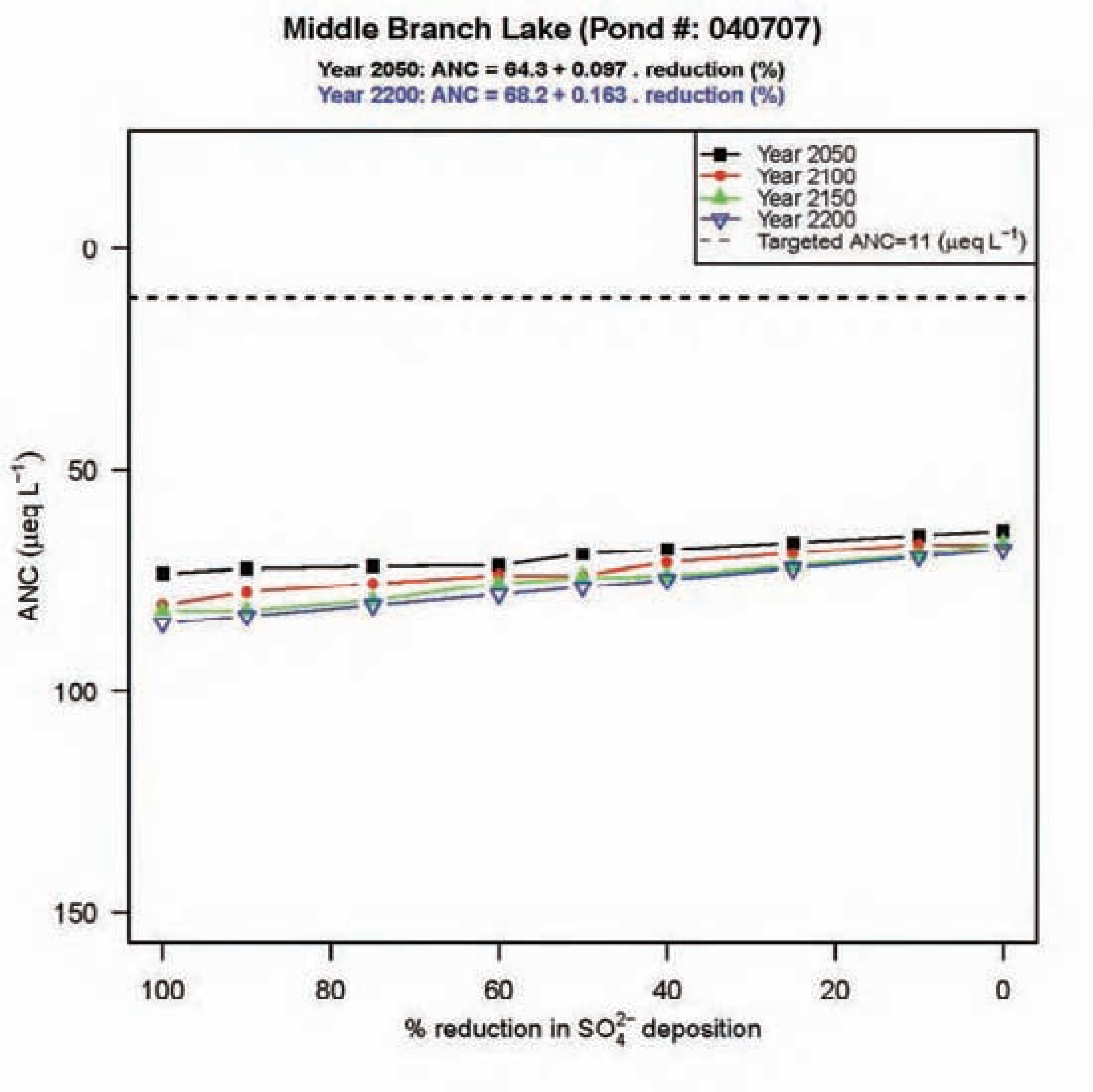
Lost Lake (Pond #: 040702)
Year 2050: ANC = 13 + 0.096 . reduction (%)
Year 2200: ANC = 23.3 + 0.181 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

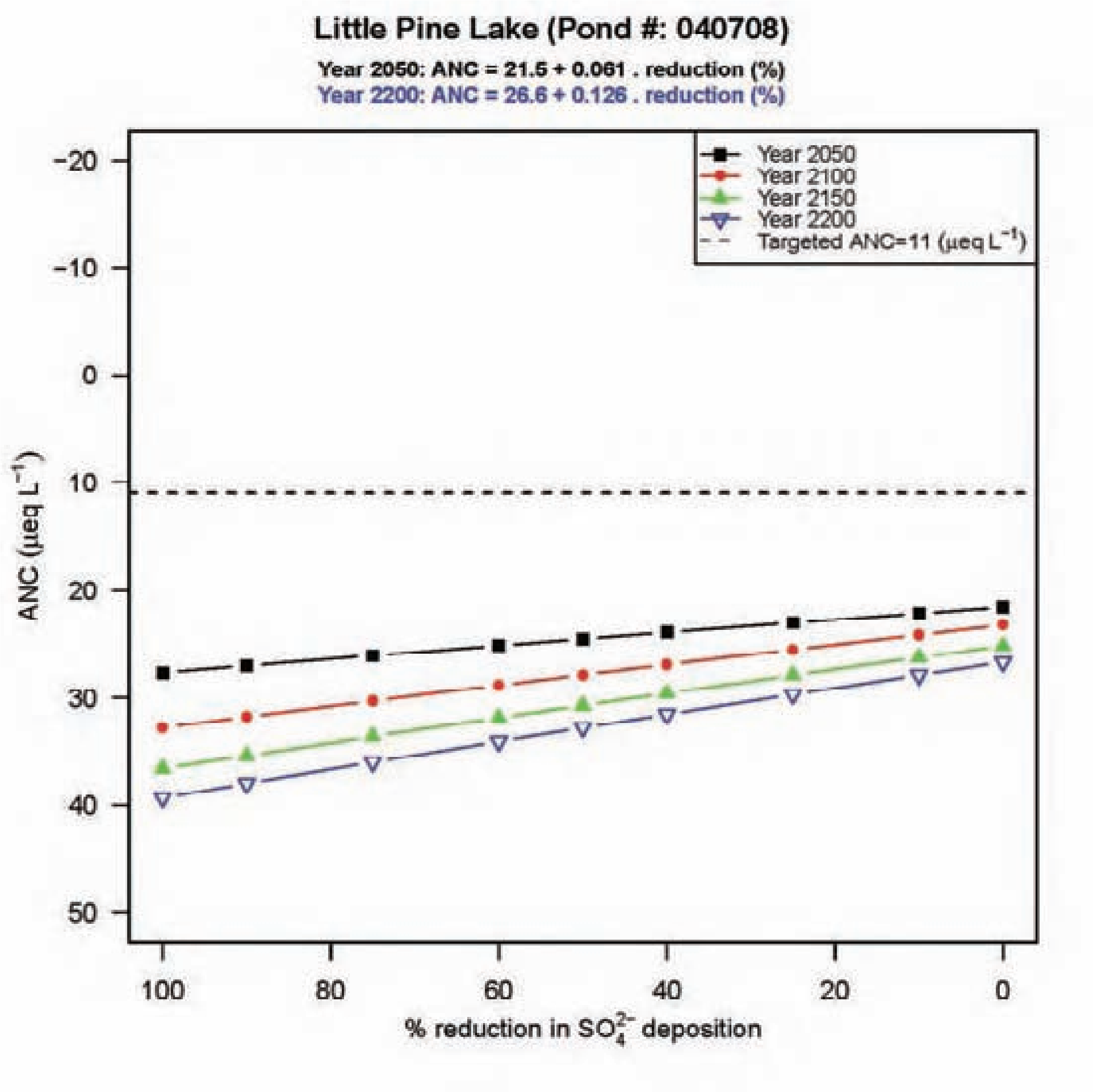

Middle Settlement Lake (Pond #: 040704)
Year 2050: ANC = 19.1 + 0.056 . reduction (%)
Year 2200: ANC = 23.7 + 0.108 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

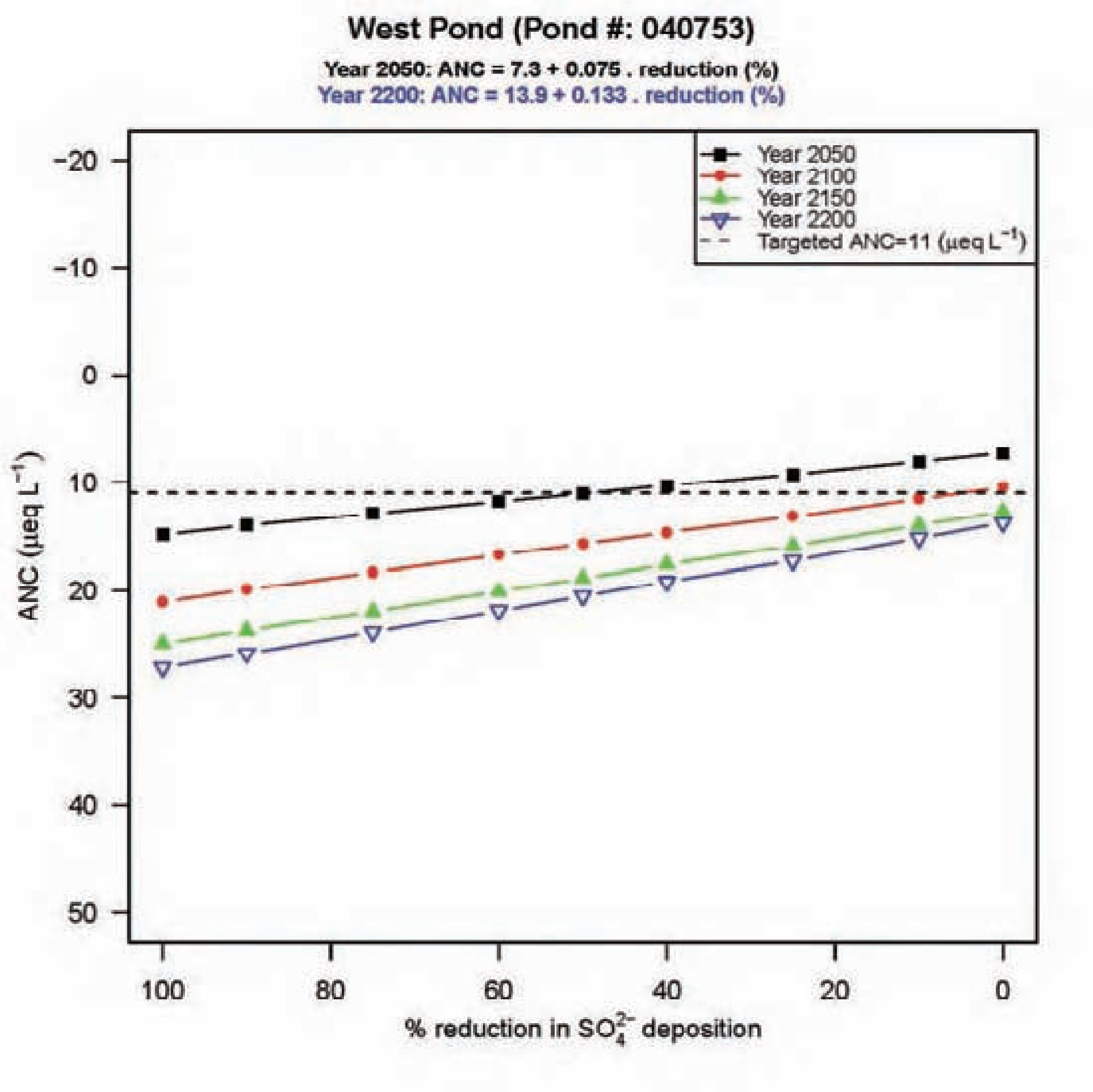

Cedar Pond (Pond #: 040705)
Year 2050: ANC = 23.8 + 0.06 . reduction (%)
Year 2200: ANC = 28.7 + 0.124 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



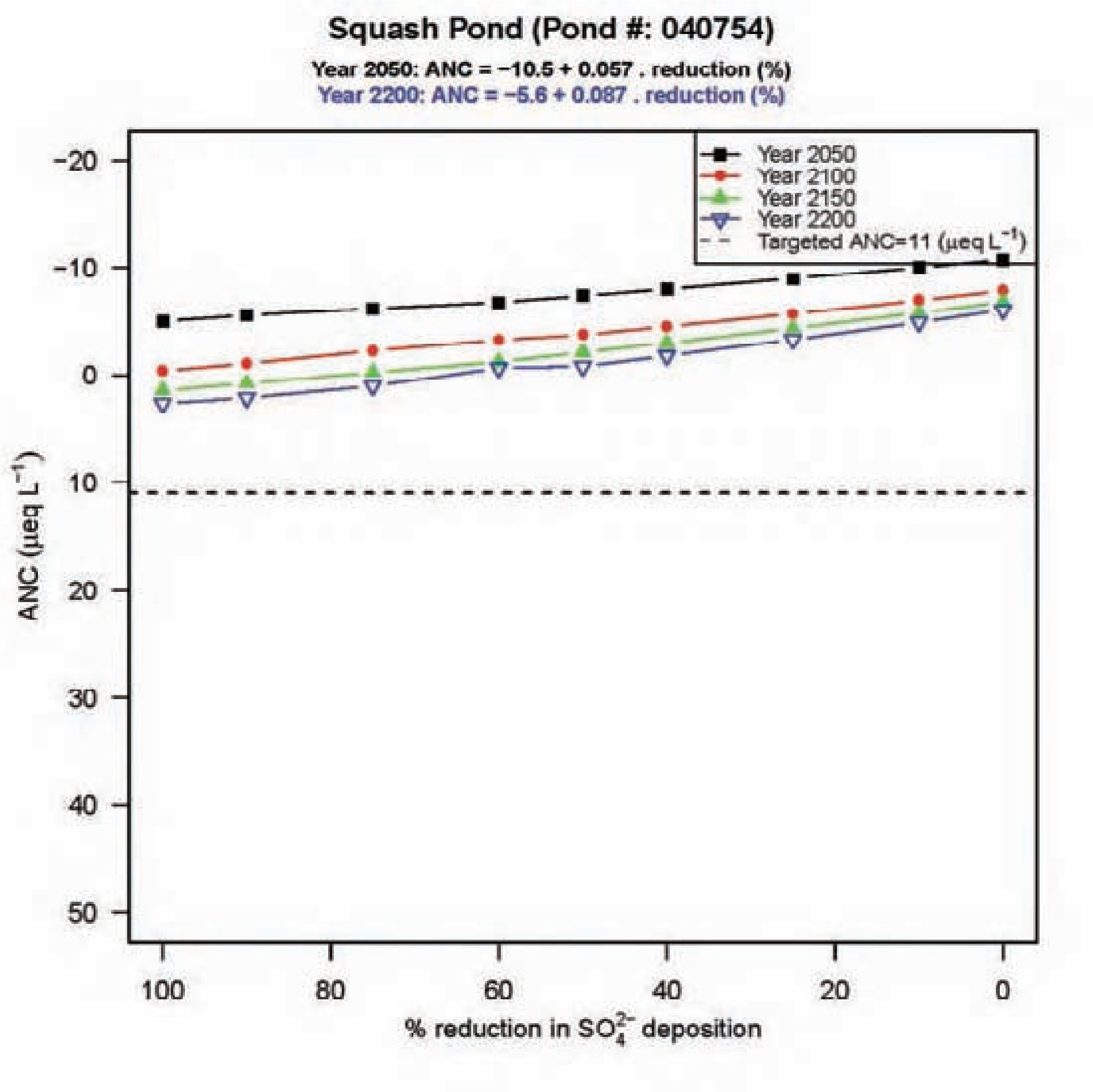
Grass Pond (Pond #: 040706)
Year 2050: ANC = 33.9 + 0.104 . reduction (%)
Year 2200: ANC = 39 + 0.164 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition


Middle Branch Lake (Pond #: 040707)
Year 2050: ANC = 64.3 + 0.097 . reduction (%)
Year 2200: ANC = 68.2 + 0.163 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

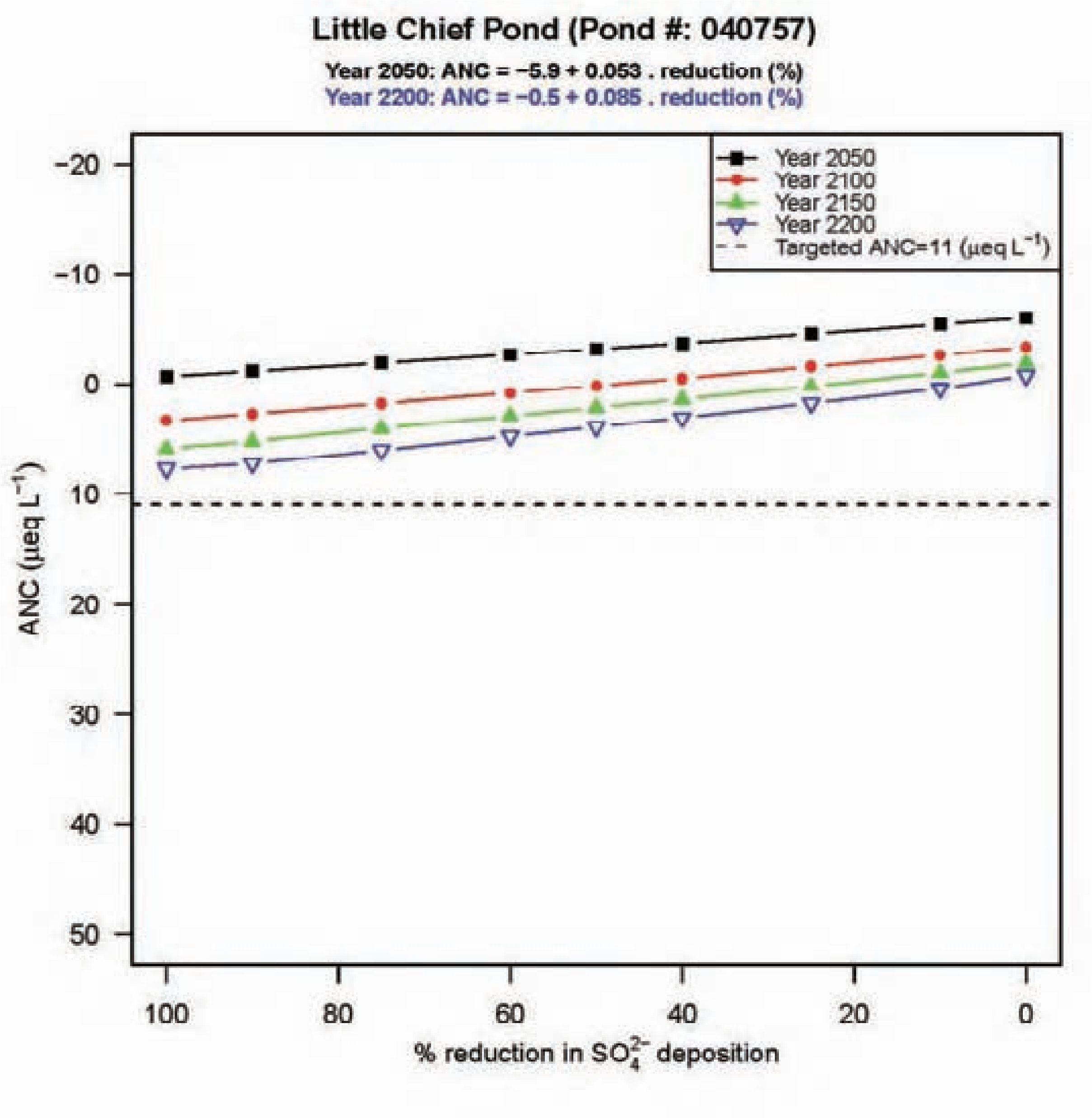

Little Pine Lake (Pond #: 040708)
Year 2050: ANC = 21.5 + 0.061 . reduction (%)
Year 2200: ANC = 26.6 + 0.126 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO_4^{2-} deposition



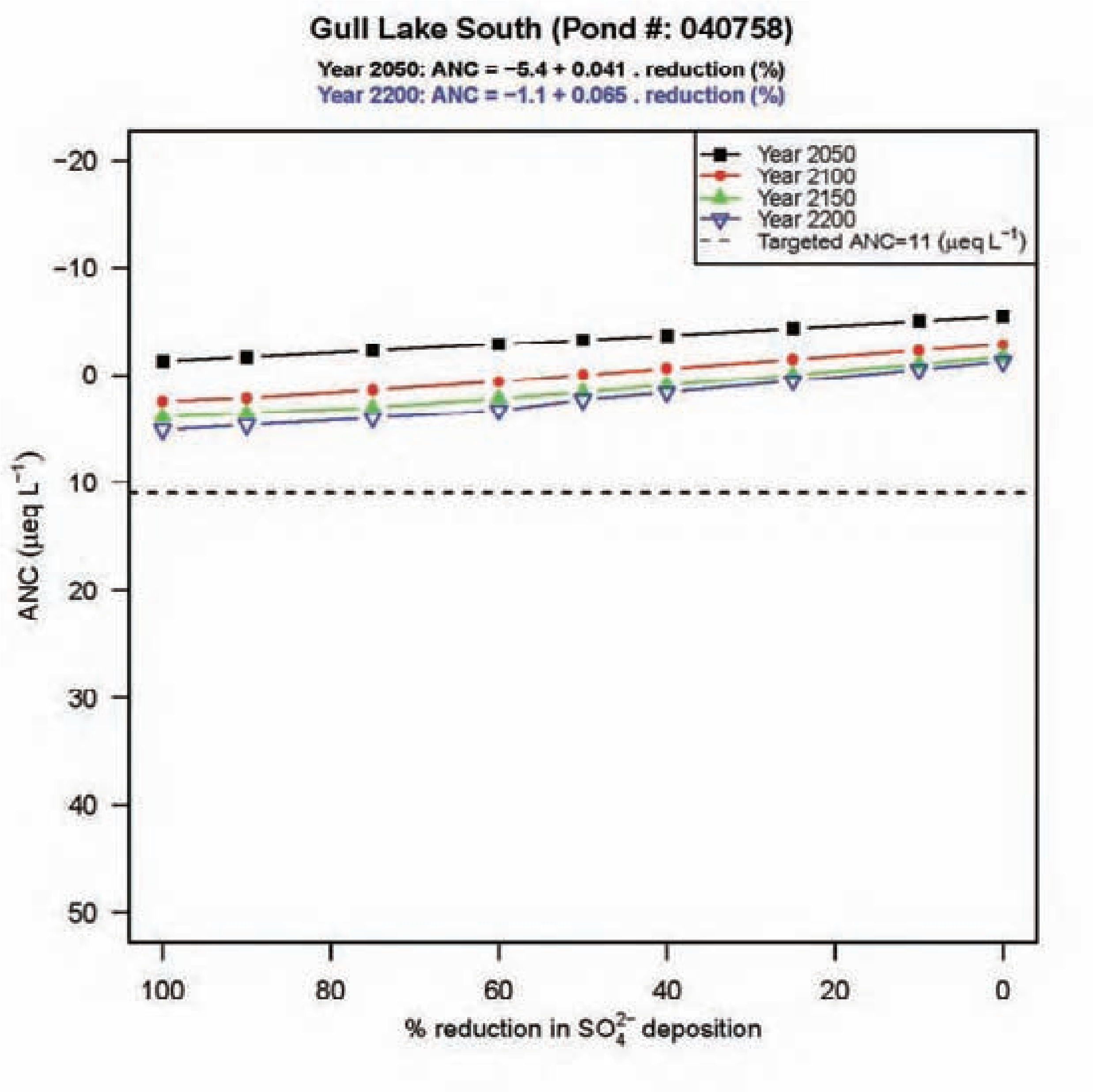
West Pond (Pond #: 040753)
Year 2050: ANC = 7.3 + 0.075 . reduction (%)
Year 2200: ANC = 13.9 + 0.133 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

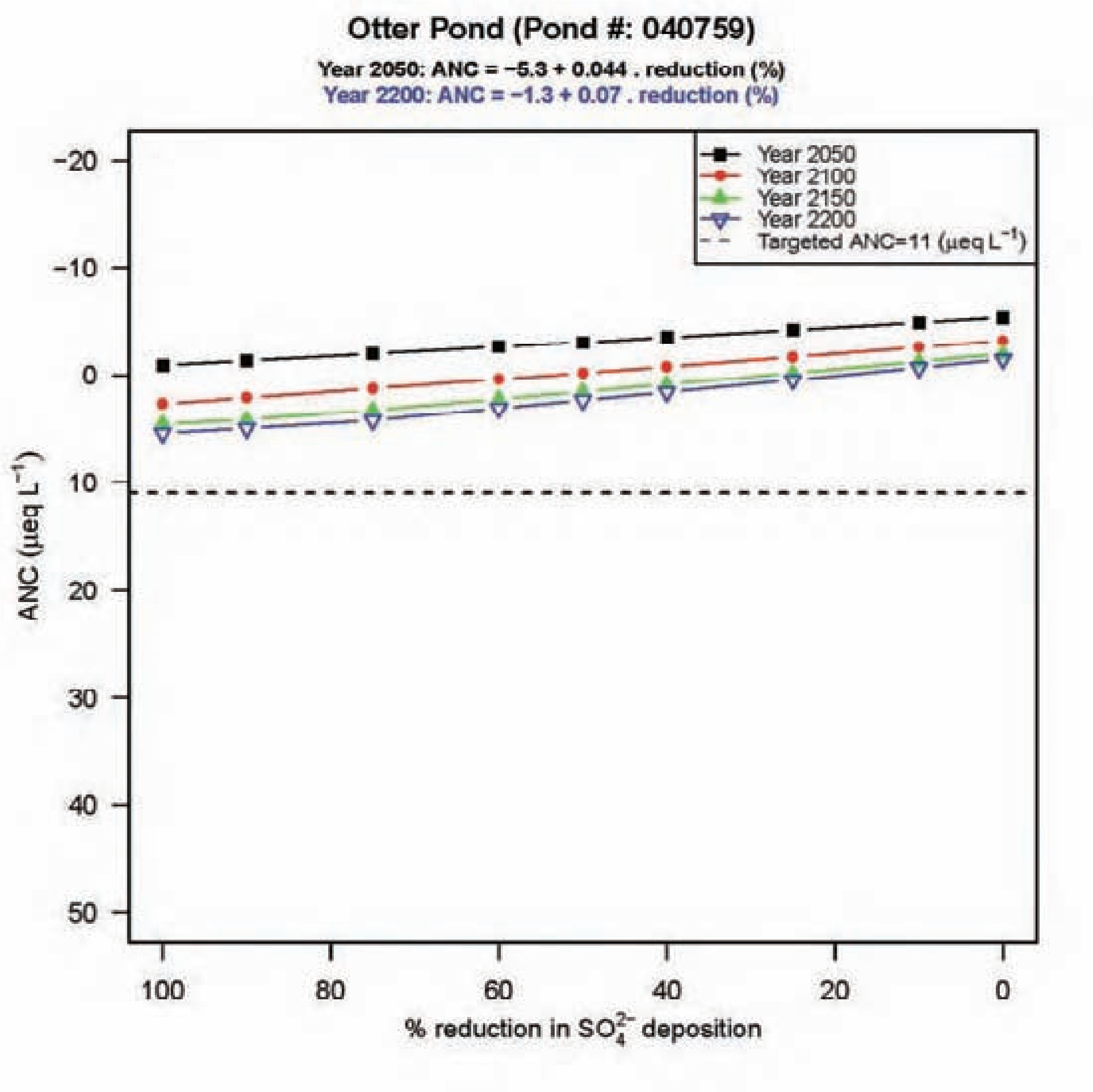


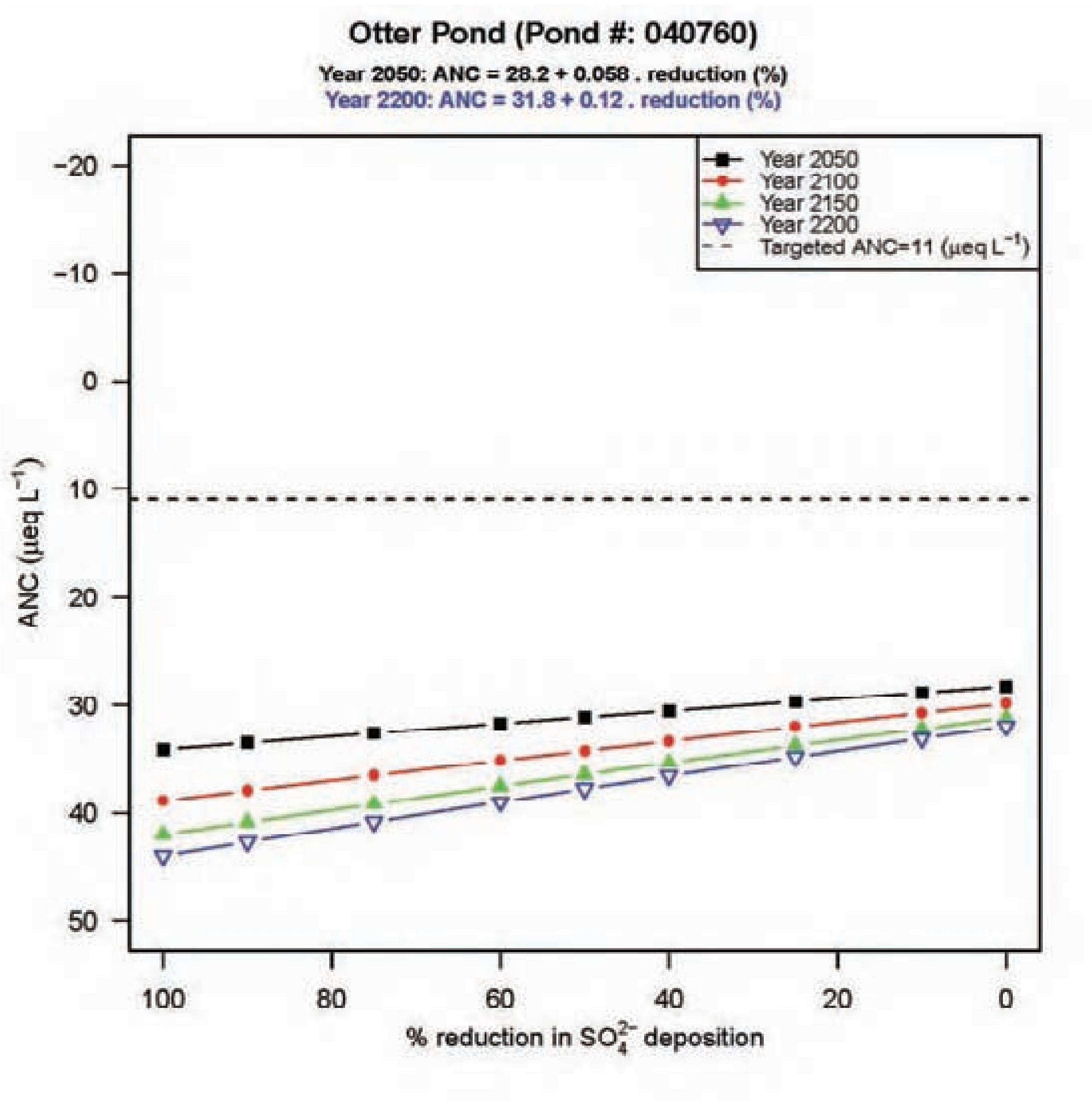
Squash Pond (Pond #: 040754)
Year 2050: ANC = −10.5 + 0.057 . reduction (%)
Year 2200: ANC = −5.6 + 0.087 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



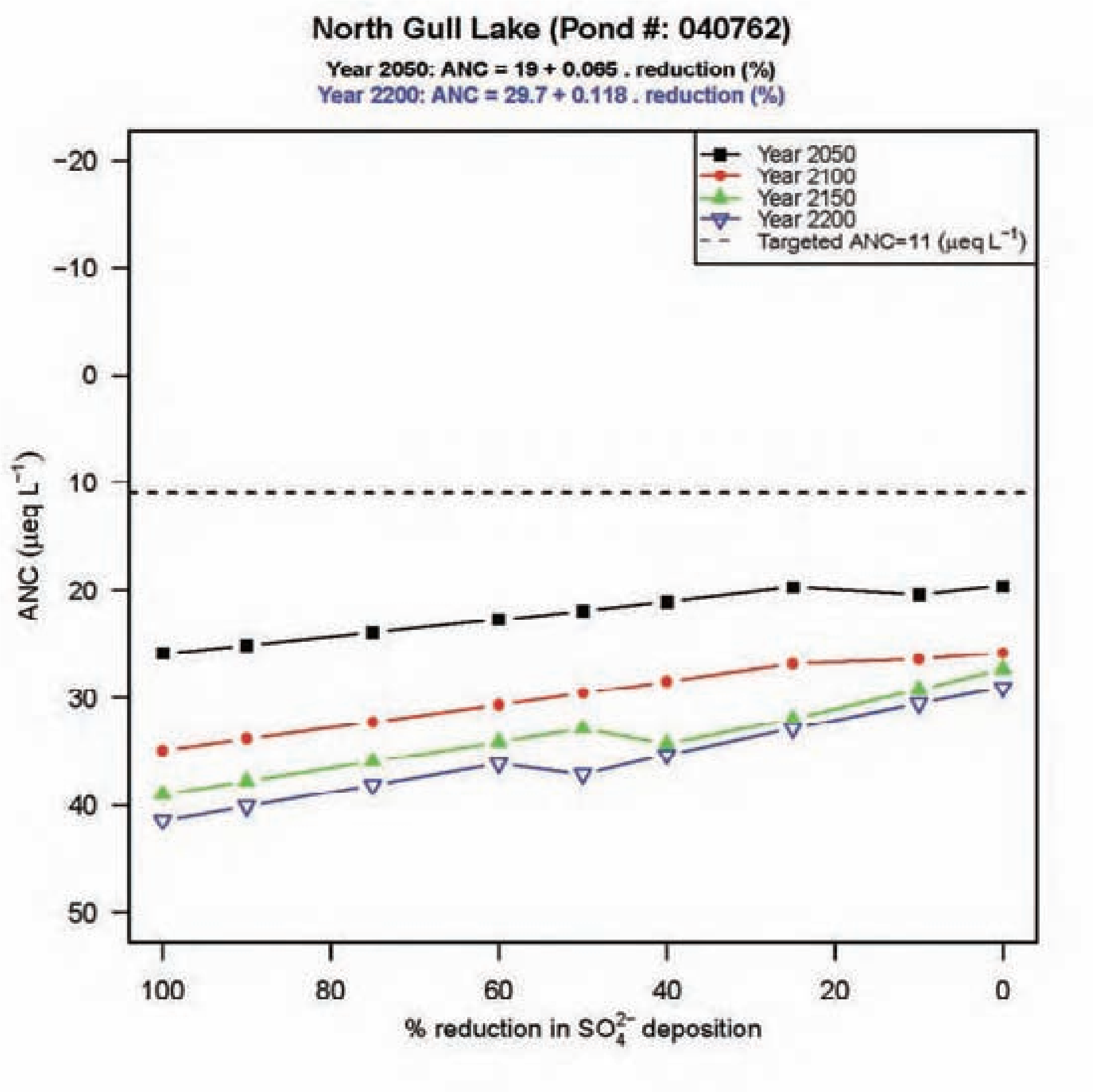
Little Chief Pond (Pond #: 040757)
Year 2050: ANC = −5.9 + 0.053 . reduction (%)
Year 2200: ANC = −0.5 + 0.085 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

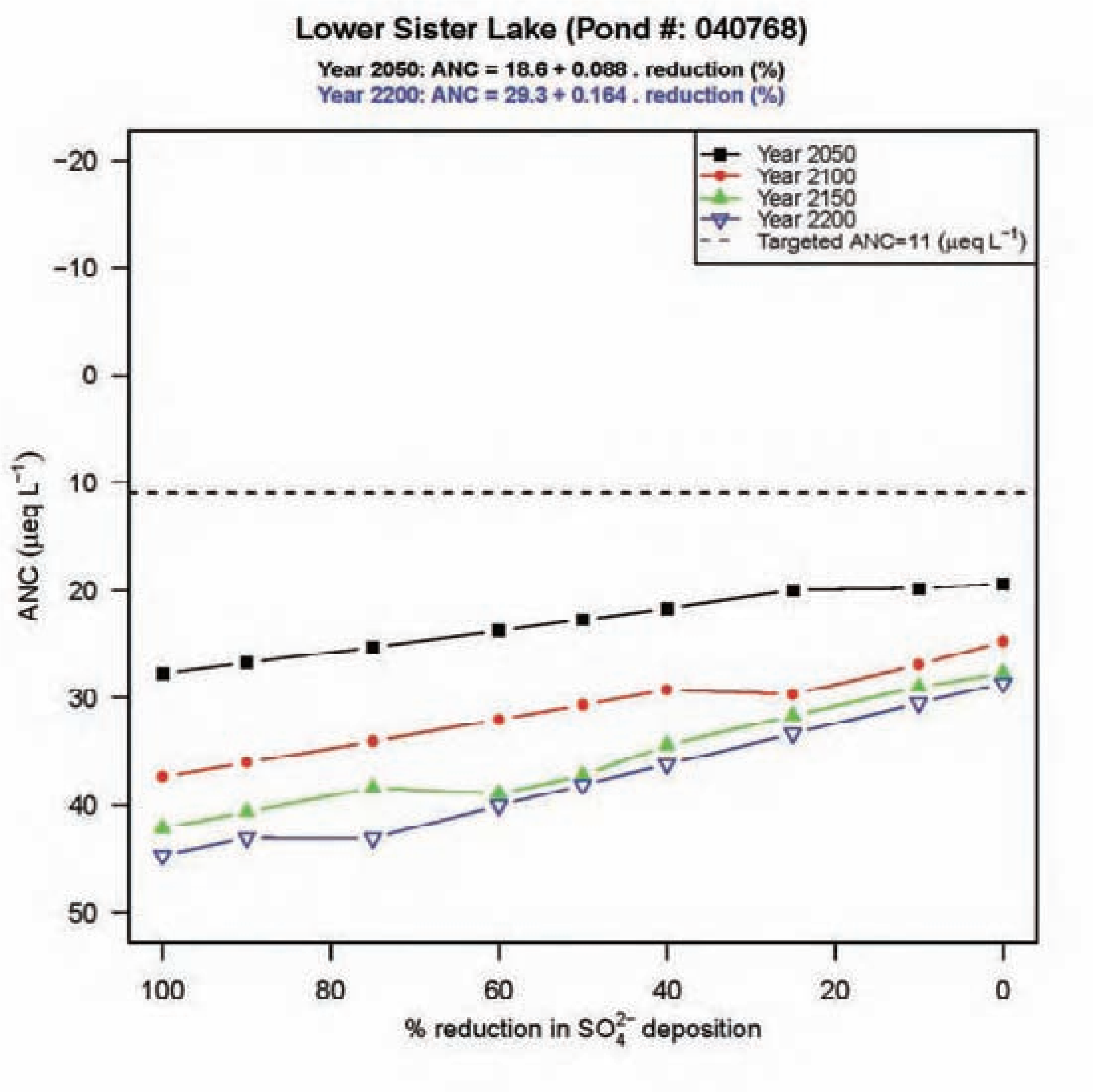

Gull Lake South (Pond #: 040758)
Year 2050: ANC = −5.4 + 0.041 . reduction (%)
Year 2200: ANC = −1.1 + 0.065 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
−20
−10
0
10
20
30
40
50
ANC (μeq L−1)
100
80
60
40
20
0
% reduction in SO42− deposition


Otter Pond (Pond #: 040759)
Year 2050: ANC = −5.3 + 0.044 . reduction (%)
Year 2200: ANC = −1.3 + 0.07 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO42− deposition

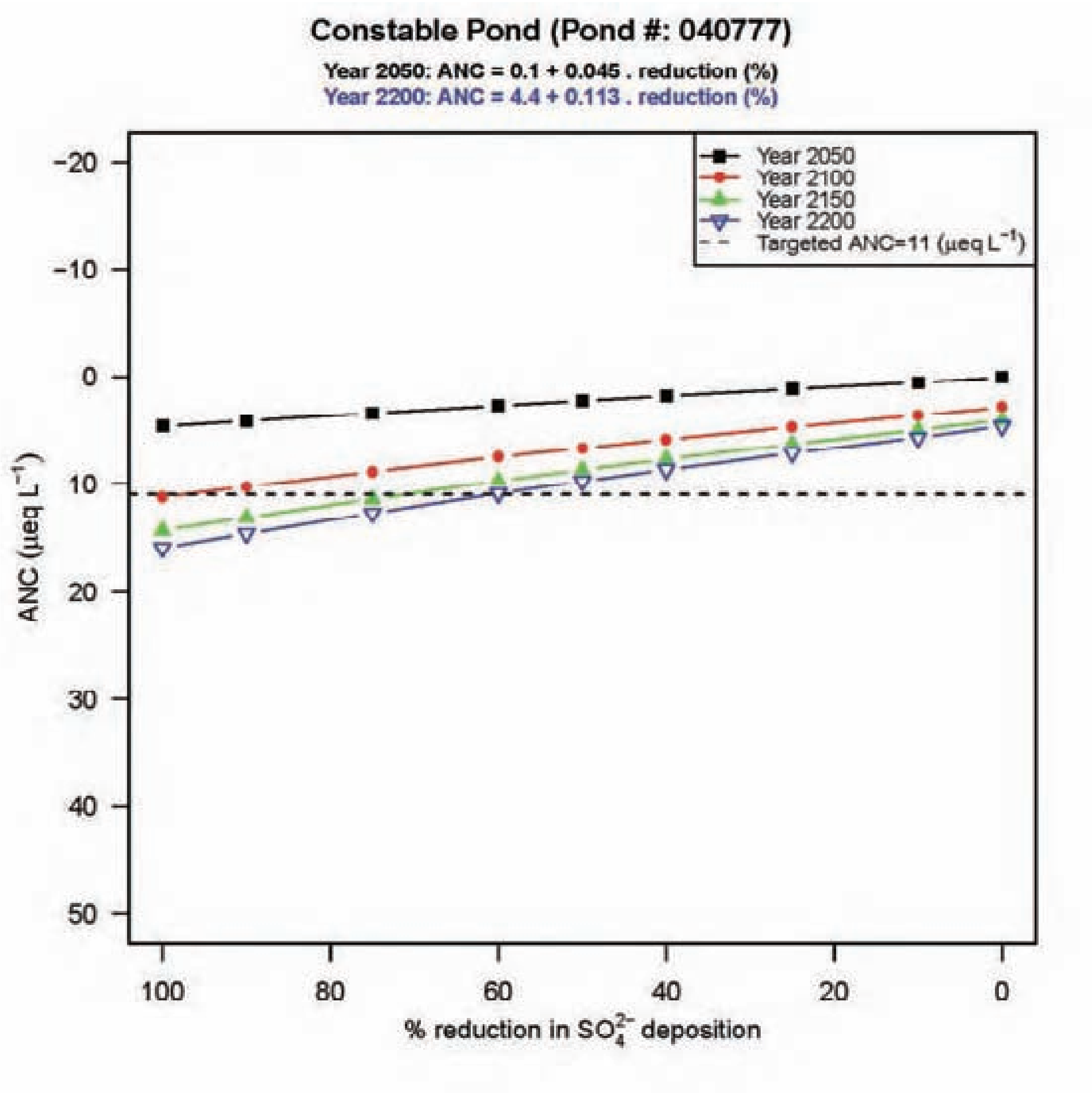


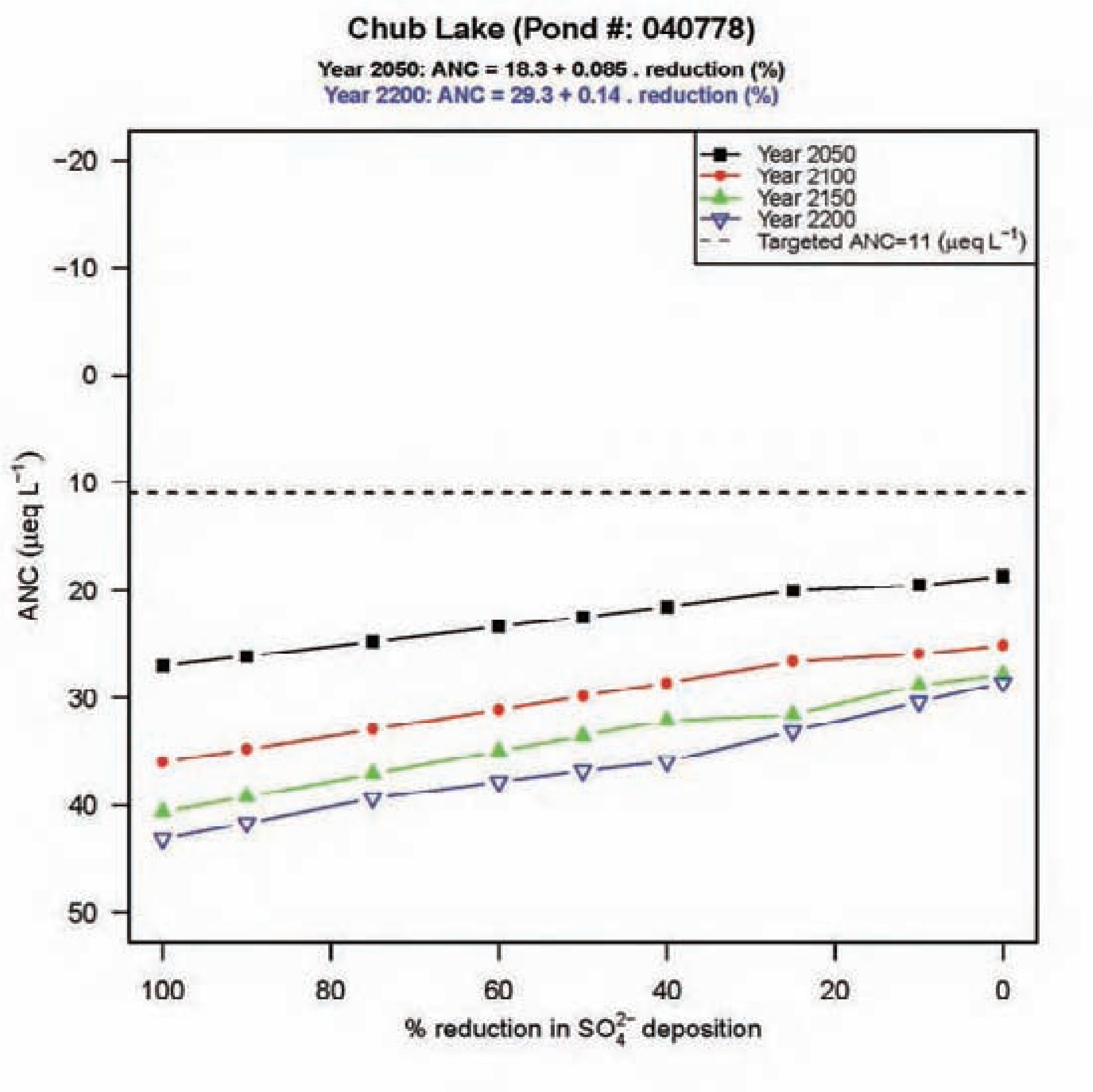
Otter Pond (Pond #: 040760)
Year 2050: ANC = 28.2 + 0.058 . reduction (%)
Year 2200: ANC = 31.8 + 0.12 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

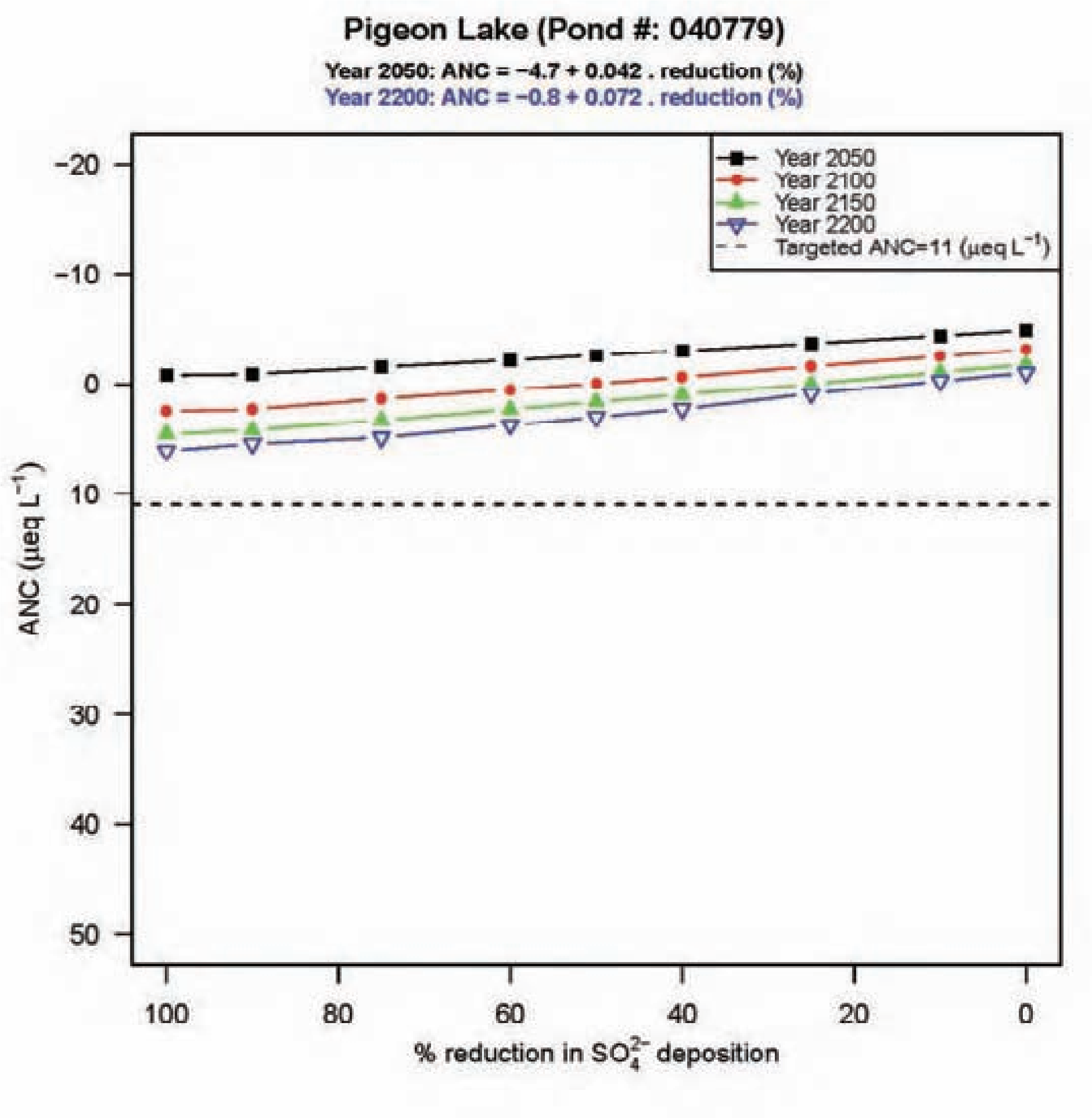

North Gull Lake (Pond #: 040762)
Year 2050: ANC = 19 + 0.065 . reduction (%)
Year 2200: ANC = 29.7 + 0.118 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0



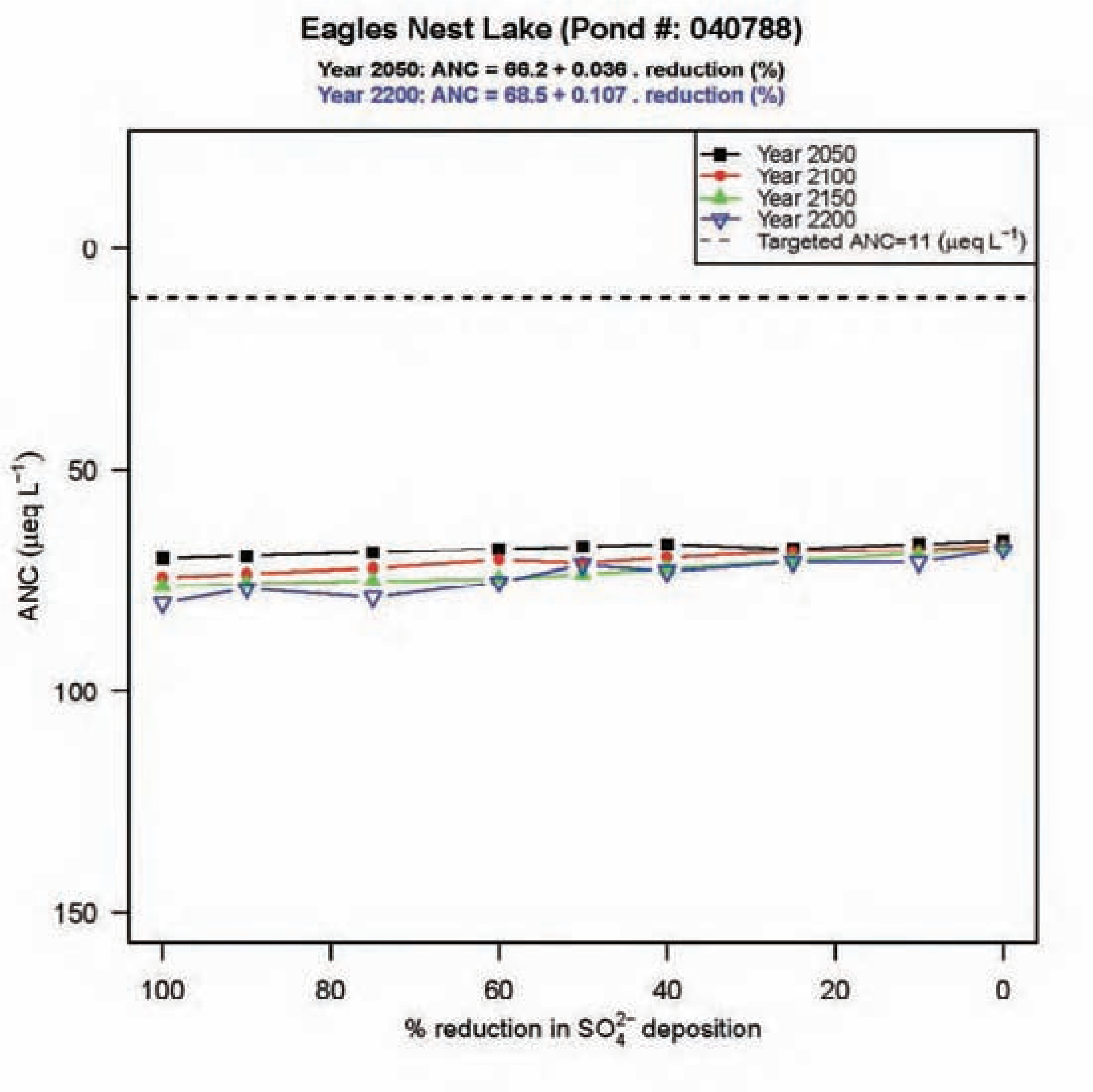
Lower Sister Lake (Pond #: 040768)
Year 2050: ANC = 18.6 + 0.088 . reduction (%)
Year 2200: ANC = 29.3 + 0.164 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Constable Pond (Pond #: 040777)
Year 2050: ANC = 0.1 + 0.045 . reduction (%)
Year 2200: ANC = 4.4 + 0.113 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

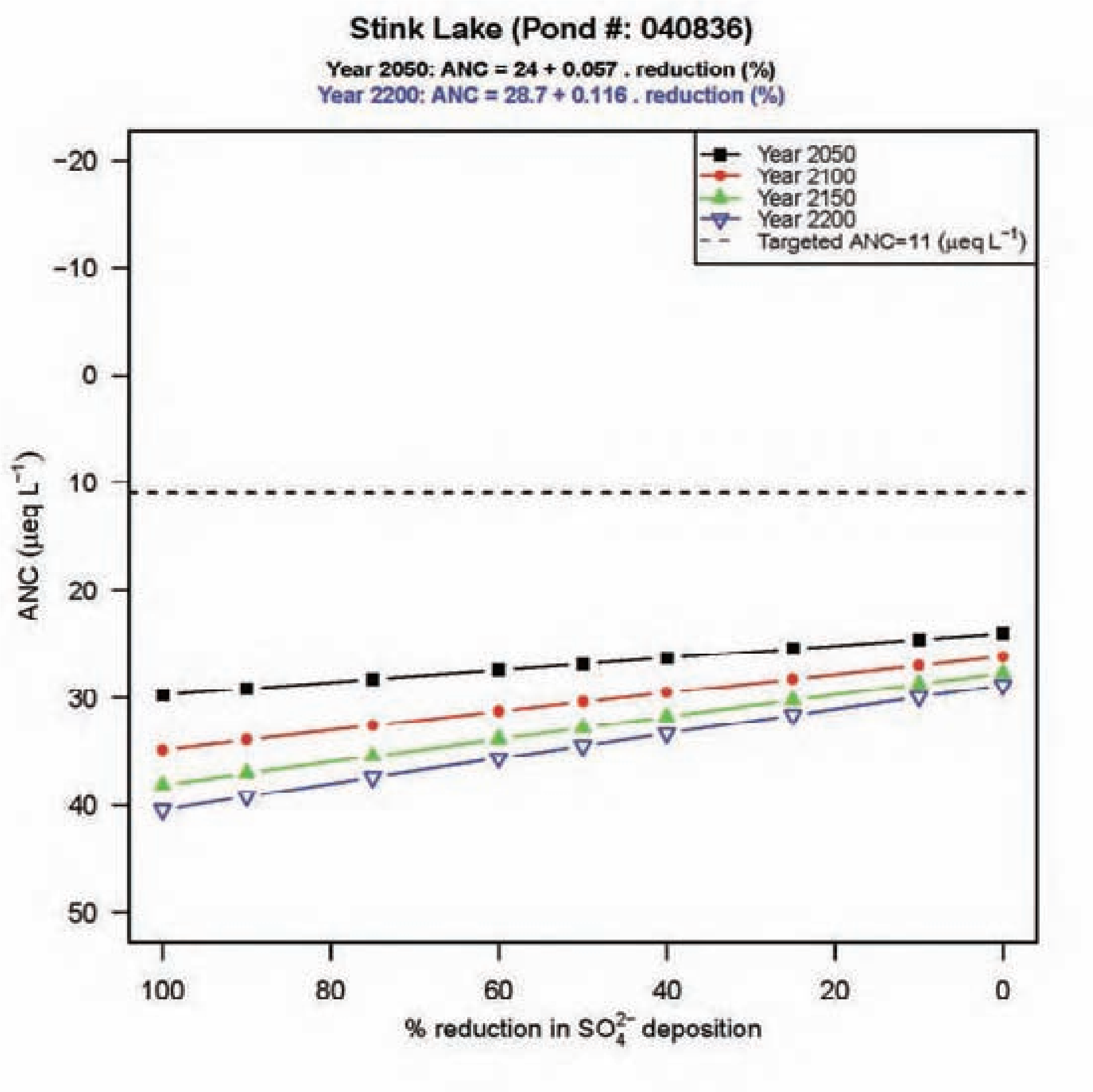

Chub Lake (Pond #: 040778)
Year 2050: ANC = 18.3 + 0.085 . reduction (%)
Year 2200: ANC = 29.3 + 0.14 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

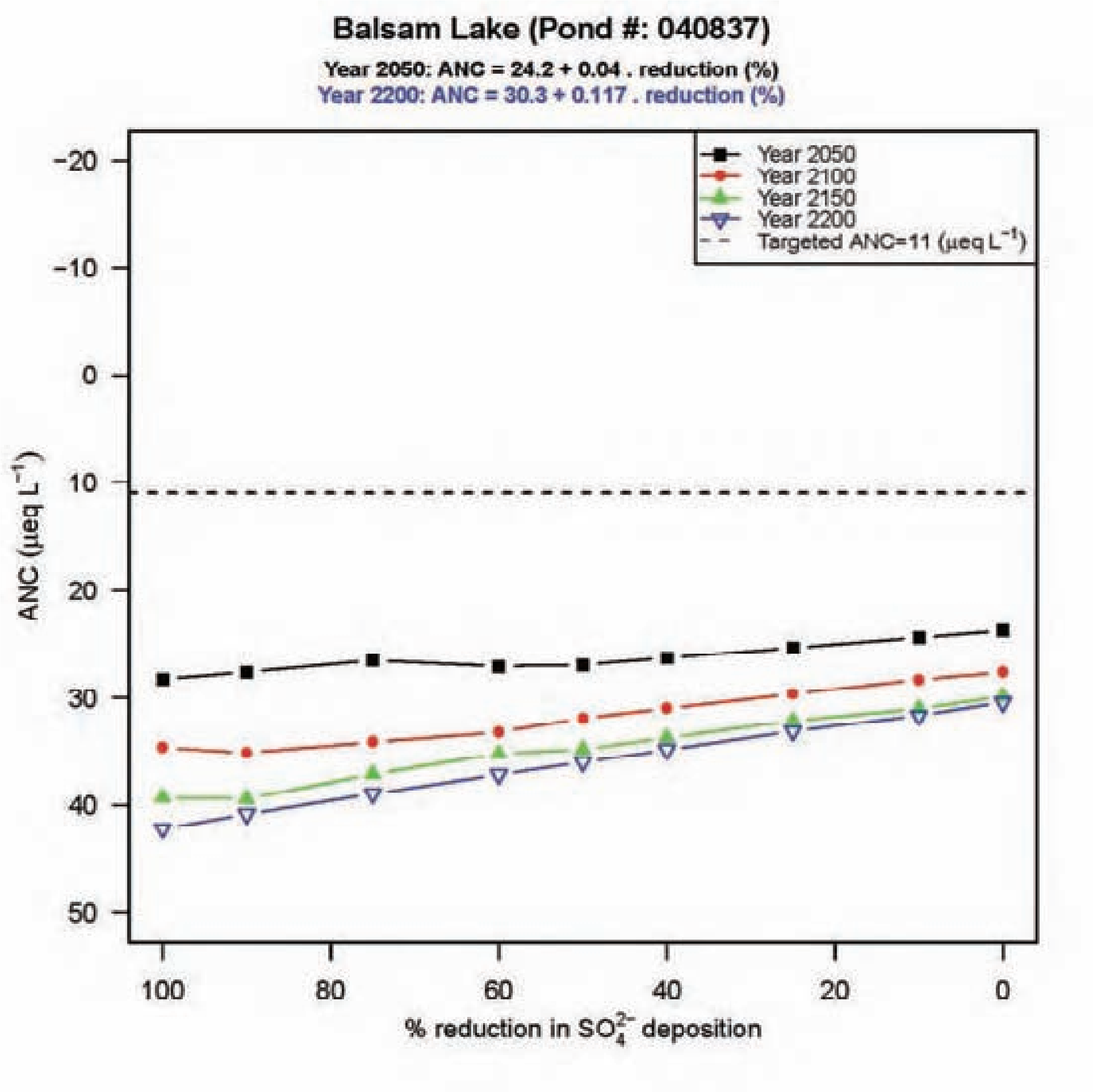


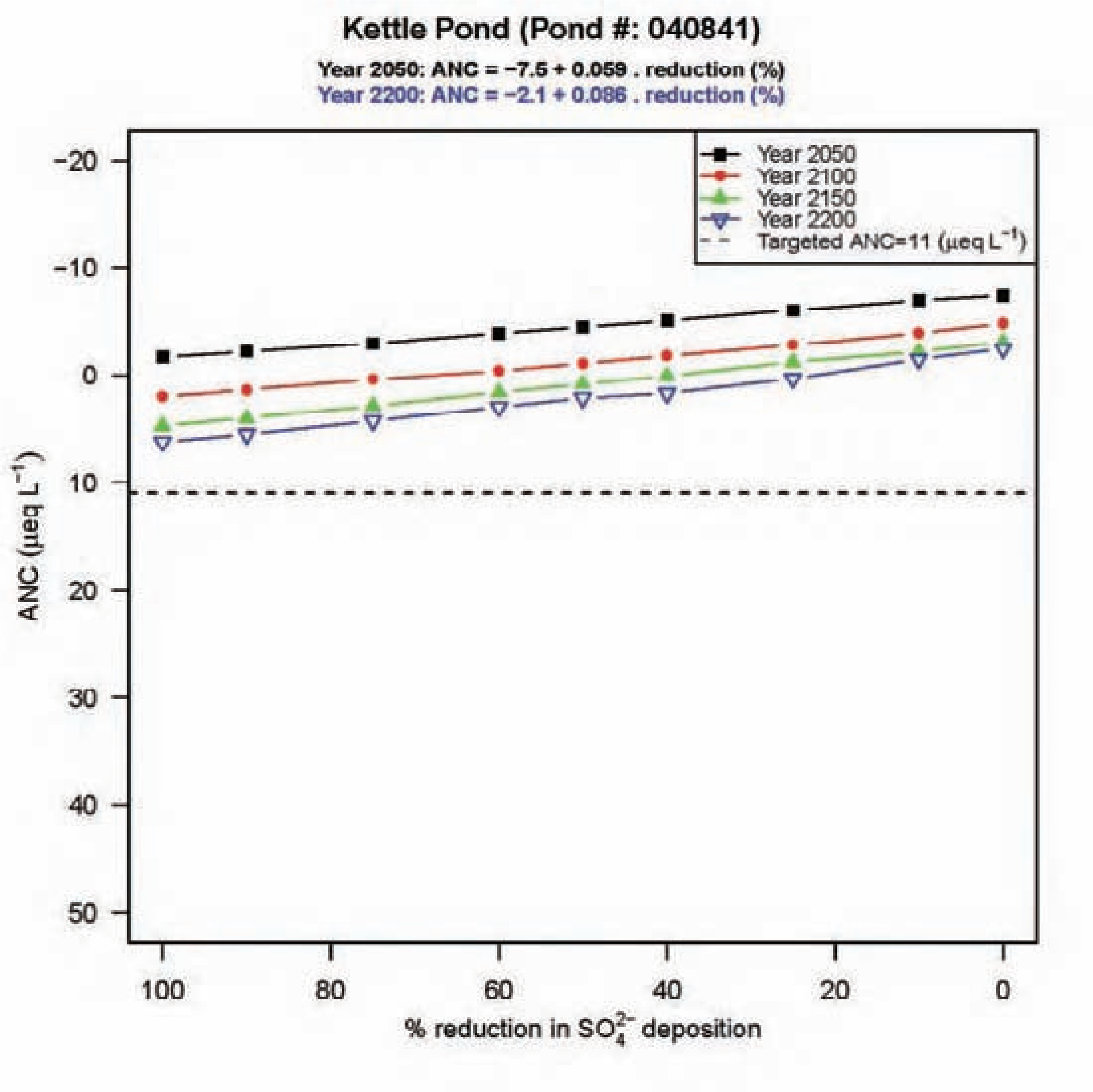
Pigeon Lake (Pond #: 040779)
Year 2050: ANC = −4.7 + 0.042 . reduction (%)
Year 2200: ANC = −0.8 + 0.072 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

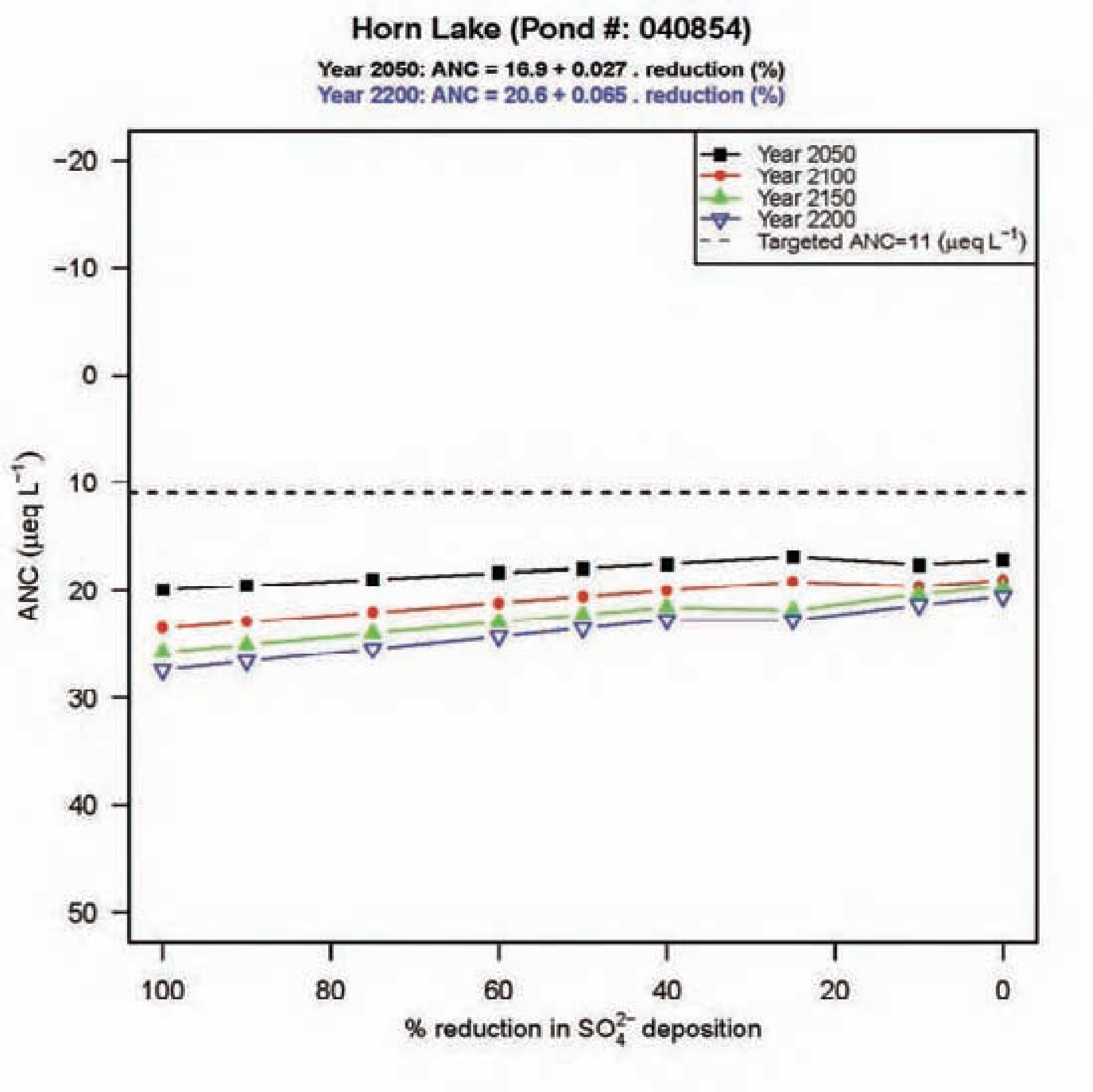


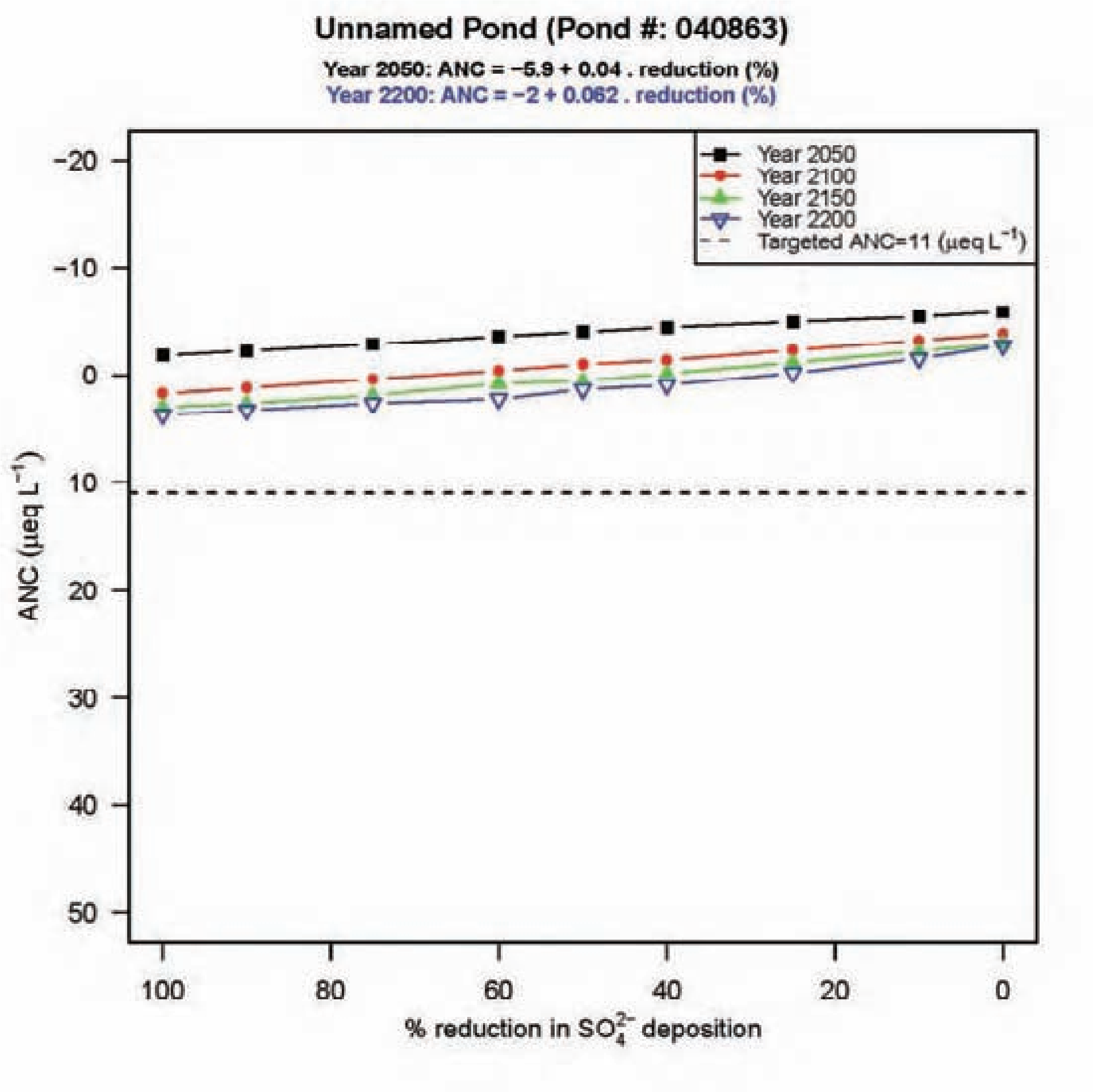
Eagles Nest Lake (Pond #: 040788)
Year 2050: ANC = 66.2 + 0.036 . reduction (%)
Year 2200: ANC = 68.5 + 0.107 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

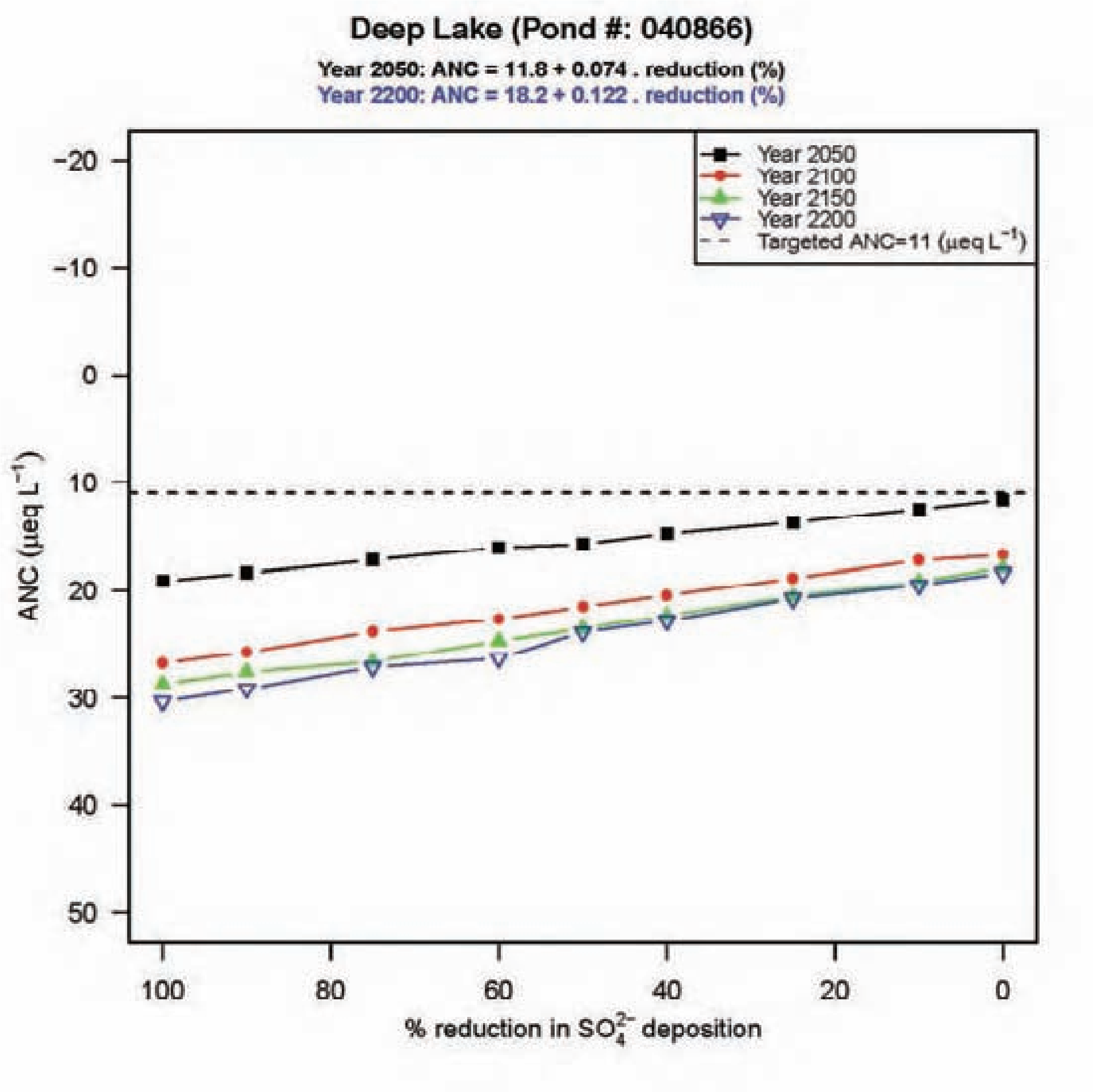

Stink Lake (Pond #: 040836)
Year 2050: ANC = 24 + 0.057 . reduction (%)
Year 2200: ANC = 28.7 + 0.116 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

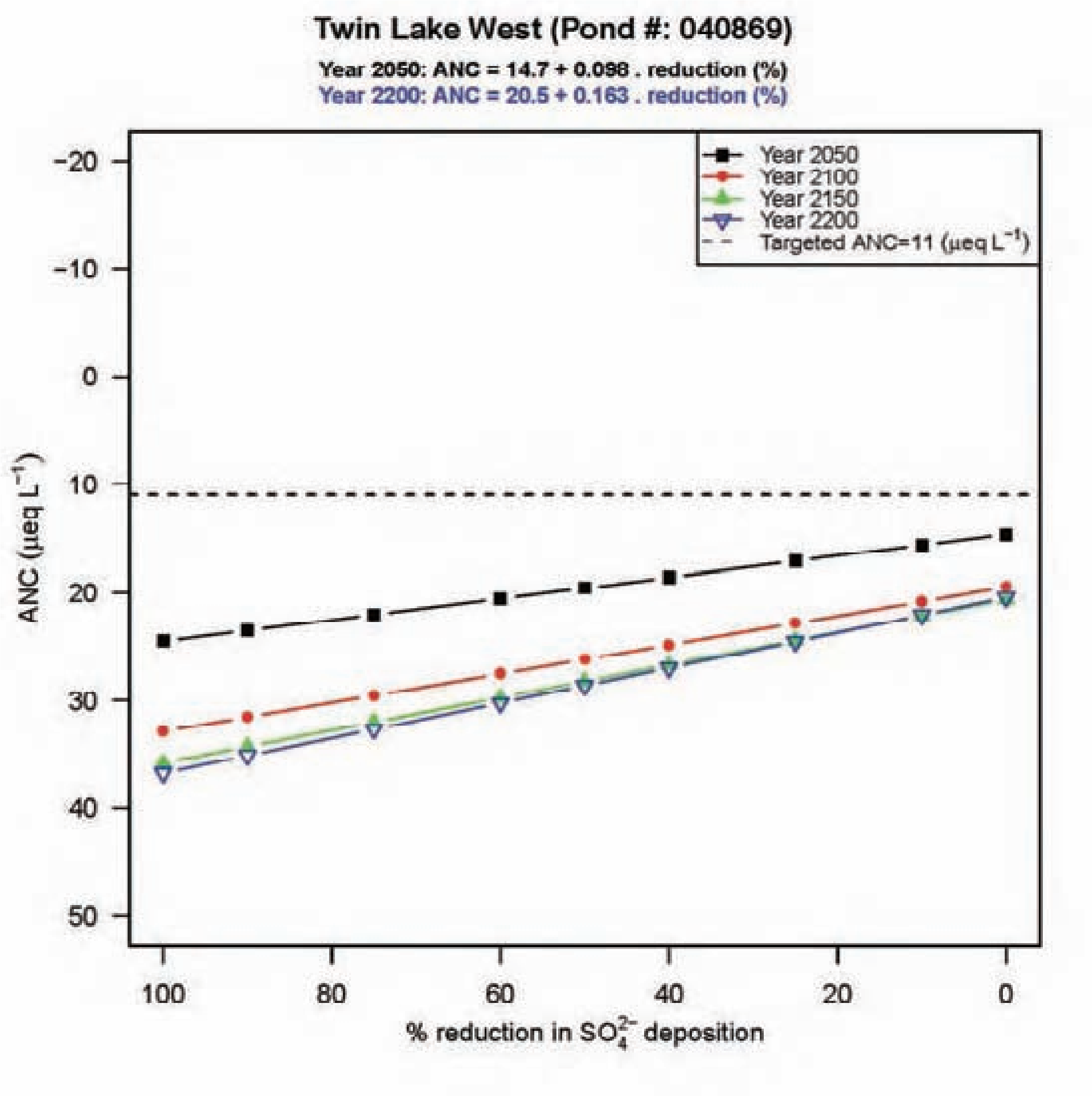

Balsam Lake (Pond #: 040837)
Year 2050: ANC = 24.2 + 0.04 . reduction (%)
Year 2200: ANC = 30.3 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition


Kettle Pond (Pond #: 040841)
Year 2050: ANC = −7.5 + 0.059 . reduction (%)
Year 2200: ANC = −2.1 + 0.086 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2− deposition

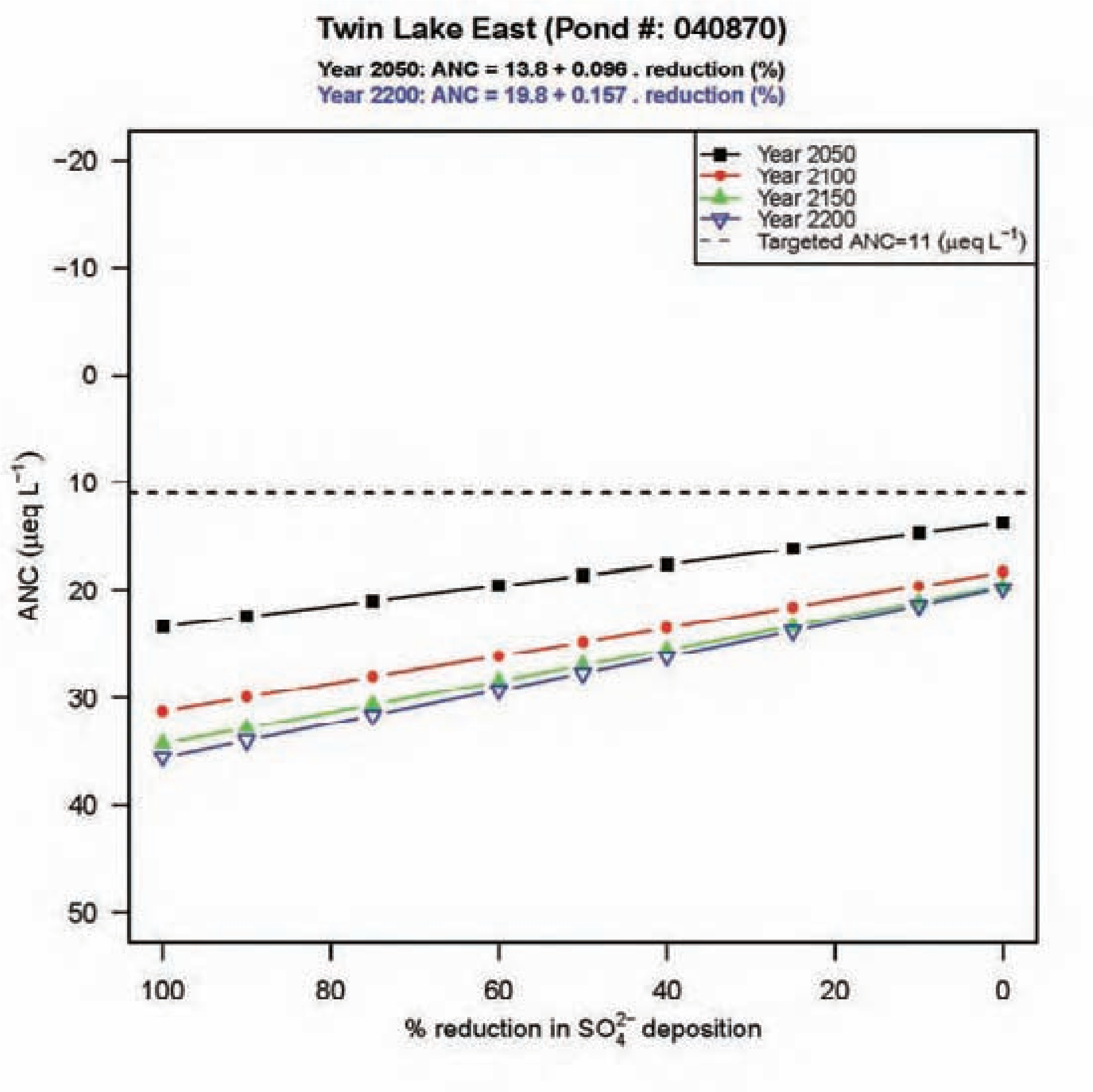

Horn Lake (Pond #: 040854)
Year 2050: ANC = 16.9 + 0.027 . reduction (%)
Year 2200: ANC = 20.6 + 0.065 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

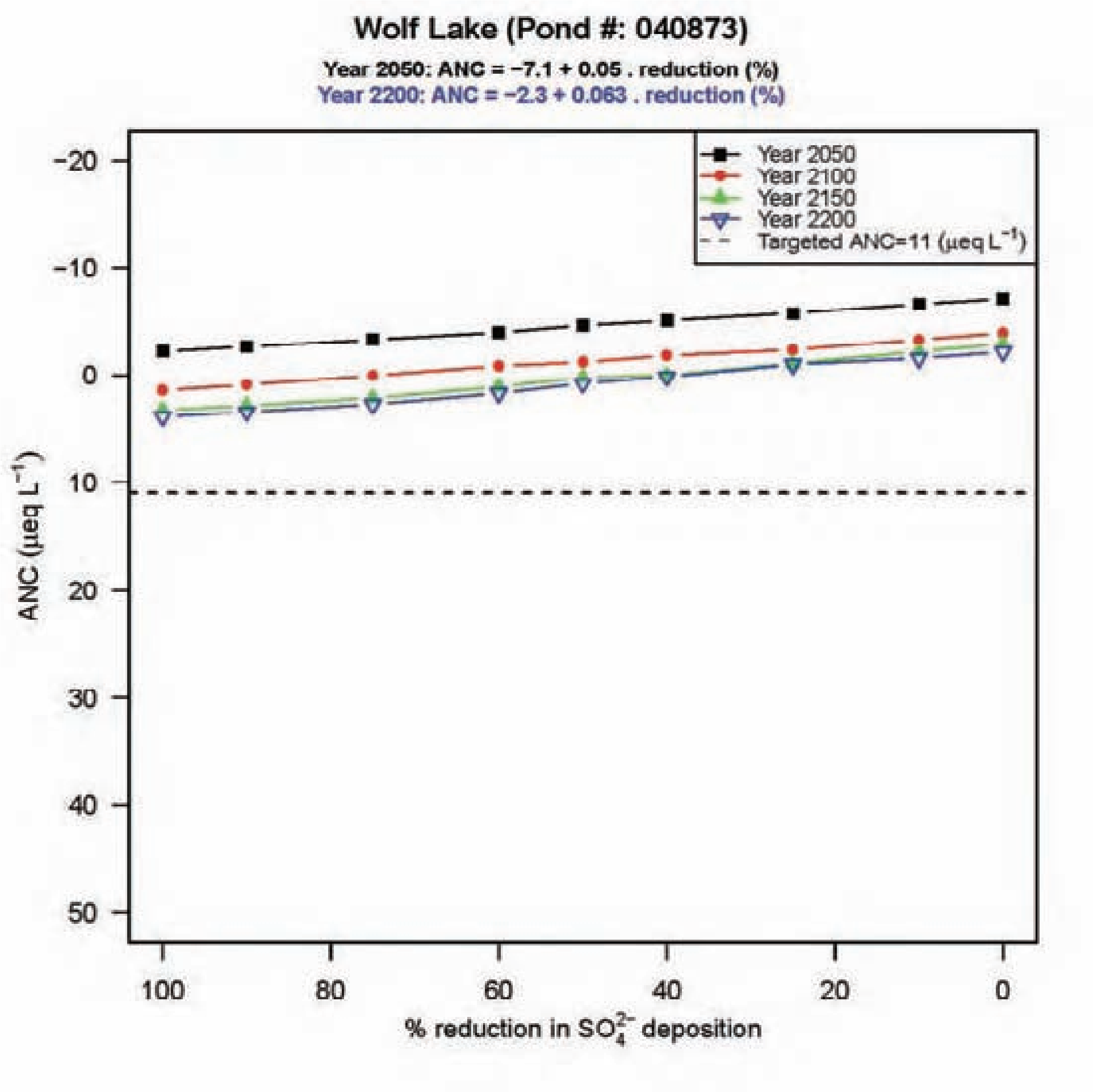

Unnamed Pond (Pond #: 040863)
Year 2050: ANC = −5.9 + 0.04 . reduction (%)
Year 2200: ANC = −2 + 0.062 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

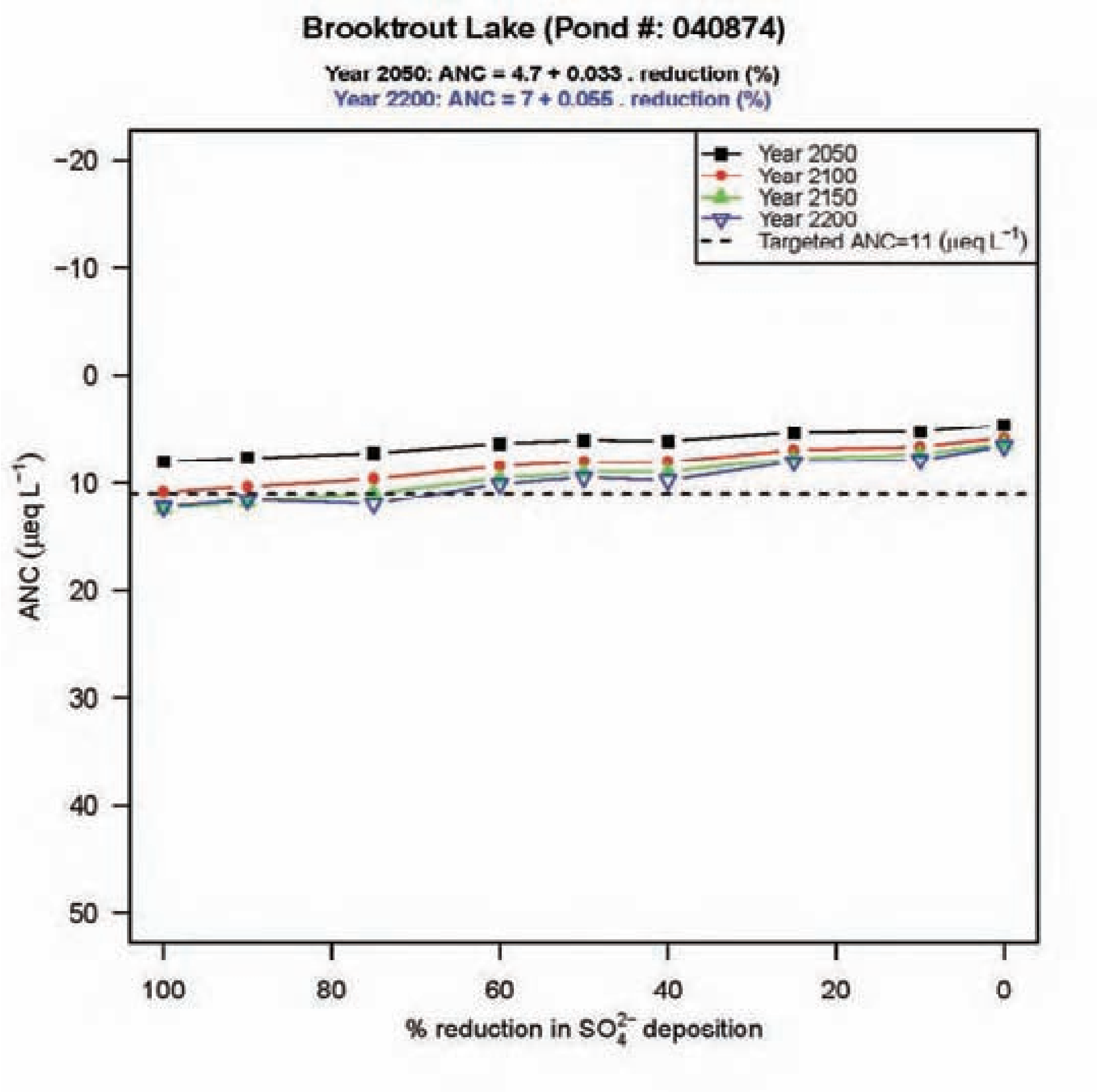

Deep Lake (Pond #: 040866)
Year 2050: ANC = 11.8 + 0.074 . reduction (%)
Year 2200: ANC = 18.2 + 0.122 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

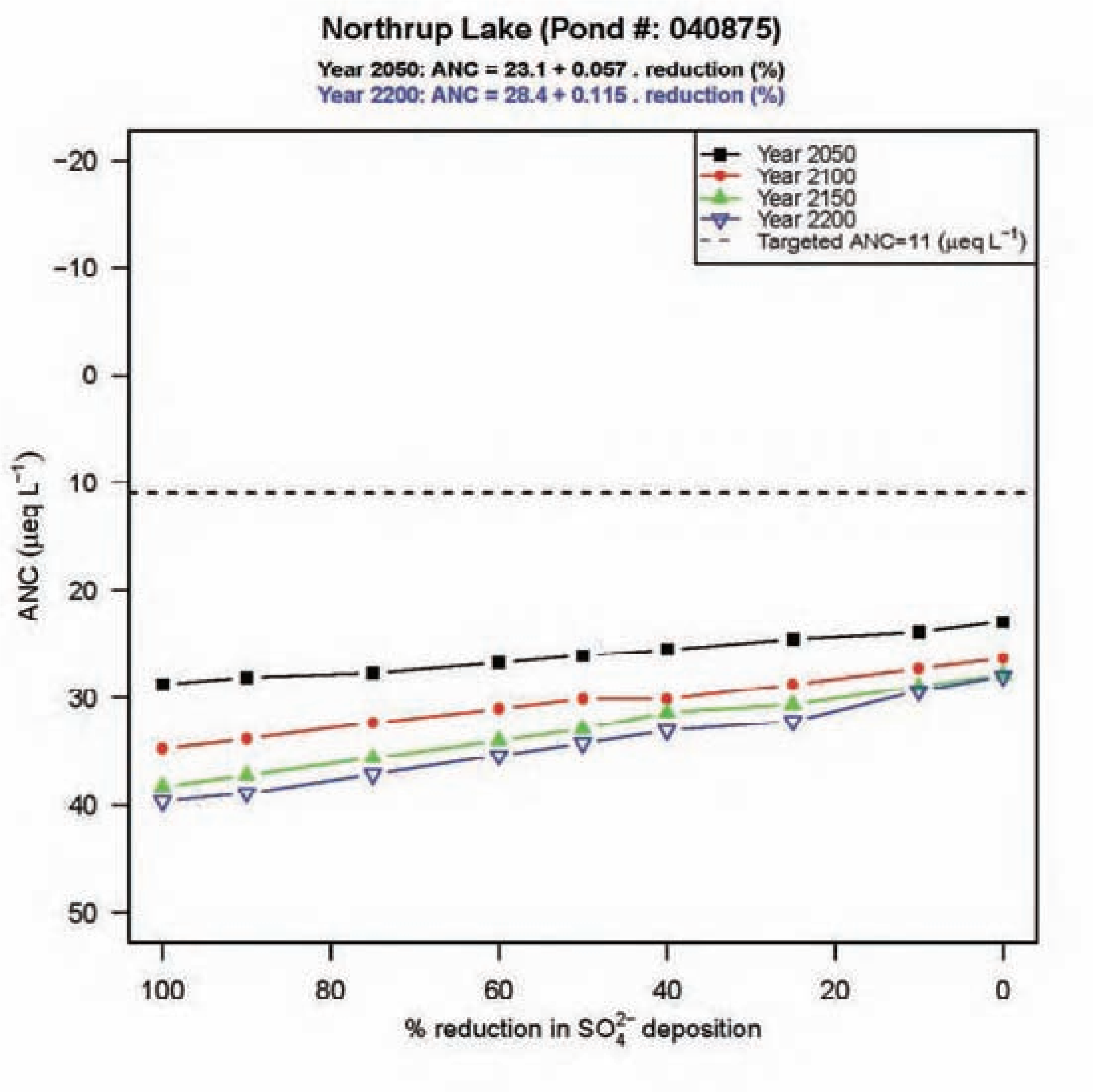


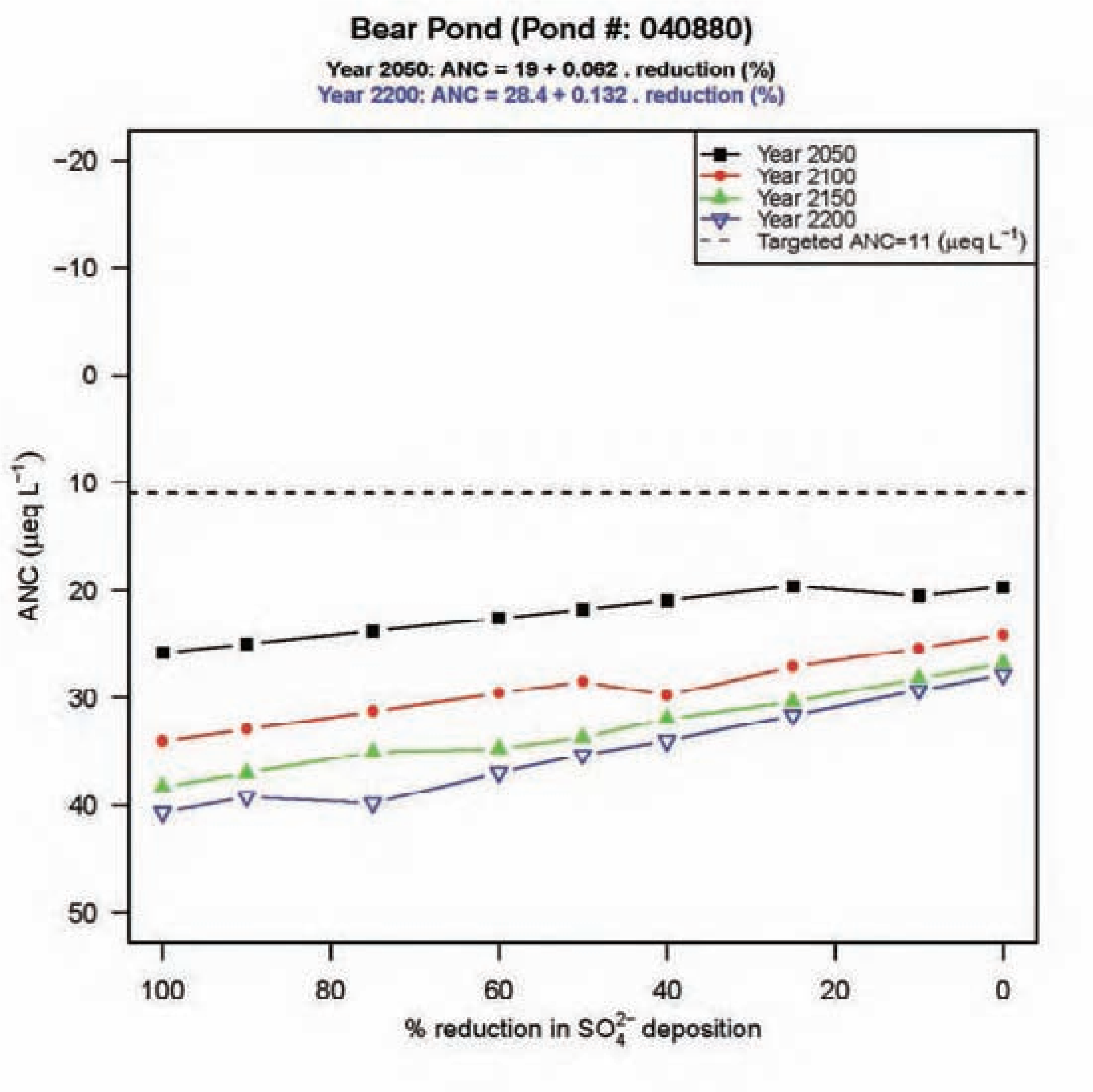
Twin Lake West (Pond #: 040869)
Year 2050: ANC = 14.7 + 0.098 . reduction (%)
Year 2200: ANC = 20.5 + 0.163 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

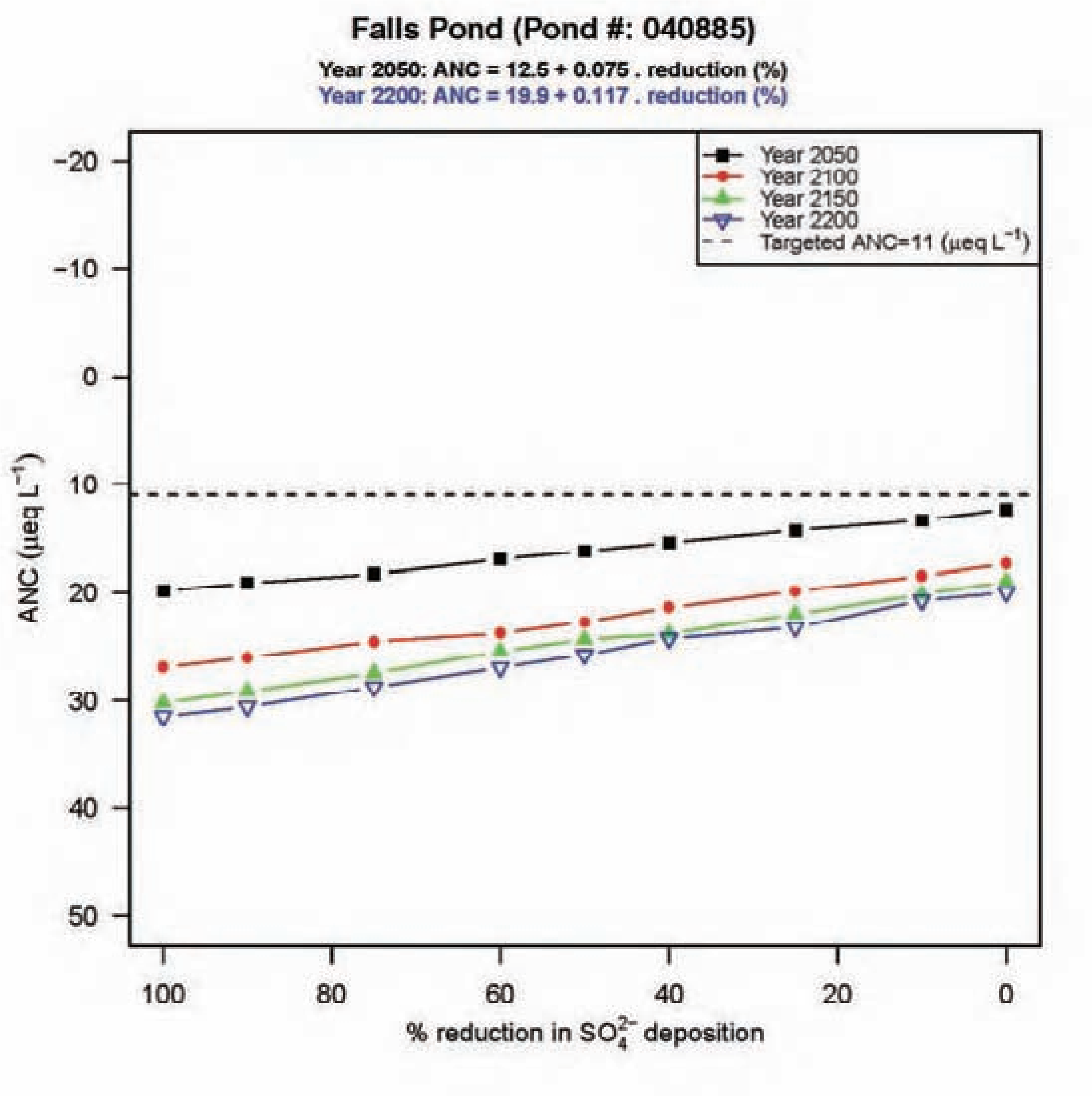

Twin Lake East (Pond #: 040870)
Year 2050: ANC = 13.8 + 0.096 . reduction (%)
Year 2200: ANC = 19.8 + 0.157 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

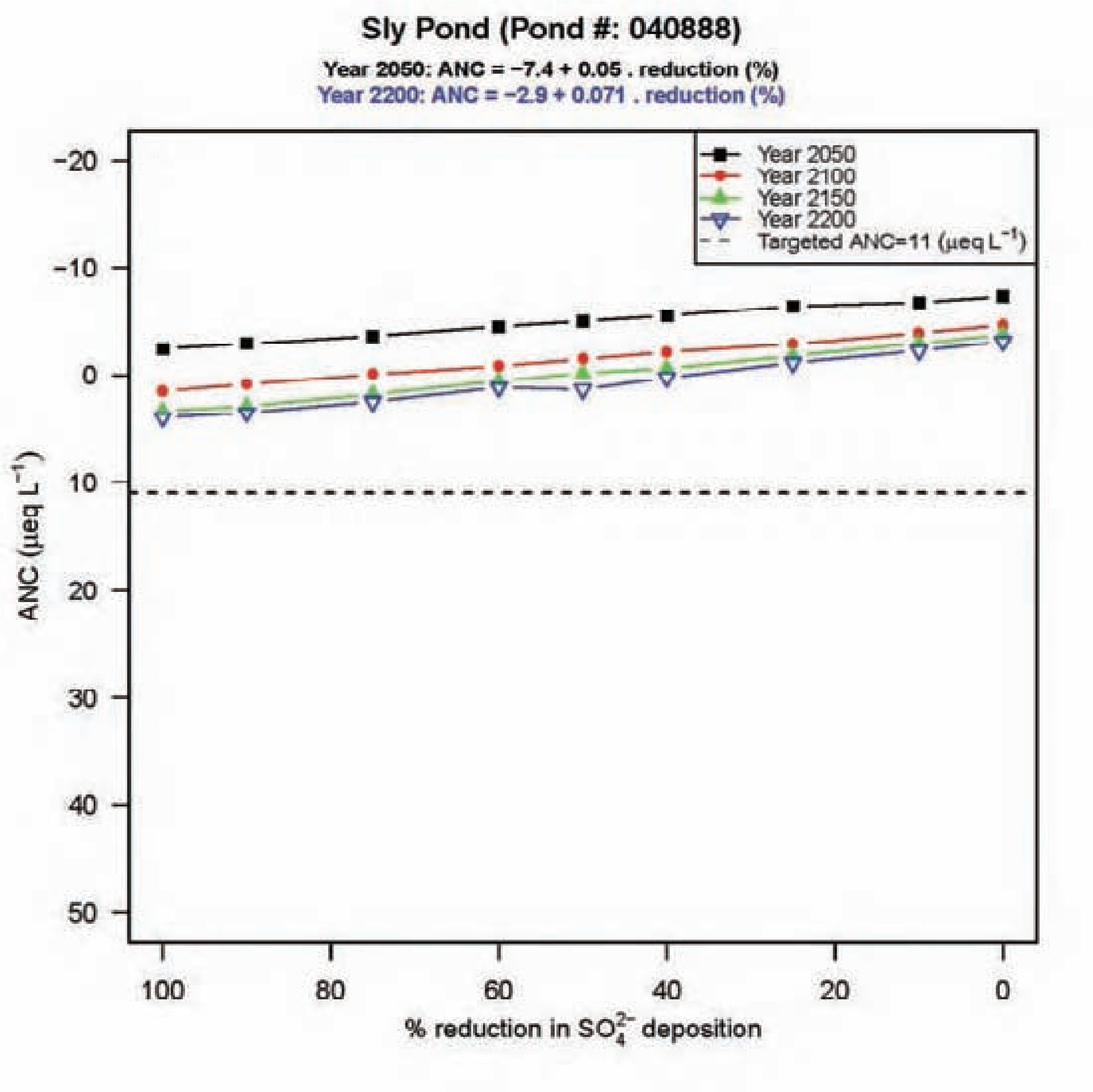

Wolf Lake (Pond #: 040873)
Year 2050: ANC = −7.1 + 0.05 . reduction (%)
Year 2200: ANC = −2.3 + 0.063 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

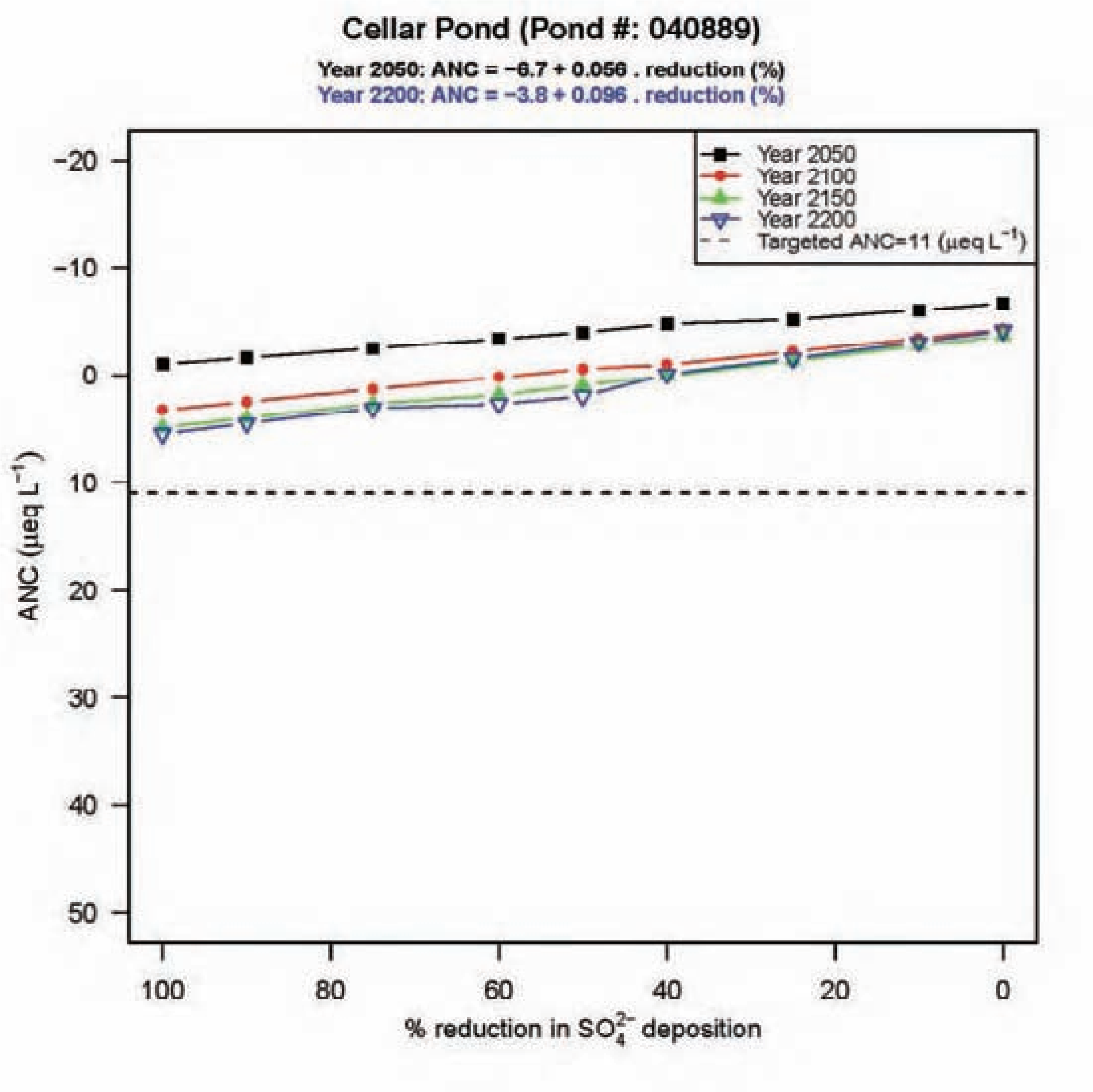

Brooktrout Lake (Pond #: 040874)
Year 2050: ANC = 4.7 + 0.033 . reduction (%)
Year 2200: ANC = 7 + 0.055 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

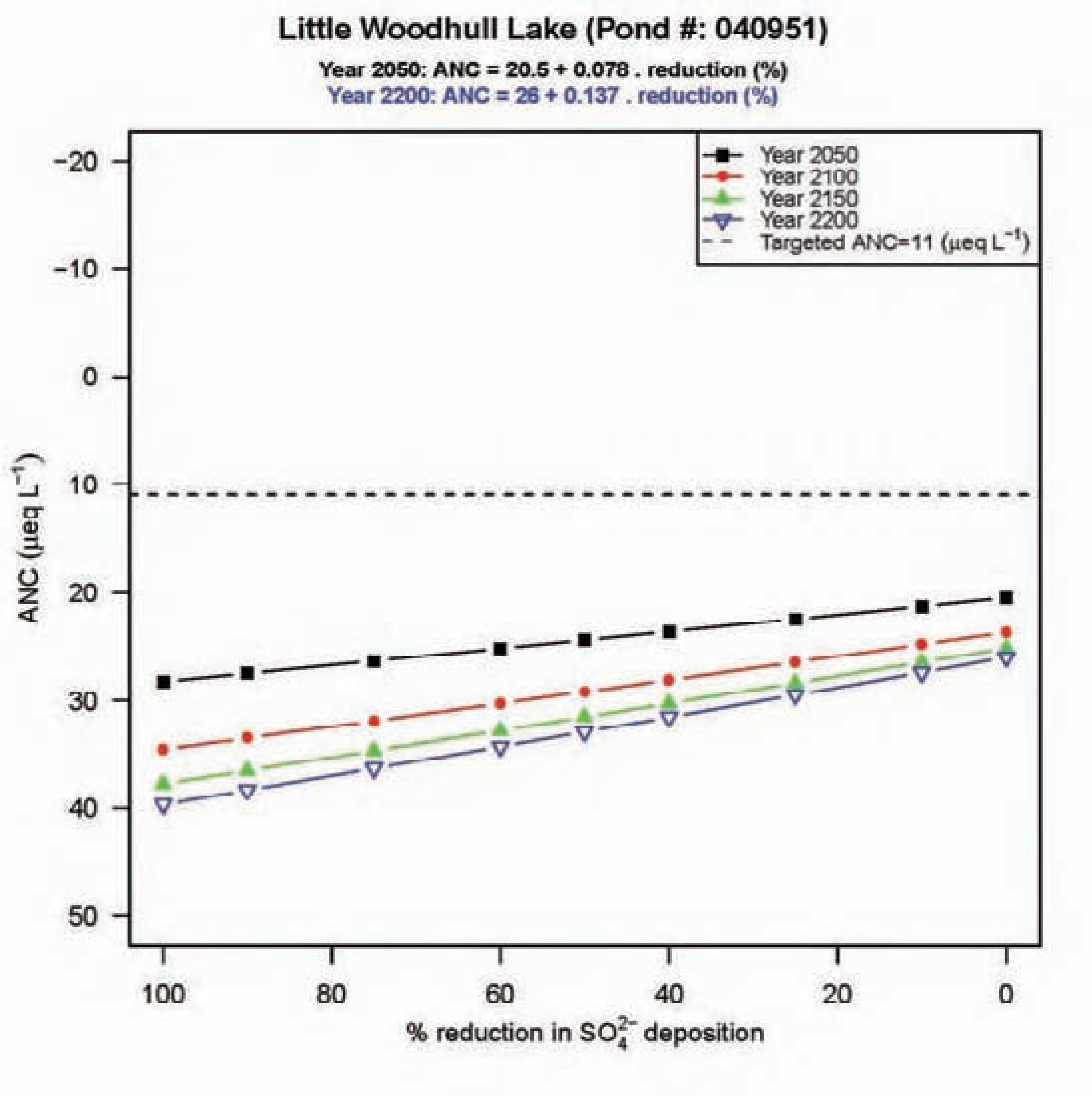

Northrup Lake (Pond #: 040875)
Year 2050: ANC = 23.1 + 0.057 . reduction (%)
Year 2200: ANC = 28.4 + 0.115 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

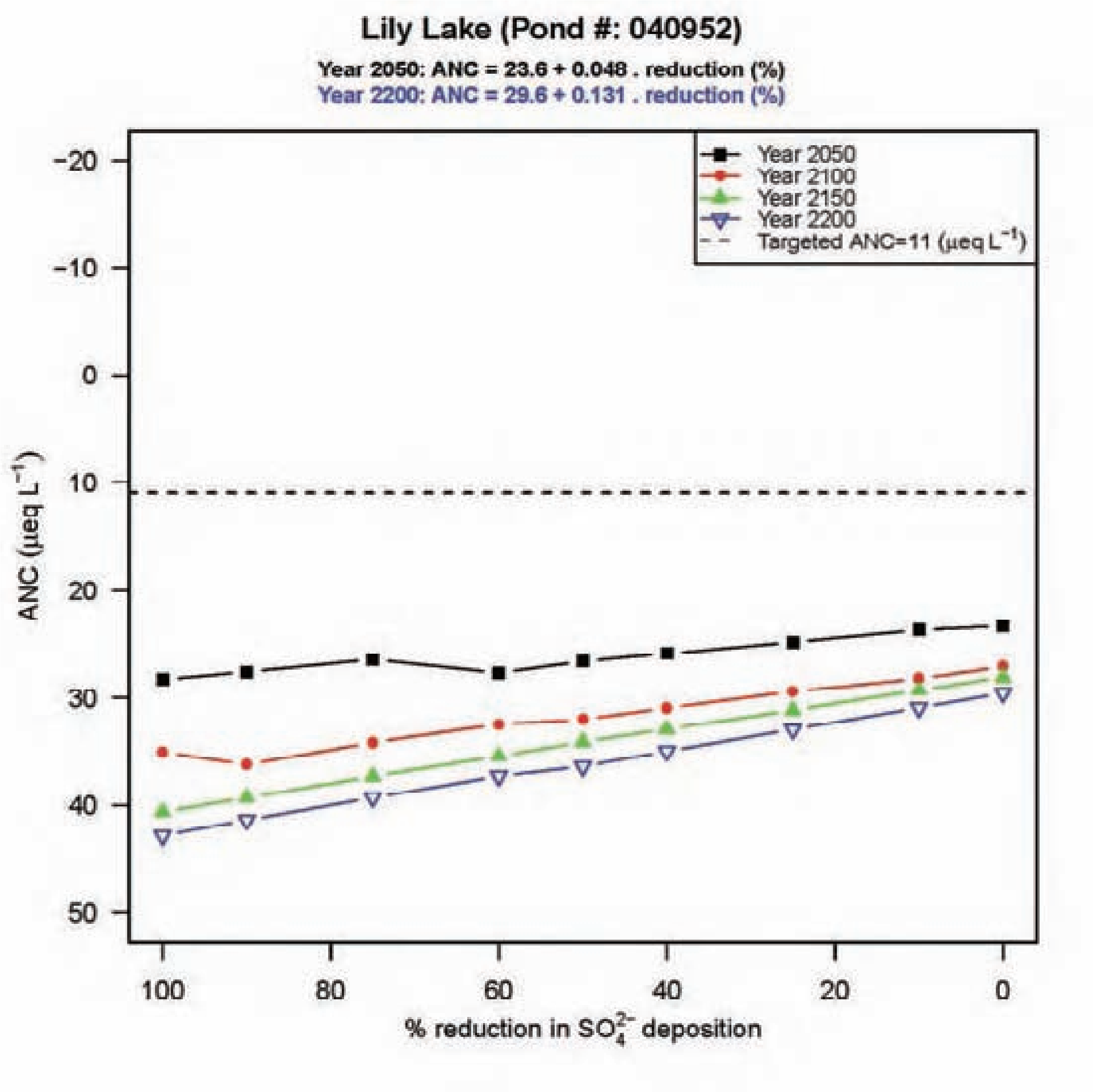

Bear Pond (Pond #: 040880)
Year 2050: ANC = 19 + 0.062 . reduction (%)
Year 2200: ANC = 28.4 + 0.132 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO_4^{2-} deposition

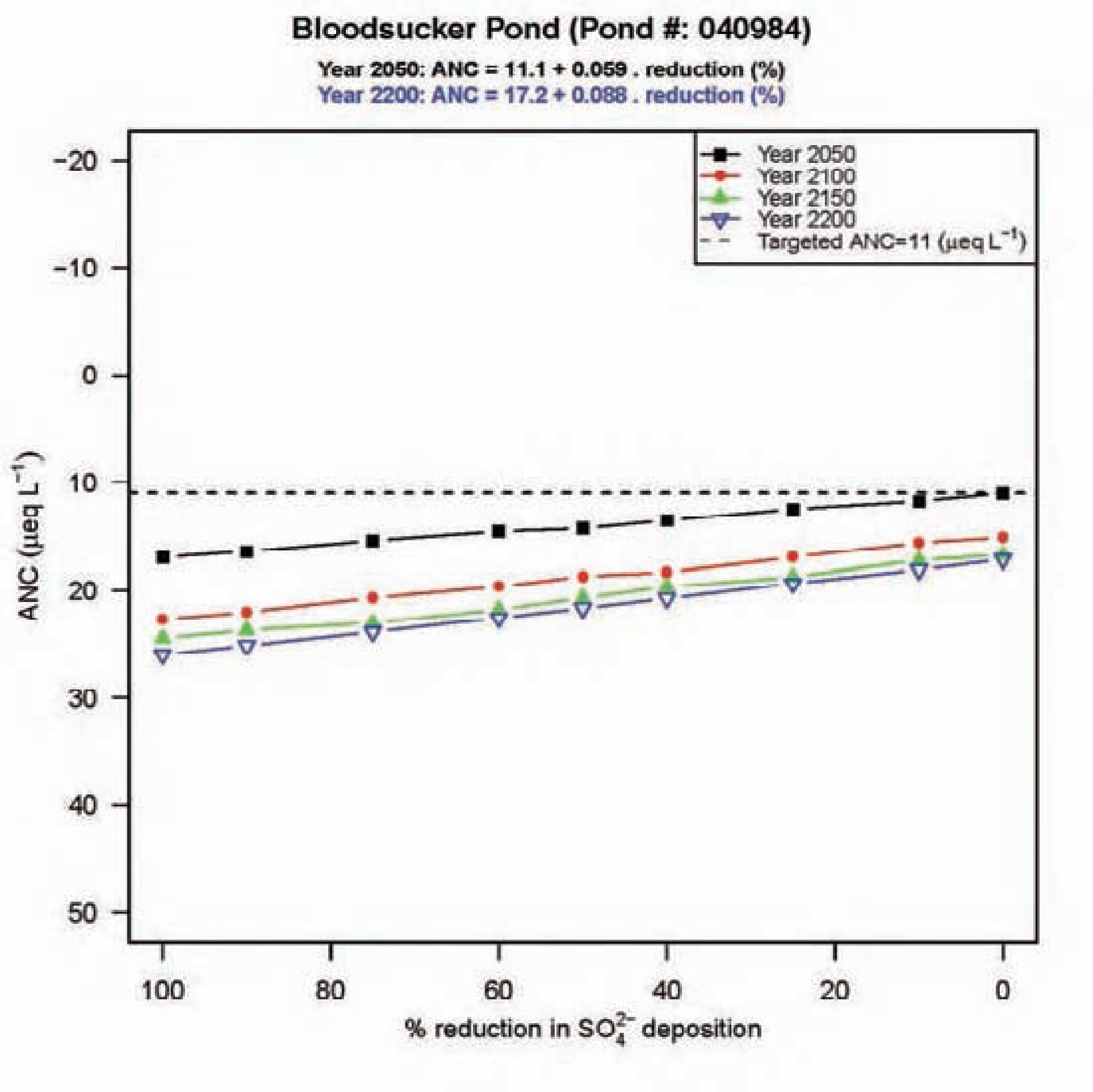

Falls Pond (Pond #: 040885)
Year 2050: ANC = 12.5 + 0.075 . reduction (%)
Year 2200: ANC = 19.9 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Sly Pond (Pond #: 040888)
Year 2050: ANC = −7.4 + 0.05 . reduction (%)
Year 2200: ANC = −2.9 + 0.071 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

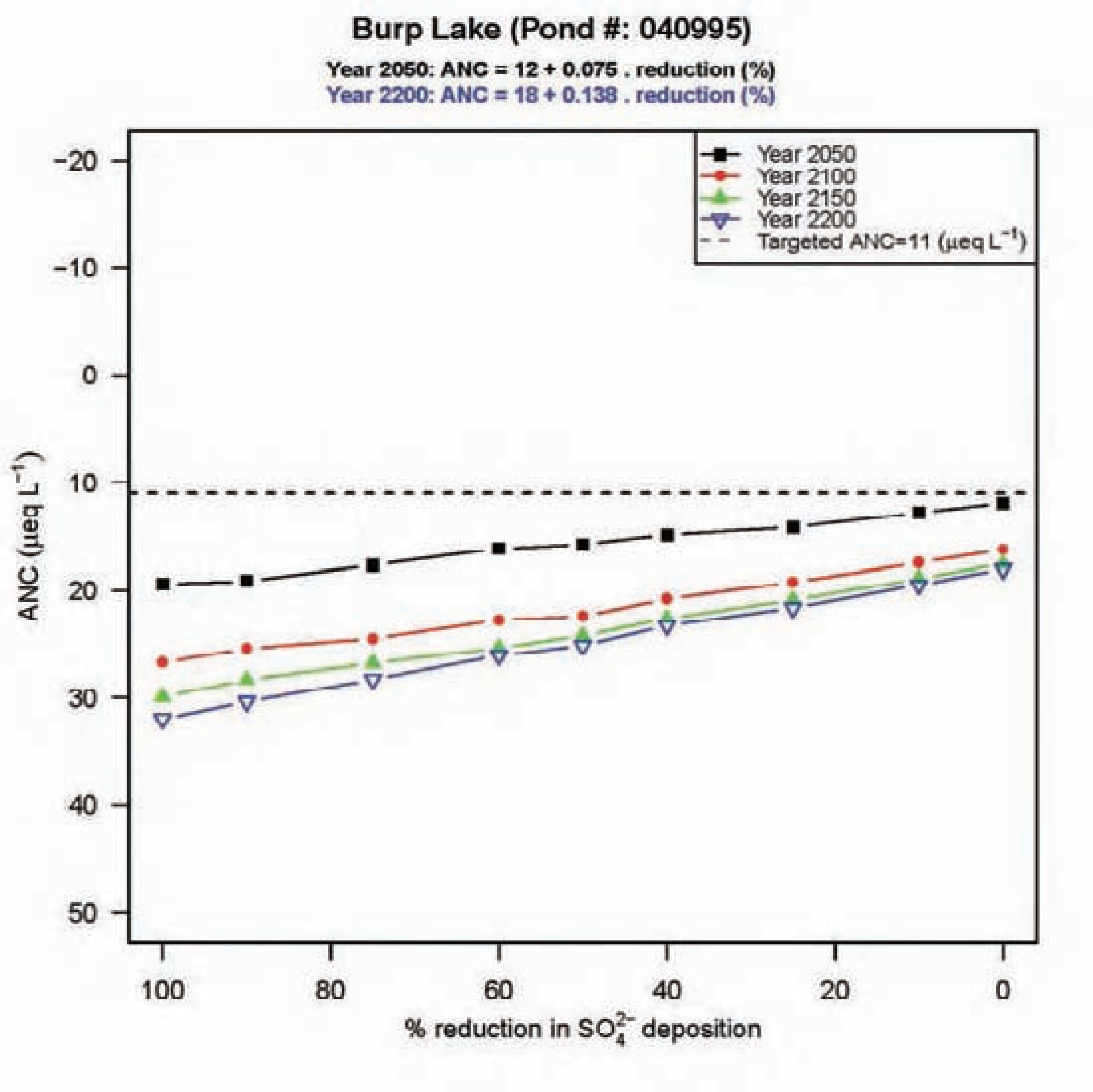

Cellar Pond (Pond #: 040889)
Year 2050: ANC = −6.7 + 0.056 . reduction (%)
Year 2200: ANC = −3.8 + 0.096 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0

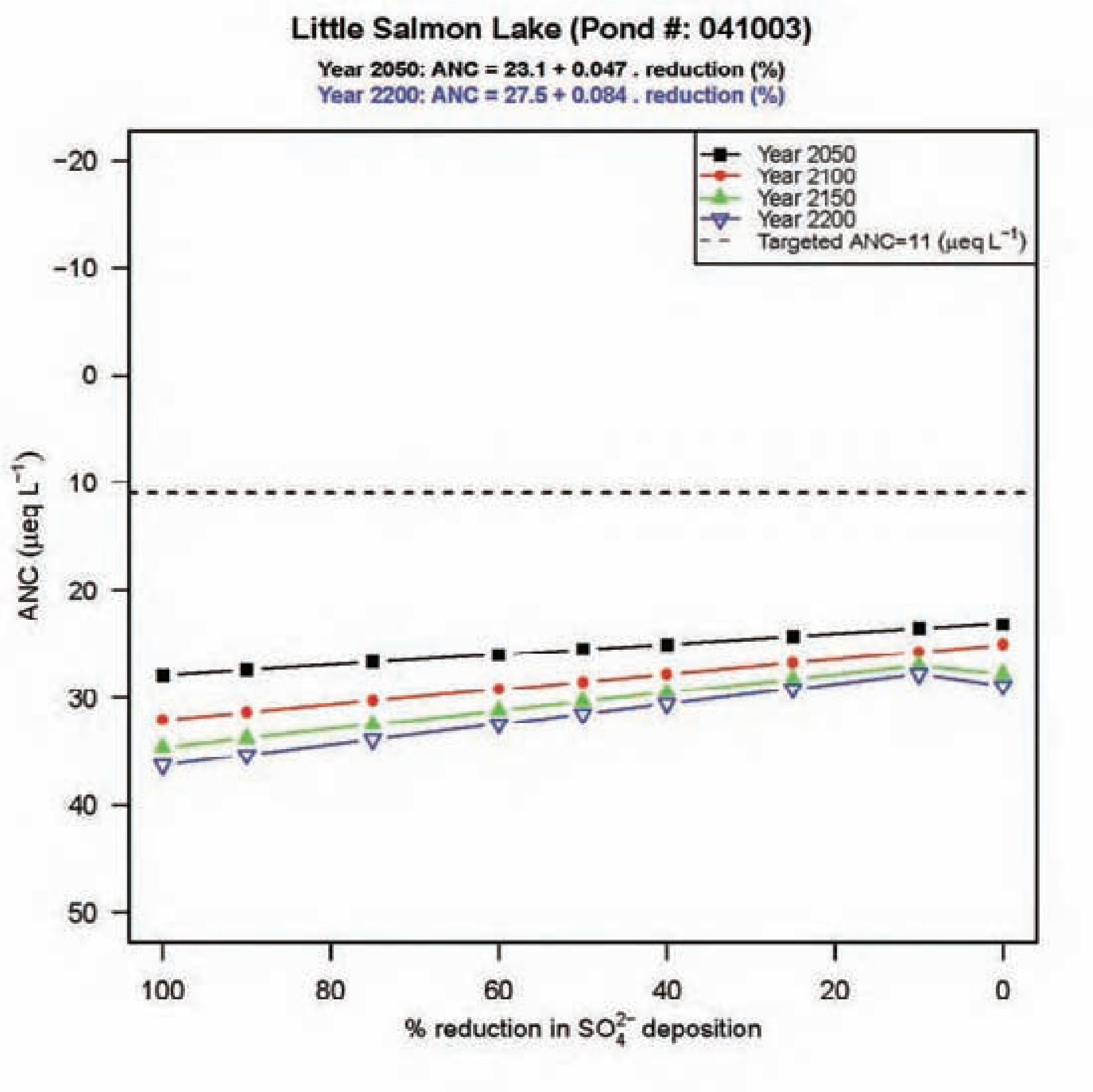

Little Woodhull Lake (Pond #: 040951)
Year 2050: ANC = 20.5 + 0.078 . reduction (%)
Year 2200: ANC = 26 + 0.137 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

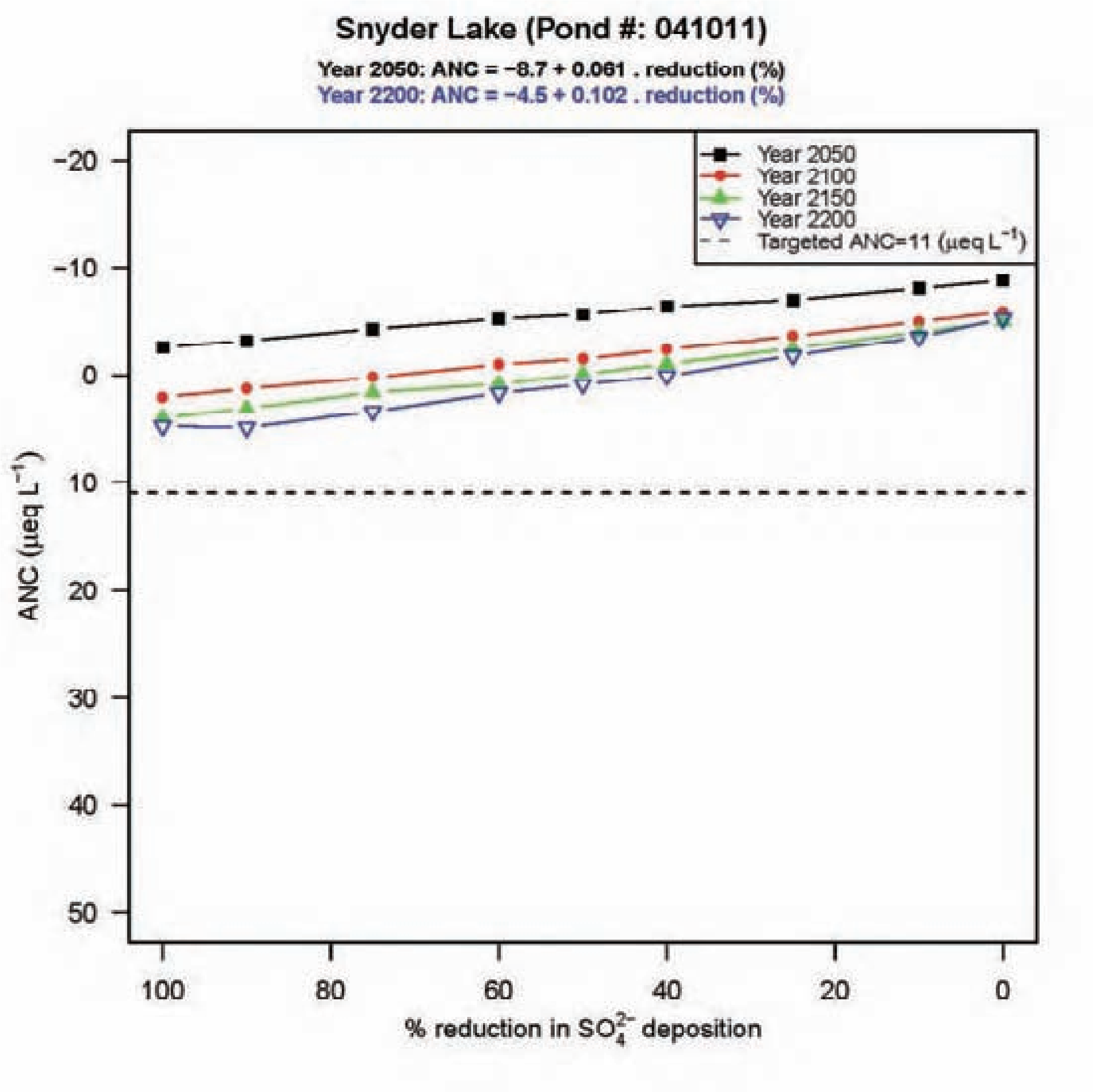

Lily Lake (Pond #: 040952)
Year 2050: ANC = 23.6 + 0.048 . reduction (%)
Year 2200: ANC = 29.6 + 0.131 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



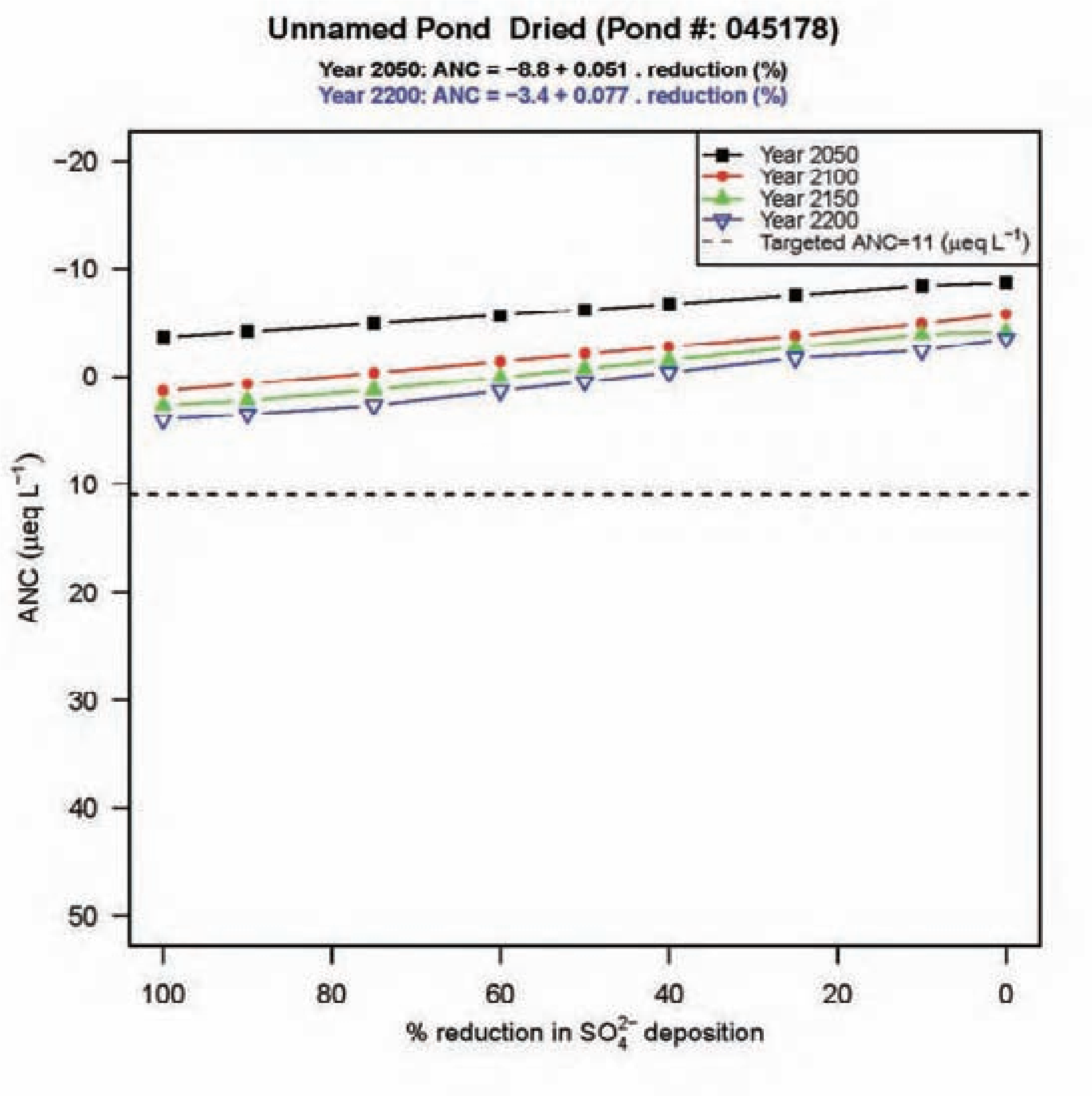
Bloodsucker Pond (Pond #: 040984)
Year 2050: ANC = 11.1 + 0.059 . reduction (%)
Year 2200: ANC = 17.2 + 0.088 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

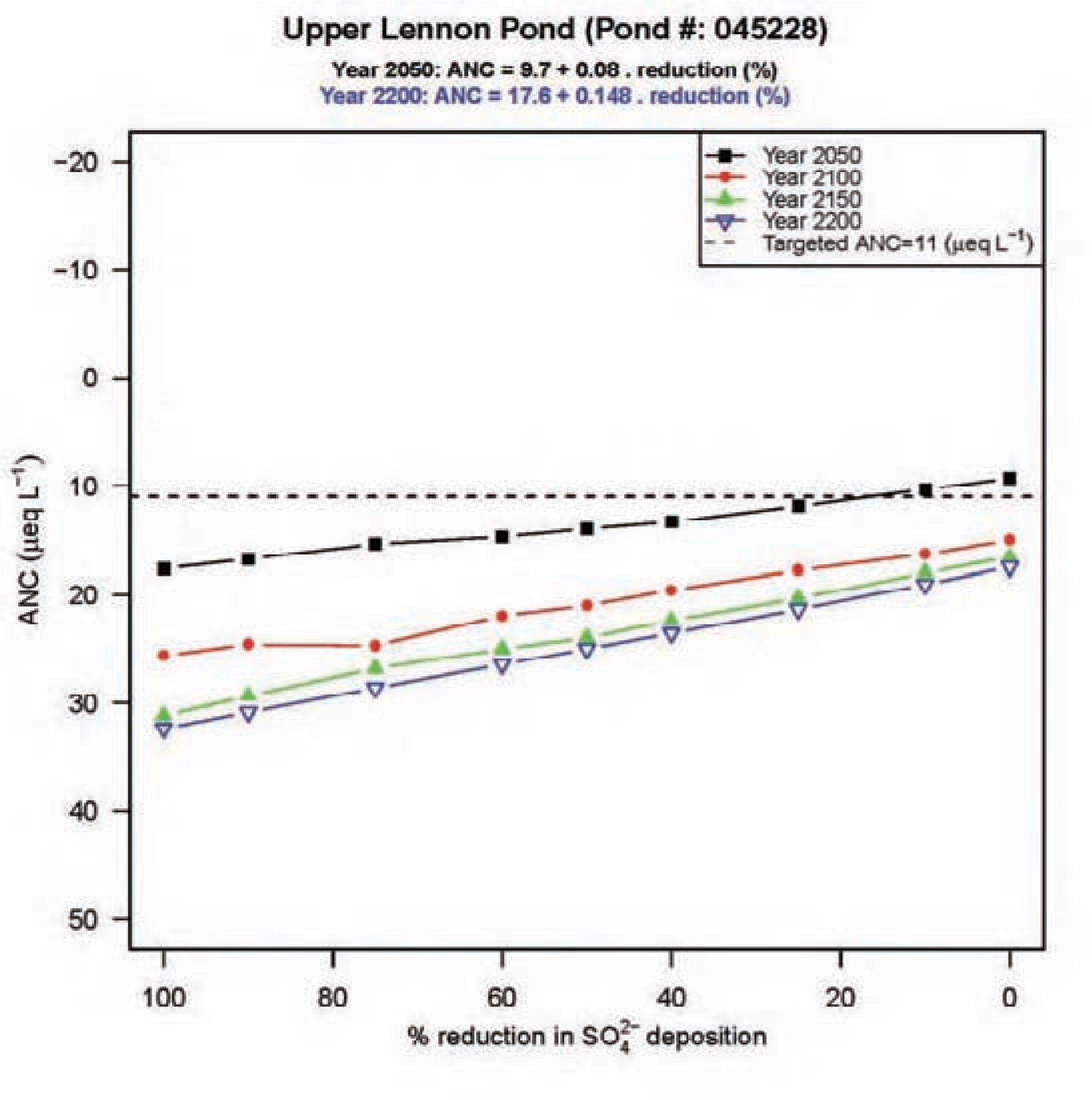

Burp Lake (Pond #: 040995)
Year 2050: ANC = 12 + 0.075 . reduction (%)
Year 2200: ANC = 18 + 0.138 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

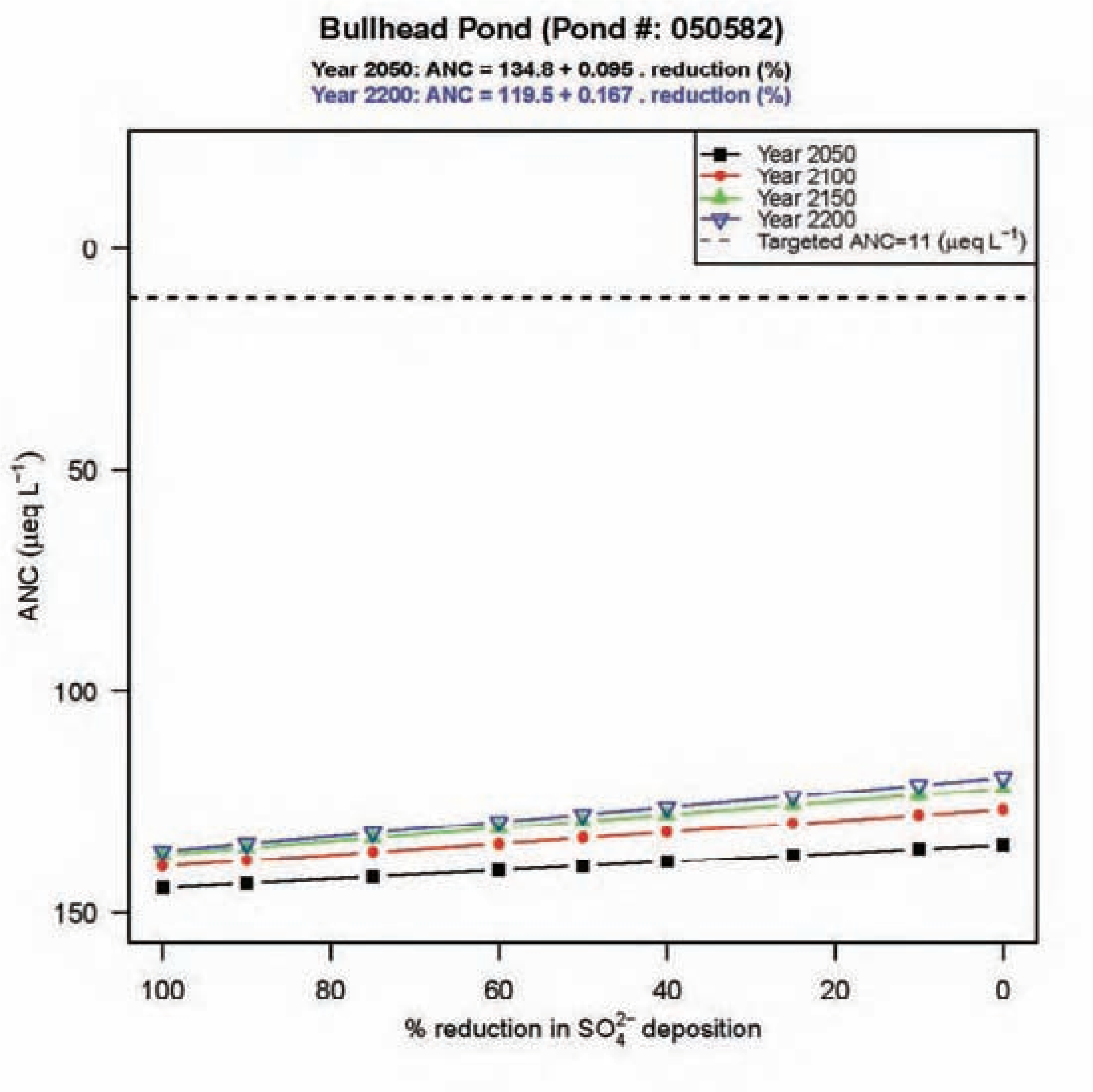

Little Salmon Lake (Pond #: 041003)
Year 2050: ANC = 23.1 + 0.047 . reduction (%)
Year 2200: ANC = 27.5 + 0.084 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

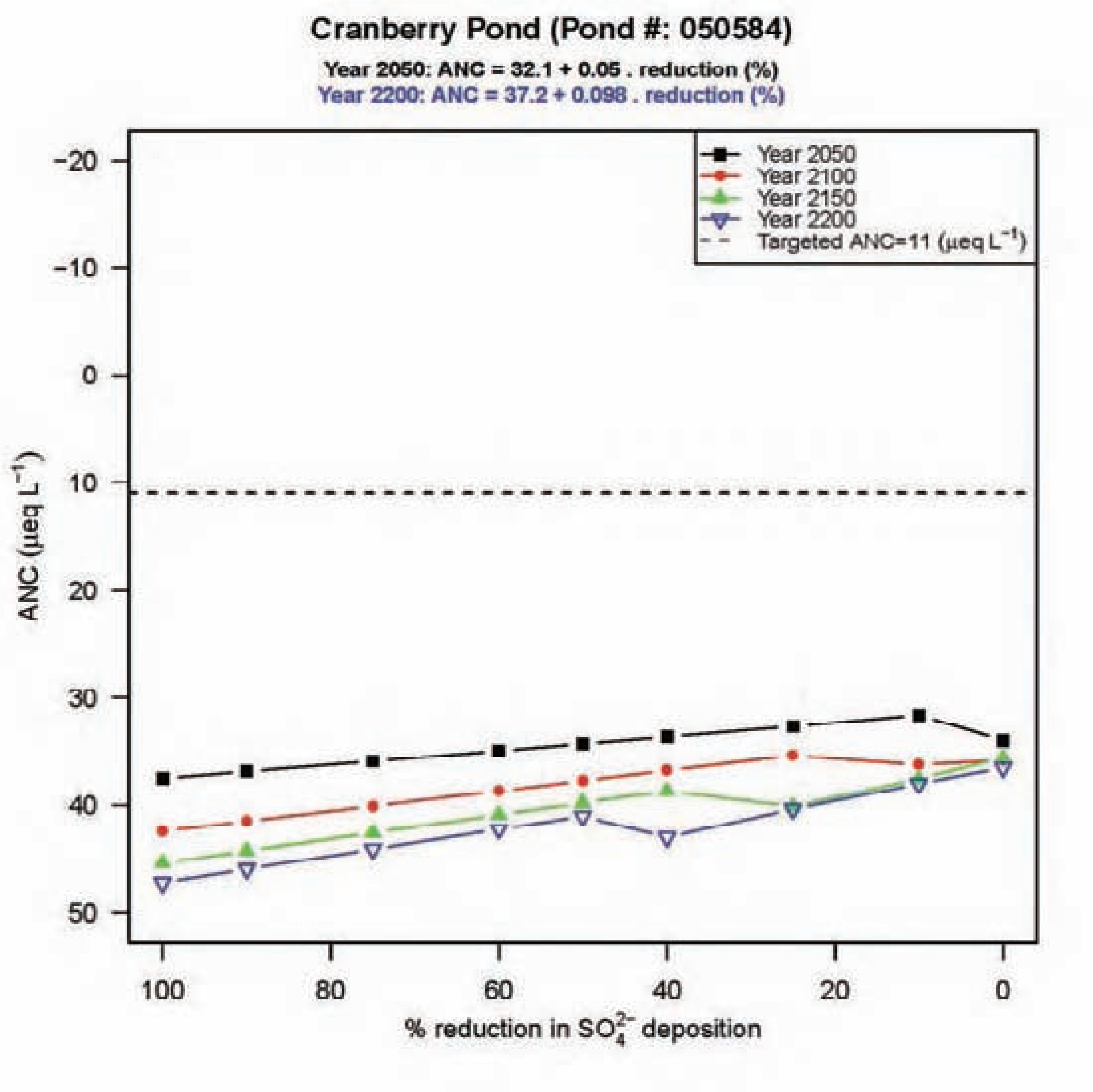


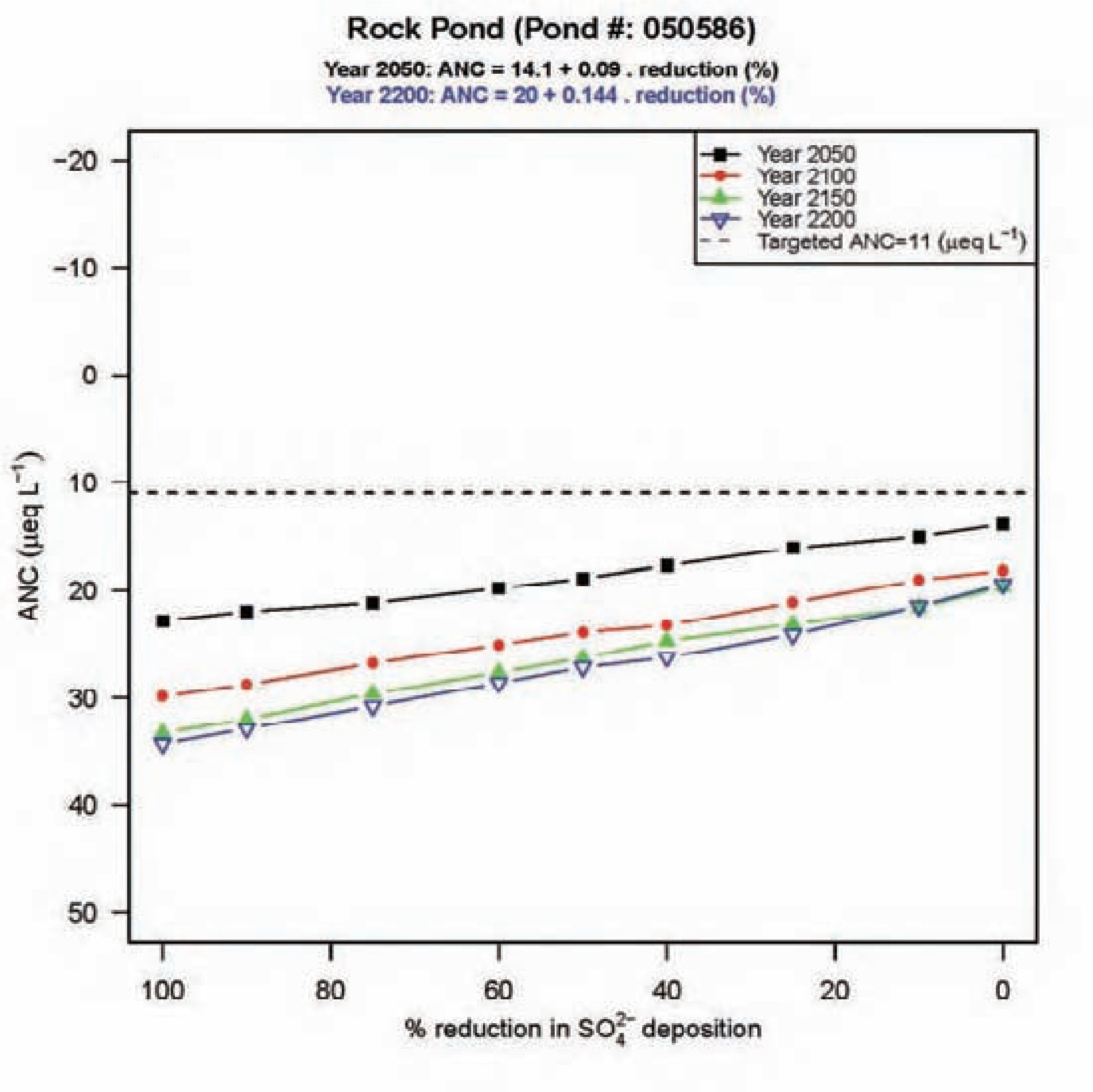
Snyder Lake (Pond #: 041011)
Year 2050: ANC = −8.7 + 0.061 . reduction (%)
Year 2200: ANC = −4.5 + 0.102 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

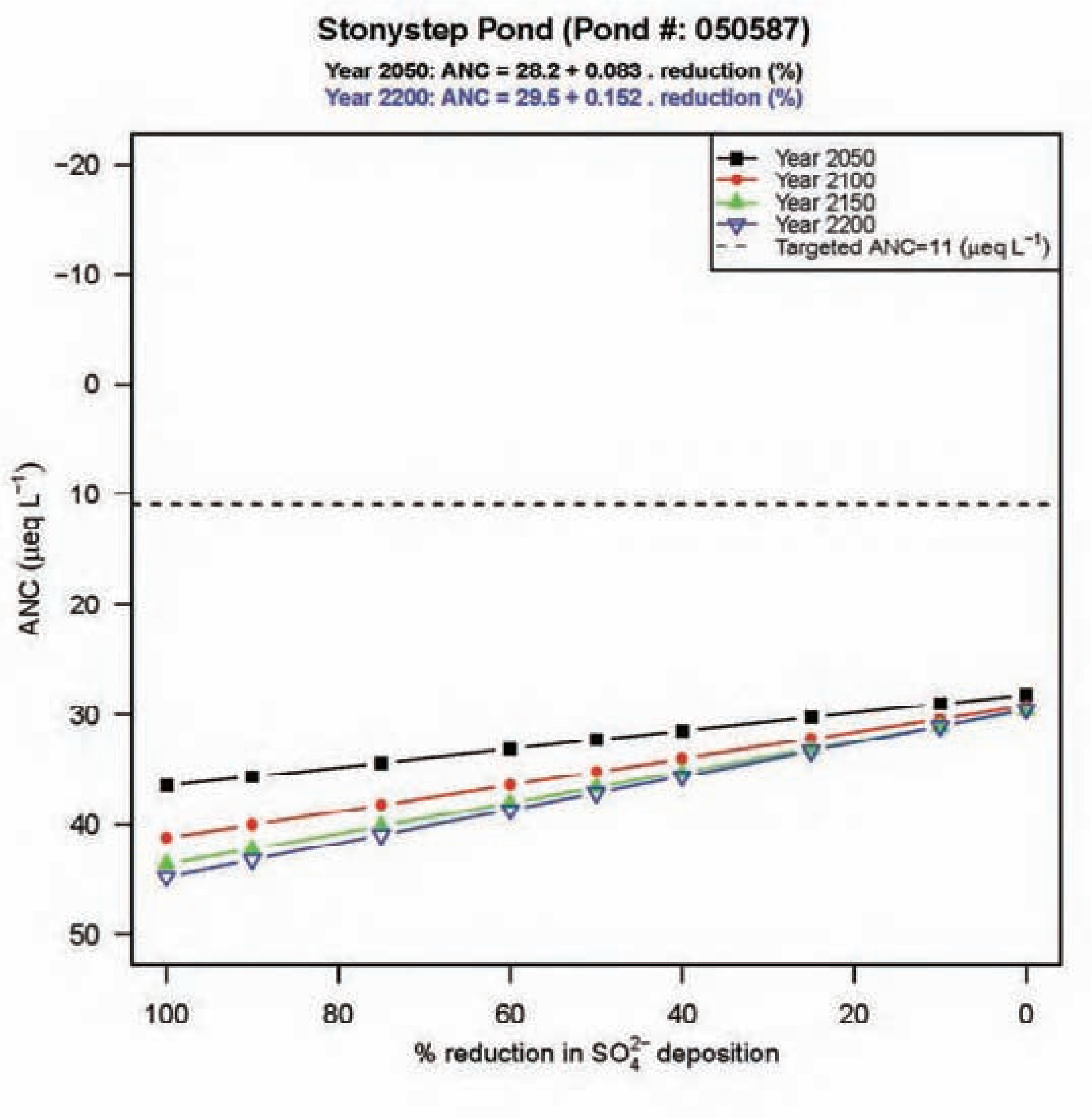

Unnamed Pond Dried (Pond #: 045178)
Year 2050: ANC = −8.8 + 0.051 . reduction (%)
Year 2200: ANC = −3.4 + 0.077 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Upper Lennon Pond (Pond #: 045228)
Year 2050: ANC = 9.7 + 0.08 . reduction (%)
Year 2200: ANC = 17.6 + 0.148 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

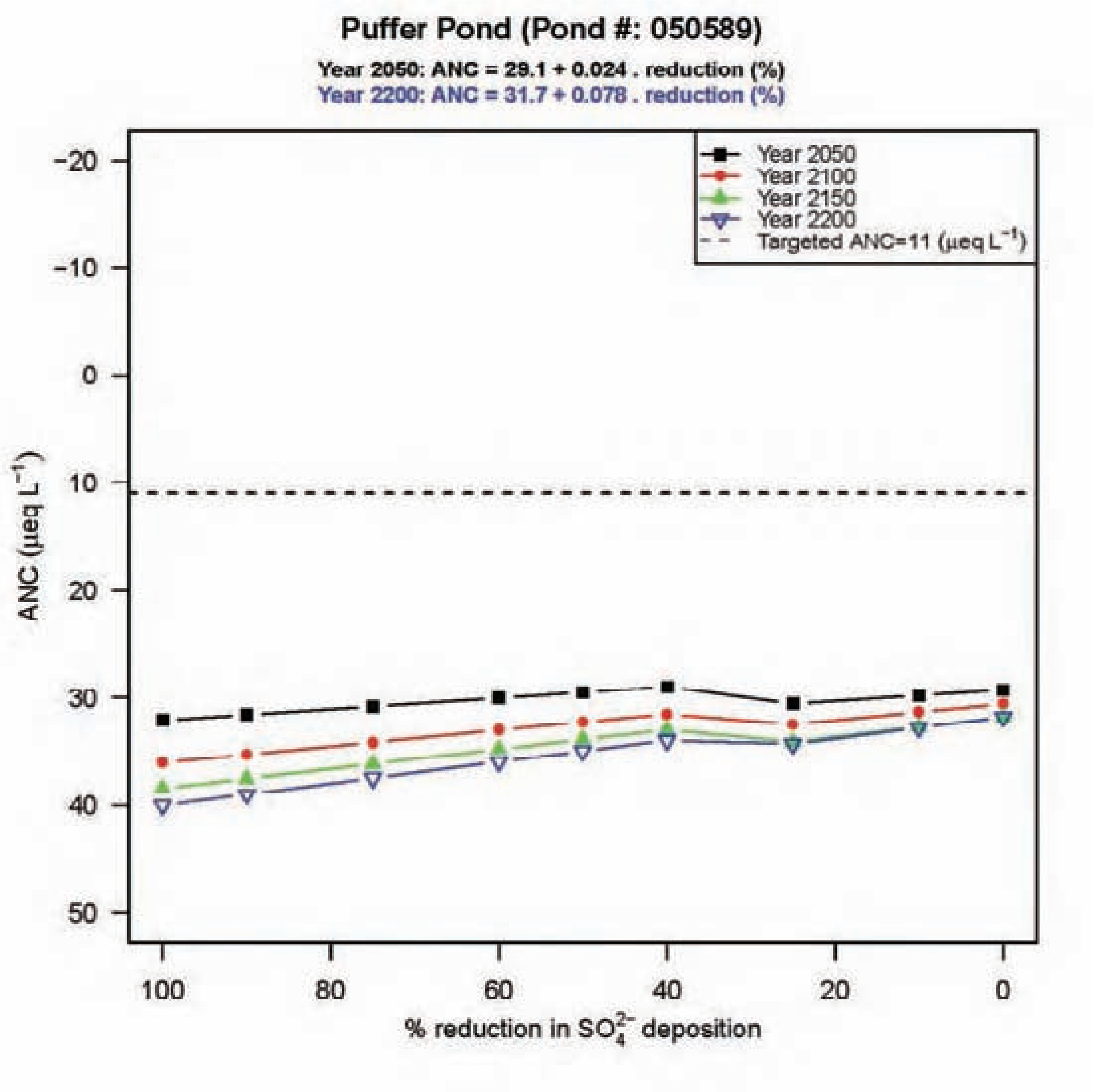

Bullhead Pond (Pond #: 050582)
Year 2050: ANC = 134.8 + 0.095 . reduction (%)
Year 2200: ANC = 119.5 + 0.167 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO4 2- deposition

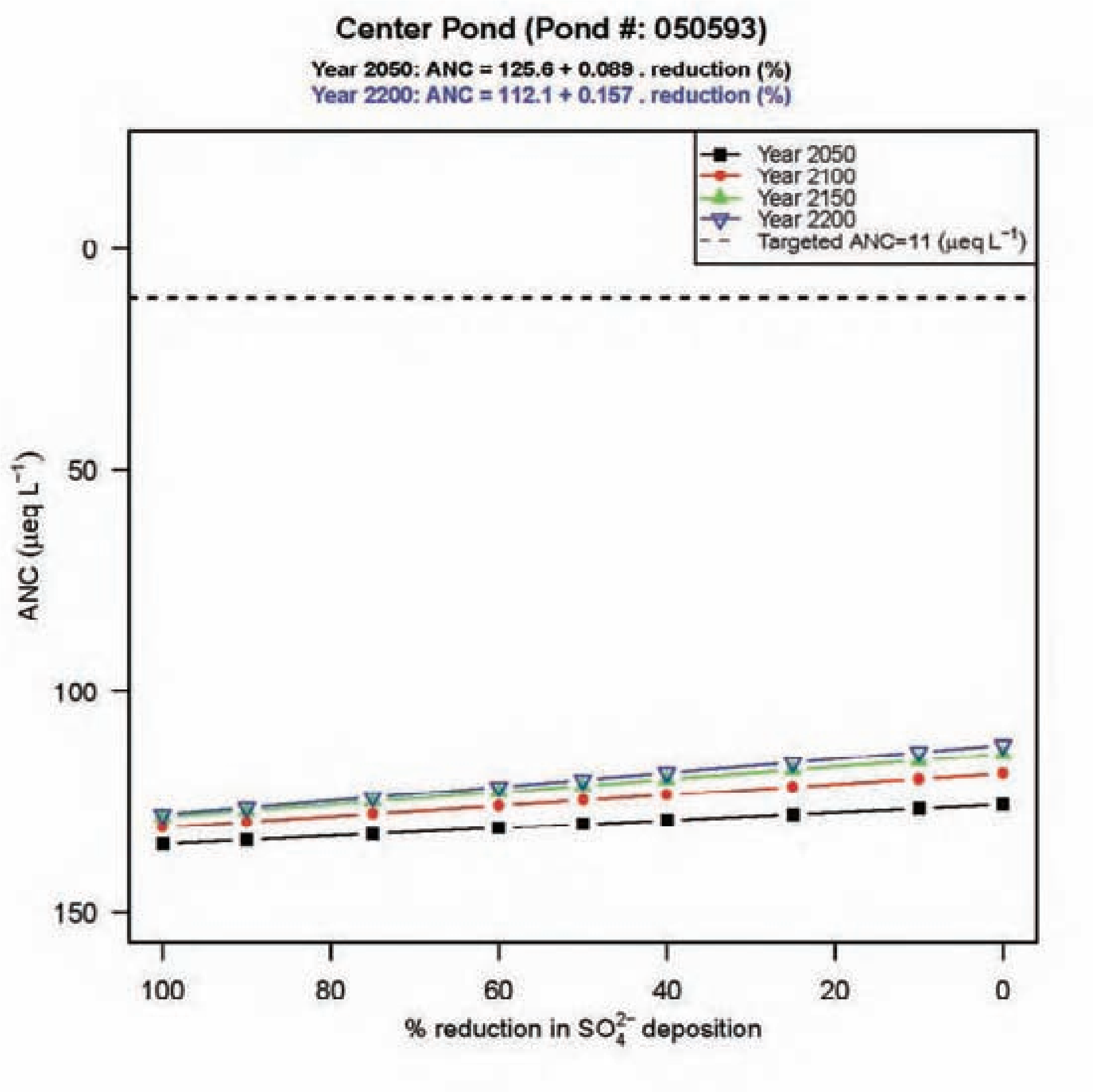

Cranberry Pond (Pond #: 050584)
Year 2050: ANC = 32.1 + 0.05 . reduction (%)
Year 2200: ANC = 37.2 + 0.098 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

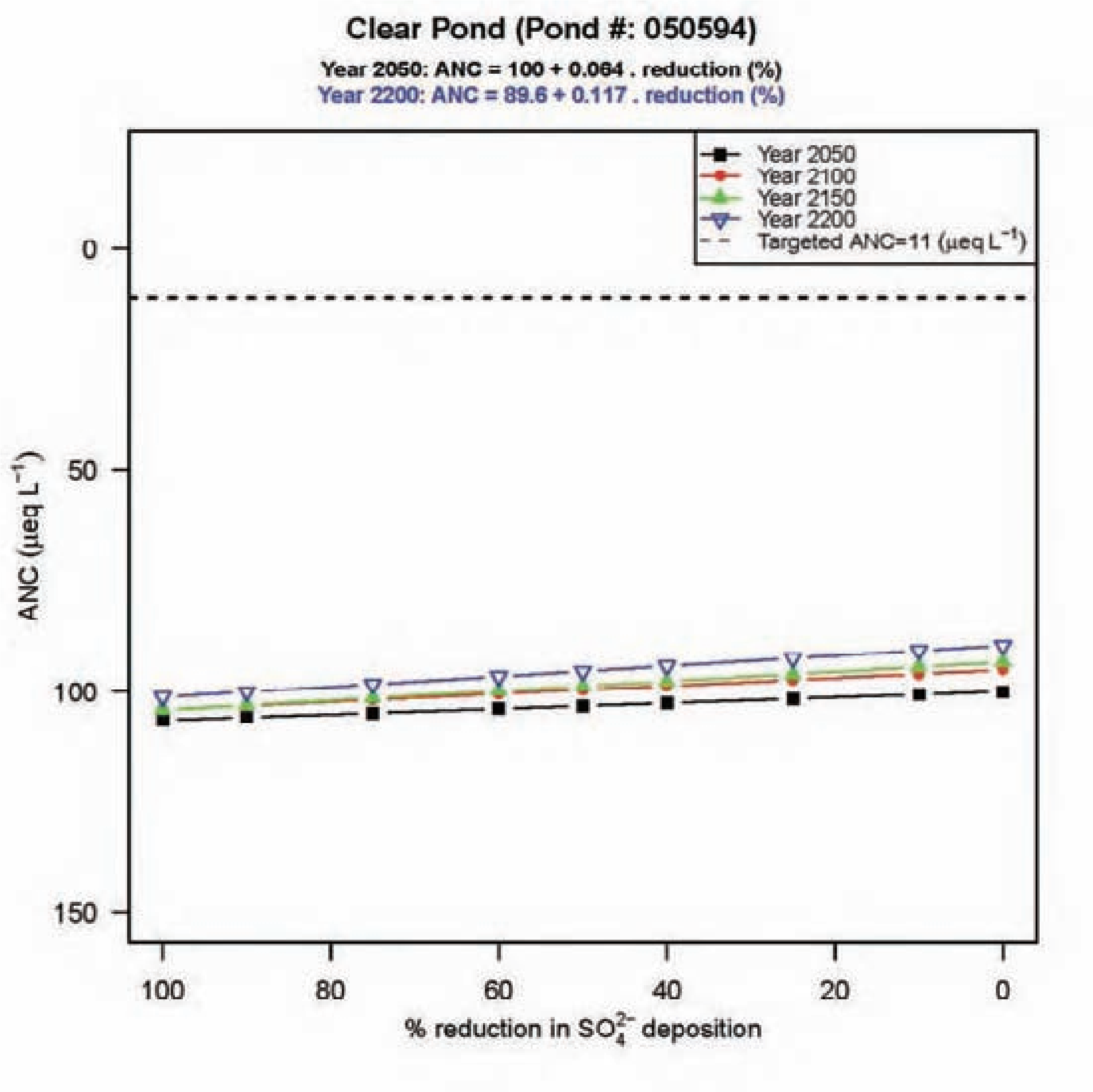

Rock Pond (Pond #: 050586)
Year 2050: ANC = 14.1 + 0.09 . reduction (%)
Year 2200: ANC = 20 + 0.144 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

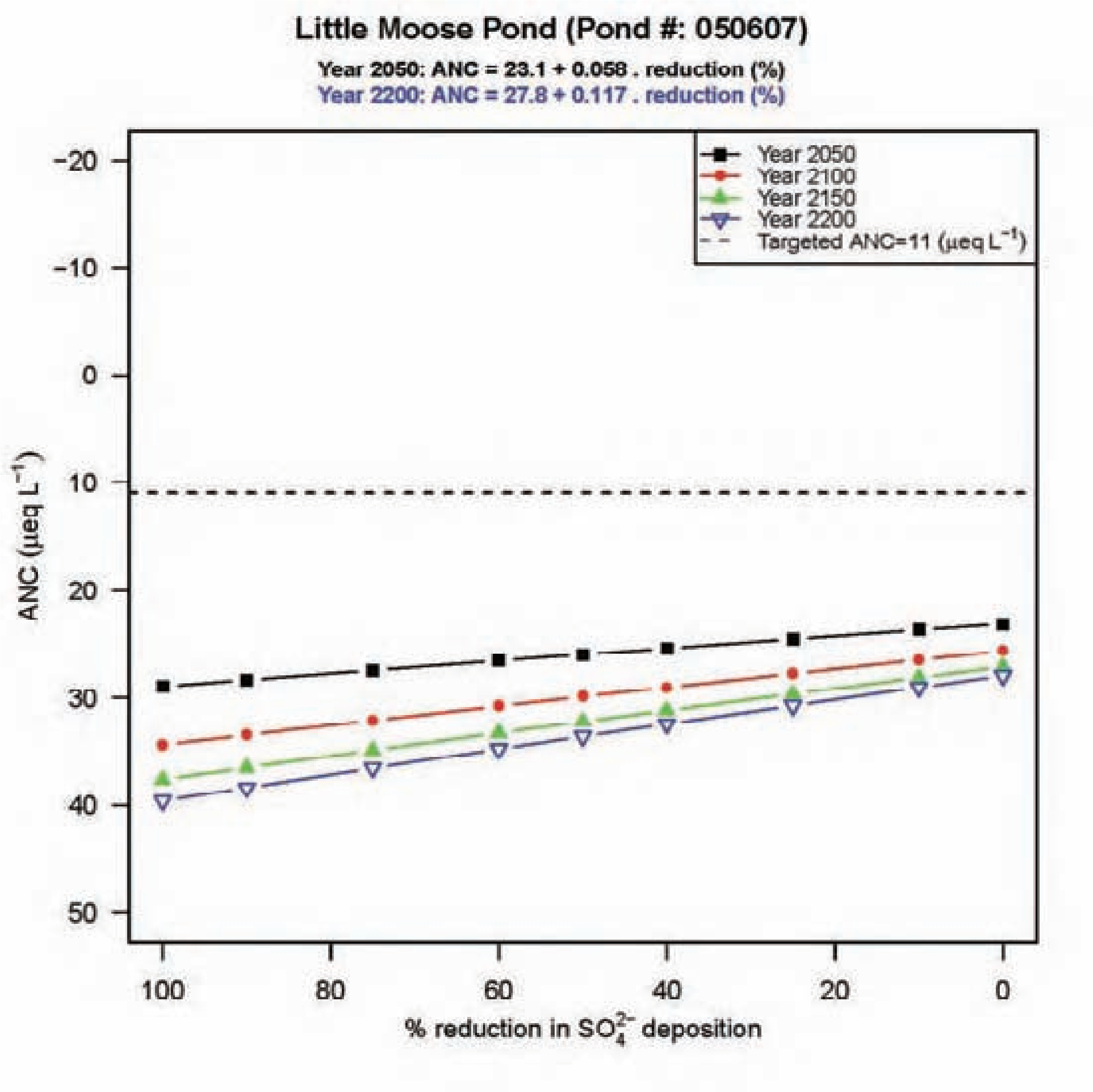


Stonystep Pond (Pond #: 050587)
Year 2050: ANC = 28.2 + 0.083 . reduction (%)
Year 2200: ANC = 29.5 + 0.152 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

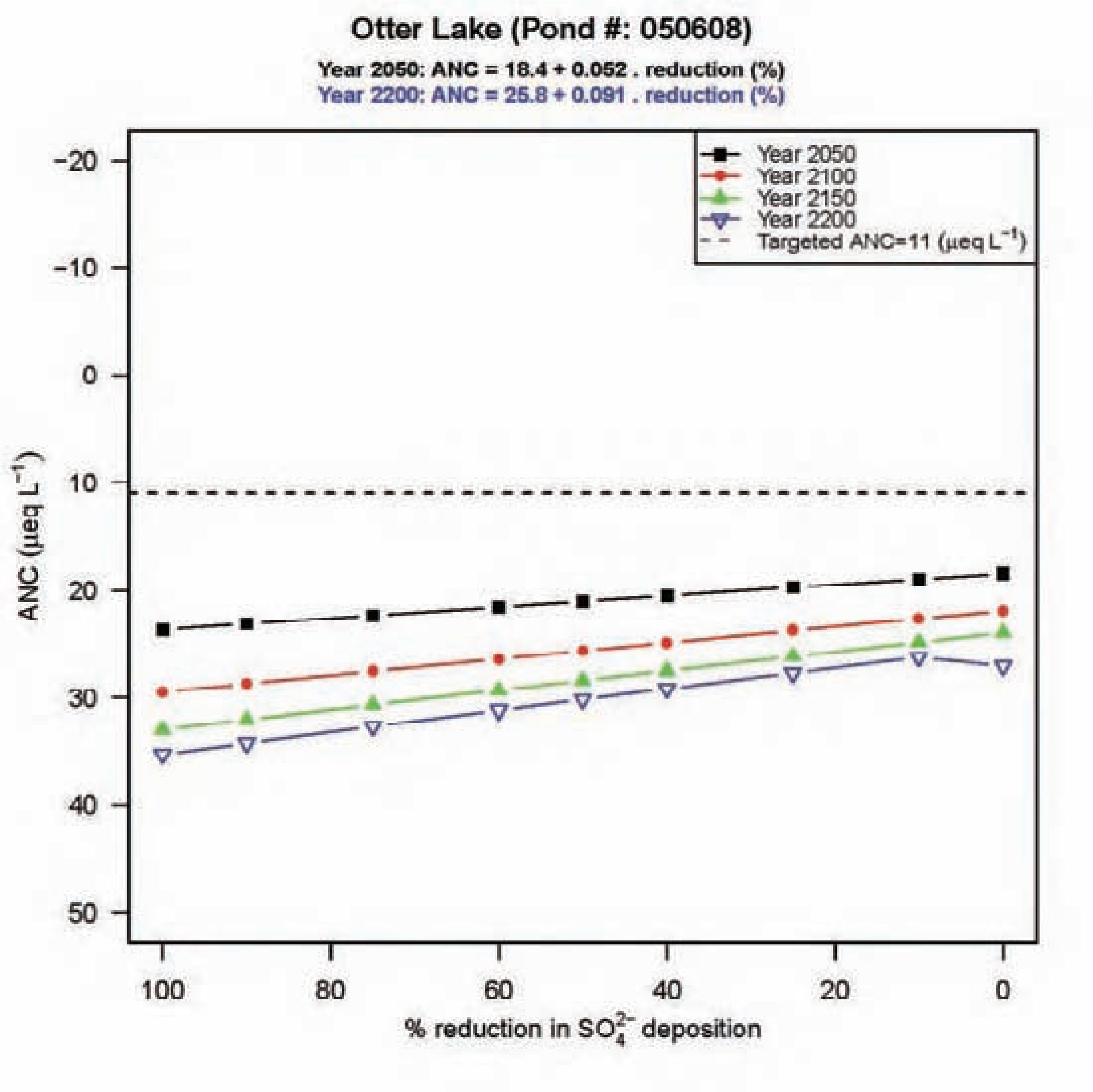

Puffer Pond (Pond #: 050589)
Year 2050: ANC = 29.1 + 0.024 . reduction (%)
Year 2200: ANC = 31.7 + 0.078 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Center Pond (Pond #: 050593)
Year 2050: ANC = 125.6 + 0.089 . reduction (%)
Year 2200: ANC = 112.1 + 0.157 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

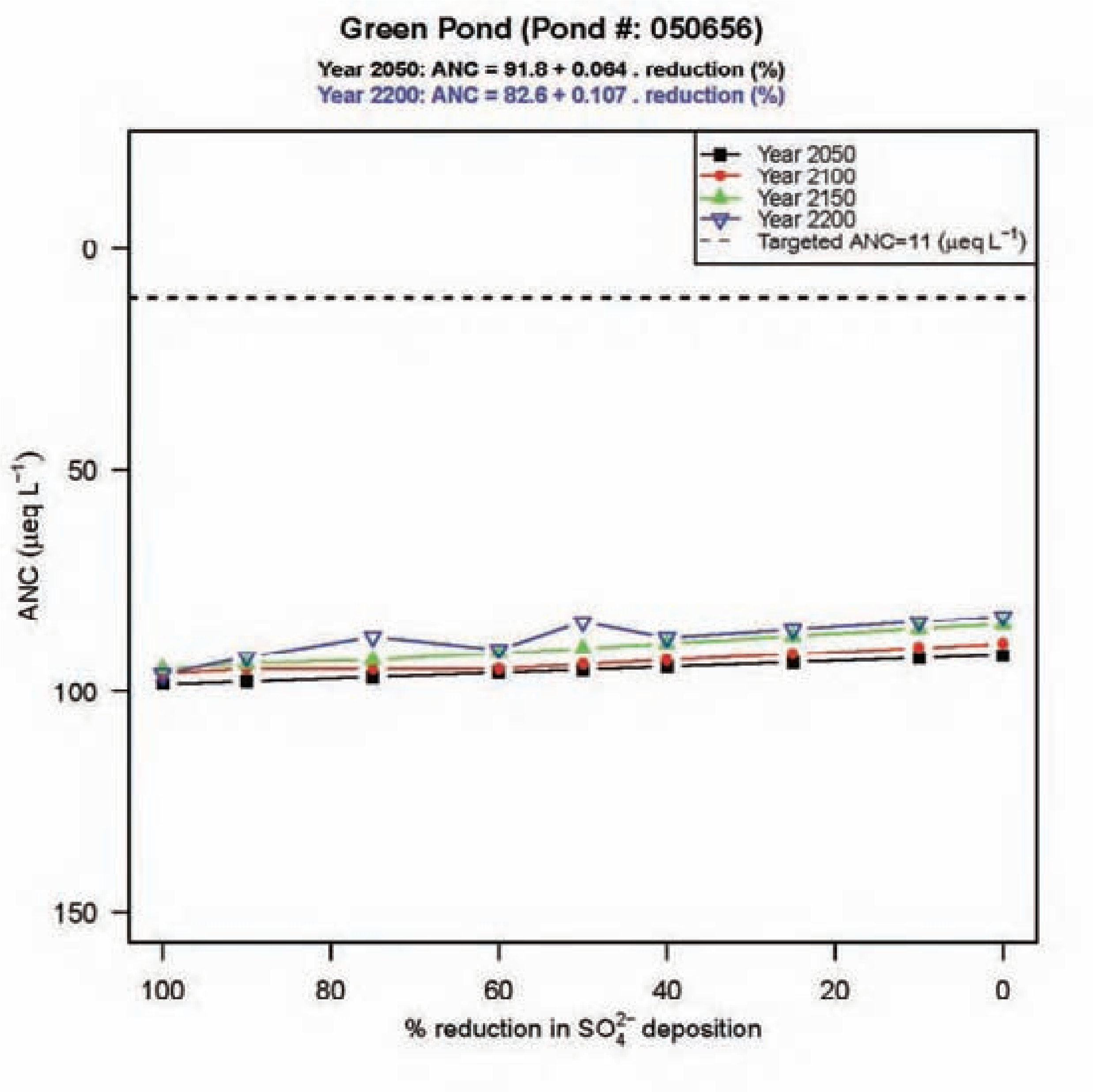

Clear Pond (Pond #: 050594)
Year 2050: ANC = 100 + 0.064 . reduction (%)
Year 2200: ANC = 89.6 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition



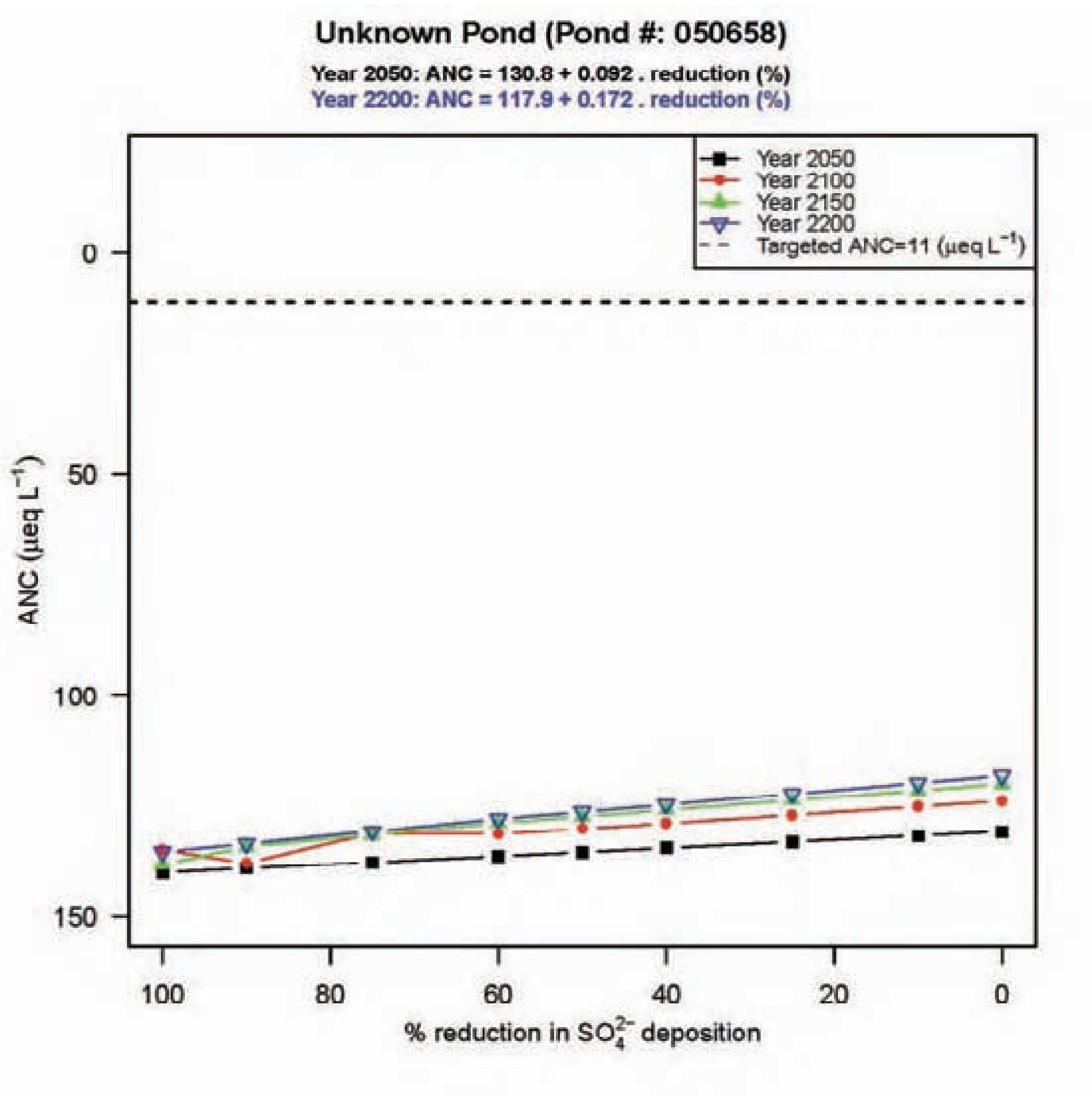
Little Moose Pond (Pond #: 050607)
Year 2050: ANC = 23.1 + 0.058 . reduction (%)
Year 2200: ANC = 27.8 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

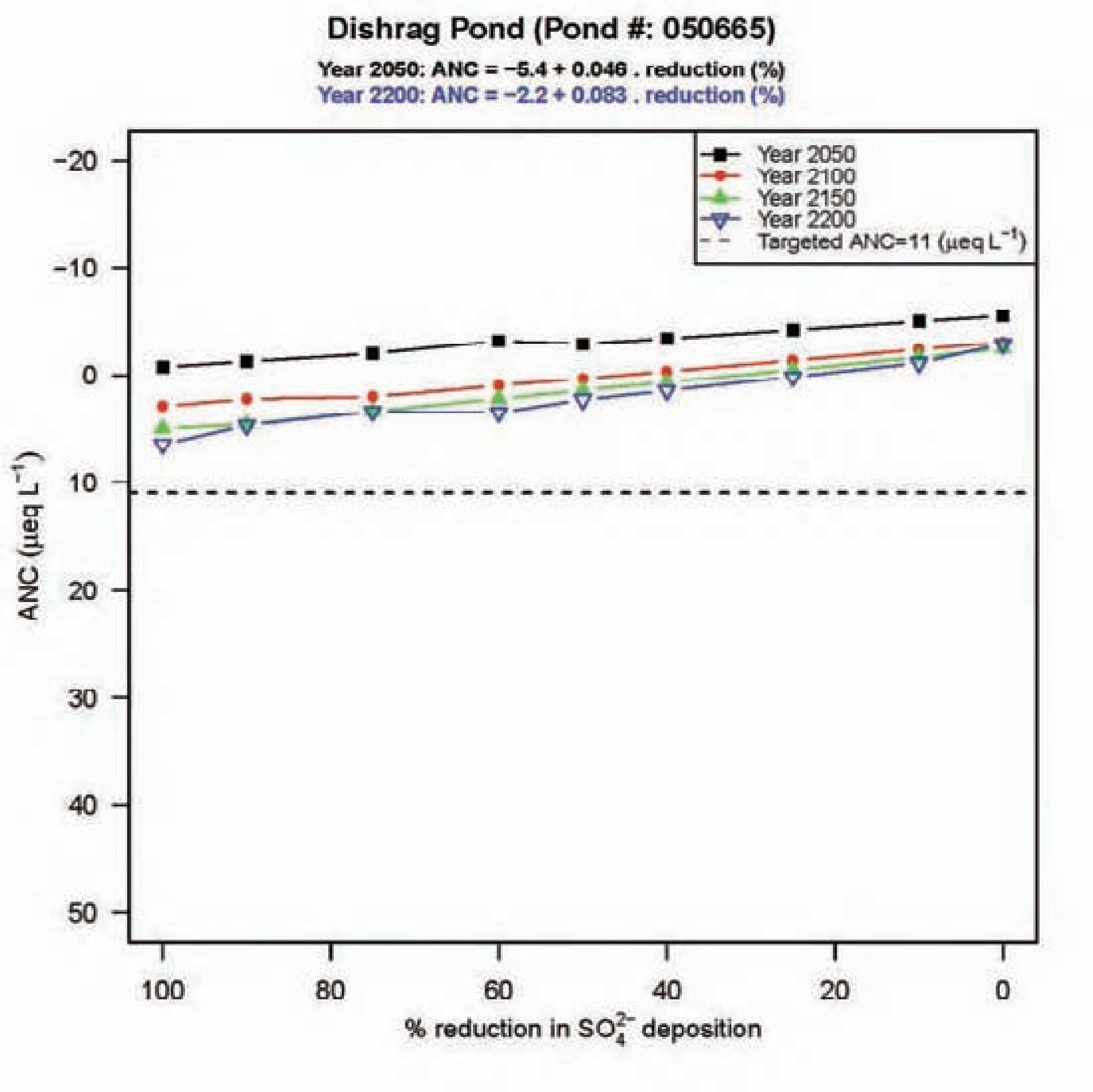


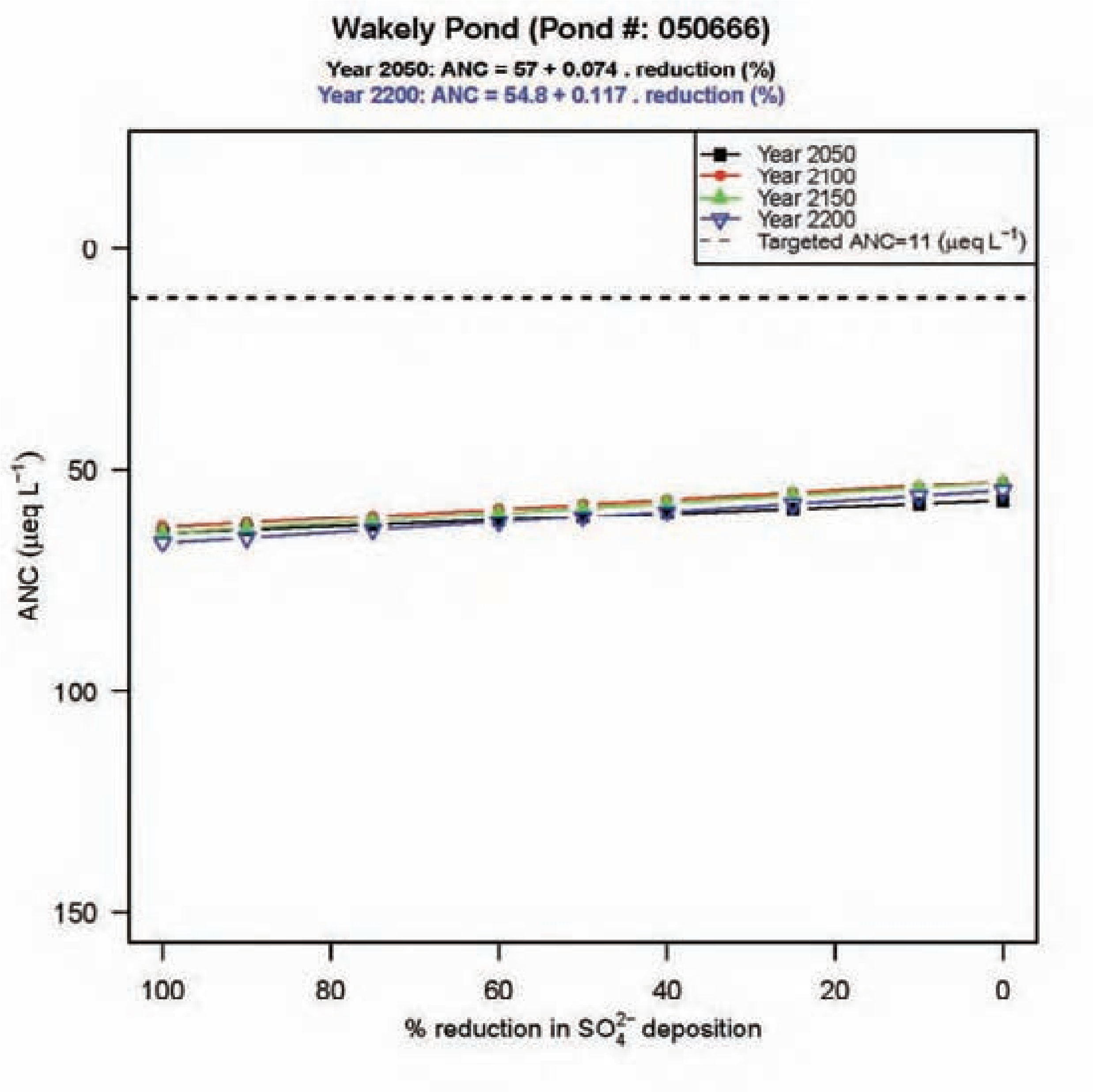
Otter Lake (Pond #: 050608)
Year 2050: ANC = 18.4 + 0.052 . reduction (%)
Year 2200: ANC = 25.8 + 0.091 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

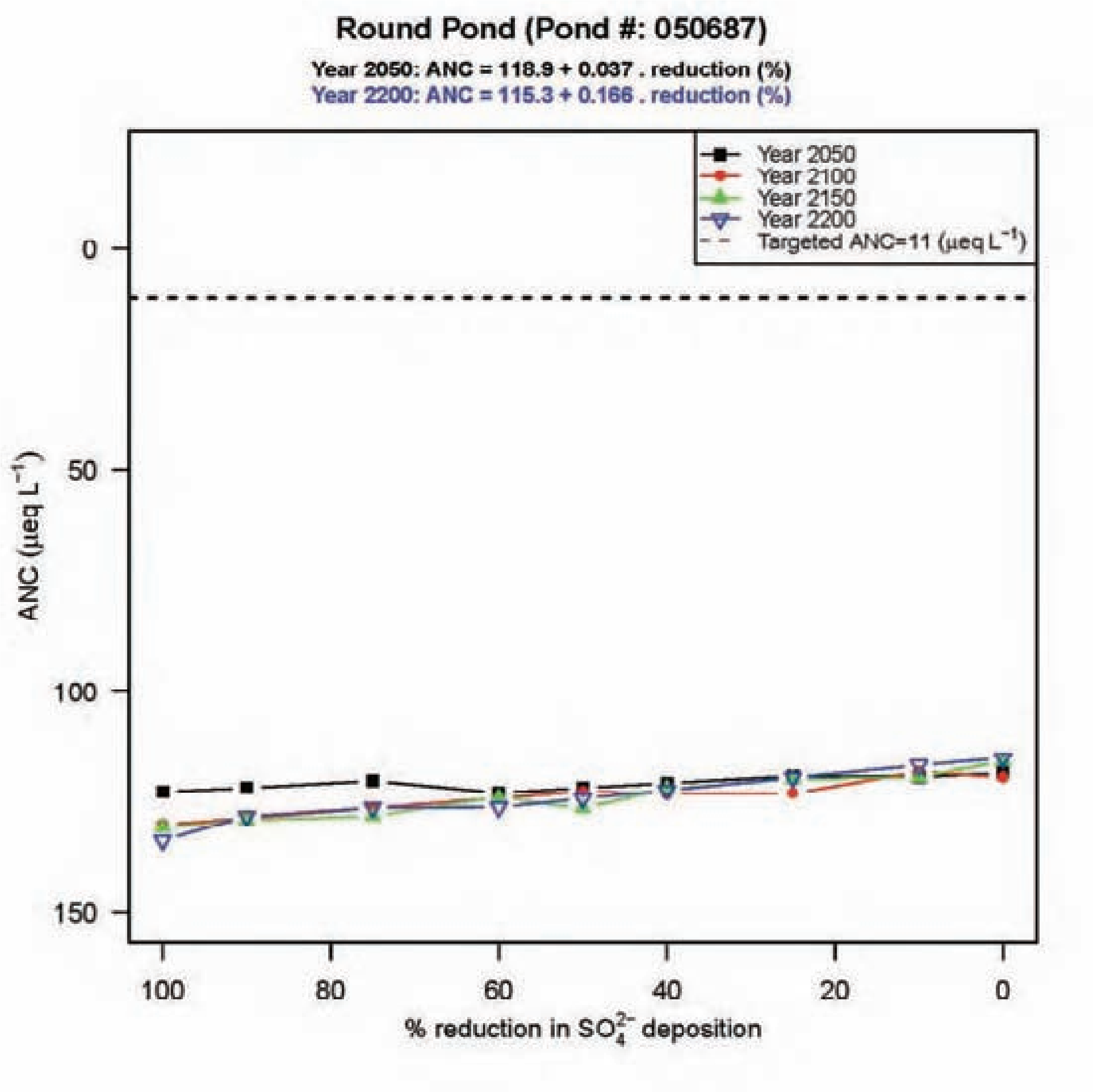


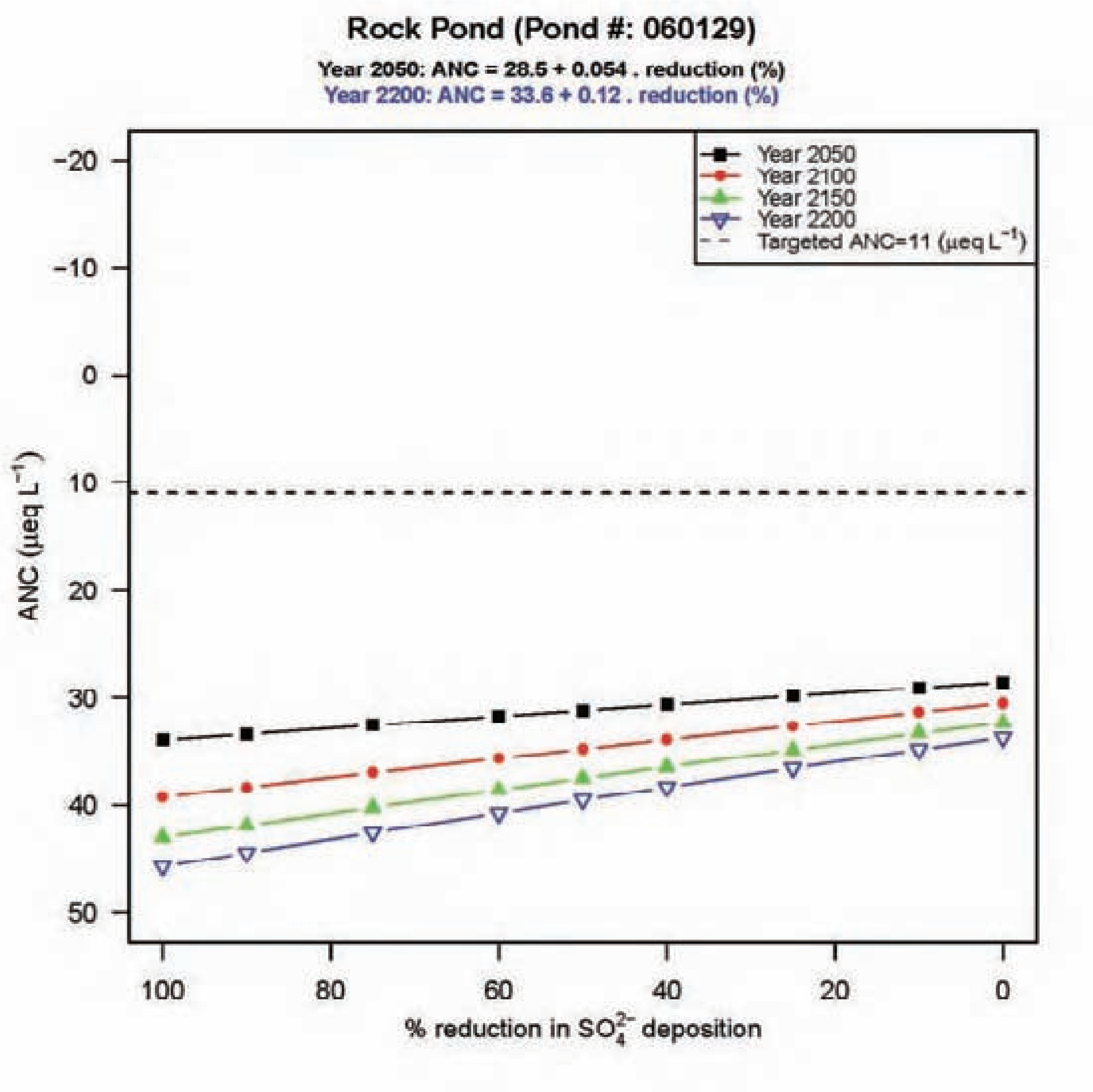
Green Pond (Pond #: 050656)
Year 2050: ANC = 91.8 + 0.064 . reduction (%)
Year 2200: ANC = 82.6 + 0.107 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

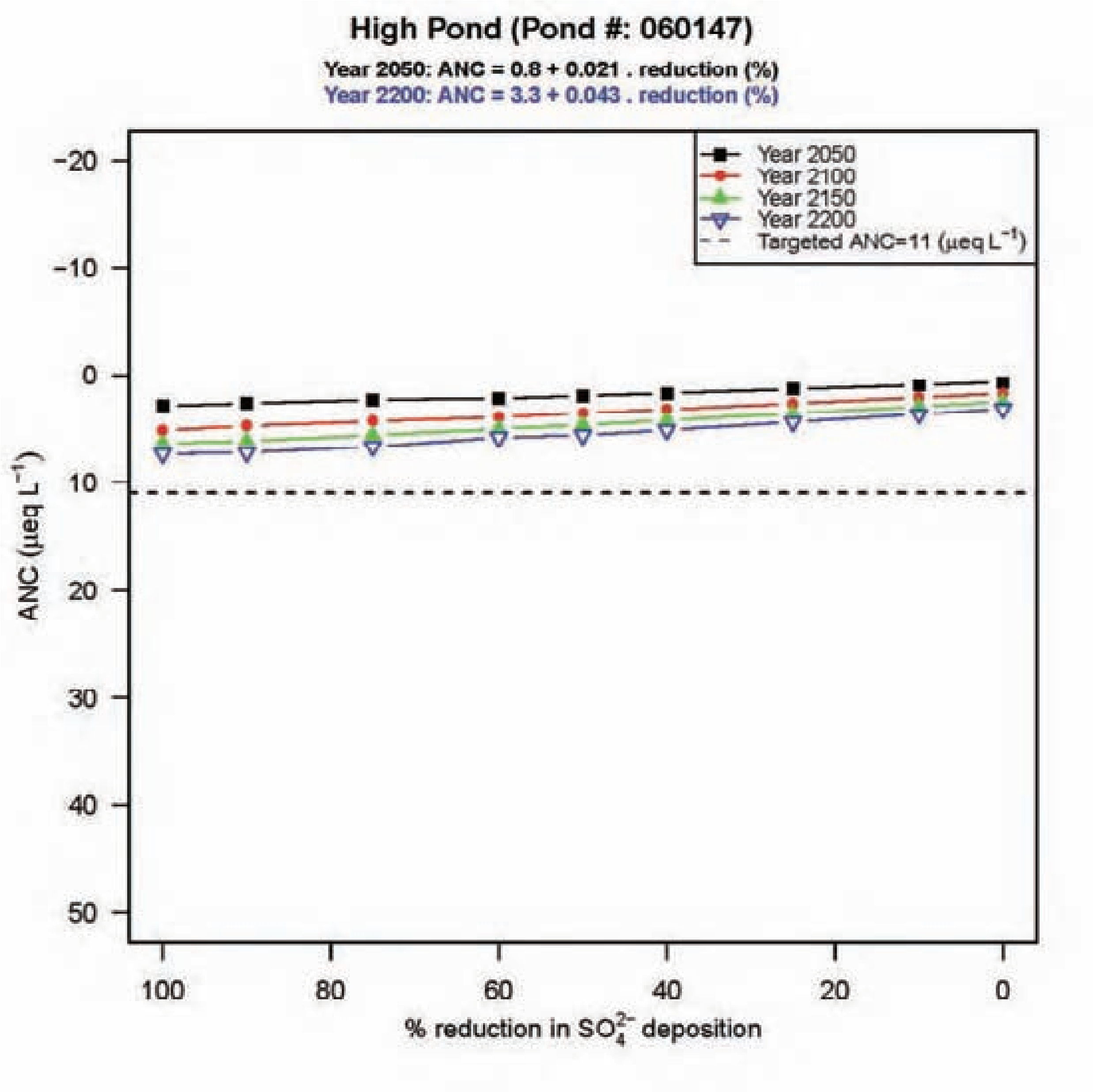

Unknown Pond (Pond #: 050658)
Year 2050: ANC = 130.8 + 0.092 . reduction (%)
Year 2200: ANC = 117.9 + 0.172 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
0
50
100
150
ANC (μeq L−1)
100
80
60
40
20
0
% reduction in SO42− deposition


Dishrag Pond (Pond #: 050665)
Year 2050: ANC = −5.4 + 0.046 . reduction (%)
Year 2200: ANC = −2.2 + 0.083 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

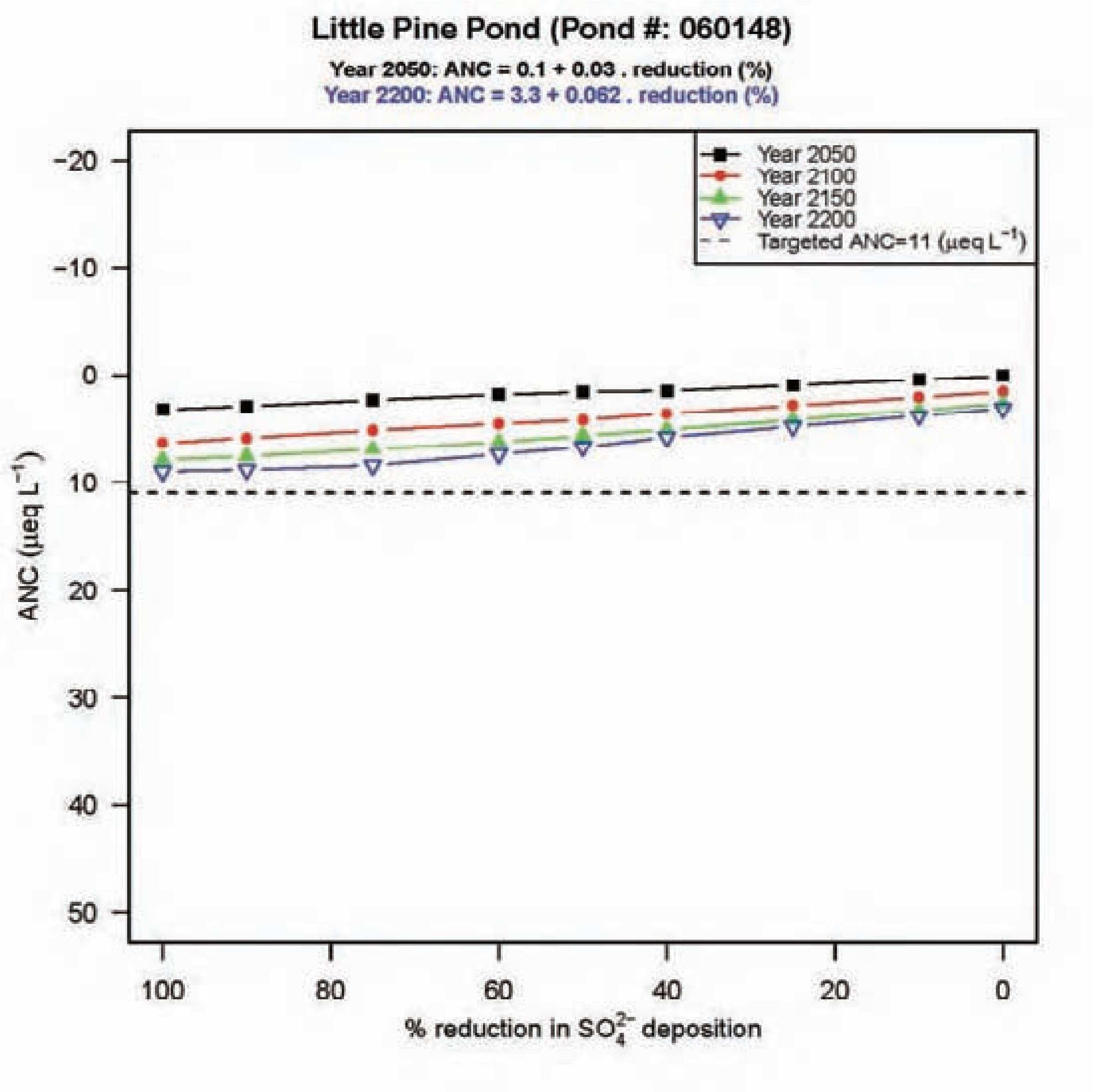

Wakely Pond (Pond #: 050666)
Year 2050: ANC = 57 + 0.074 . reduction (%)
Year 2200: ANC = 54.8 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO4 2− deposition

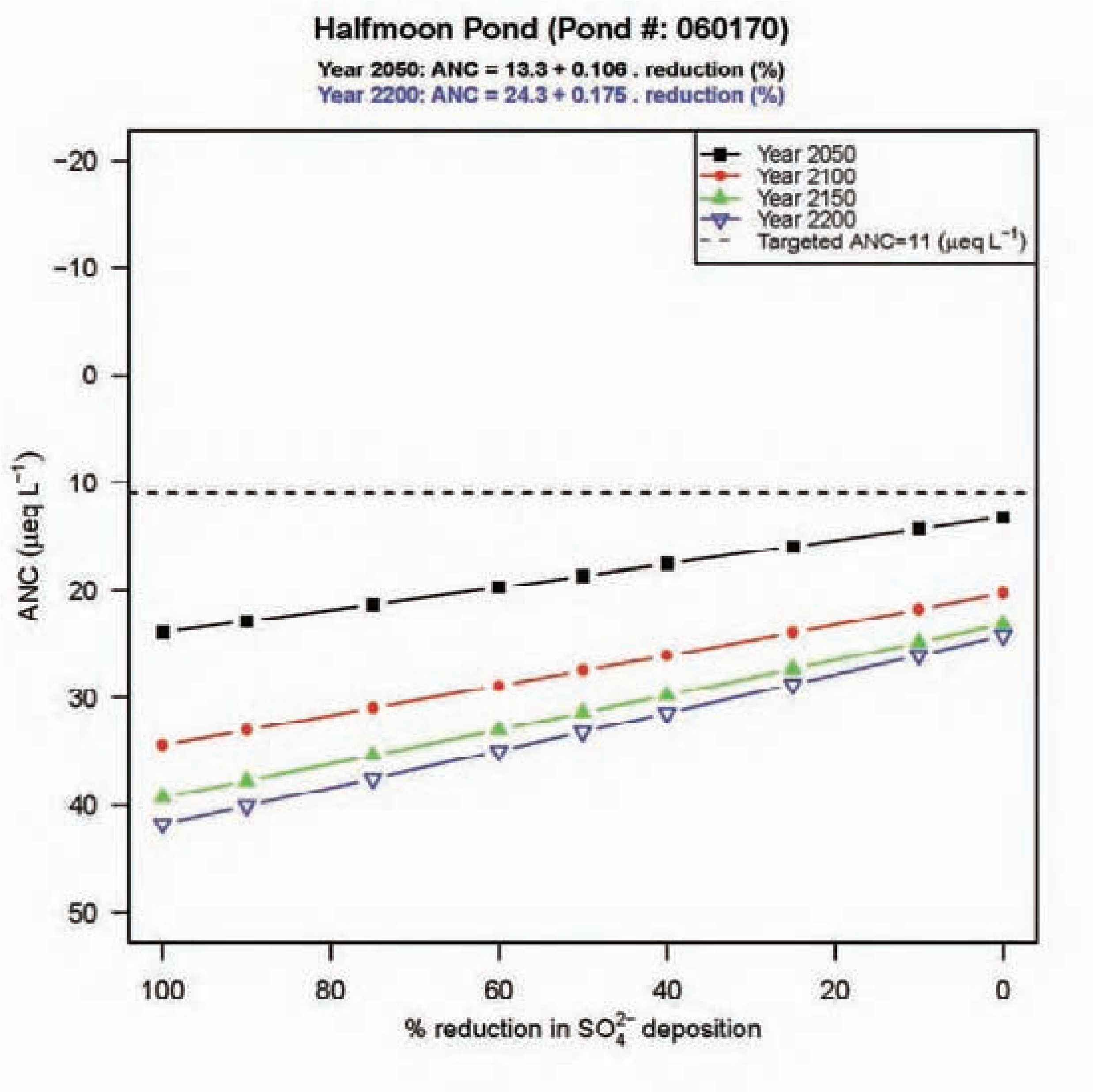

Round Pond (Pond #: 050687)
Year 2050: ANC = 118.9 + 0.037 . reduction (%)
Year 2200: ANC = 115.3 + 0.166 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

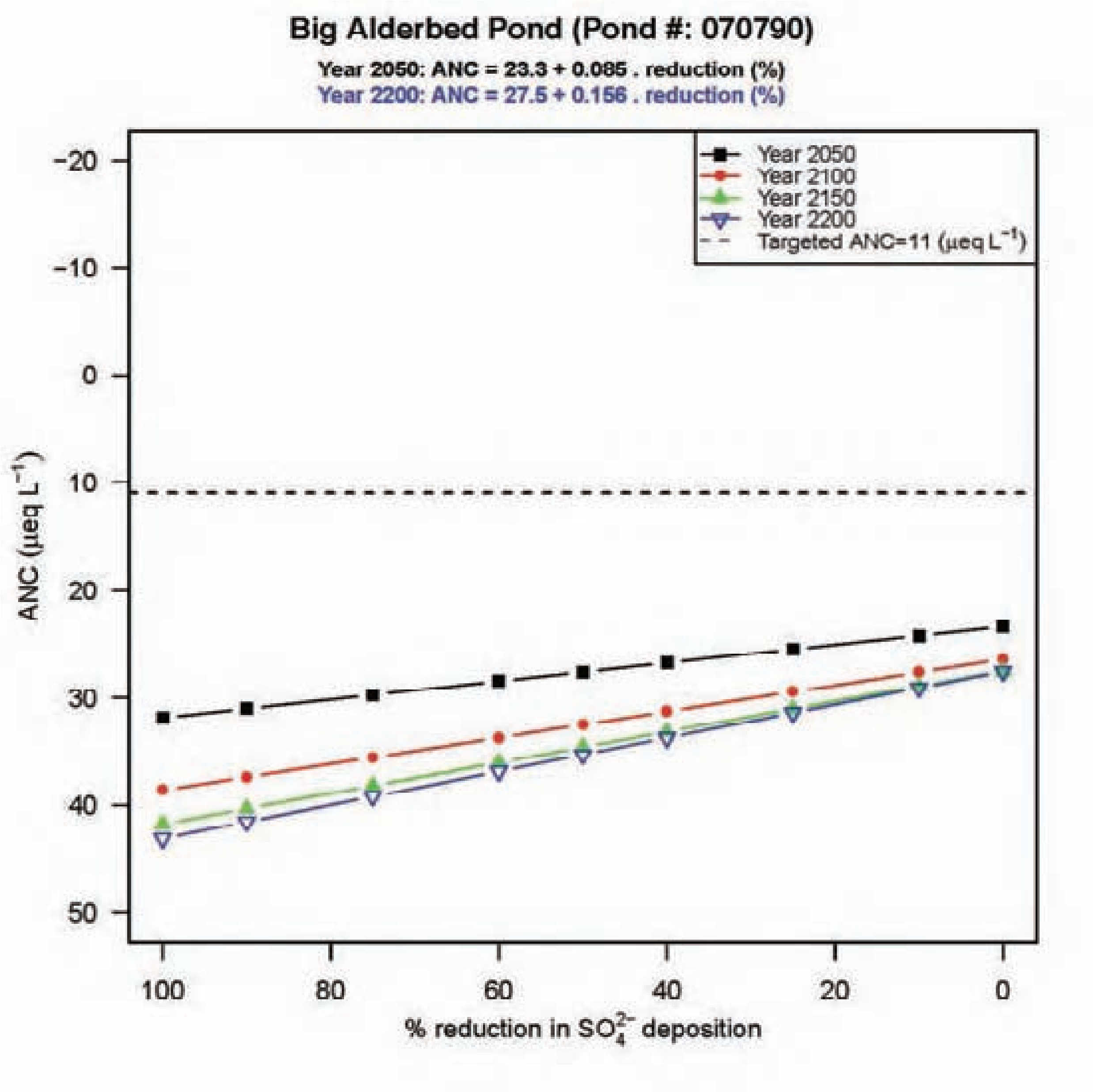

Rock Pond (Pond #: 060129)
Year 2050: ANC = 28.5 + 0.054 . reduction (%)
Year 2200: ANC = 33.6 + 0.12 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

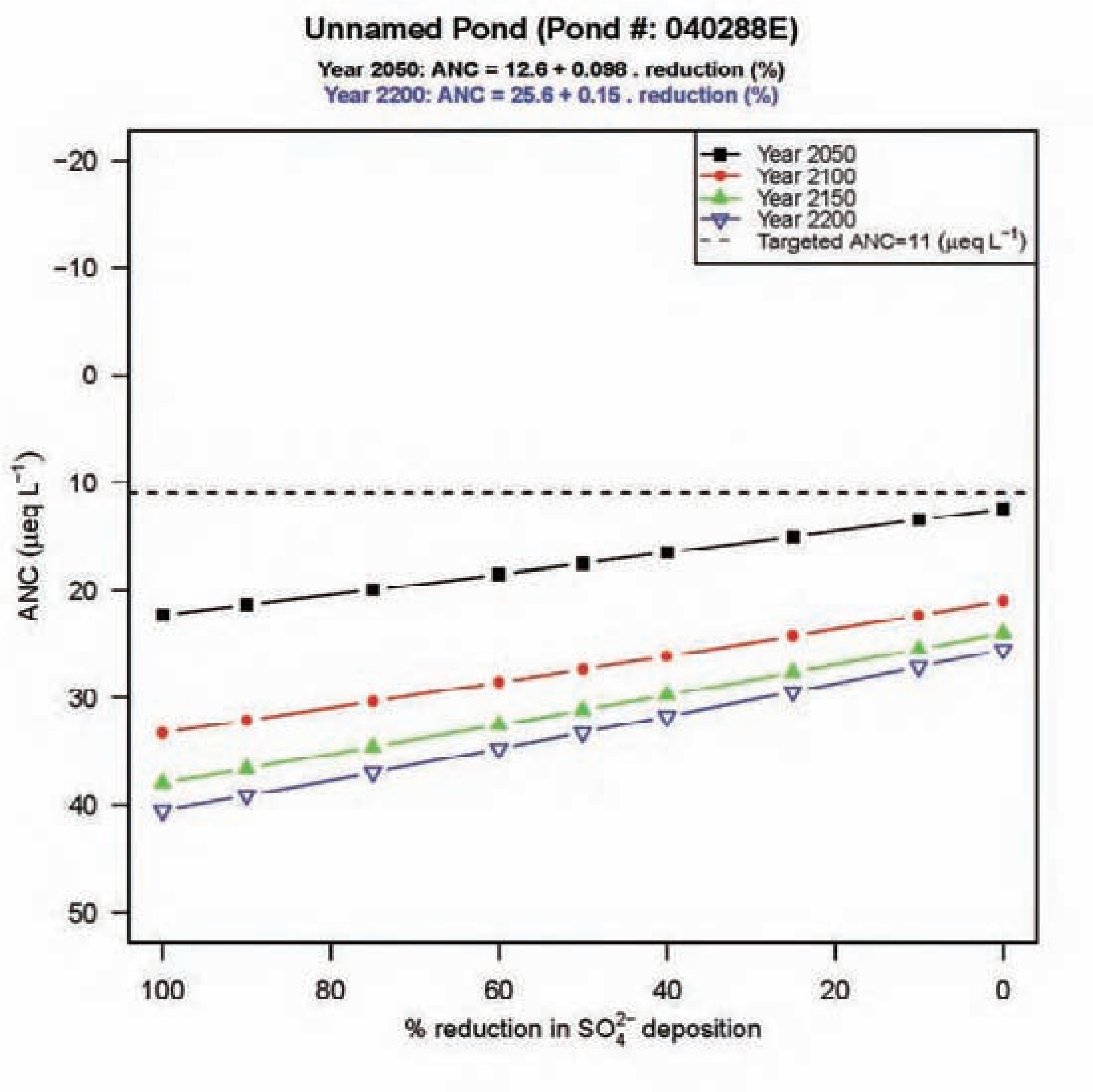


High Pond (Pond #: 060147)
Year 2050: ANC = 0.8 + 0.021 . reduction (%)
Year 2200: ANC = 3.3 + 0.043 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO4 2- deposition

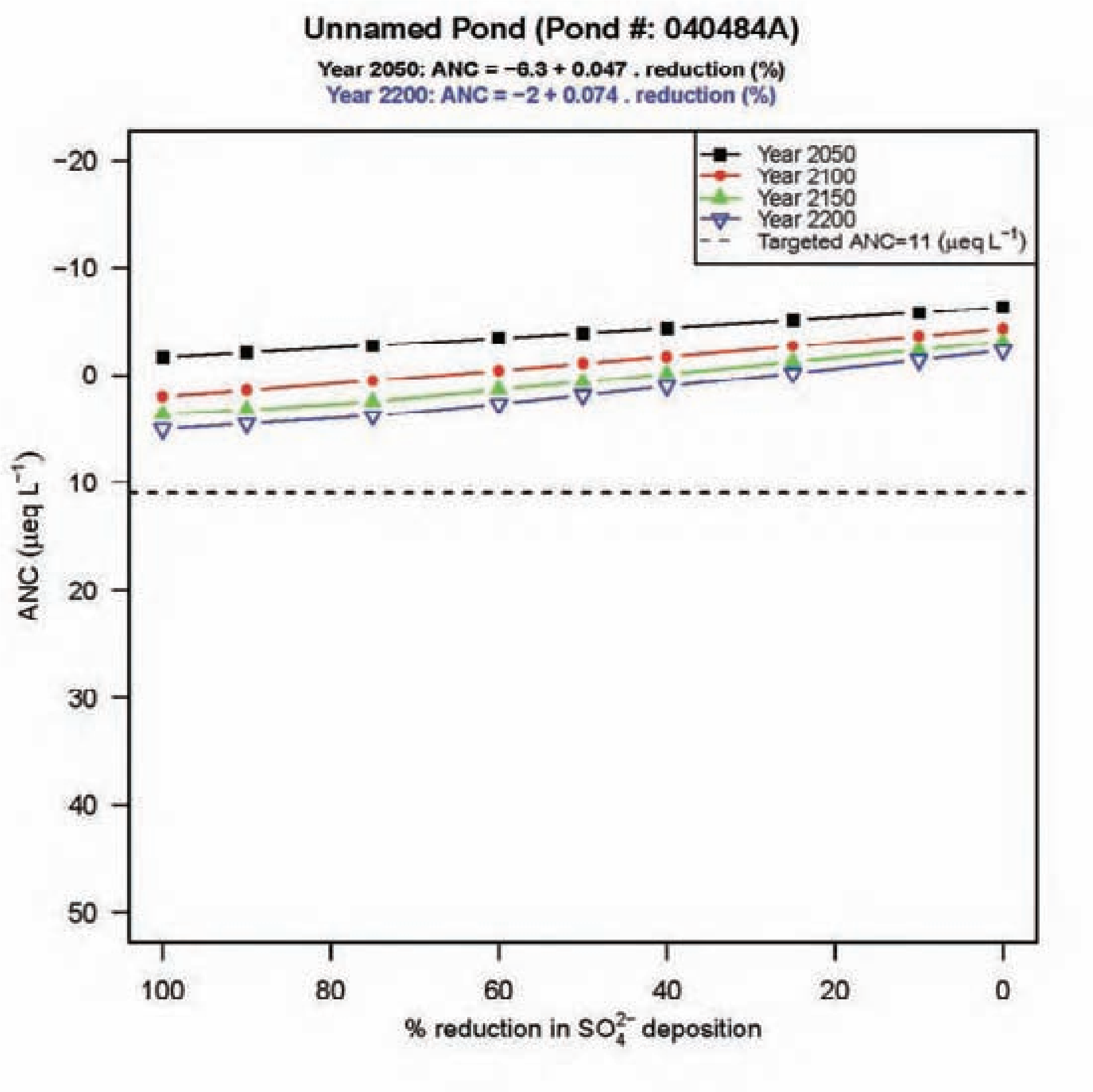

Little Pine Pond (Pond #: 060148)
Year 2050: ANC = 0.1 + 0.03 . reduction (%)
Year 2200: ANC = 3.3 + 0.062 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

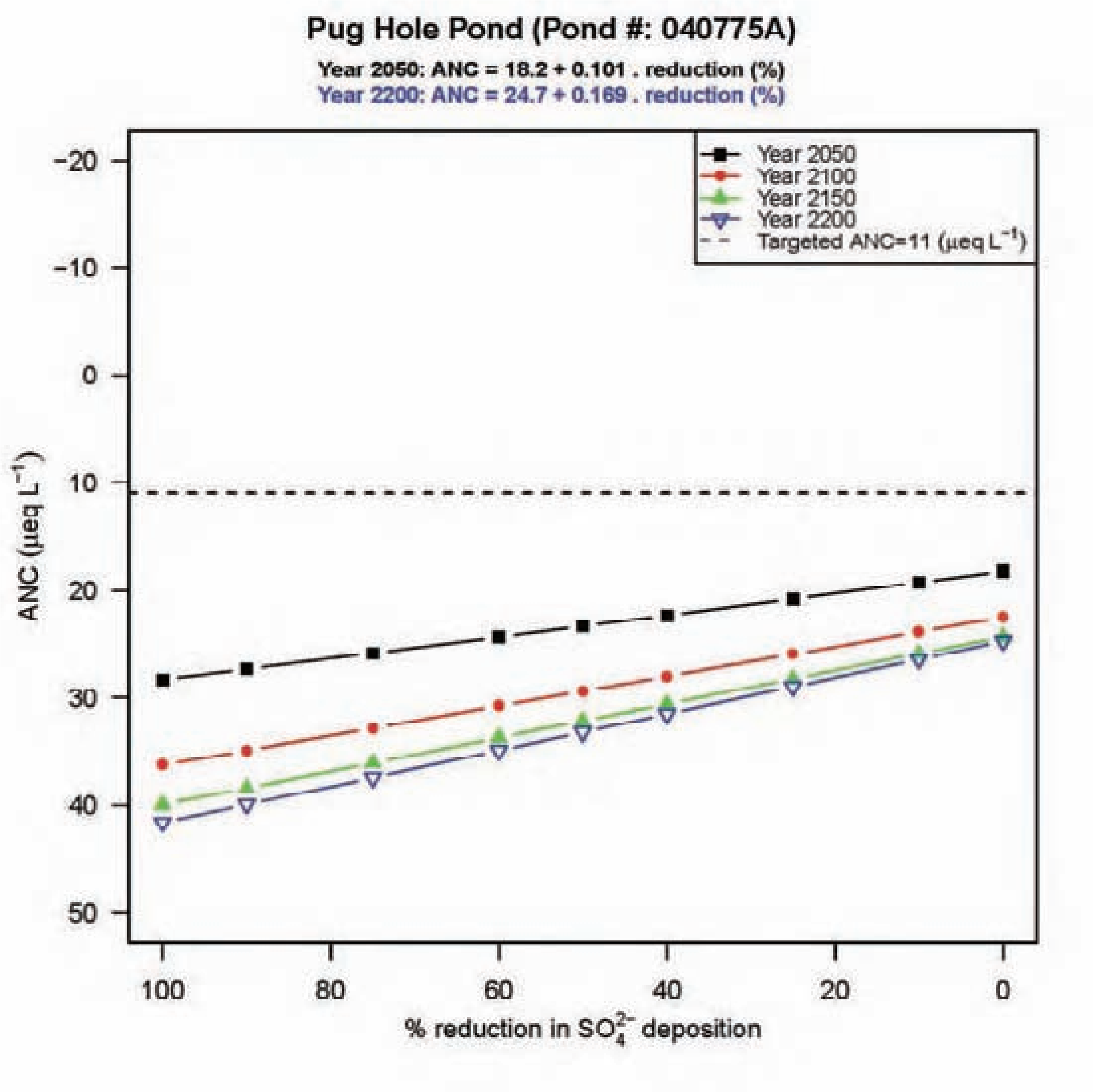

Halfmoon Pond (Pond #: 060170)
Year 2050: ANC = 13.3 + 0.106 . reduction (%)
Year 2200: ANC = 24.3 + 0.175 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition


Big Alderbed Pond (Pond #: 070790)
Year 2050: ANC = 23.3 + 0.085 . reduction (%)
Year 2200: ANC = 27.5 + 0.156 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

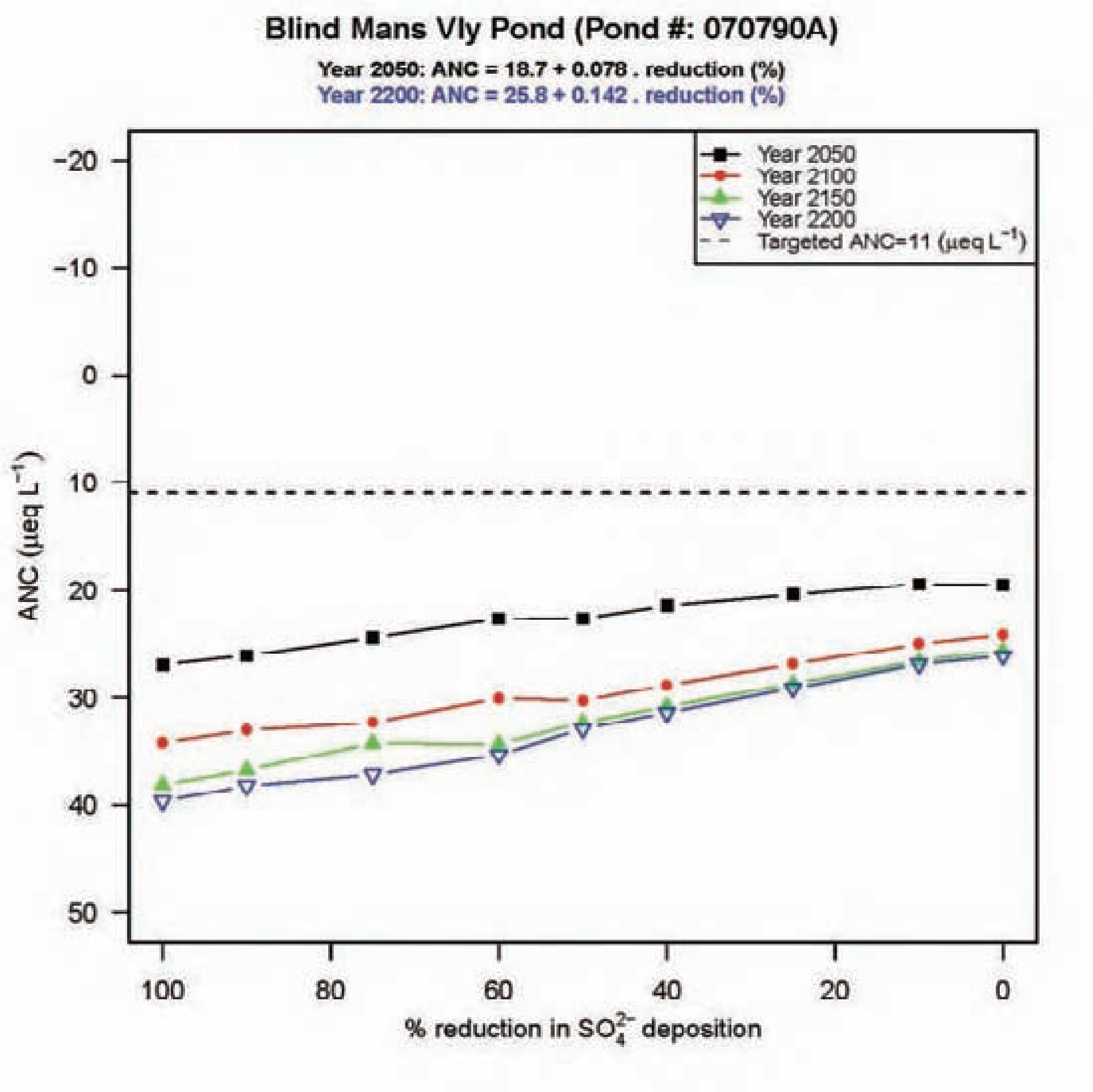


Unnamed Pond (Pond #: 040288E)
Year 2050: ANC = 12.6 + 0.098 . reduction (%)
Year 2200: ANC = 25.6 + 0.15 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0


Unnamed Pond (Pond #: 040484A)
Year 2050: ANC = −6.3 + 0.047 . reduction (%)
Year 2200: ANC = −2 + 0.074 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

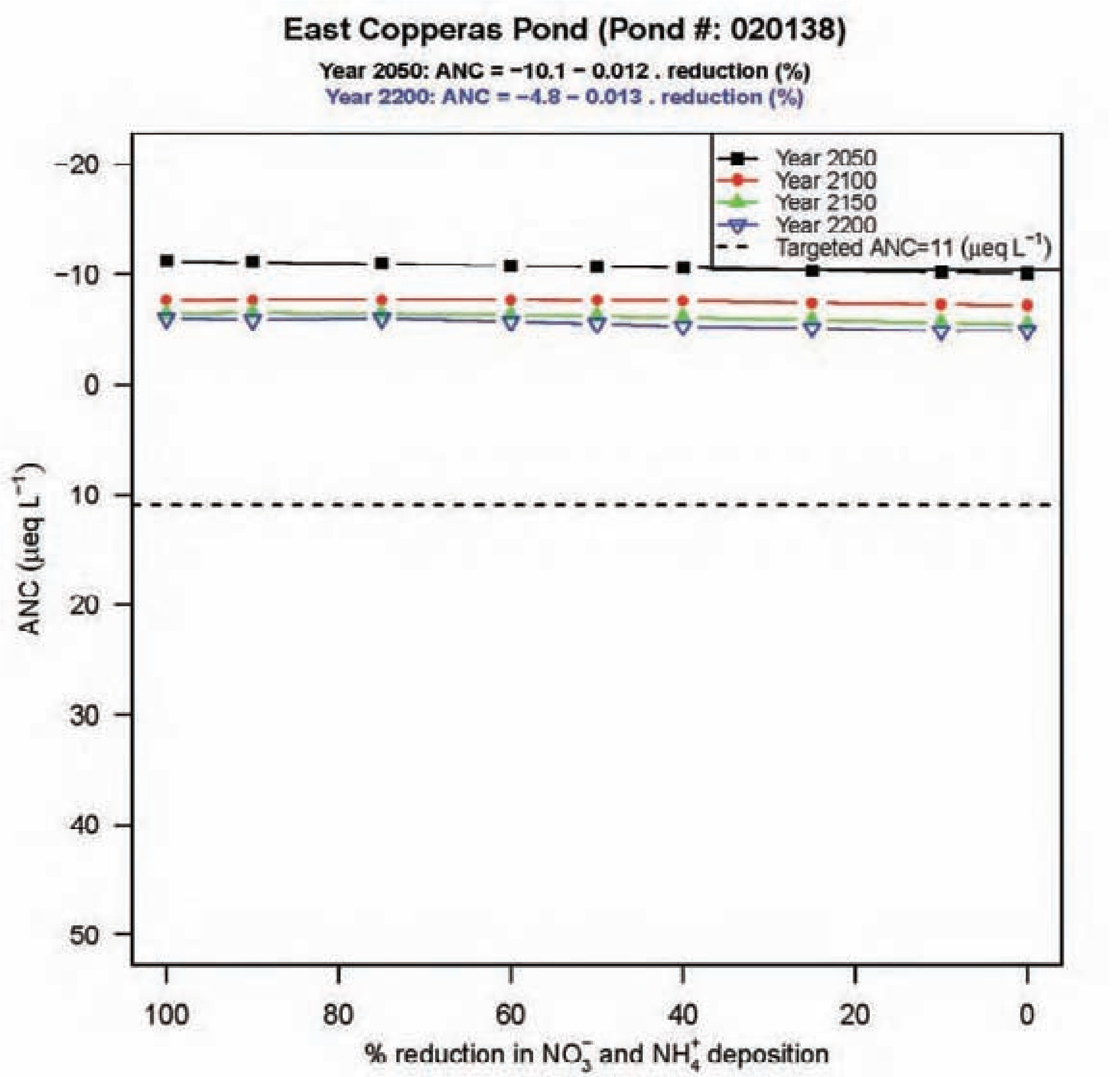


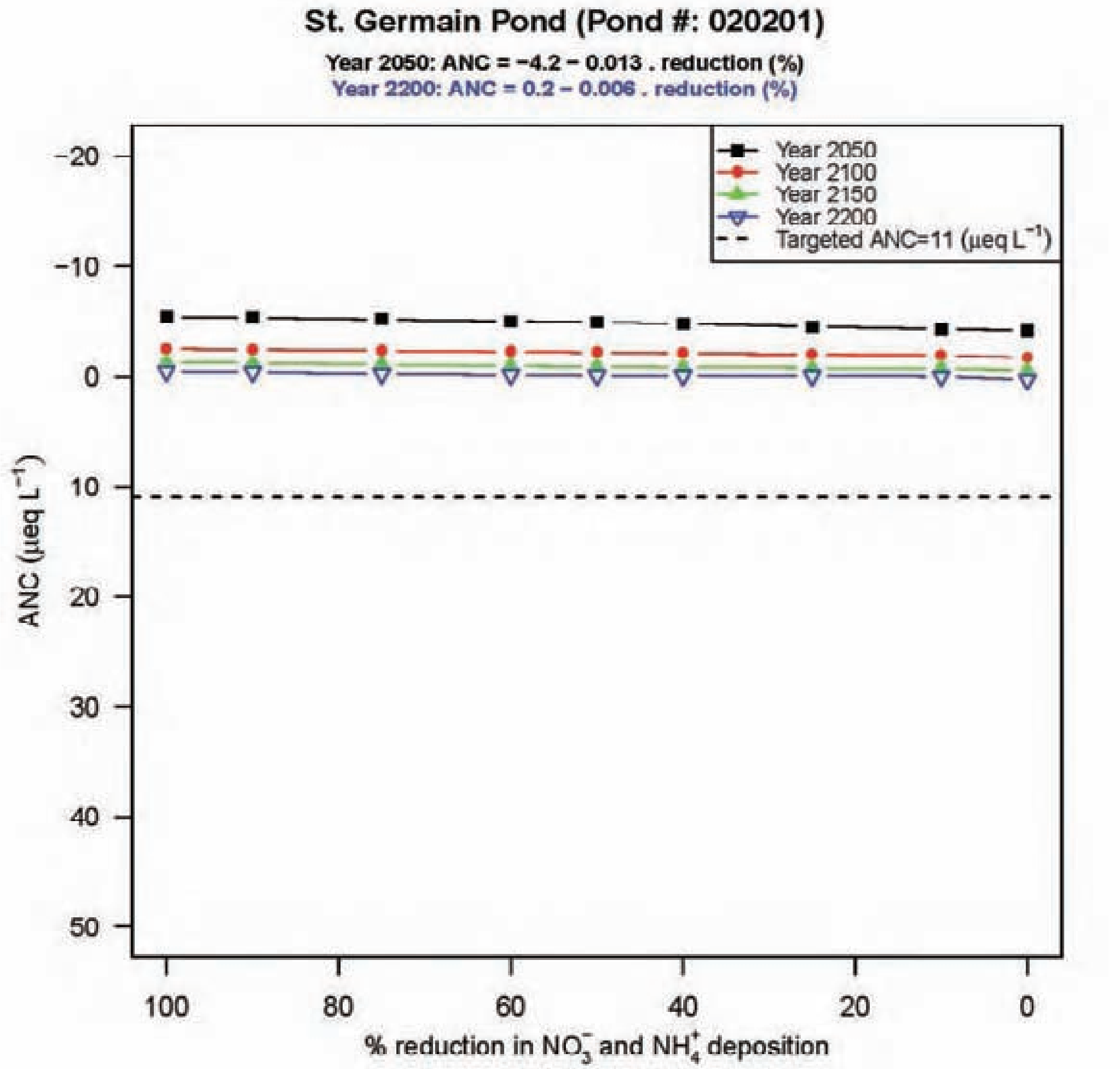
Pug Hole Pond (Pond #: 040775A)
Year 2050: ANC = 18.2 + 0.101 . reduction (%)
Year 2200: ANC = 24.7 + 0.169 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO4 2- deposition

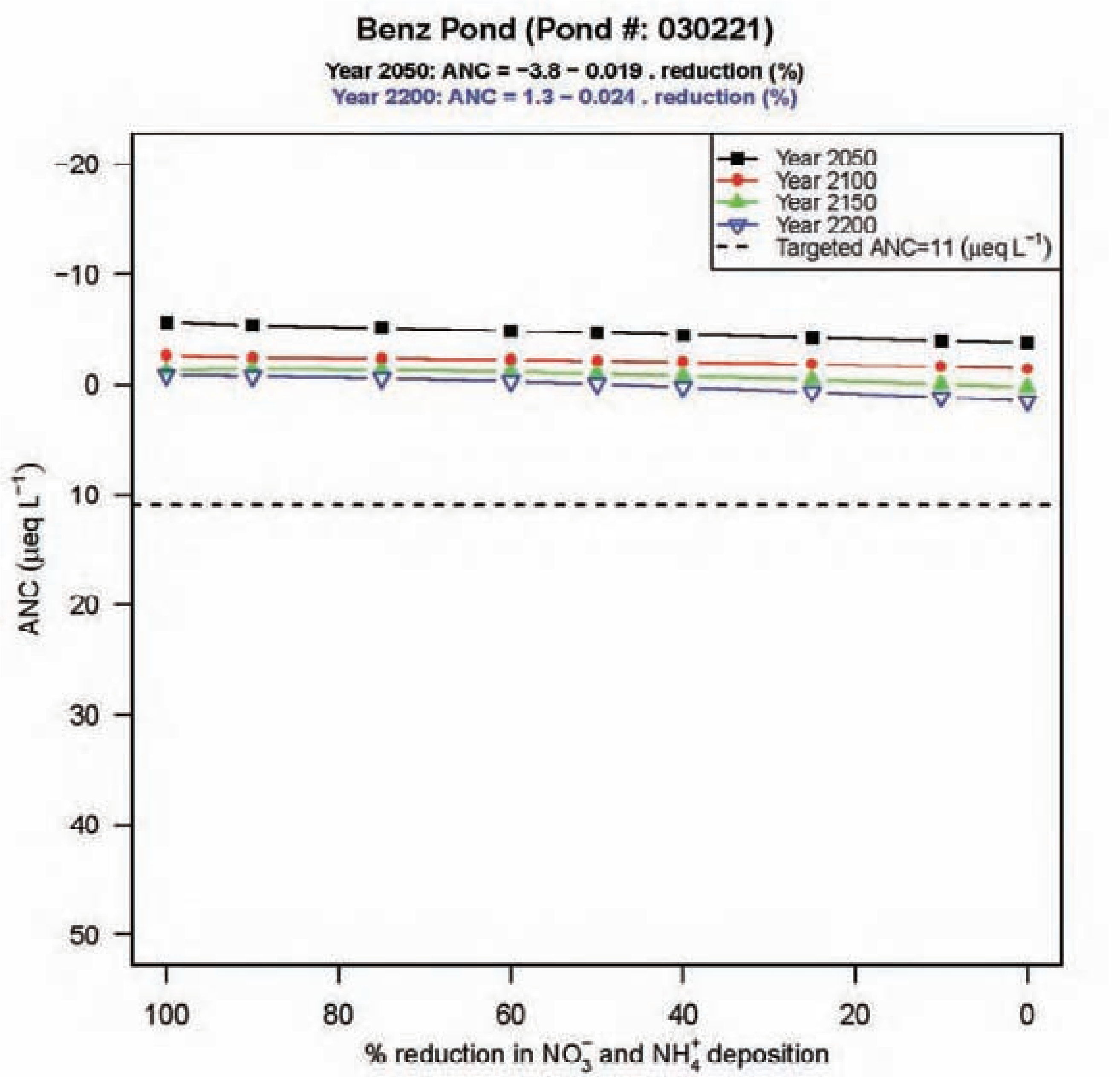

Blind Mans Vly Pond (Pond #: 070790A)
Year 2050: ANC = 18.7 + 0.078 . reduction (%)
Year 2200: ANC = 25.8 + 0.142 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in SO₄²⁻ deposition

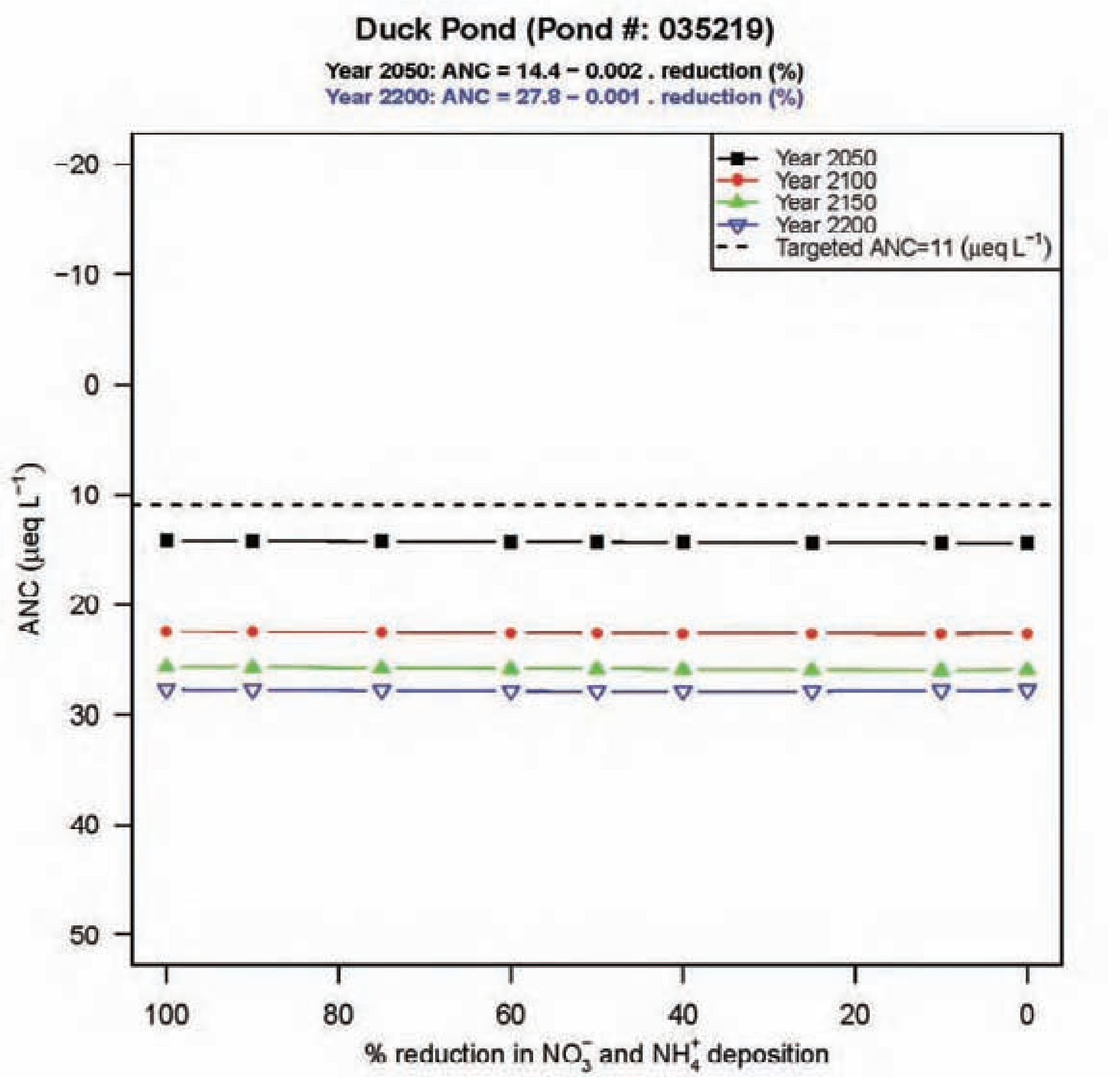
Appendix 6
Load-response plots for scenarios involving reductions in atmospheric NO_3^-+NH_4^+ deposition

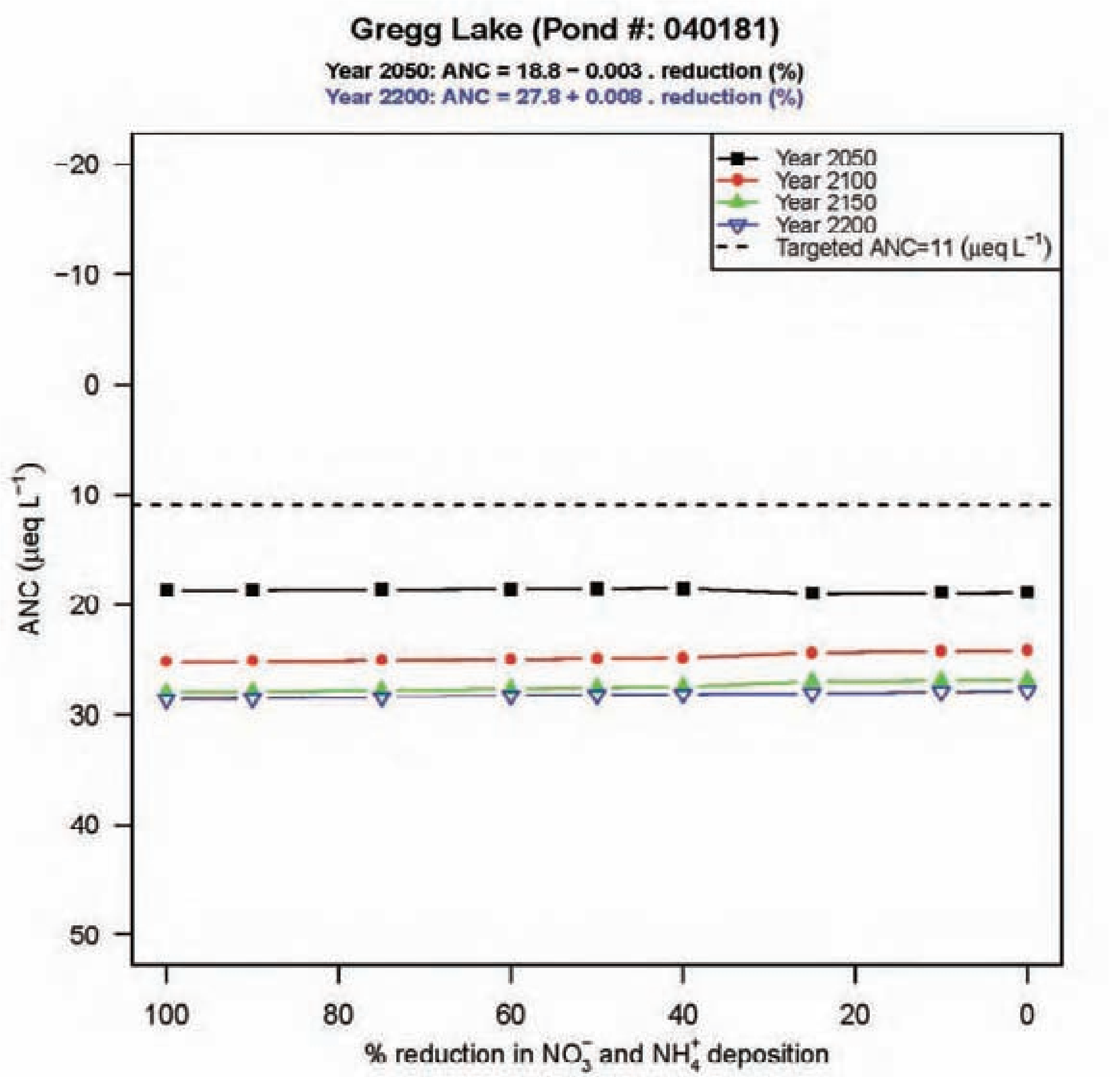
Load-response plots for scenarios involving reductions in atmospheric NO_3^-+NH_4^+ deposition. The percent reduction in atmospheric loading is along the x-axis and the corresponding model simulated ANC is along the y-axis. Results are shown for the years 2050, 2100, 2150 and 2200. For each lake, linear regression models were developed for 2050 and 2200 ANC values as a function of percent load reduction as follows: ANC = [intercept] ± [slope * reduction (%)].


East Copperas Pond (Pond #: 020138)
Year 2050: ANC = −10.1 − 0.012 . reduction (%)
Year 2200: ANC = −4.8 − 0.013 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

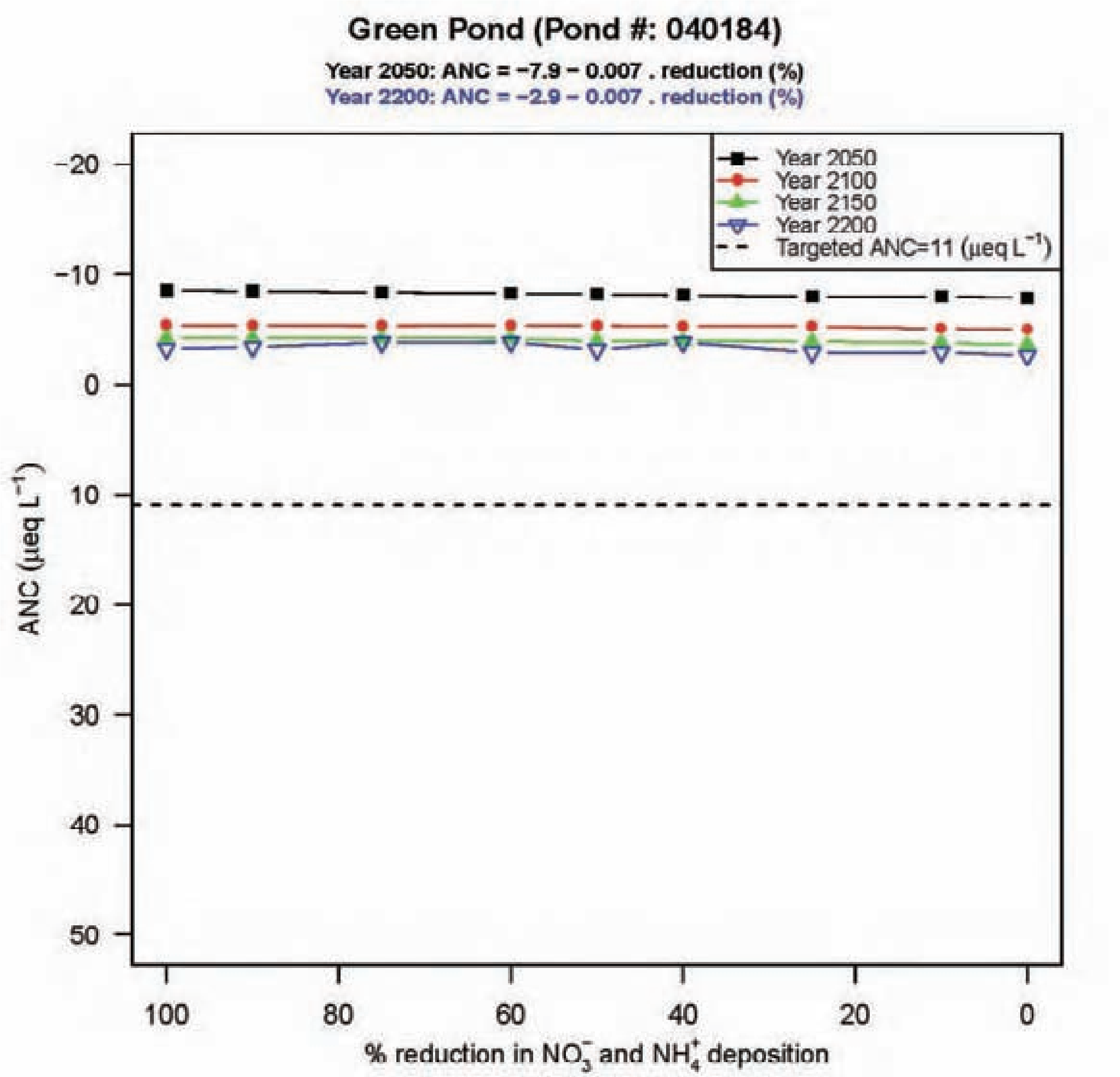

St. Germain Pond (Pond #: 020201)
Year 2050: ANC = −4.2 − 0.013 . reduction (%)
Year 2200: ANC = 0.2 − 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

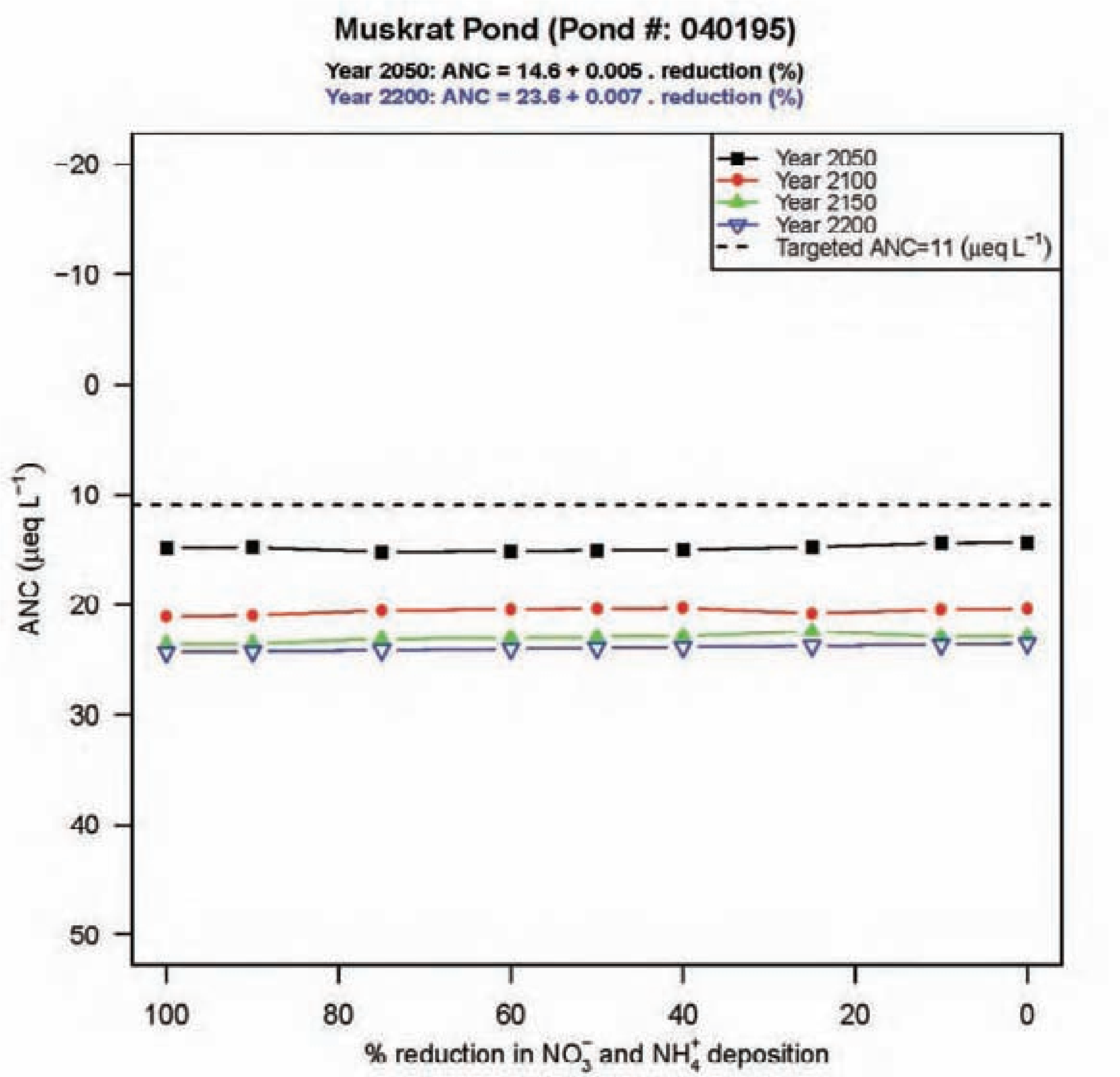

Benz Pond (Pond #: 030221)
Year 2050: ANC = −3.8 − 0.019 . reduction (%)
Year 2200: ANC = 1.3 − 0.024 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Duck Pond (Pond #: 035219)
Year 2050: ANC = 14.4 − 0.002 . reduction (%)
Year 2200: ANC = 27.8 − 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

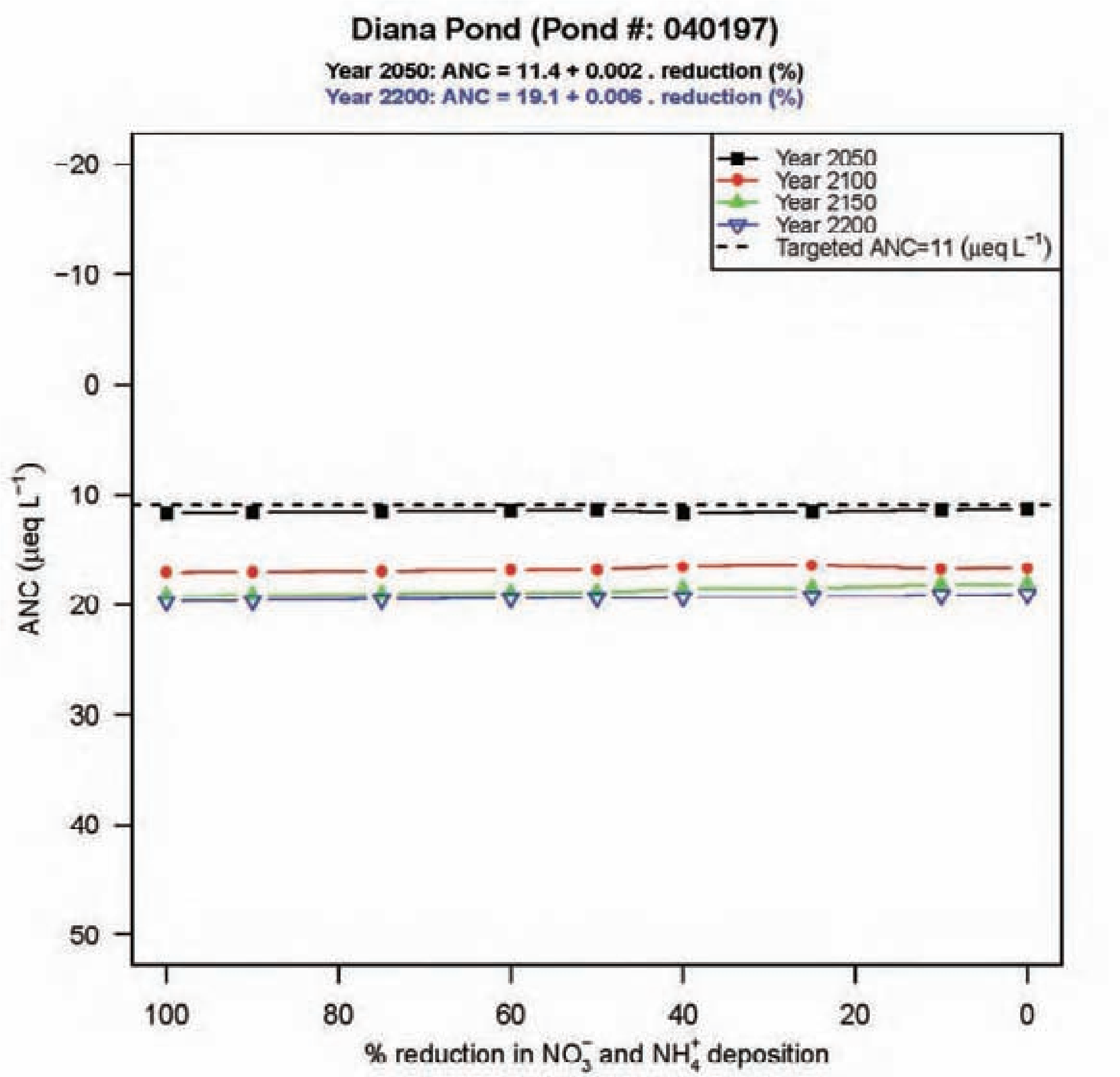


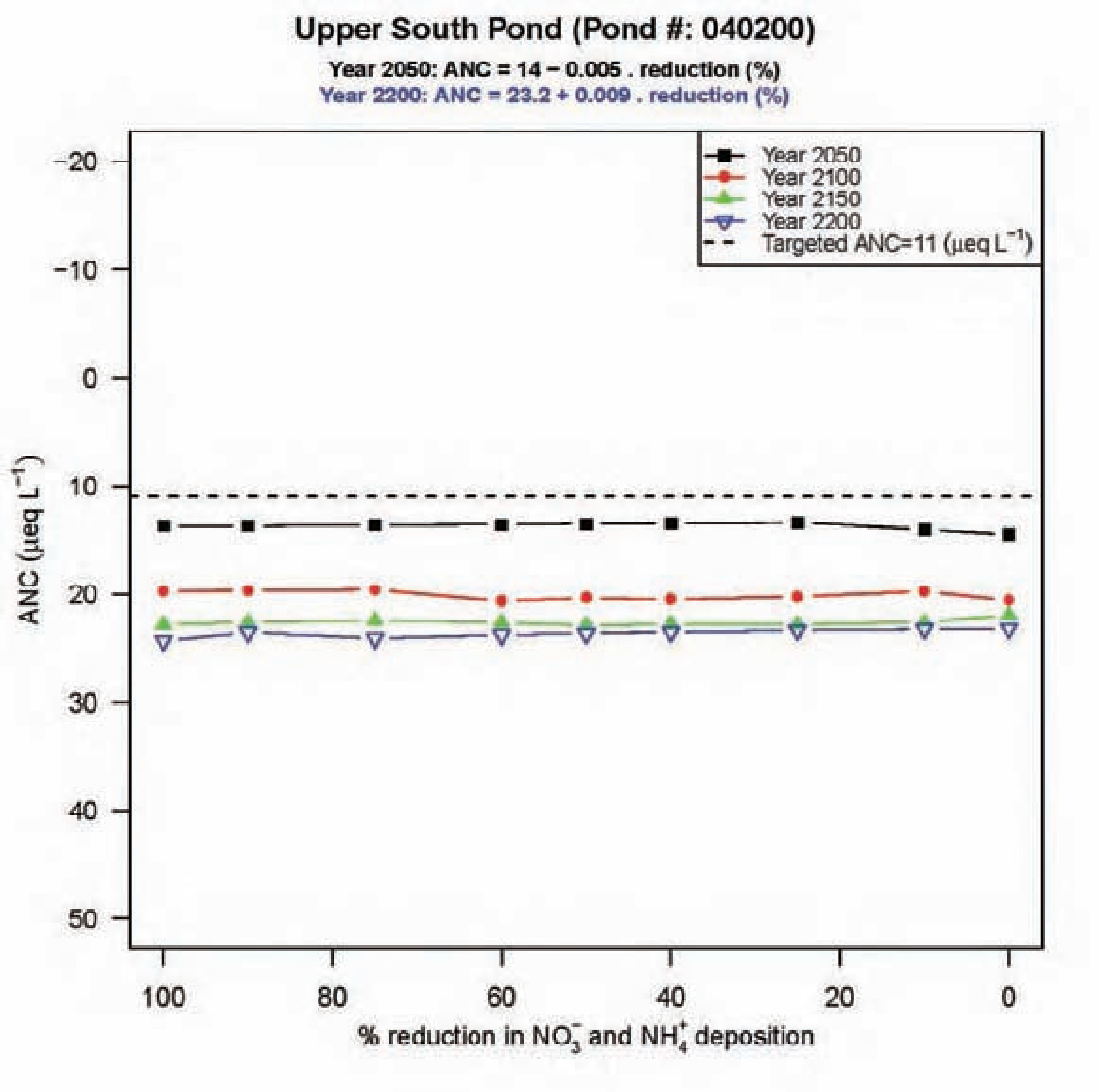
Gregg Lake (Pond #: 040181)
Year 2050: ANC = 18.8 − 0.003 . reduction (%)
Year 2200: ANC = 27.8 + 0.008 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

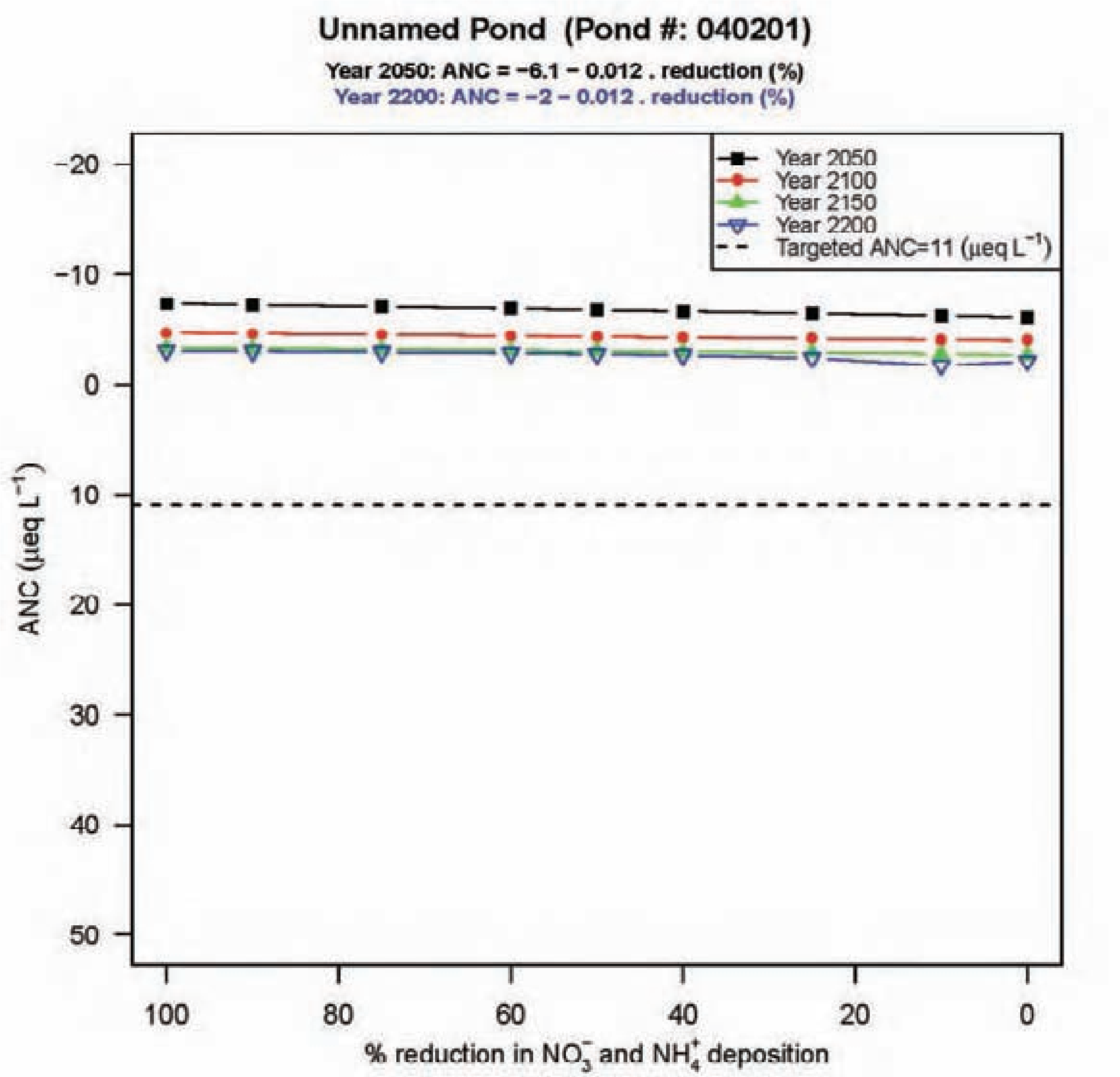

Green Pond (Pond #: 040184)
Year 2050: ANC = −7.9 − 0.007 . reduction (%)
Year 2200: ANC = −2.9 − 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



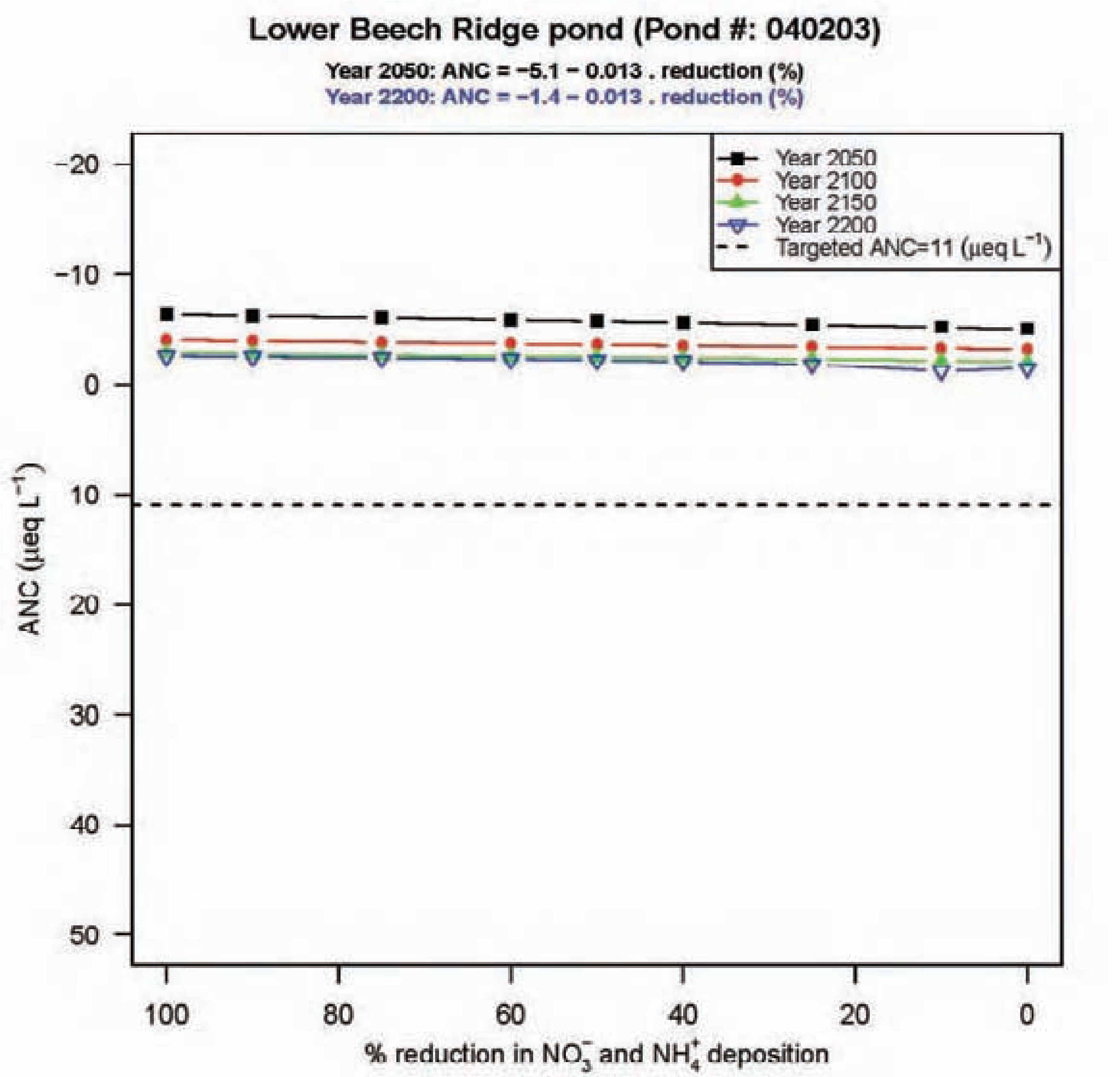
Muskrat Pond (Pond #: 040195)
Year 2050: ANC = 14.6 + 0.005 . reduction (%)
Year 2200: ANC = 23.6 + 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Diana Pond (Pond #: 040197)
Year 2050: ANC = 11.4 + 0.002 . reduction (%)
Year 2200: ANC = 19.1 + 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

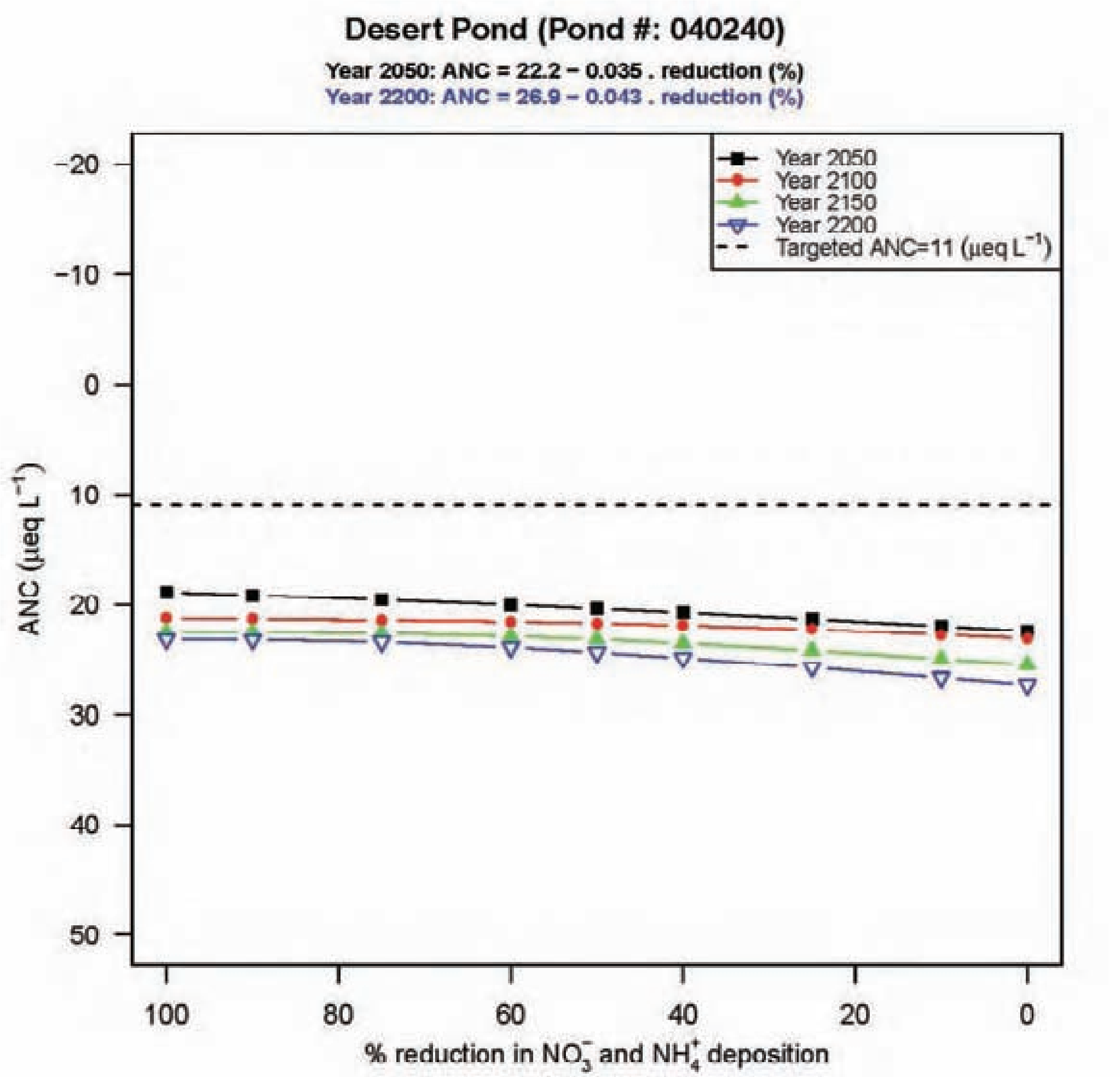

Upper South Pond (Pond #: 040200)
Year 2050: ANC = 14 − 0.005 . reduction (%)
Year 2200: ANC = 23.2 + 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



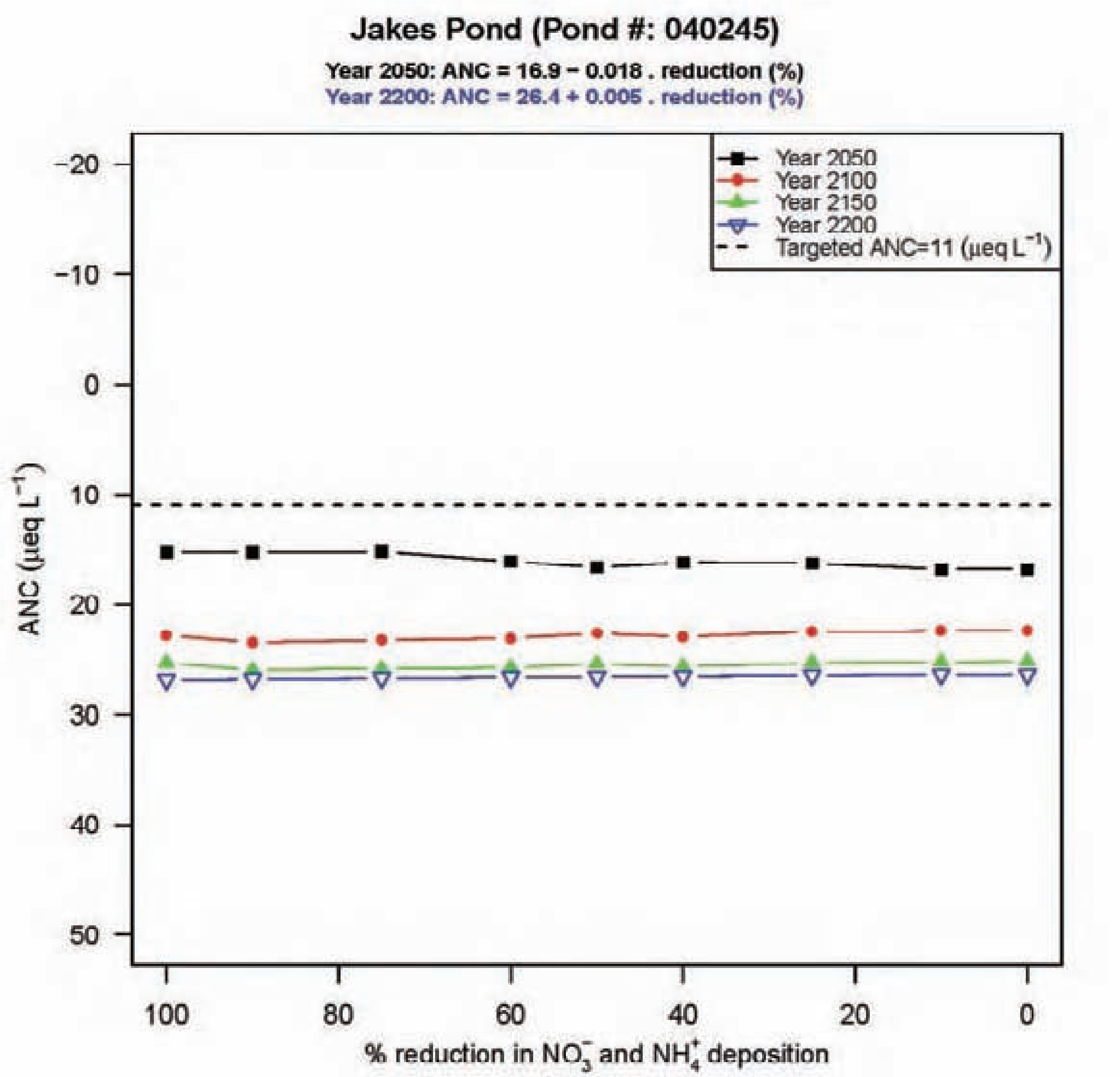
Unnamed Pond (Pond #: 040201)
Year 2050: ANC = −6.1 − 0.012 . reduction (%)
Year 2200: ANC = −2 − 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

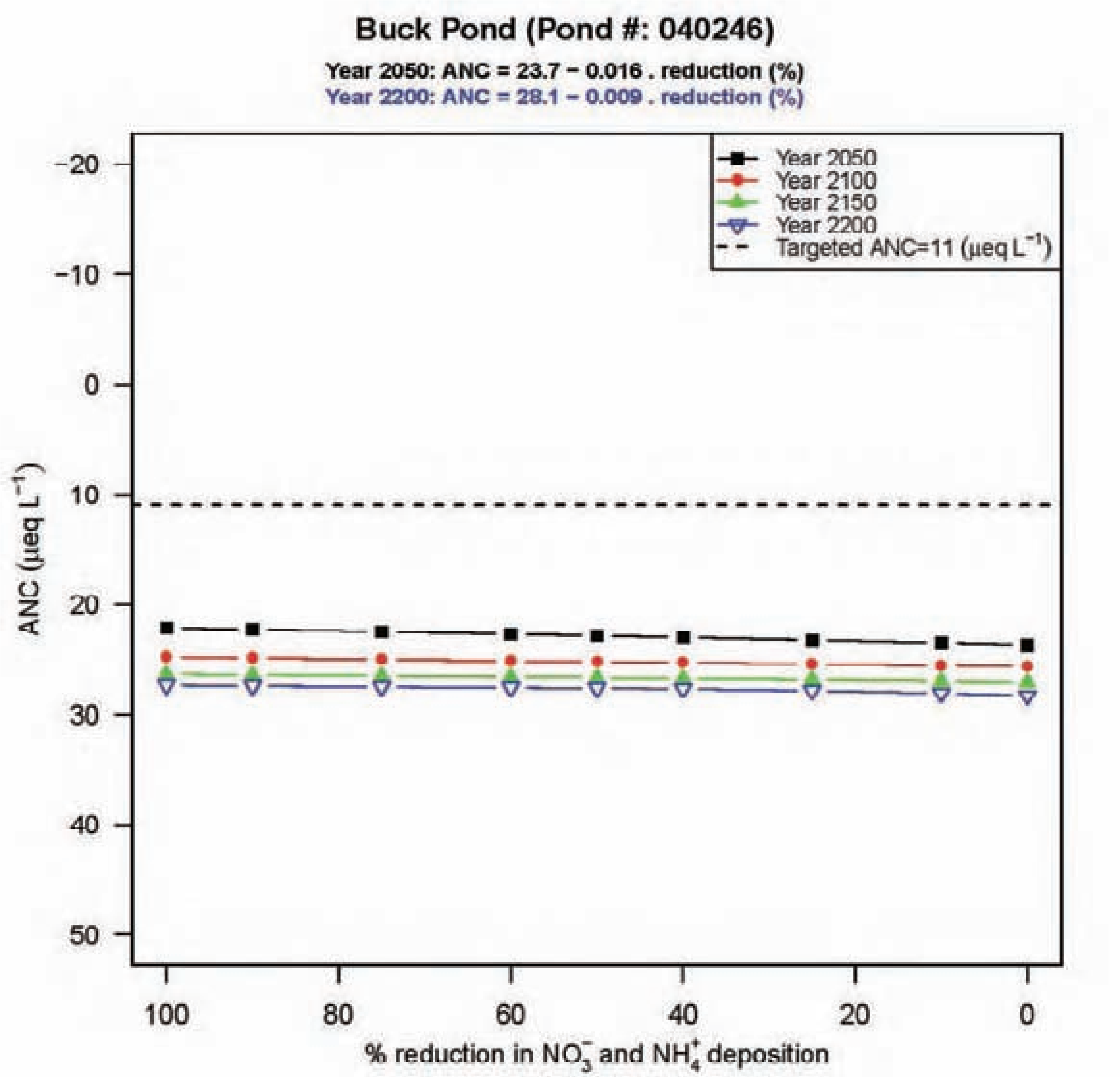


Lower Beech Ridge pond (Pond #: 040203)
Year 2050: ANC = −5.1 − 0.013 . reduction (%)
Year 2200: ANC = −1.4 − 0.013 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

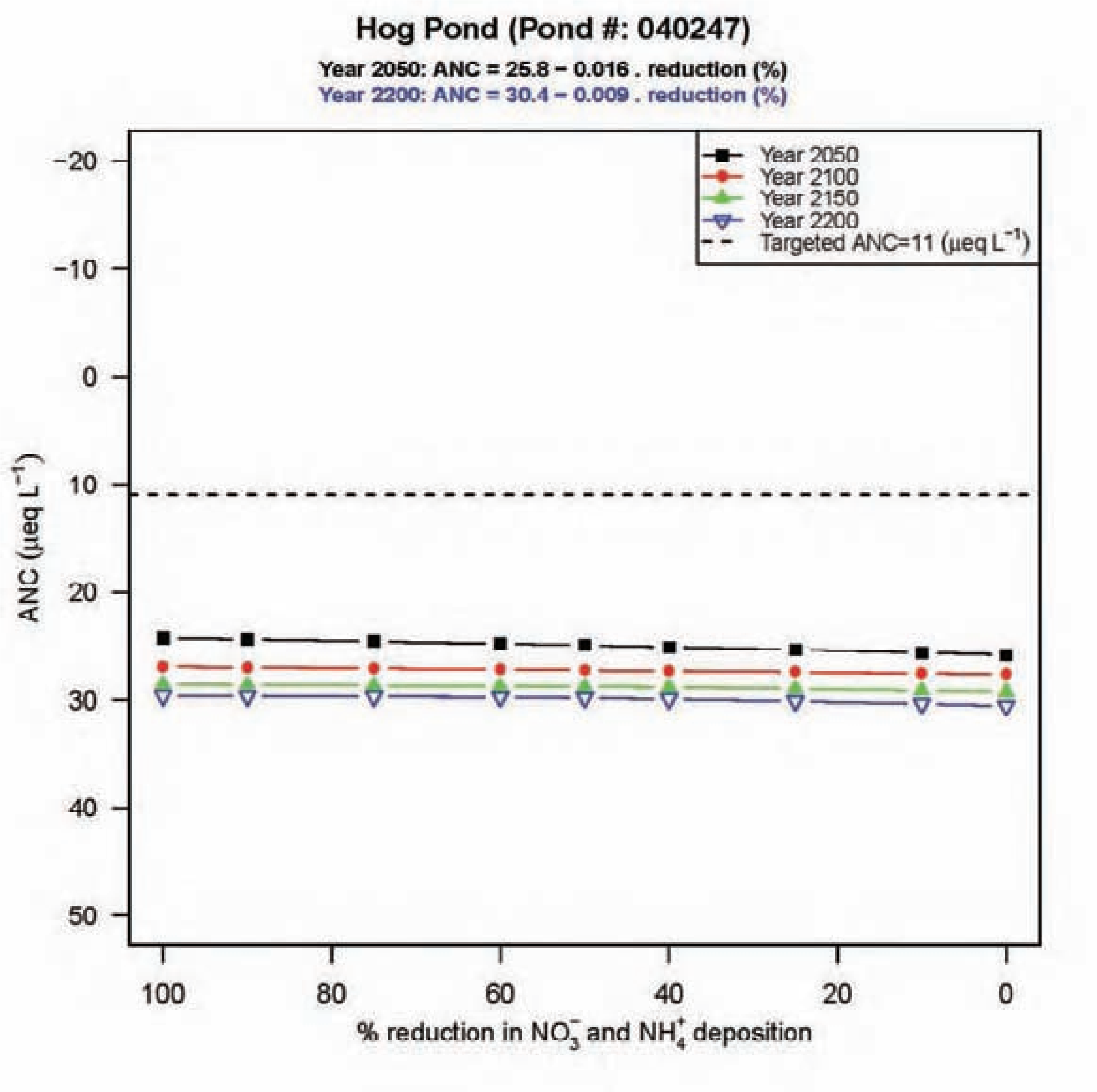


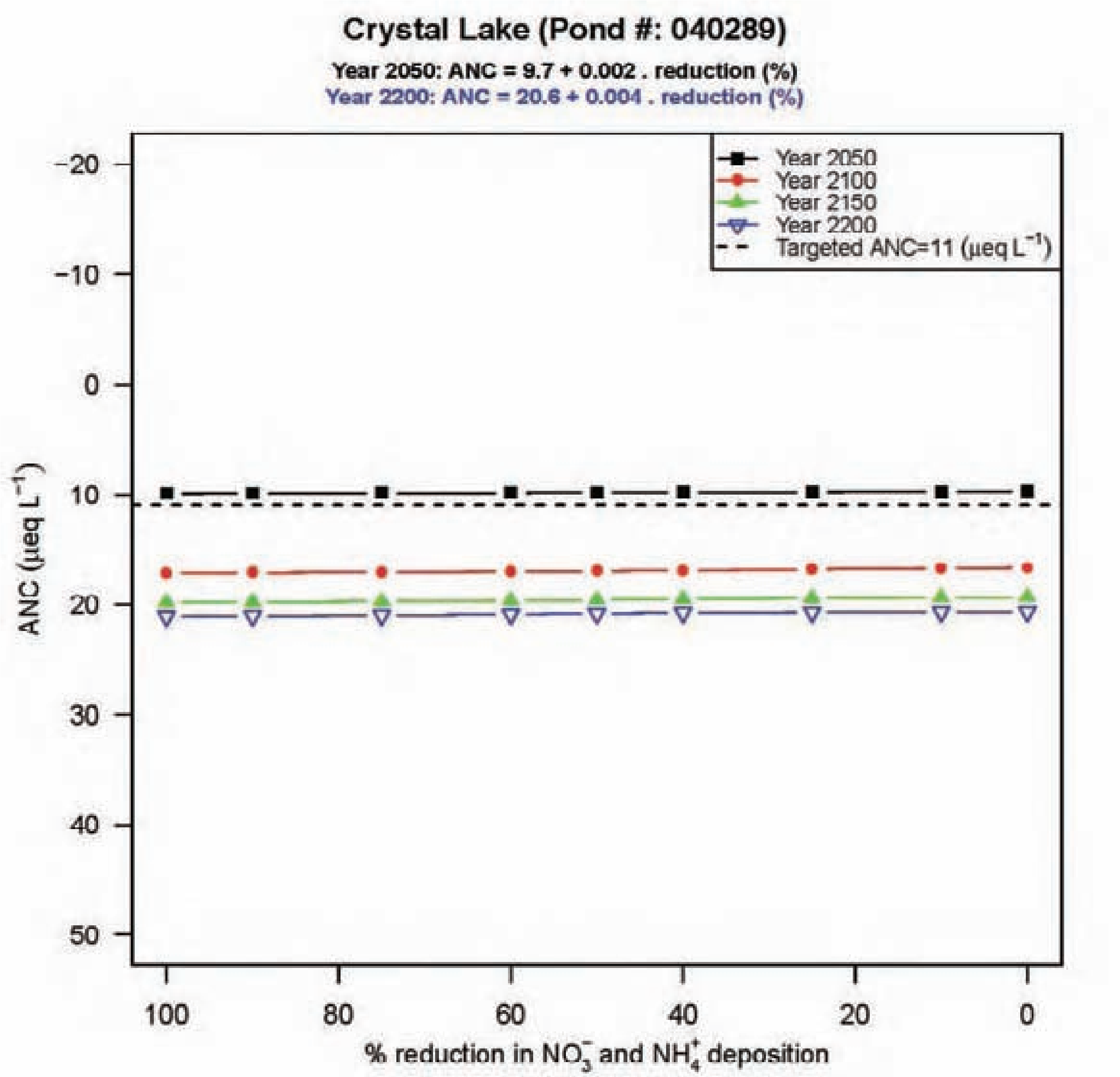
Desert Pond (Pond #: 040240)
Year 2050: ANC = 22.2 – 0.035 . reduction (%)
Year 2200: ANC = 26.9 – 0.043 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

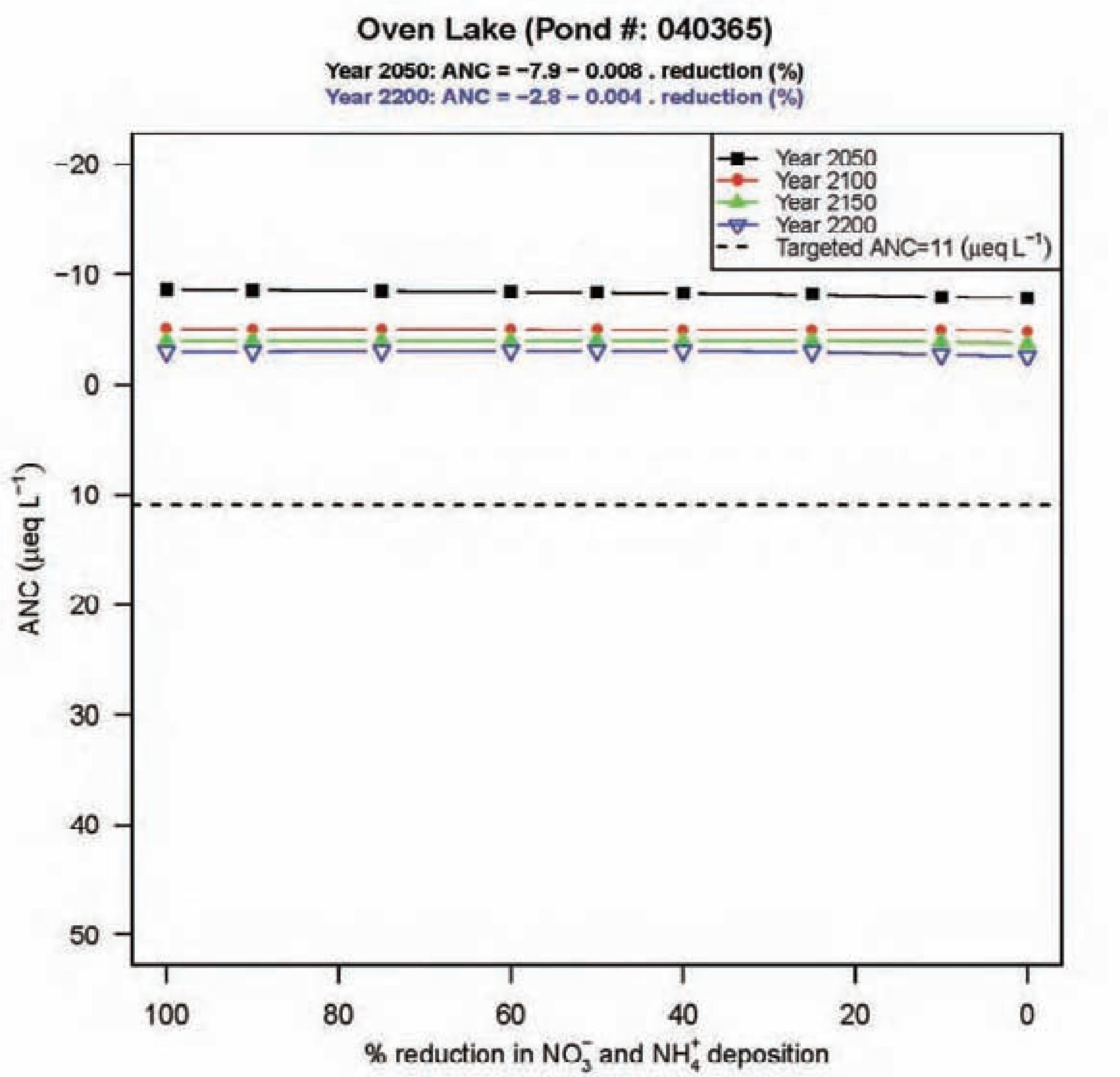

Jakes Pond (Pond #: 040245)
Year 2050: ANC = 16.9 − 0.018 . reduction (%)
Year 2200: ANC = 26.4 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



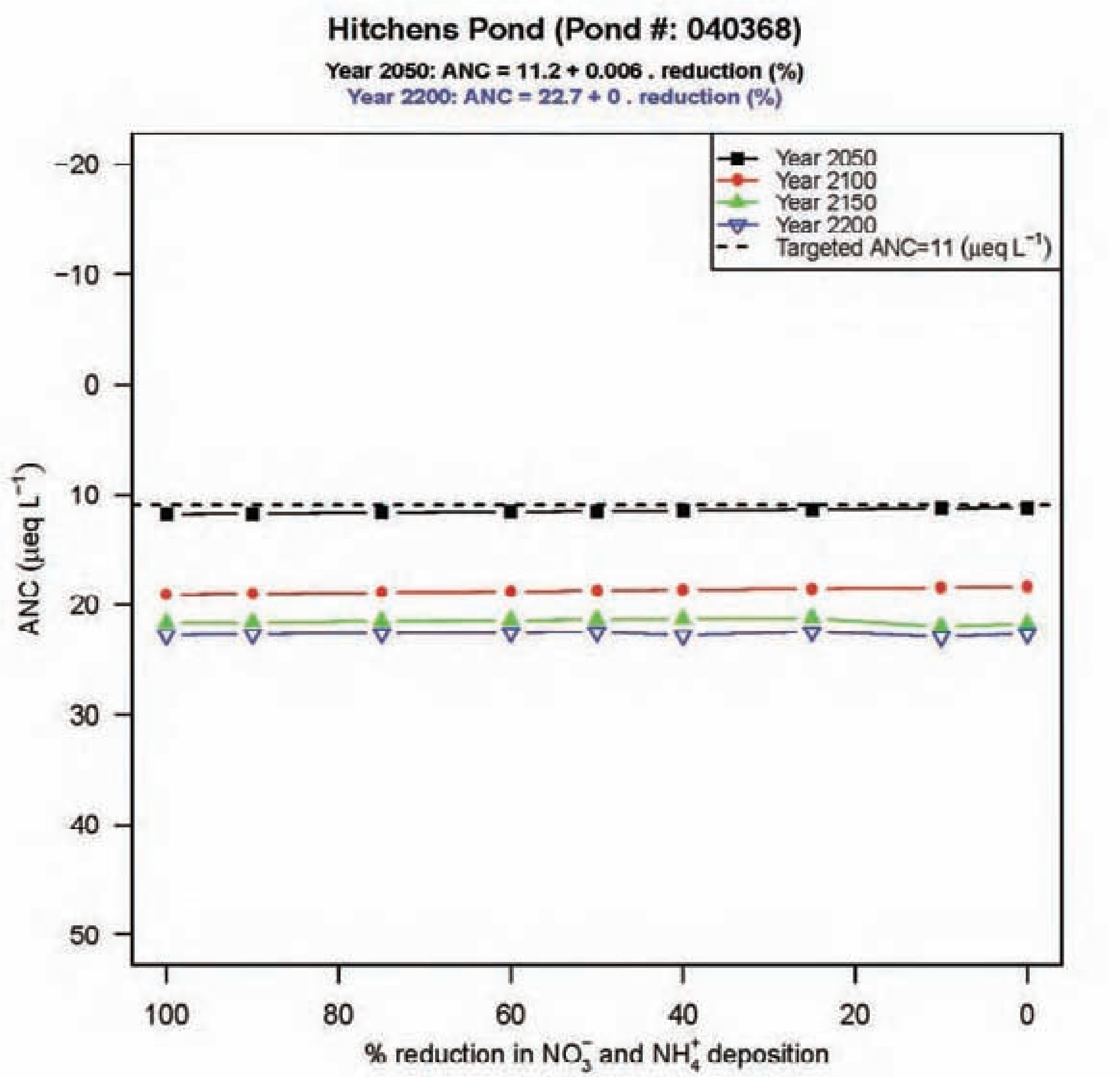
Buck Pond (Pond #: 040246)
Year 2050: ANC = 23.7 − 0.016 . reduction (%)
Year 2200: ANC = 28.1 − 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

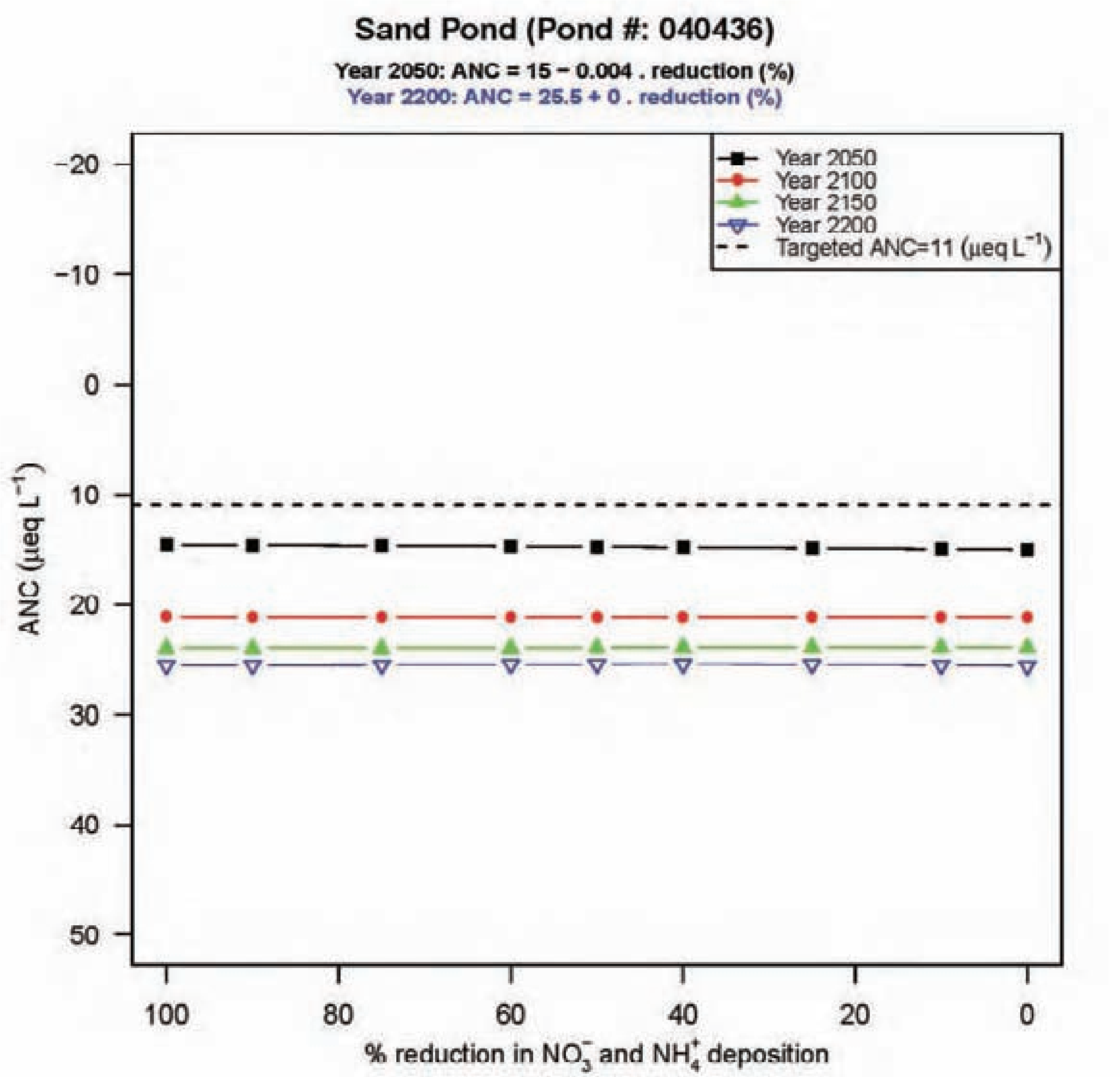

Hog Pond (Pond #: 040247)
Year 2050: ANC = 25.8 – 0.016 . reduction (%)
Year 2200: ANC = 30.4 – 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition


Crystal Lake (Pond #: 040289)
Year 2050: ANC = 9.7 + 0.002 . reduction (%)
Year 2200: ANC = 20.6 + 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

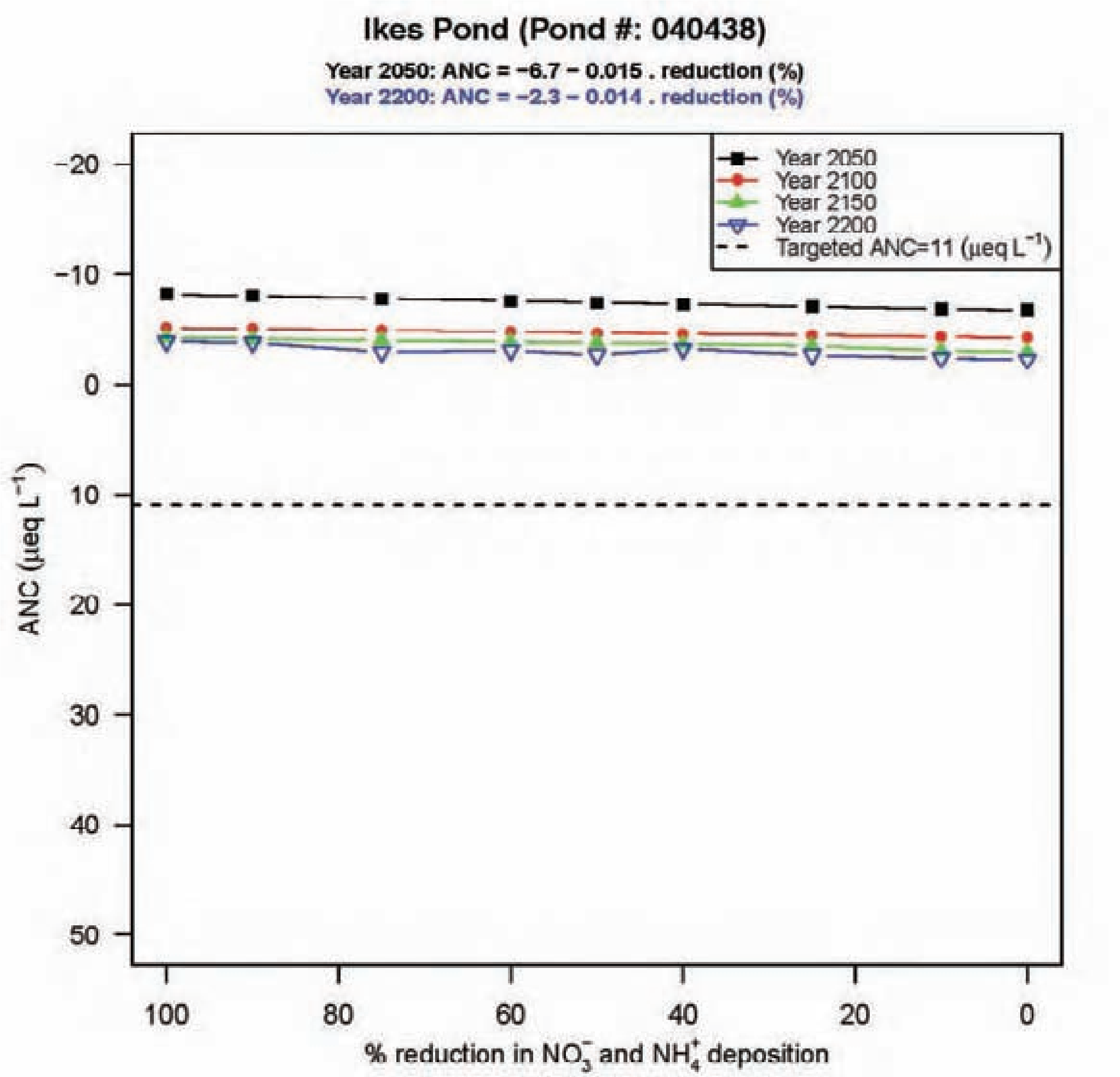


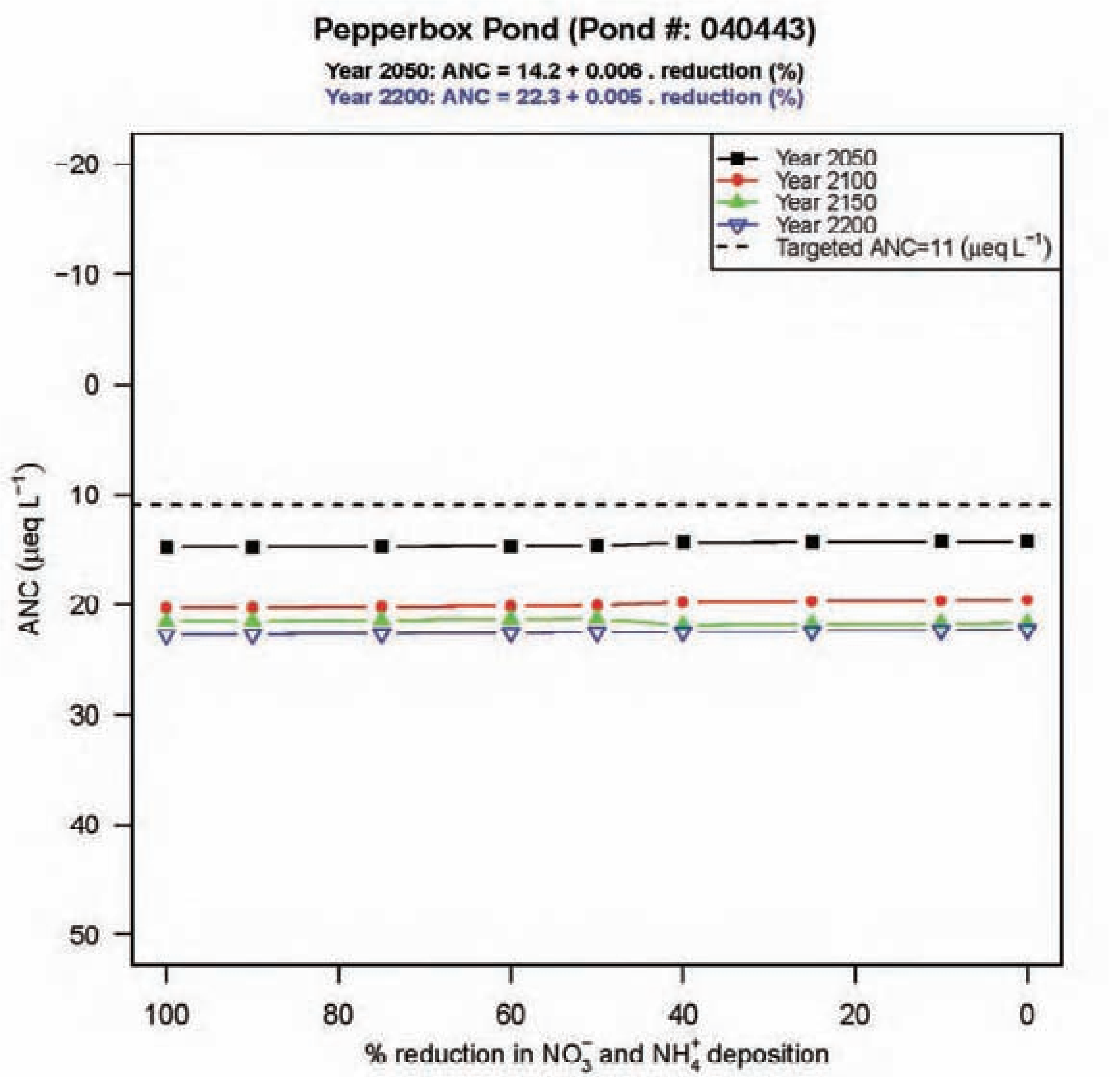
Oven Lake (Pond #: 040365)
Year 2050: ANC = −7.9 − 0.008 . reduction (%)
Year 2200: ANC = −2.8 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

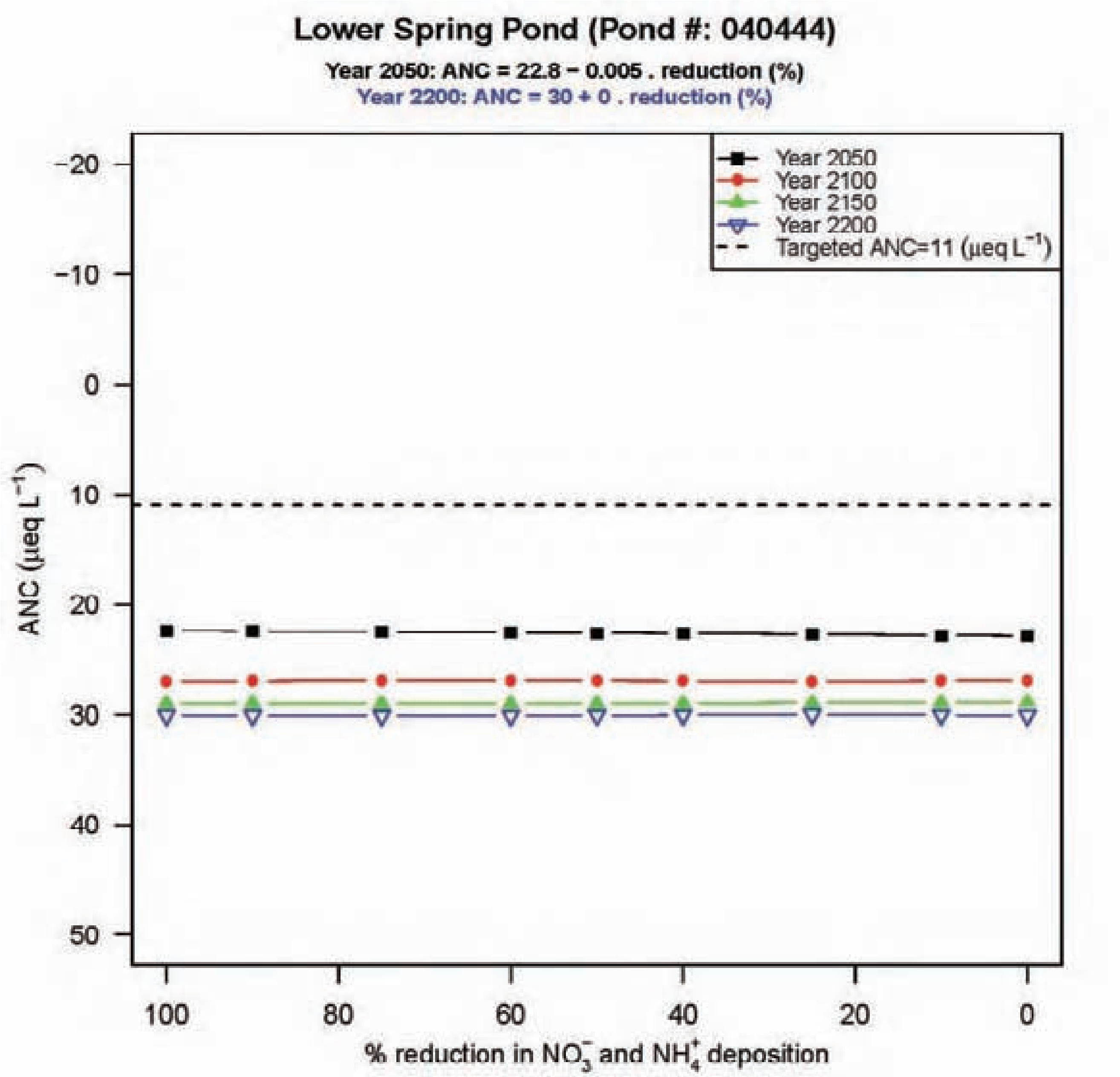

Hitchens Pond (Pond #: 040368)
Year 2050: ANC = 11.2 + 0.006 . reduction (%)
Year 2200: ANC = 22.7 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
−20
−10
0
10
20
30
40
50
ANC (μeq L^{-1})
100
80
60
40
20
0
% reduction in NO_3^- and NH_4^+ deposition



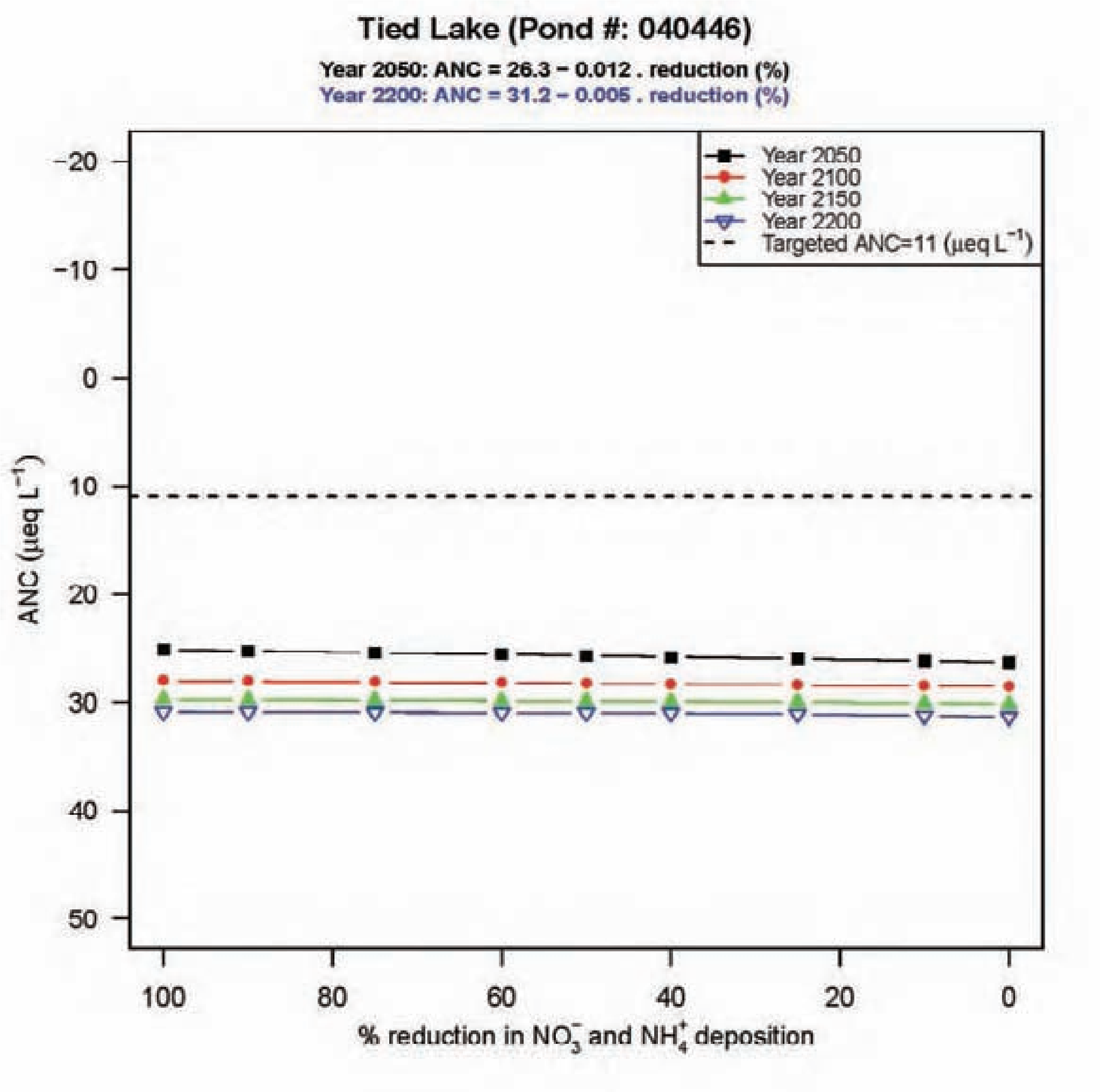
Sand Pond (Pond #: 040436)
Year 2050: ANC = 15 − 0.004 . reduction (%)
Year 2200: ANC = 25.5 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Ikes Pond (Pond #: 040438)
Year 2050: ANC = −6.7 − 0.015 . reduction (%)
Year 2200: ANC = −2.3 − 0.014 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

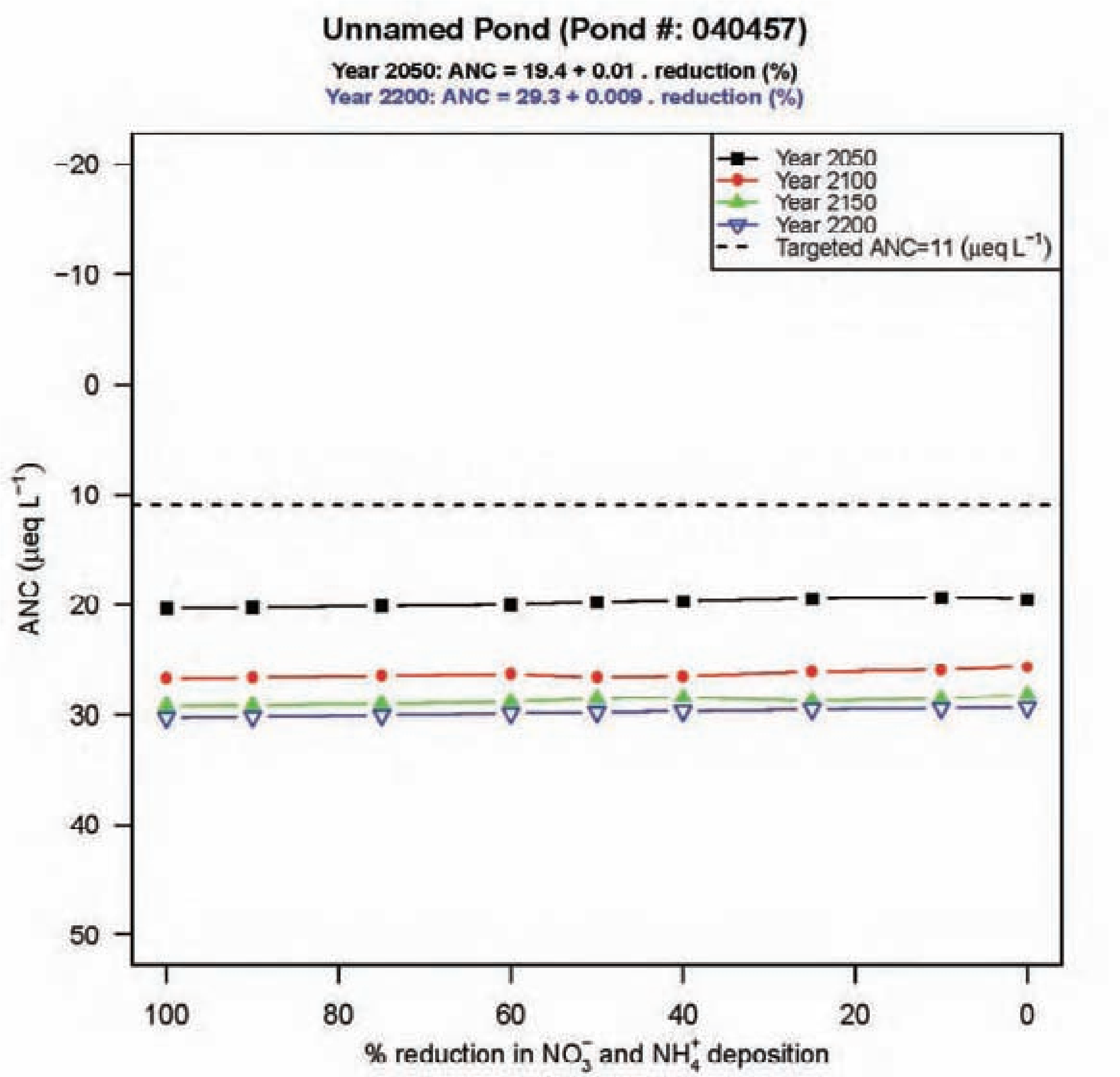

Pepperbox Pond (Pond #: 040443)
Year 2050: ANC = 14.2 + 0.006 . reduction (%)
Year 2200: ANC = 22.3 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3- and NH4+ deposition

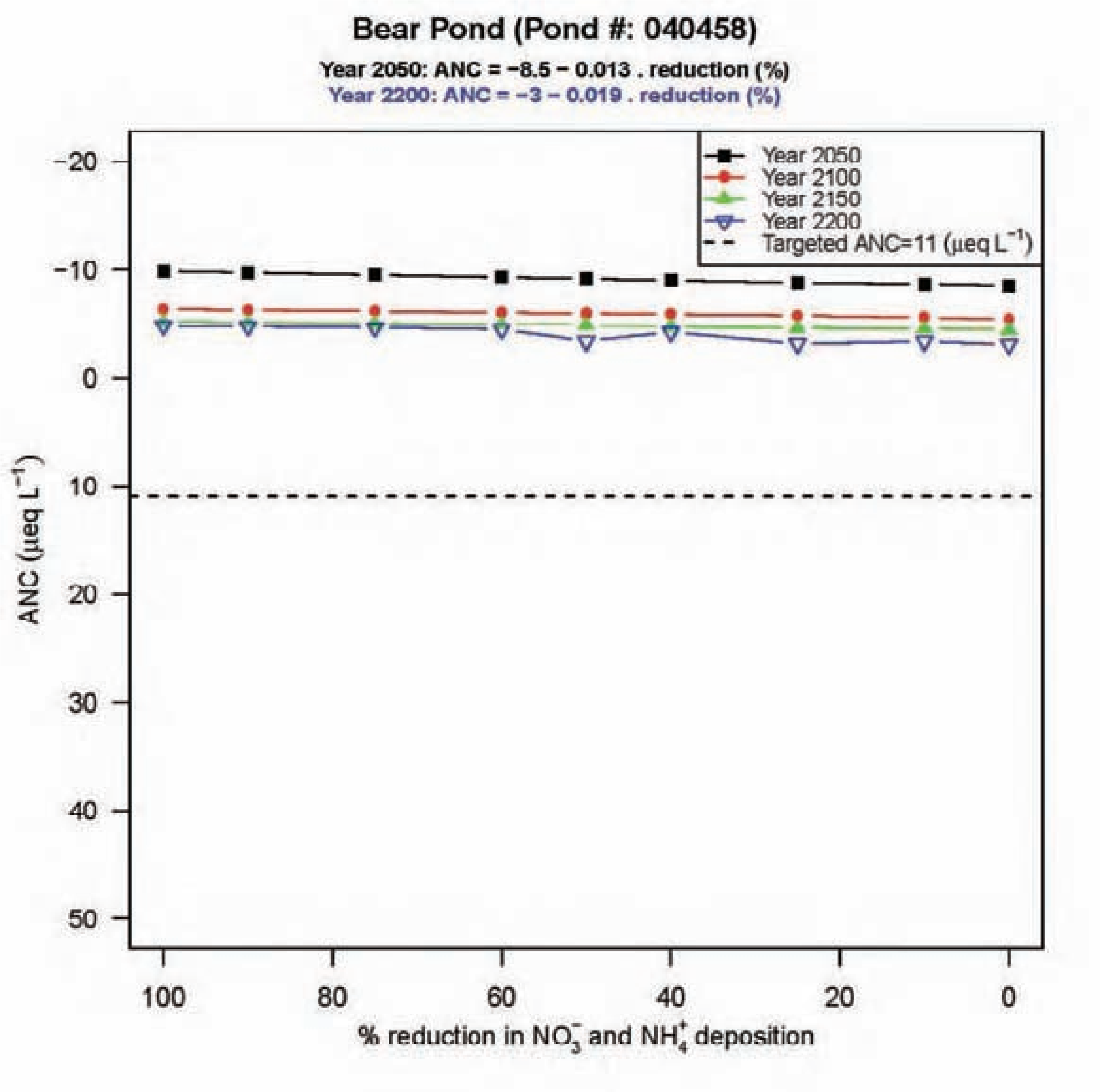


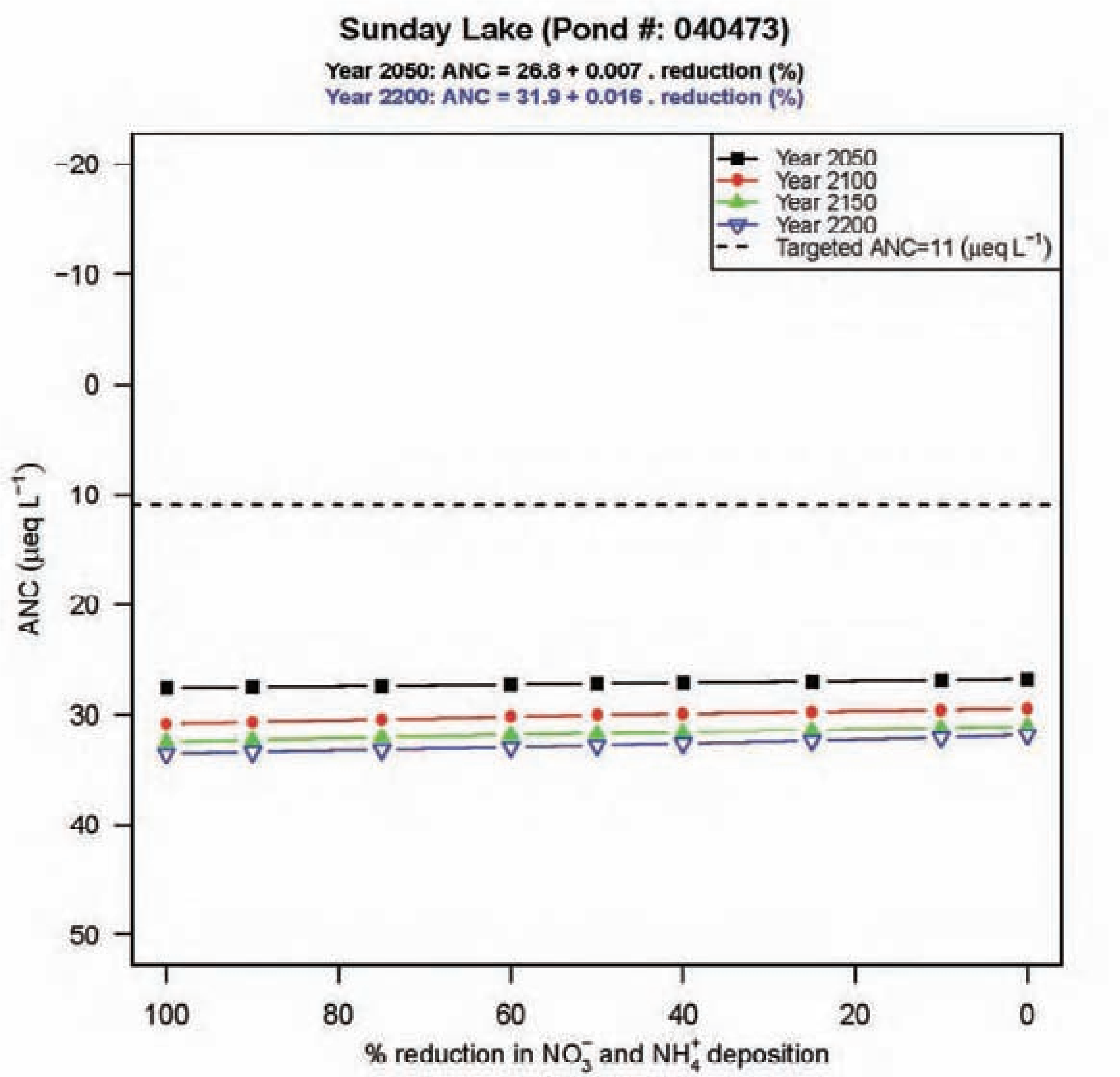
Lower Spring Pond (Pond #: 040444)
Year 2050: ANC = 22.8 − 0.005 . reduction (%)
Year 2200: ANC = 30 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

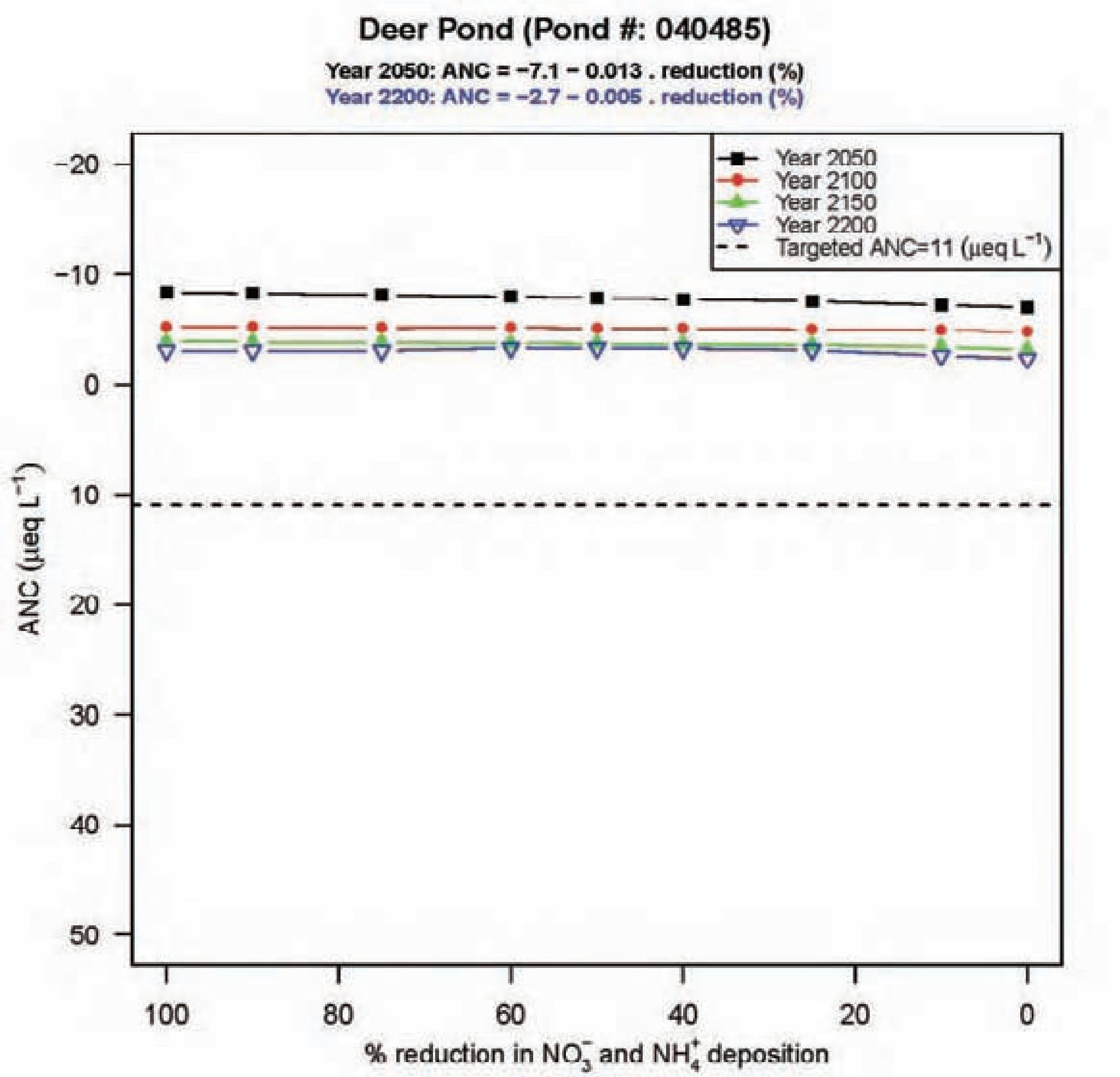


Tied Lake (Pond #: 040446)
Year 2050: ANC = 26.3 – 0.012 . reduction (%)
Year 2200: ANC = 31.2 – 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition

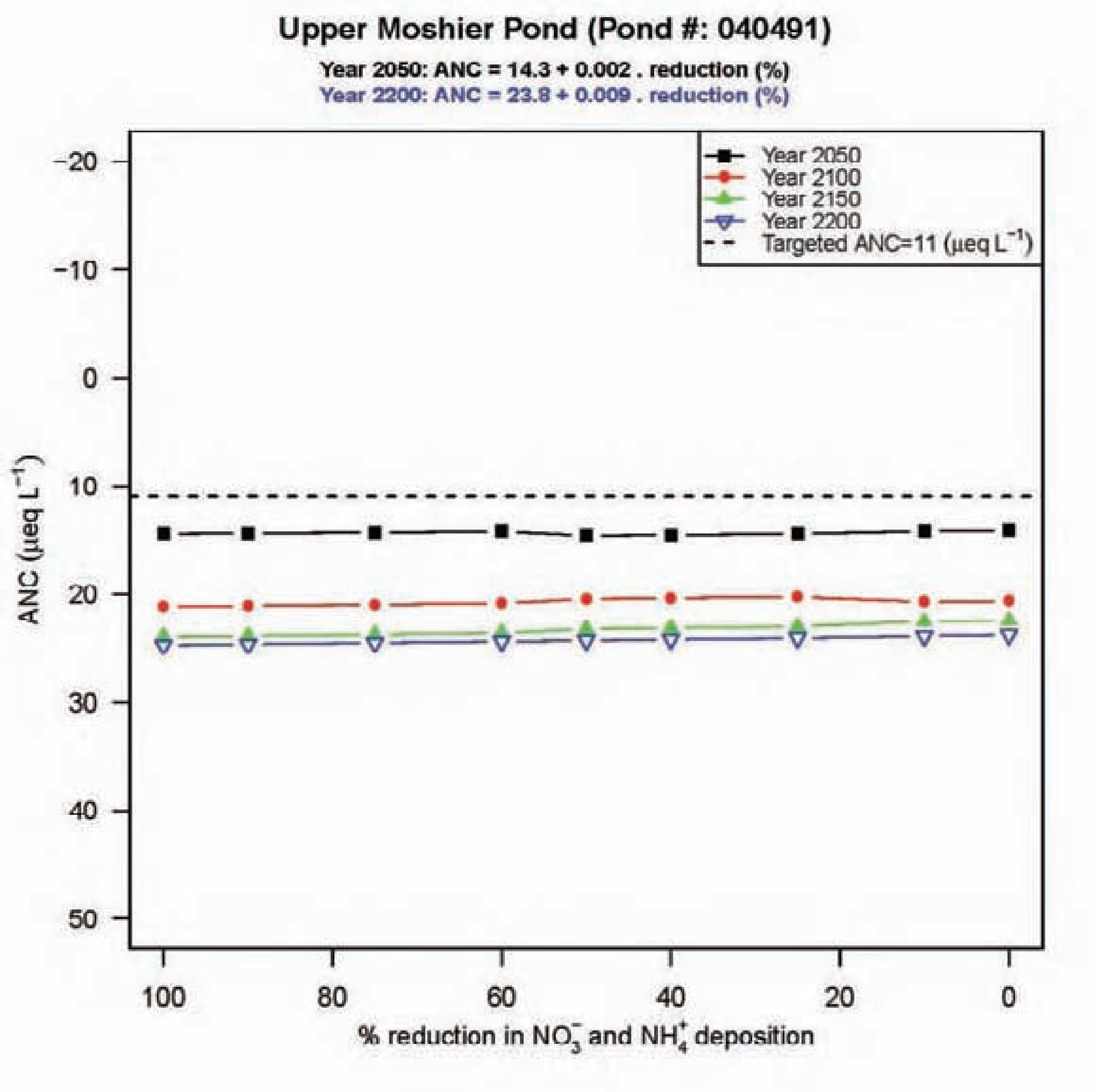

Unnamed Pond (Pond #: 040457)
Year 2050: ANC = 19.4 + 0.01 . reduction (%)
Year 2200: ANC = 29.3 + 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Bear Pond (Pond #: 040458)
Year 2050: ANC = −8.5 − 0.013 . reduction (%)
Year 2200: ANC = −3 − 0.019 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

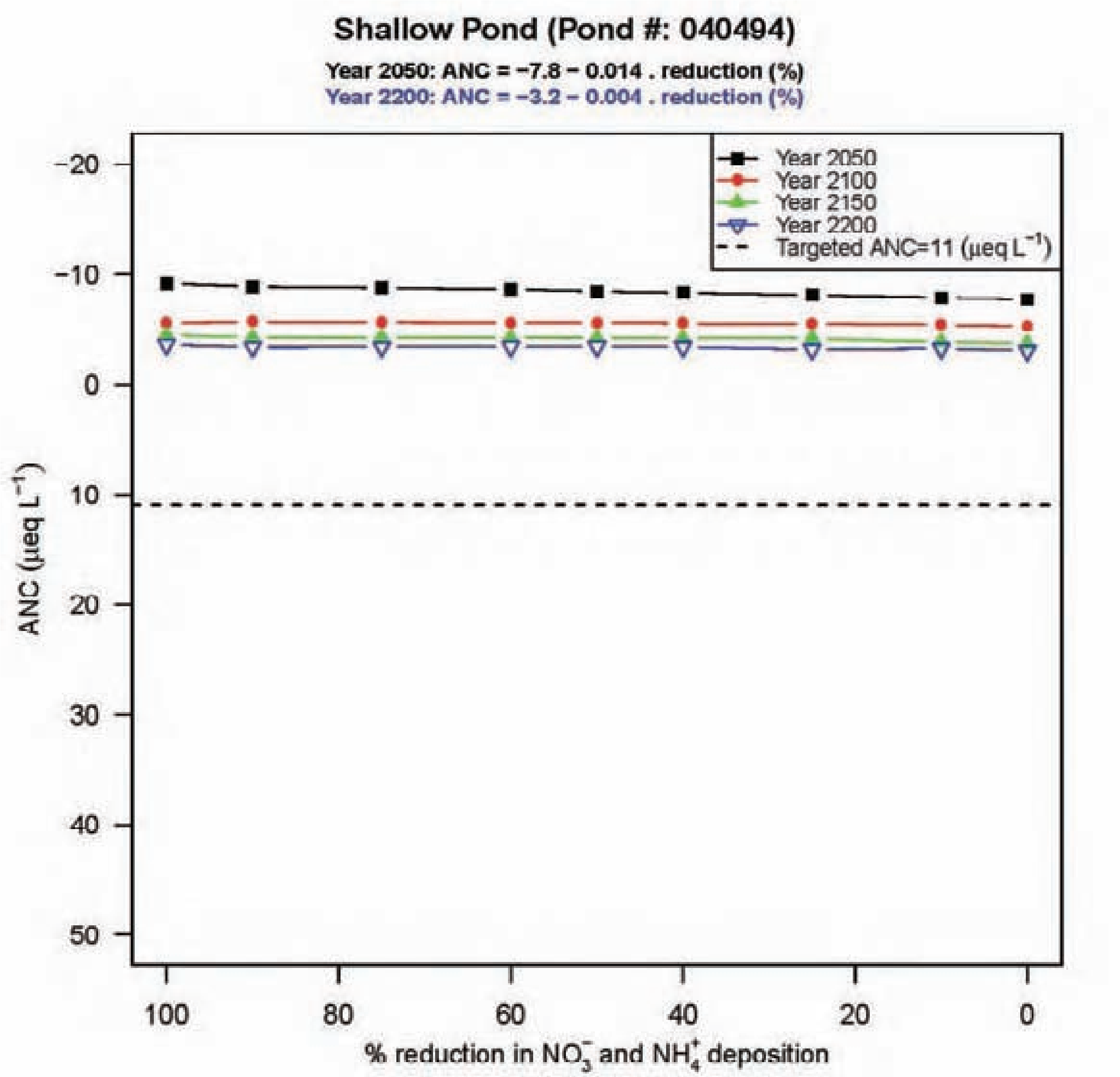

Sunday Lake (Pond #: 040473)
Year 2050: ANC = 26.8 + 0.007 . reduction (%)
Year 2200: ANC = 31.9 + 0.016 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



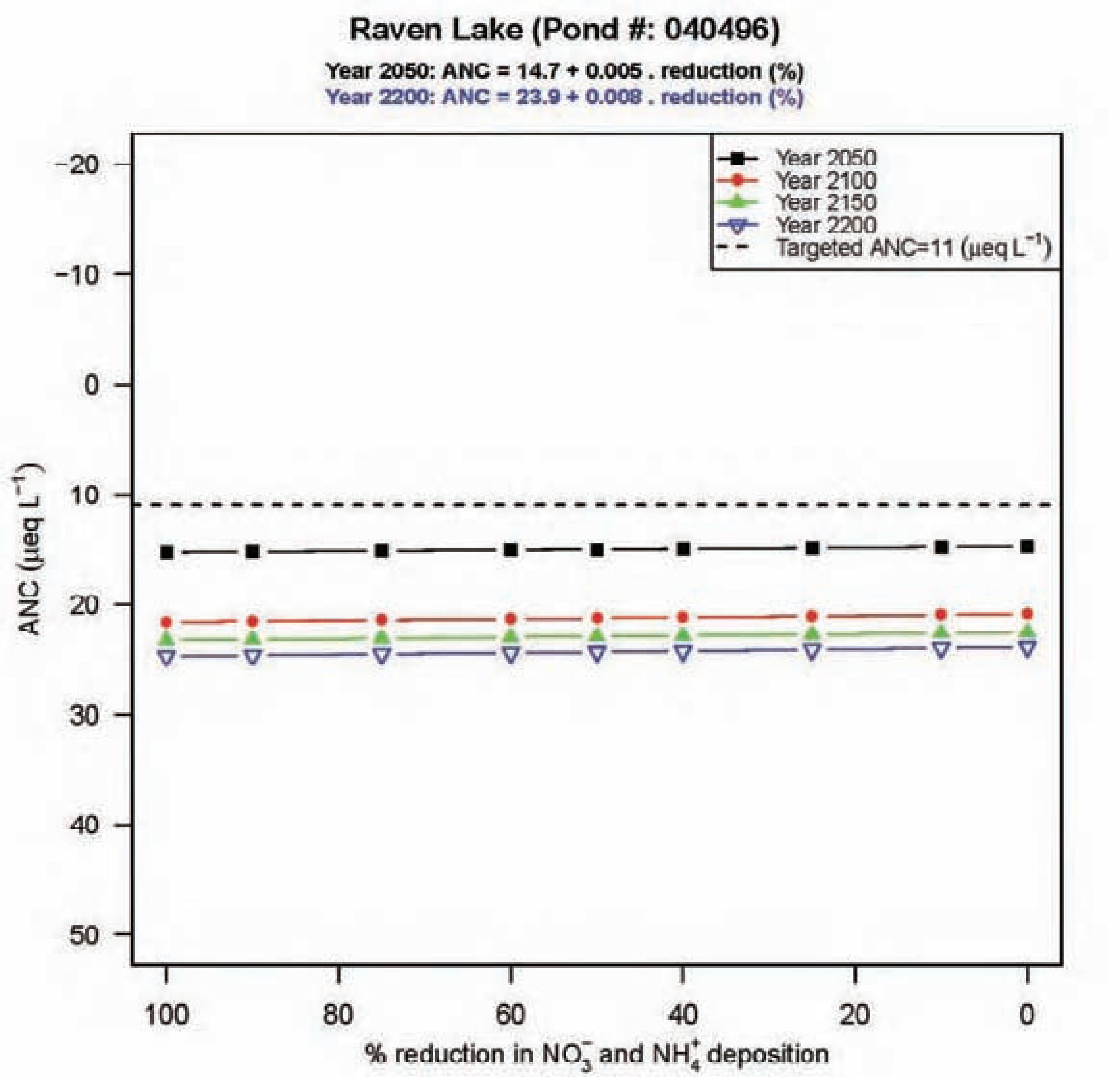
Deer Pond (Pond #: 040485)
Year 2050: ANC = −7.1 − 0.013 . reduction (%)
Year 2200: ANC = −2.7 − 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

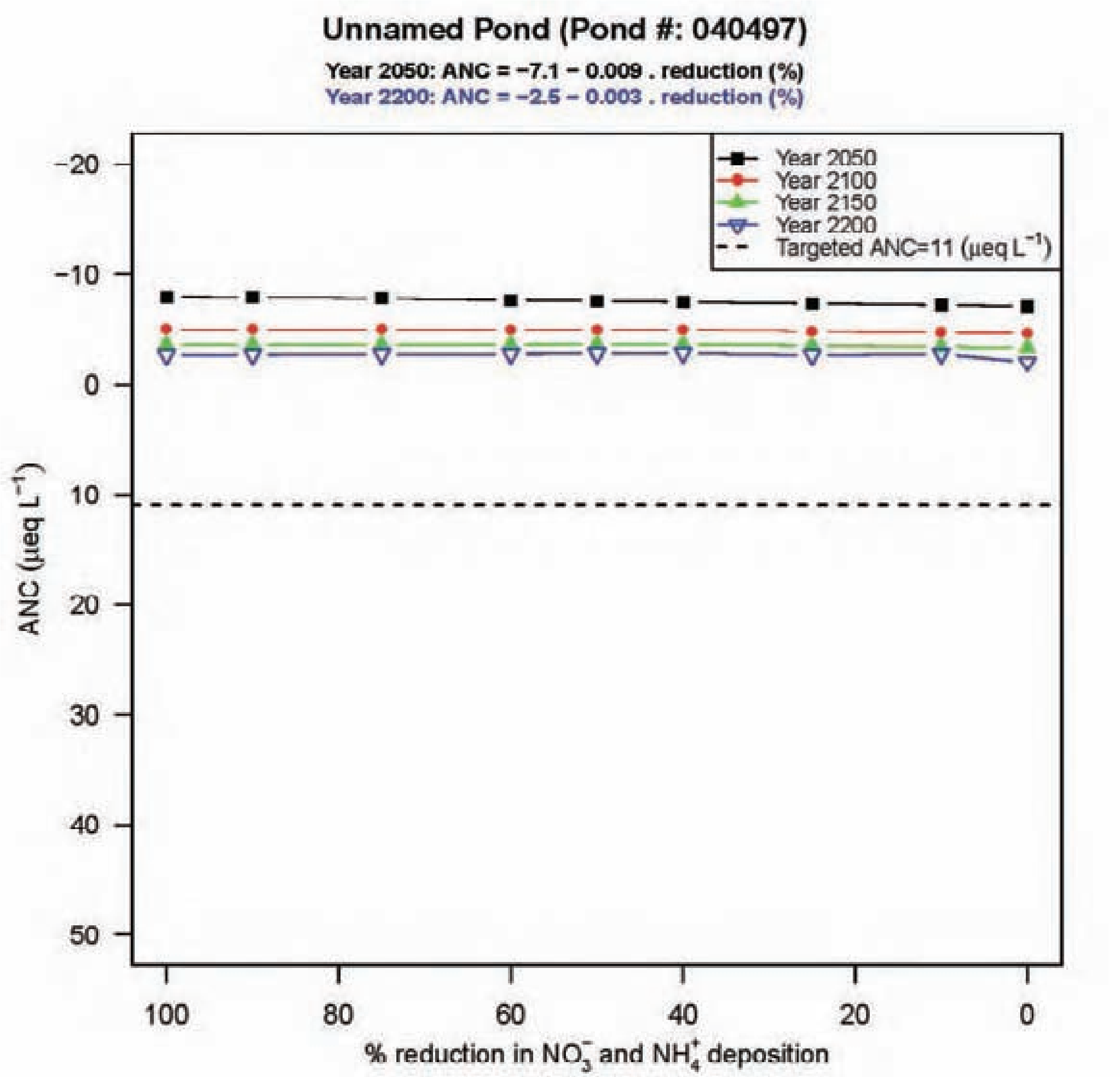


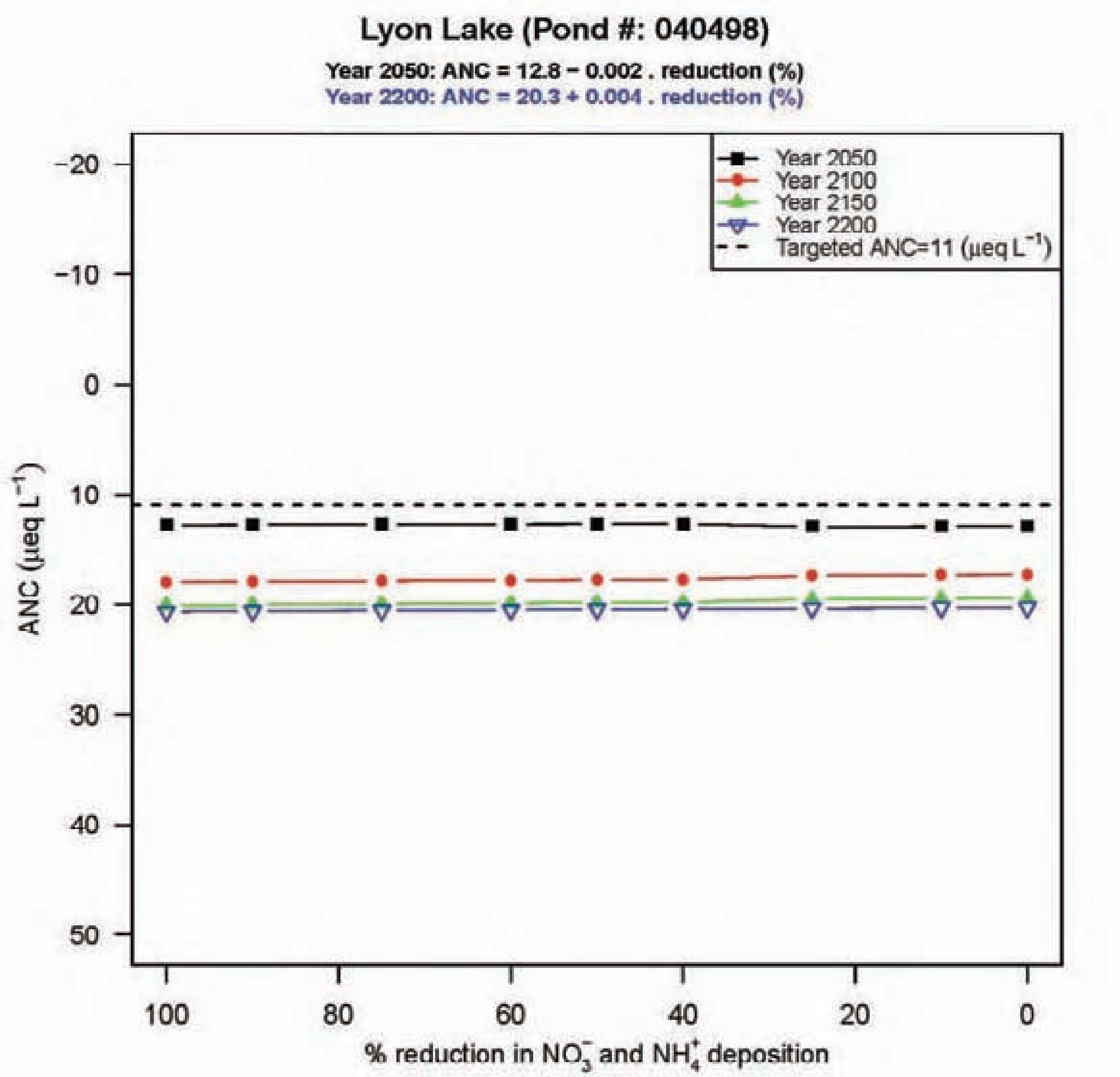
Upper Moshier Pond (Pond #: 040491)
Year 2050: ANC = 14.3 + 0.002 . reduction (%)
Year 2200: ANC = 23.8 + 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

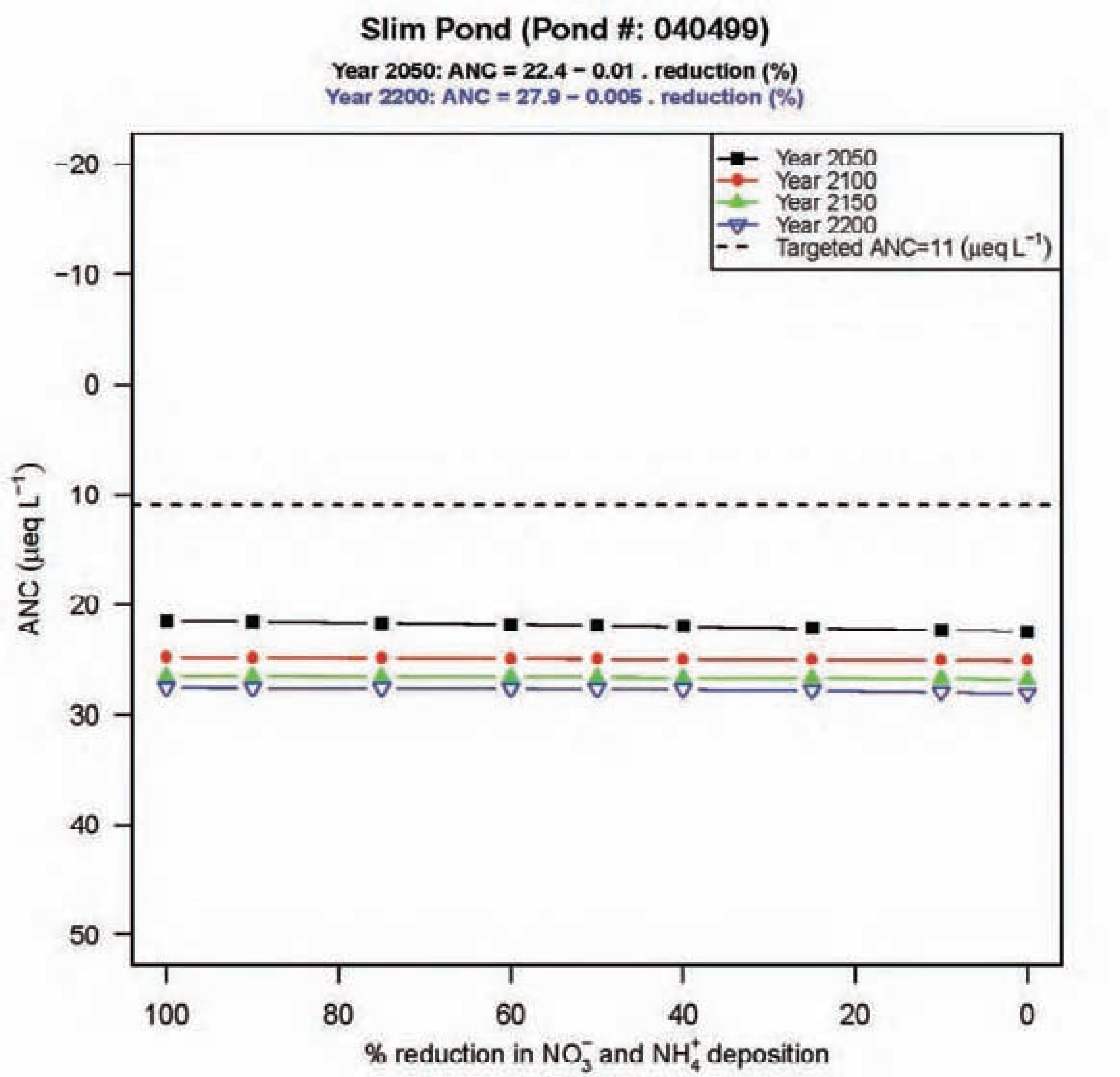


Shallow Pond (Pond #: 040494)
Year 2050: ANC = −7.8 − 0.014 . reduction (%)
Year 2200: ANC = −3.2 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

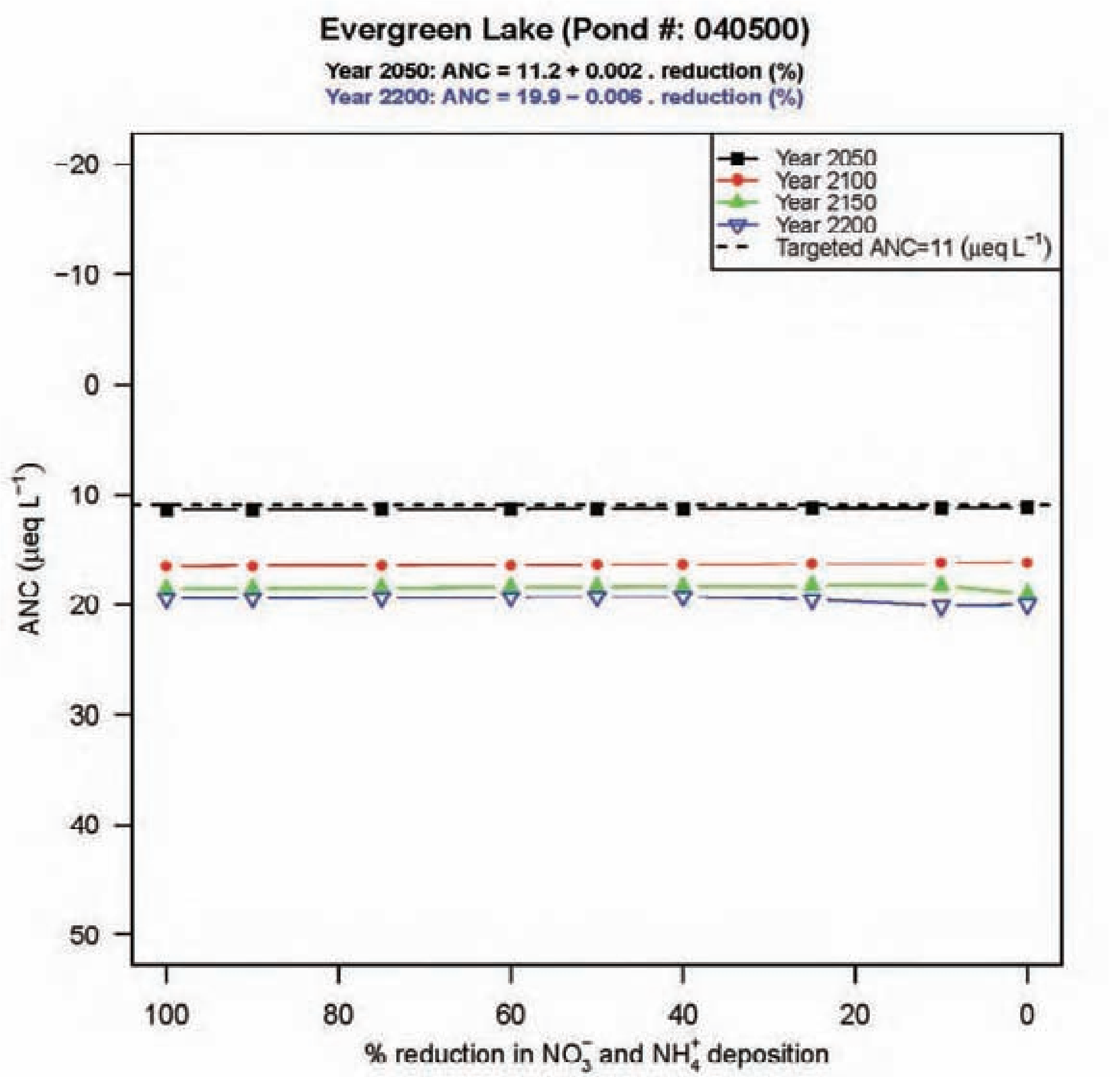

Raven Lake (Pond #: 040496)
Year 2050: ANC = 14.7 + 0.005 . reduction (%)
Year 2200: ANC = 23.9 + 0.008 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

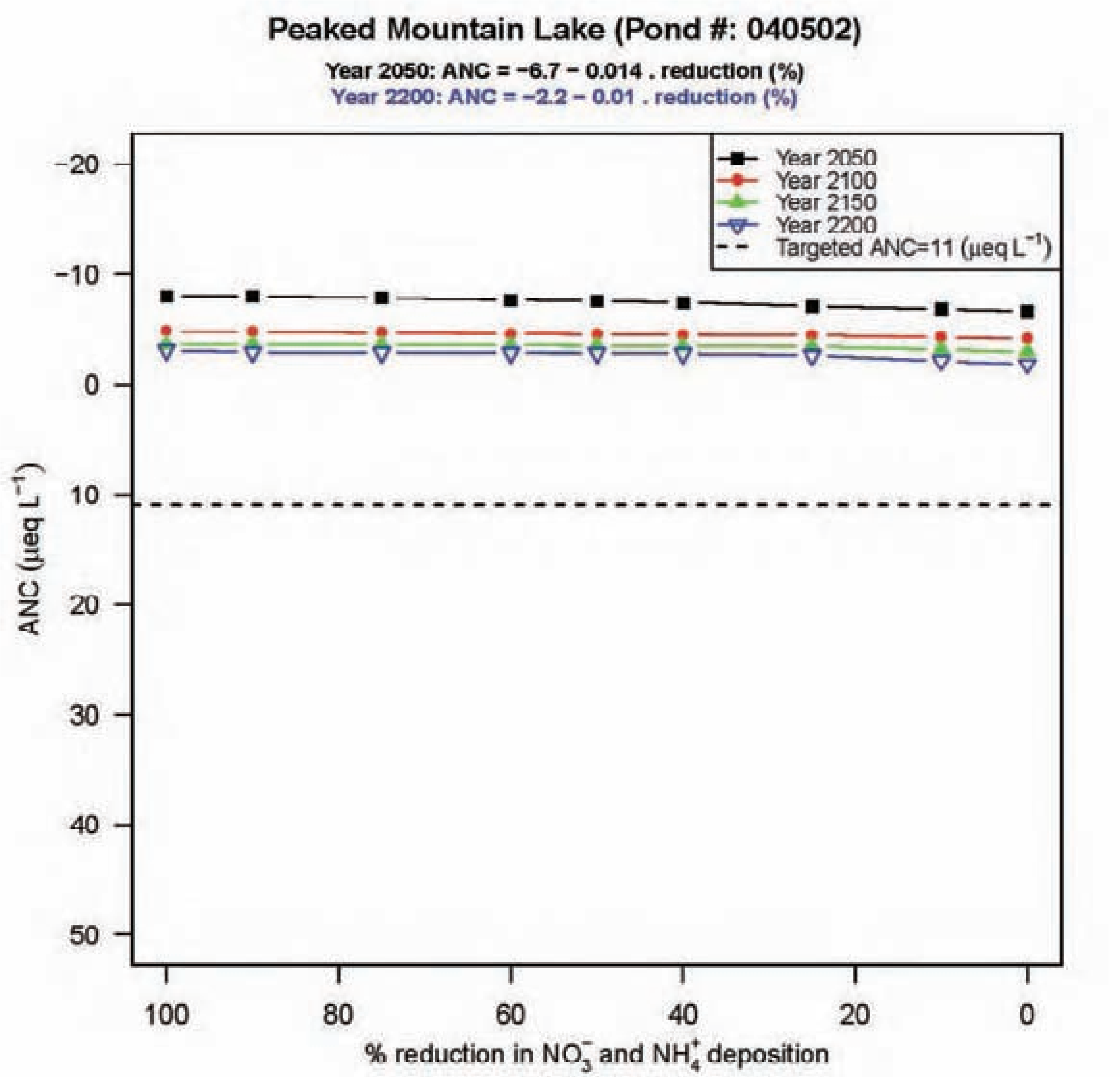

Unnamed Pond (Pond #: 040497)
Year 2050: ANC = −7.1 − 0.009 . reduction (%)
Year 2200: ANC = −2.5 − 0.003 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Lyon Lake (Pond #: 040498)
Year 2050: ANC = 12.8 − 0.002 . reduction (%)
Year 2200: ANC = 20.3 + 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

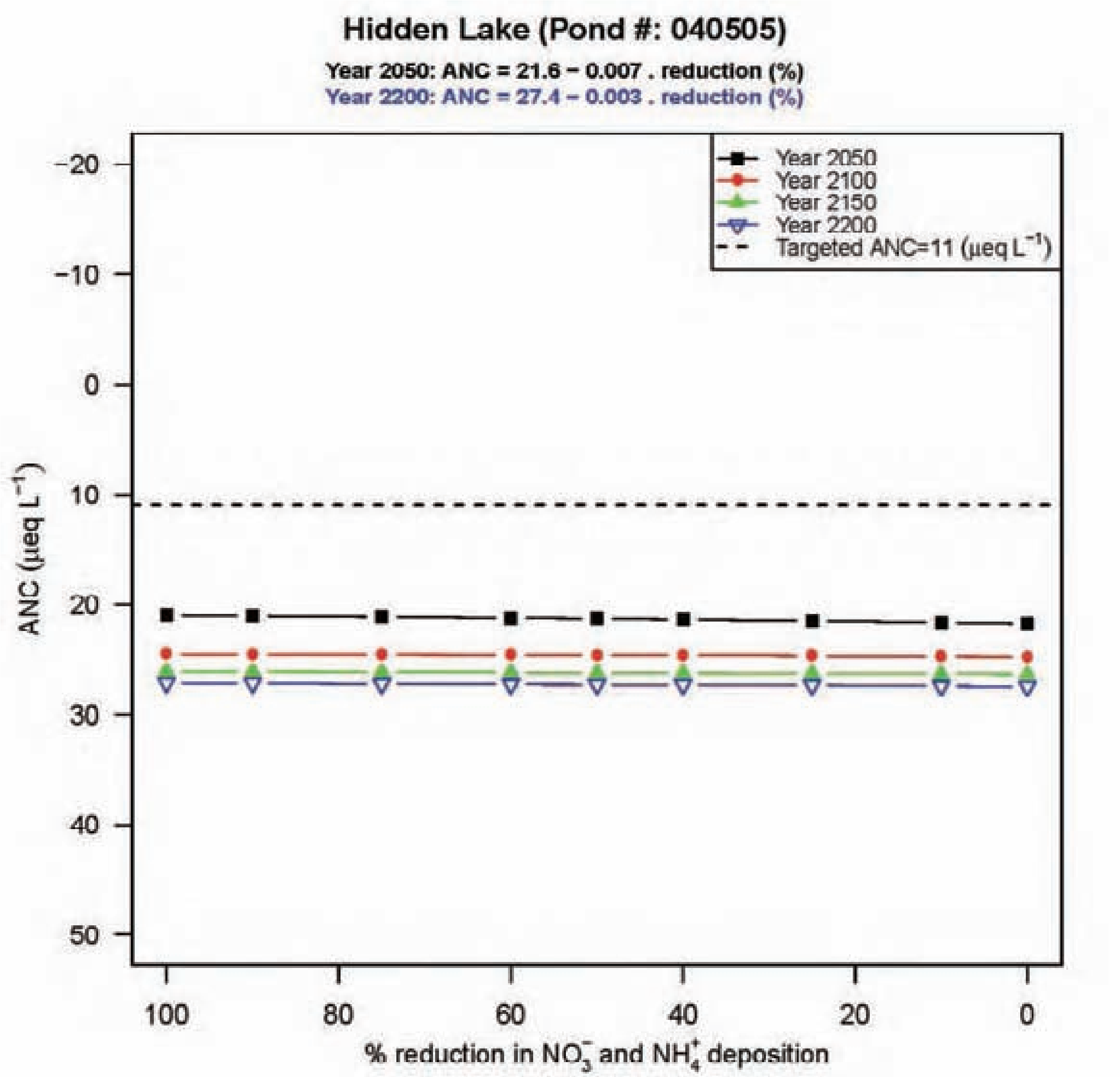


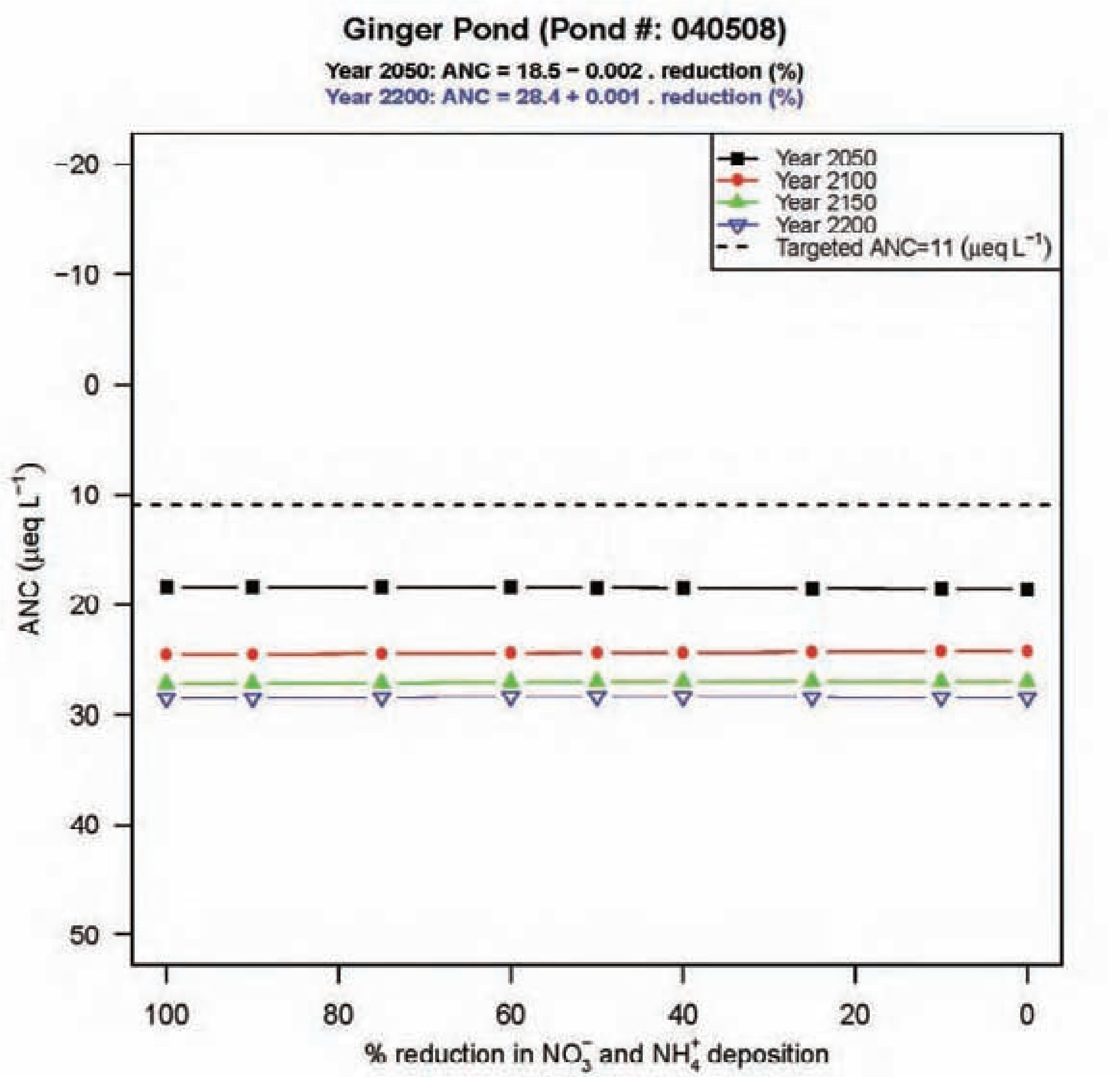
Slim Pond (Pond #: 040499)
Year 2050: ANC = 22.4 − 0.01 . reduction (%)
Year 2200: ANC = 27.9 − 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Evergreen Lake (Pond #: 040500)
Year 2050: ANC = 11.2 + 0.002 . reduction (%)
Year 2200: ANC = 19.9 – 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

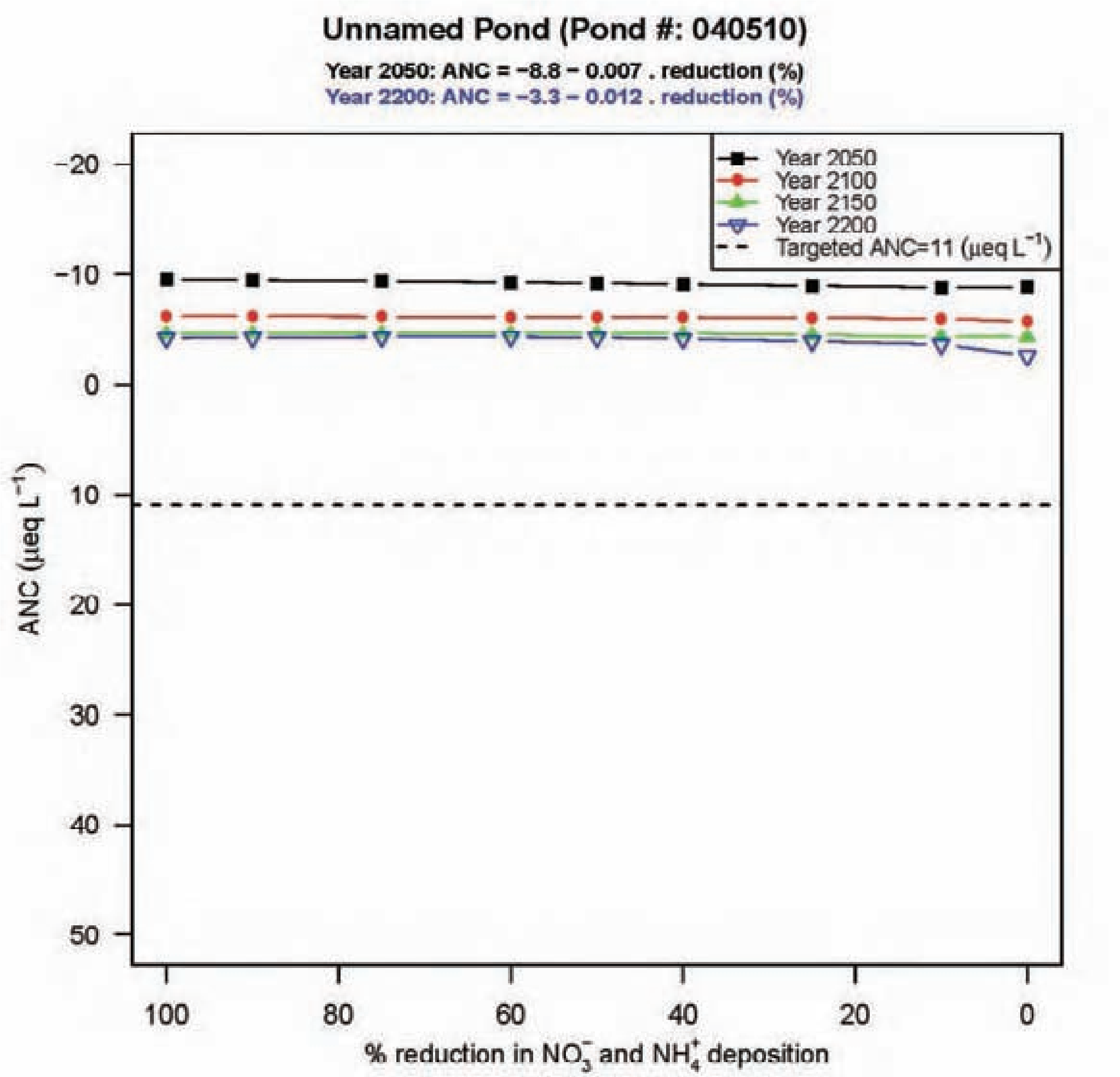


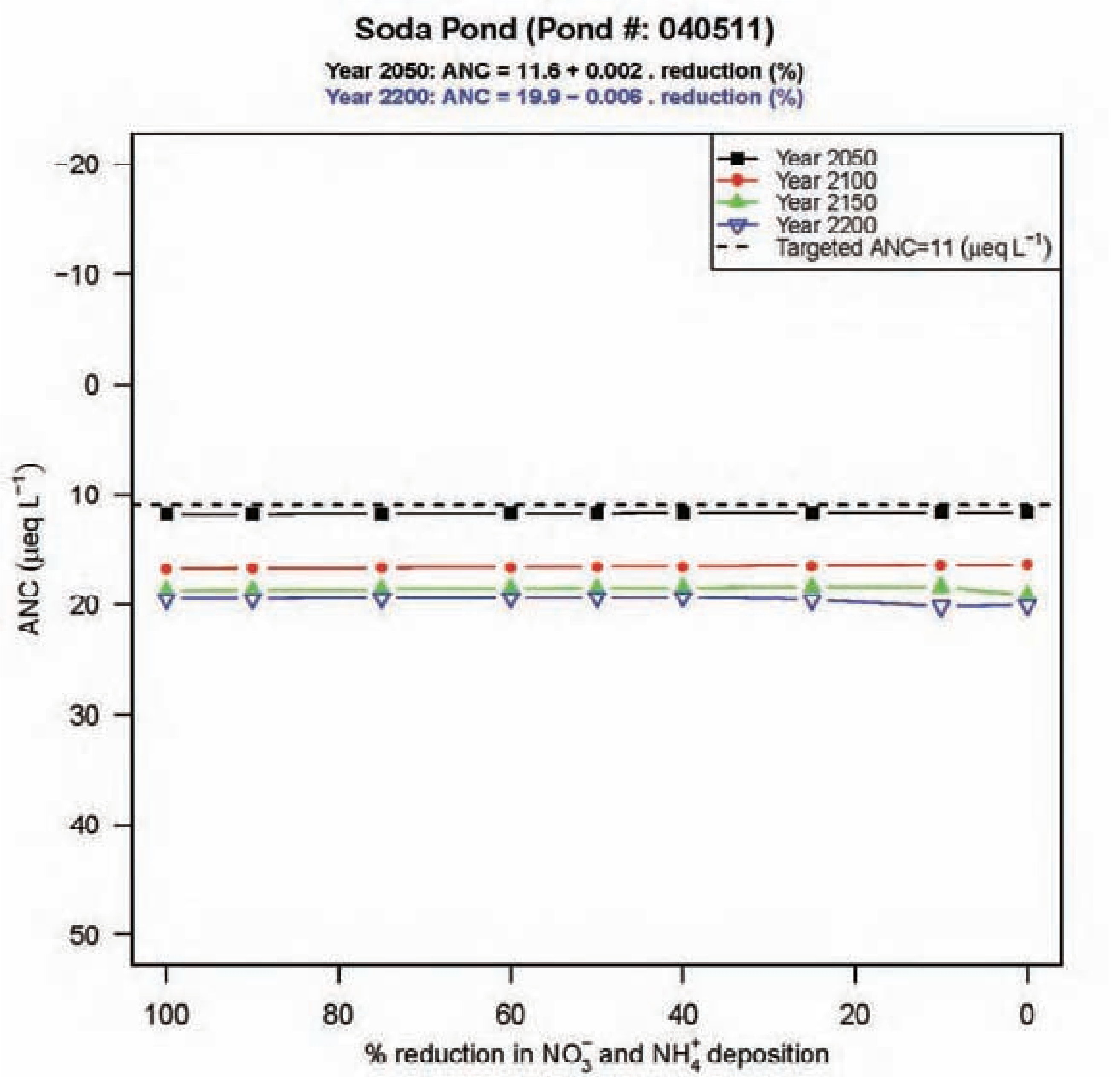
Peaked Mountain Lake (Pond #: 040502)
Year 2050: ANC = −6.7 − 0.014 . reduction (%)
Year 2200: ANC = −2.2 − 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

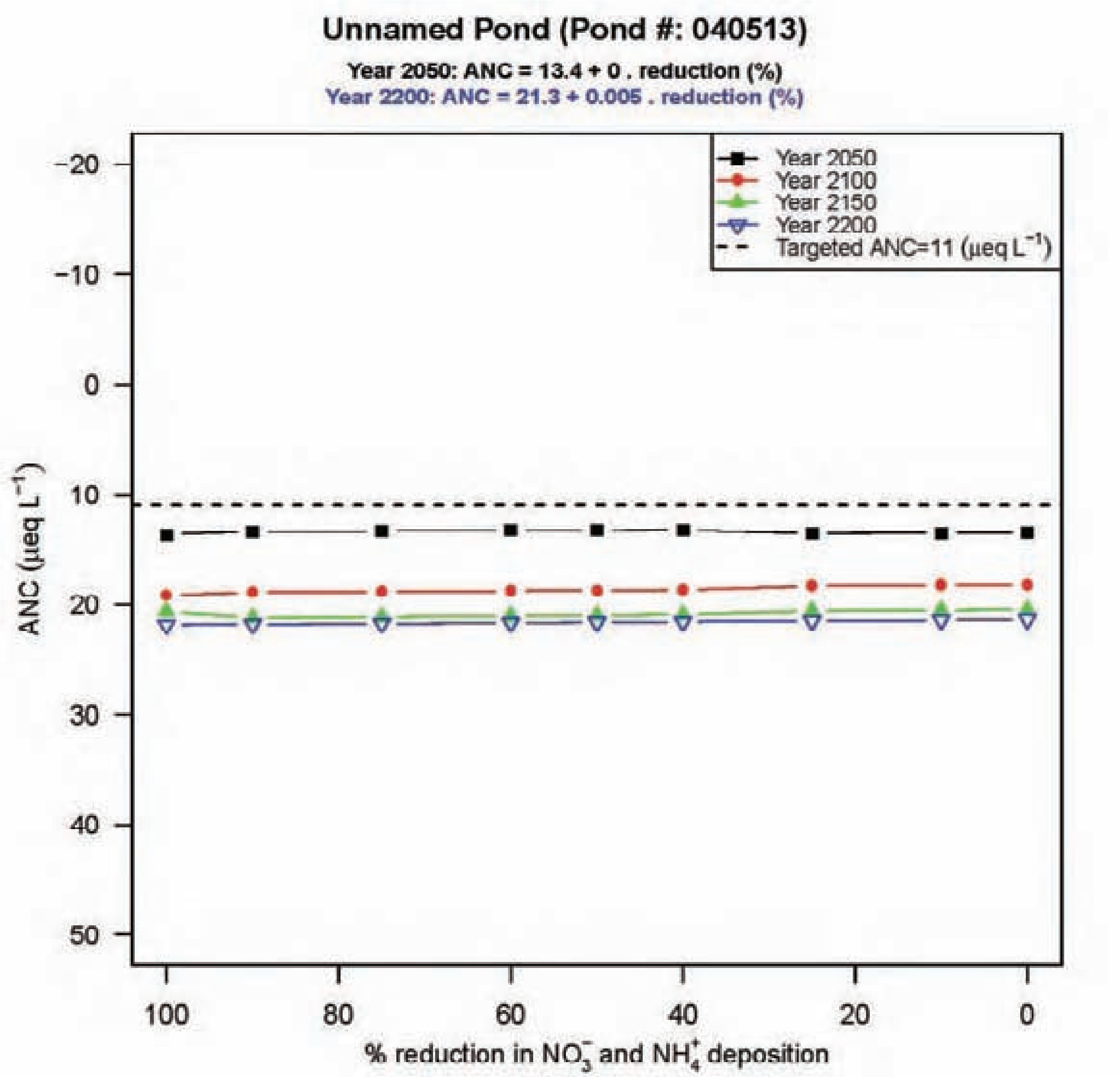

Hidden Lake (Pond #: 040505)
Year 2050: ANC = 21.6 − 0.007 . reduction (%)
Year 2200: ANC = 27.4 − 0.003 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

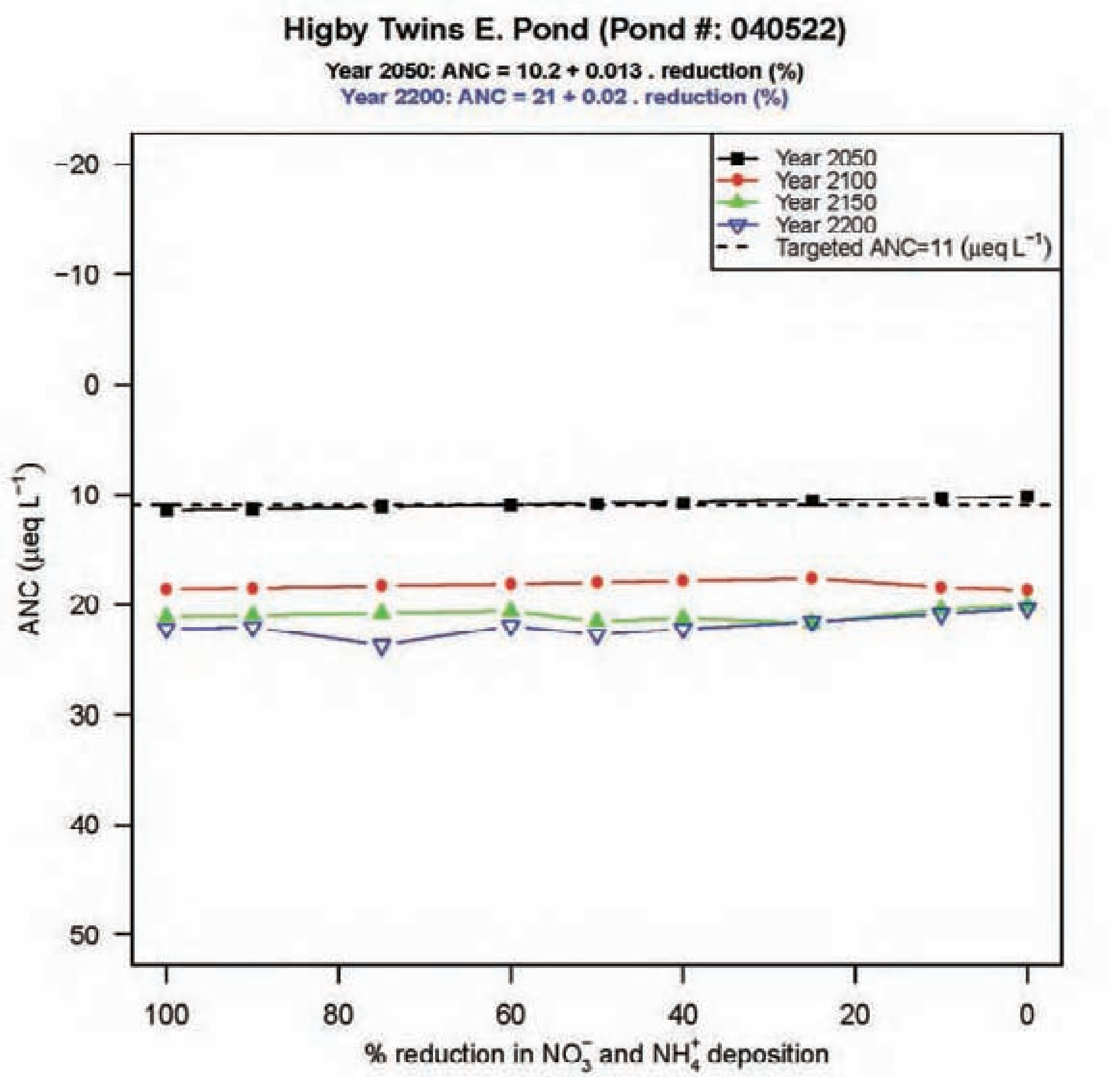


Ginger Pond (Pond #: 040508)
Year 2050: ANC = 18.5 − 0.002 . reduction (%)
Year 2200: ANC = 28.4 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

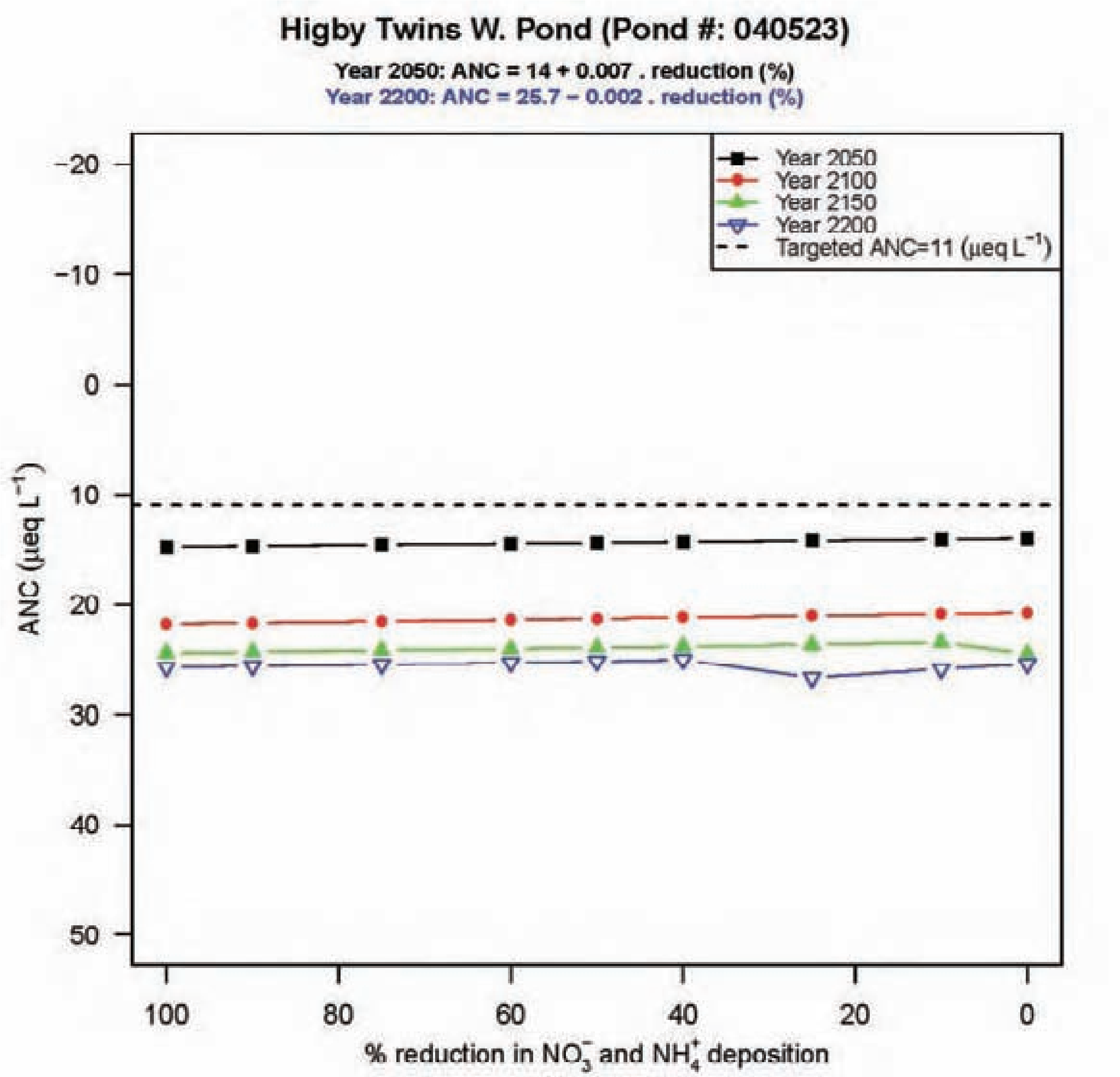

Unnamed Pond (Pond #: 040510)
Year 2050: ANC = −8.8 − 0.007 . reduction (%)
Year 2200: ANC = −3.3 − 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

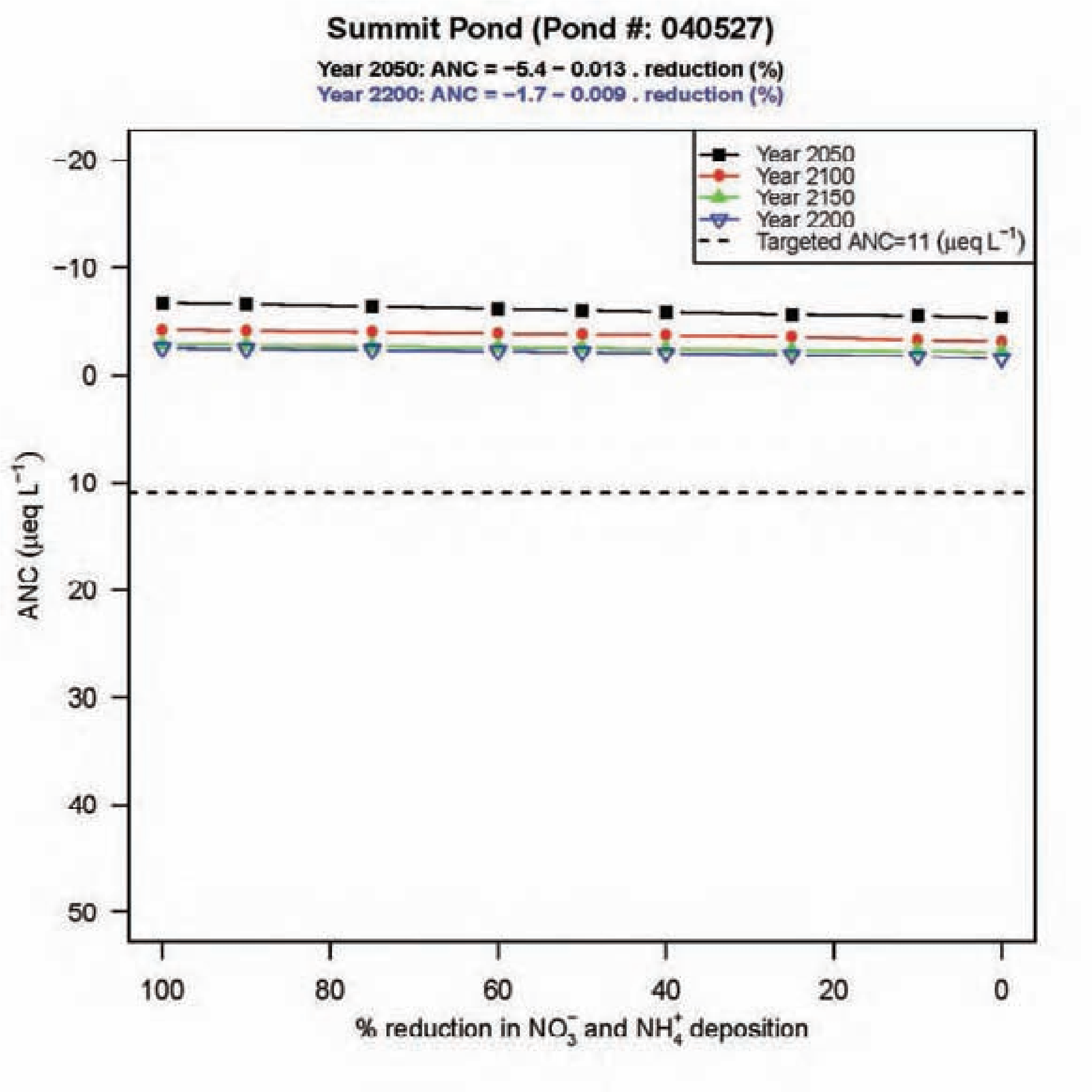

Soda Pond (Pond #: 040511)
Year 2050: ANC = 11.6 + 0.002 . reduction (%)
Year 2200: ANC = 19.9 − 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Unnamed Pond (Pond #: 040513)
Year 2050: ANC = 13.4 + 0 . reduction (%)
Year 2200: ANC = 21.3 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

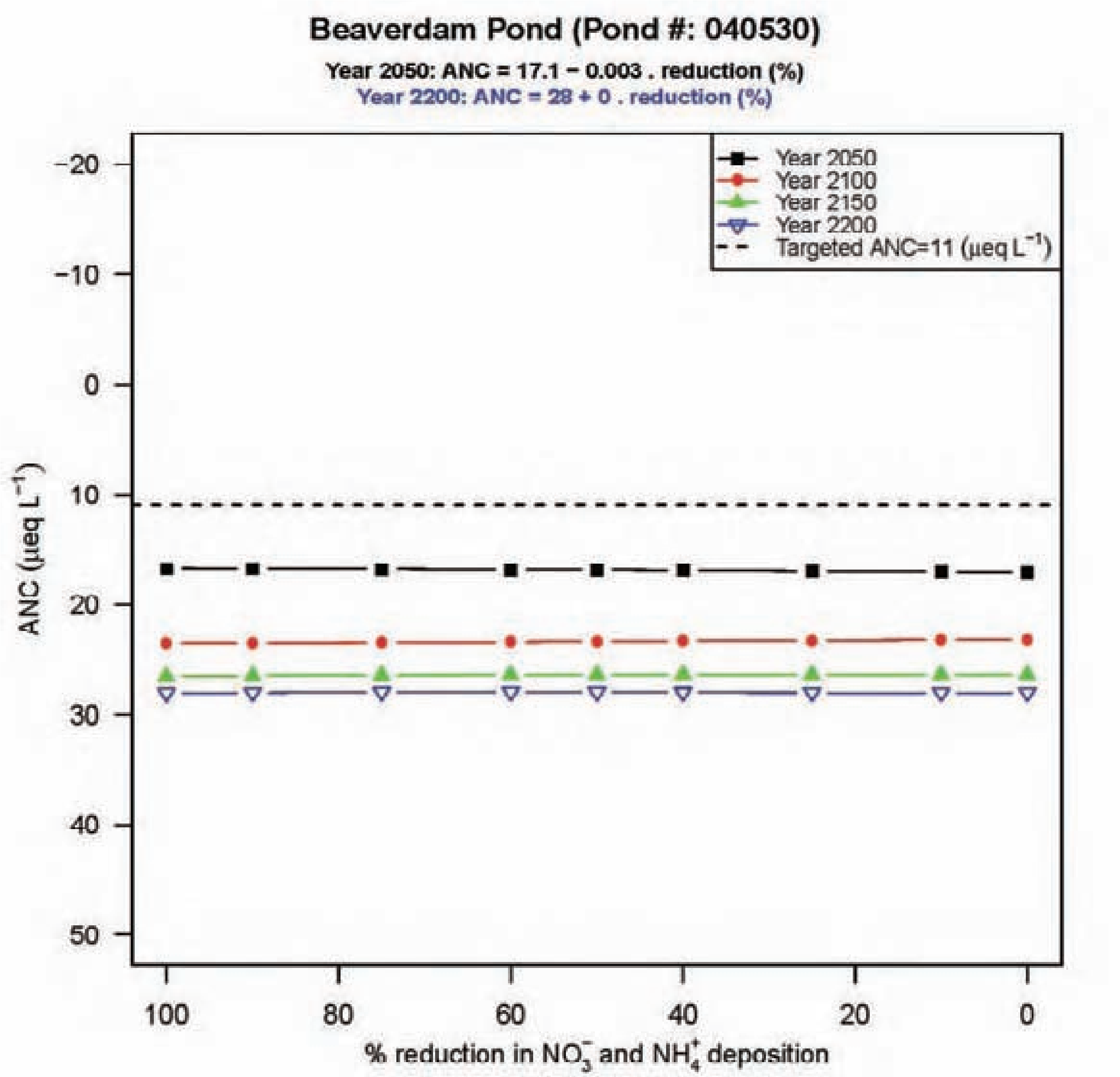


Higby Twins E. Pond (Pond #: 040522)
Year 2050: ANC = 10.2 + 0.013 . reduction (%)
Year 2200: ANC = 21 + 0.02 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

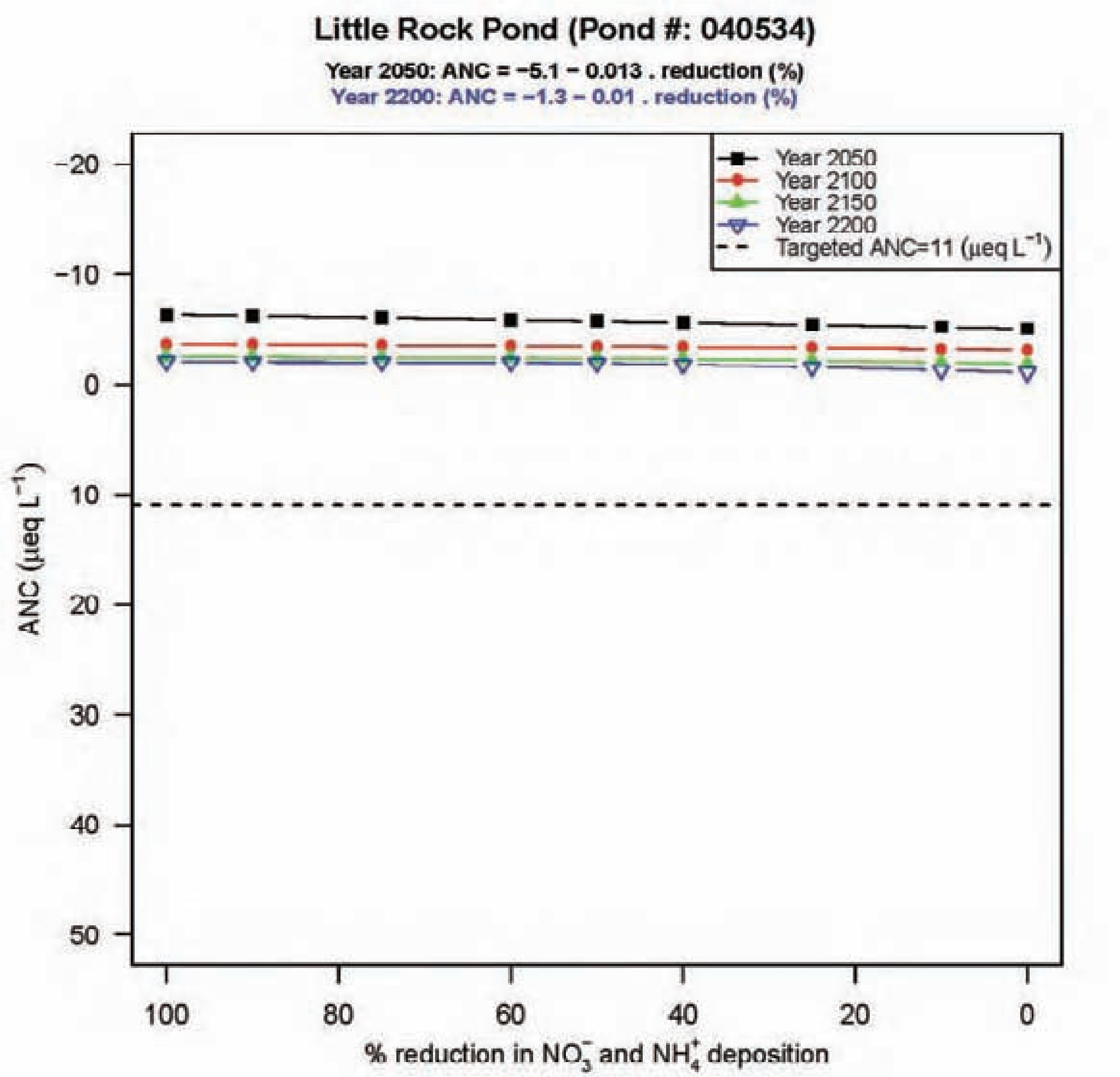

Higby Twins W. Pond (Pond #: 040523)
Year 2050: ANC = 14 + 0.007 . reduction (%)
Year 2200: ANC = 25.7 − 0.002 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



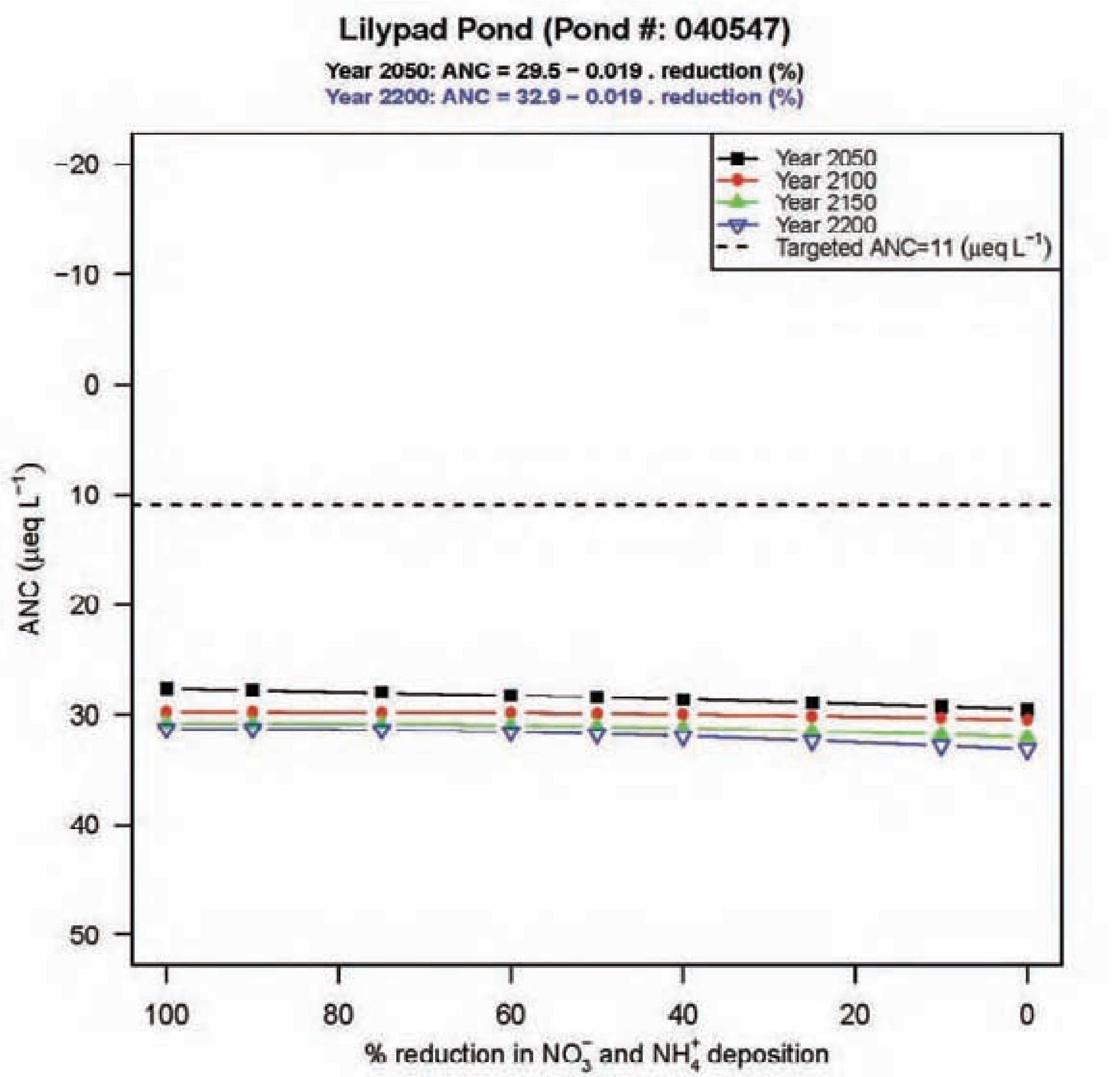
Summit Pond (Pond #: 040527)
Year 2050: ANC = −5.4 − 0.013 . reduction (%)
Year 2200: ANC = −1.7 − 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



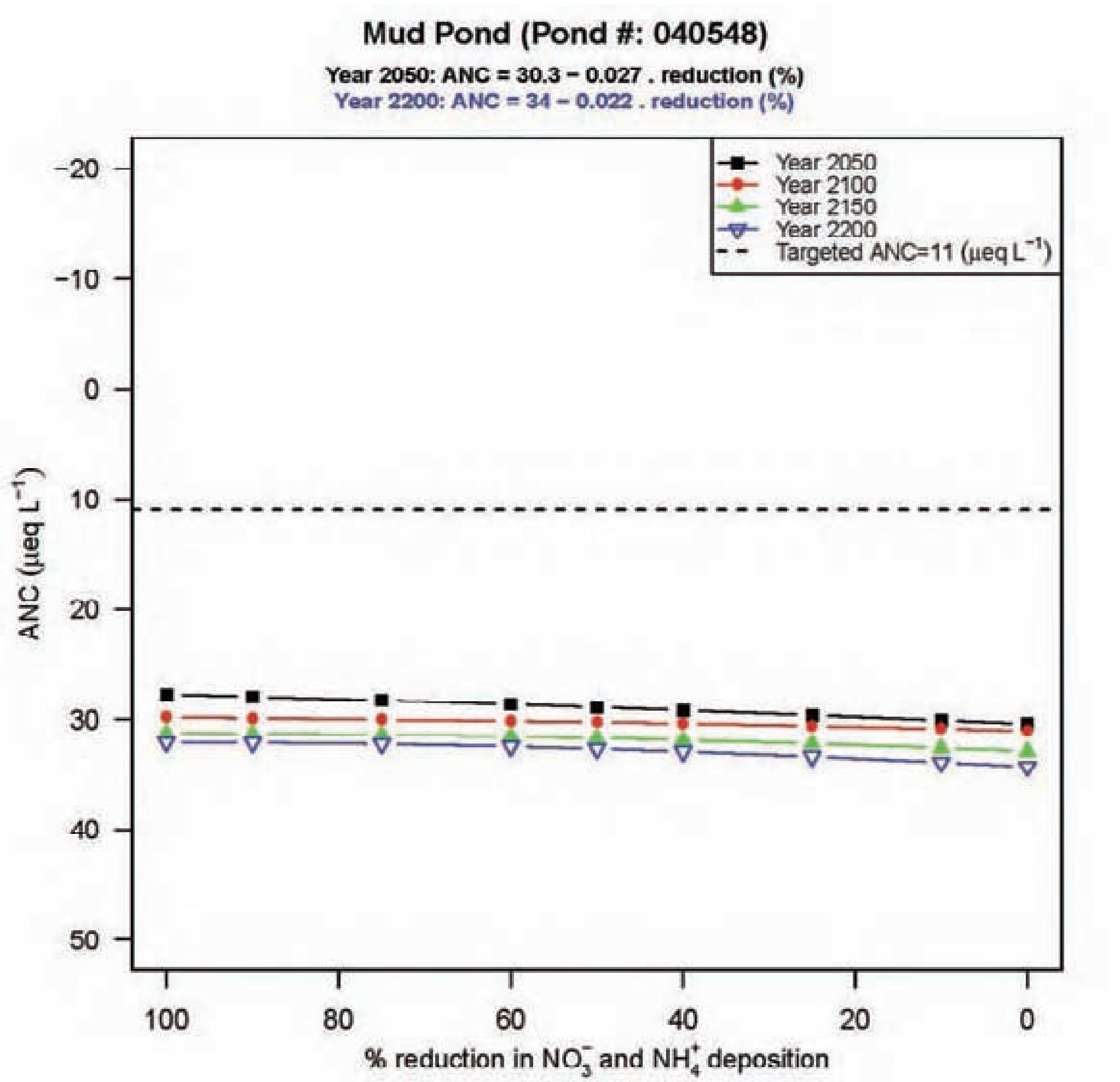
Beaverdam Pond (Pond #: 040530)
Year 2050: ANC = 17.1 − 0.003 . reduction (%)
Year 2200: ANC = 28 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



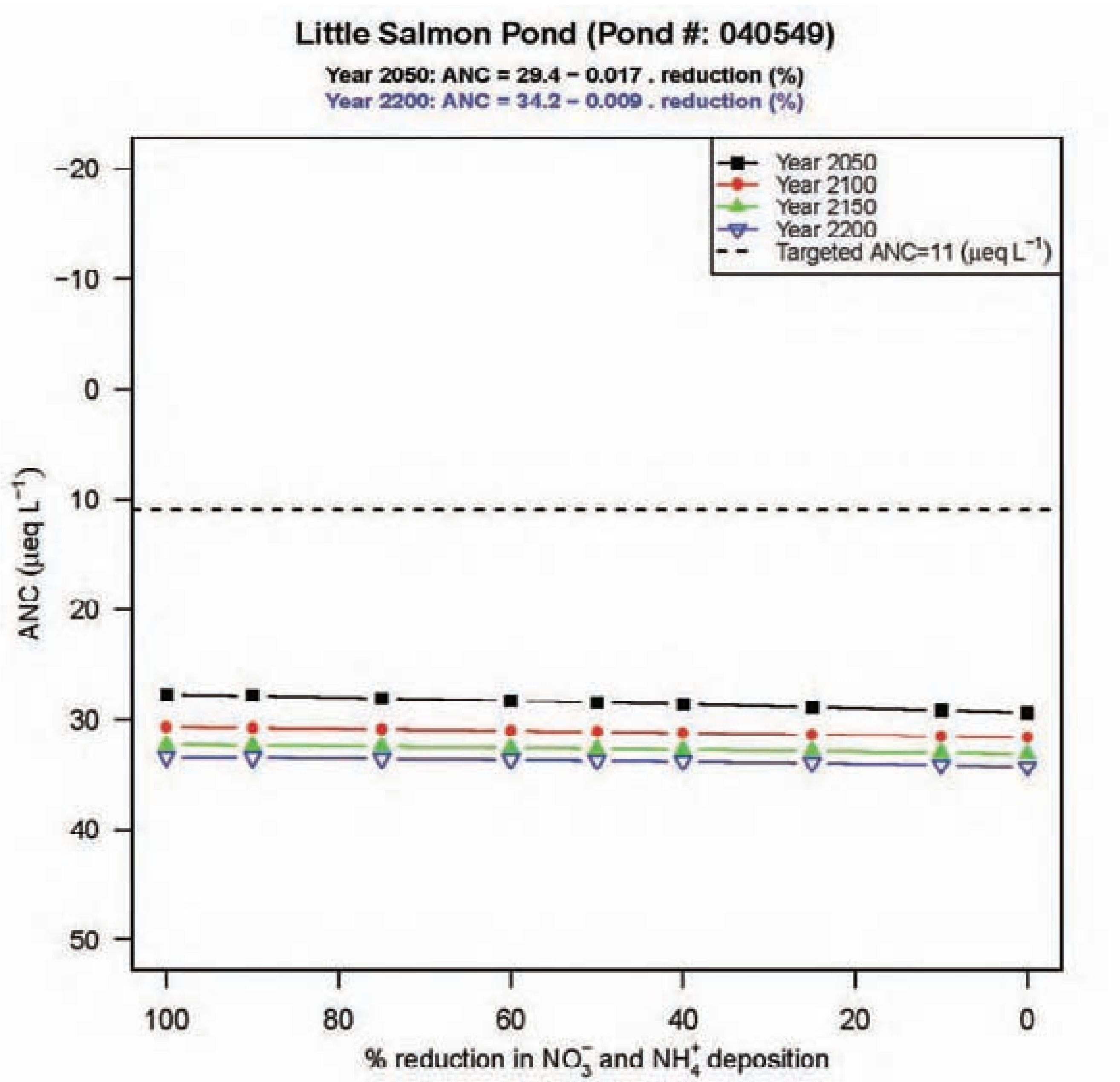
Little Rock Pond (Pond #: 040534)
Year 2050: ANC = −5.1 − 0.013 . reduction (%)
Year 2200: ANC = −1.3 − 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

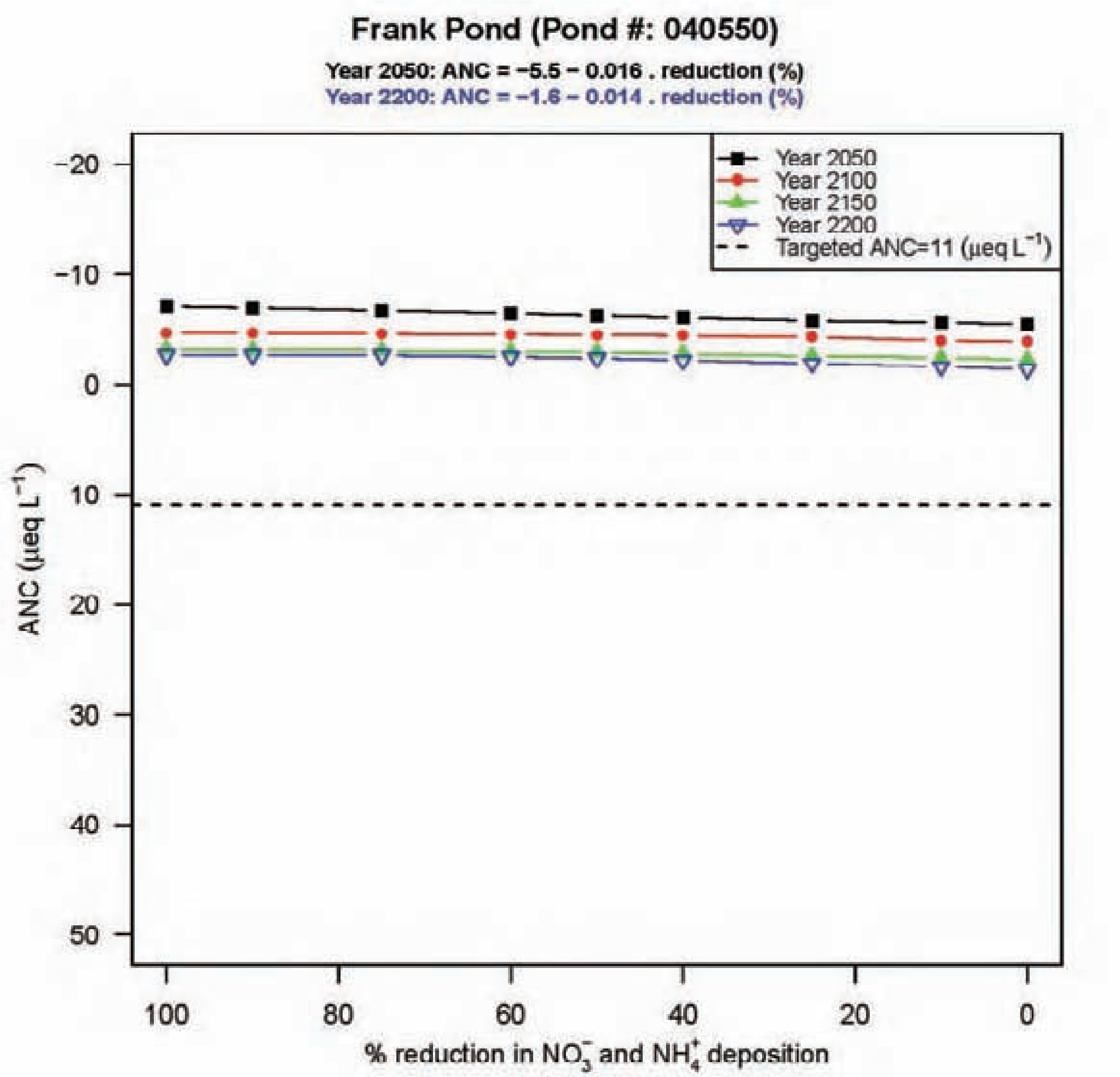


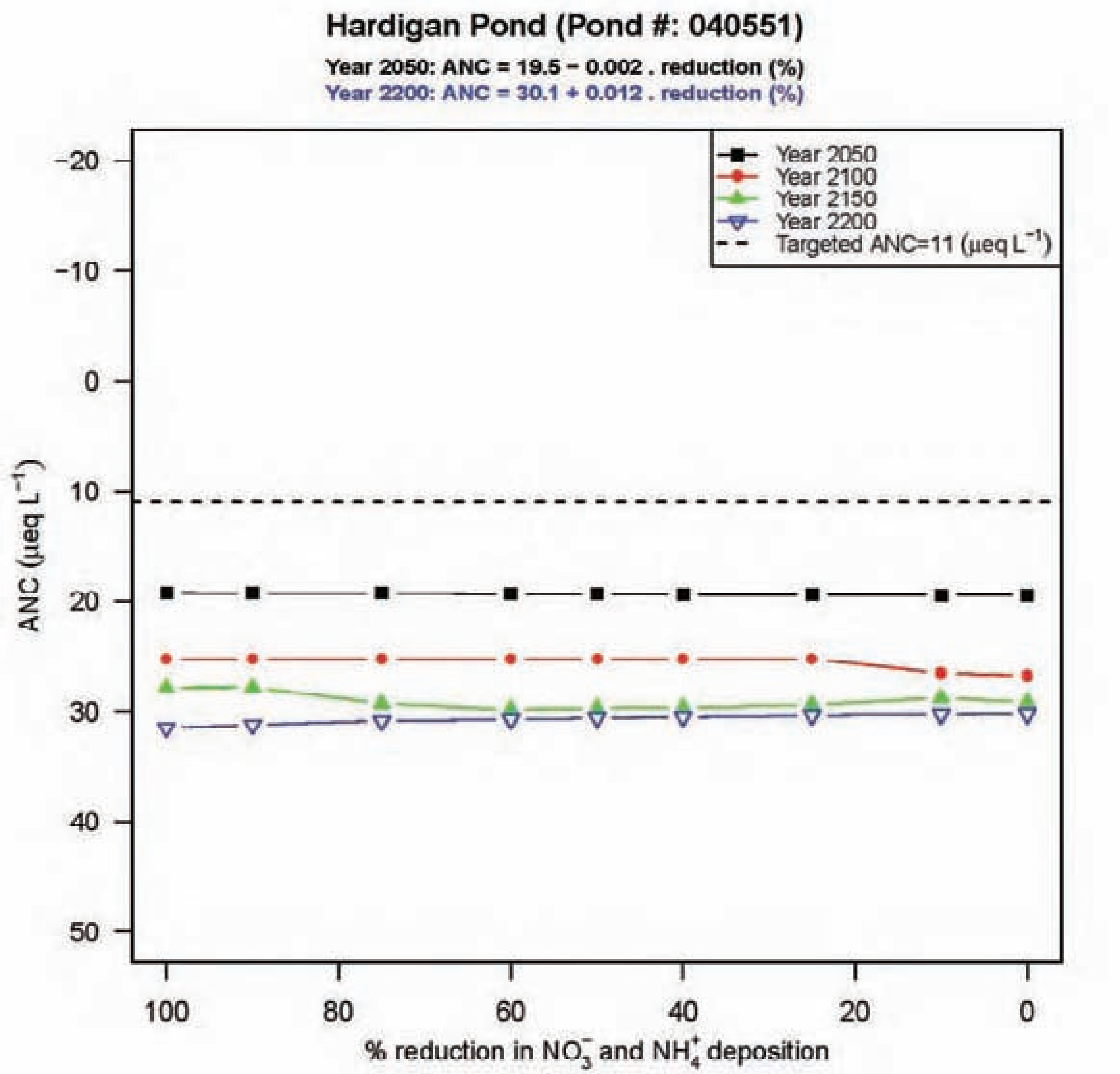
Lilypad Pond (Pond #: 040547)
Year 2050: ANC = 29.5 – 0.019 . reduction (%)
Year 2200: ANC = 32.9 – 0.019 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

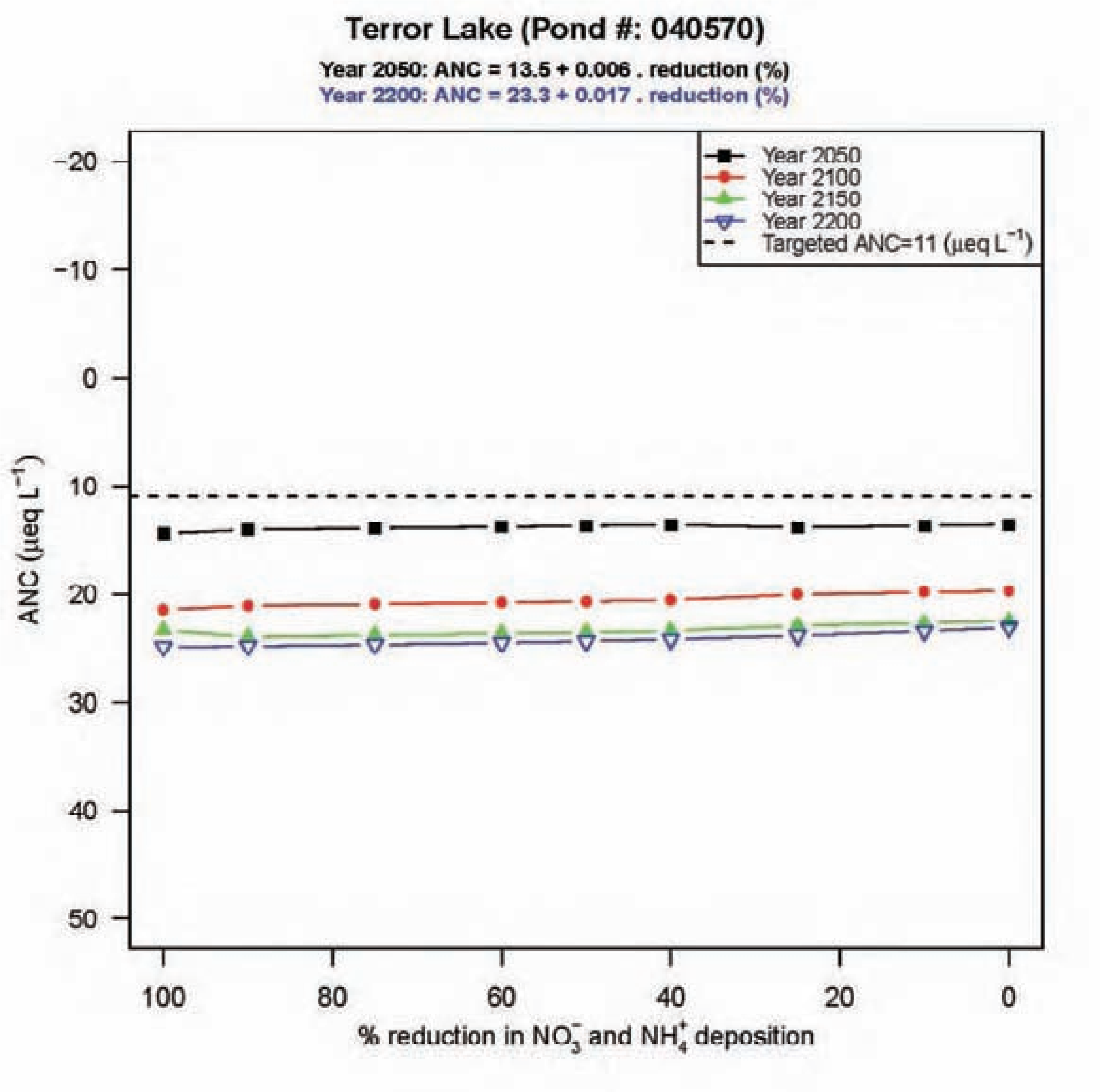


Mud Pond (Pond #: 040548)
Year 2050: ANC = 30.3 − 0.027 . reduction (%)
Year 2200: ANC = 34 − 0.022 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

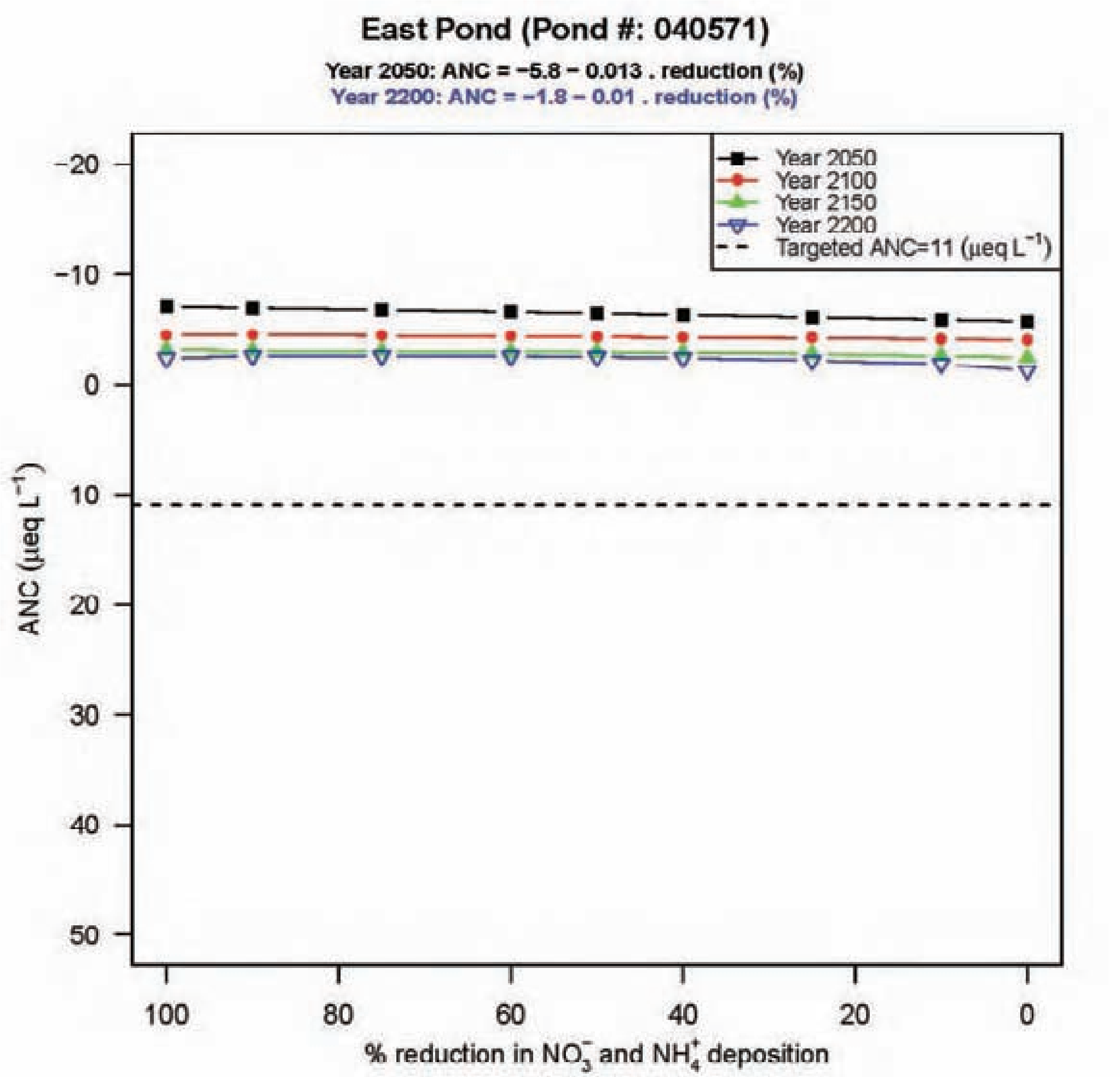

Little Salmon Pond (Pond #: 040549)
Year 2050: ANC = 29.4 – 0.017 . reduction (%)
Year 2200: ANC = 34.2 – 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

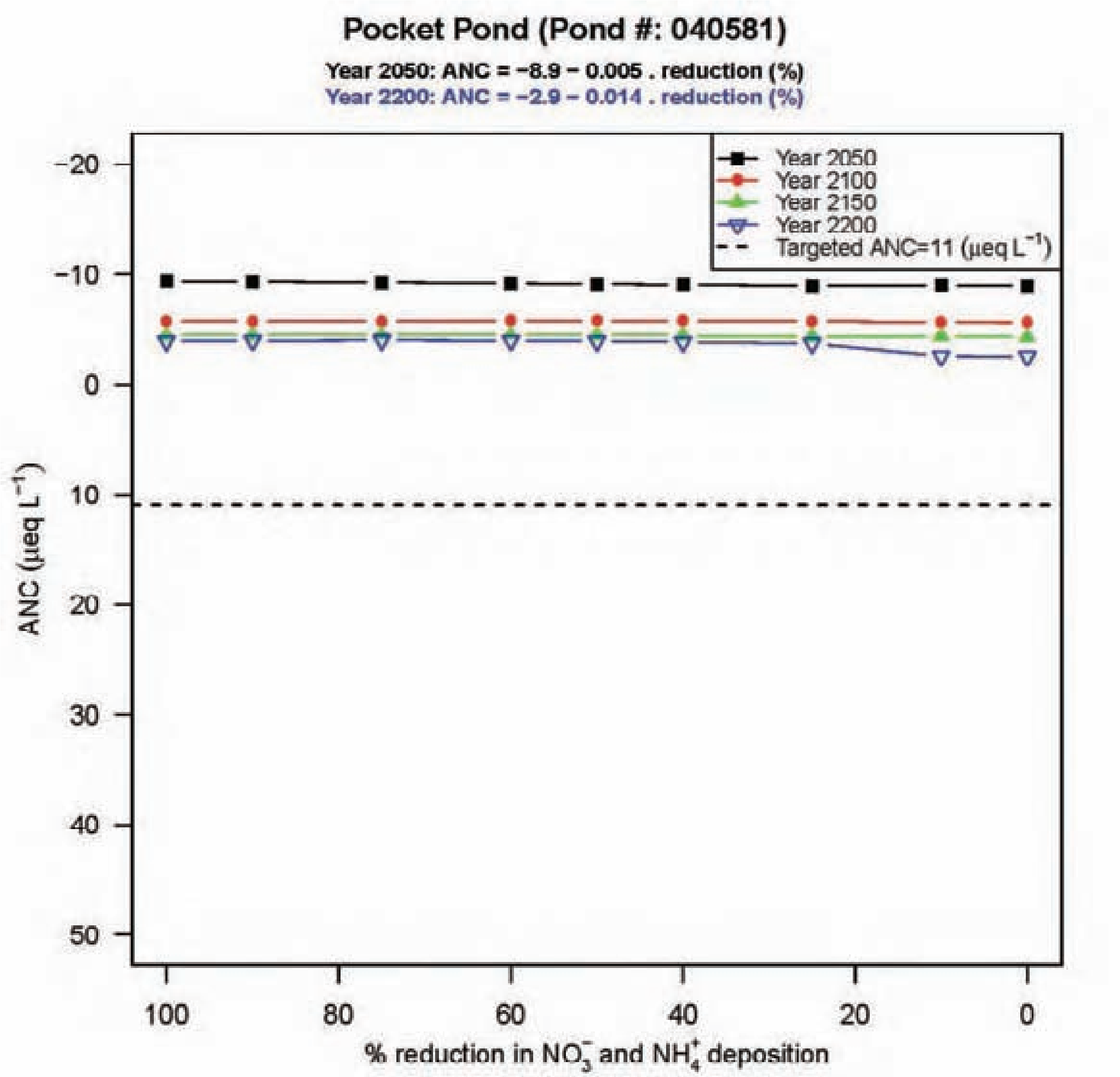

Frank Pond (Pond #: 040550)
Year 2050: ANC = −5.5 − 0.016 . reduction (%)
Year 2200: ANC = −1.6 − 0.014 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Hardigan Pond (Pond #: 040551)
Year 2050: ANC = 19.5 − 0.002 . reduction (%)
Year 2200: ANC = 30.1 + 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

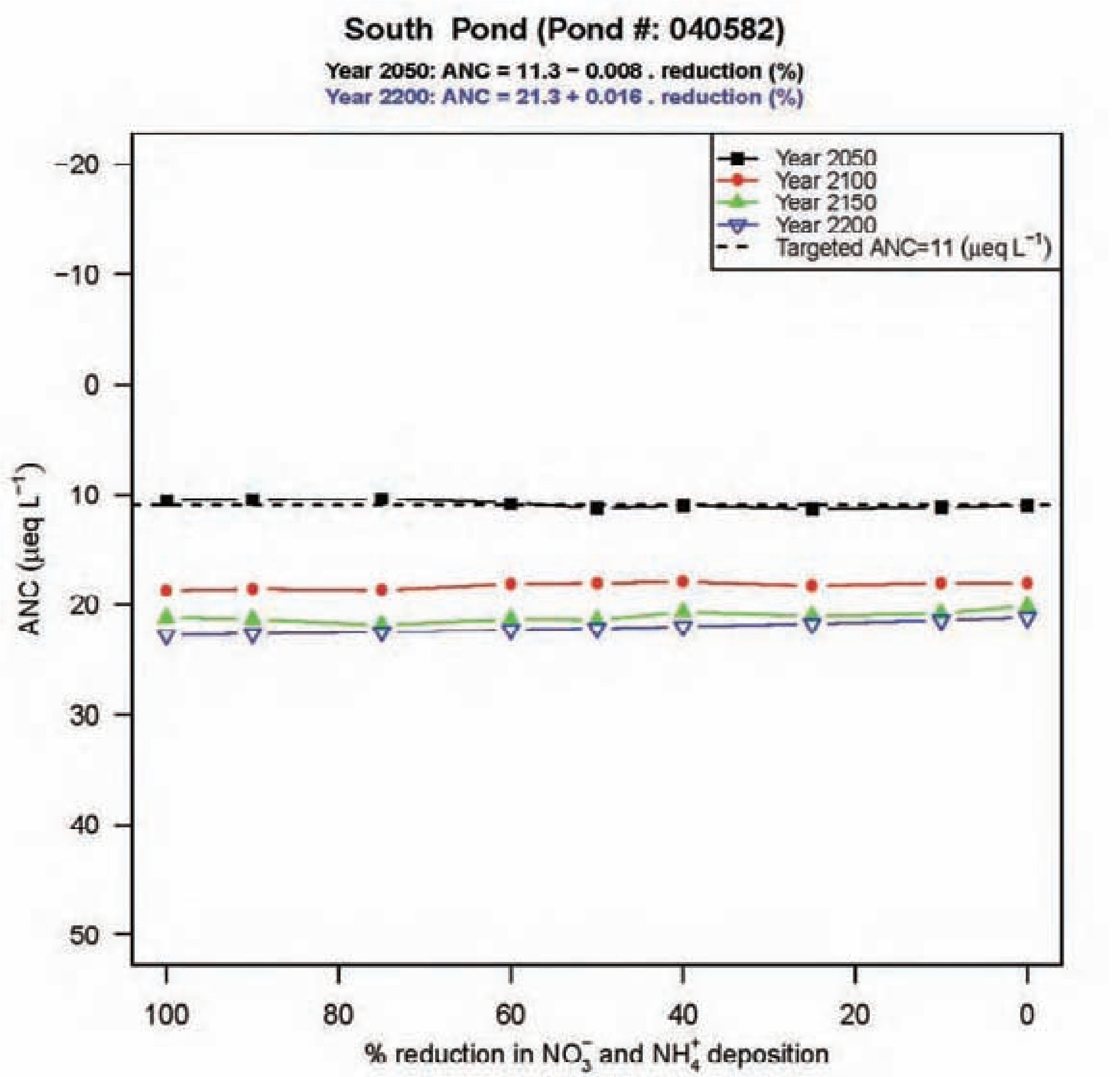


Terror Lake (Pond #: 040570)
Year 2050: ANC = 13.5 + 0.006 . reduction (%)
Year 2200: ANC = 23.3 + 0.017 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

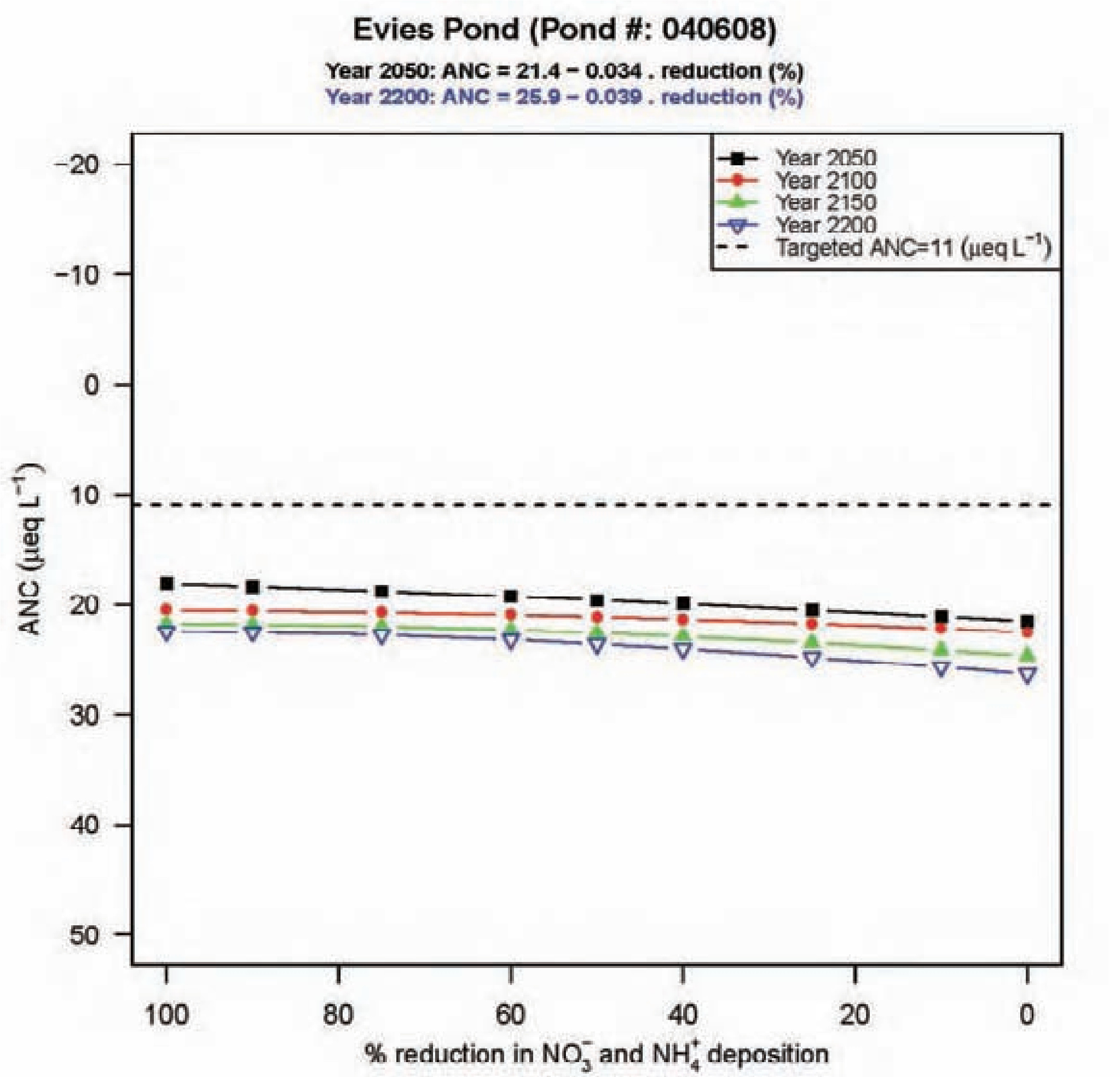

East Pond (Pond #: 040571)
Year 2050: ANC = −5.8 − 0.013 . reduction (%)
Year 2200: ANC = −1.8 − 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

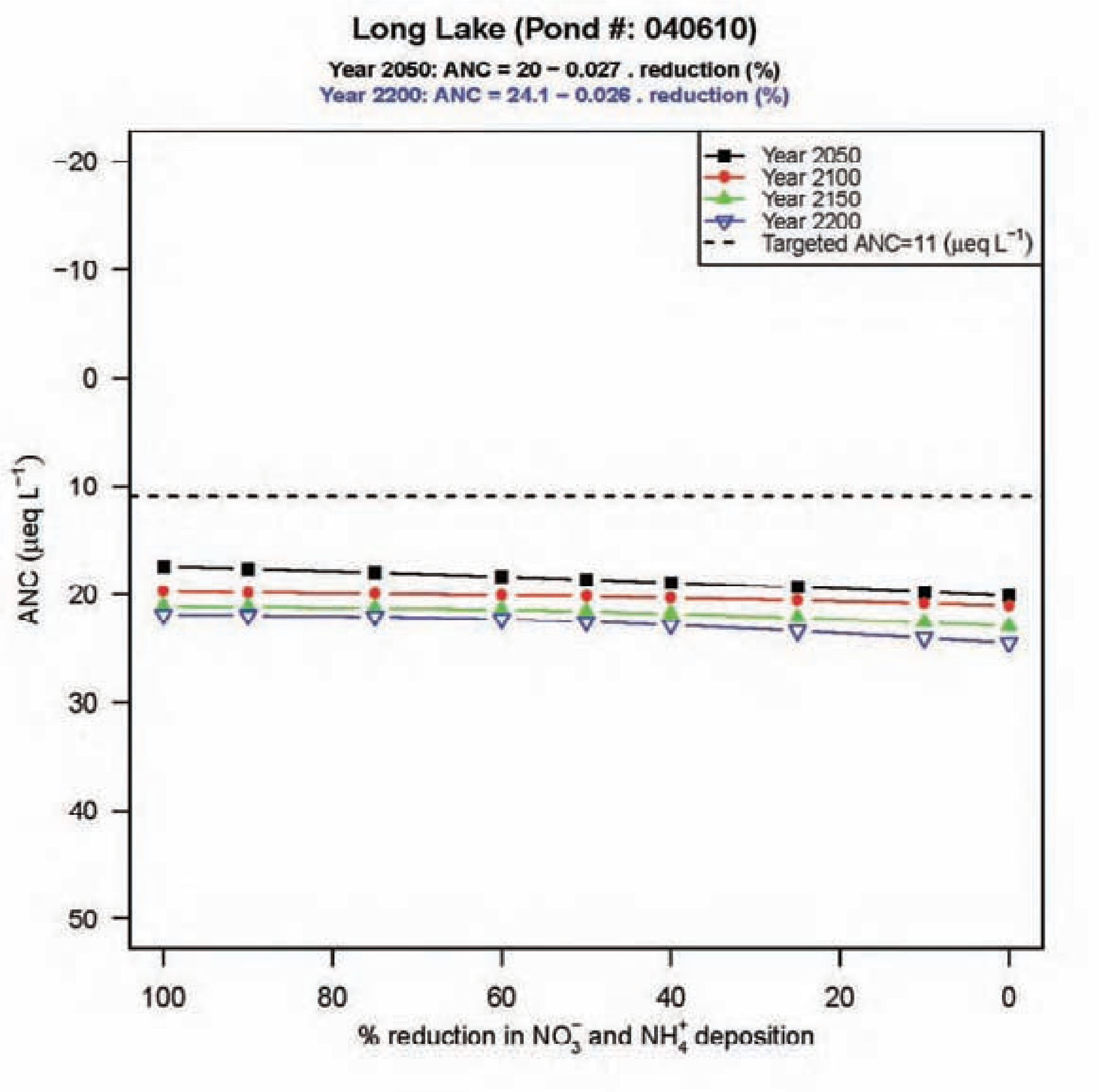


Pocket Pond (Pond #: 040581)
Year 2050: ANC = −8.9 − 0.005 . reduction (%)
Year 2200: ANC = −2.9 − 0.014 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

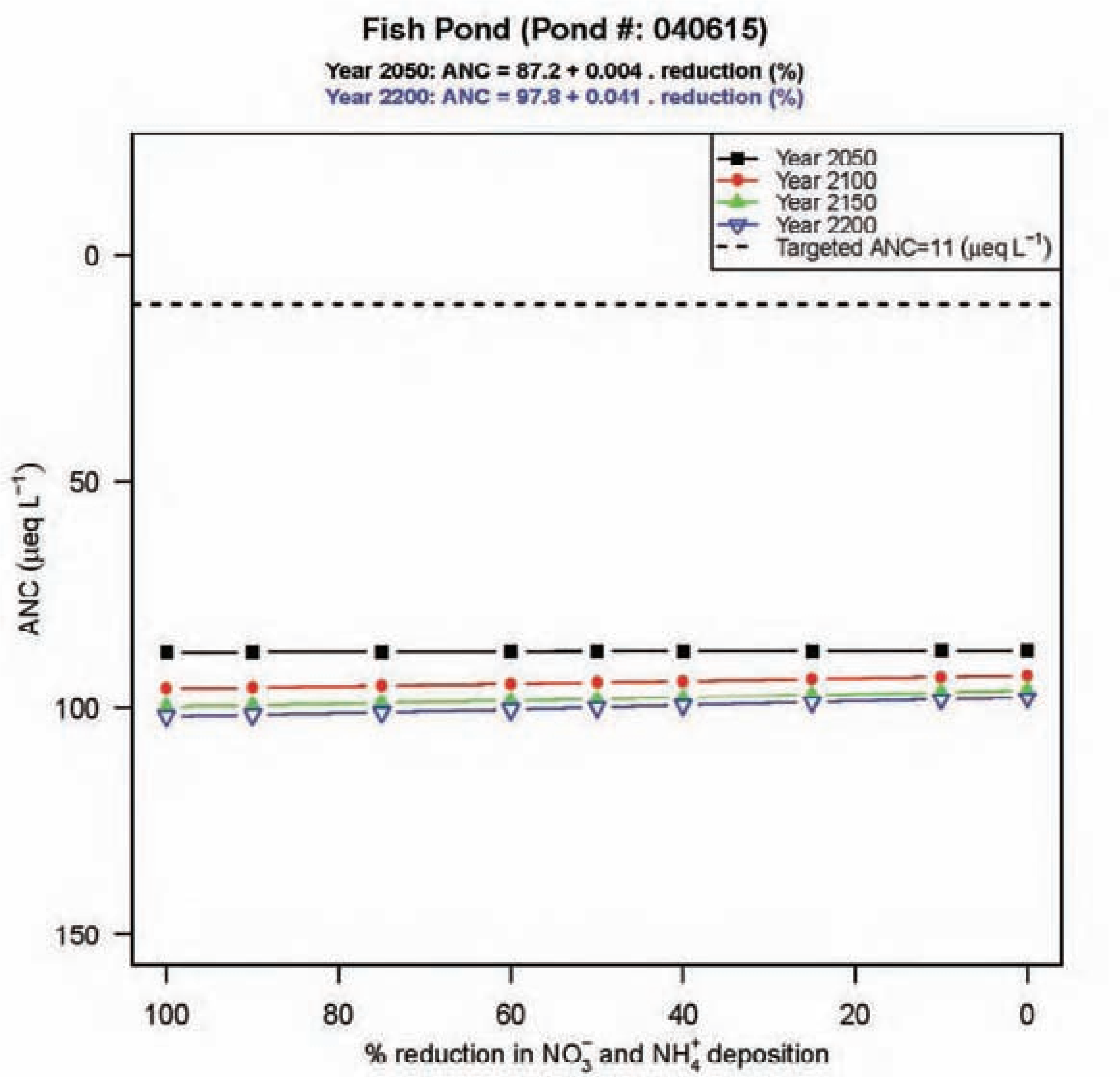


South Pond (Pond #: 040582)
Year 2050: ANC = 11.3 − 0.008 . reduction (%)
Year 2200: ANC = 21.3 + 0.016 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

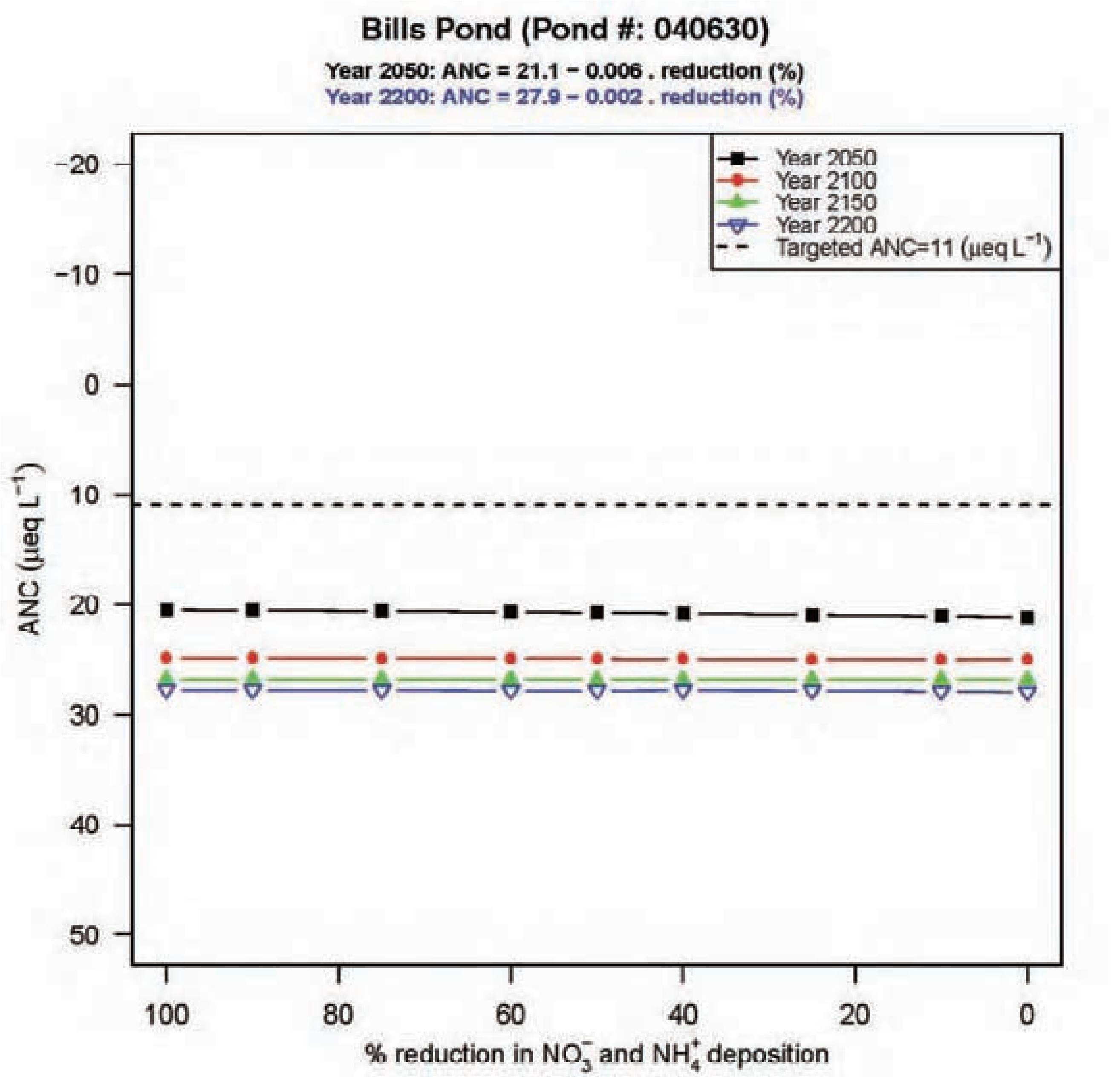

Evies Pond (Pond #: 040608)
Year 2050: ANC = 21.4 − 0.034 . reduction (%)
Year 2200: ANC = 25.9 − 0.039 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

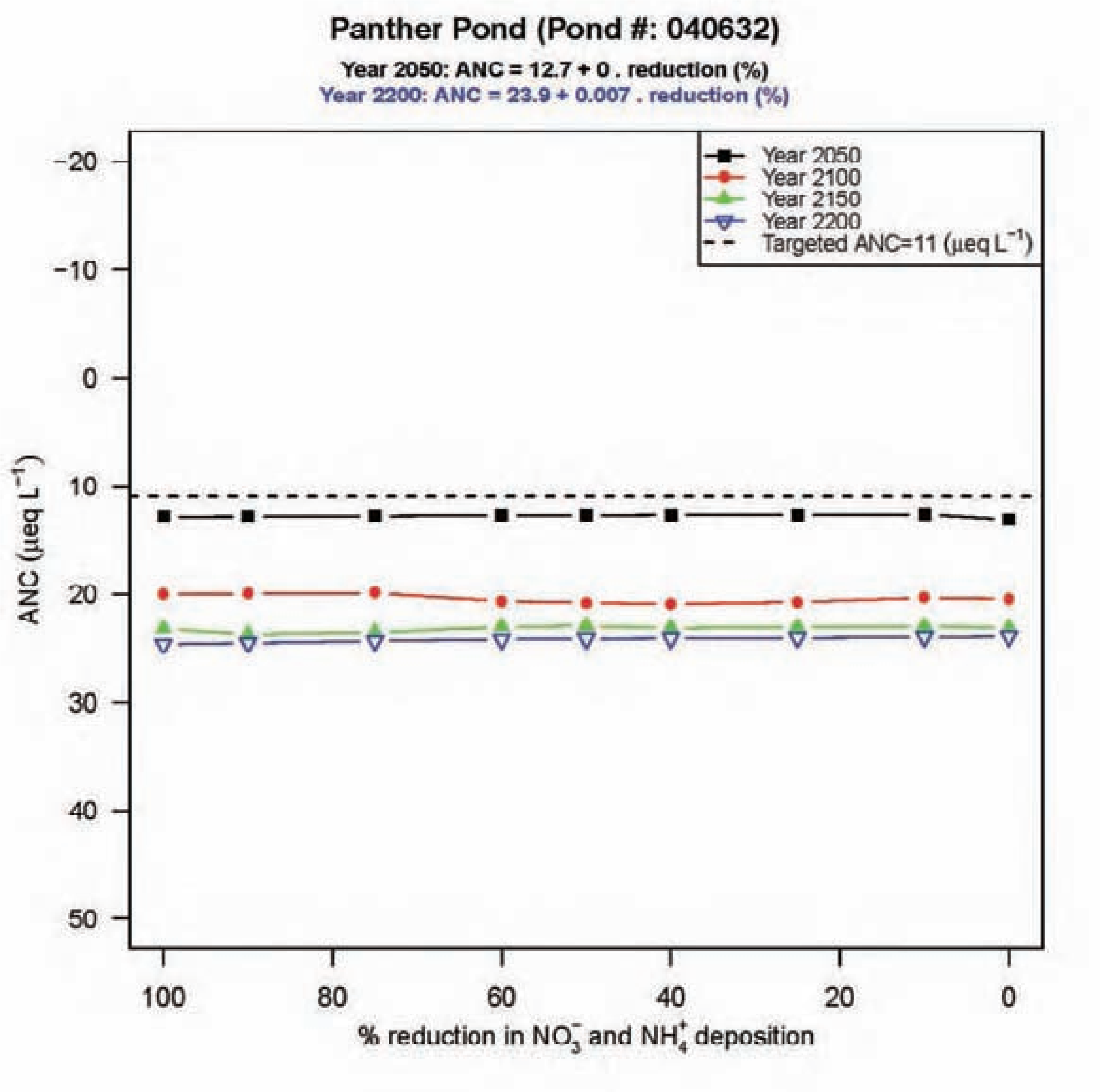


Long Lake (Pond #: 040610)
Year 2050: ANC = 20 − 0.027 . reduction (%)
Year 2200: ANC = 24.1 − 0.026 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0

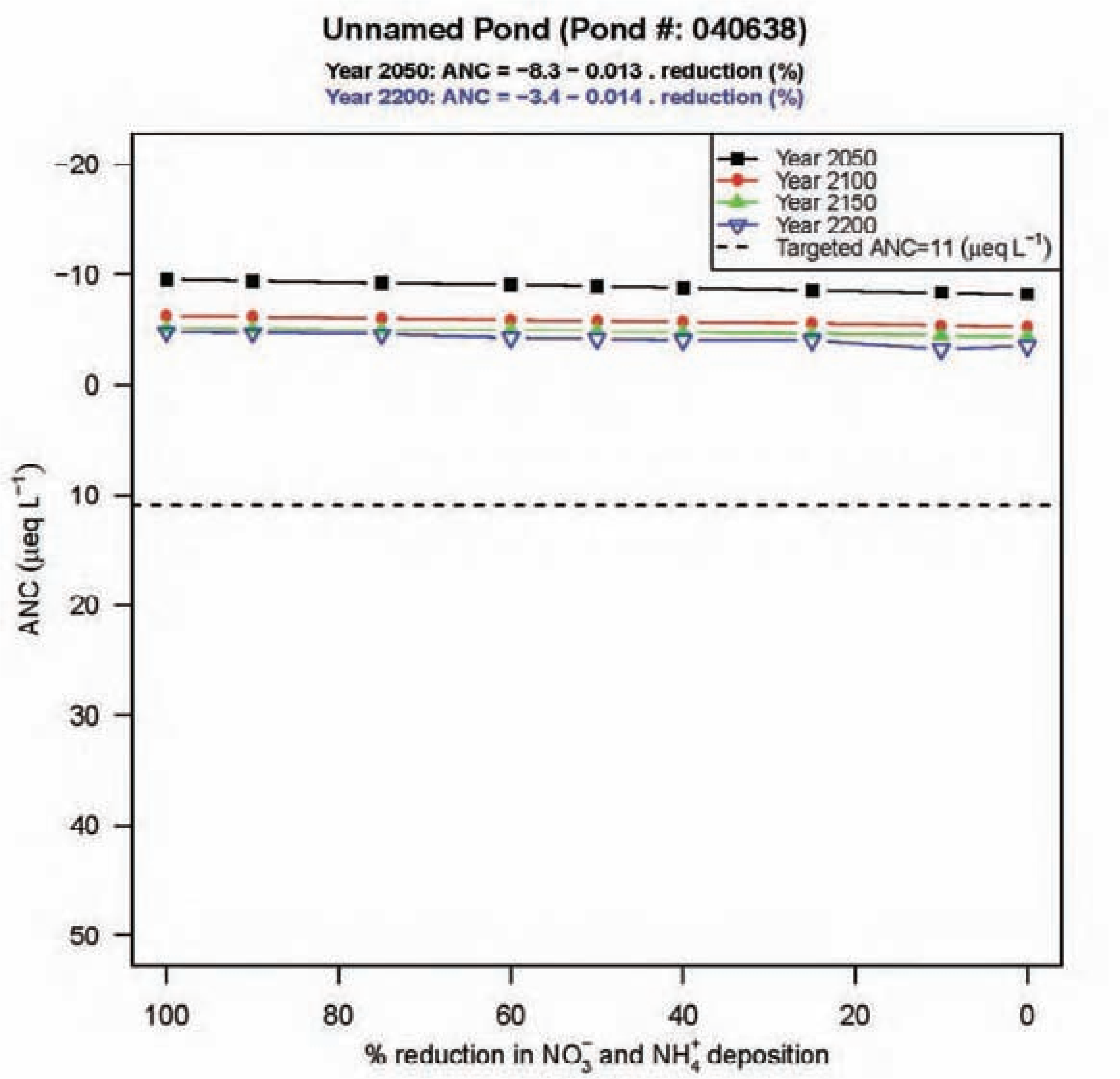


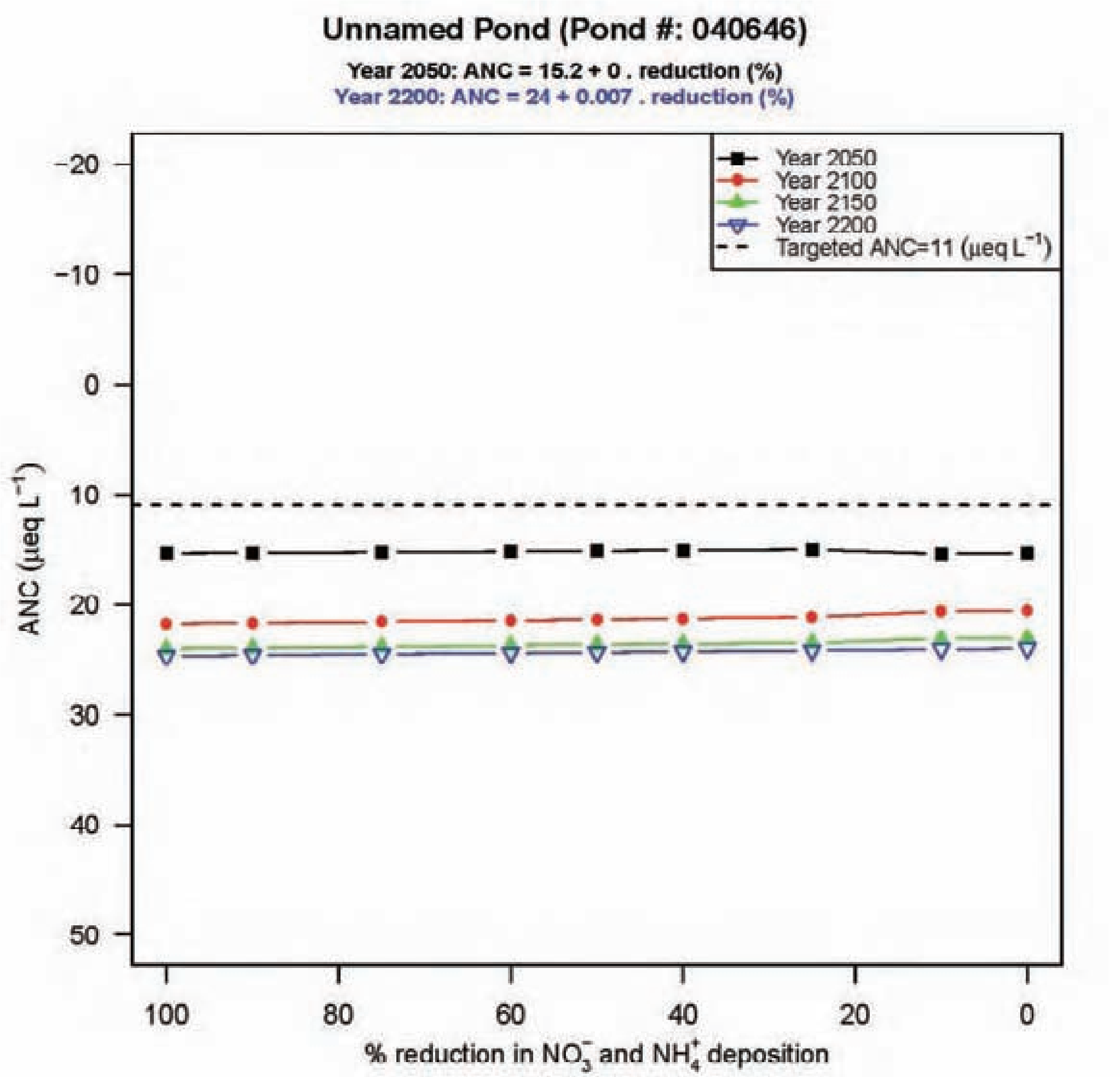
Fish Pond (Pond #: 040615)
Year 2050: ANC = 87.2 + 0.004 . reduction (%)
Year 2200: ANC = 97.8 + 0.041 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Bills Pond (Pond #: 040630)
Year 2050: ANC = 21.1 − 0.006 . reduction (%)
Year 2200: ANC = 27.9 − 0.002 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

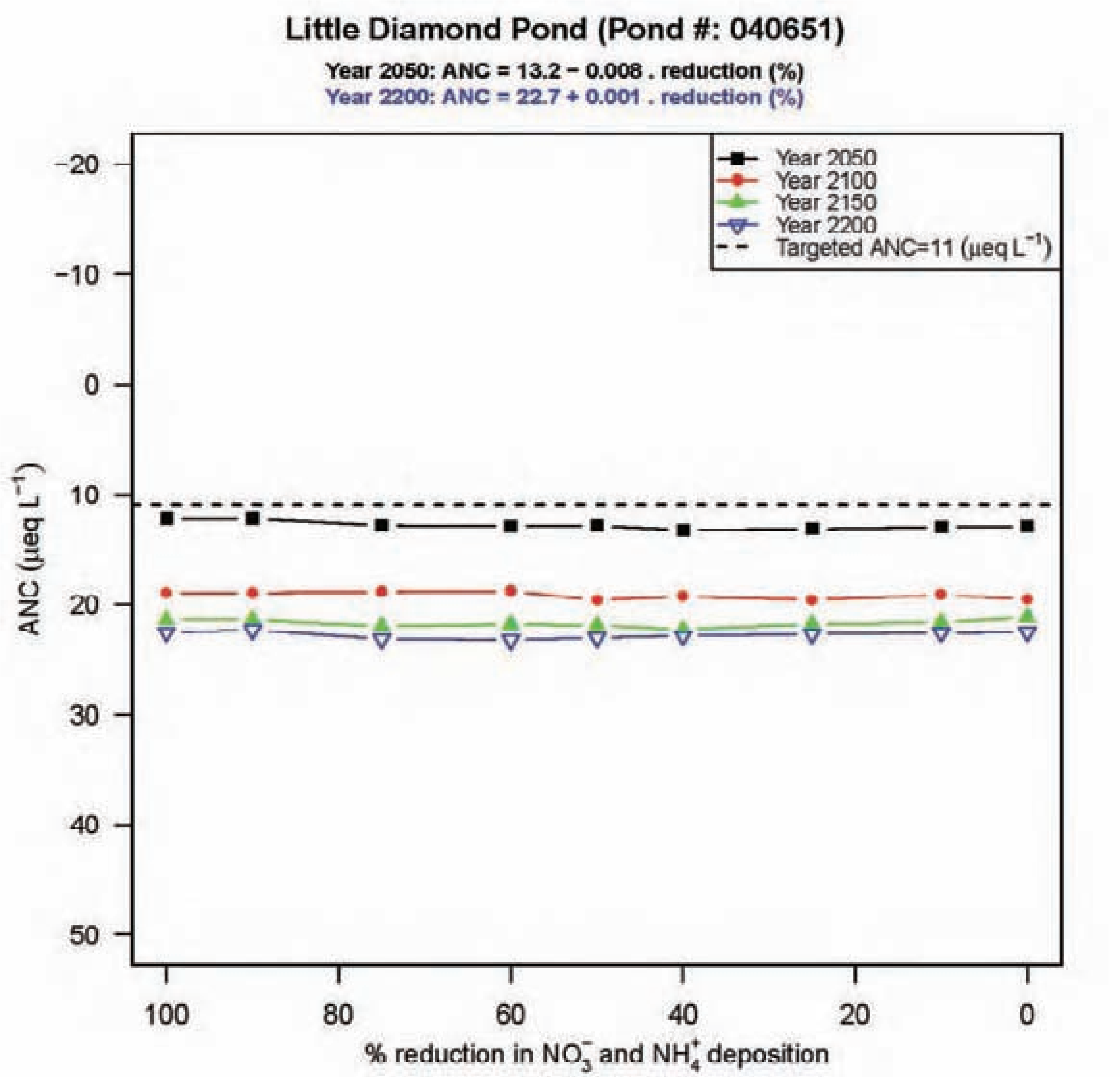


Panther Pond (Pond #: 040632)
Year 2050: ANC = 12.7 + 0 . reduction (%)
Year 2200: ANC = 23.9 + 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO3⁻ and NH4⁺ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

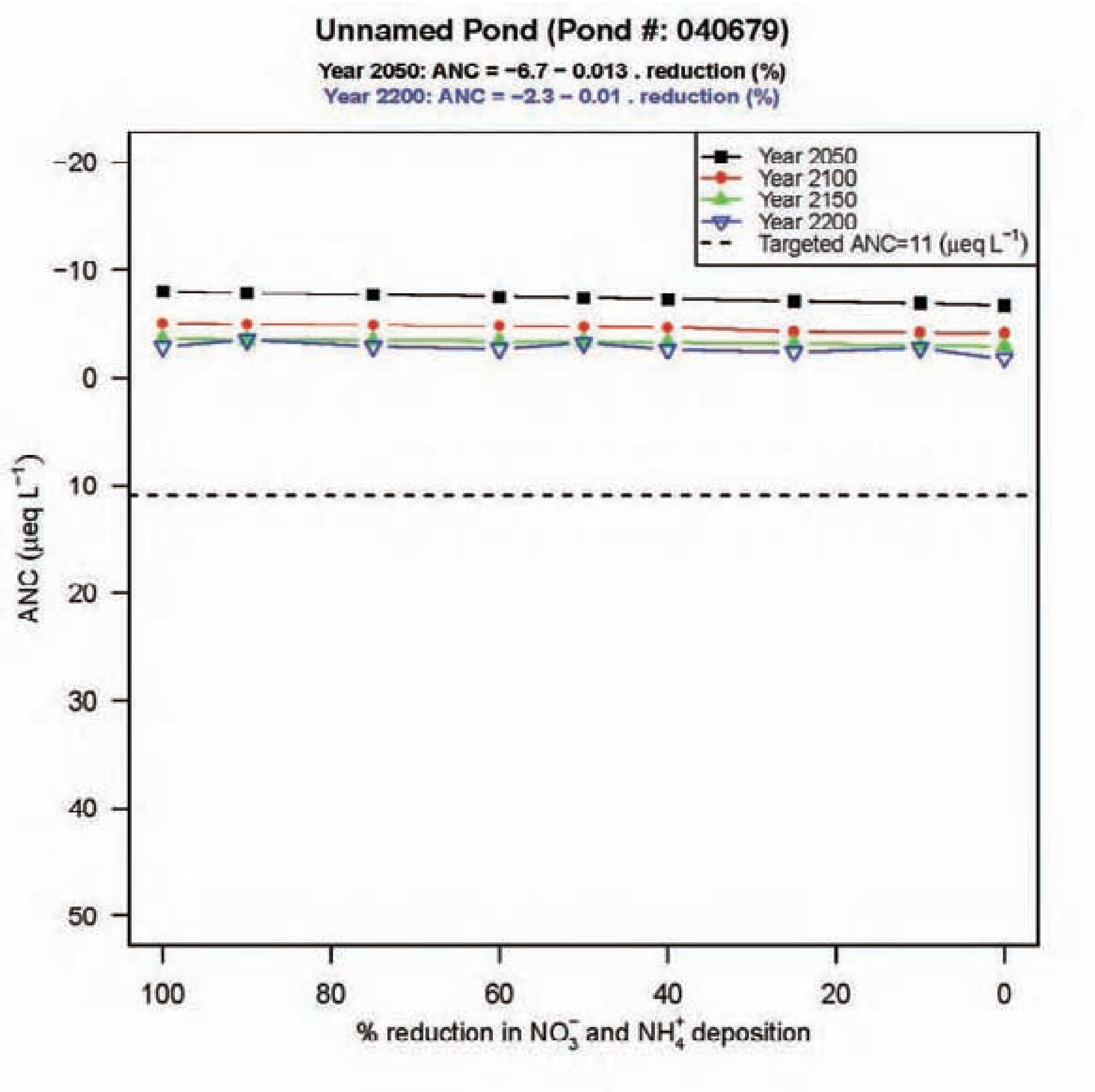

Unnamed Pond (Pond #: 040638)
Year 2050: ANC = −8.3 − 0.013 . reduction (%)
Year 2200: ANC = −3.4 − 0.014 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



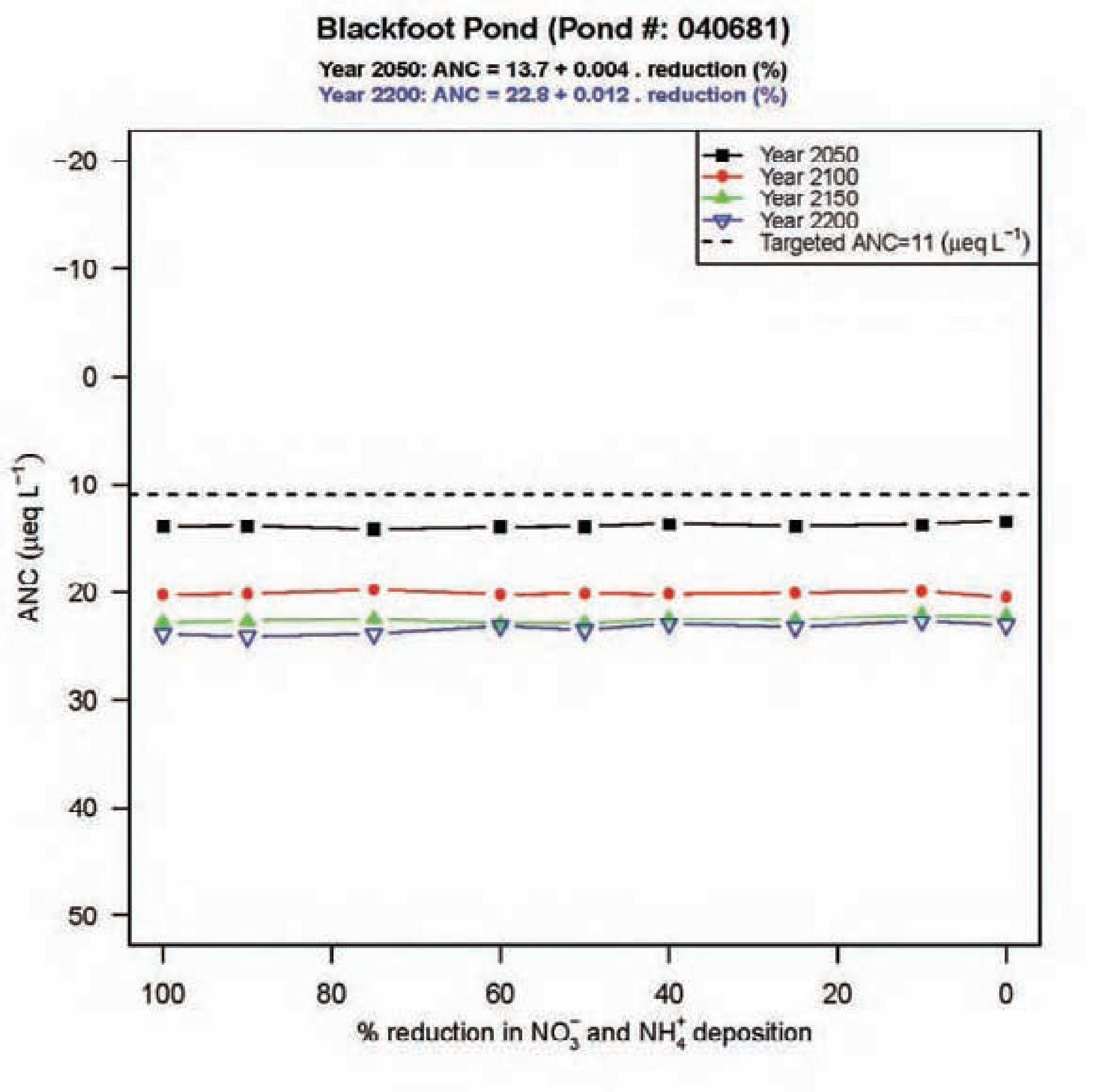
Unnamed Pond (Pond #: 040646)
Year 2050: ANC = 15.2 + 0 . reduction (%)
Year 2200: ANC = 24 + 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



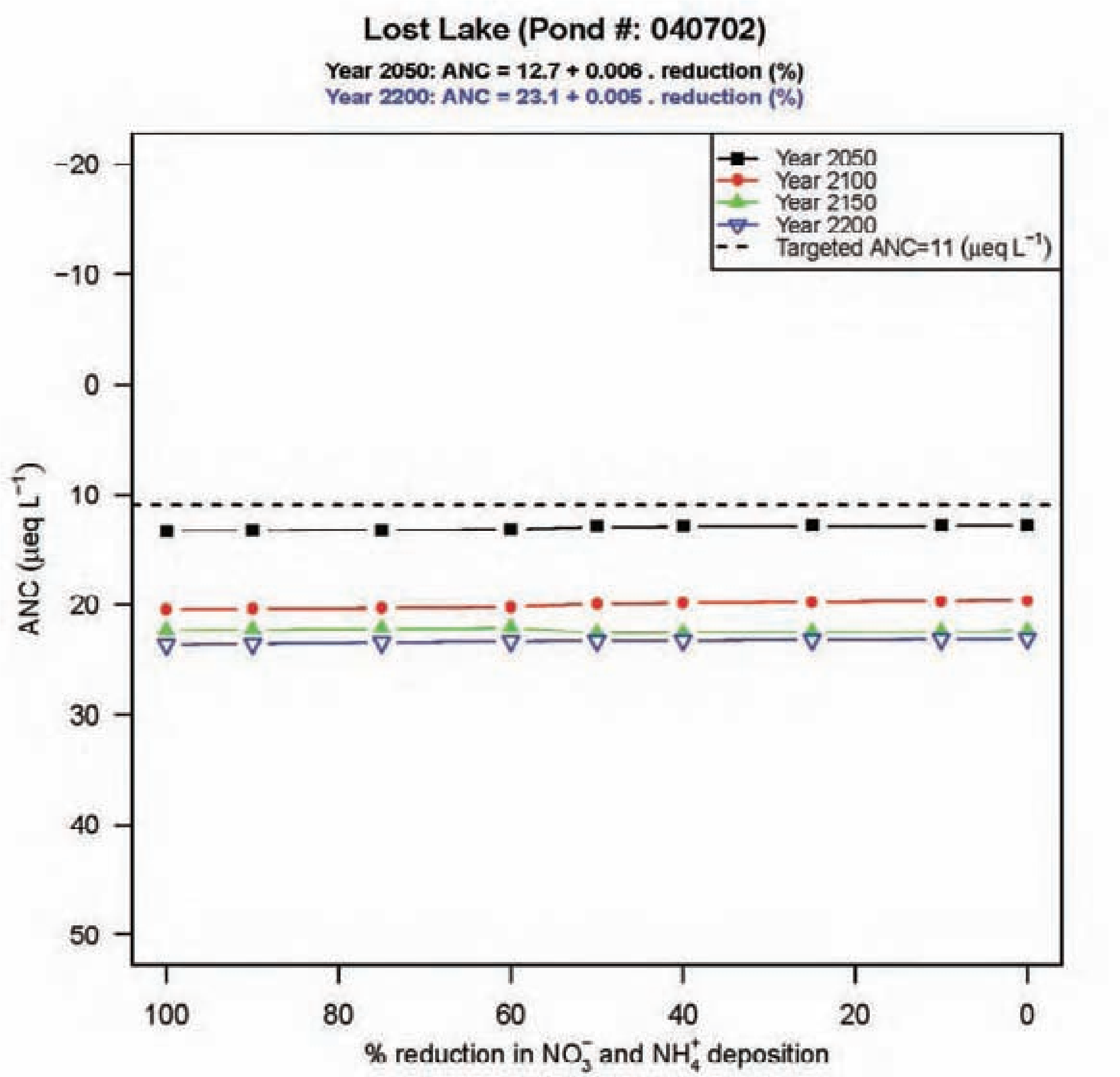
Little Diamond Pond (Pond #: 040651)
Year 2050: ANC = 13.2 − 0.008 . reduction (%)
Year 2200: ANC = 22.7 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



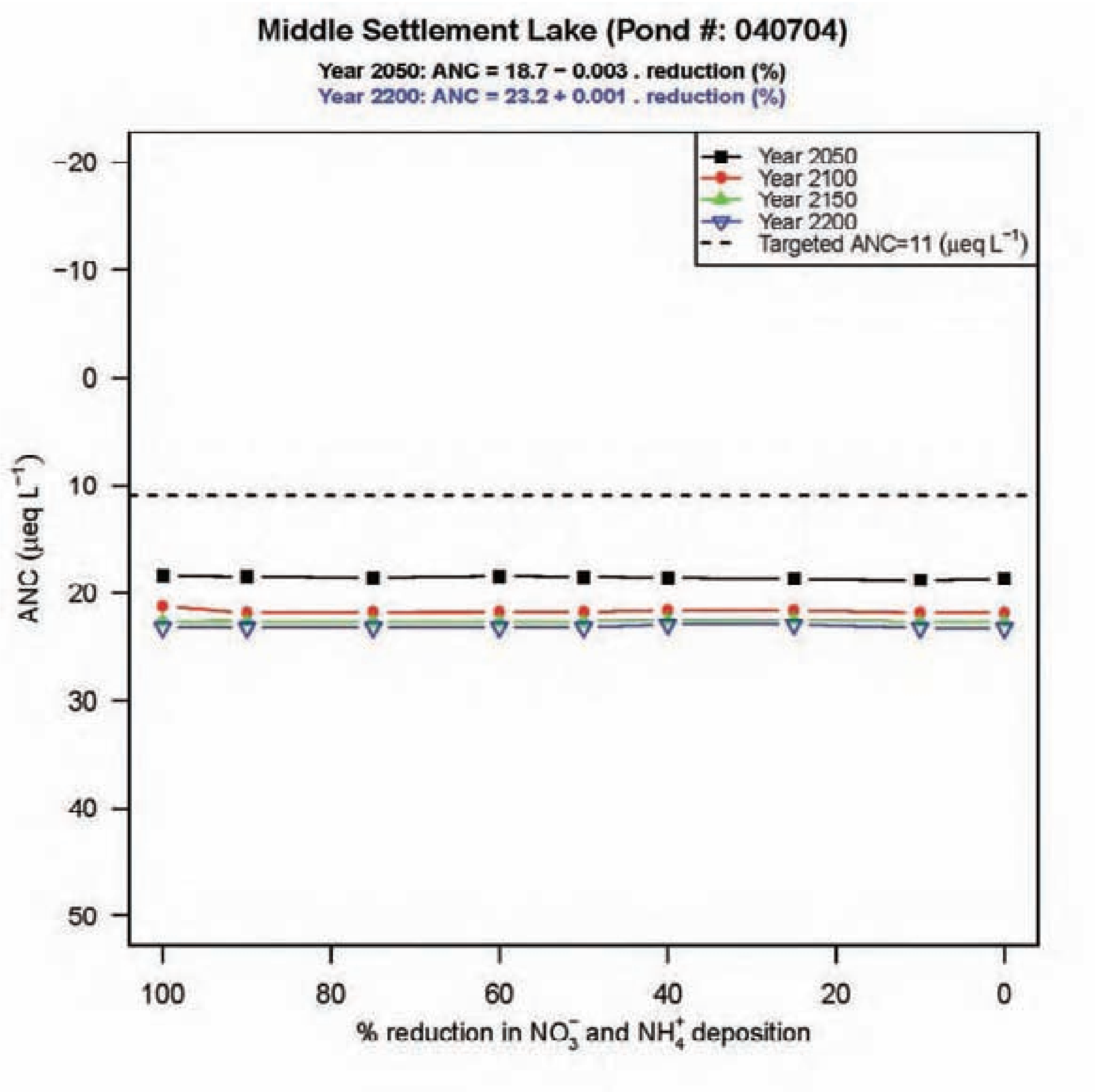
Unnamed Pond (Pond #: 040679)
Year 2050: ANC = −6.7 − 0.013 . reduction (%)
Year 2200: ANC = −2.3 − 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



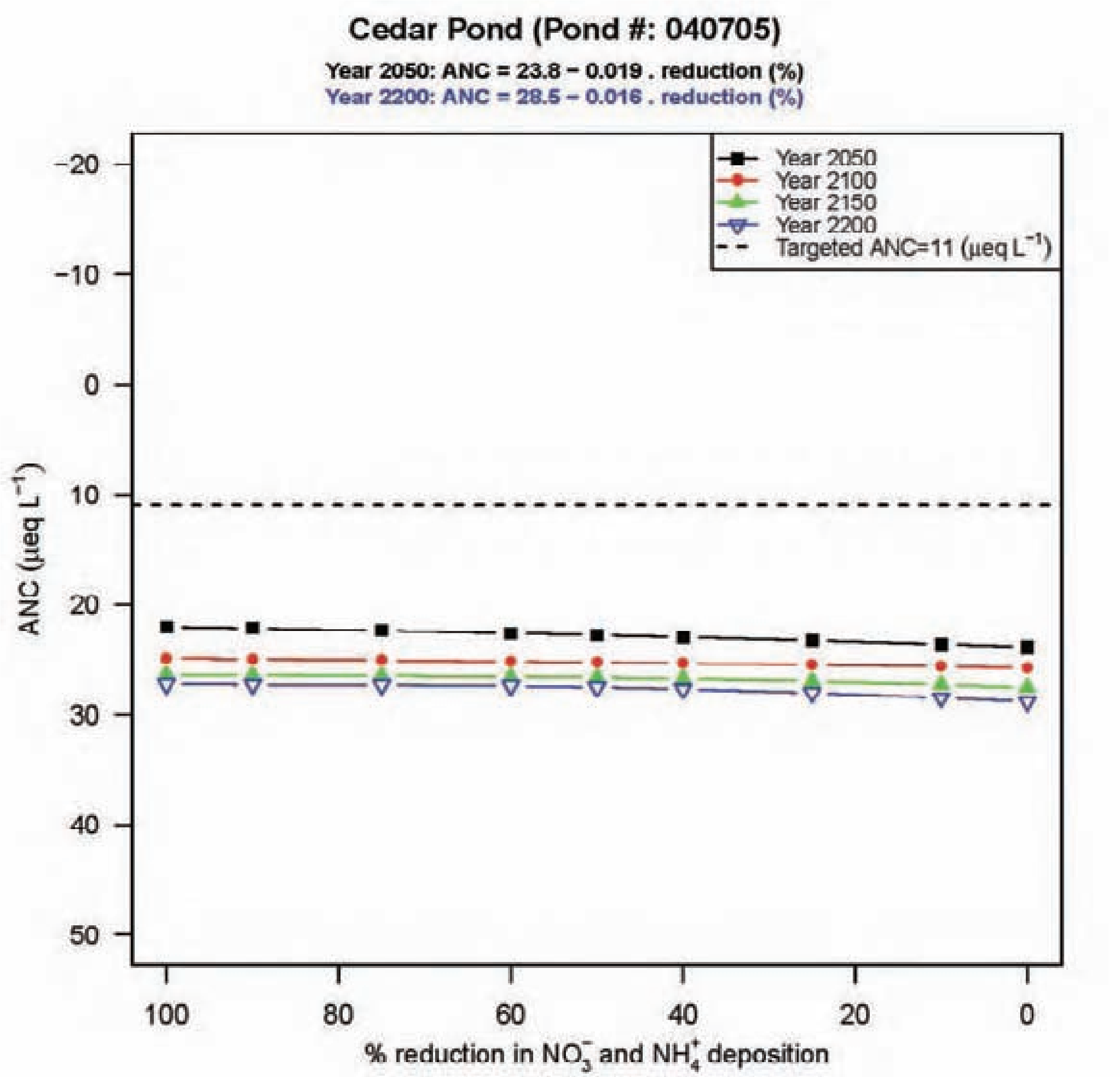
Blackfoot Pond (Pond #: 040681)
Year 2050: ANC = 13.7 + 0.004 . reduction (%)
Year 2200: ANC = 22.8 + 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



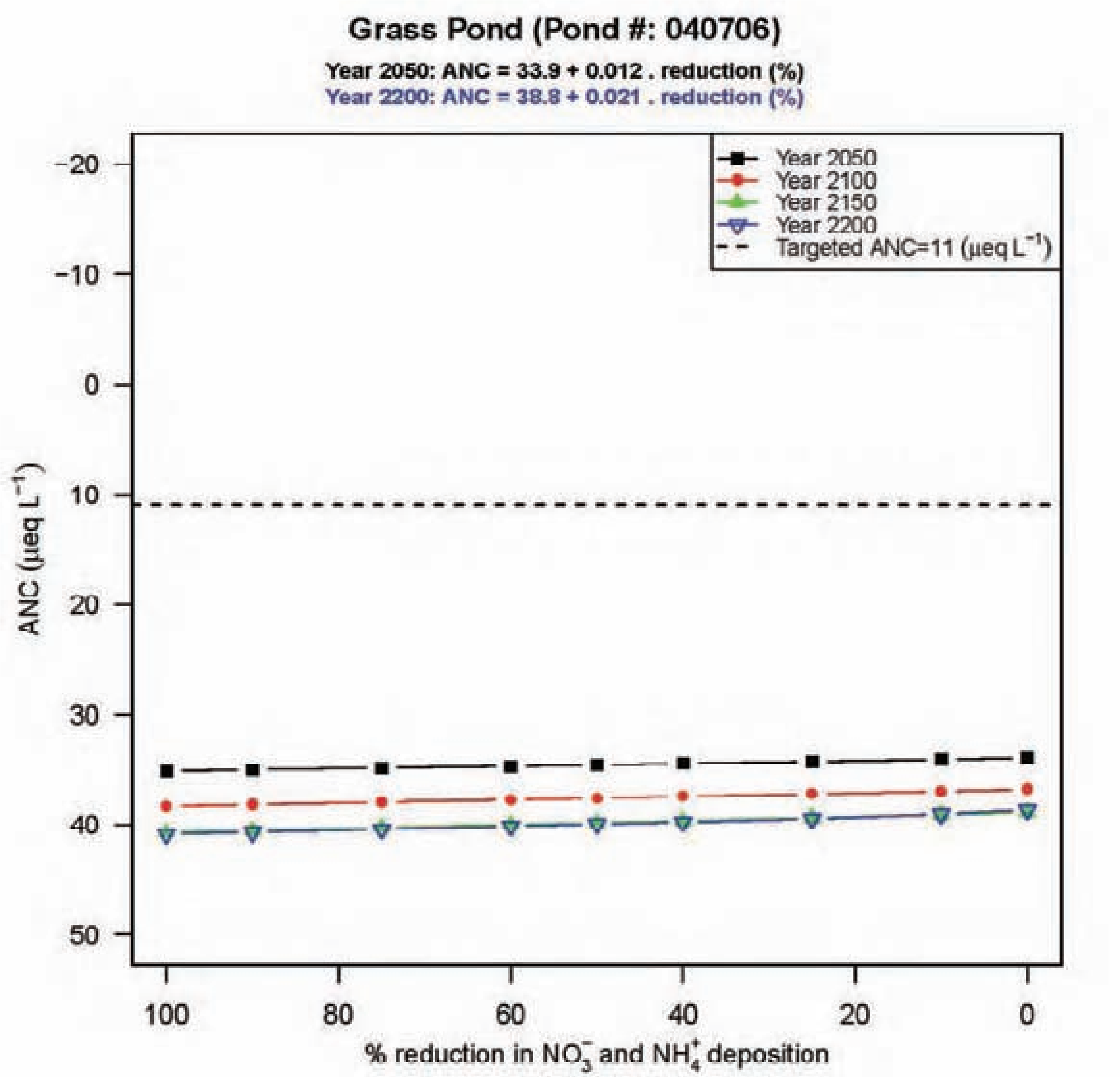
Lost Lake (Pond #: 040702)
Year 2050: ANC = 12.7 + 0.006 . reduction (%)
Year 2200: ANC = 23.1 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



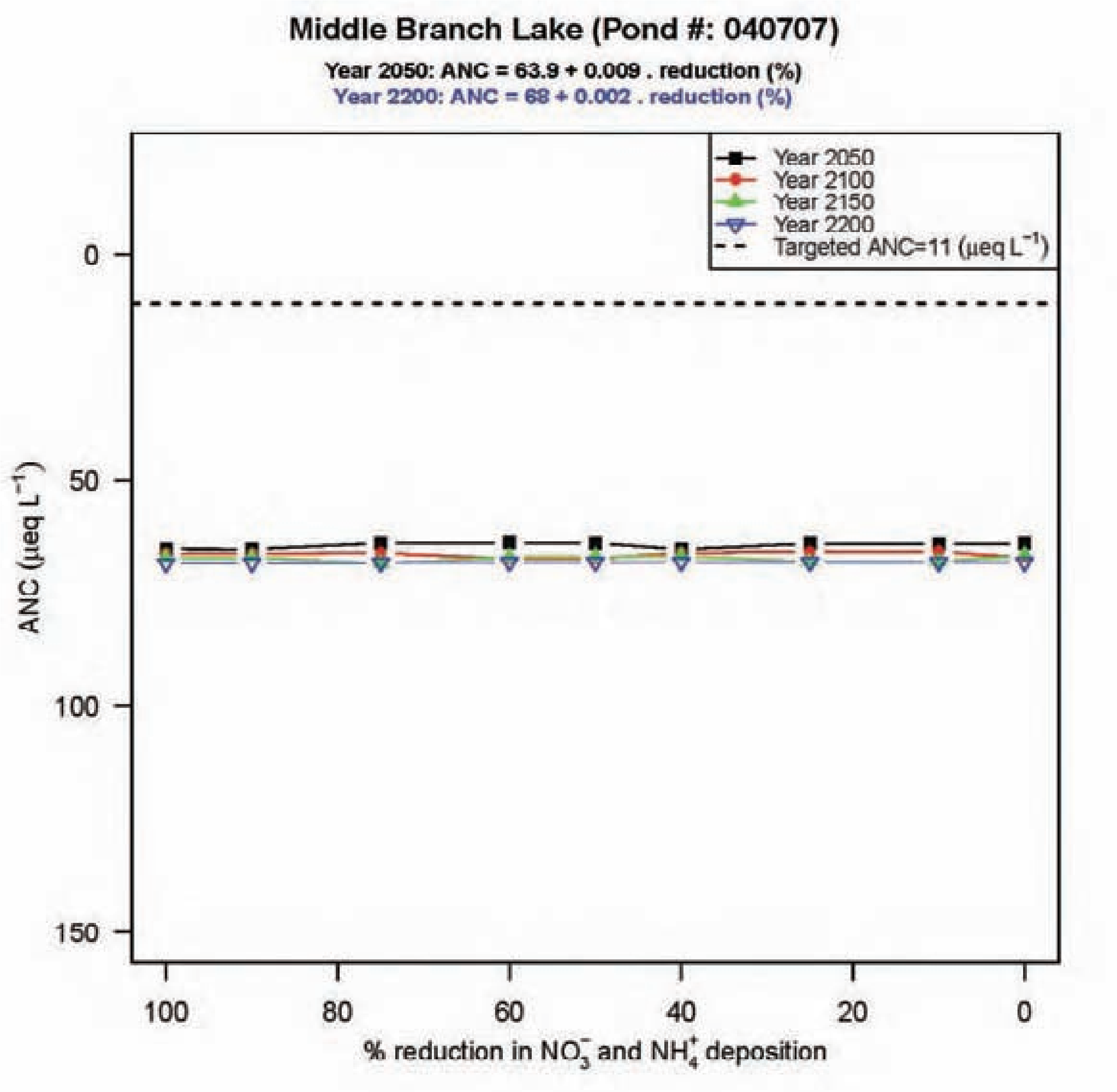
Middle Settlement Lake (Pond #: 040704)
Year 2050: ANC = 18.7 − 0.003 . reduction (%)
Year 2200: ANC = 23.2 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

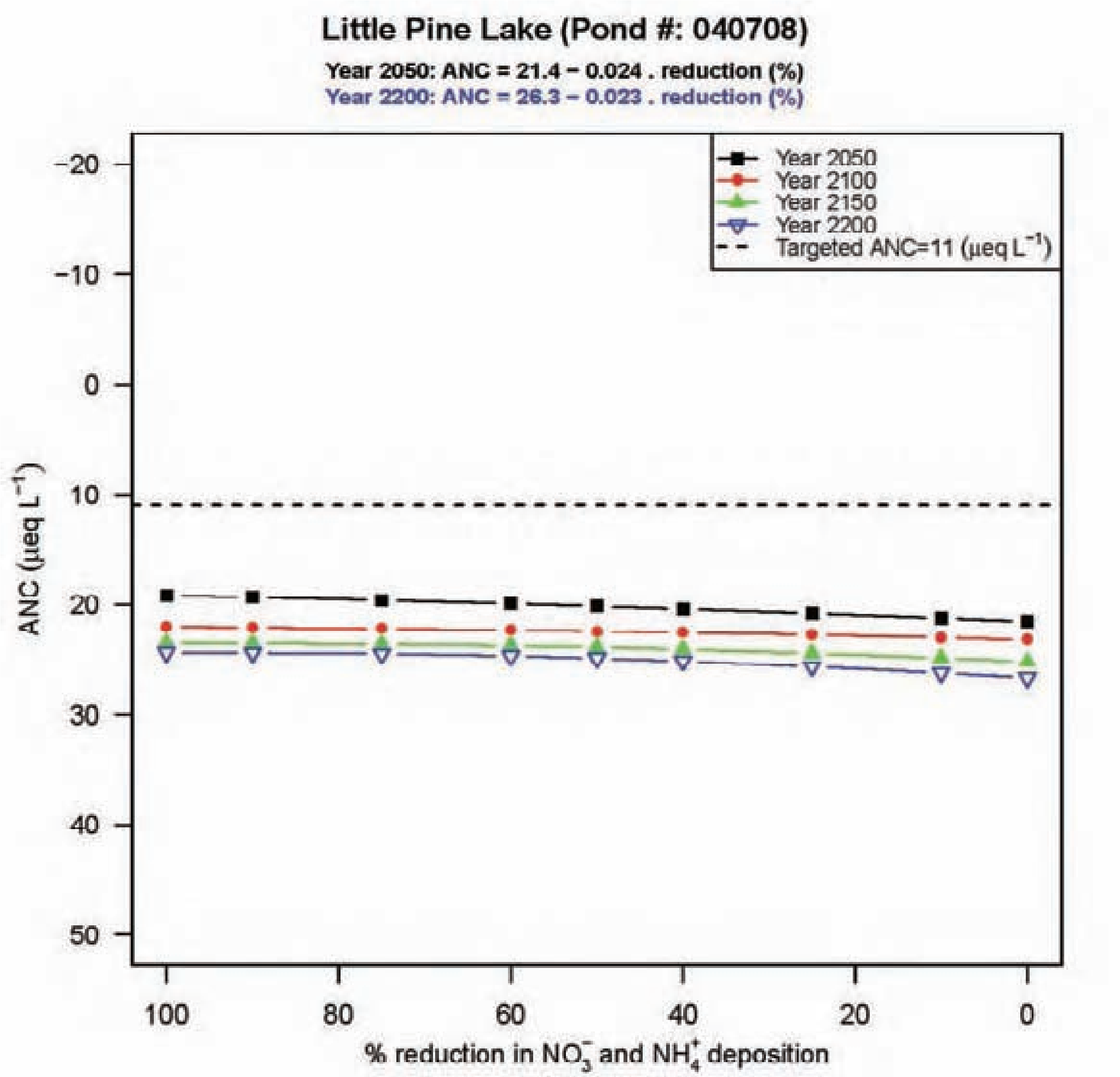


Cedar Pond (Pond #: 040705)
Year 2050: ANC = 23.8 − 0.019 . reduction (%)
Year 2200: ANC = 28.5 − 0.016 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

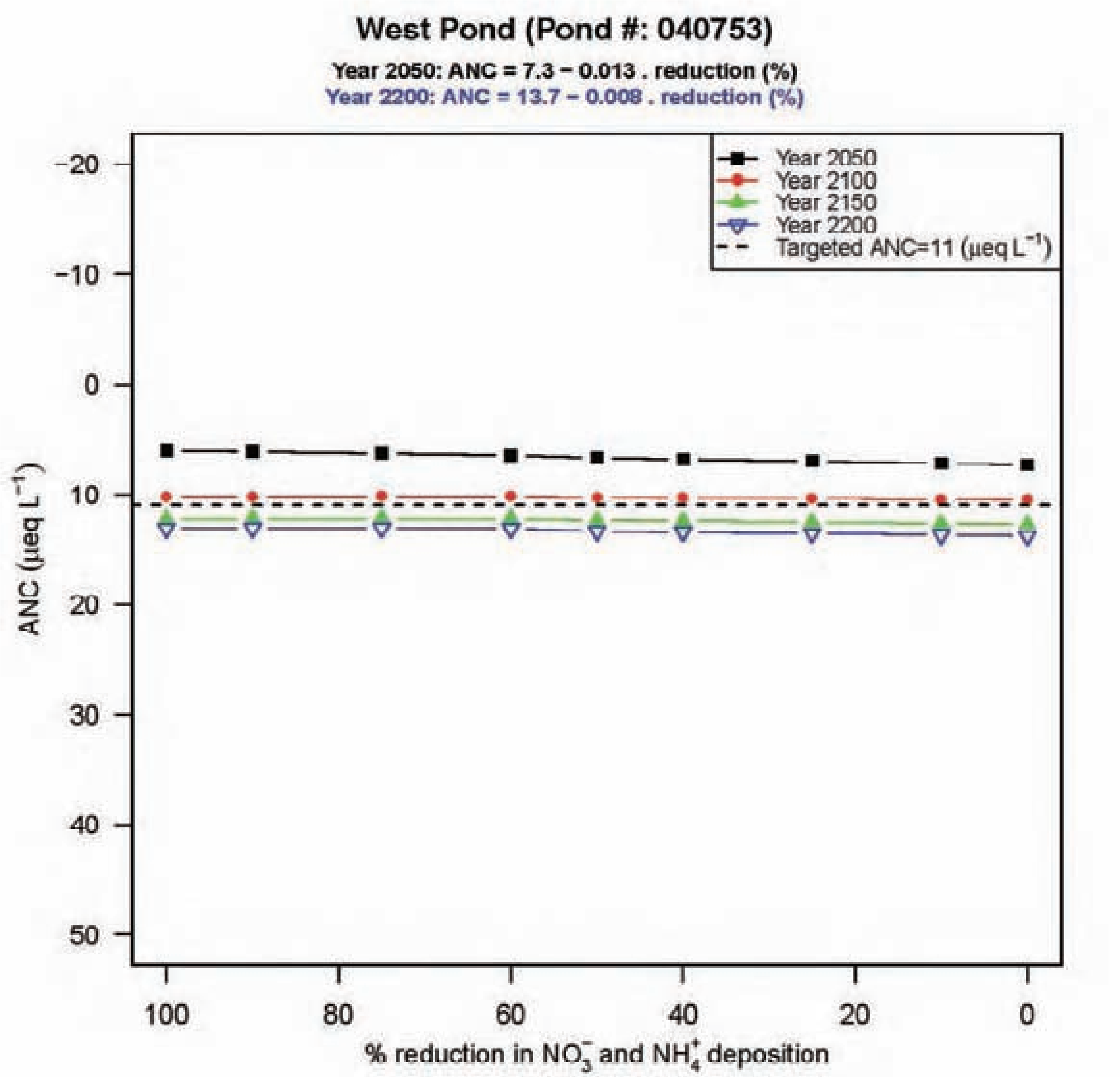


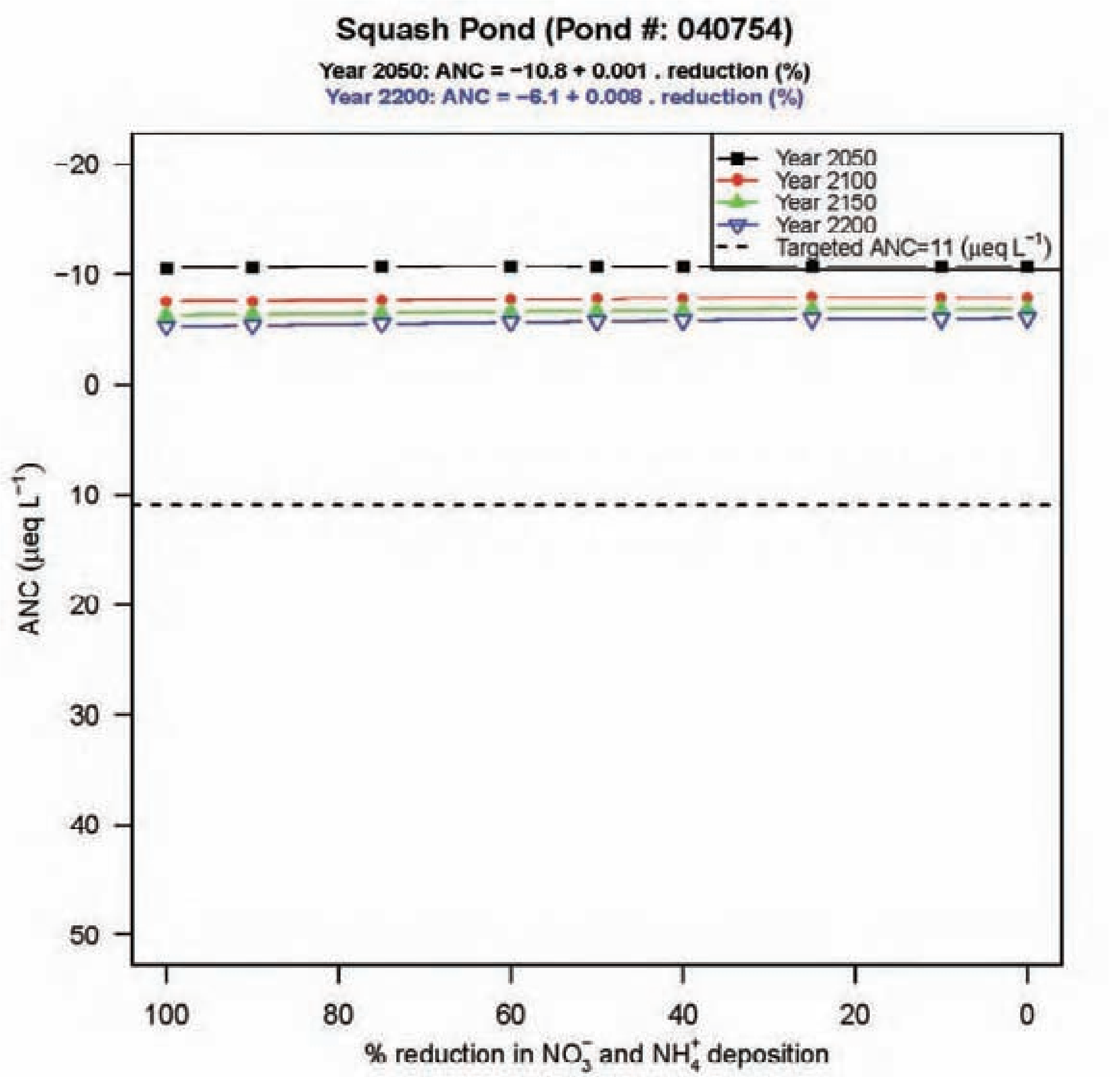
Grass Pond (Pond #: 040706)
Year 2050: ANC = 33.9 + 0.012 . reduction (%)
Year 2200: ANC = 38.8 + 0.021 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition


Middle Branch Lake (Pond #: 040707)
Year 2050: ANC = 63.9 + 0.009 . reduction (%)
Year 2200: ANC = 68 + 0.002 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
0
50
100
150
ANC (µeq L^{-1})
100
80
60
40
20
0
% reduction in NO_3^- and NH_4^+ deposition

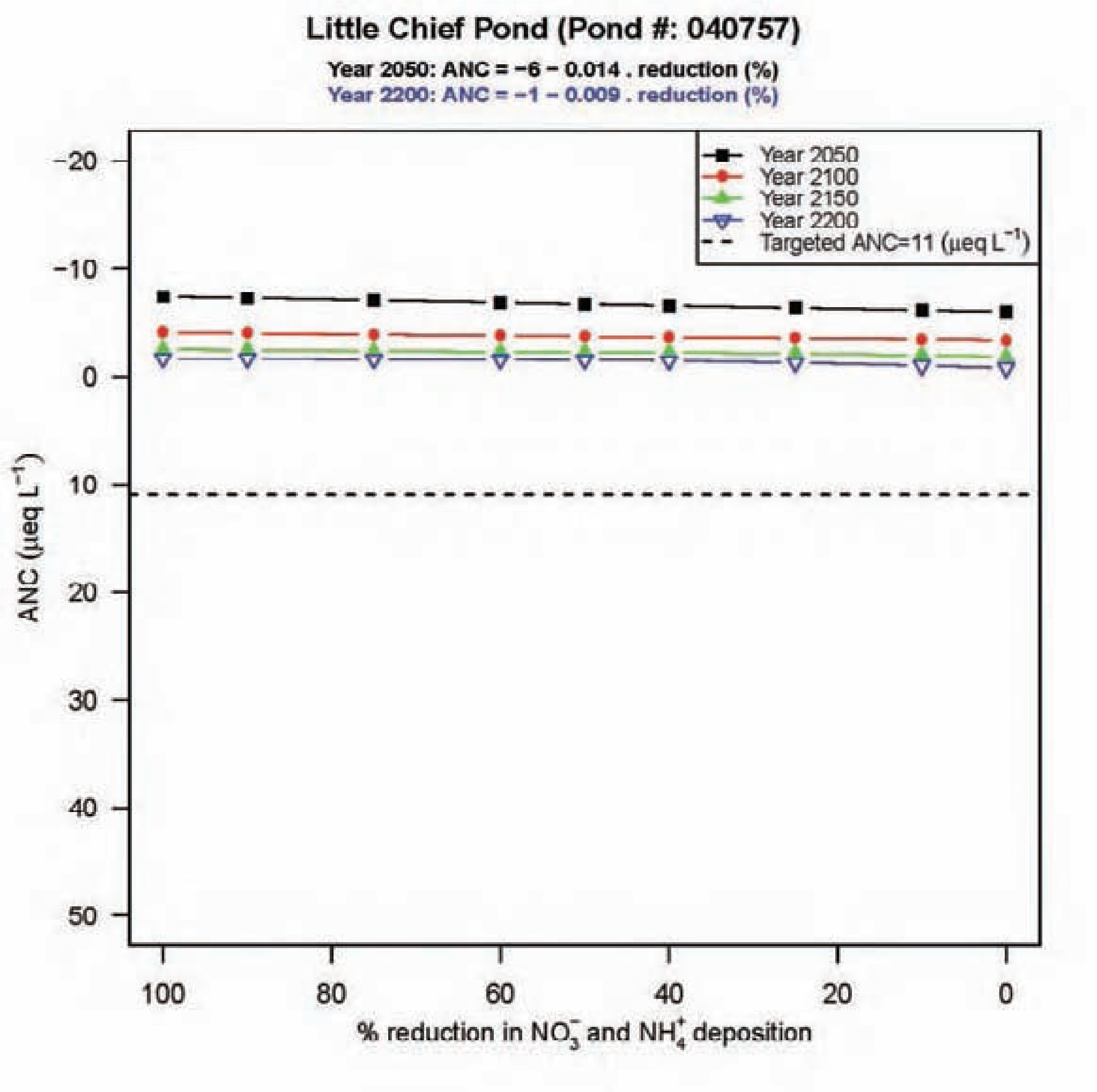


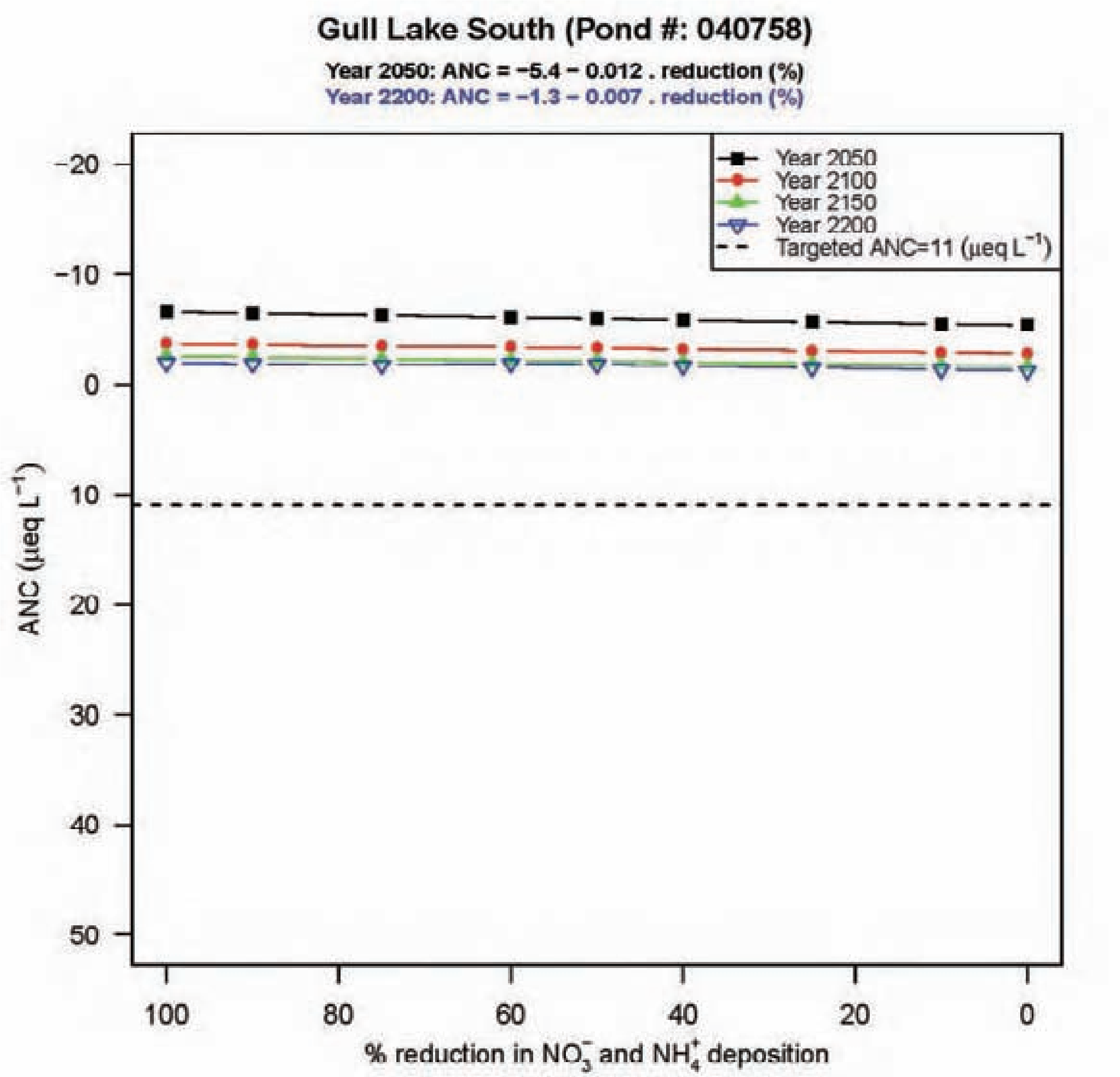
Little Pine Lake (Pond #: 040708)
Year 2050: ANC = 21.4 – 0.024 . reduction (%)
Year 2200: ANC = 26.3 – 0.023 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
–20
–10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


West Pond (Pond #: 040753)
Year 2050: ANC = 7.3 − 0.013 . reduction (%)
Year 2200: ANC = 13.7 − 0.008 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0

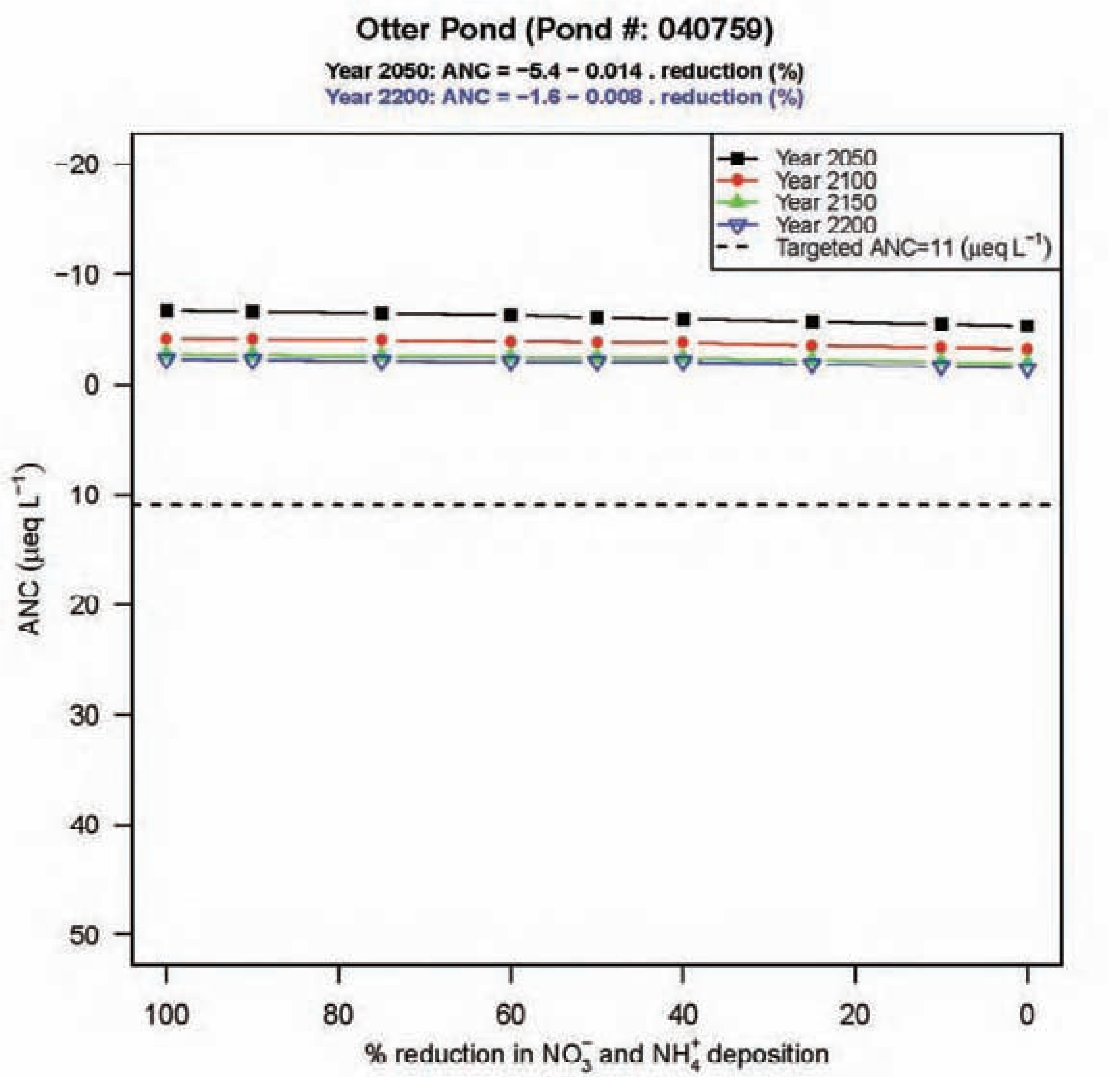


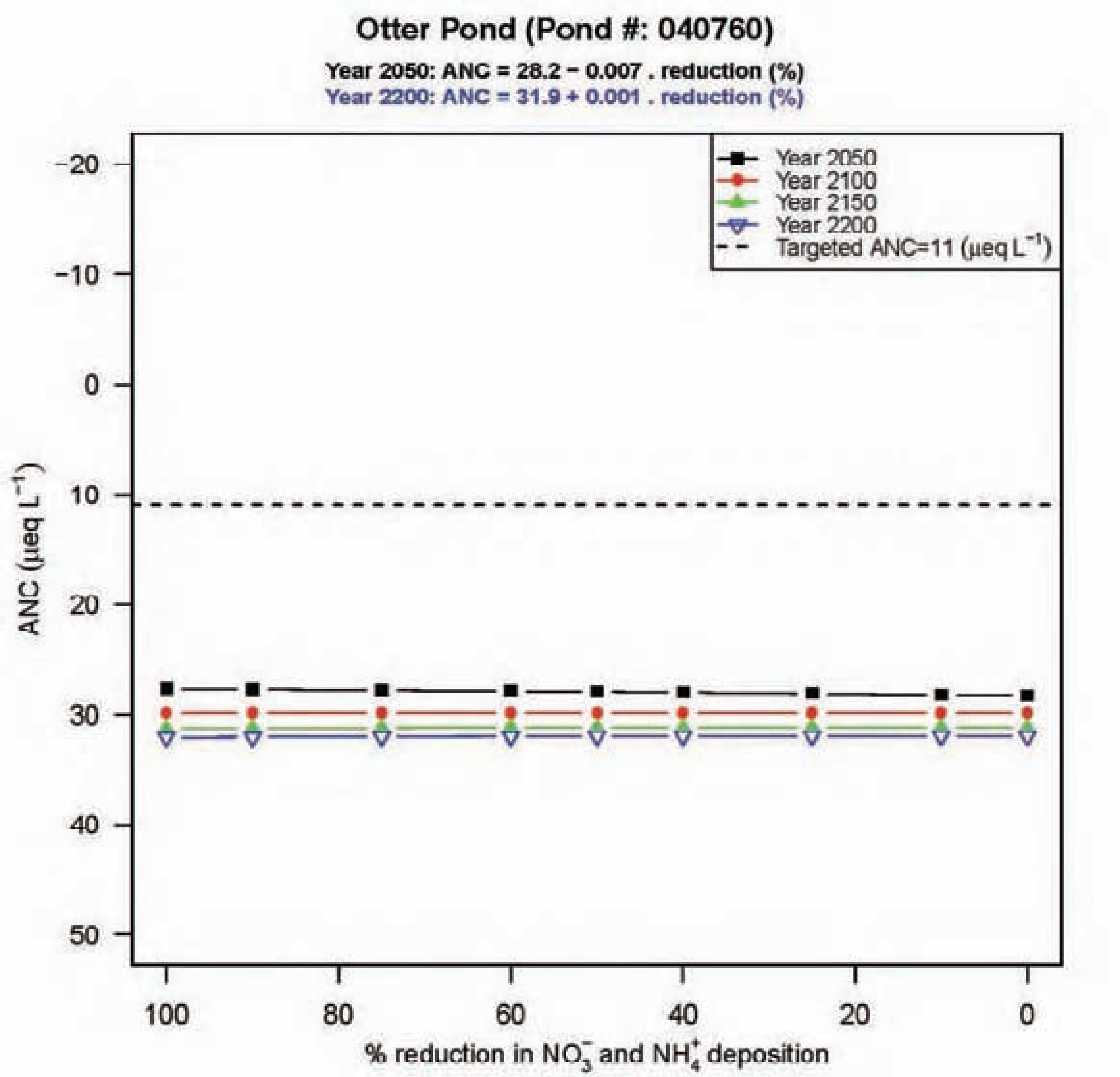
Squash Pond (Pond #: 040754)
Year 2050: ANC = −10.8 + 0.001 . reduction (%)
Year 2200: ANC = −6.1 + 0.008 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0


Little Chief Pond (Pond #: 040757)
Year 2050: ANC = −6 − 0.014 . reduction (%)
Year 2200: ANC = −1 − 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

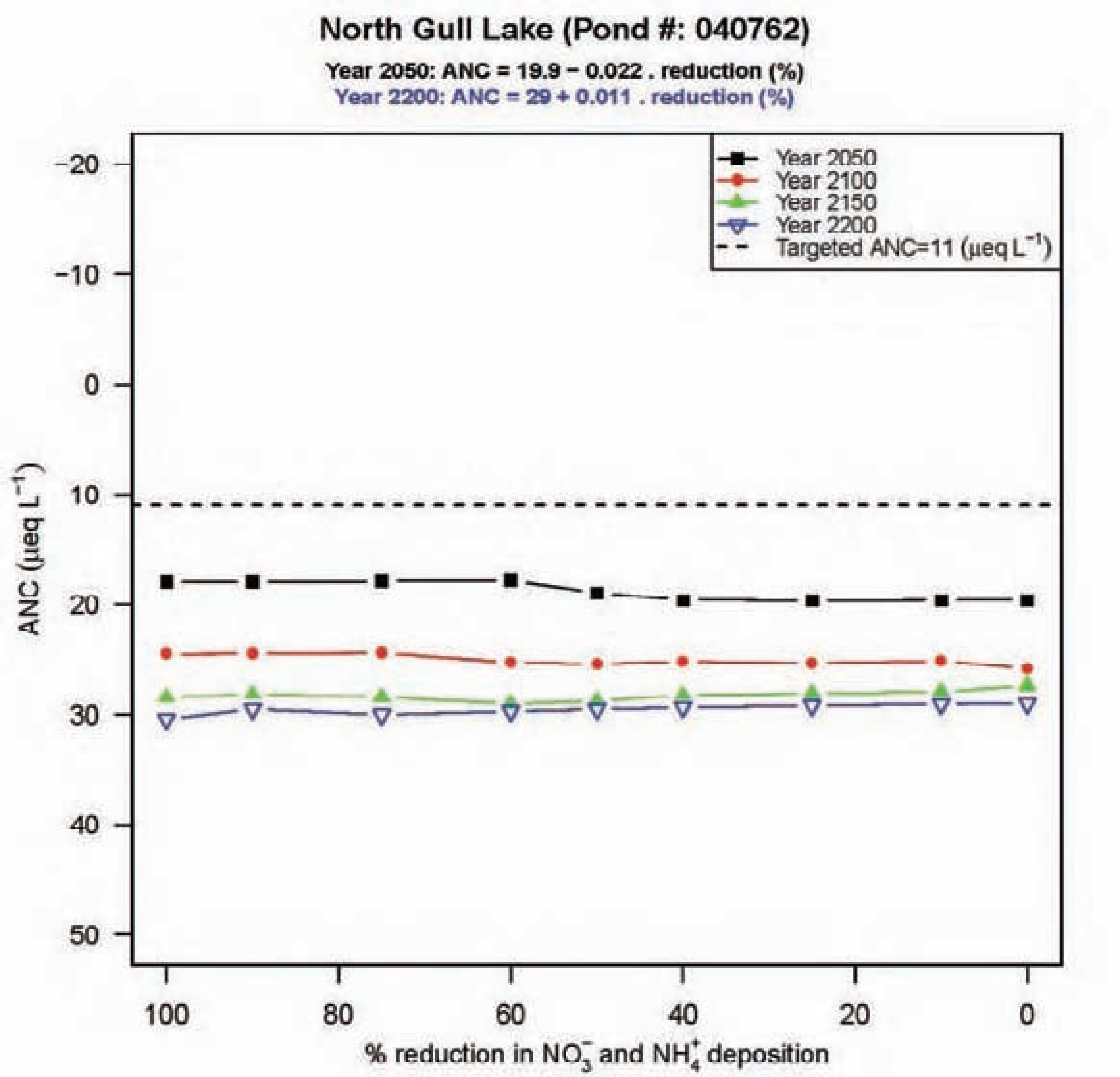


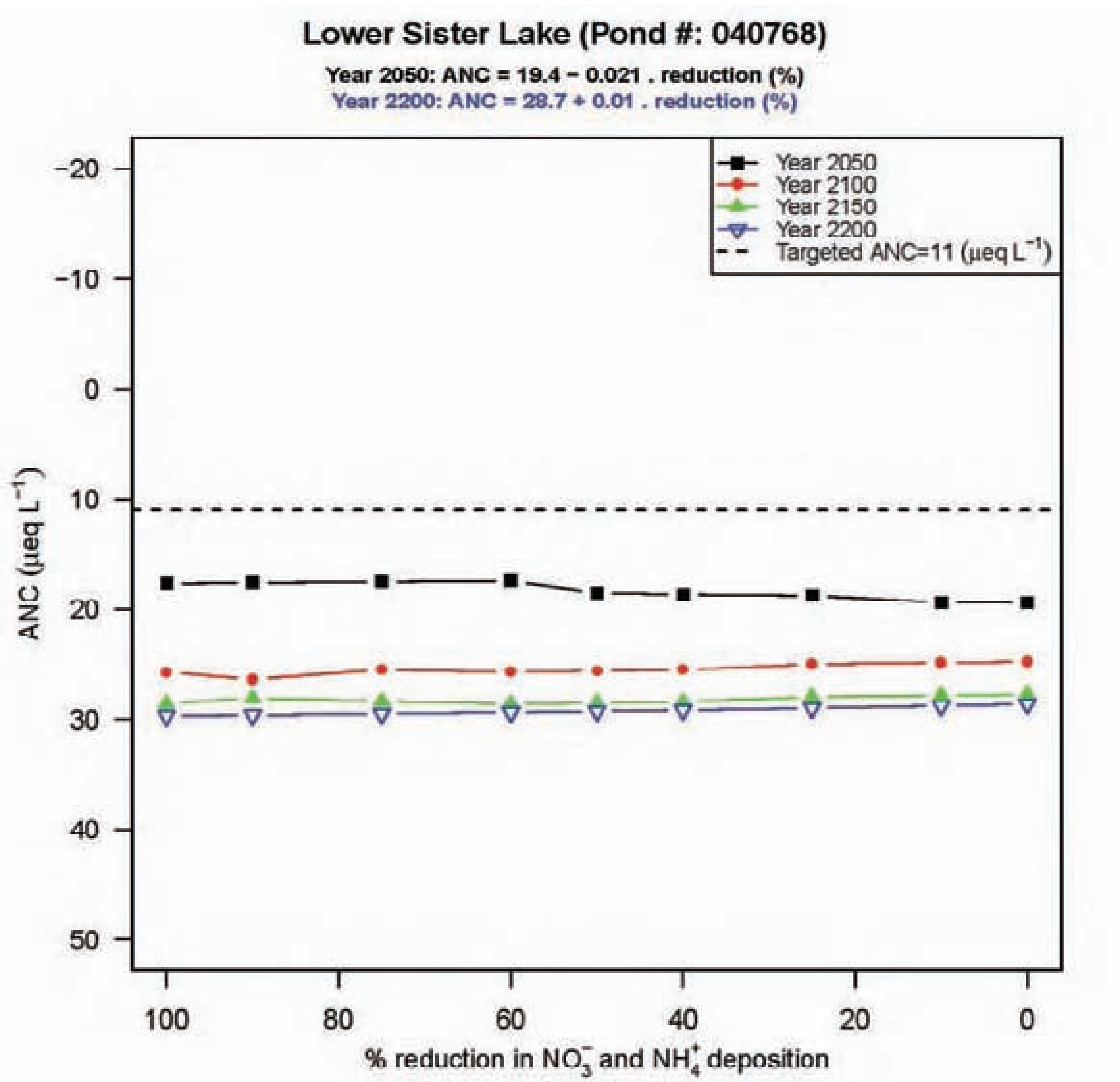
Gull Lake South (Pond #: 040758)
Year 2050: ANC = −5.4 − 0.012 . reduction (%)
Year 2200: ANC = −1.3 − 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Otter Pond (Pond #: 040759)
Year 2050: ANC = −5.4 − 0.014 . reduction (%)
Year 2200: ANC = −1.6 − 0.008 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L−1)
−20
−10
0
10
20
30
40
50
ANC (µeq L−1)
100
80
60
40
20
0
% reduction in NO3− and NH4+ deposition

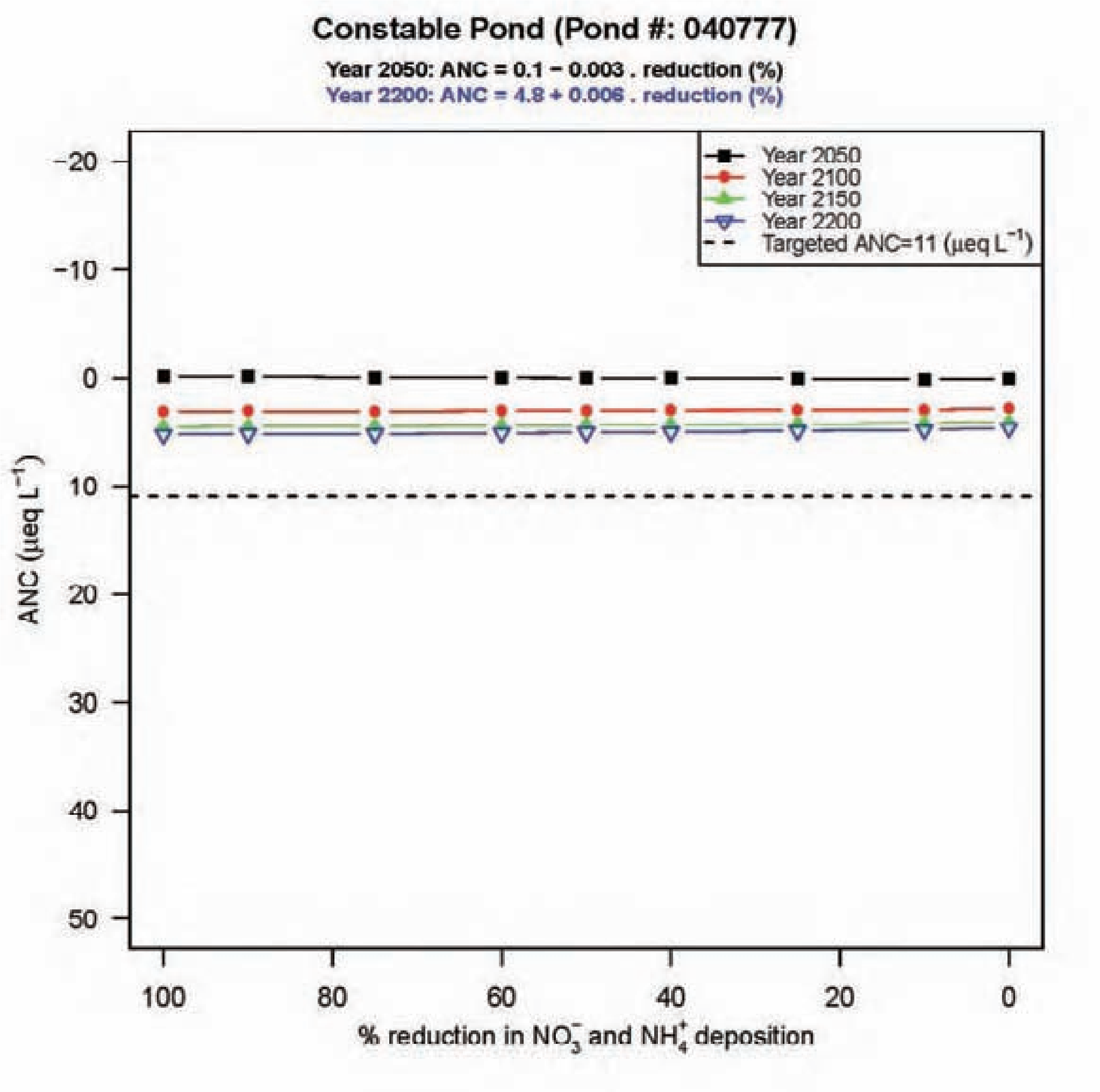


Otter Pond (Pond #: 040760)
Year 2050: ANC = 28.2 − 0.007 . reduction (%)
Year 2200: ANC = 31.9 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

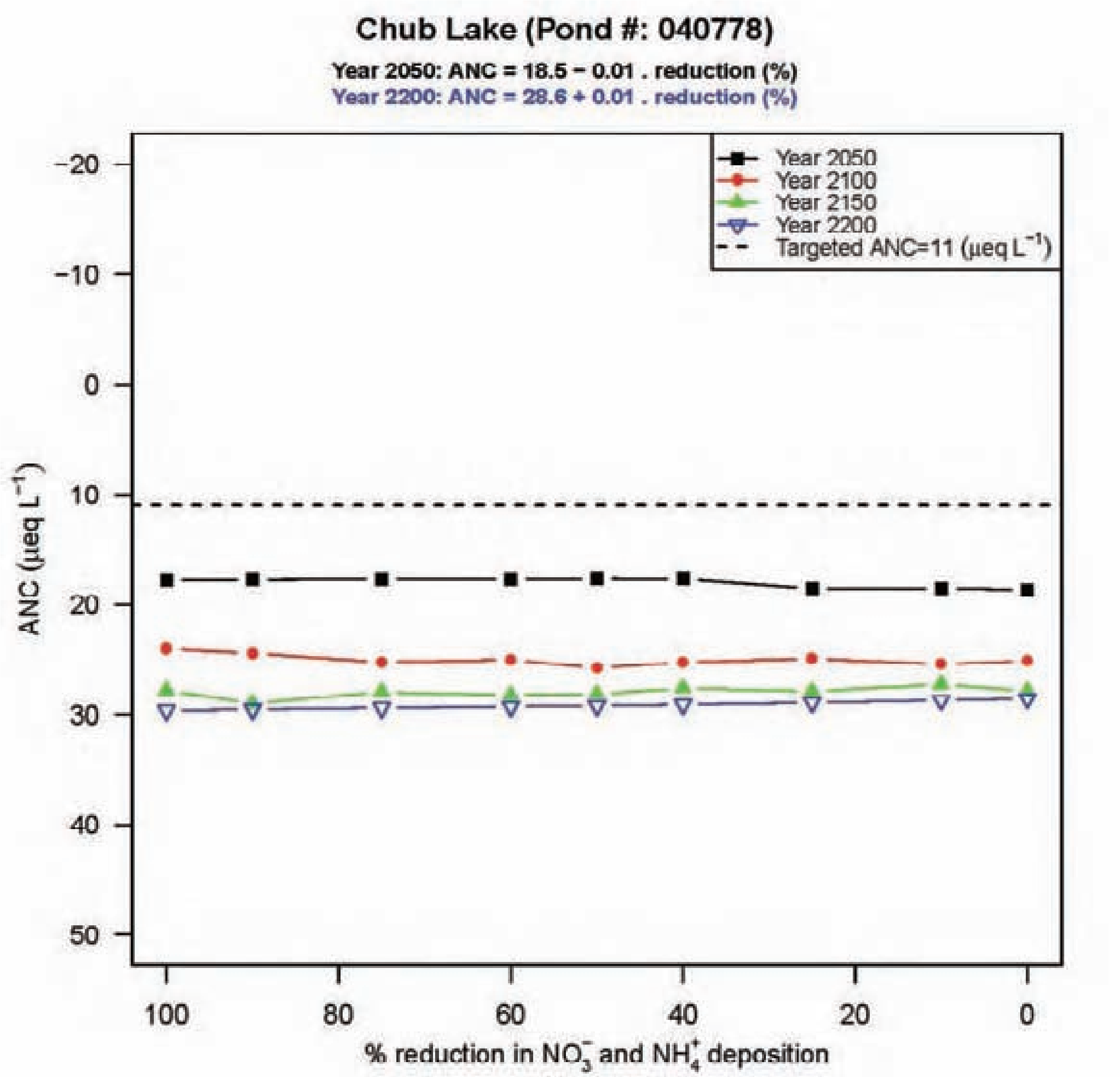

North Gull Lake (Pond #: 040762)
Year 2050: ANC = 19.9 − 0.022 . reduction (%)
Year 2200: ANC = 29 + 0.011 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



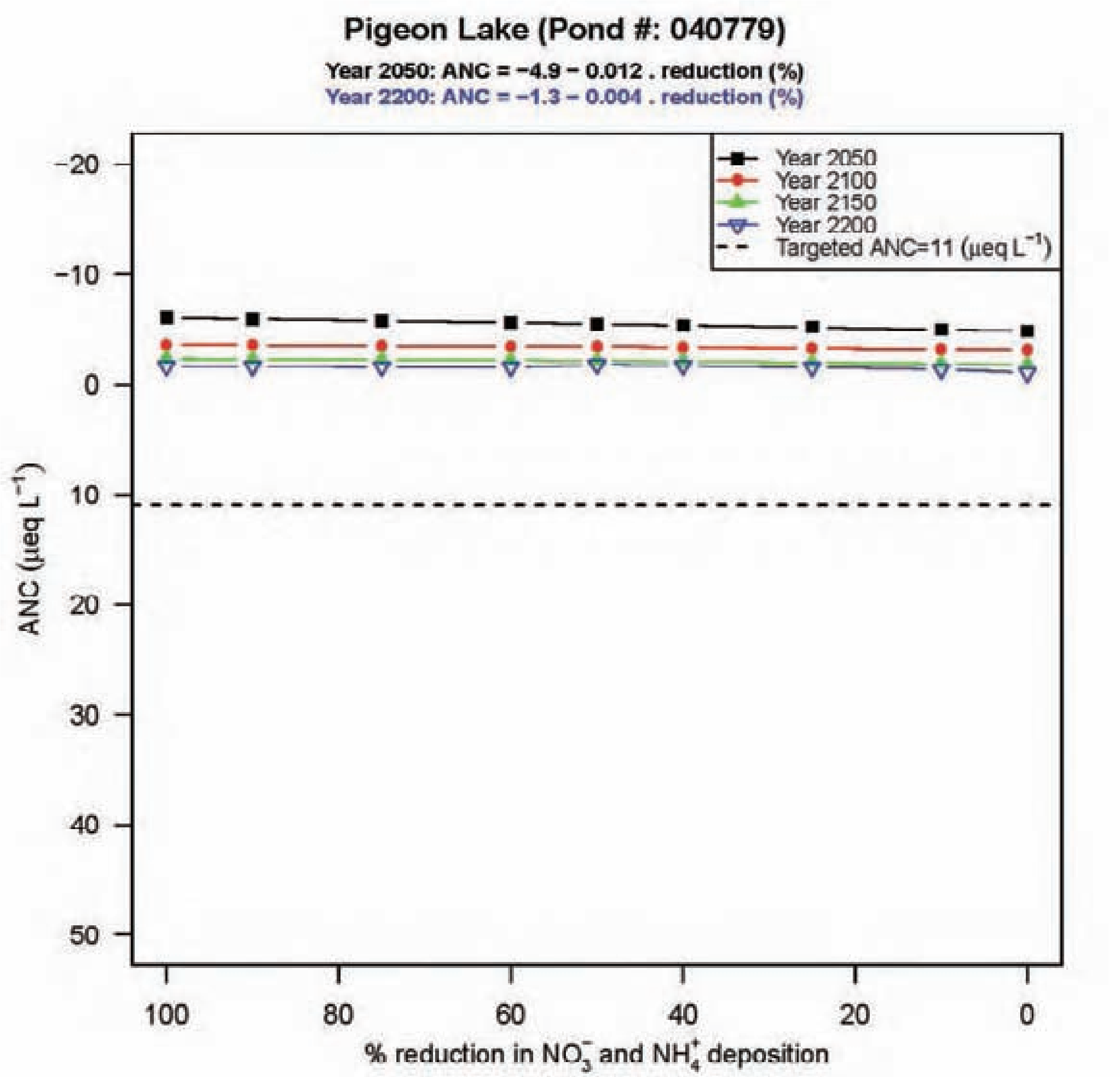
Lower Sister Lake (Pond #: 040768)
Year 2050: ANC = 19.4 − 0.021 . reduction (%)
Year 2200: ANC = 28.7 + 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



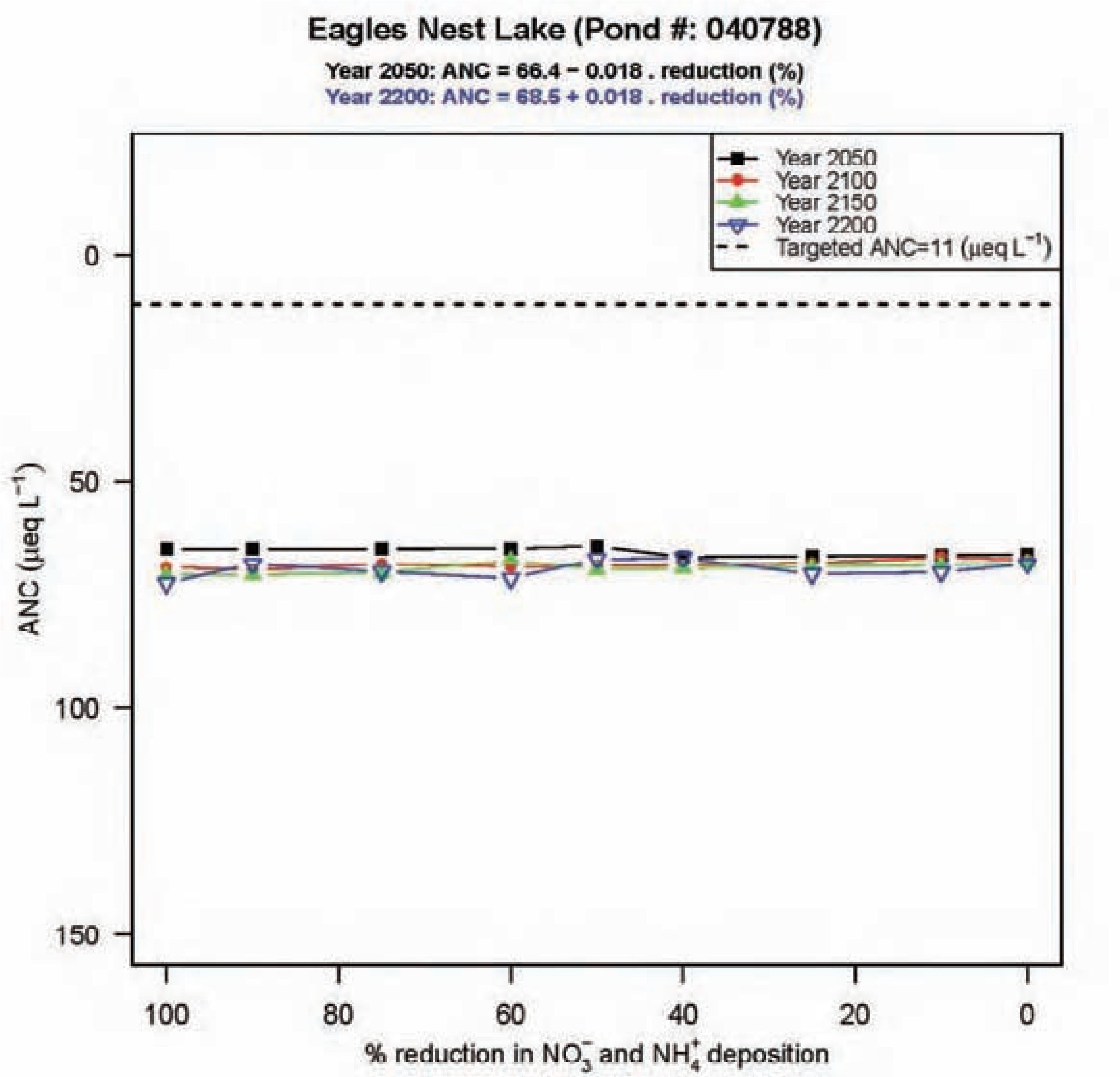
Constable Pond (Pond #: 040777)
Year 2050: ANC = 0.1 − 0.003 . reduction (%)
Year 2200: ANC = 4.8 + 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



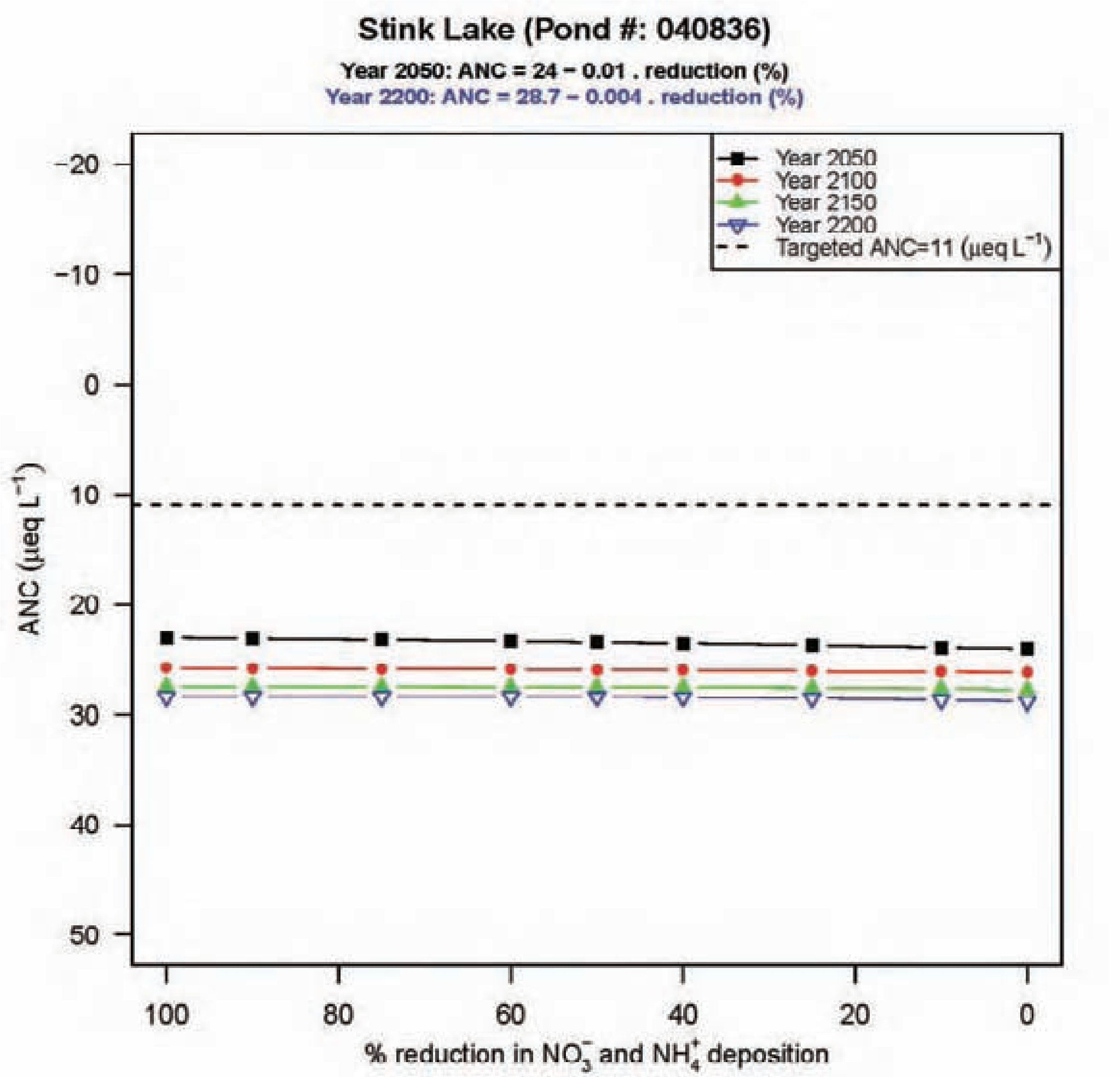
Chub Lake (Pond #: 040778)
Year 2050: ANC = 18.5 − 0.01 . reduction (%)
Year 2200: ANC = 28.6 + 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

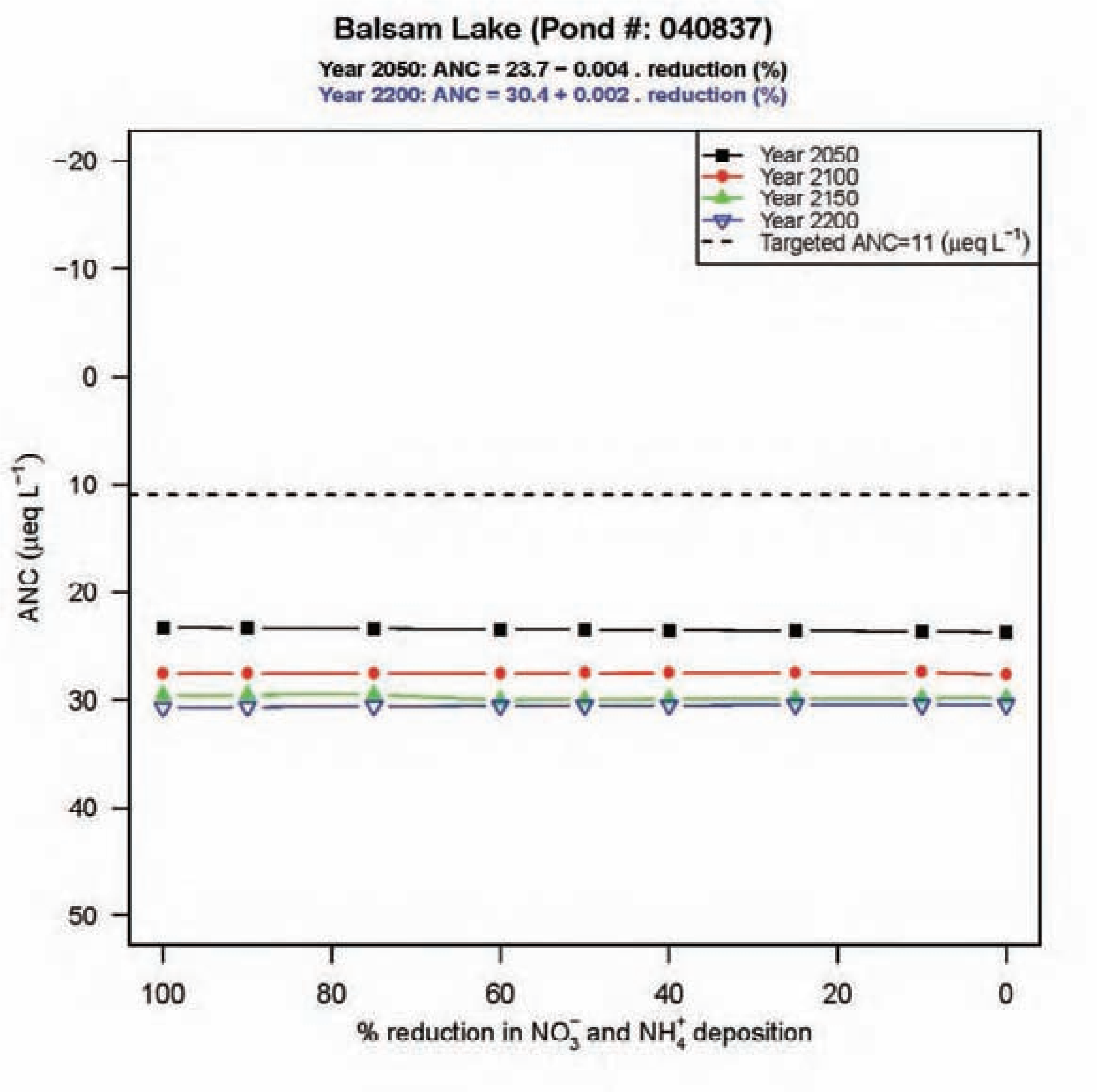


Pigeon Lake (Pond #: 040779)
Year 2050: ANC = −4.9 − 0.012 . reduction (%)
Year 2200: ANC = −1.3 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L−1)
ANC (µeq L−1)
% reduction in NO3− and NH4+ deposition

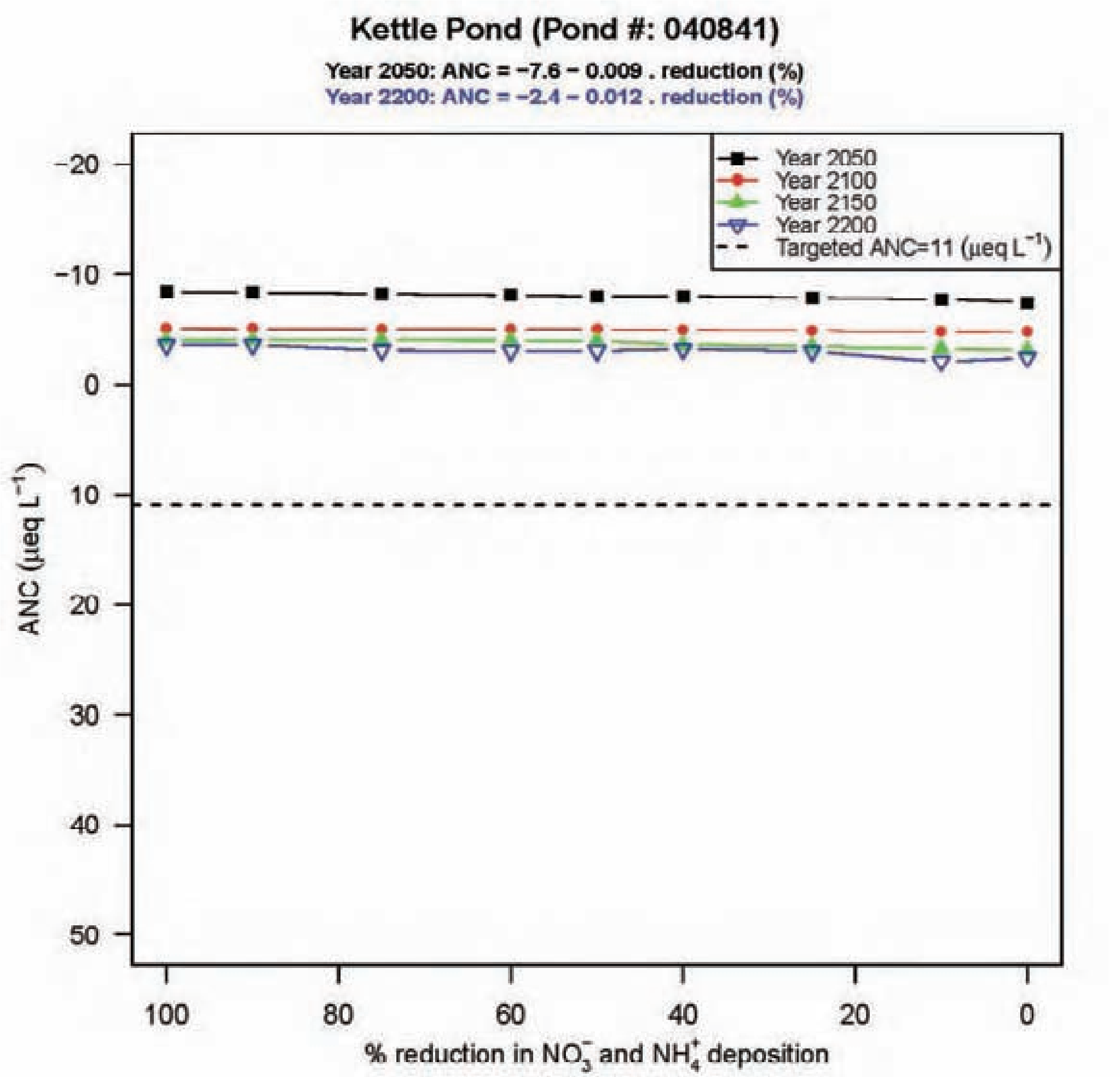


Eagles Nest Lake (Pond #: 040788)
Year 2050: ANC = 66.4 − 0.018 . reduction (%)
Year 2200: ANC = 68.5 + 0.018 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

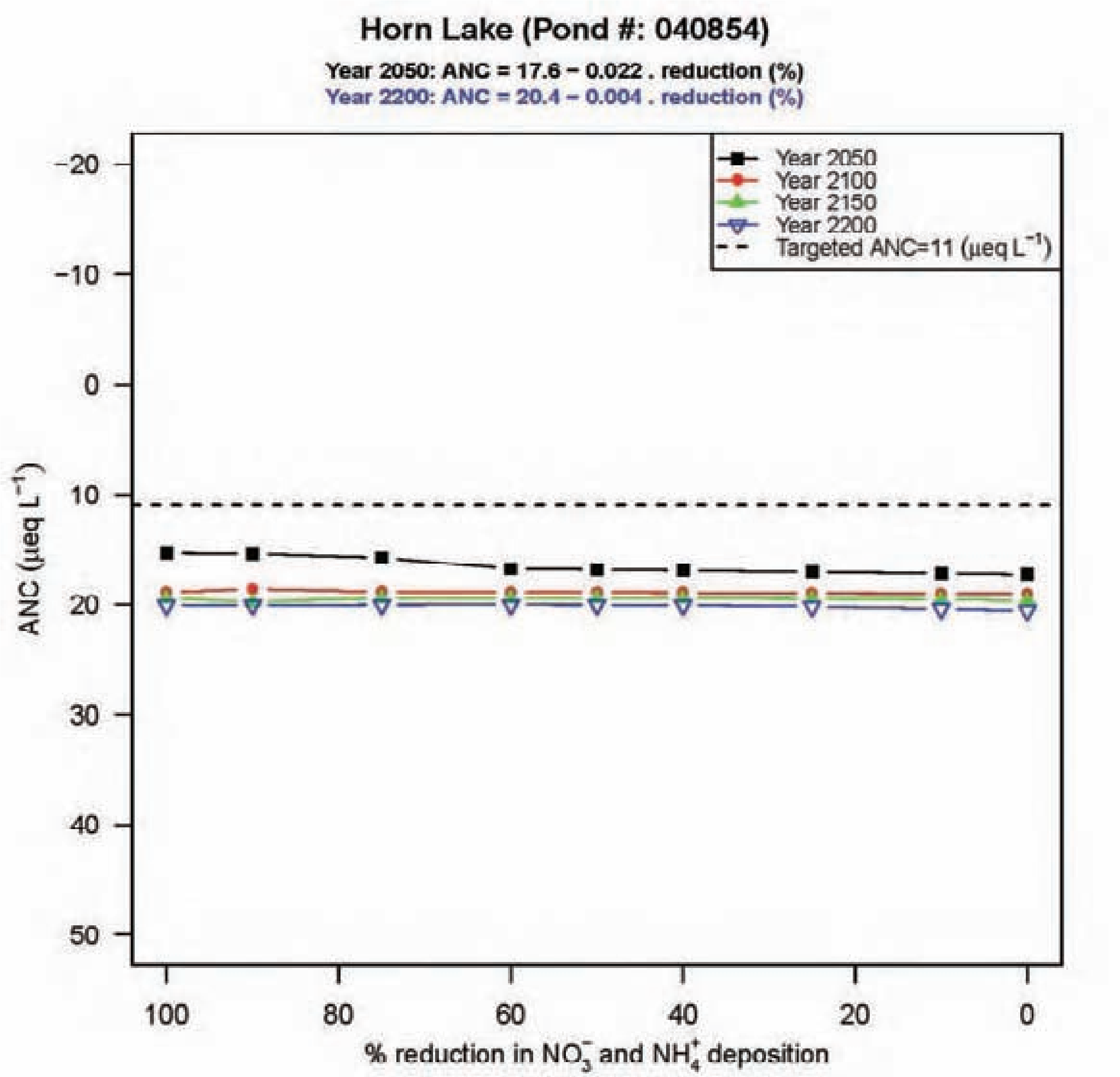

Stink Lake (Pond #: 040836)
Year 2050: ANC = 24 − 0.01 . reduction (%)
Year 2200: ANC = 28.7 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



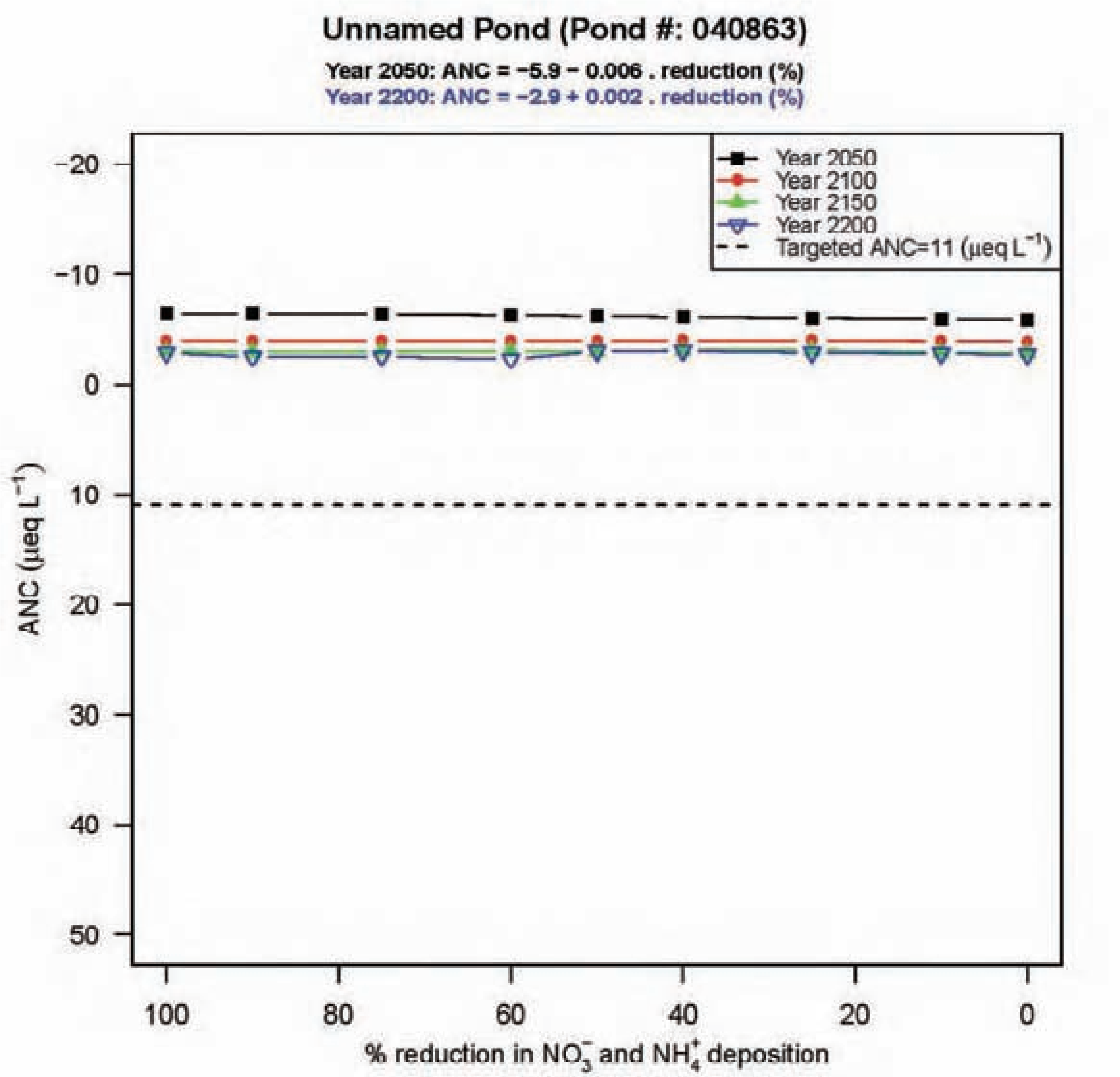
Balsam Lake (Pond #: 040837)
Year 2050: ANC = 23.7 − 0.004 . reduction (%)
Year 2200: ANC = 30.4 + 0.002 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



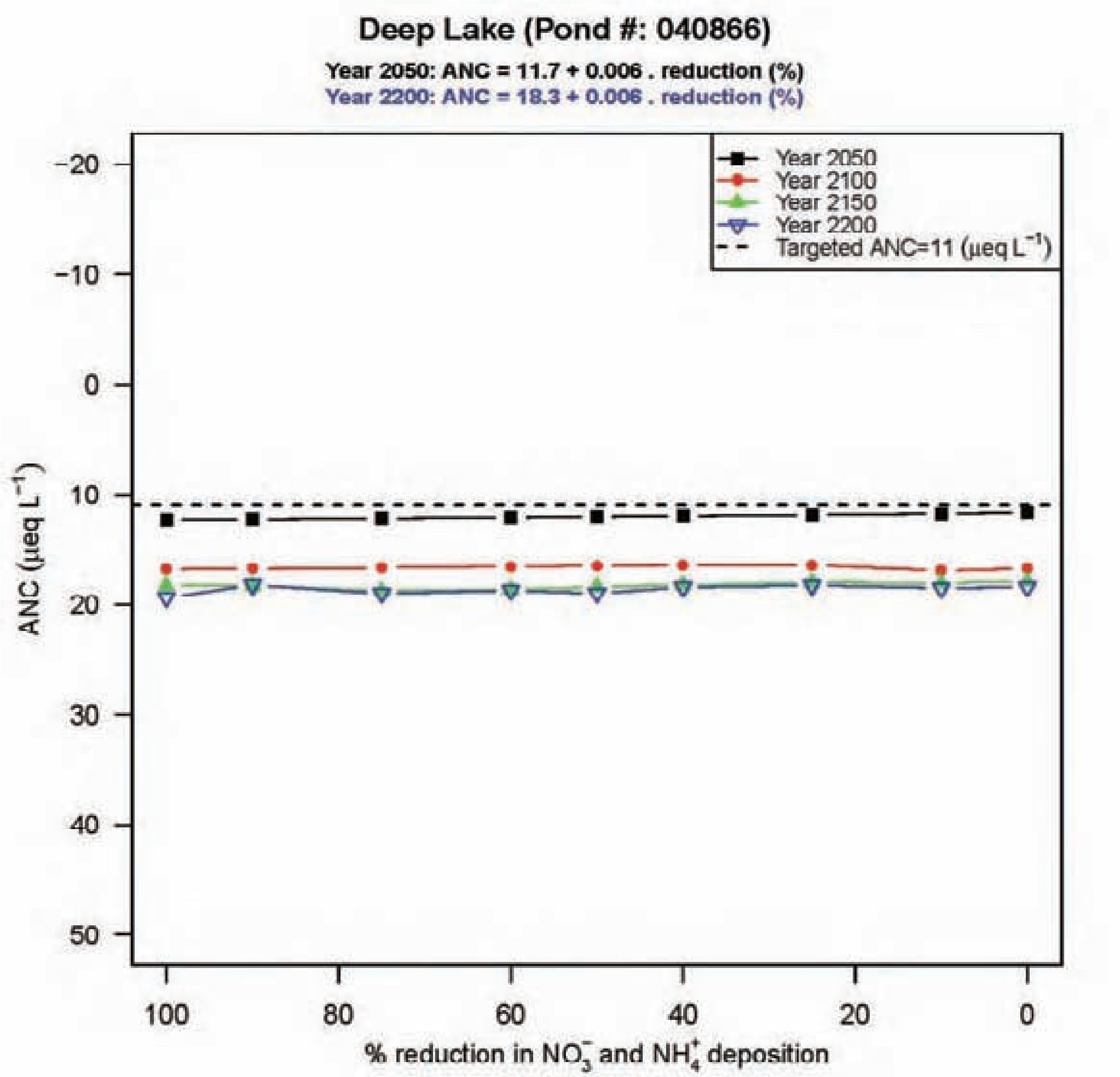
Kettle Pond (Pond #: 040841)
Year 2050: ANC = −7.6 − 0.009 . reduction (%)
Year 2200: ANC = −2.4 − 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3− and NH4+ deposition



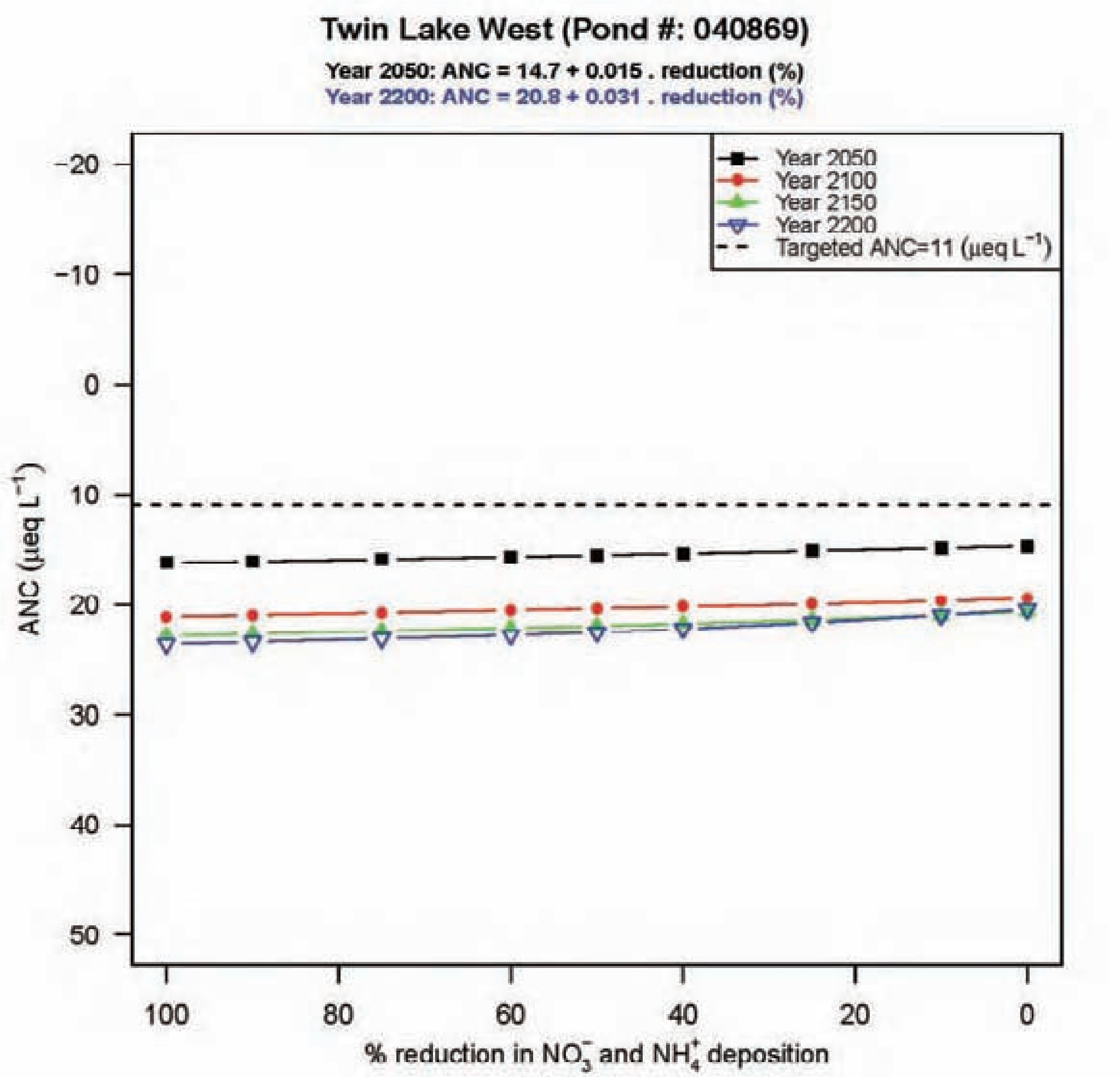
Horn Lake (Pond #: 040854)
Year 2050: ANC = 17.6 − 0.022 . reduction (%)
Year 2200: ANC = 20.4 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

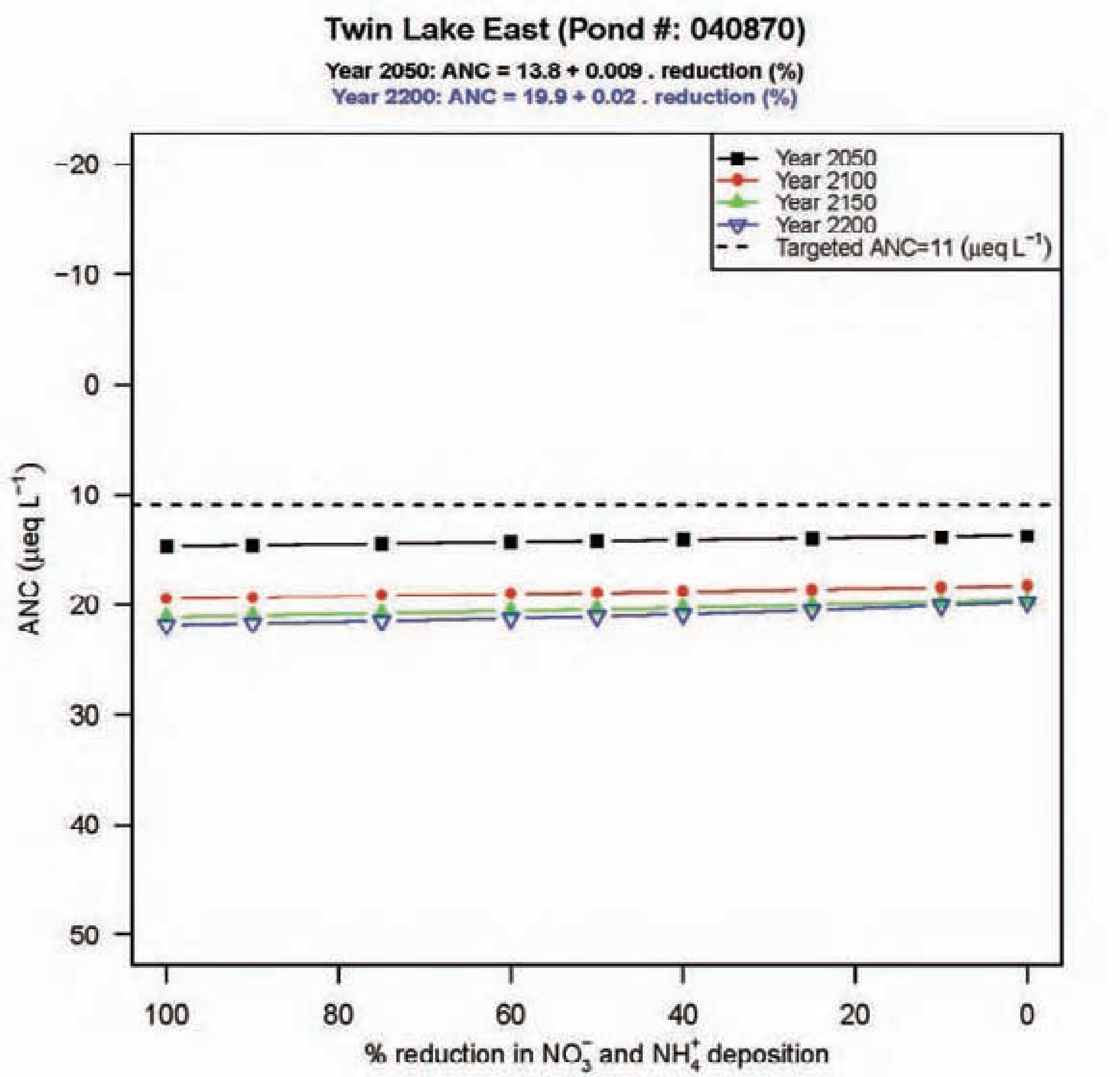


Unnamed Pond (Pond #: 040863)
Year 2050: ANC = −5.9 − 0.006 . reduction (%)
Year 2200: ANC = −2.9 + 0.002 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition

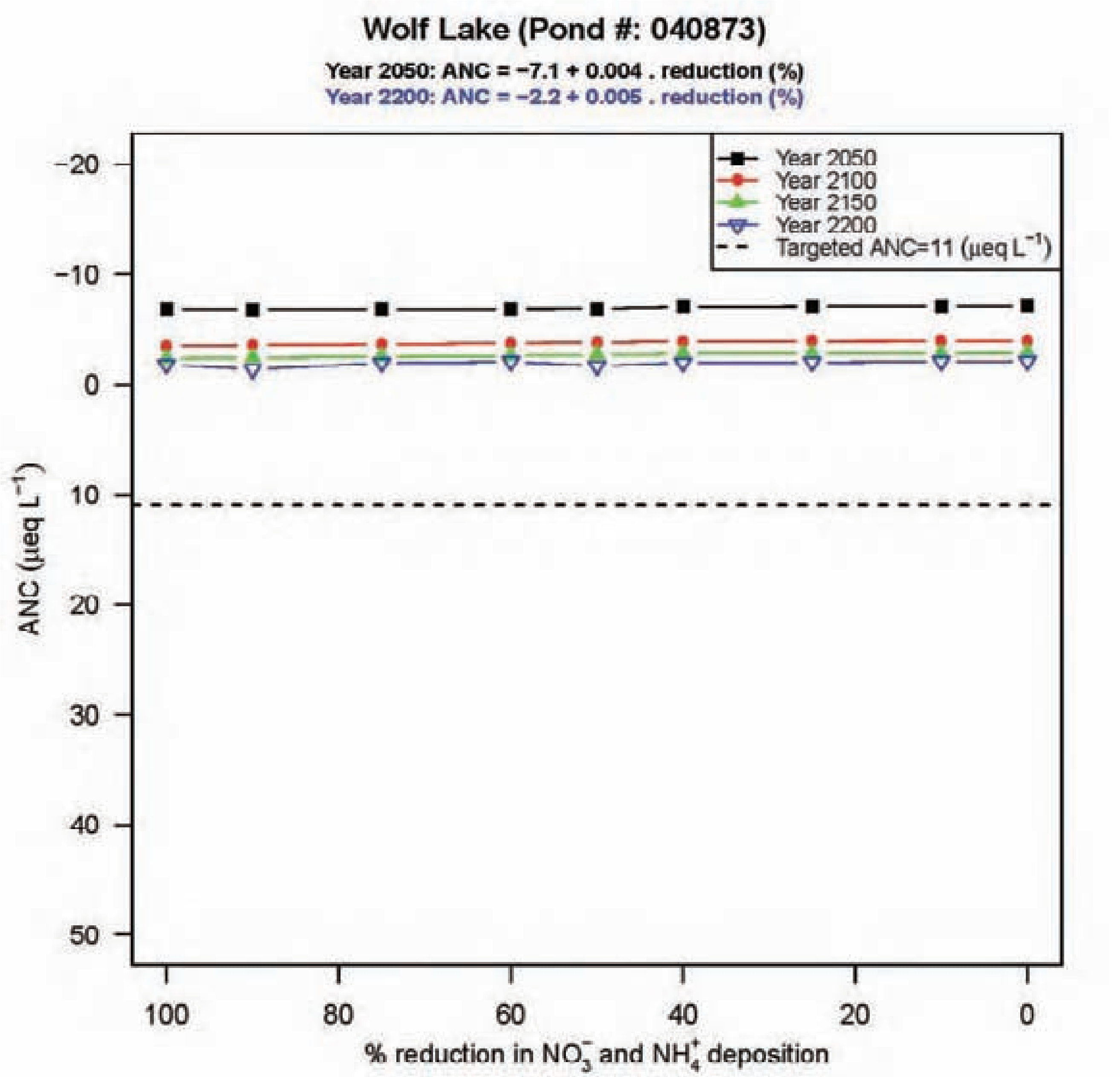


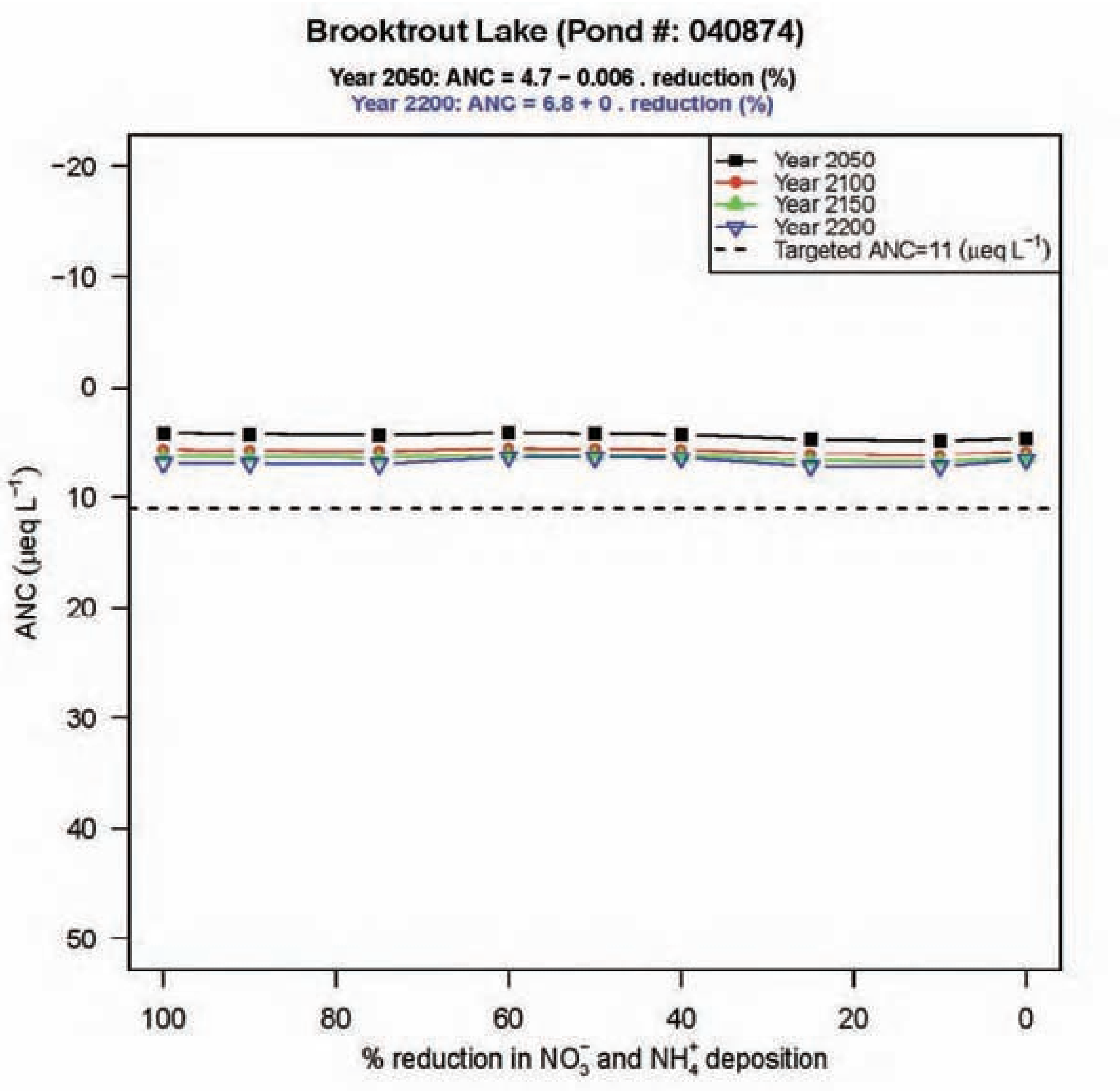
Deep Lake (Pond #: 040866)
Year 2050: ANC = 11.7 + 0.006 . reduction (%)
Year 2200: ANC = 18.3 + 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Twin Lake West (Pond #: 040869)
Year 2050: ANC = 14.7 + 0.015 . reduction (%)
Year 2200: ANC = 20.8 + 0.031 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

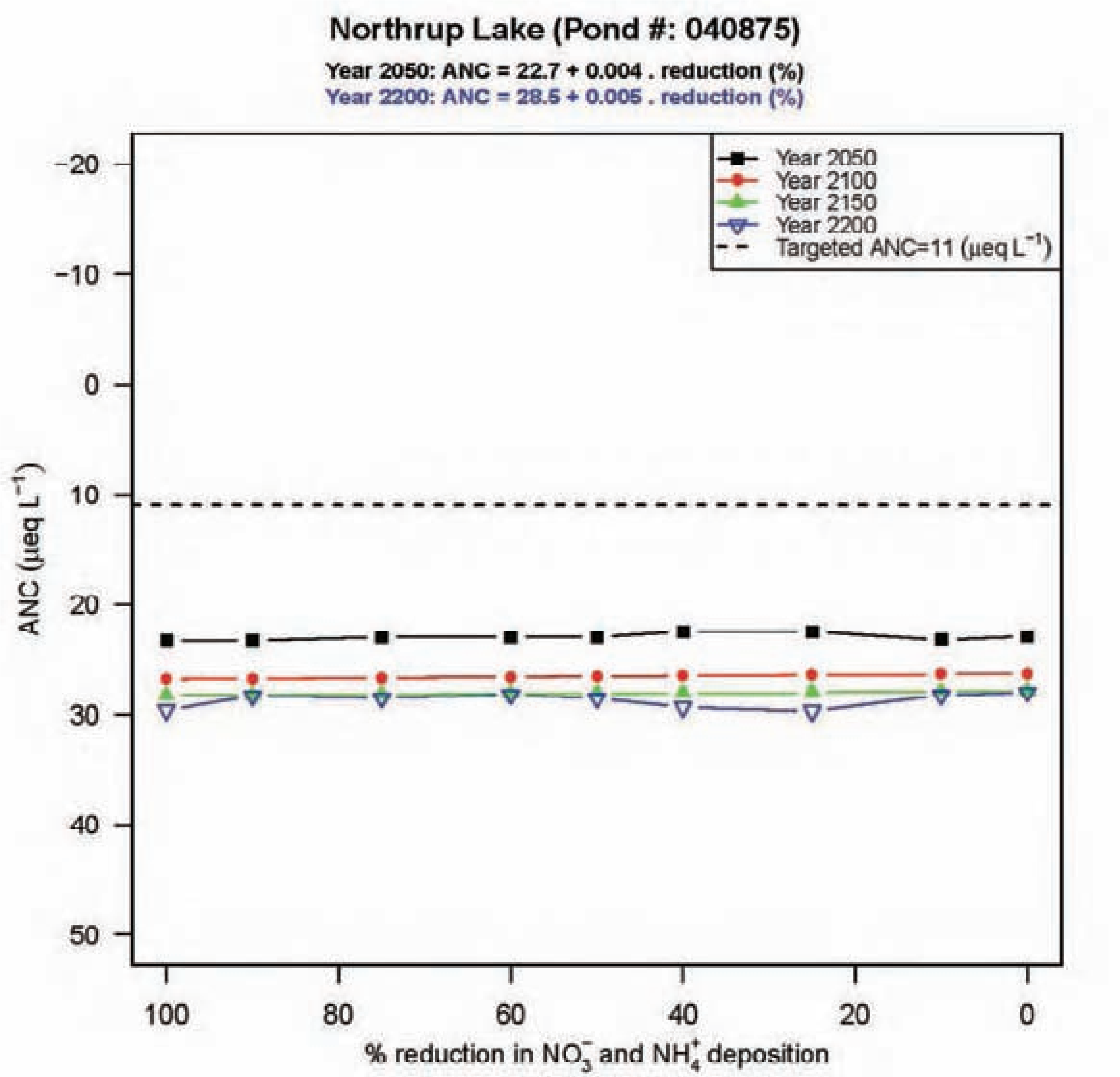


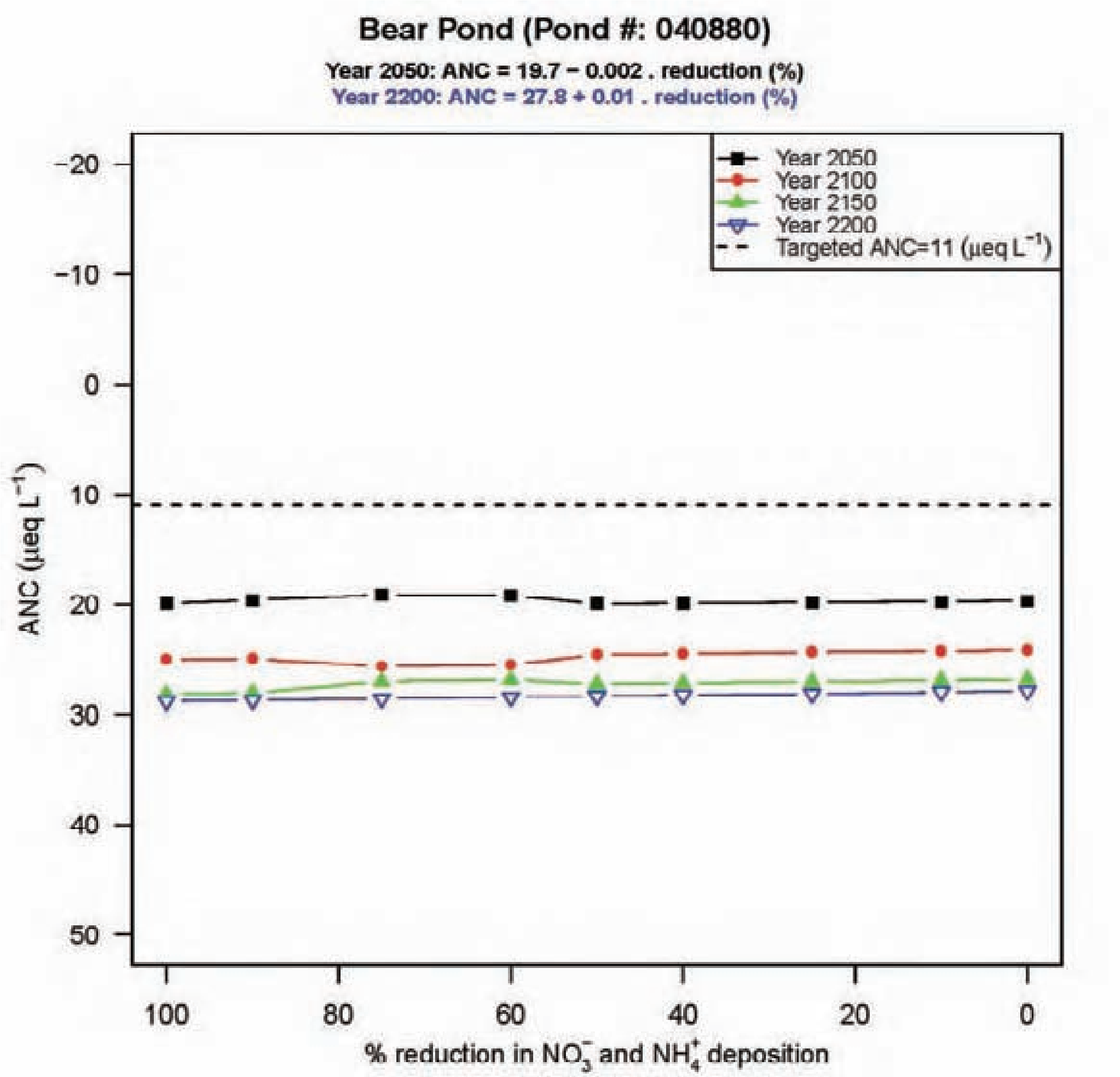
Twin Lake East (Pond #: 040870)
Year 2050: ANC = 13.8 + 0.009 . reduction (%)
Year 2200: ANC = 19.9 + 0.02 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition


Wolf Lake (Pond #: 040873)
Year 2050: ANC = −7.1 + 0.004 . reduction (%)
Year 2200: ANC = −2.2 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3− and NH4+ deposition

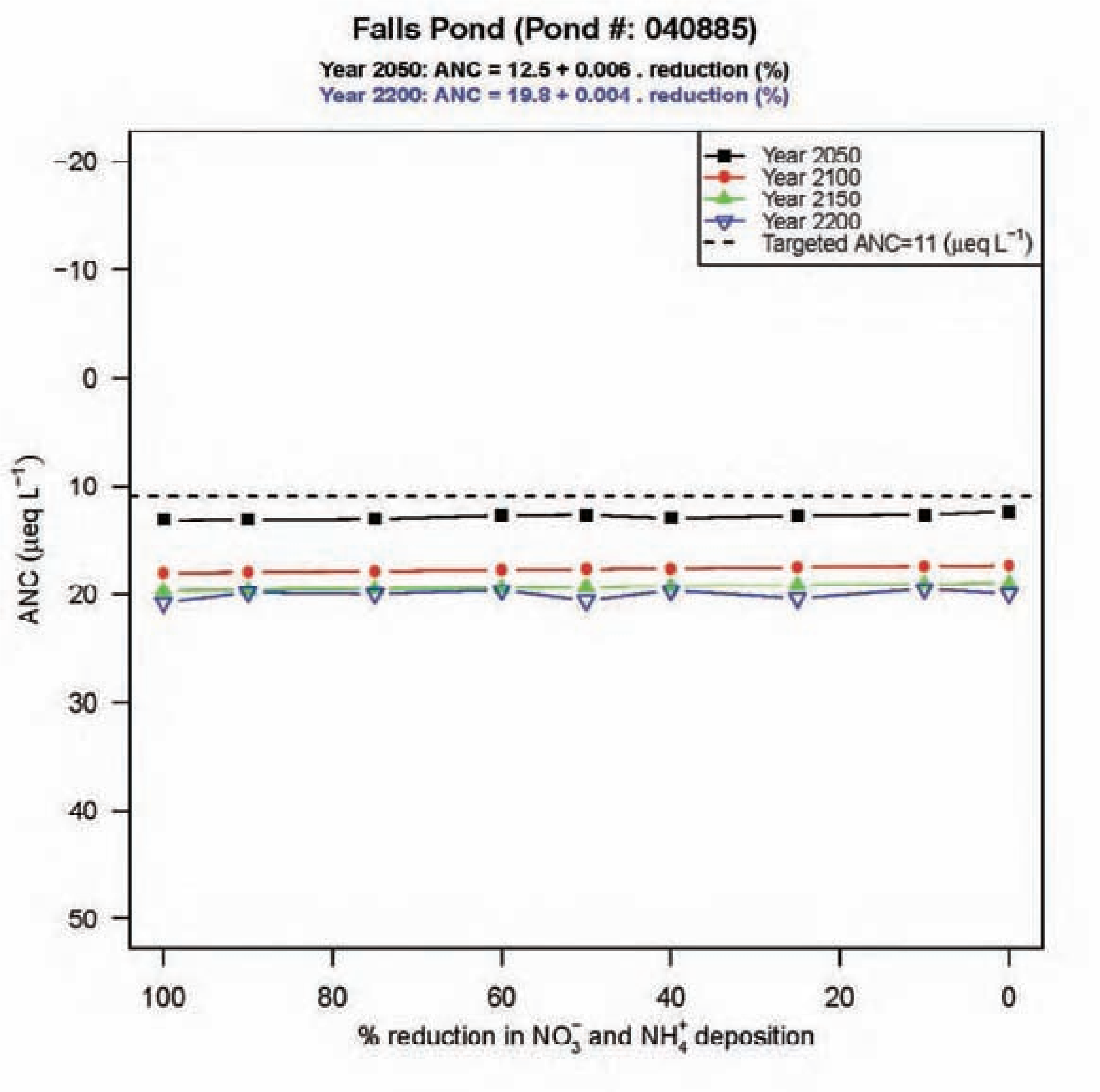


Brooktrout Lake (Pond #: 040874)
Year 2050: ANC = 4.7 − 0.006 . reduction (%)
Year 2200: ANC = 6.8 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

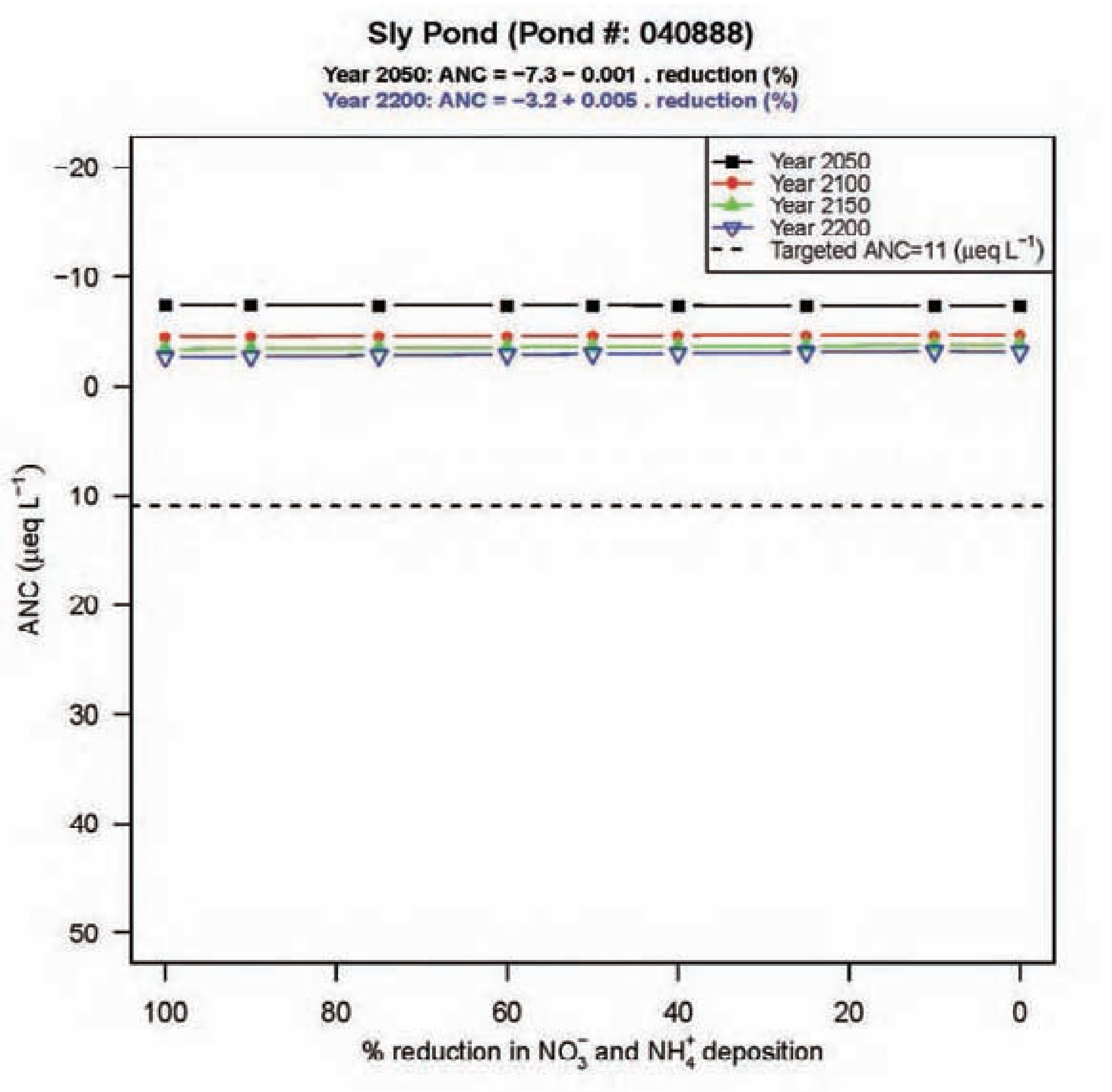

Northrup Lake (Pond #: 040875)
Year 2050: ANC = 22.7 + 0.004 . reduction (%)
Year 2200: ANC = 28.5 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



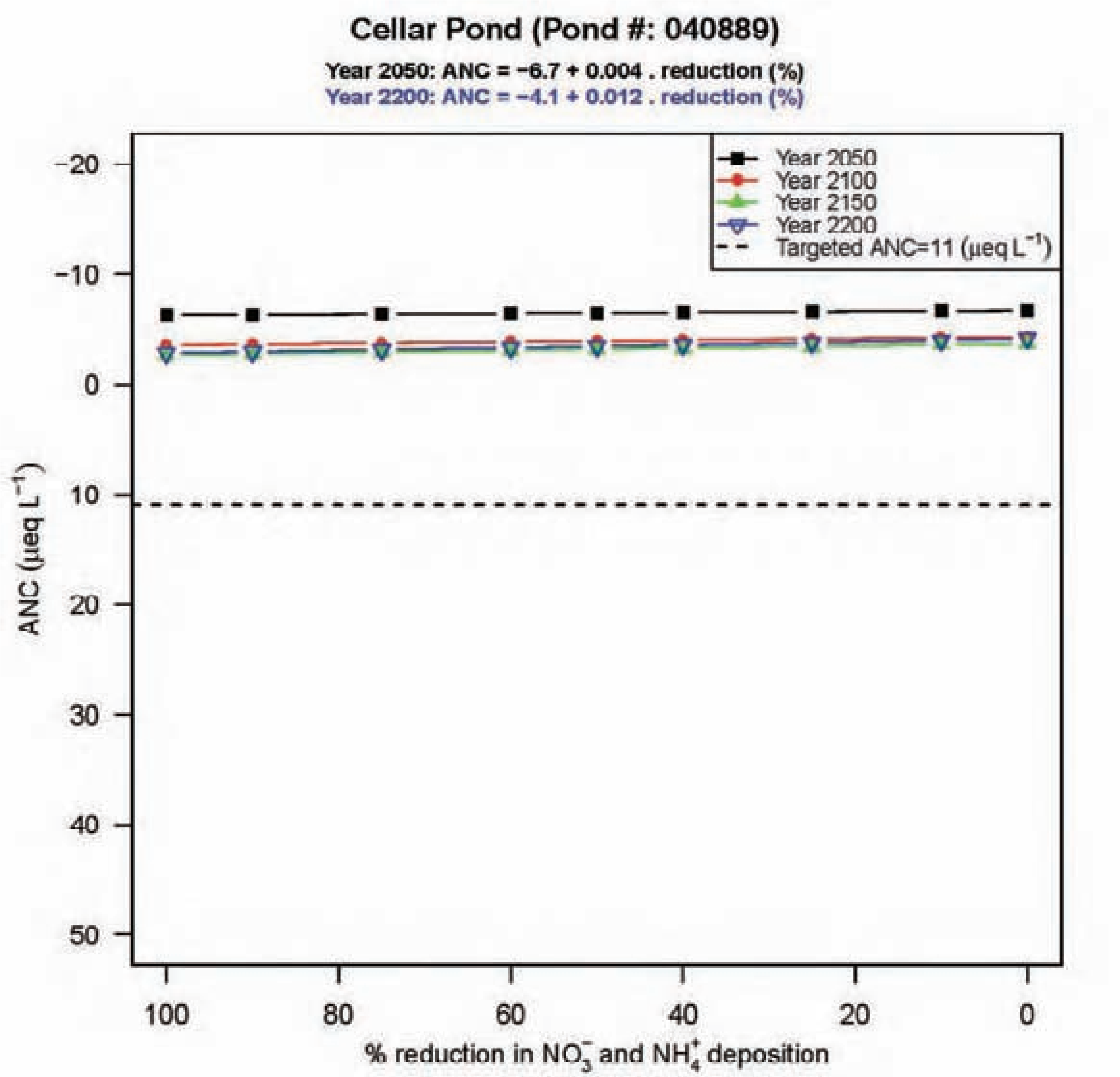
Bear Pond (Pond #: 040880)
Year 2050: ANC = 19.7 − 0.002 . reduction (%)
Year 2200: ANC = 27.8 + 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

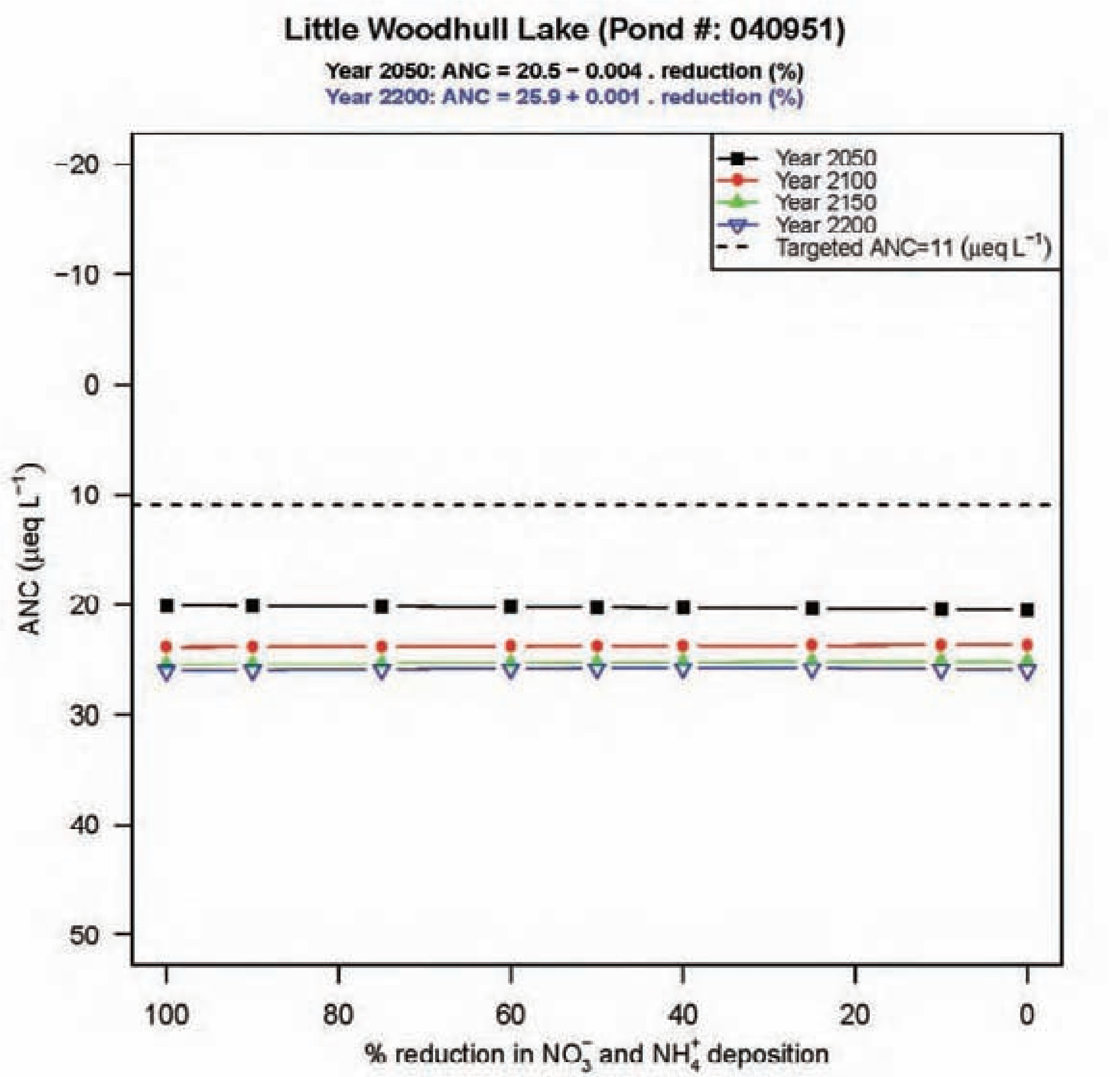


Falls Pond (Pond #: 040885)
Year 2050: ANC = 12.5 + 0.006 . reduction (%)
Year 2200: ANC = 19.8 + 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

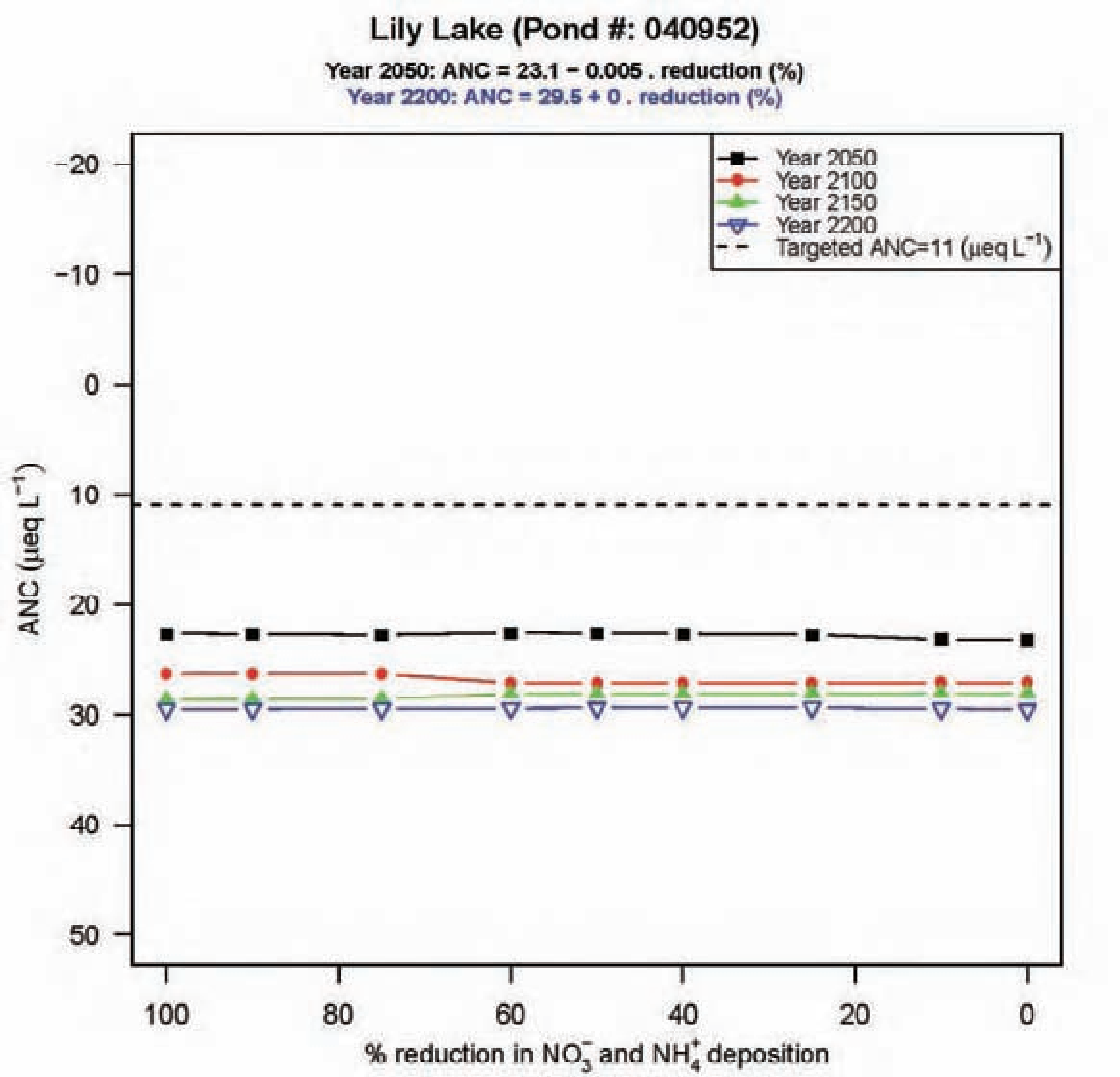


Sly Pond (Pond #: 040888)
Year 2050: ANC = −7.3 − 0.001 . reduction (%)
Year 2200: ANC = −3.2 + 0.005 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

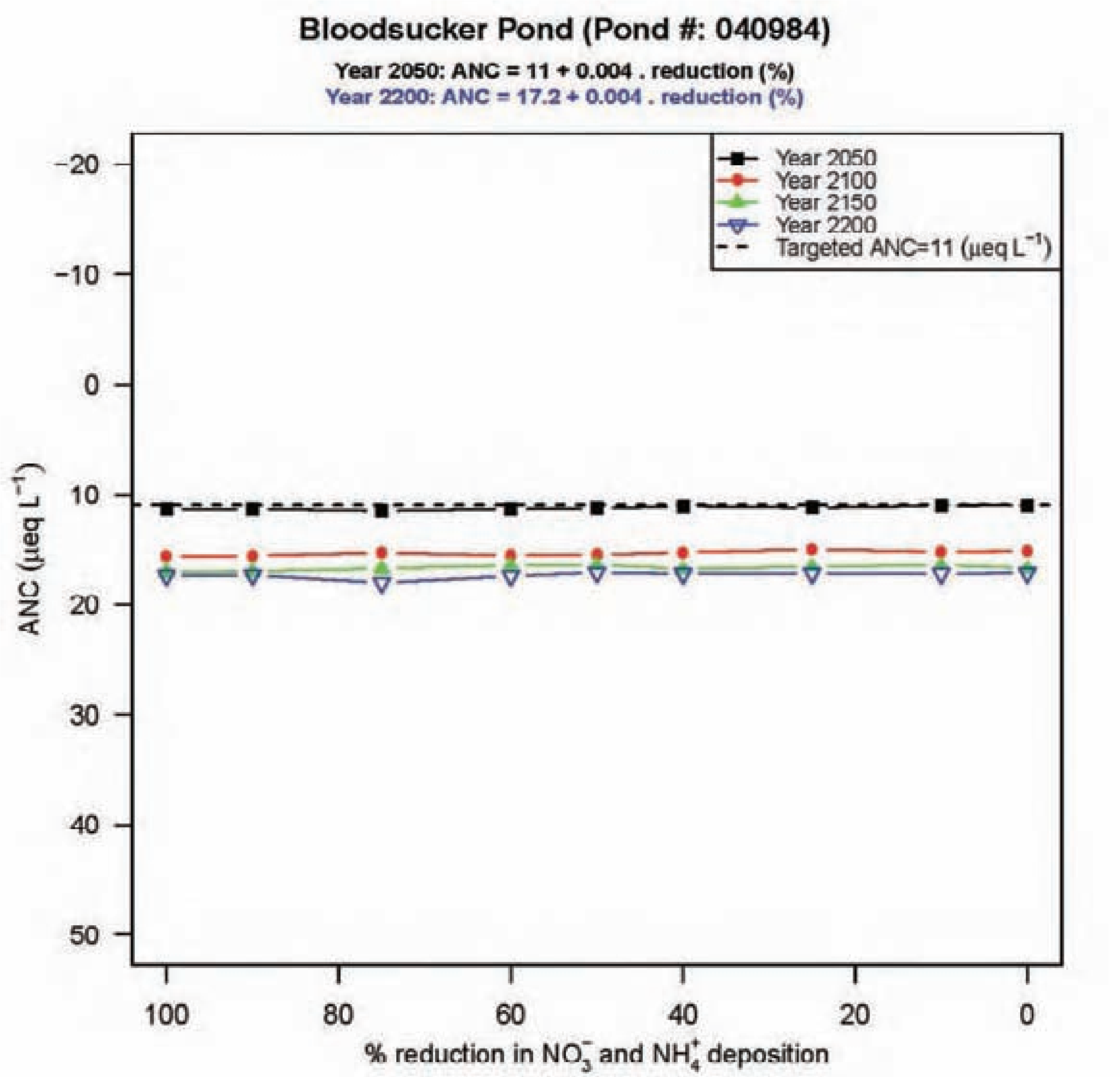

Cellar Pond (Pond #: 040889)
Year 2050: ANC = −6.7 + 0.004 . reduction (%)
Year 2200: ANC = −4.1 + 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

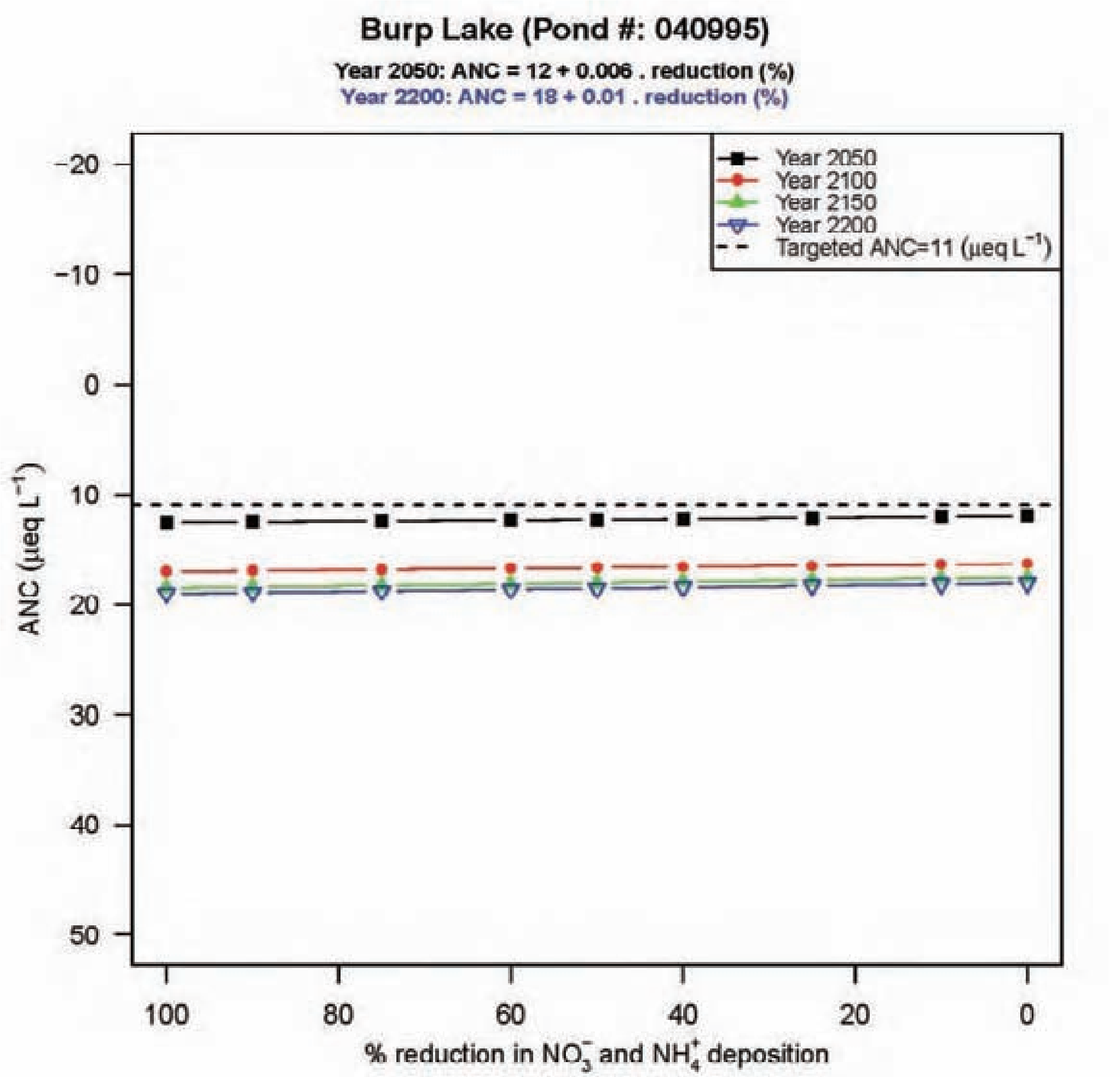


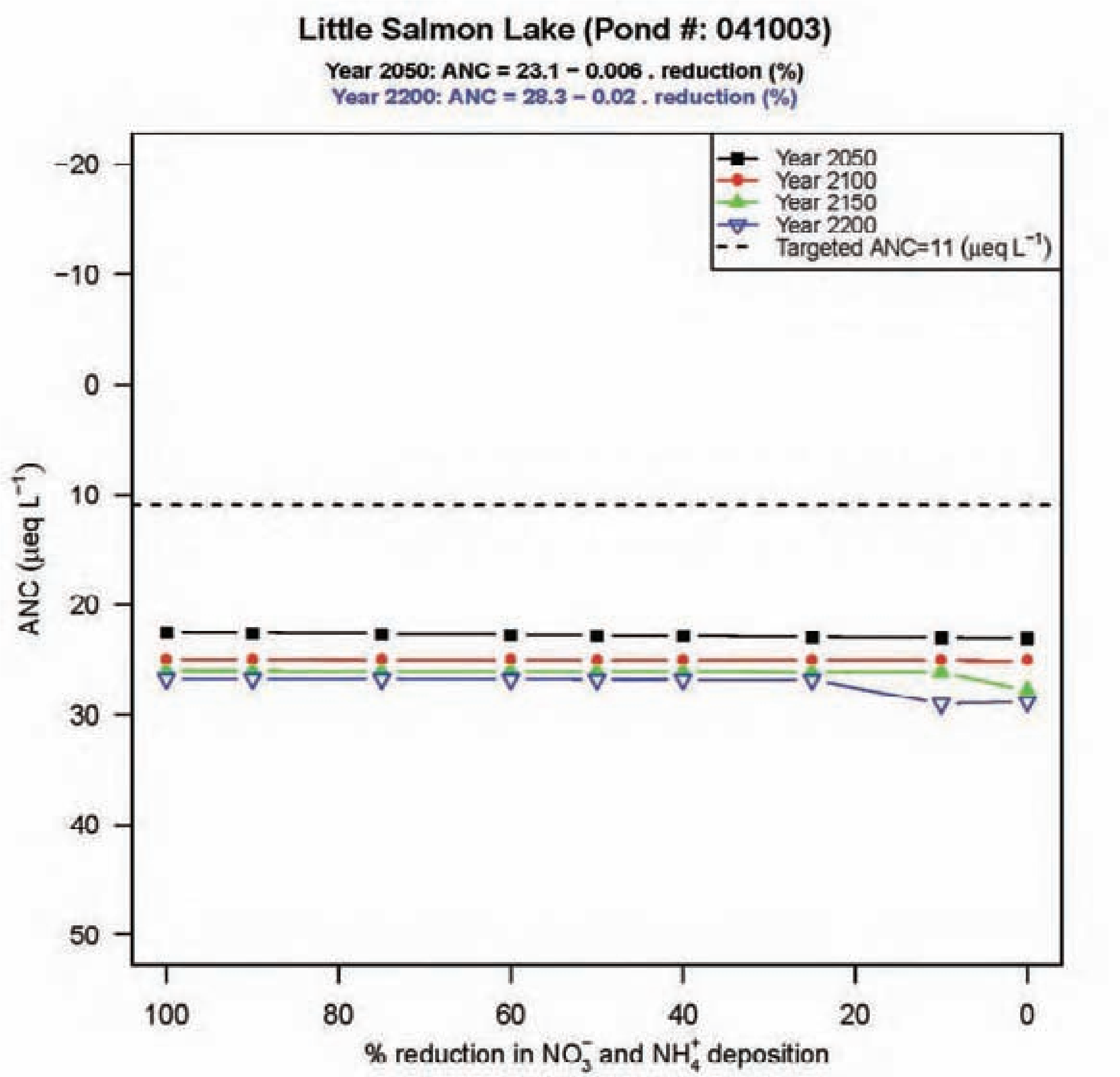
Little Woodhull Lake (Pond #: 040951)
Year 2050: ANC = 20.5 − 0.004 . reduction (%)
Year 2200: ANC = 25.9 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

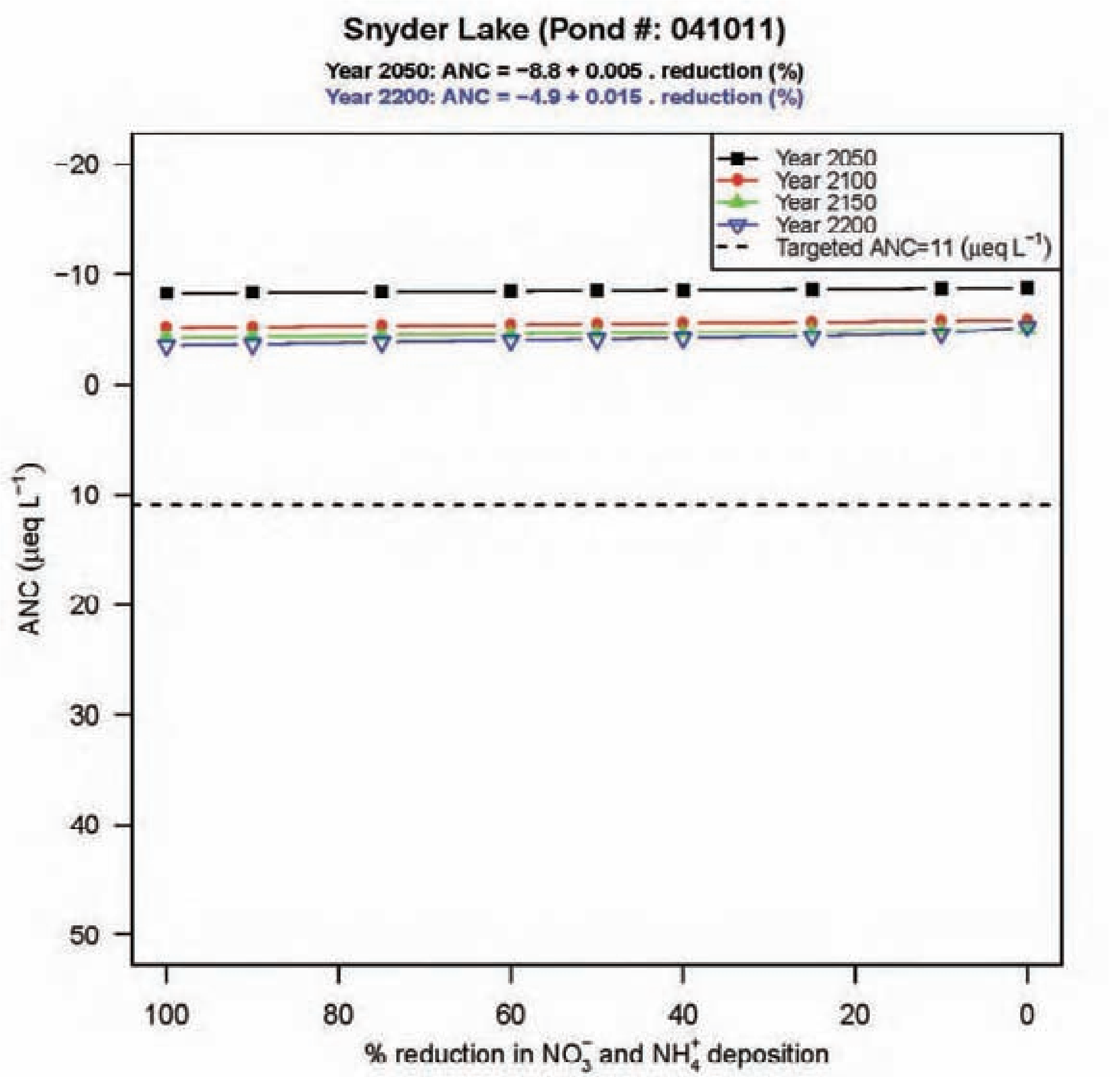


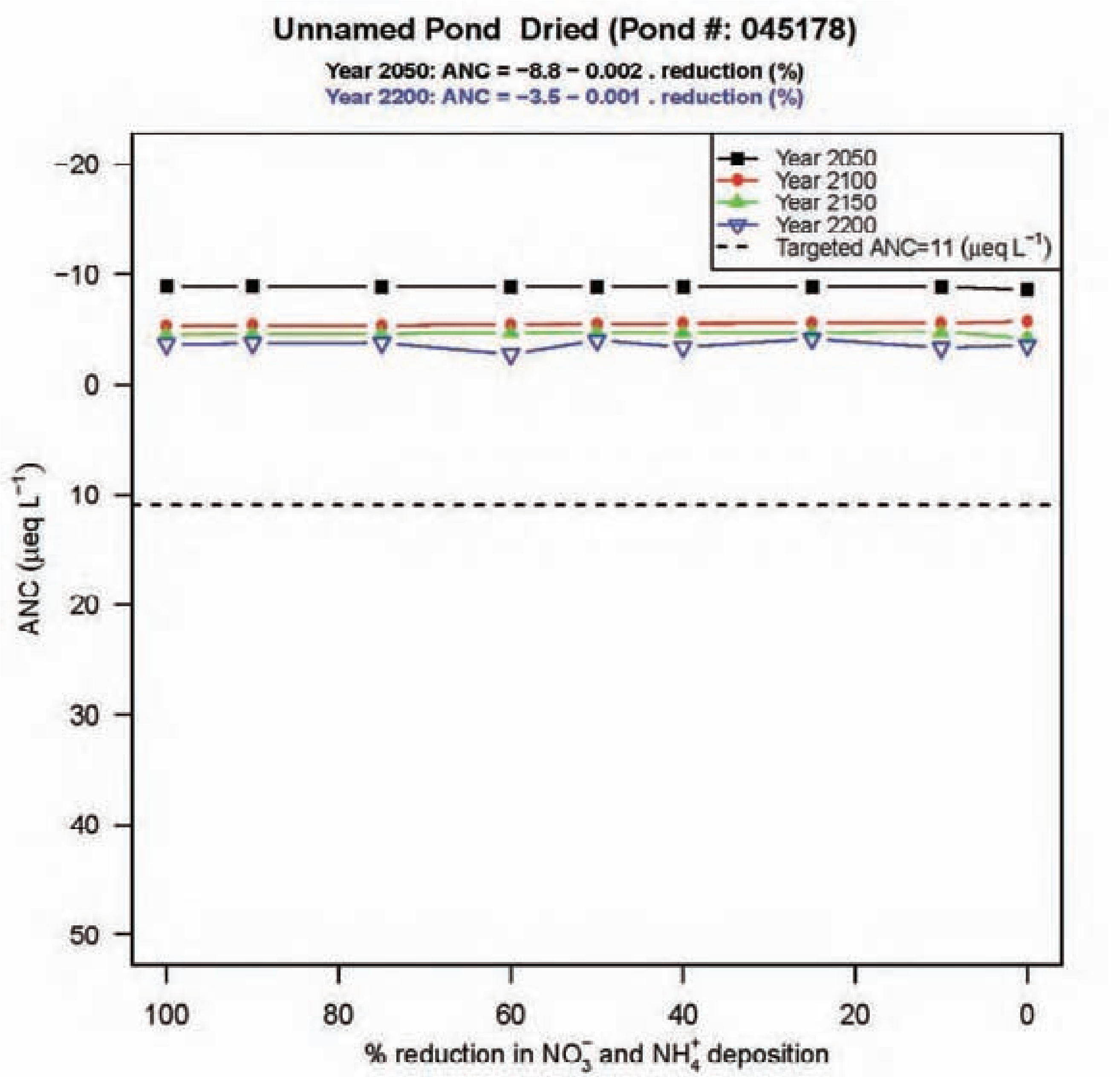
Lily Lake (Pond #: 040952)
Year 2050: ANC = 23.1 − 0.005 . reduction (%)
Year 2200: ANC = 29.5 + 0 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition


Bloodsucker Pond (Pond #: 040984)
Year 2050: ANC = 11 + 0.004 . reduction (%)
Year 2200: ANC = 17.2 + 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻ and NH₄⁺ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

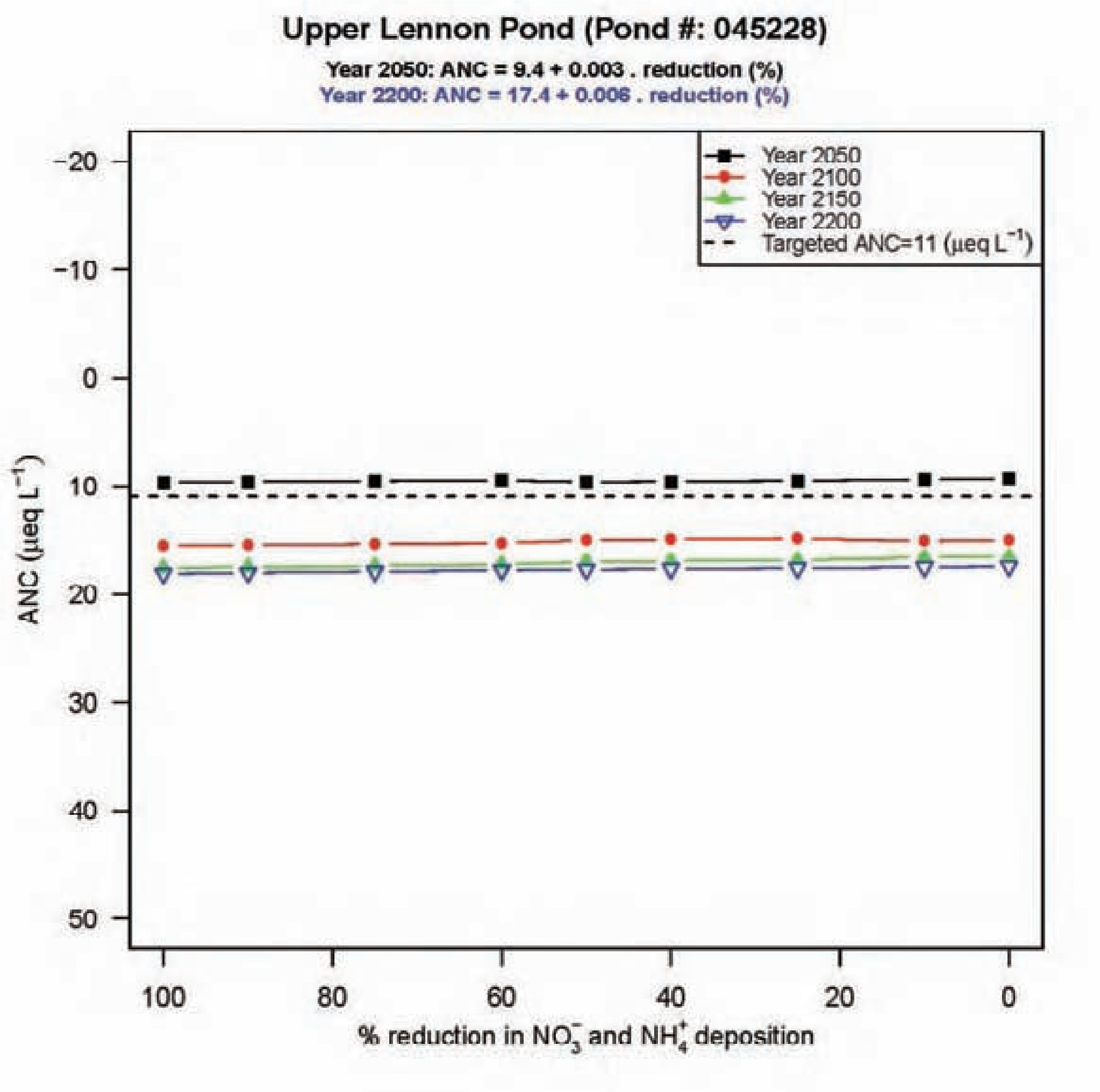

Burp Lake (Pond #: 040995)
Year 2050: ANC = 12 + 0.006 . reduction (%)
Year 2200: ANC = 18 + 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^-1)
ANC (µeq L^-1)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3- and NH4+ deposition

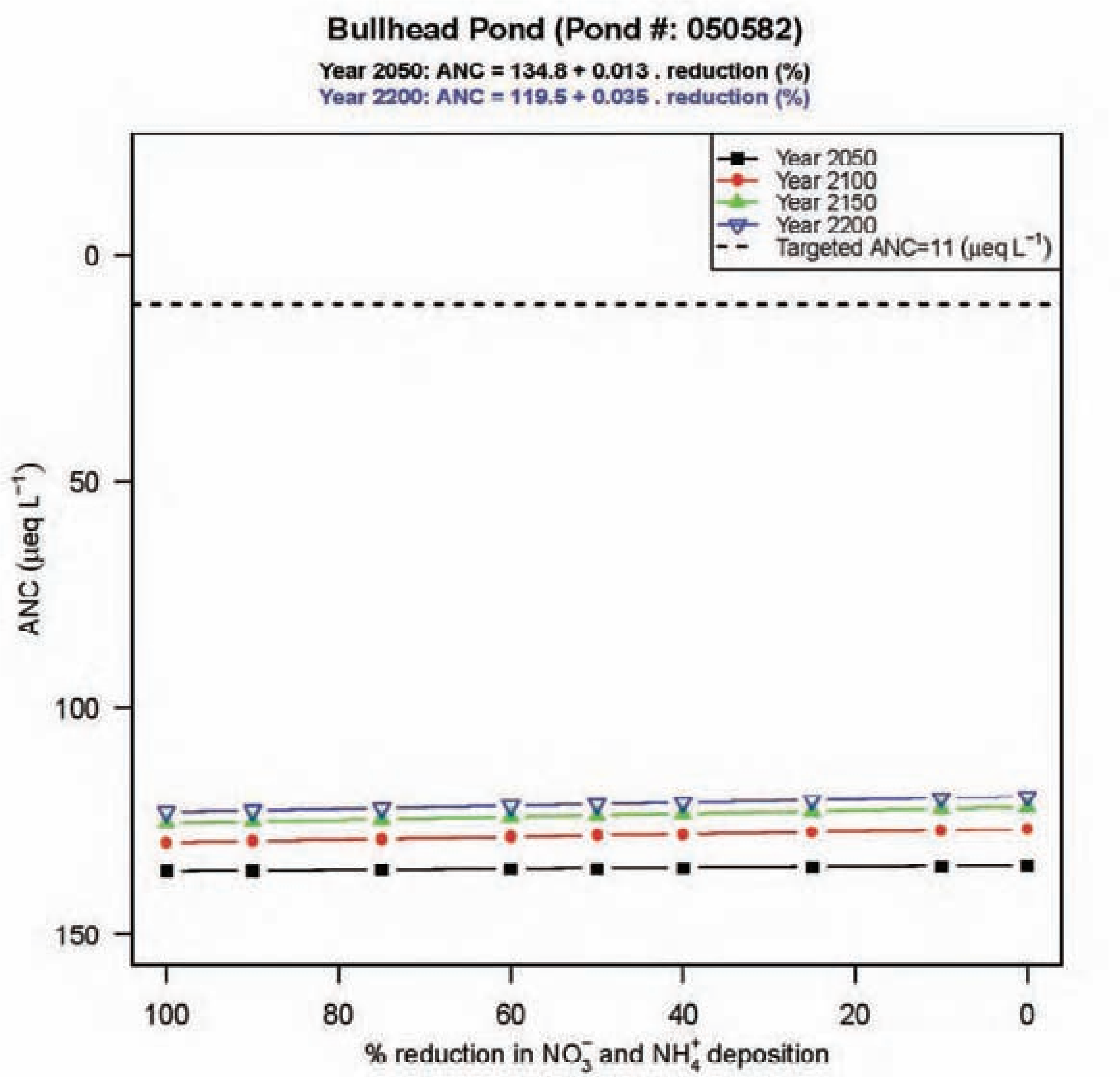

Little Salmon Lake (Pond #: 041003)
Year 2050: ANC = 23.1 − 0.006 . reduction (%)
Year 2200: ANC = 28.3 − 0.02 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Snyder Lake (Pond #: 041011)
Year 2050: ANC = −8.8 + 0.005 . reduction (%)
Year 2200: ANC = −4.9 + 0.015 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

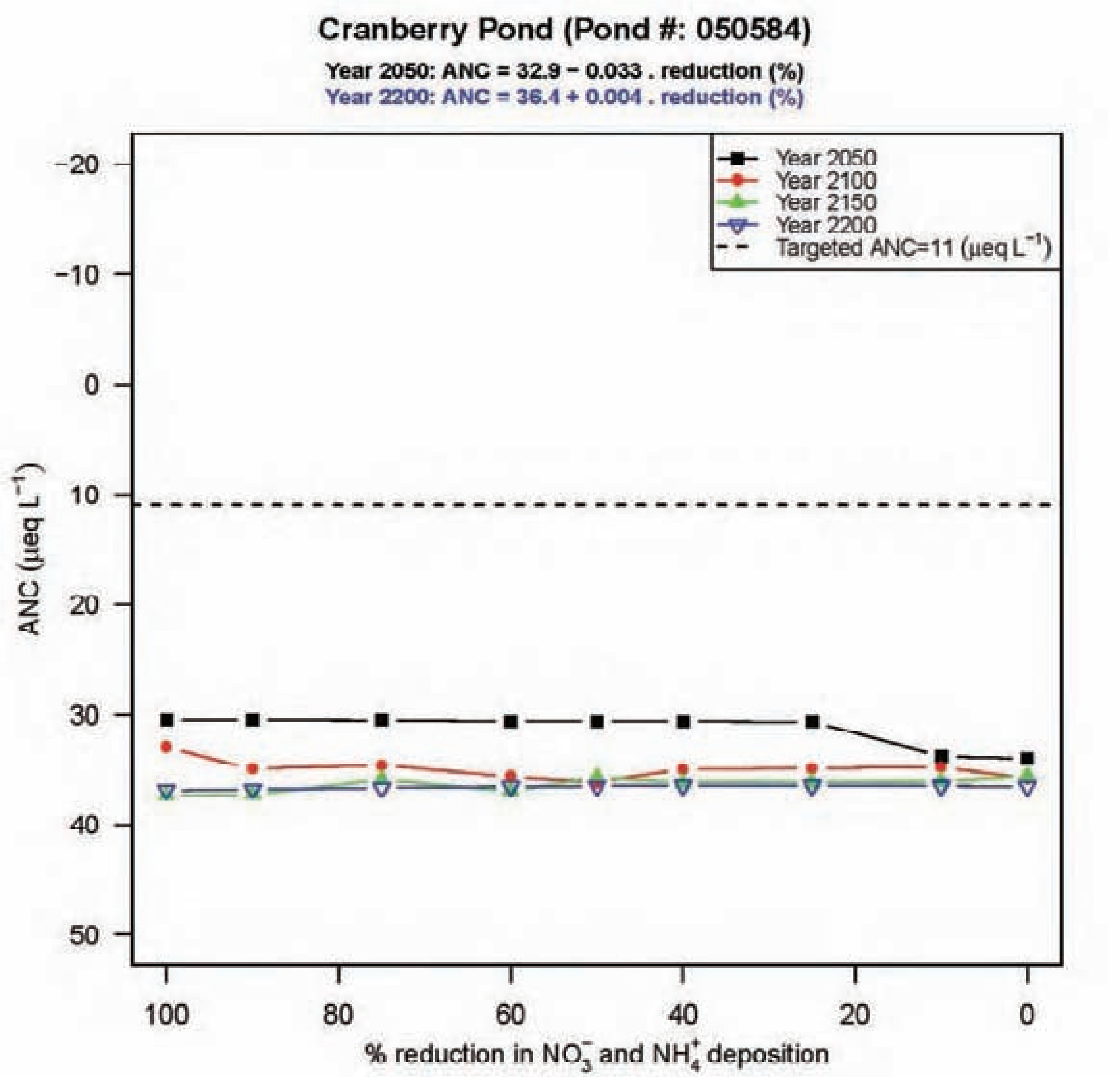


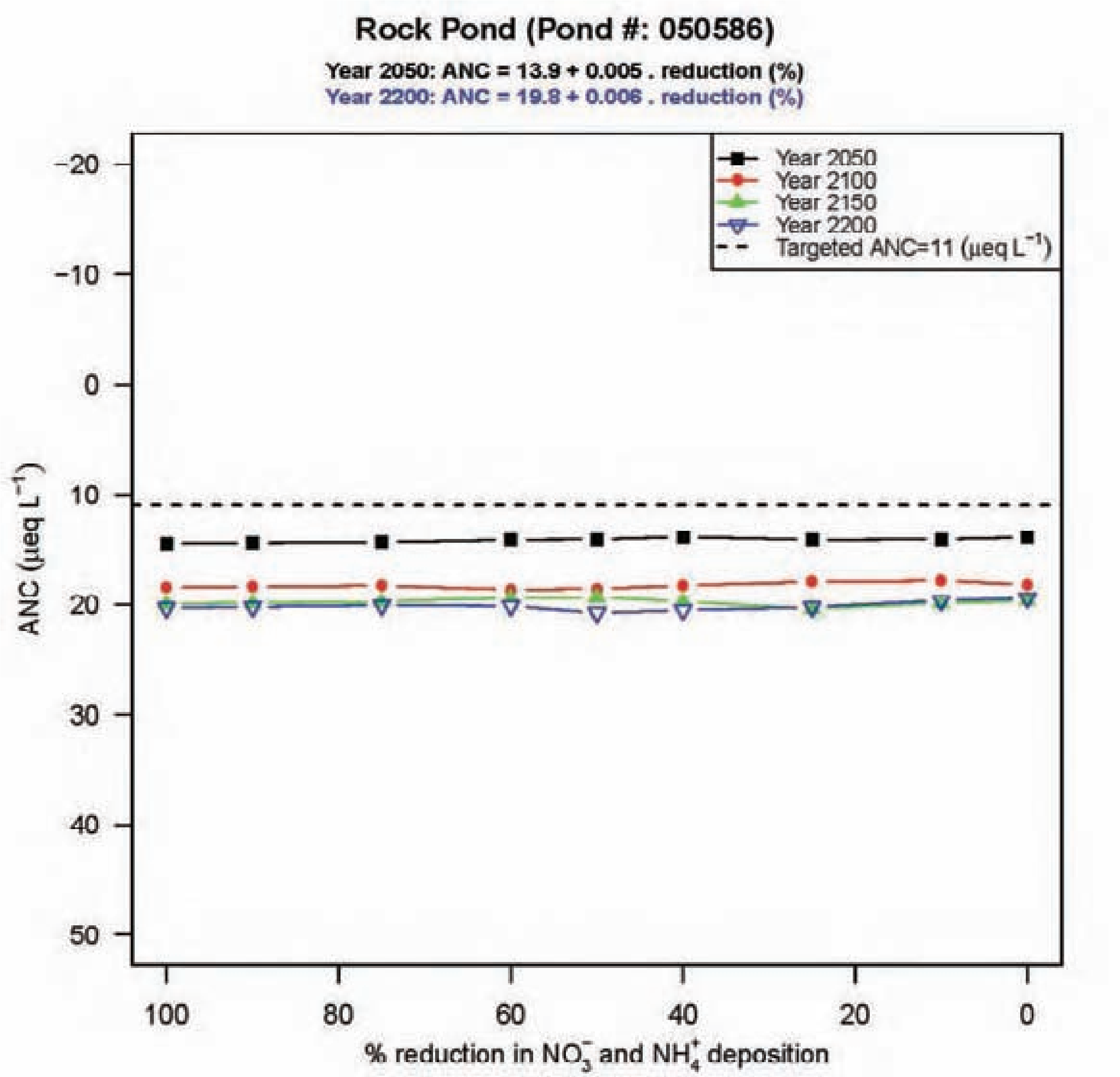
Unnamed Pond Dried (Pond #: 045178)
Year 2050: ANC = −8.8 − 0.002 . reduction (%)
Year 2200: ANC = −3.5 − 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Upper Lennon Pond (Pond #: 045228)
Year 2050: ANC = 9.4 + 0.003 . reduction (%)
Year 2200: ANC = 17.4 + 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

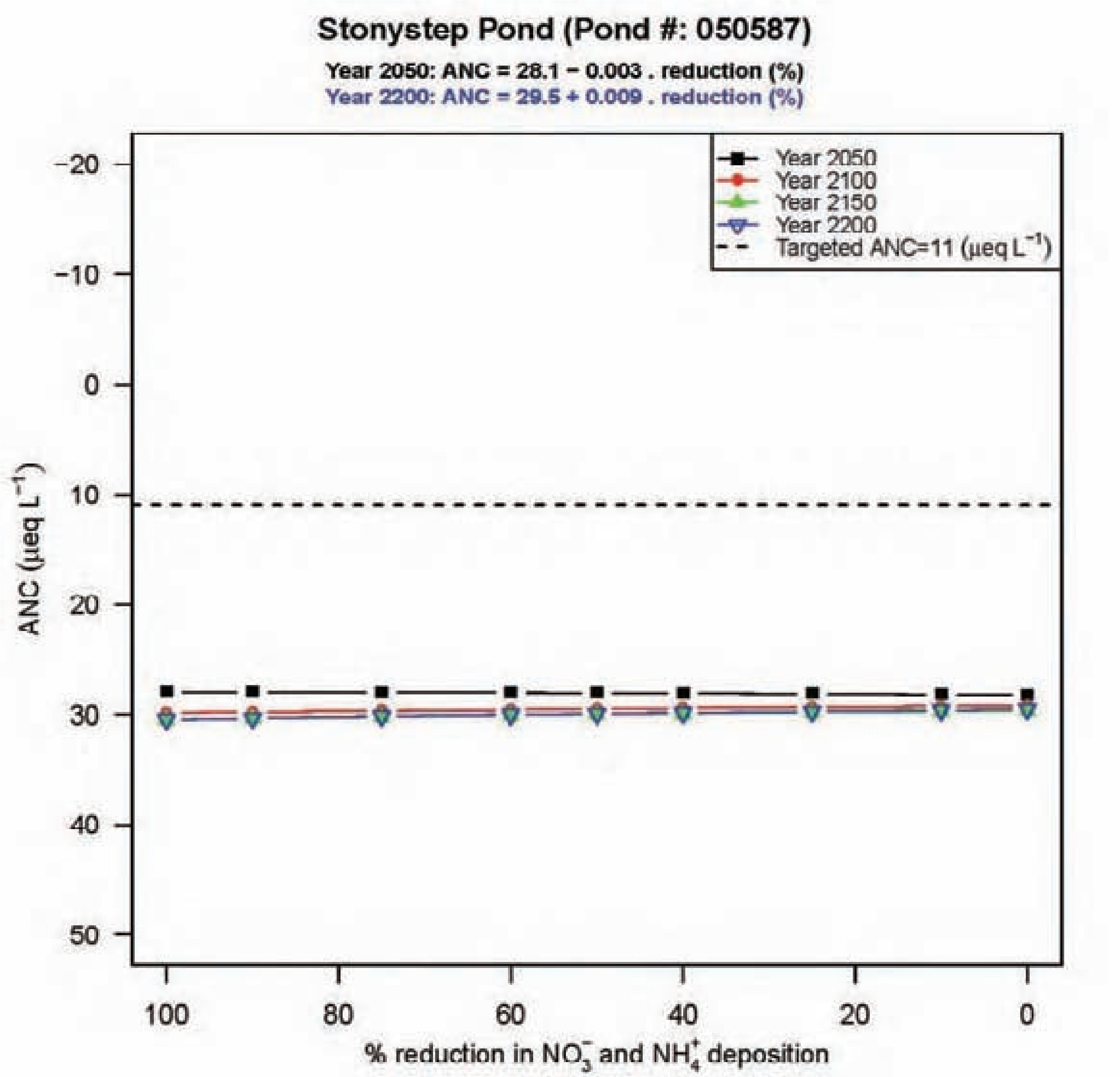


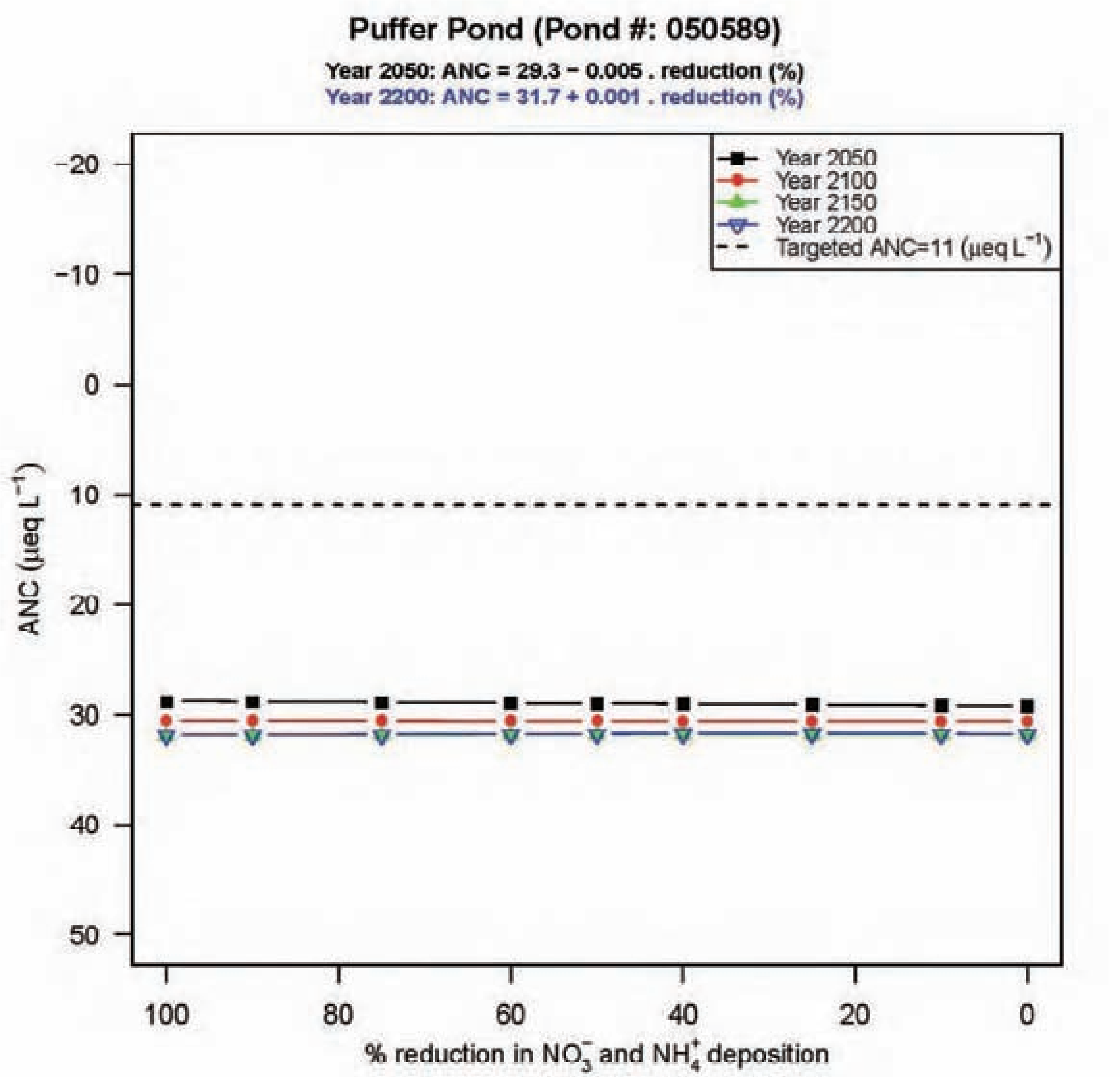
Bullhead Pond (Pond #: 050582)
Year 2050: ANC = 134.8 + 0.013 . reduction (%)
Year 2200: ANC = 119.5 + 0.035 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Cranberry Pond (Pond #: 050584)
Year 2050: ANC = 32.9 − 0.033 . reduction (%)
Year 2200: ANC = 36.4 + 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

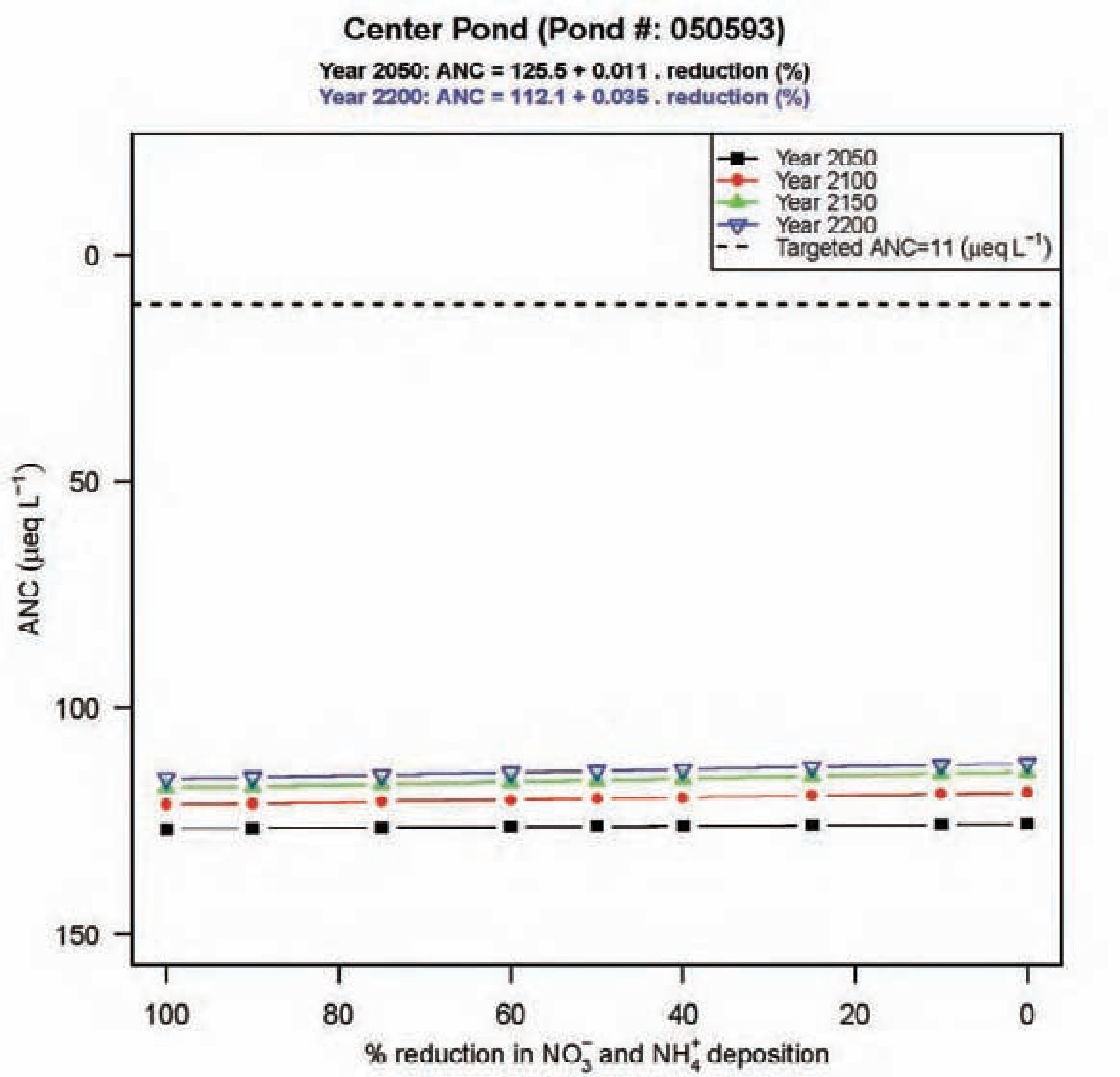


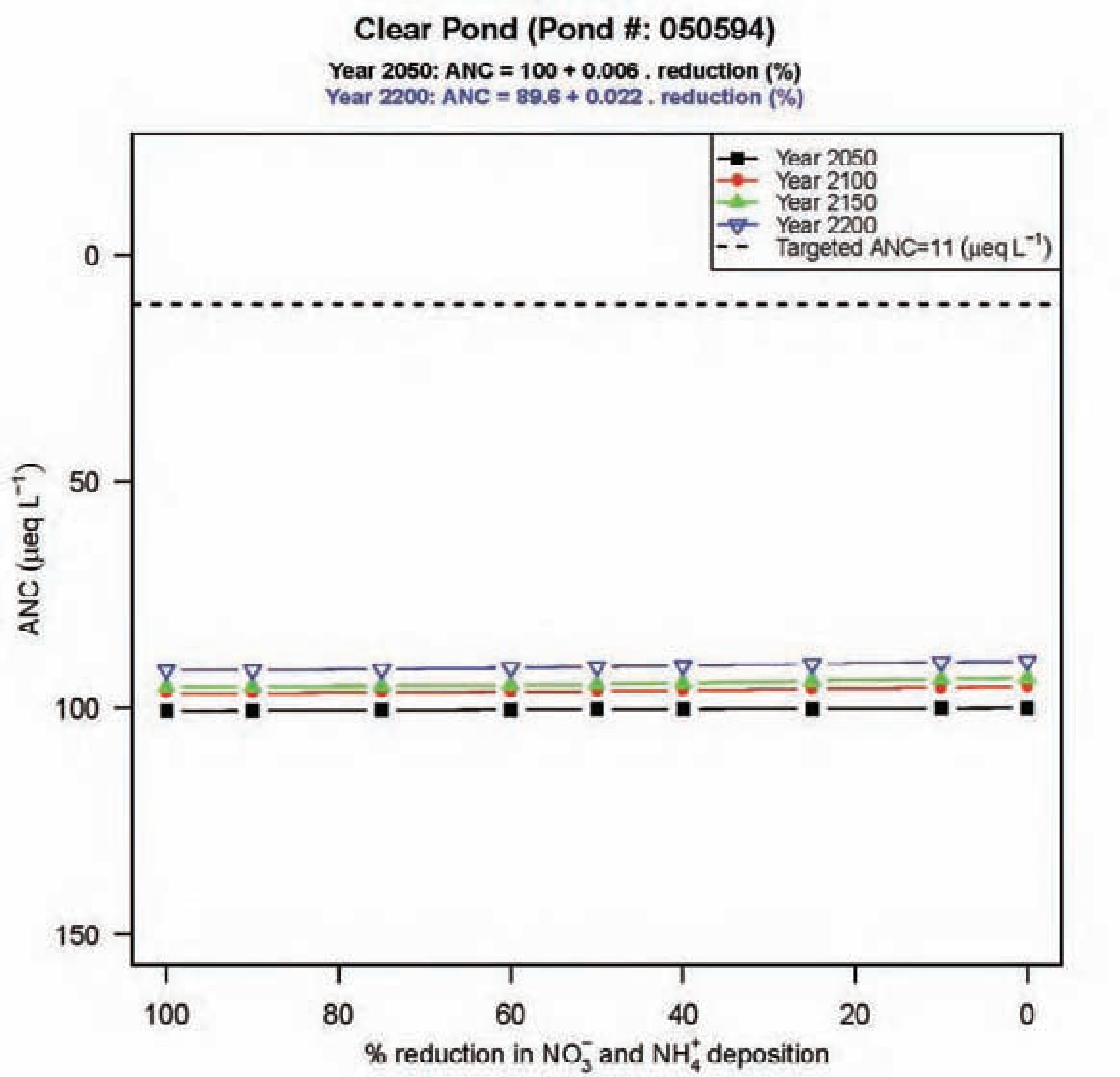
Rock Pond (Pond #: 050586)
Year 2050: ANC = 13.9 + 0.005 . reduction (%)
Year 2200: ANC = 19.8 + 0.006 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Stonystep Pond (Pond #: 050587)
Year 2050: ANC = 28.1 − 0.003 . reduction (%)
Year 2200: ANC = 29.5 + 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

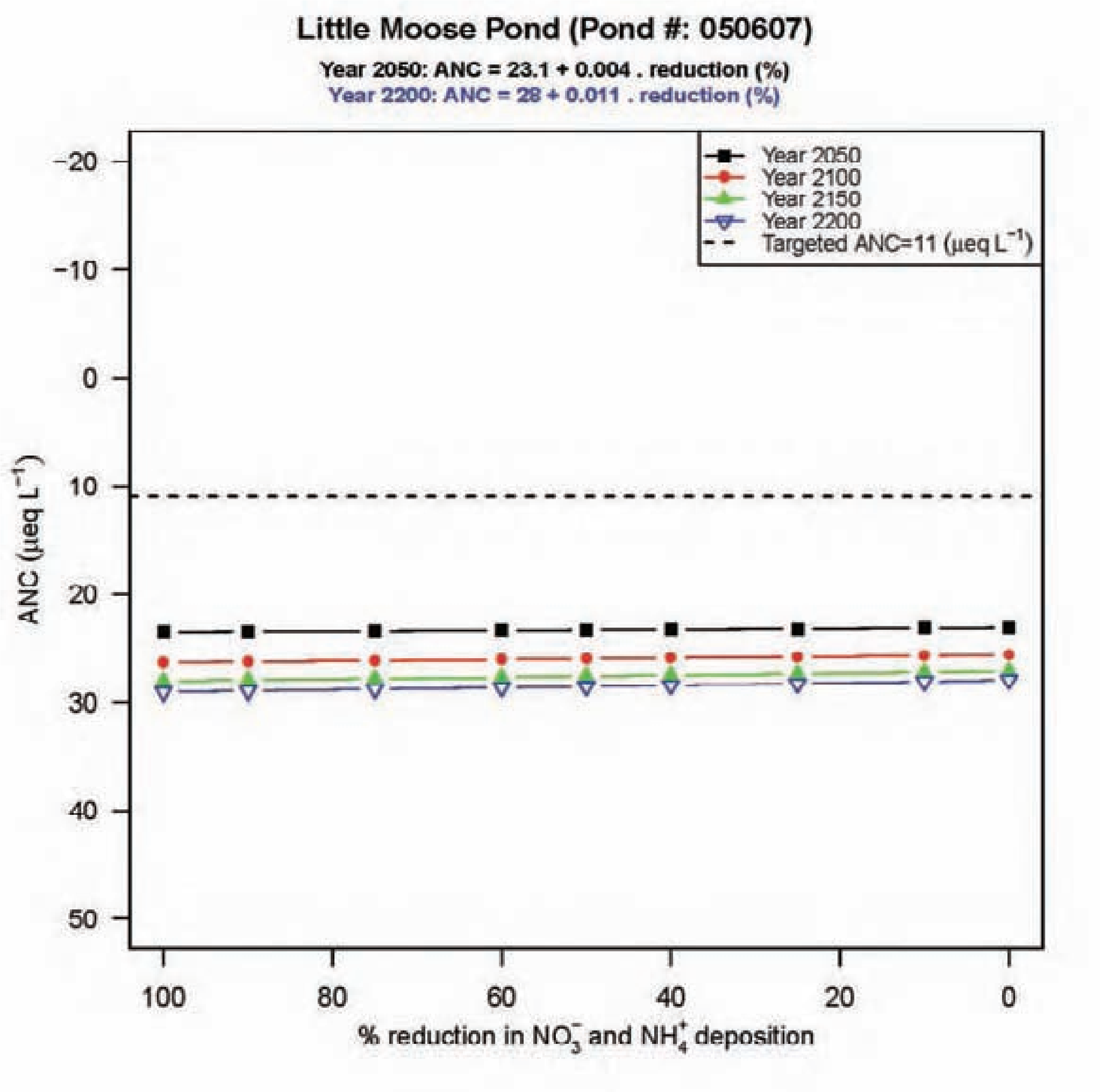


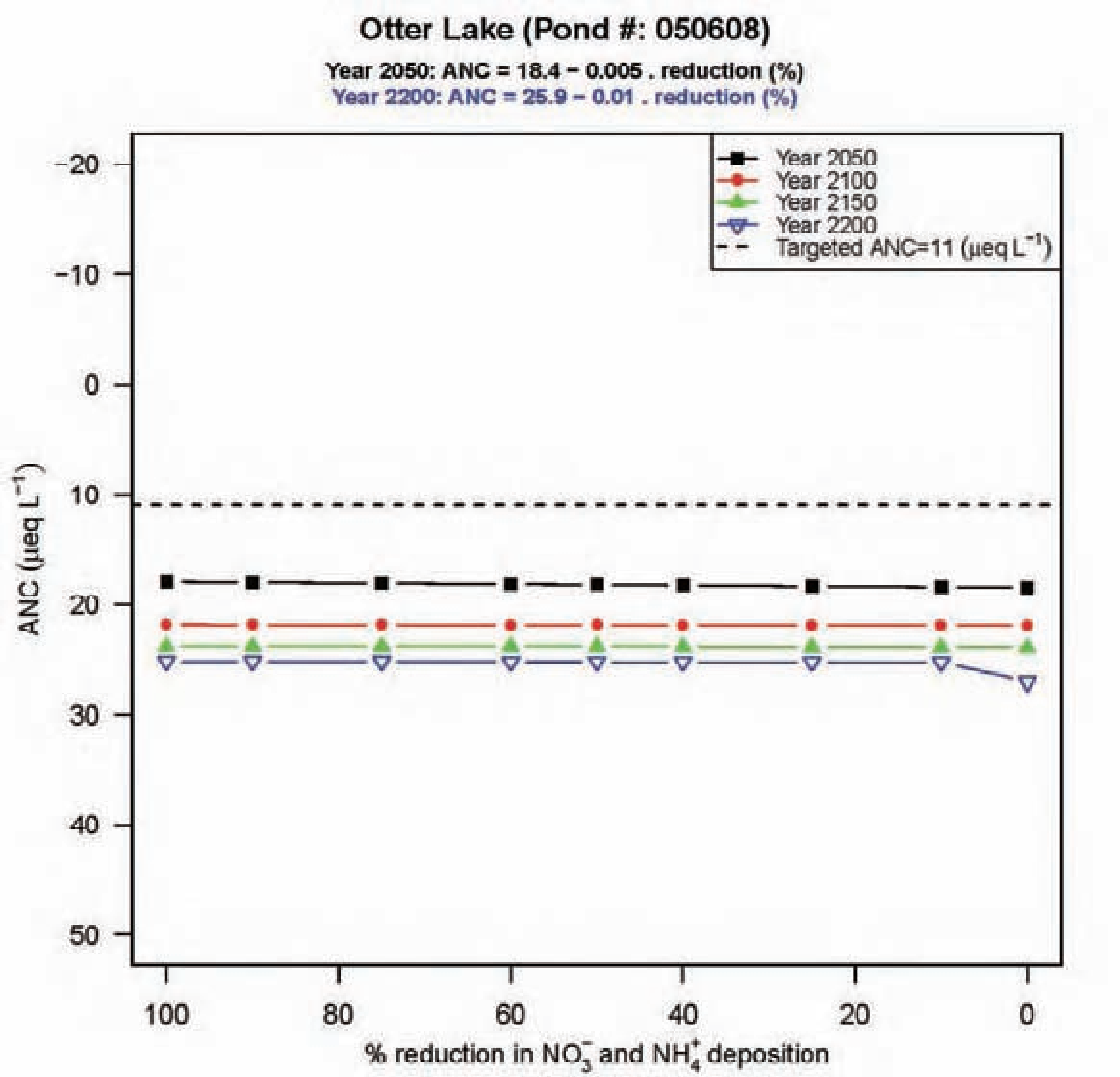
Puffer Pond (Pond #: 050589)
Year 2050: ANC = 29.3 − 0.005 . reduction (%)
Year 2200: ANC = 31.7 + 0.001 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition


Center Pond (Pond #: 050593)
Year 2050: ANC = 125.5 + 0.011 . reduction (%)
Year 2200: ANC = 112.1 + 0.035 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

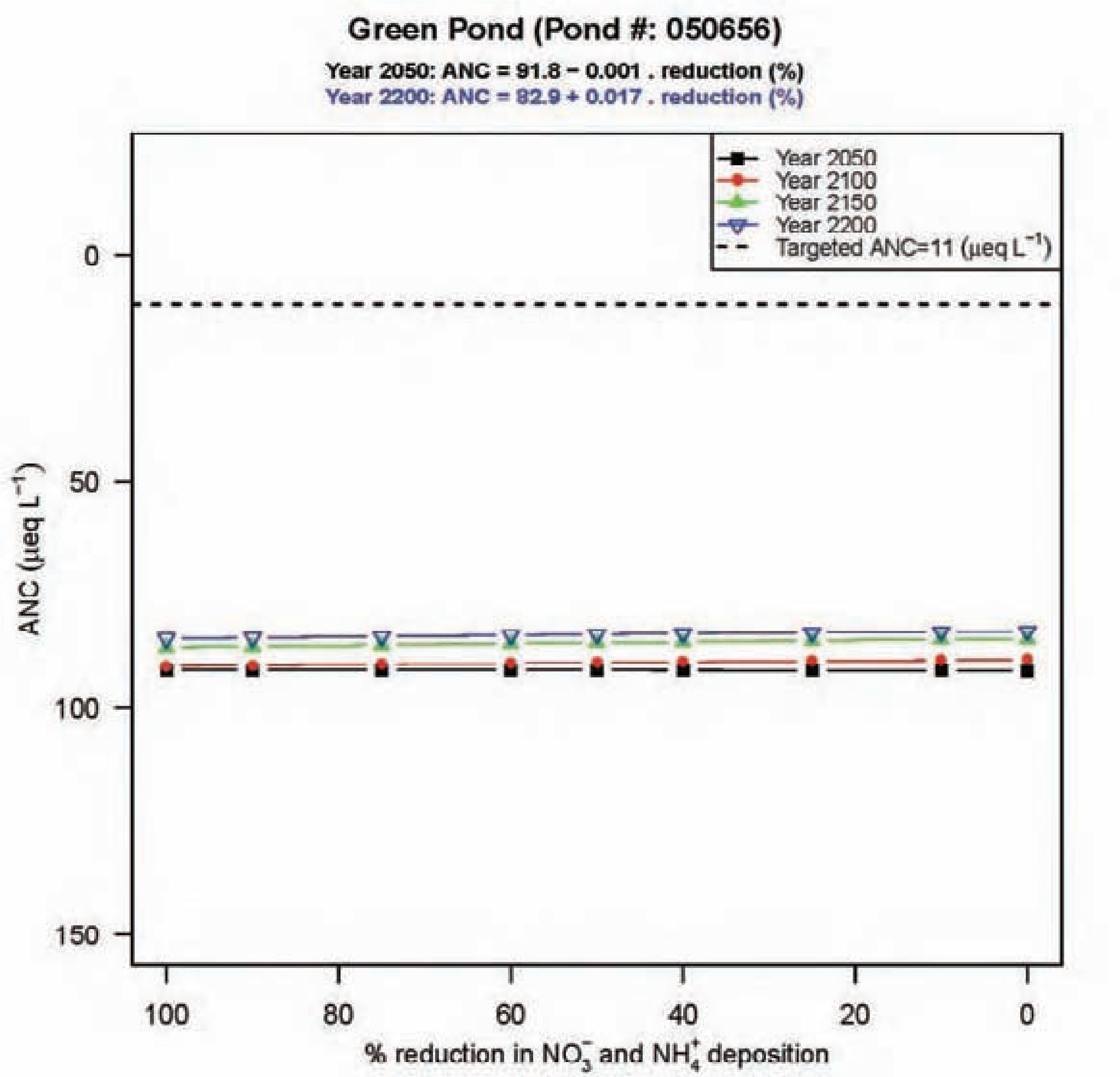


Clear Pond (Pond #: 050594)
Year 2050: ANC = 100 + 0.006 . reduction (%)
Year 2200: ANC = 89.6 + 0.022 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

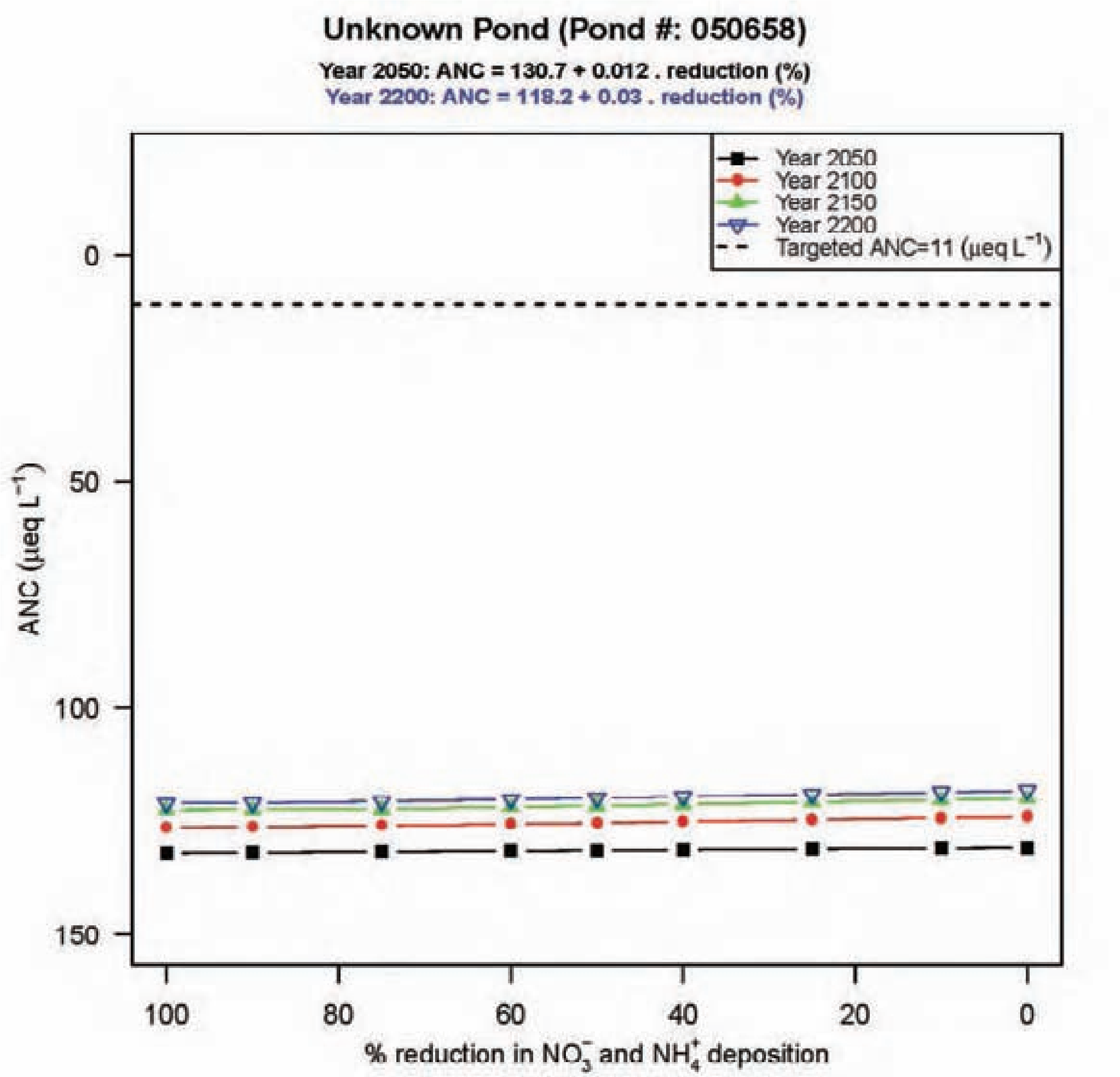

Little Moose Pond (Pond #: 050607)
Year 2050: ANC = 23.1 + 0.004 . reduction (%)
Year 2200: ANC = 28 + 0.011 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition



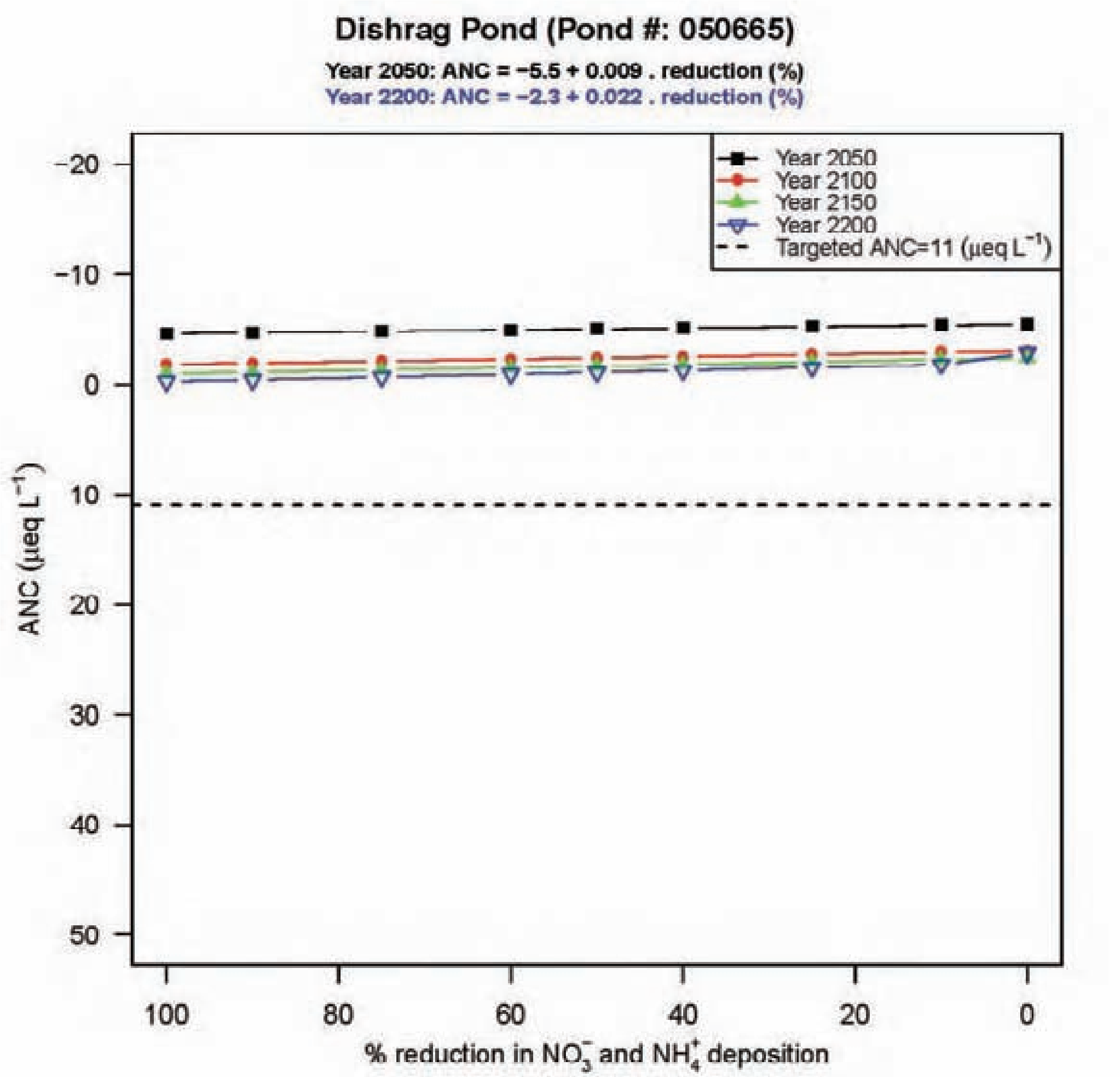
Otter Lake (Pond #: 050608)
Year 2050: ANC = 18.4 − 0.005 . reduction (%)
Year 2200: ANC = 25.9 − 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

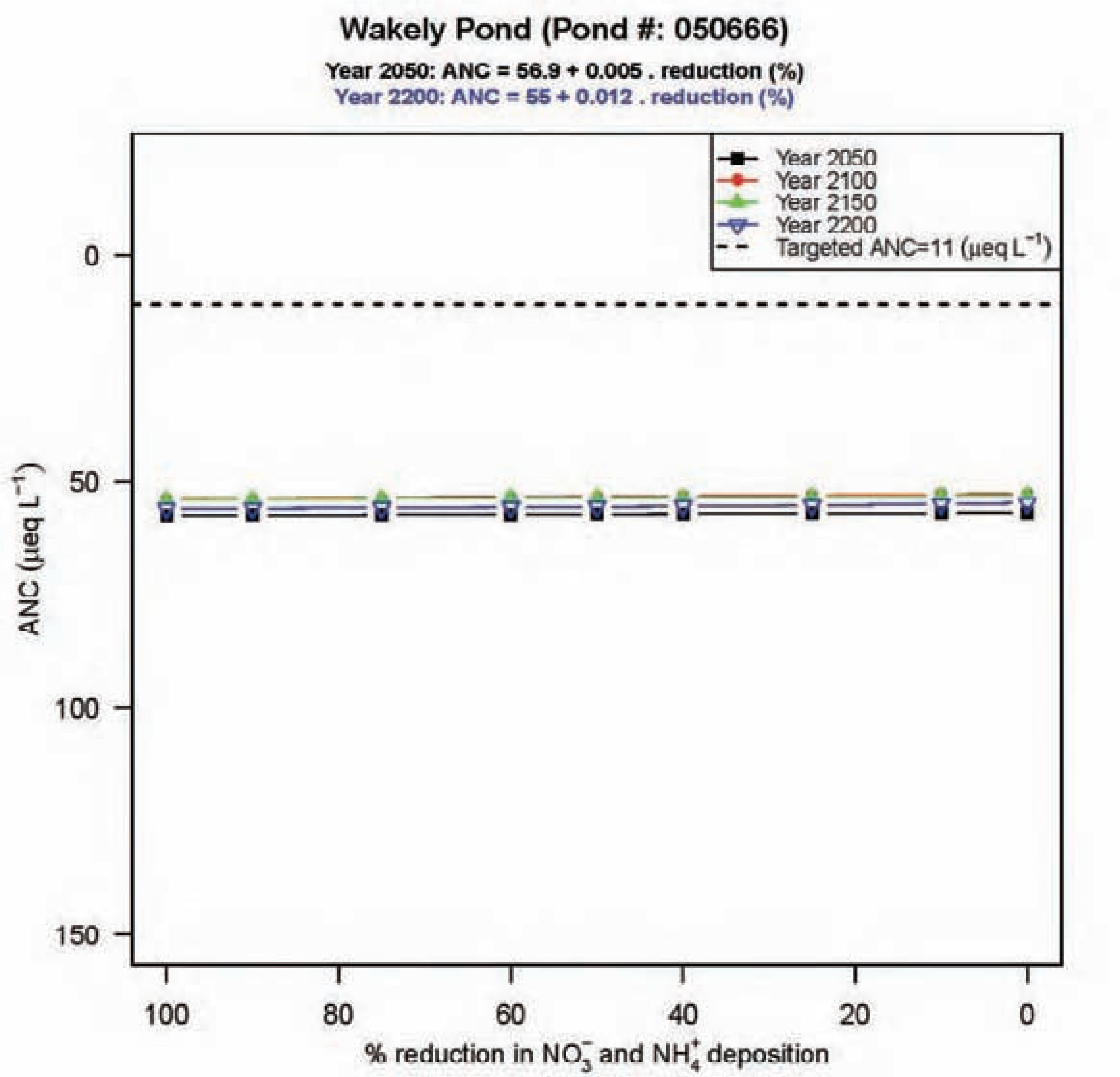


Green Pond (Pond #: 050656)
Year 2050: ANC = 91.8 − 0.001 . reduction (%)
Year 2200: ANC = 82.9 + 0.017 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

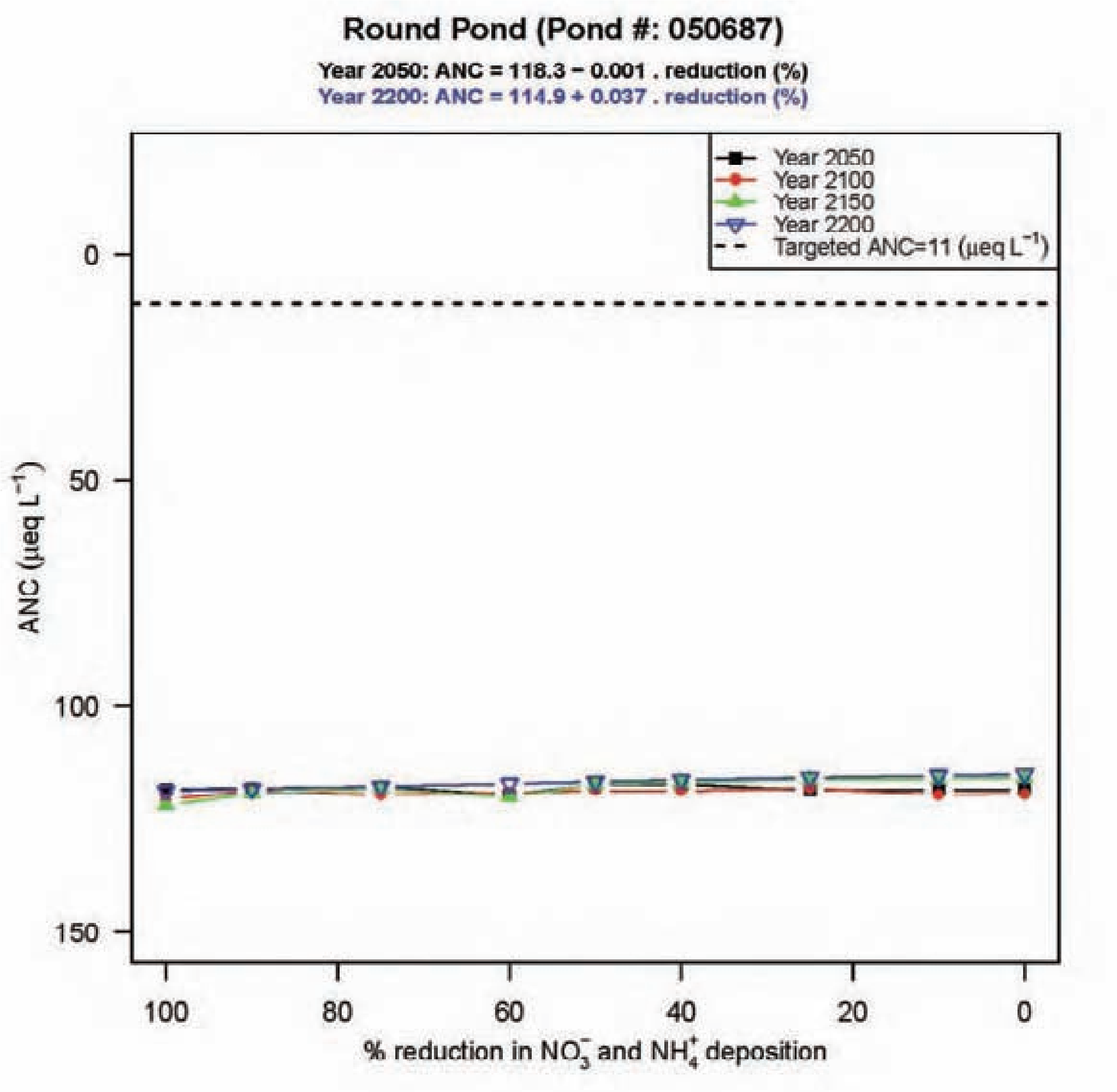


Unknown Pond (Pond #: 050658)
Year 2050: ANC = 130.7 + 0.012 . reduction (%)
Year 2200: ANC = 118.2 + 0.03 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

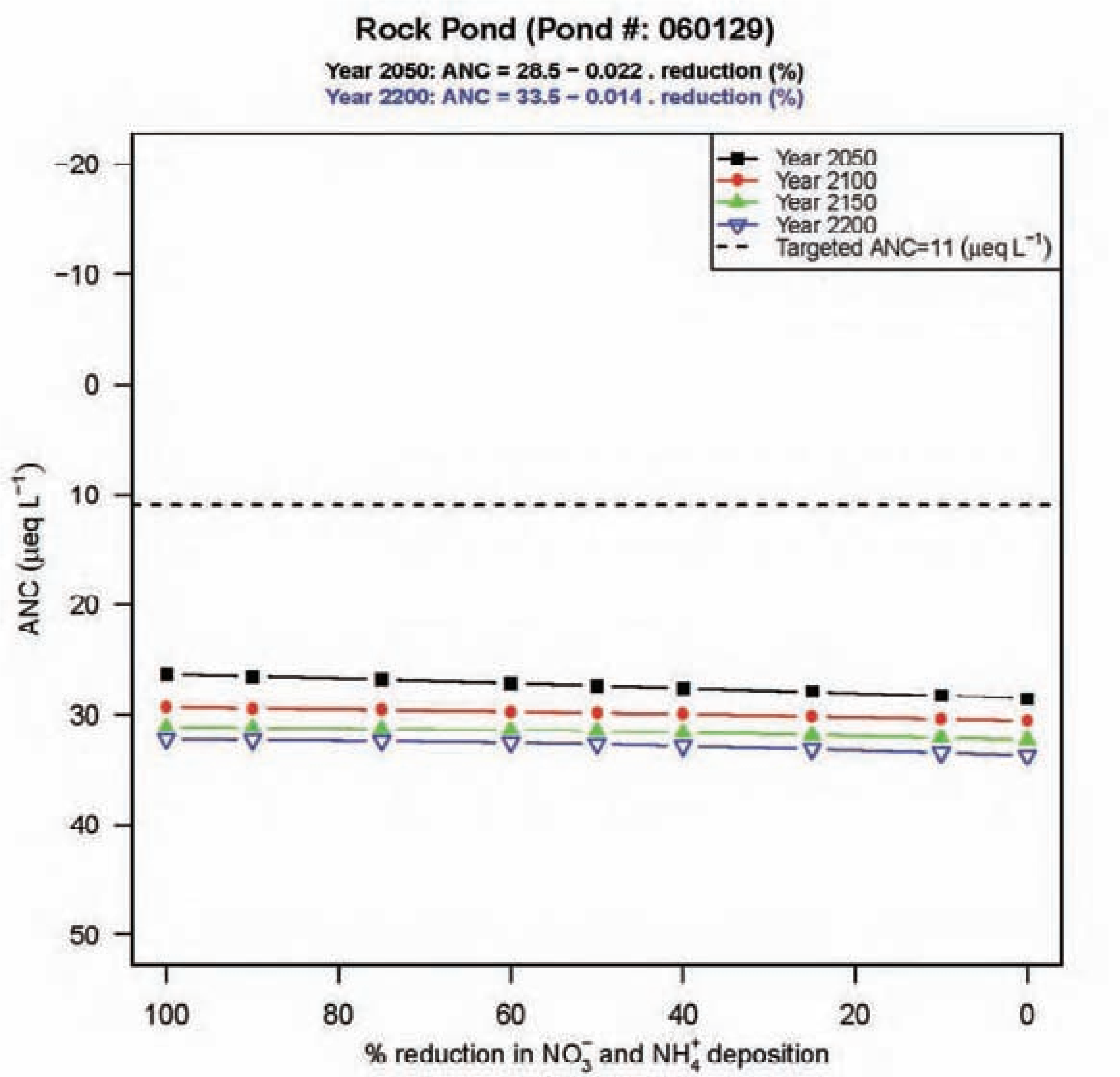

Dishrag Pond (Pond #: 050665)
Year 2050: ANC = −5.5 + 0.009 . reduction (%)
Year 2200: ANC = −2.3 + 0.022 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻ and NH4⁺ deposition

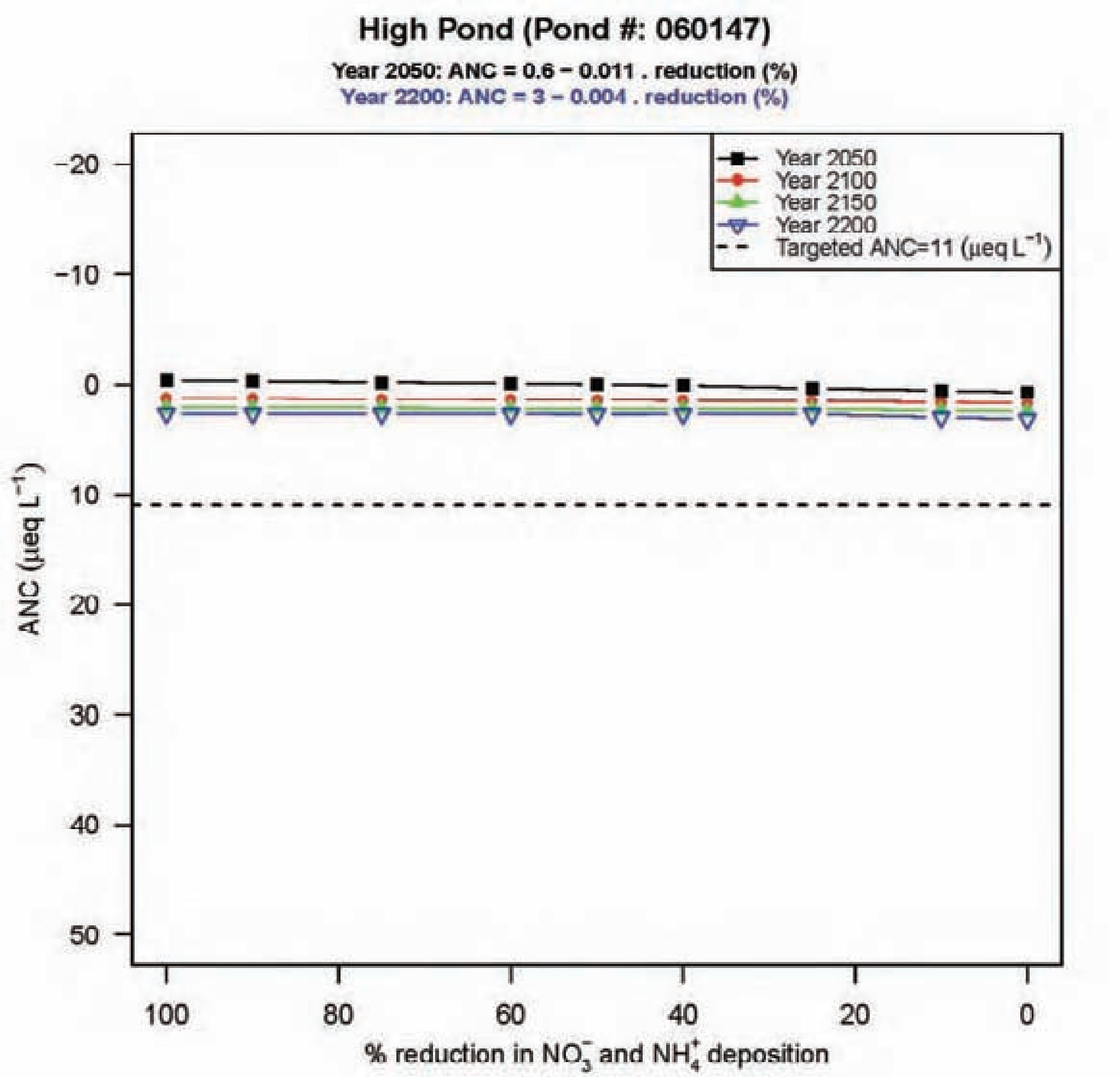


Wakely Pond (Pond #: 050666)
Year 2050: ANC = 56.9 + 0.005 . reduction (%)
Year 2200: ANC = 55 + 0.012 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
0
50
100
150
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

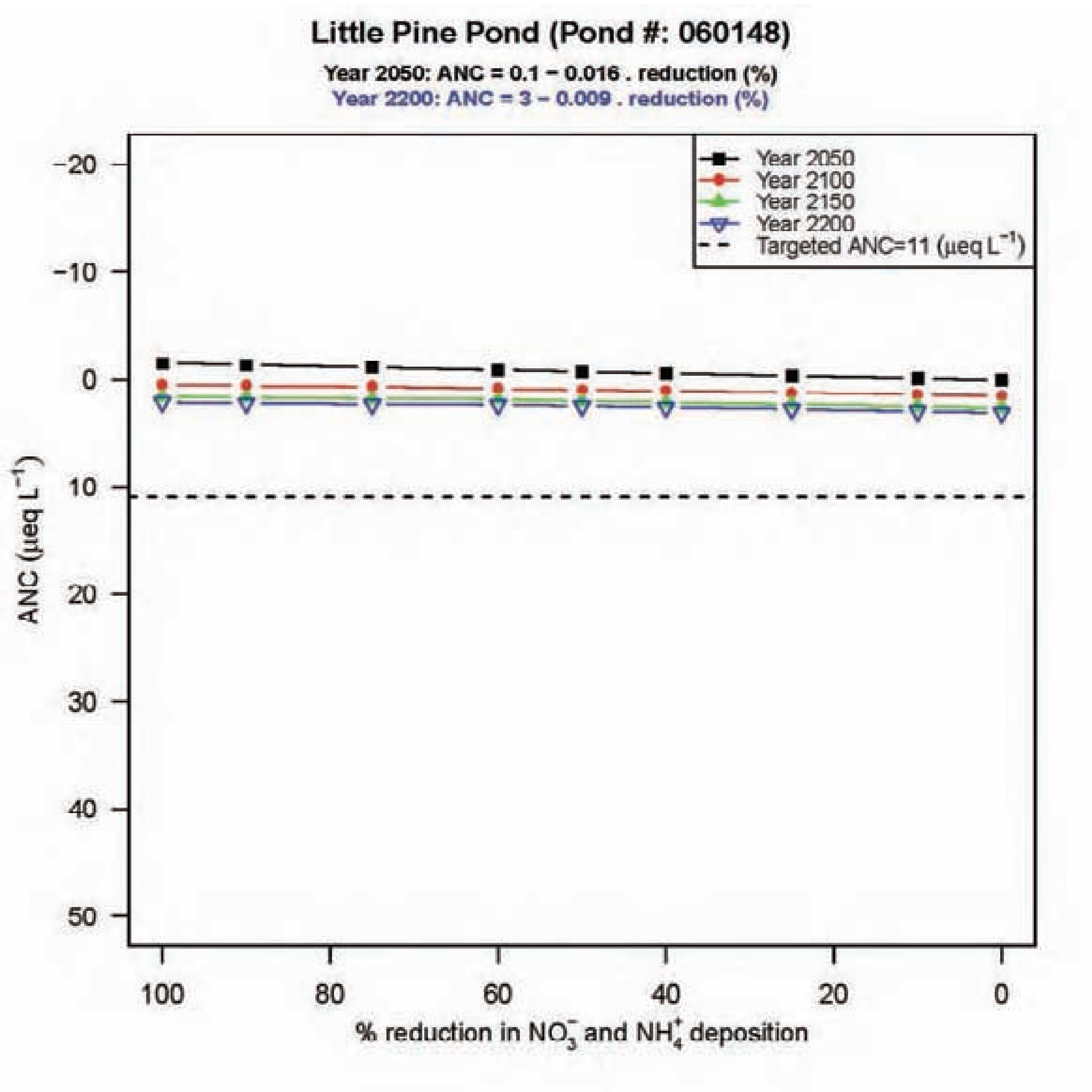


Round Pond (Pond #: 050687)
Year 2050: ANC = 118.3 − 0.001 . reduction (%)
Year 2200: ANC = 114.9 + 0.037 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
0
50
100
150
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

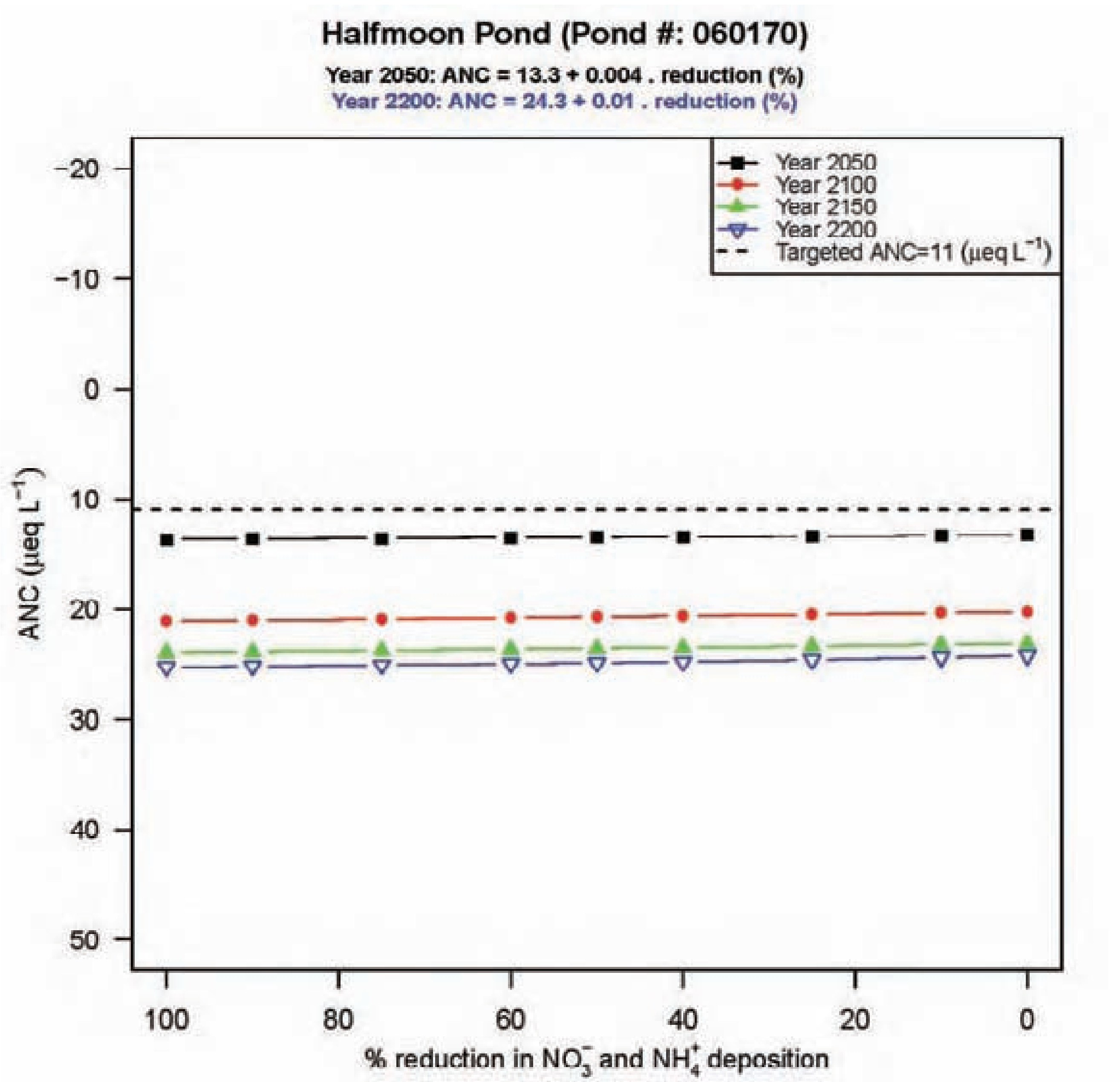

Rock Pond (Pond #: 060129)
Year 2050: ANC = 28.5 − 0.022 . reduction (%)
Year 2200: ANC = 33.5 − 0.014 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

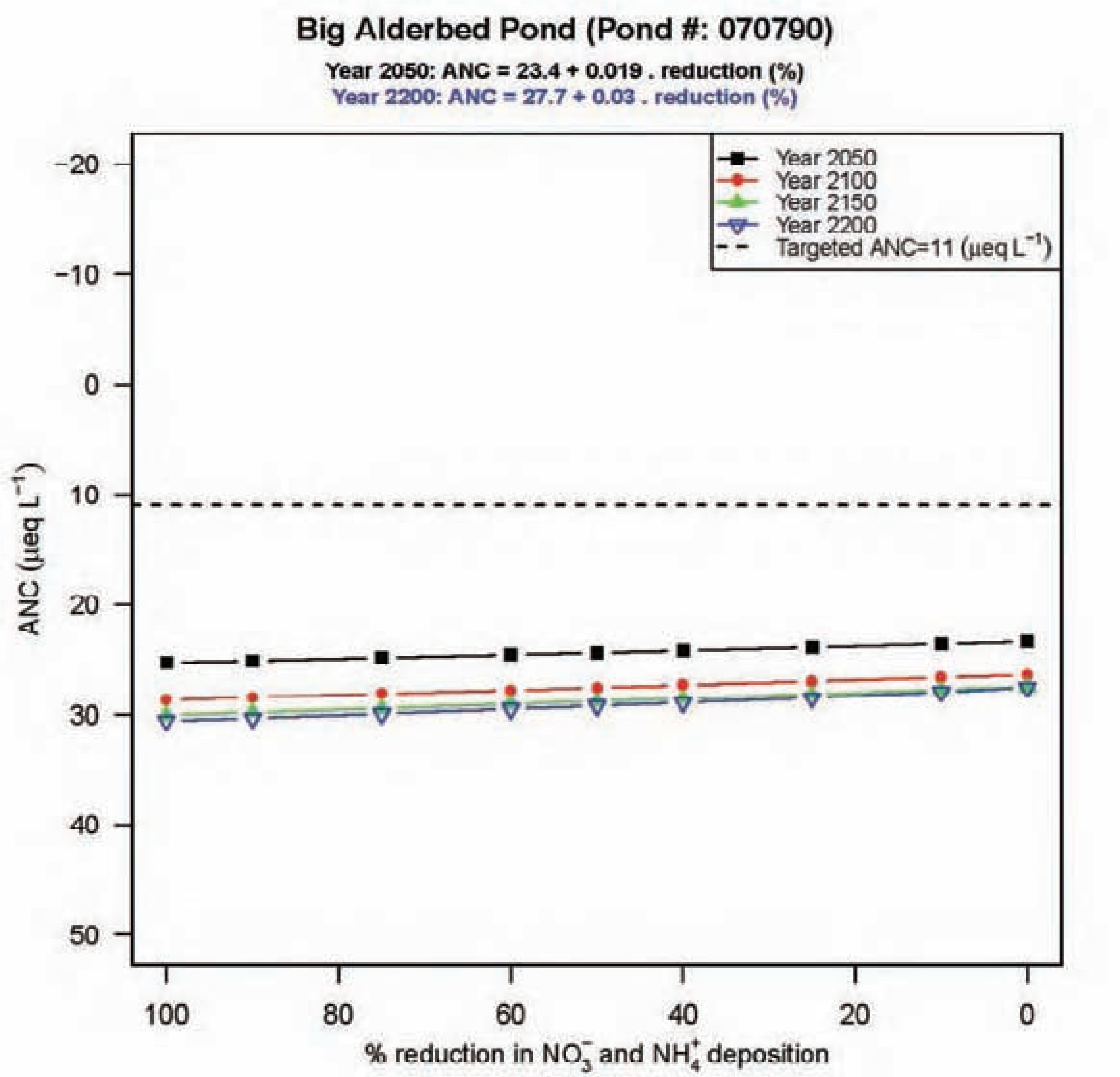


High Pond (Pond #: 060147)
Year 2050: ANC = 0.6 − 0.011 . reduction (%)
Year 2200: ANC = 3 − 0.004 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

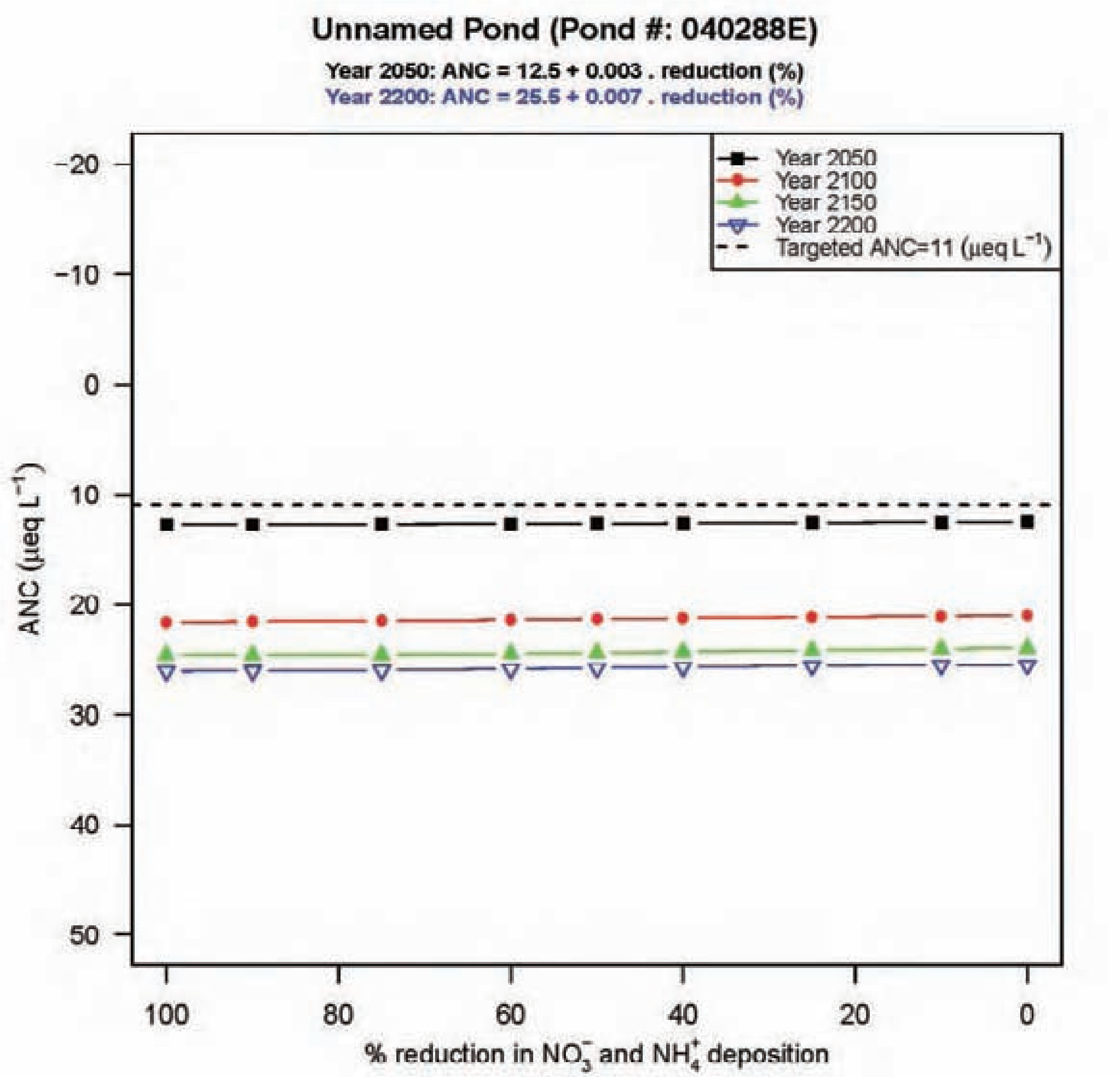


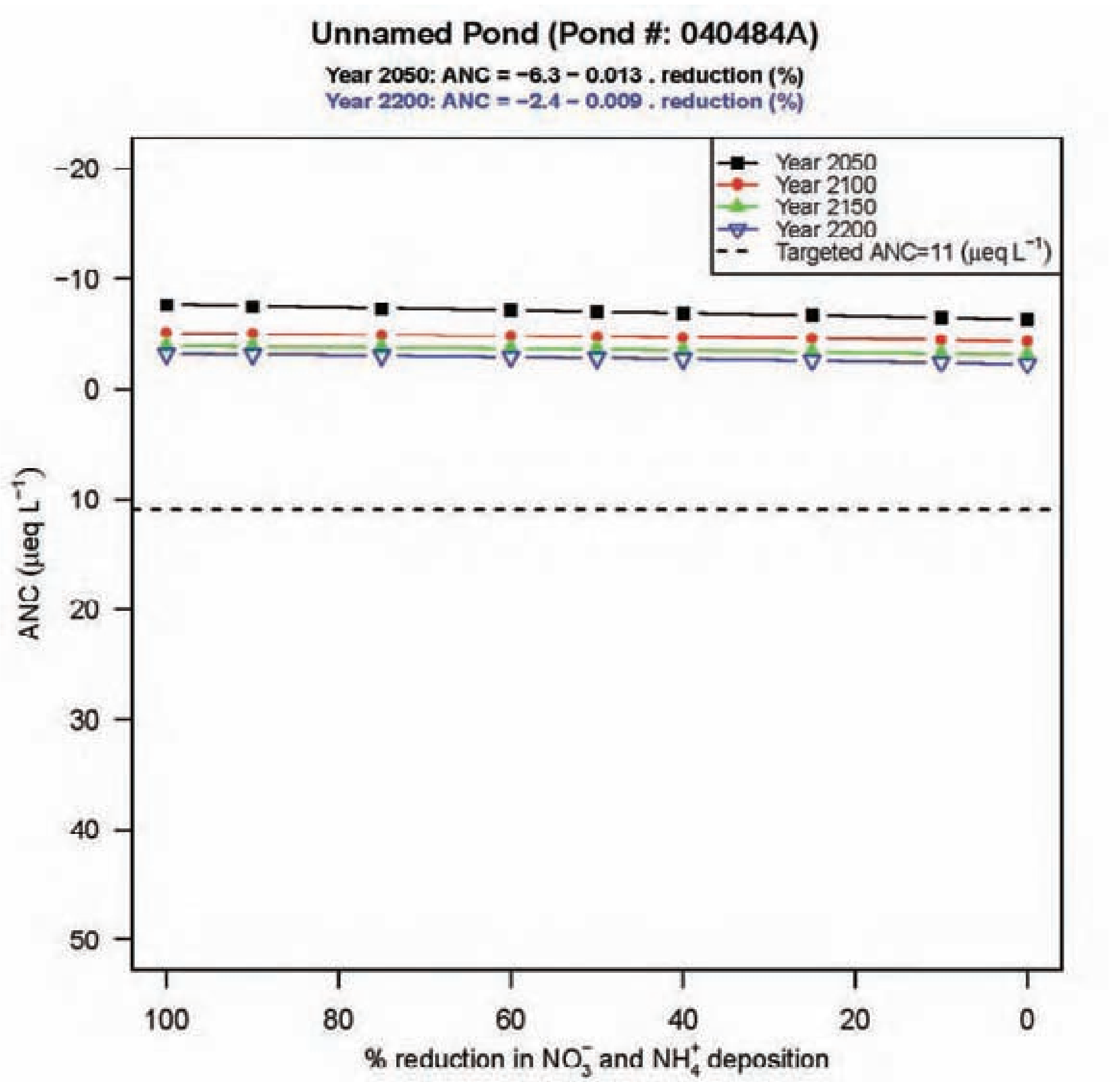
Little Pine Pond (Pond #: 060148)
Year 2050: ANC = 0.1 − 0.016 . reduction (%)
Year 2200: ANC = 3 − 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition


Halfmoon Pond (Pond #: 060170)
Year 2050: ANC = 13.3 + 0.004 . reduction (%)
Year 2200: ANC = 24.3 + 0.01 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

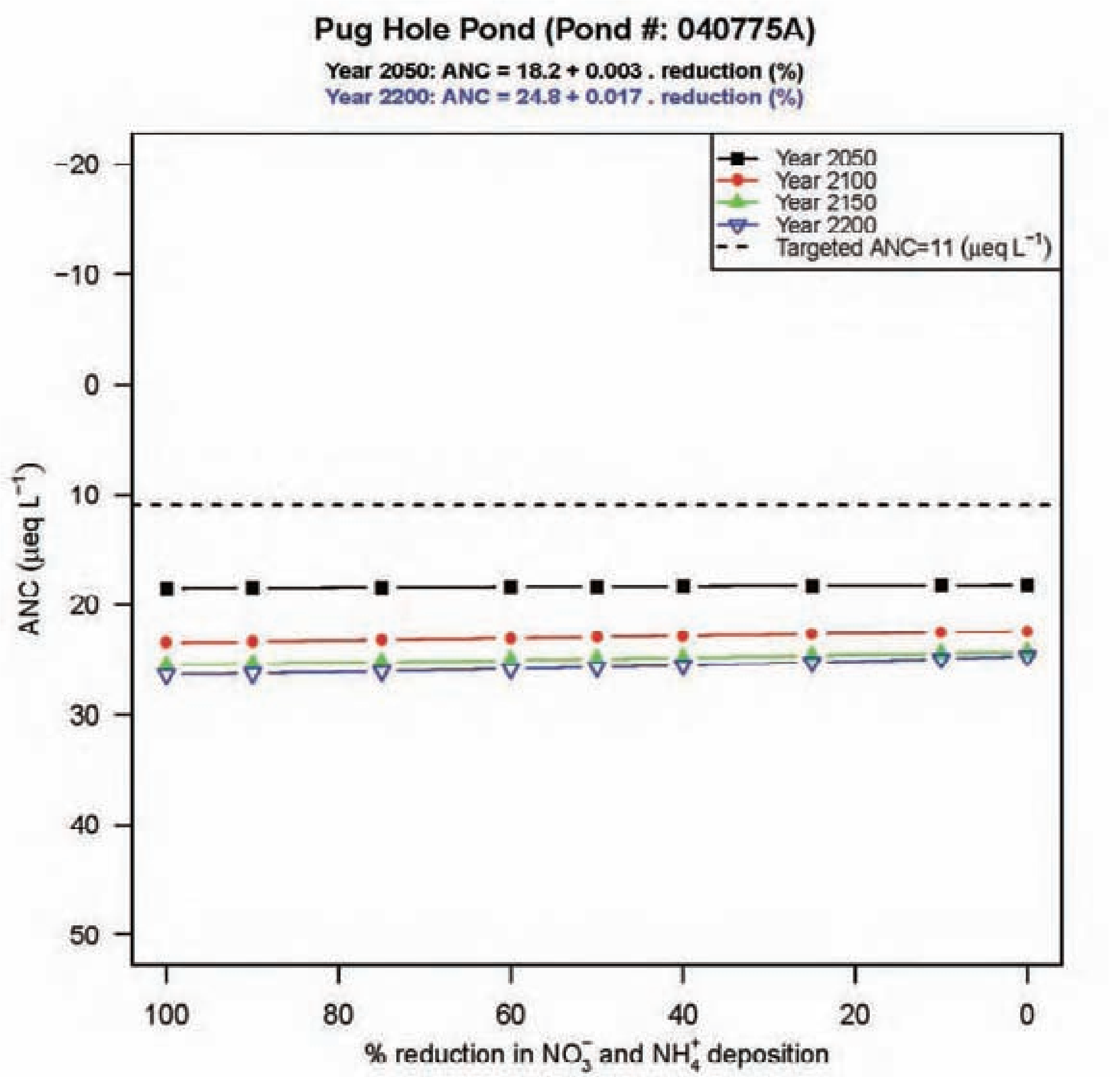


Big Alderbed Pond (Pond #: 070790)
Year 2050: ANC = 23.4 + 0.019 . reduction (%)
Year 2200: ANC = 27.7 + 0.03 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

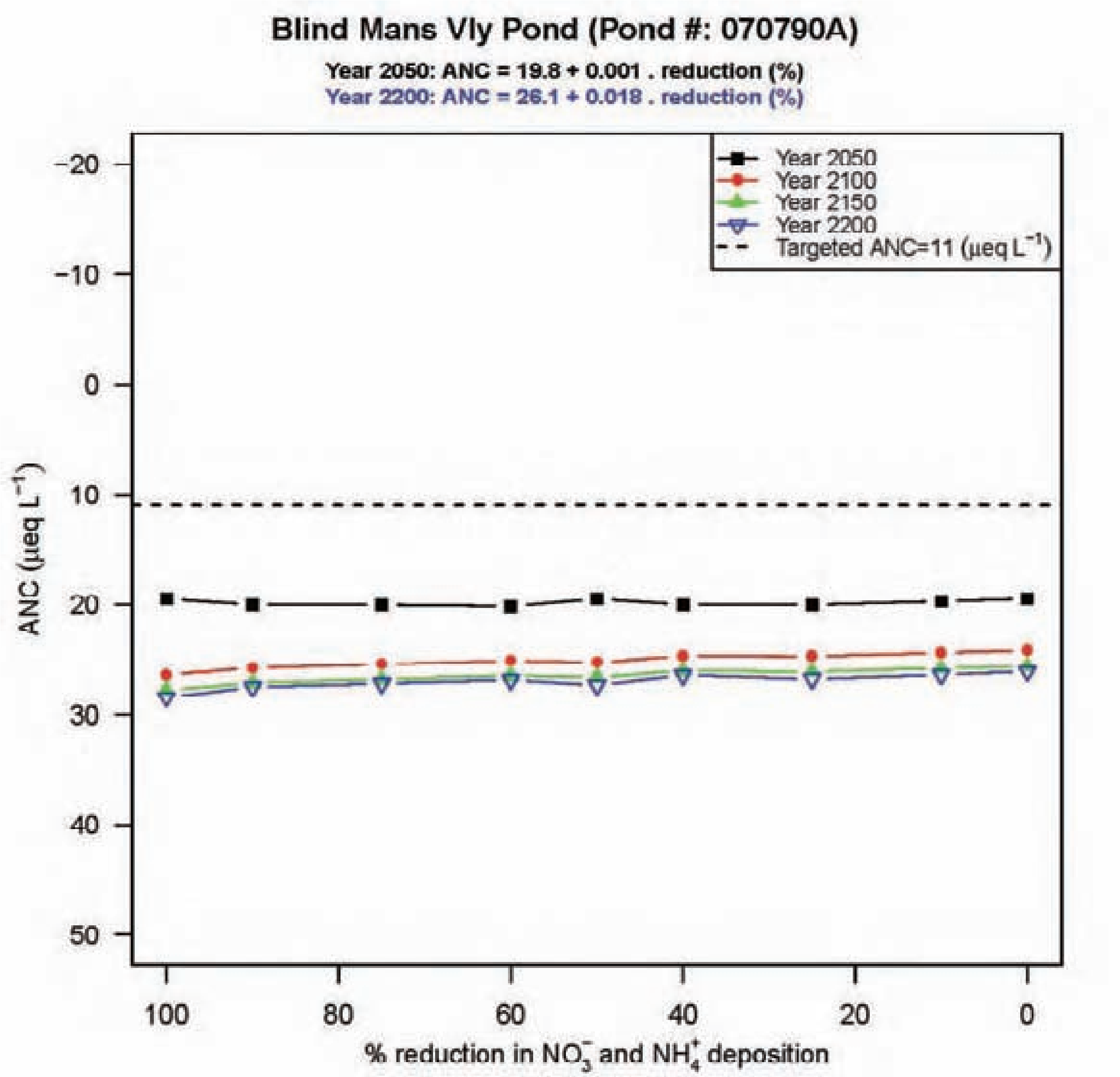

Unnamed Pond (Pond #: 040288E)
Year 2050: ANC = 12.5 + 0.003 . reduction (%)
Year 2200: ANC = 25.5 + 0.007 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



Unnamed Pond (Pond #: 040484A)
Year 2050: ANC = −6.3 − 0.013 . reduction (%)
Year 2200: ANC = −2.4 − 0.009 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition



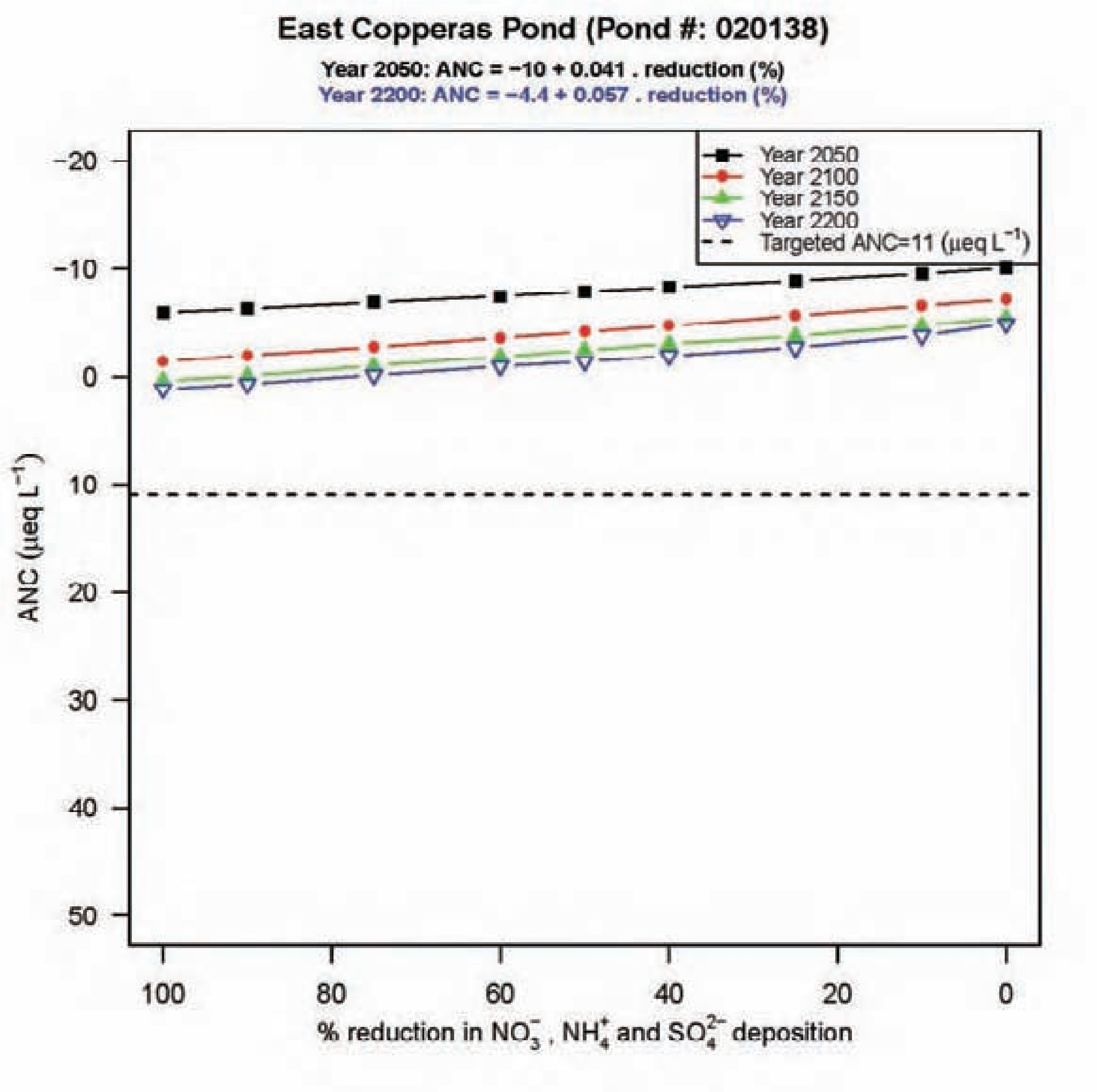
Pug Hole Pond (Pond #: 040775A)
Year 2050: ANC = 18.2 + 0.003 . reduction (%)
Year 2200: ANC = 24.8 + 0.017 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

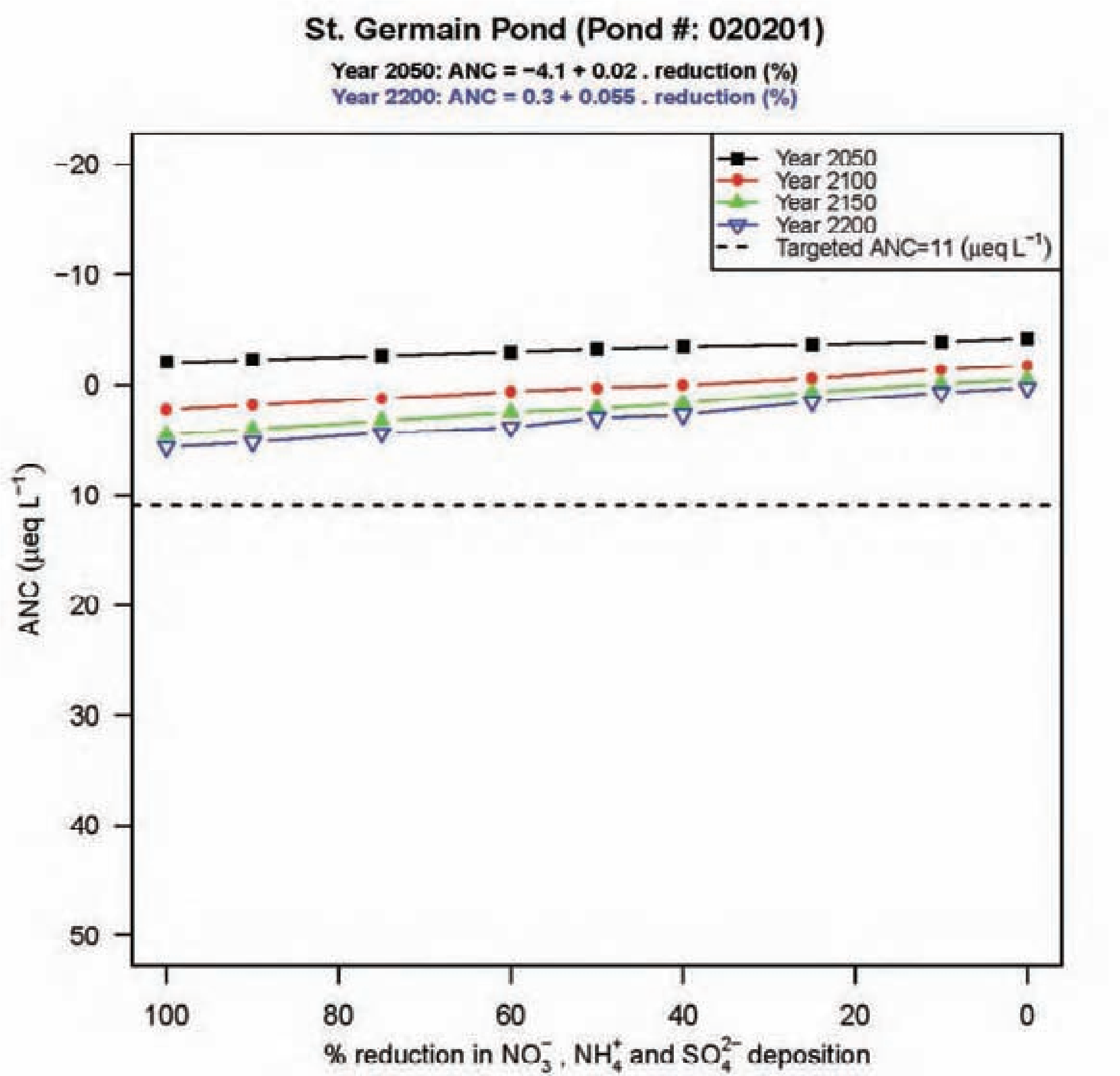


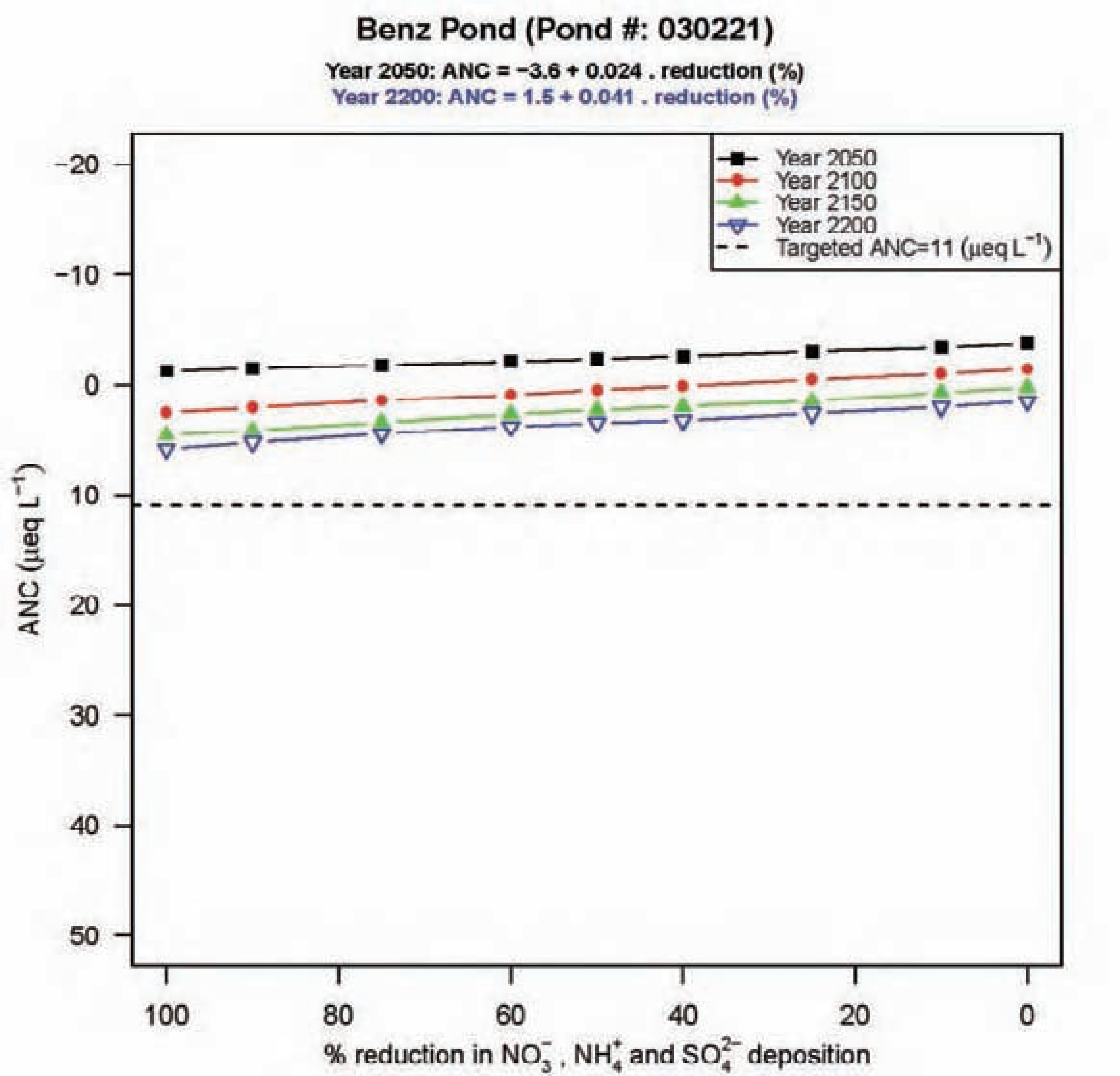
Blind Mans Vly Pond (Pond #: 070790A)
Year 2050: ANC = 19.8 + 0.001 . reduction (%)
Year 2200: ANC = 26.1 + 0.018 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻ and NH₄⁺ deposition

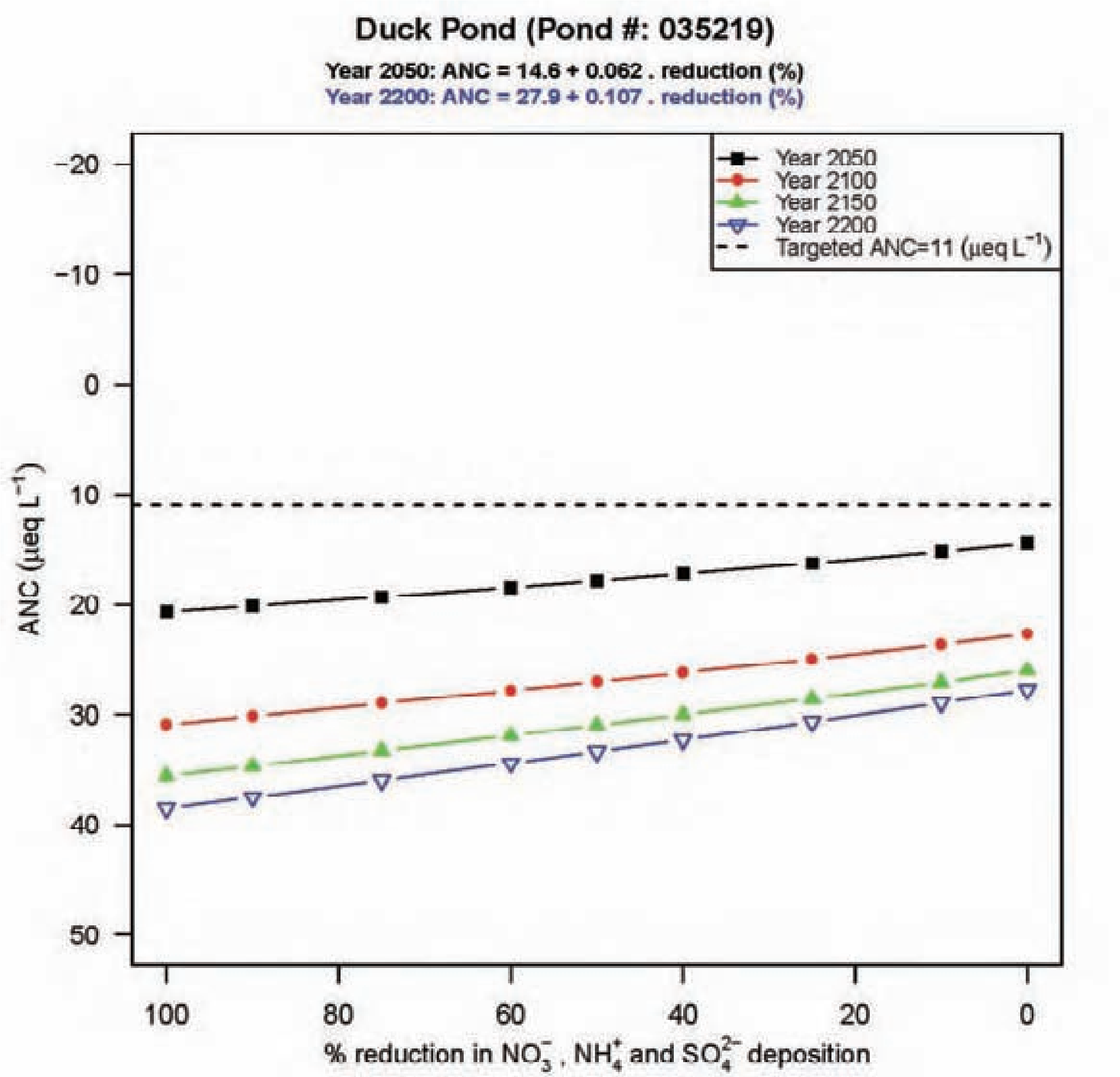
Appendix 7
Load-response plots for scenarios involving reductions in atmospheric SO_4^{2-}, NO_3^- and NH_4^+ deposition

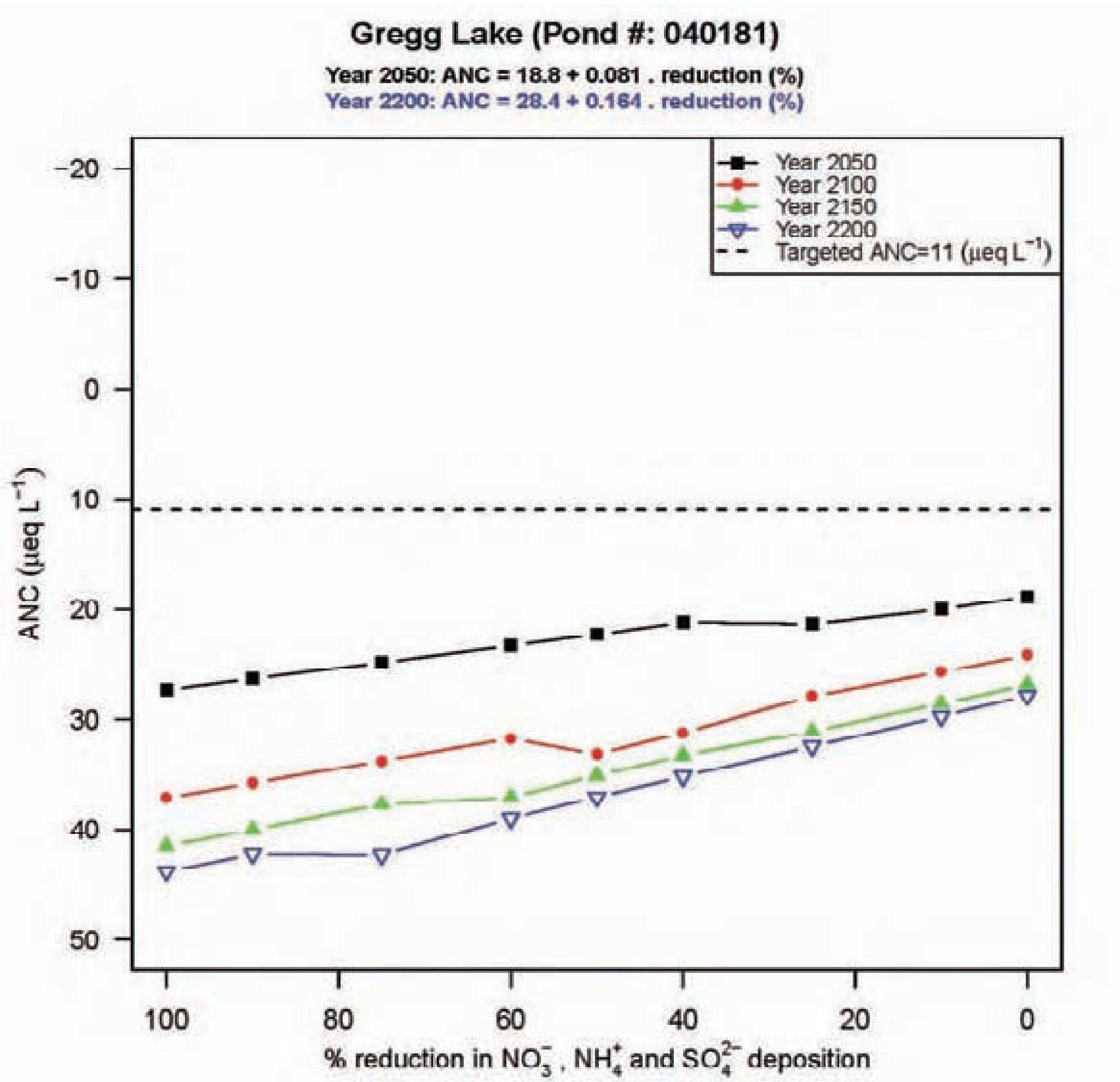
Load-response plots for scenarios involving reductions in atmospheric SO_4^{2-} , NO_3^- and NH_4^+ deposition. The percent reduction in atmospheric loading is along the x-axis and the corresponding model simulated ANC is along the y-axis. Results are shown for the years 2050, 2100, 2150 and 2200. For each lake, linear regression models were developed for 2050 and 2200 ANC values as a function of percent load reduction as follows: ANC = [intercept] ± [slope * reduction (%)].


East Copperas Pond (Pond #: 020138)
Year 2050: ANC = −10 + 0.041 . reduction (%)
Year 2200: ANC = −4.4 + 0.057 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

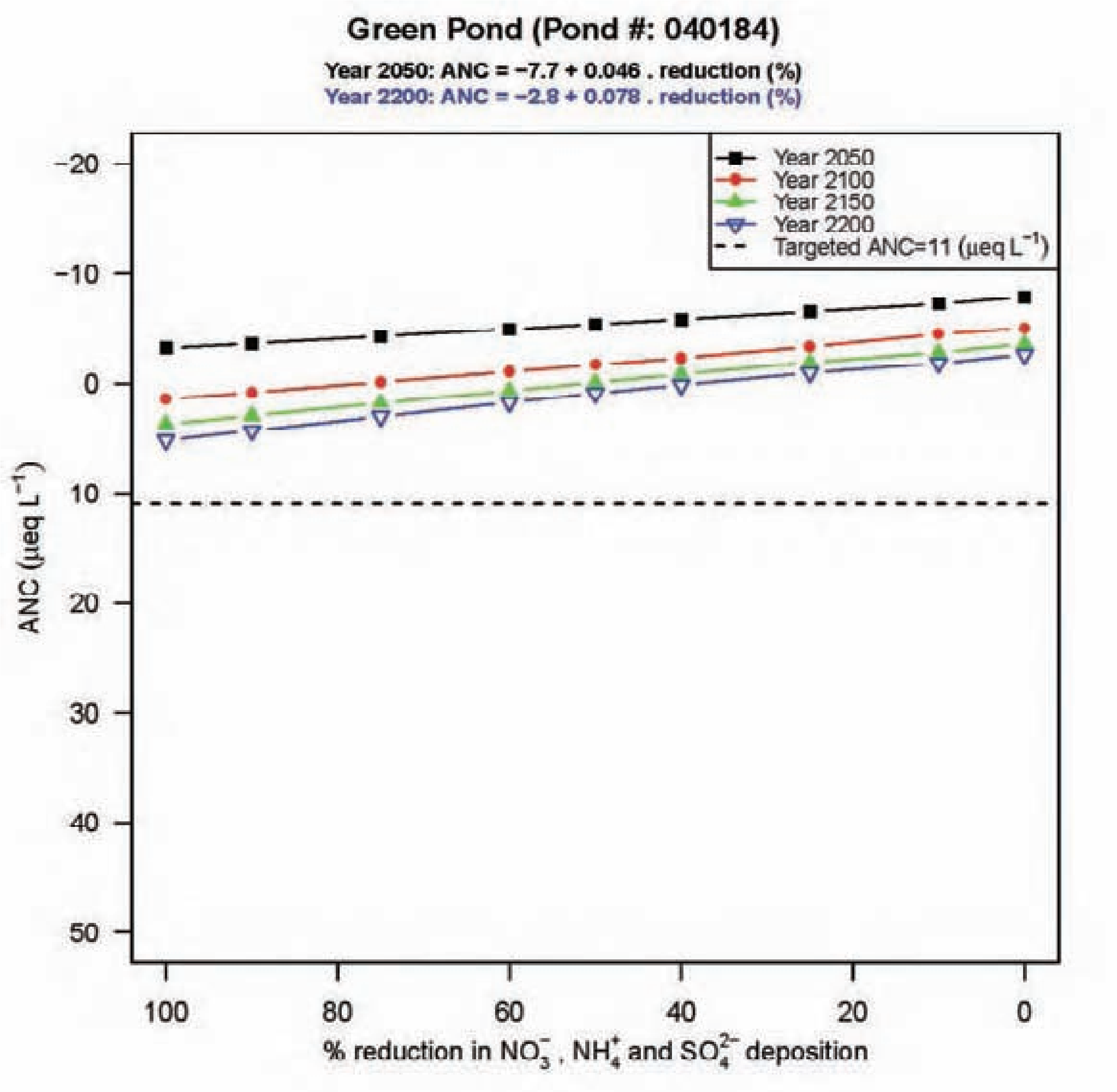

St. Germain Pond (Pond #: 020201)
Year 2050: ANC = -4.1 + 0.02 . reduction (%)
Year 2200: ANC = 0.3 + 0.055 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

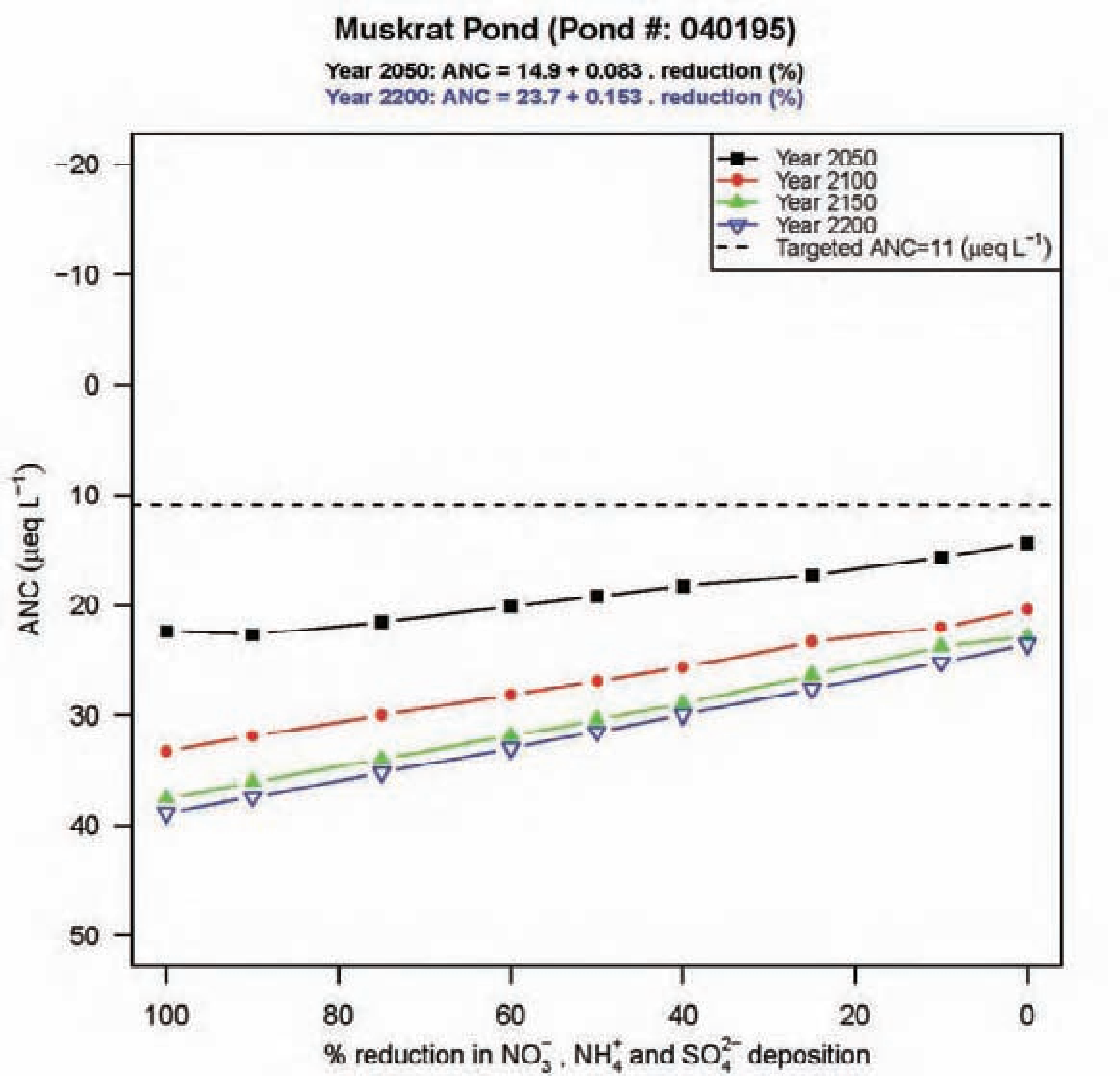

Benz Pond (Pond #: 030221)
Year 2050: ANC = −3.6 + 0.024 . reduction (%)
Year 2200: ANC = 1.5 + 0.041 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition


Duck Pond (Pond #: 035219)
Year 2050: ANC = 14.6 + 0.062 . reduction (%)
Year 2200: ANC = 27.9 + 0.107 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^-1)
ANC (μeq L^-1)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3-, NH4+ and SO42- deposition

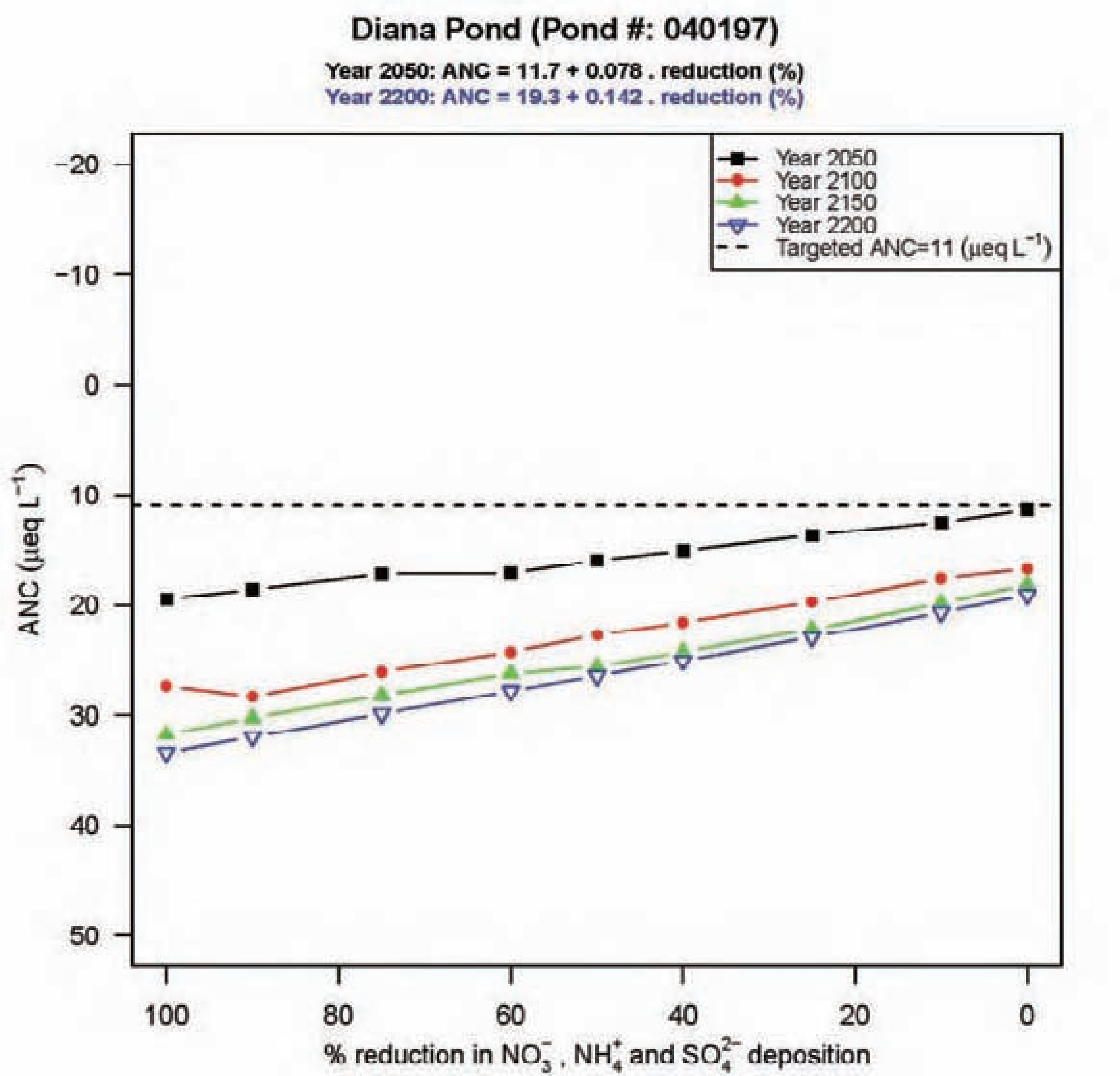


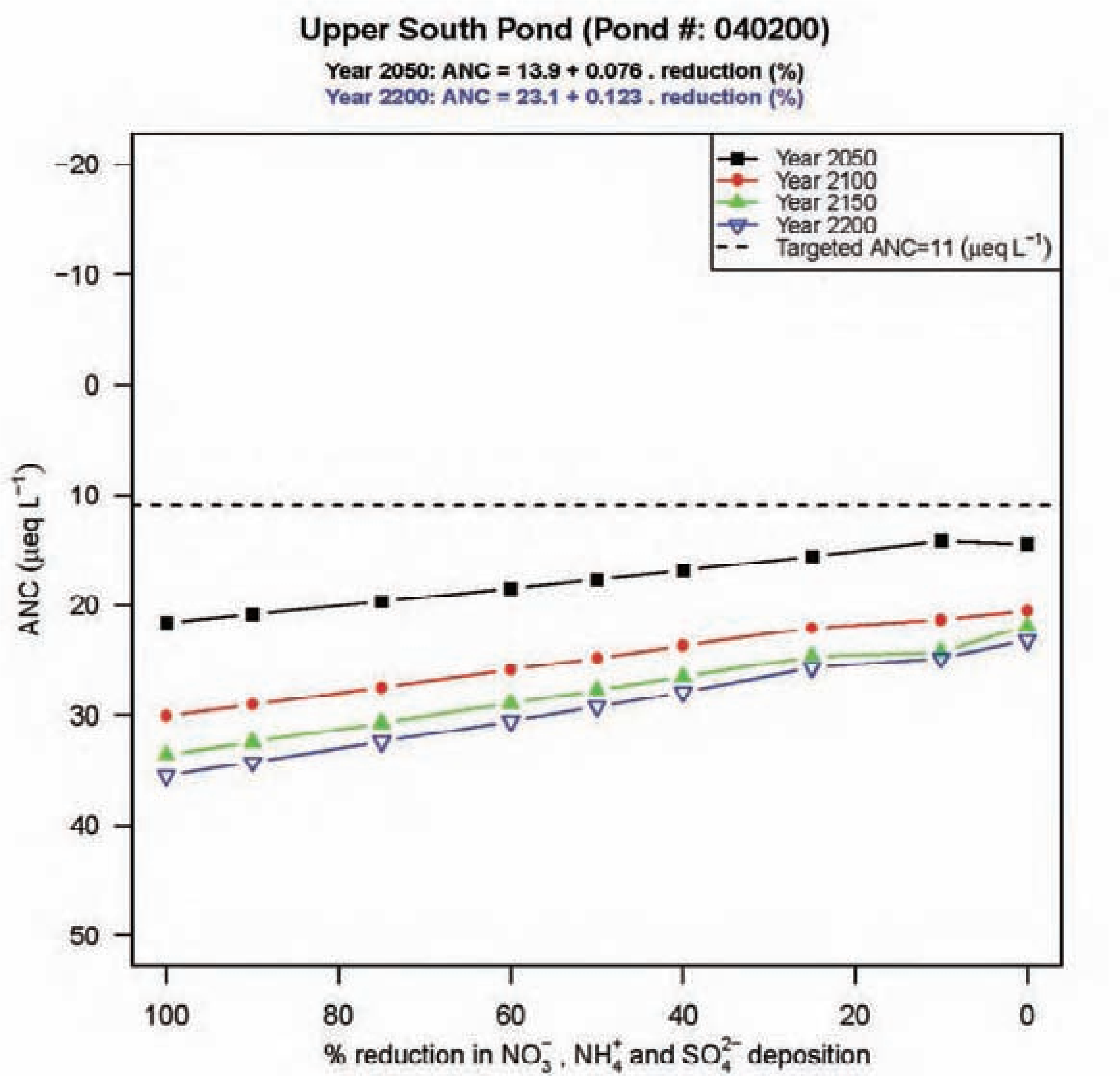
Gregg Lake (Pond #: 040181)
Year 2050: ANC = 18.8 + 0.081 . reduction (%)
Year 2200: ANC = 28.4 + 0.164 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

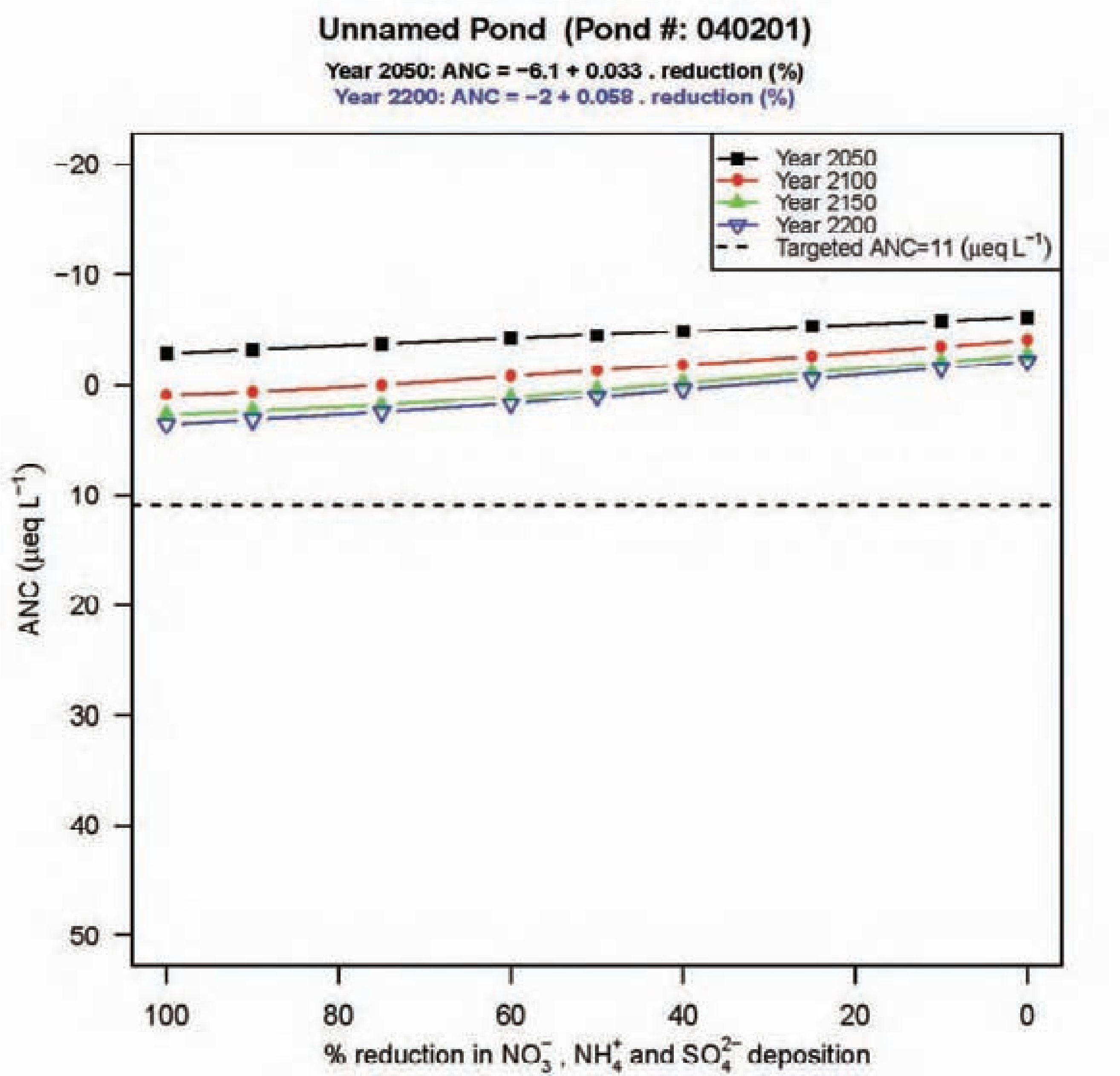

Green Pond (Pond #: 040184)
Year 2050: ANC = −7.7 + 0.046 . reduction (%)
Year 2200: ANC = −2.8 + 0.078 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



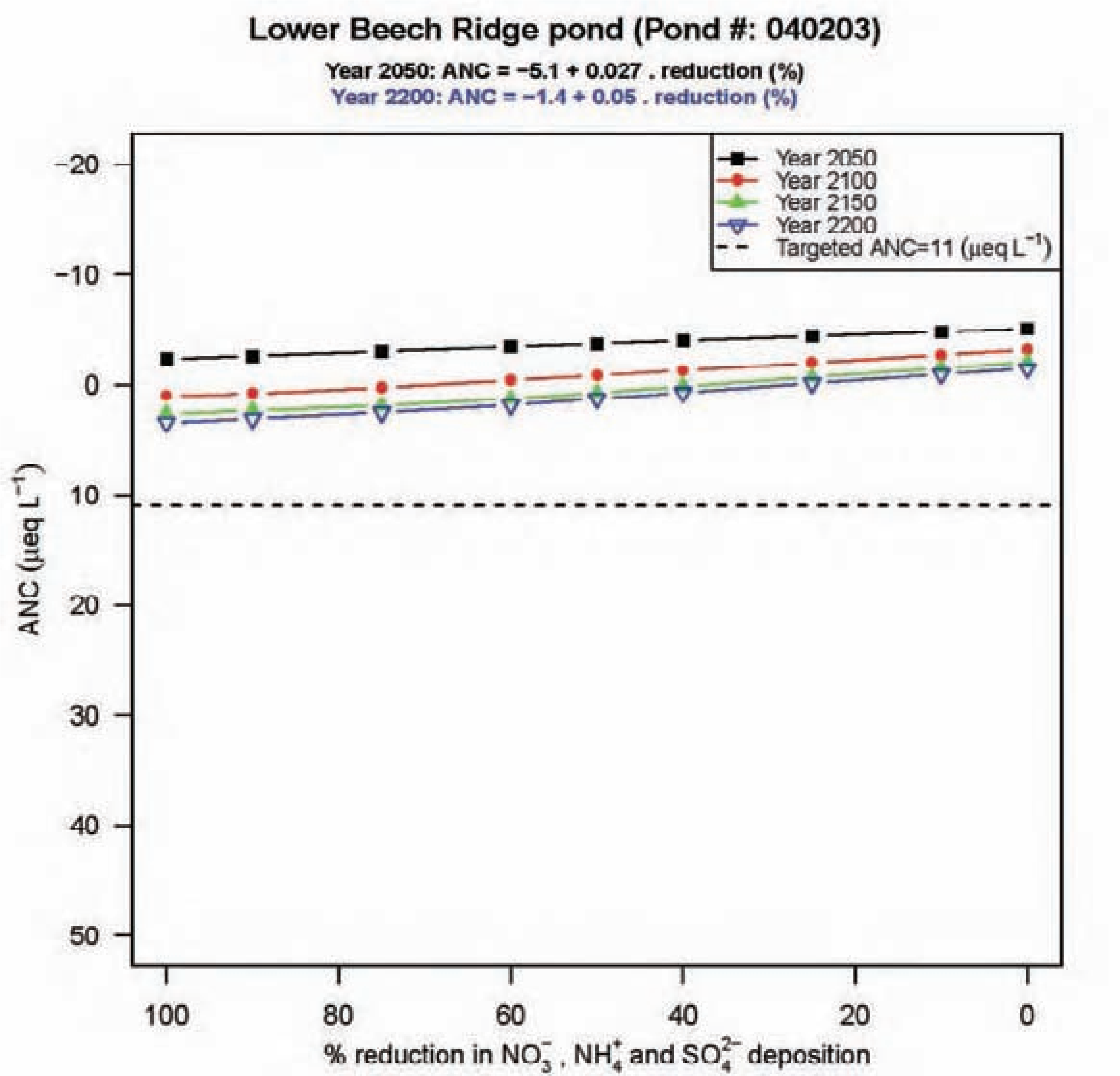
Muskrat Pond (Pond #: 040195)
Year 2050: ANC = 14.9 + 0.083 . reduction (%)
Year 2200: ANC = 23.7 + 0.153 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3−, NH4+ and SO42− deposition

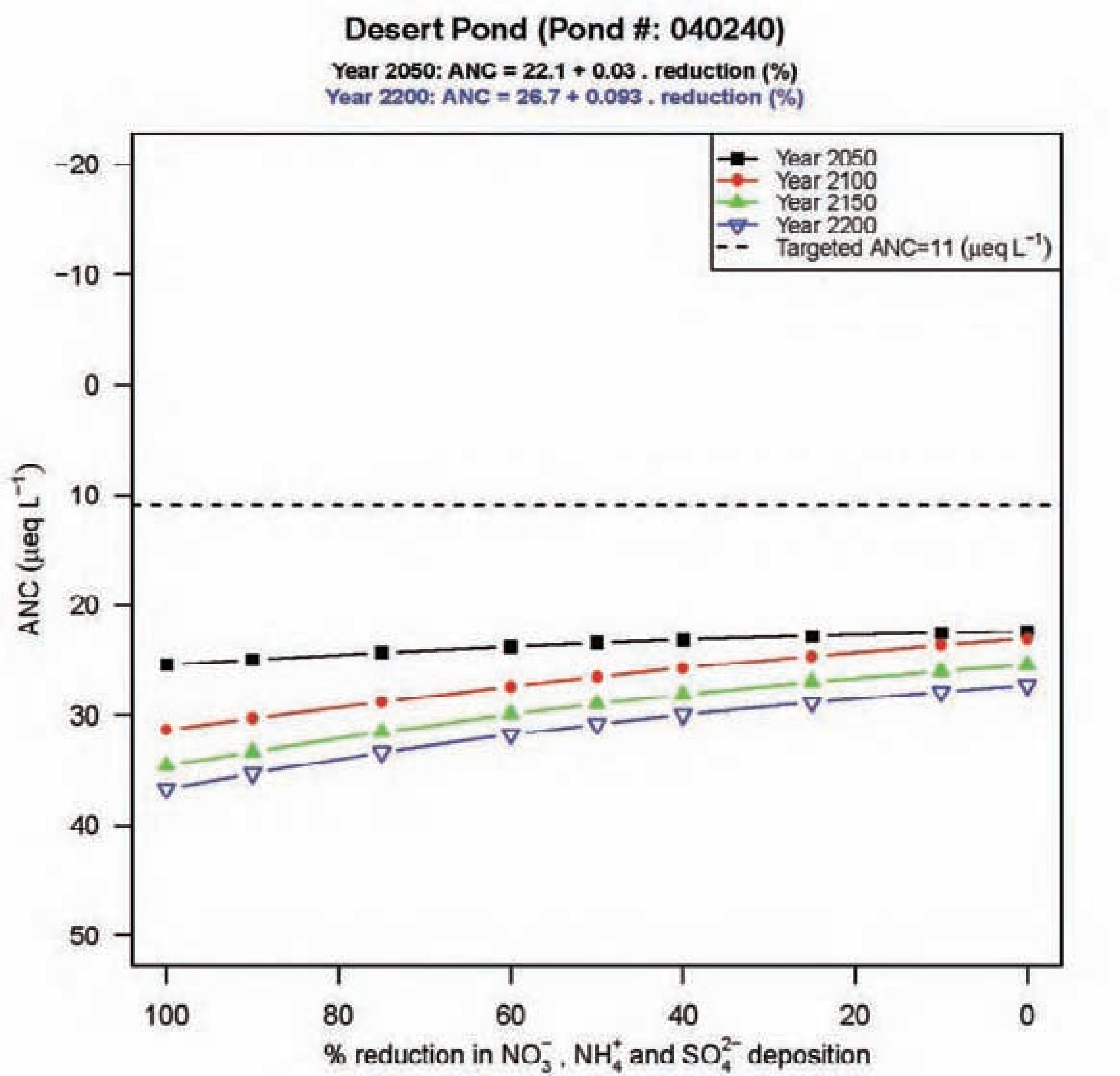

Diana Pond (Pond #: 040197)
Year 2050: ANC = 11.7 + 0.078 . reduction (%)
Year 2200: ANC = 19.3 + 0.142 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L-1)
-20
-10
0
10
20
30
40
50
ANC (μeq L-1)
100
80
60
40
20
0
% reduction in NO3-, NH4+ and SO42- deposition


Upper South Pond (Pond #: 040200)
Year 2050: ANC = 13.9 + 0.076 . reduction (%)
Year 2200: ANC = 23.1 + 0.123 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

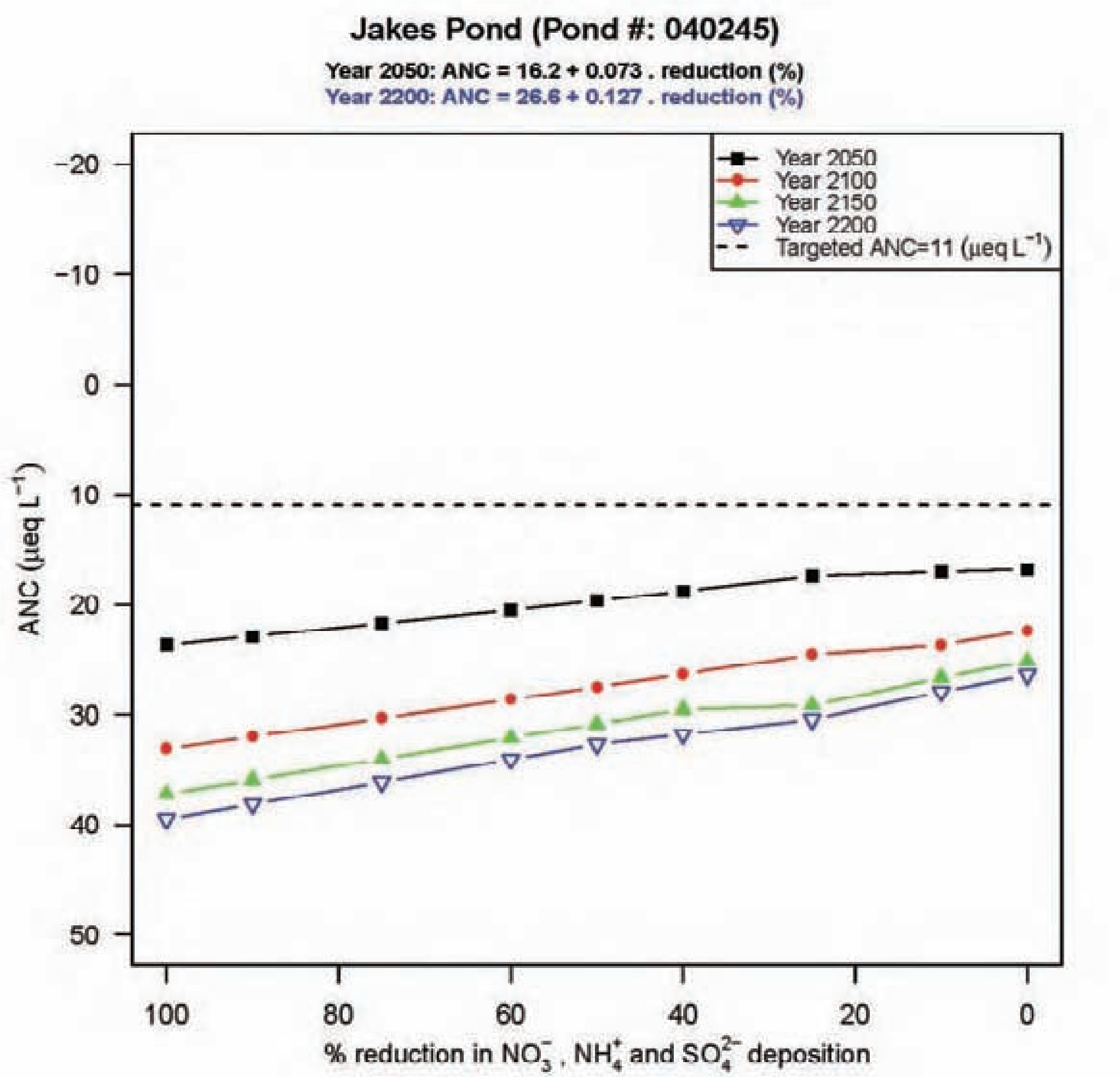


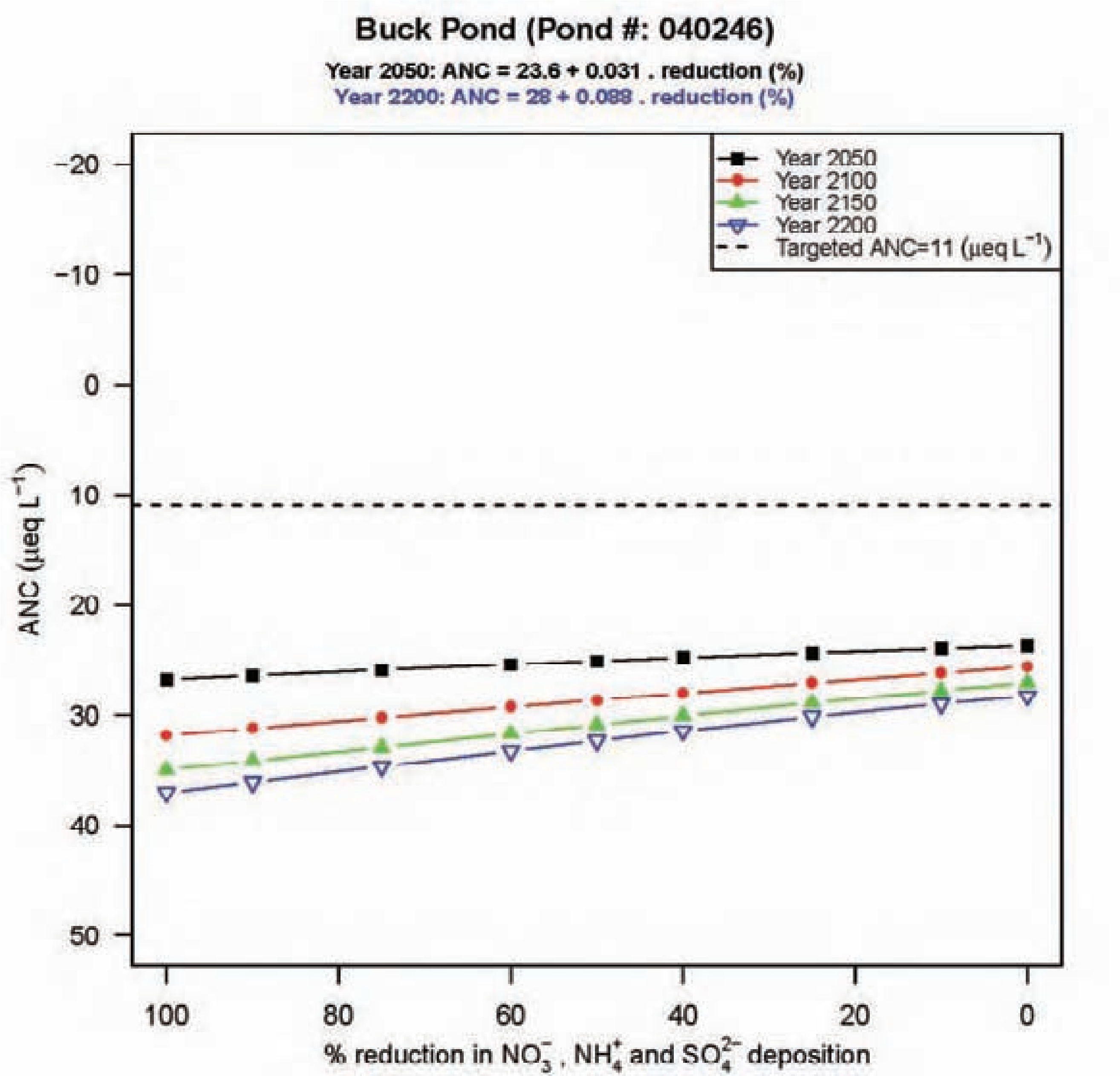
Unnamed Pond (Pond #: 040201)
Year 2050: ANC = −6.1 + 0.033 . reduction (%)
Year 2200: ANC = −2 + 0.058 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

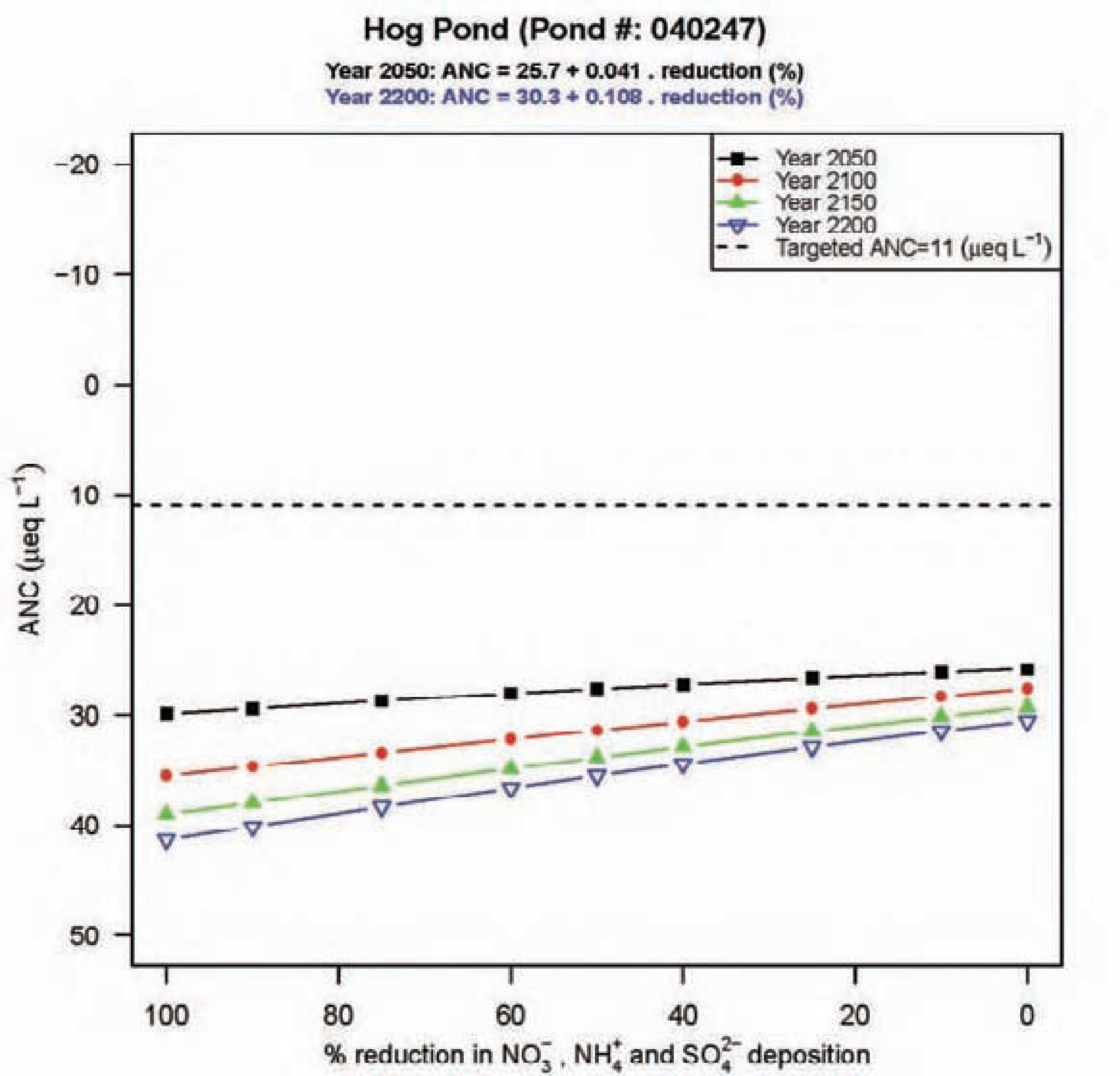

Lower Beech Ridge pond (Pond #: 040203)
Year 2050: ANC = −5.1 + 0.027 . reduction (%)
Year 2200: ANC = −1.4 + 0.05 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition



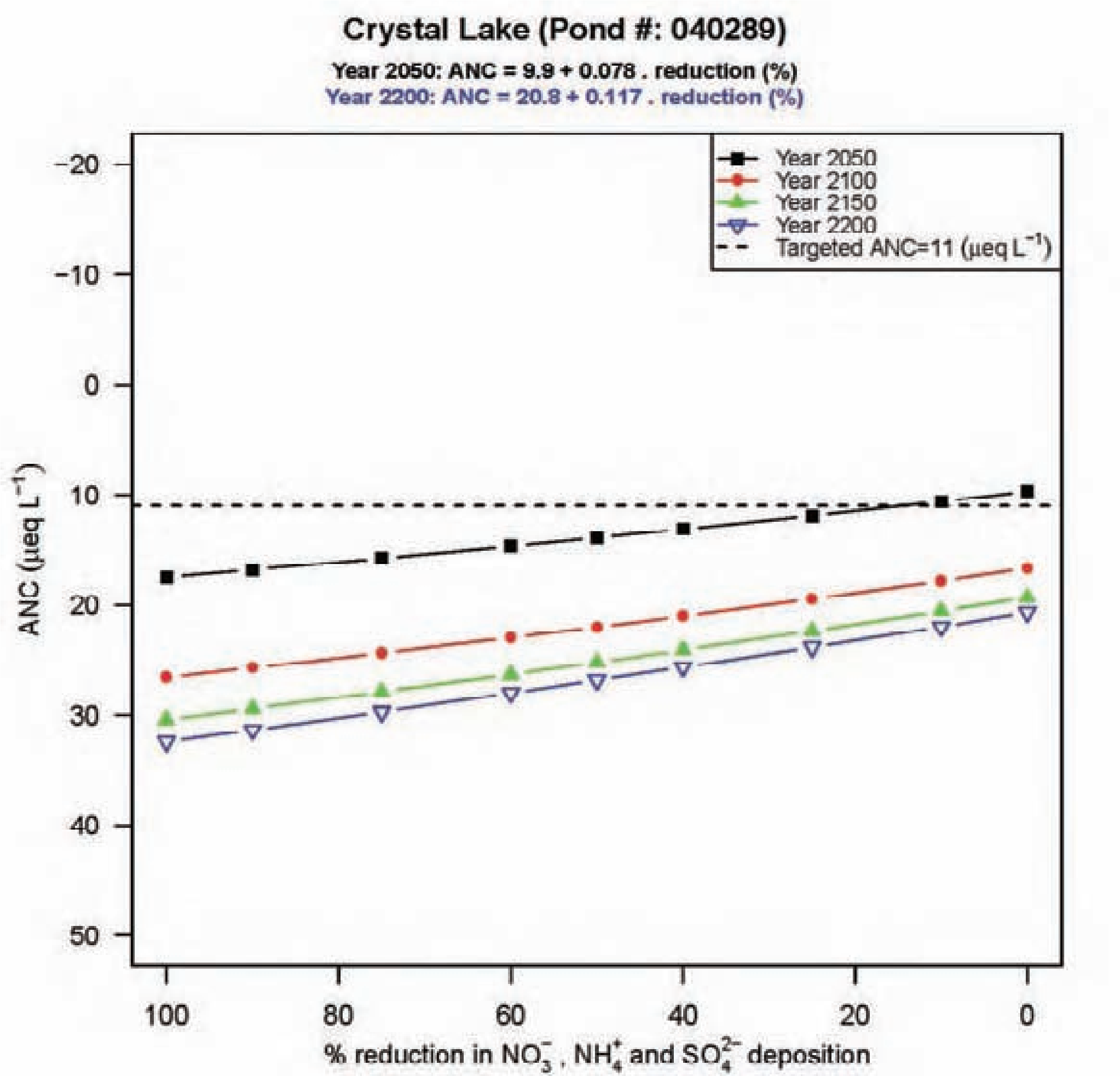
Desert Pond (Pond #: 040240)
Year 2050: ANC = 22.1 + 0.03 . reduction (%)
Year 2200: ANC = 26.7 + 0.093 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

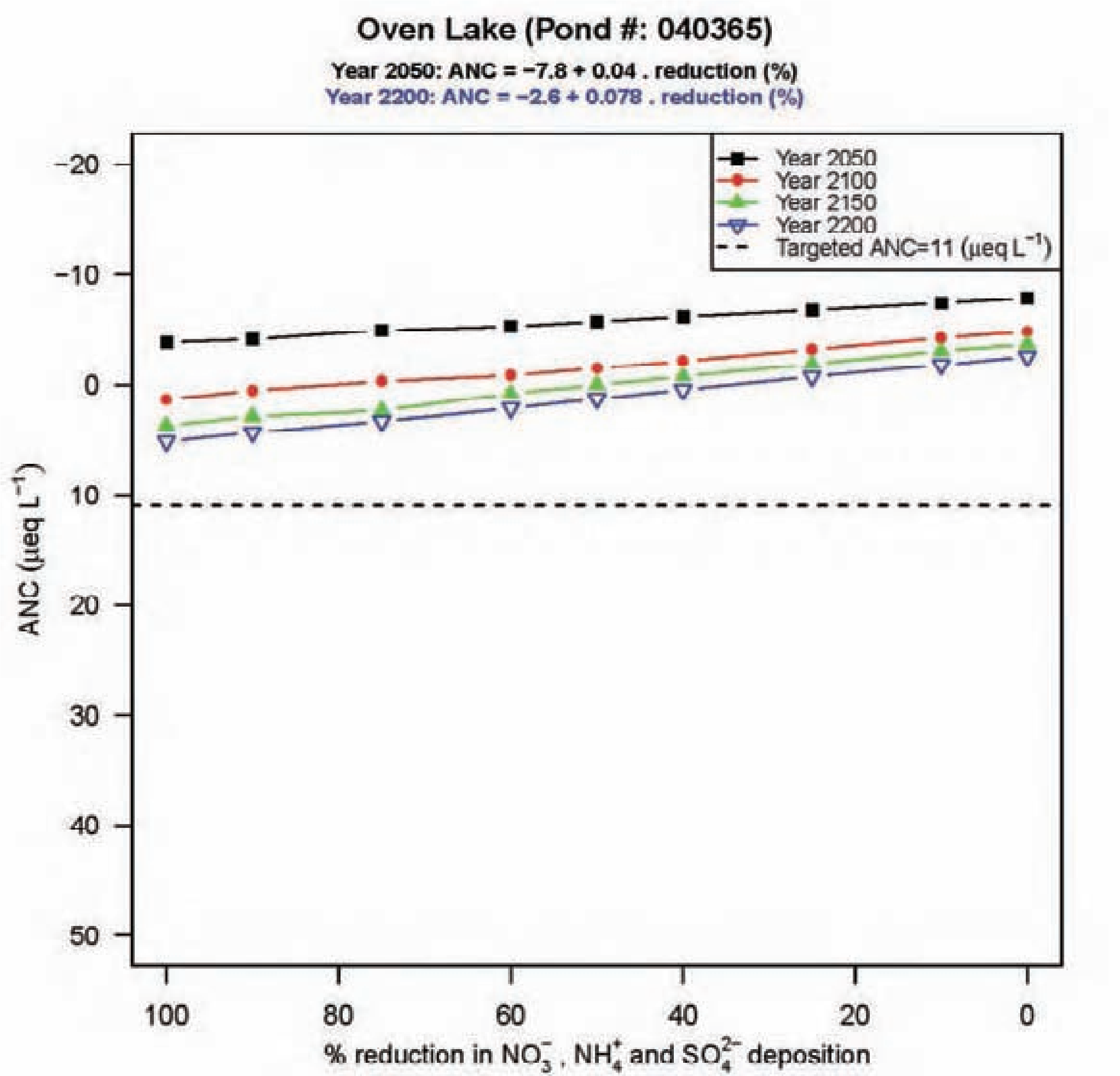

Jakes Pond (Pond #: 040245)
Year 2050: ANC = 16.2 + 0.073 . reduction (%)
Year 2200: ANC = 26.6 + 0.127 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Buck Pond (Pond #: 040246)
Year 2050: ANC = 23.6 + 0.031 . reduction (%)
Year 2200: ANC = 28 + 0.088 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

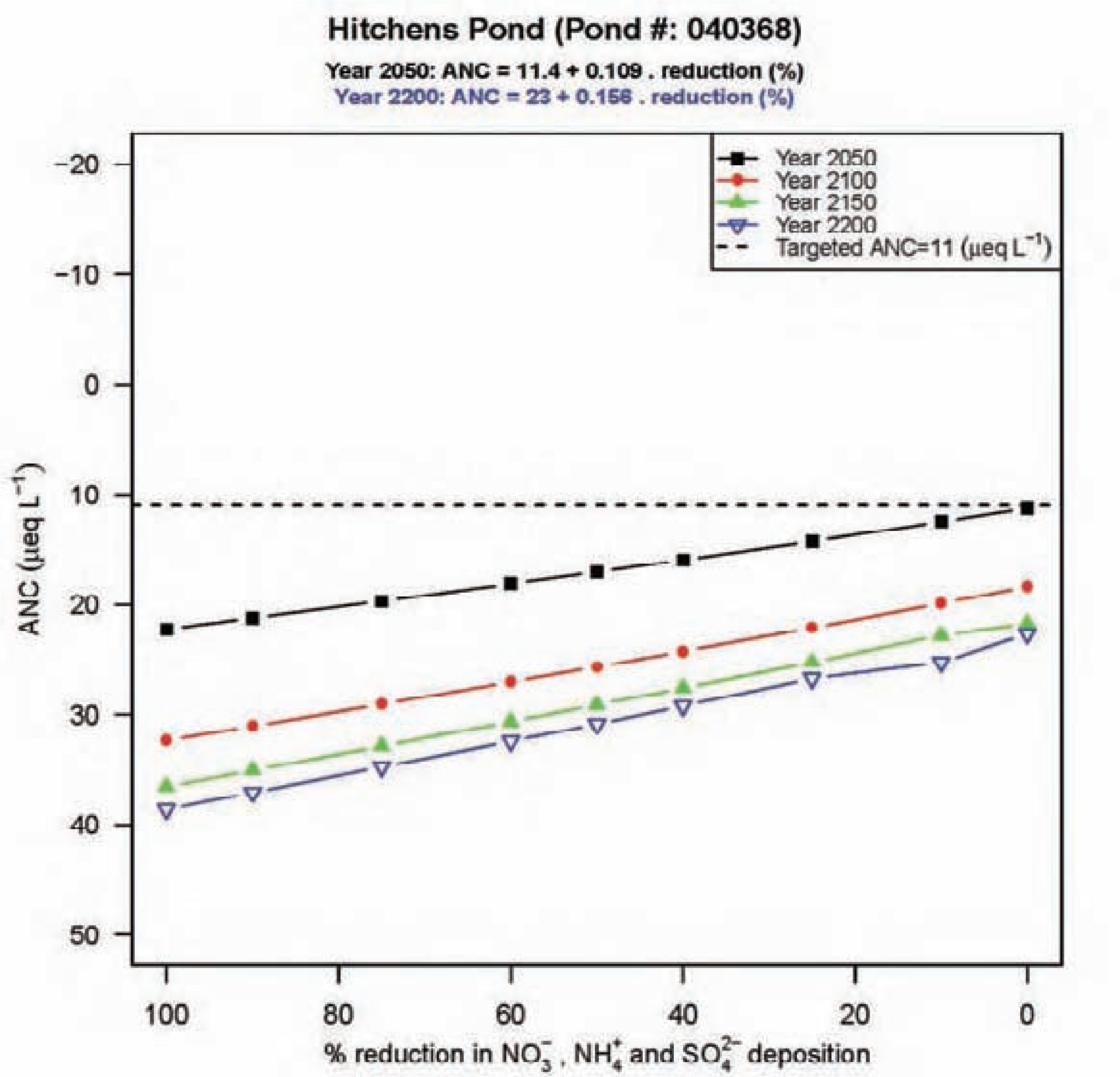


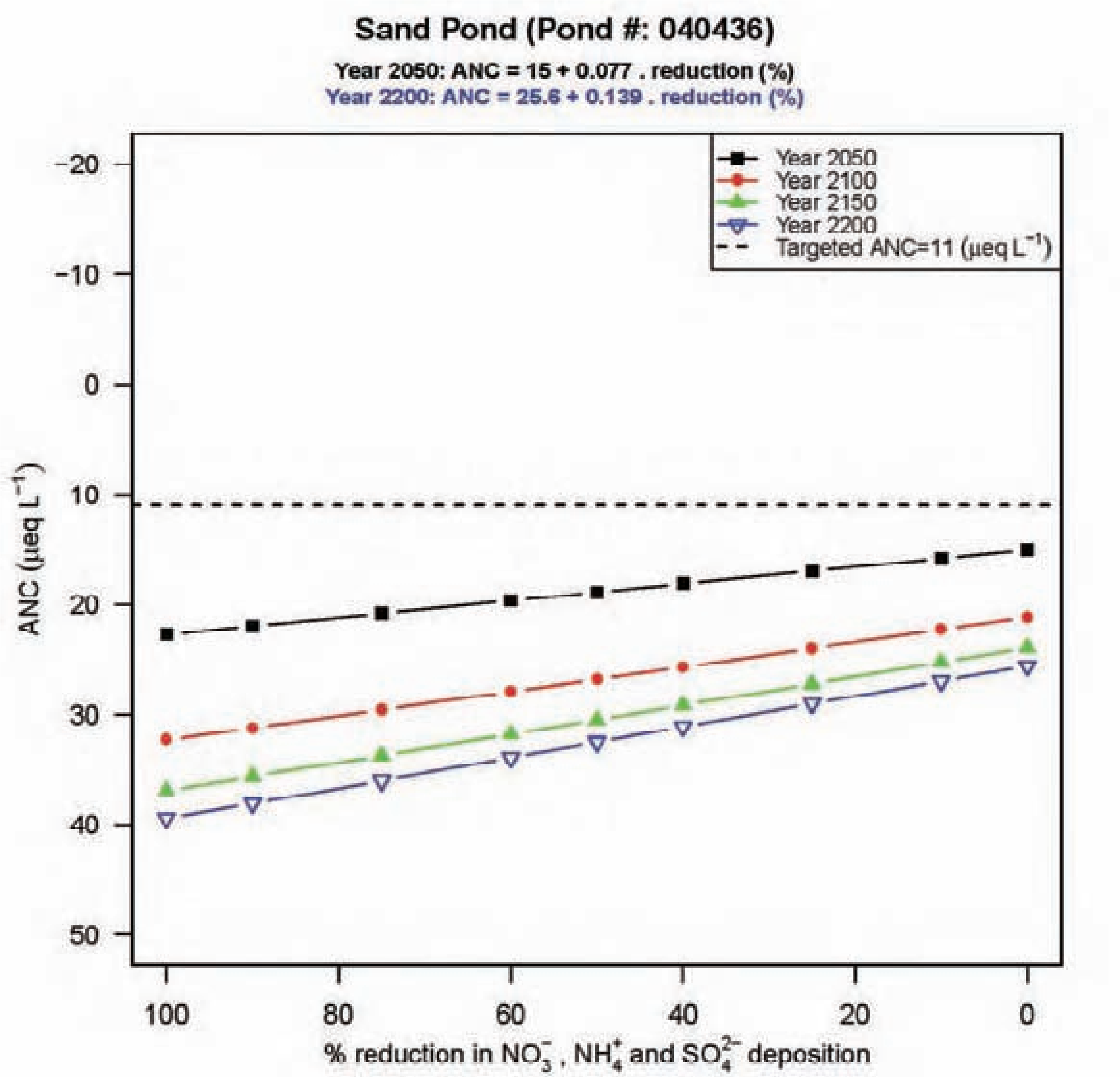
Hog Pond (Pond #: 040247)
Year 2050: ANC = 25.7 + 0.041 . reduction (%)
Year 2200: ANC = 30.3 + 0.108 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

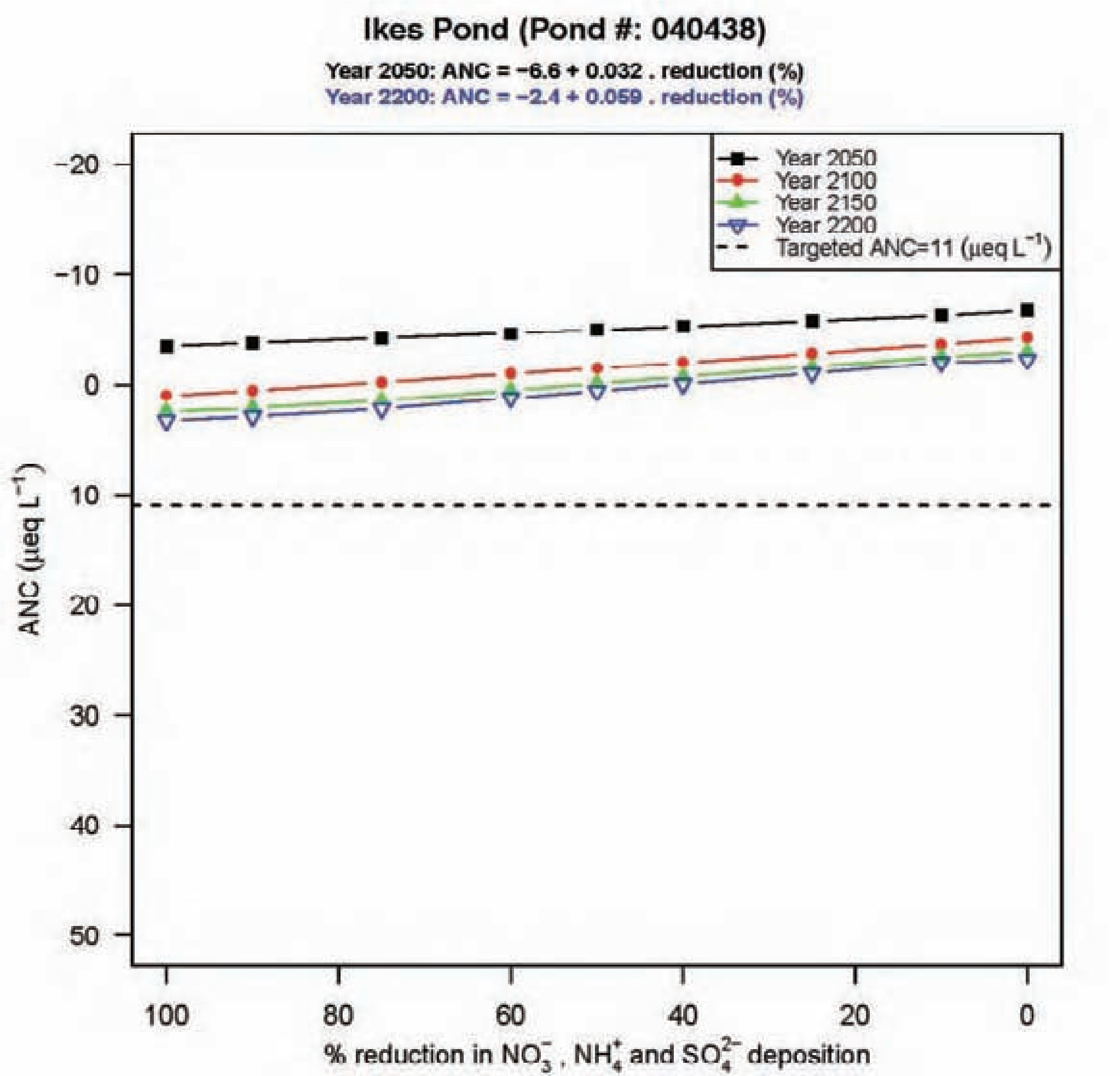

Crystal Lake (Pond #: 040289)
Year 2050: ANC = 9.9 + 0.078 . reduction (%)
Year 2200: ANC = 20.8 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0



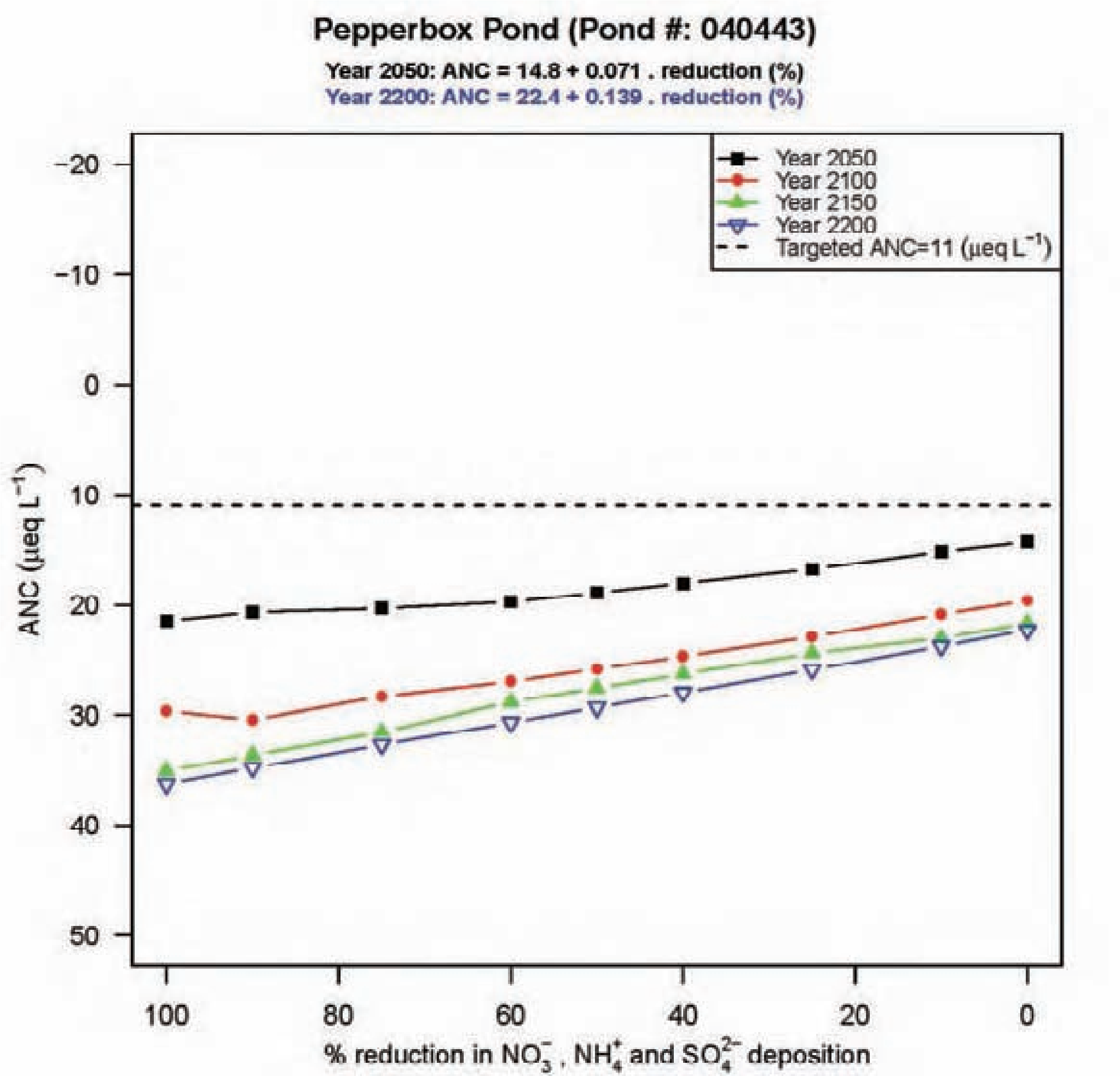
Oven Lake (Pond #: 040365)
Year 2050: ANC = −7.8 + 0.04 . reduction (%)
Year 2200: ANC = −2.6 + 0.078 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

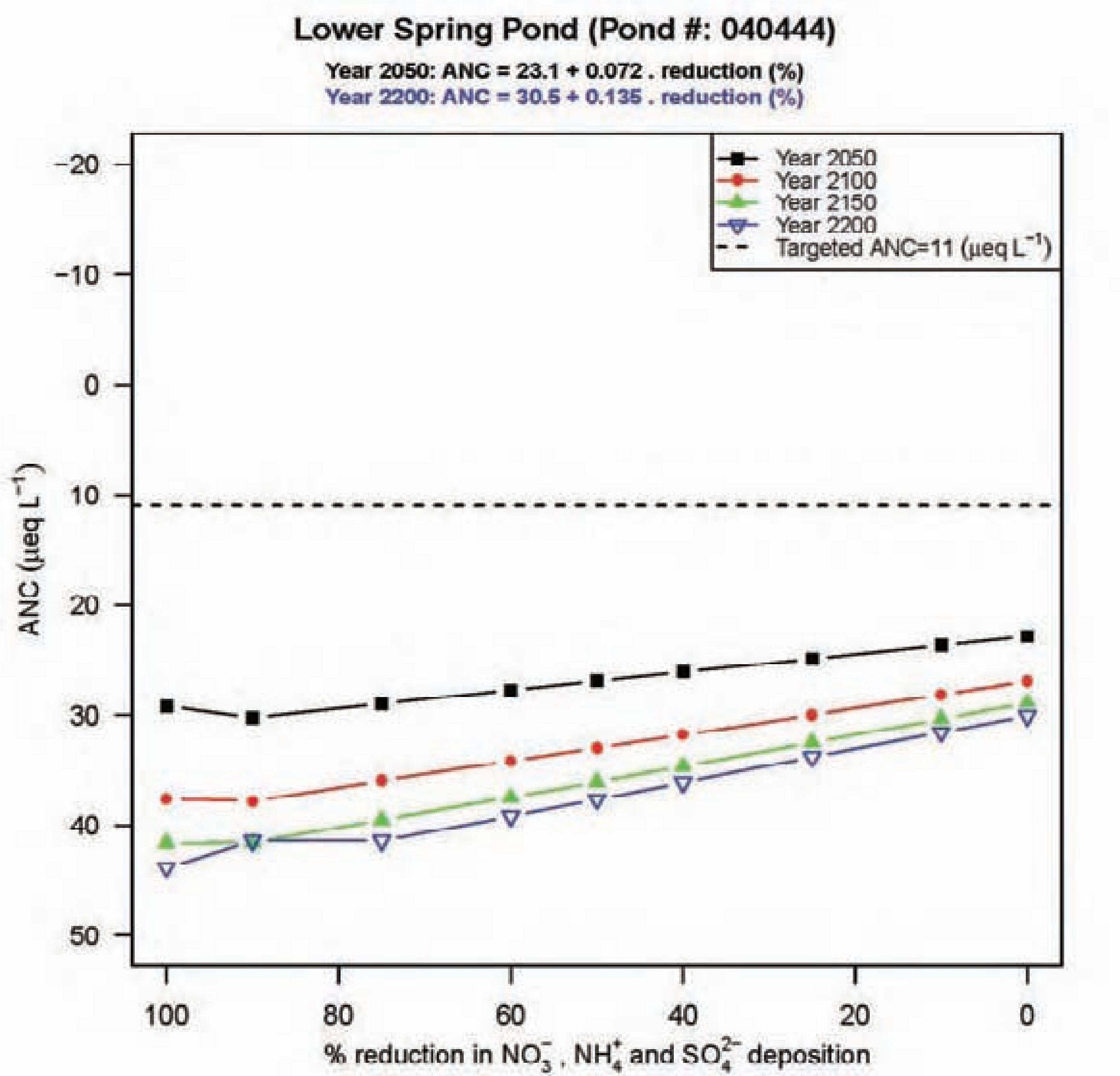

Hitchens Pond (Pond #: 040368)
Year 2050: ANC = 11.4 + 0.109 . reduction (%)
Year 2200: ANC = 23 + 0.156 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

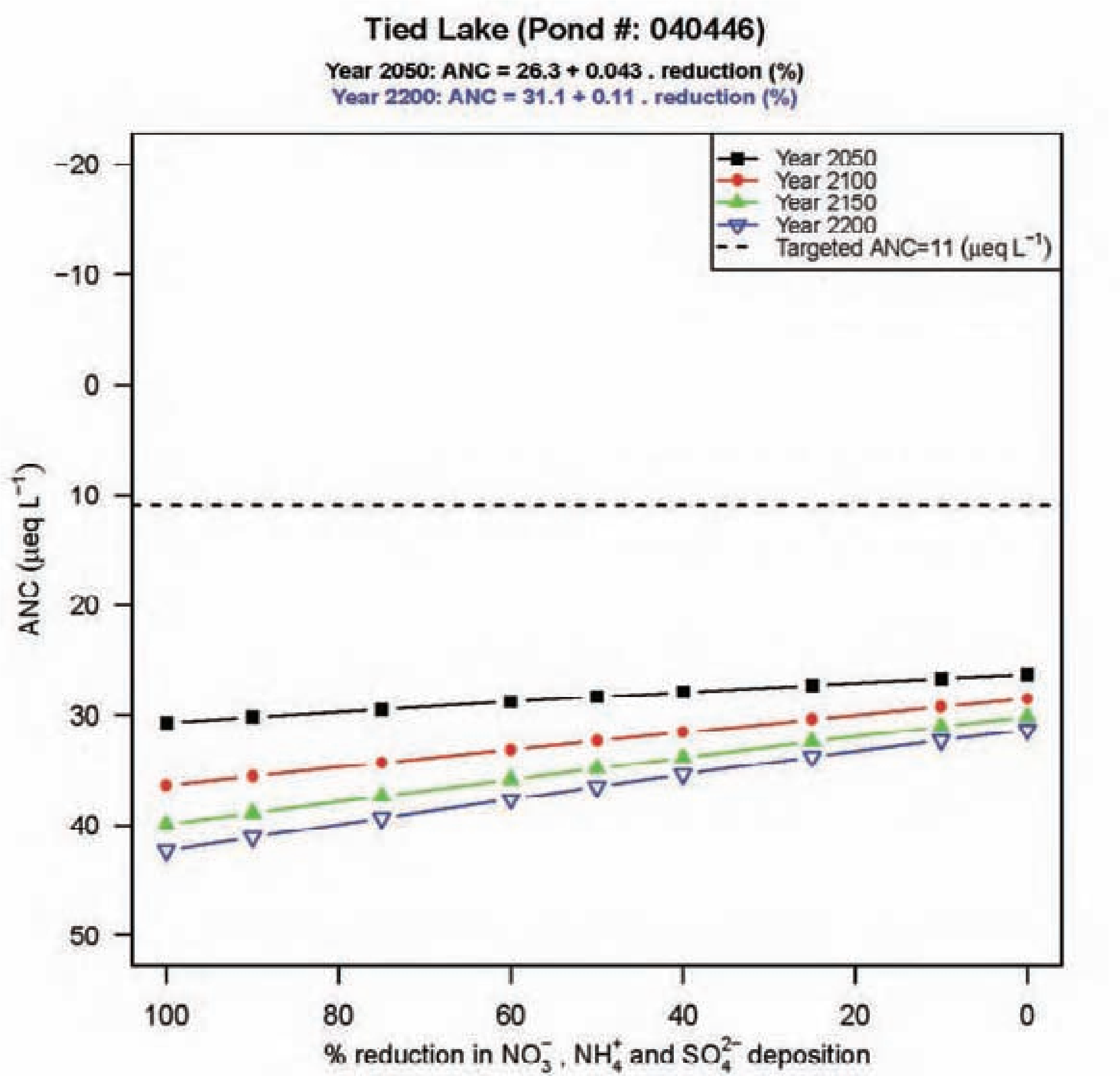

Sand Pond (Pond #: 040436)
Year 2050: ANC = 15 + 0.077 . reduction (%)
Year 2200: ANC = 25.6 + 0.139 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

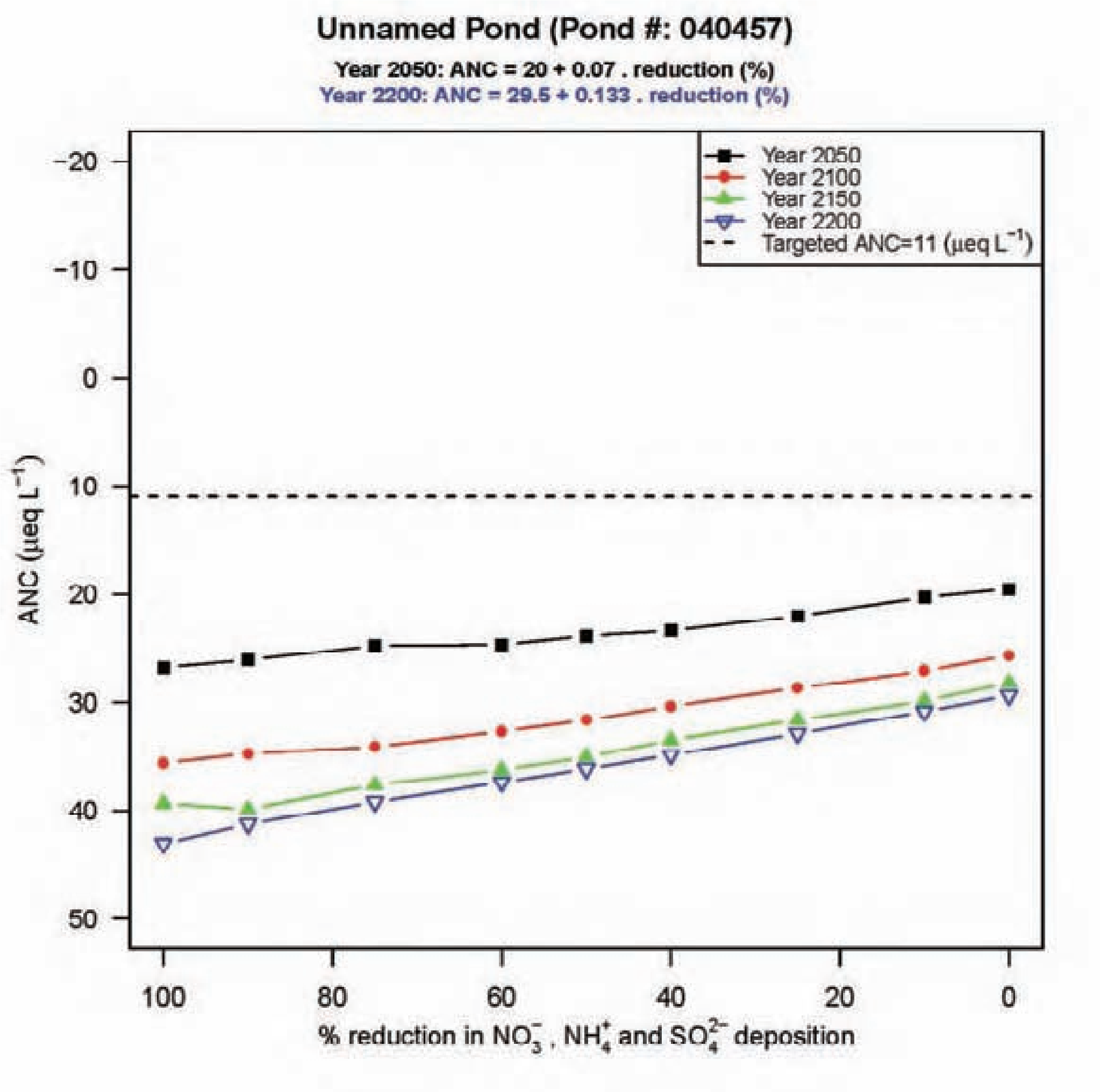


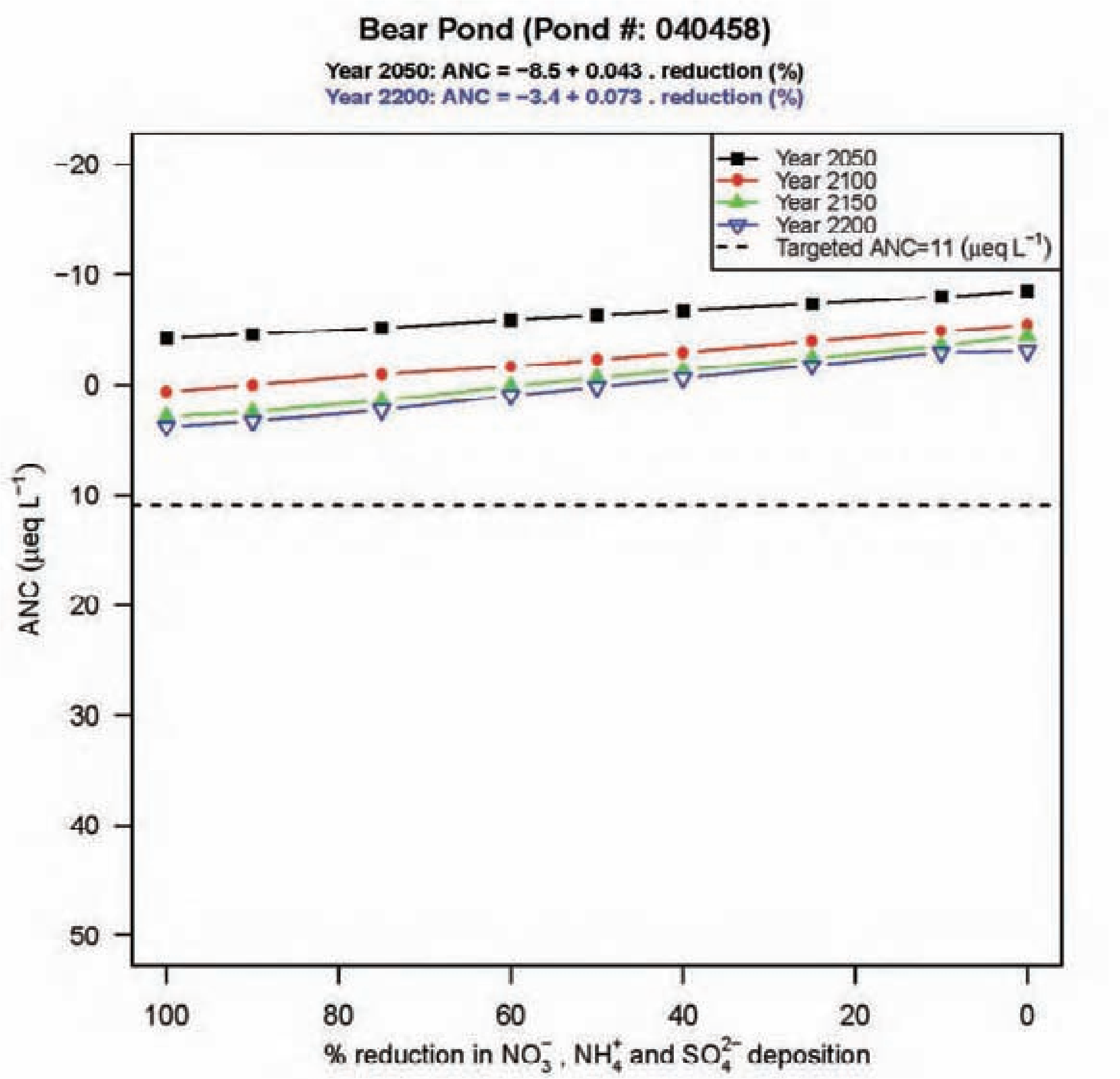
Ikes Pond (Pond #: 040438)
Year 2050: ANC = −6.6 + 0.032 . reduction (%)
Year 2200: ANC = −2.4 + 0.059 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

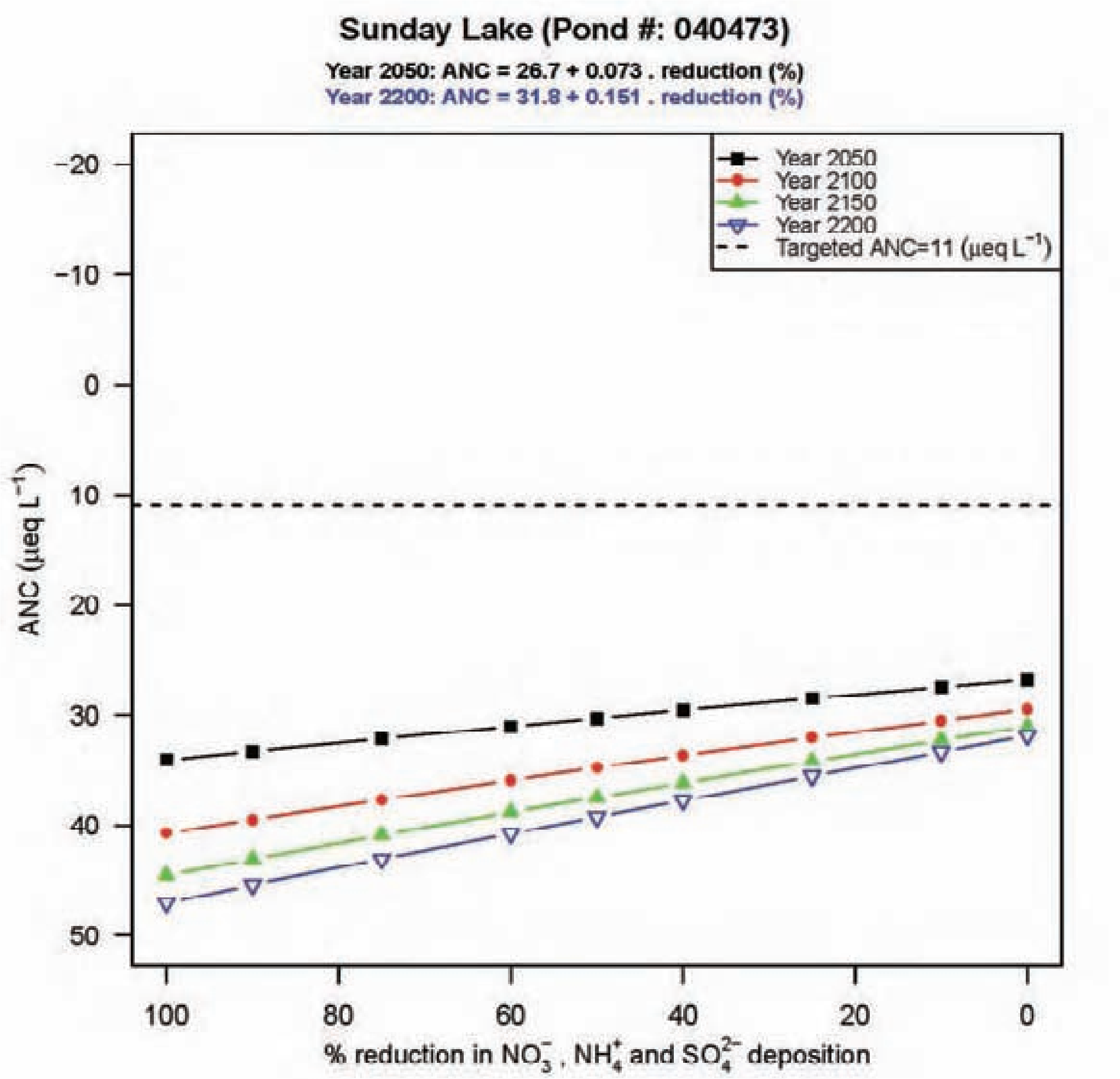

Pepperbox Pond (Pond #: 040443)
Year 2050: ANC = 14.8 + 0.071 . reduction (%)
Year 2200: ANC = 22.4 + 0.139 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

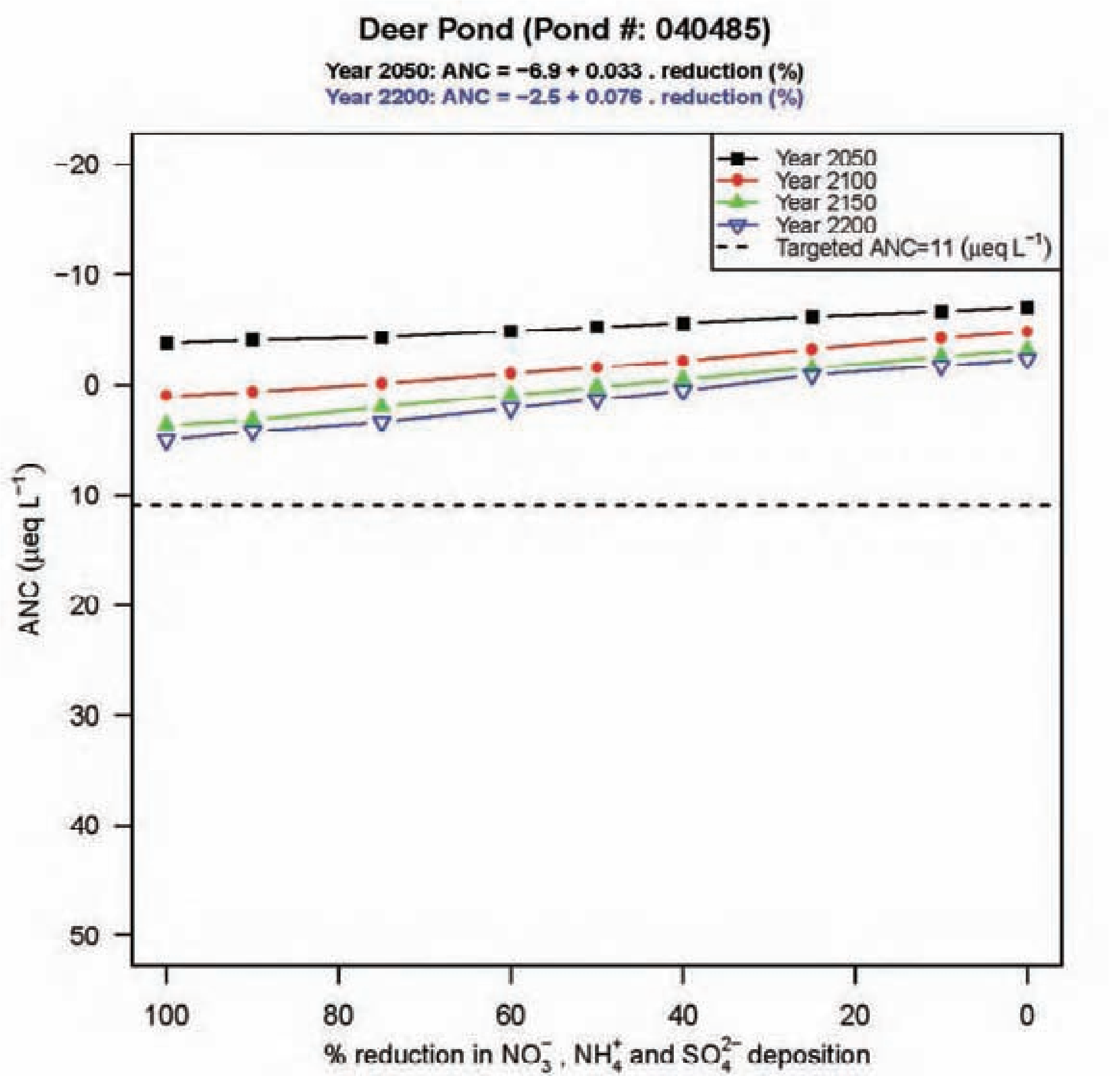

Lower Spring Pond (Pond #: 040444)
Year 2050: ANC = 23.1 + 0.072 . reduction (%)
Year 2200: ANC = 30.5 + 0.135 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

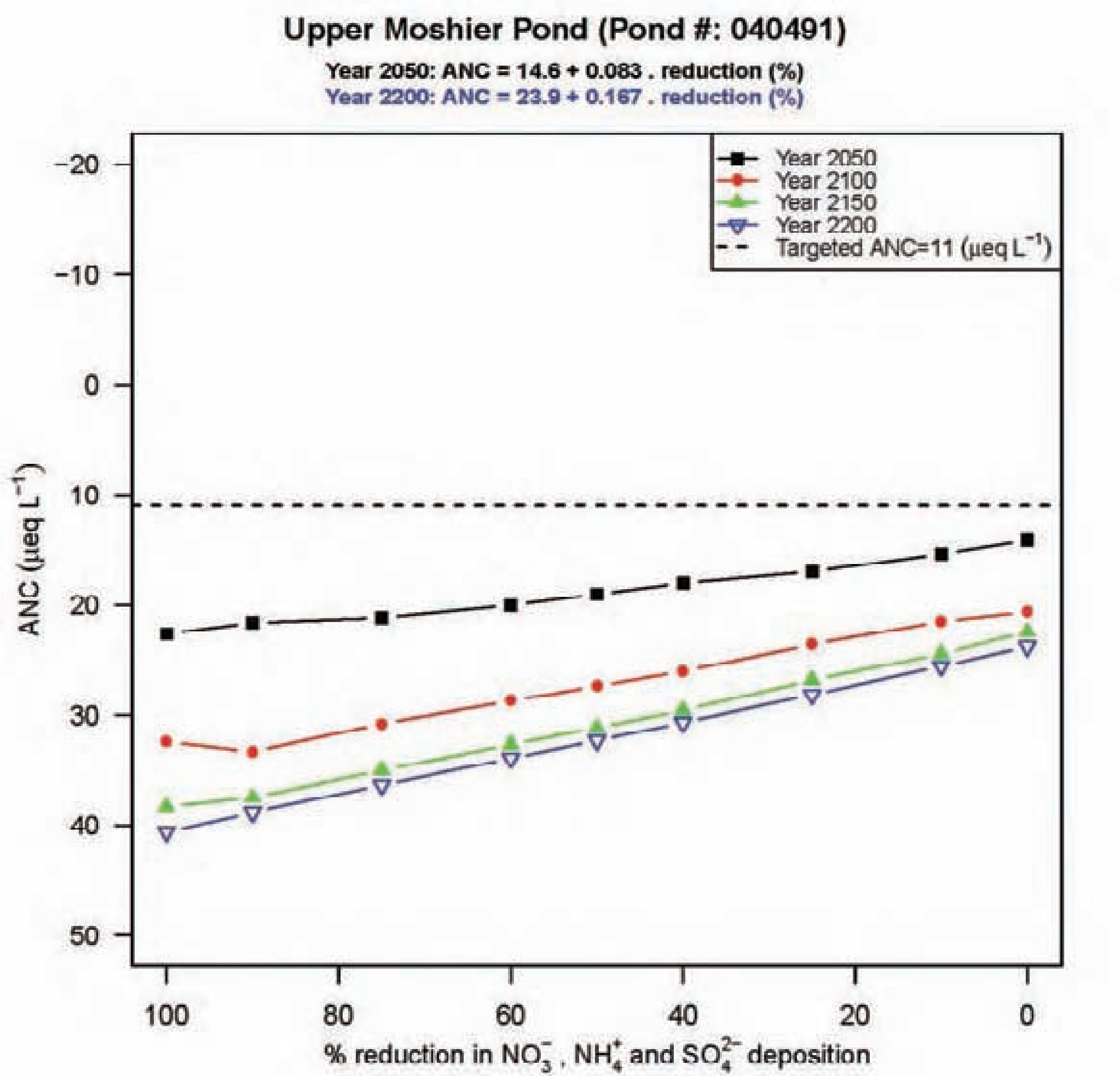

Tied Lake (Pond #: 040446)
Year 2050: ANC = 26.3 + 0.043 . reduction (%)
Year 2200: ANC = 31.1 + 0.11 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Unnamed Pond (Pond #: 040457)
Year 2050: ANC = 20 + 0.07 . reduction (%)
Year 2200: ANC = 29.5 + 0.133 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

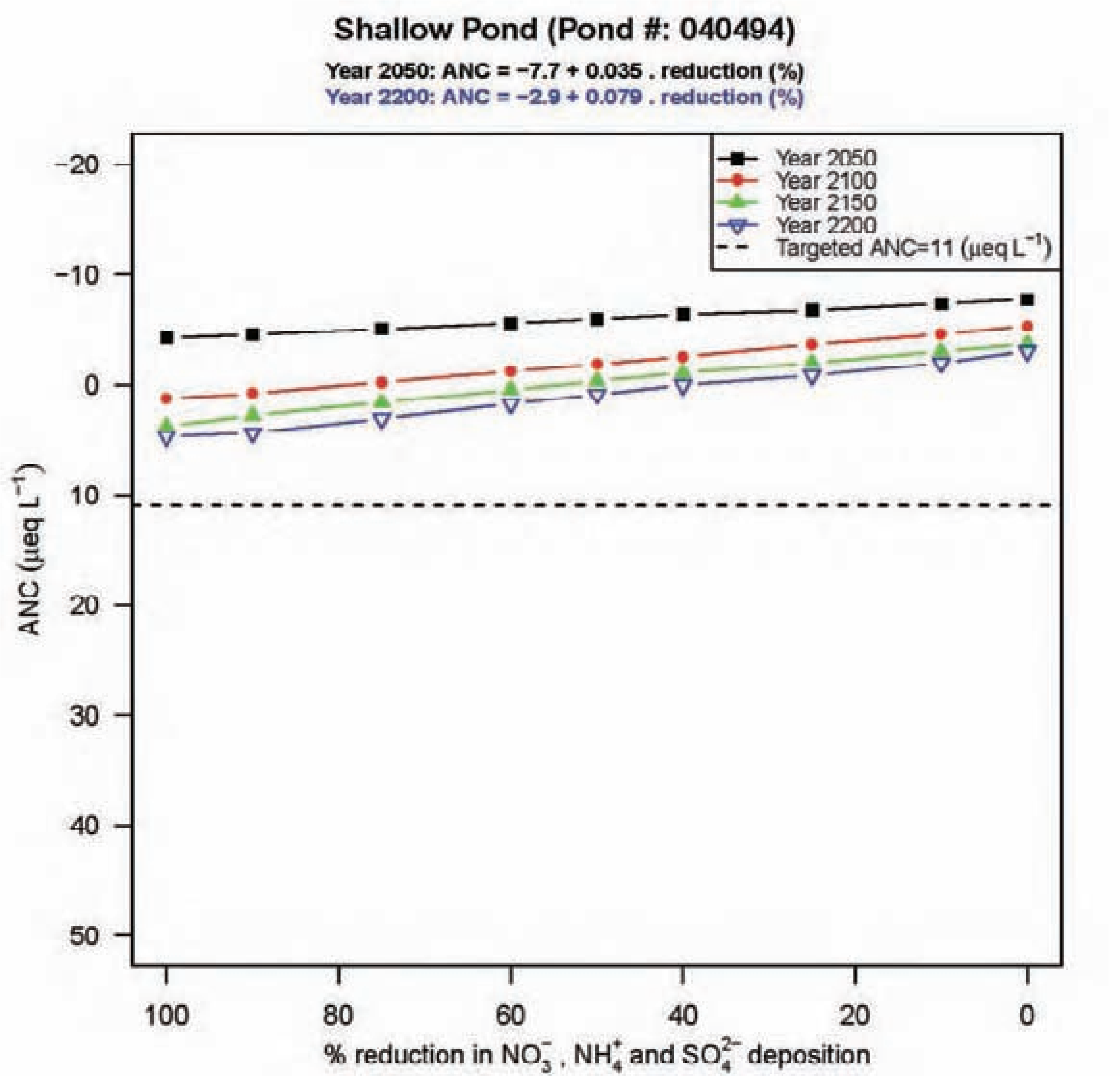

Bear Pond (Pond #: 040458)
Year 2050: ANC = −8.5 + 0.043 . reduction (%)
Year 2200: ANC = −3.4 + 0.073 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

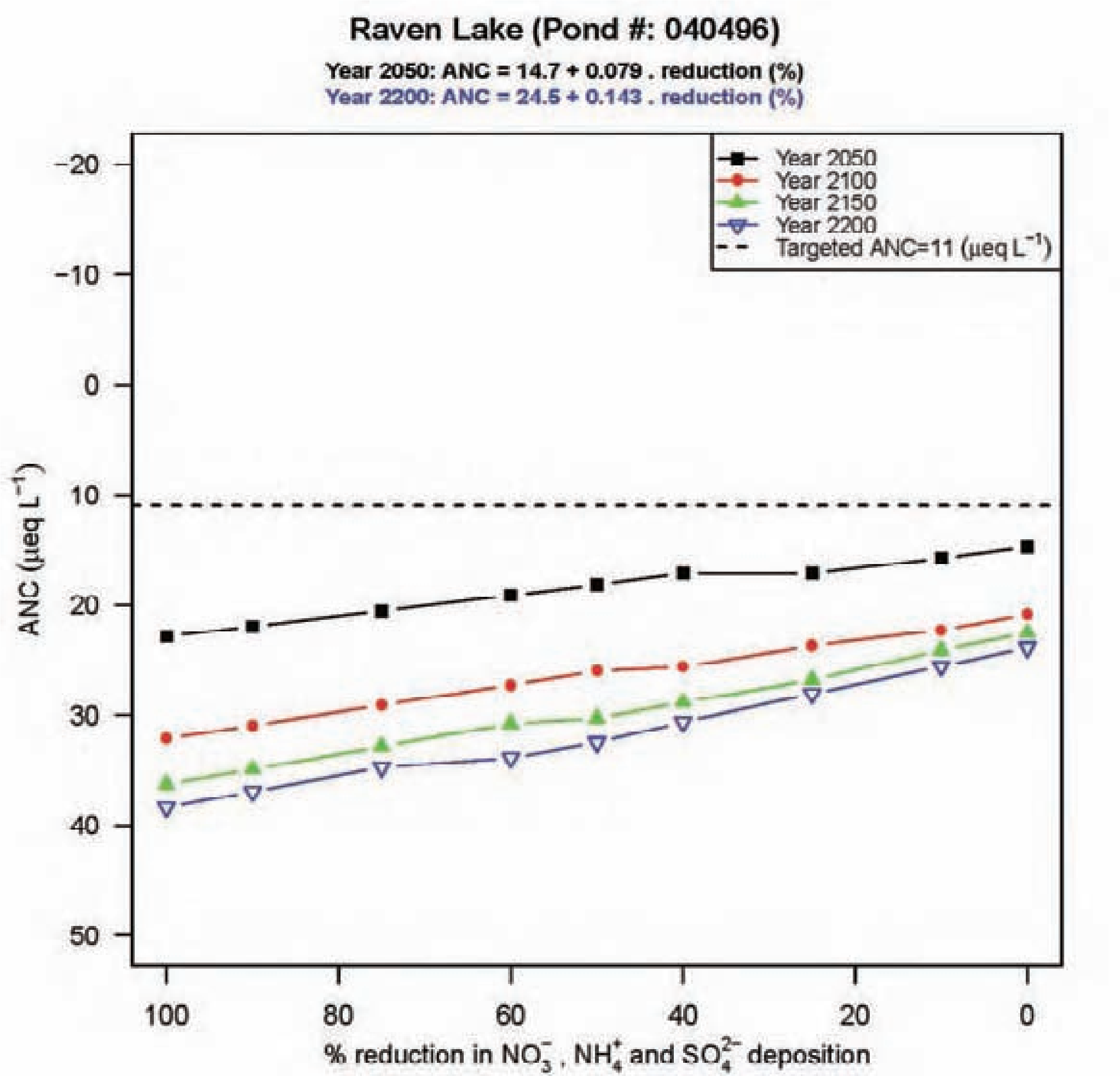

Sunday Lake (Pond #: 040473)
Year 2050: ANC = 26.7 + 0.073 . reduction (%)
Year 2200: ANC = 31.8 + 0.151 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

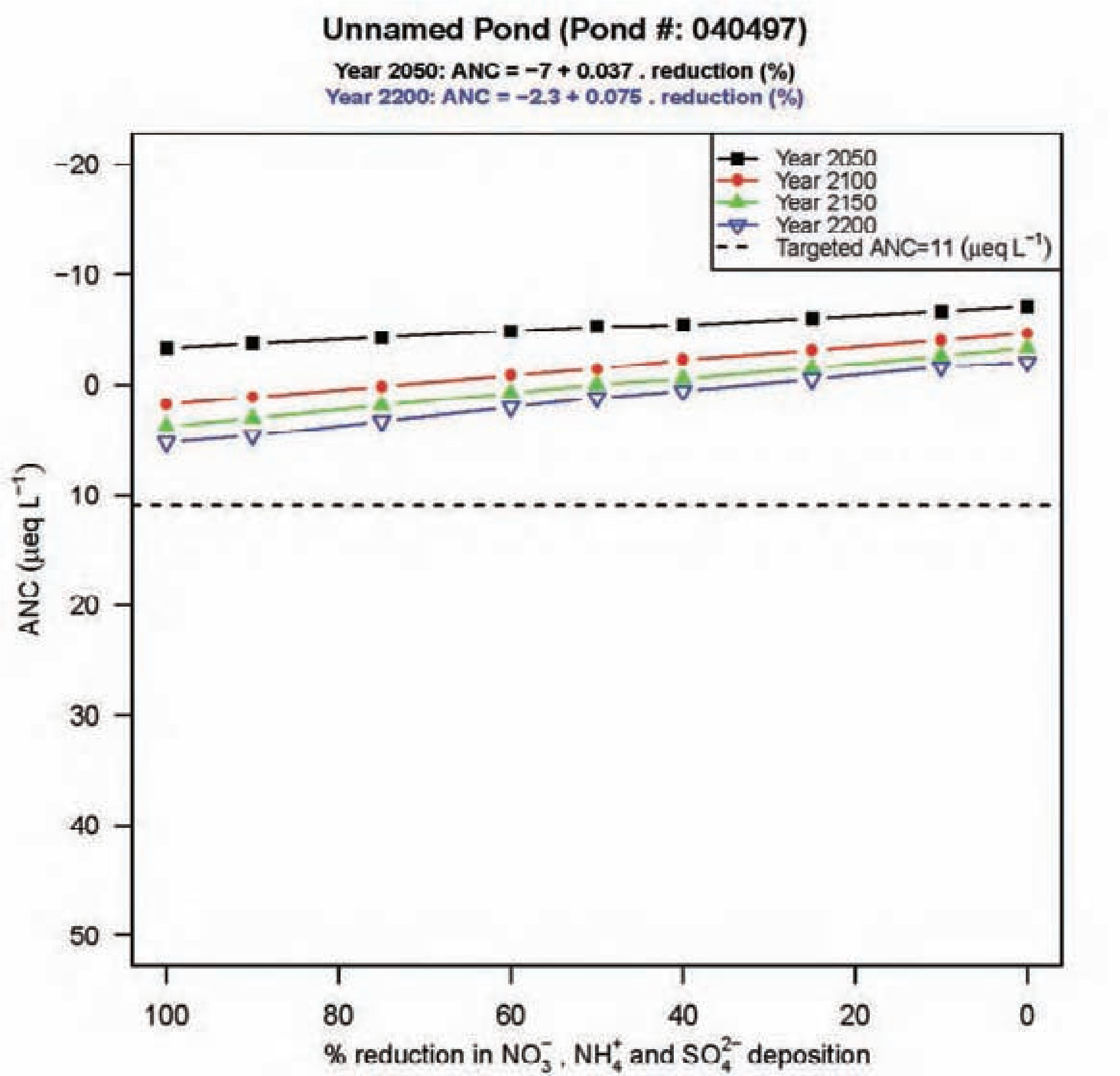

Deer Pond (Pond #: 040485)
Year 2050: ANC = −6.9 + 0.033 . reduction (%)
Year 2200: ANC = −2.5 + 0.076 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3−, NH4+ and SO42− deposition

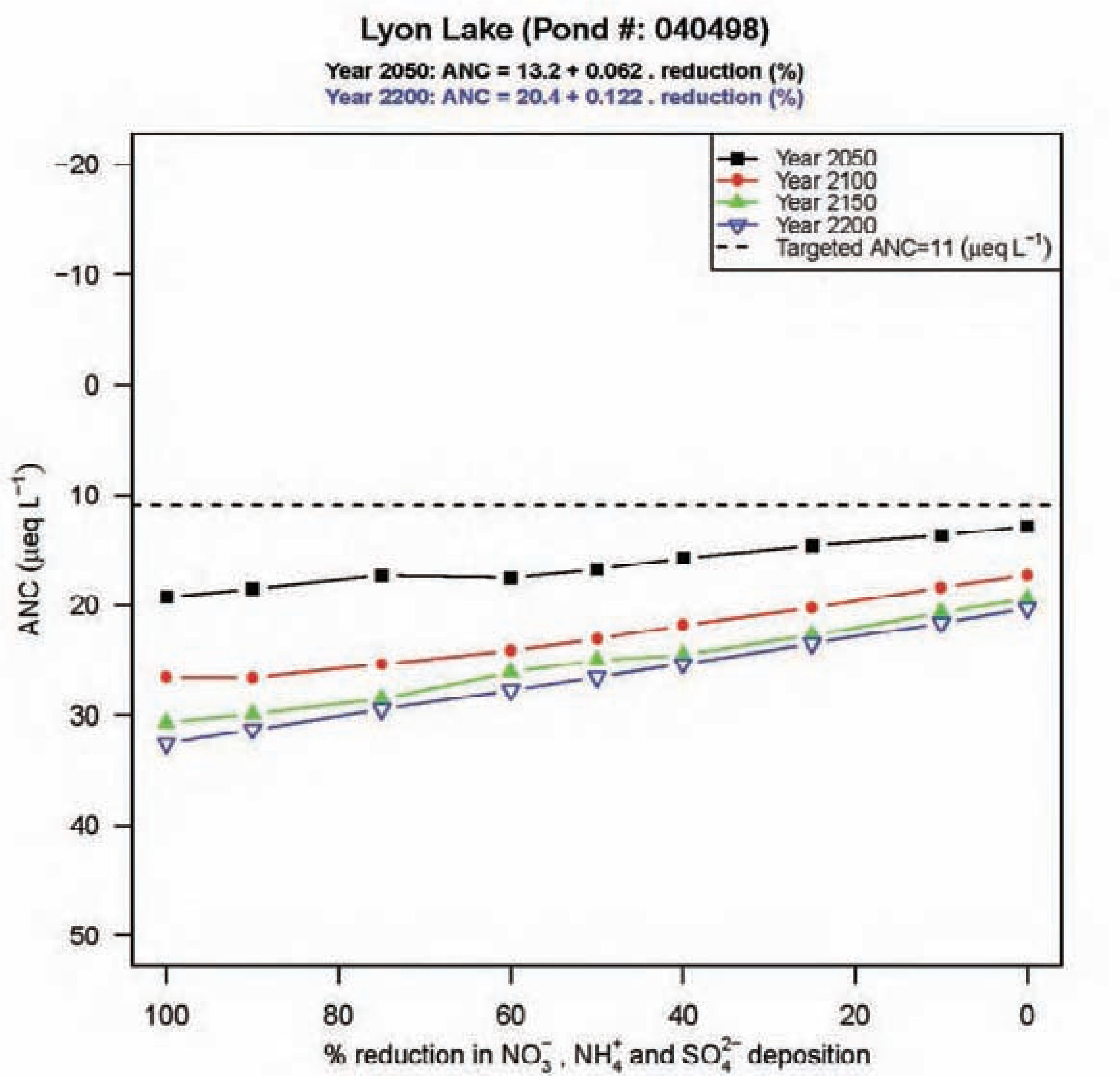


Upper Moshier Pond (Pond #: 040491)
Year 2050: ANC = 14.6 + 0.083 . reduction (%)
Year 2200: ANC = 23.9 + 0.167 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

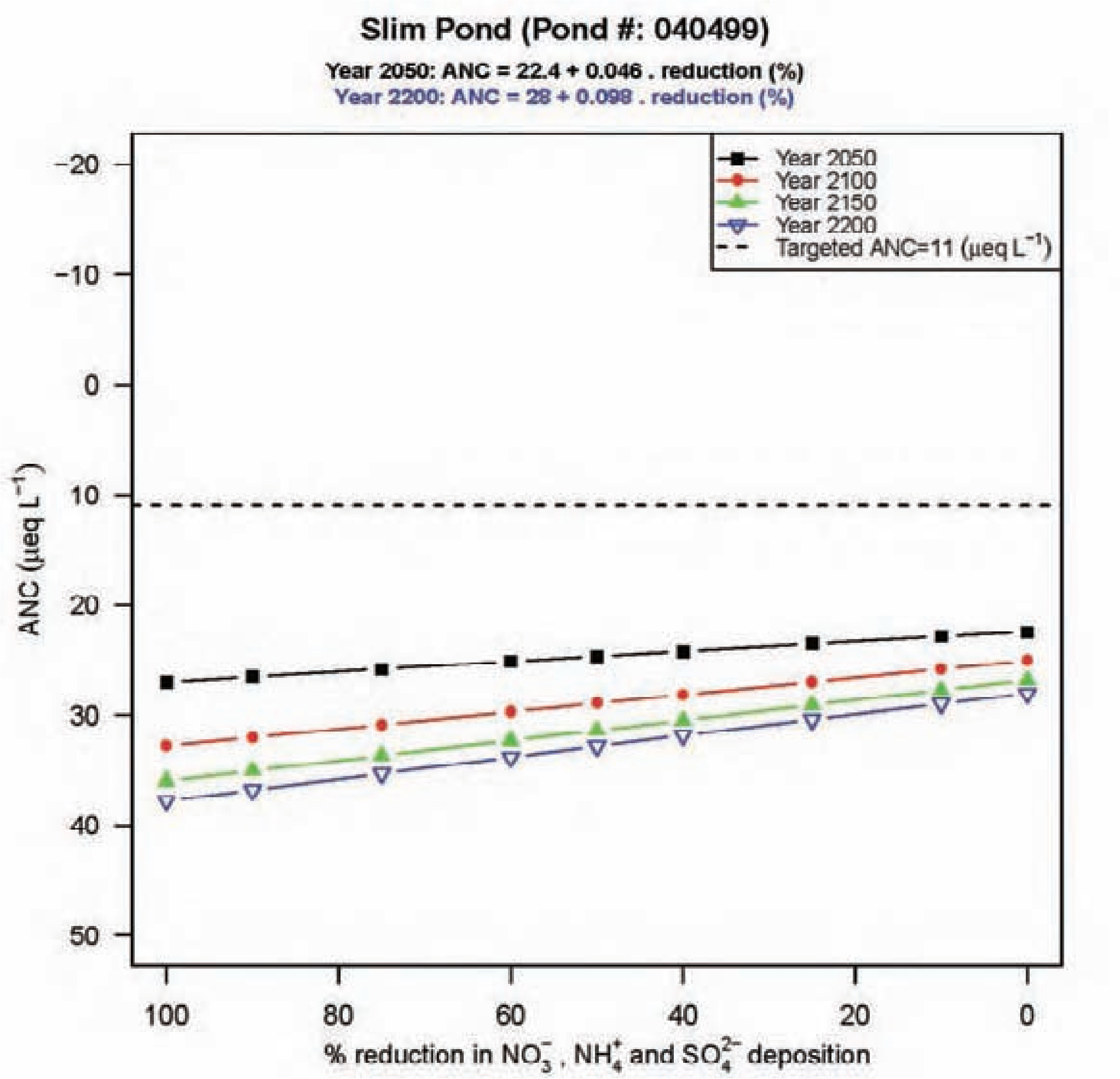

Shallow Pond (Pond #: 040494)
Year 2050: ANC = −7.7 + 0.035 . reduction (%)
Year 2200: ANC = −2.9 + 0.079 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

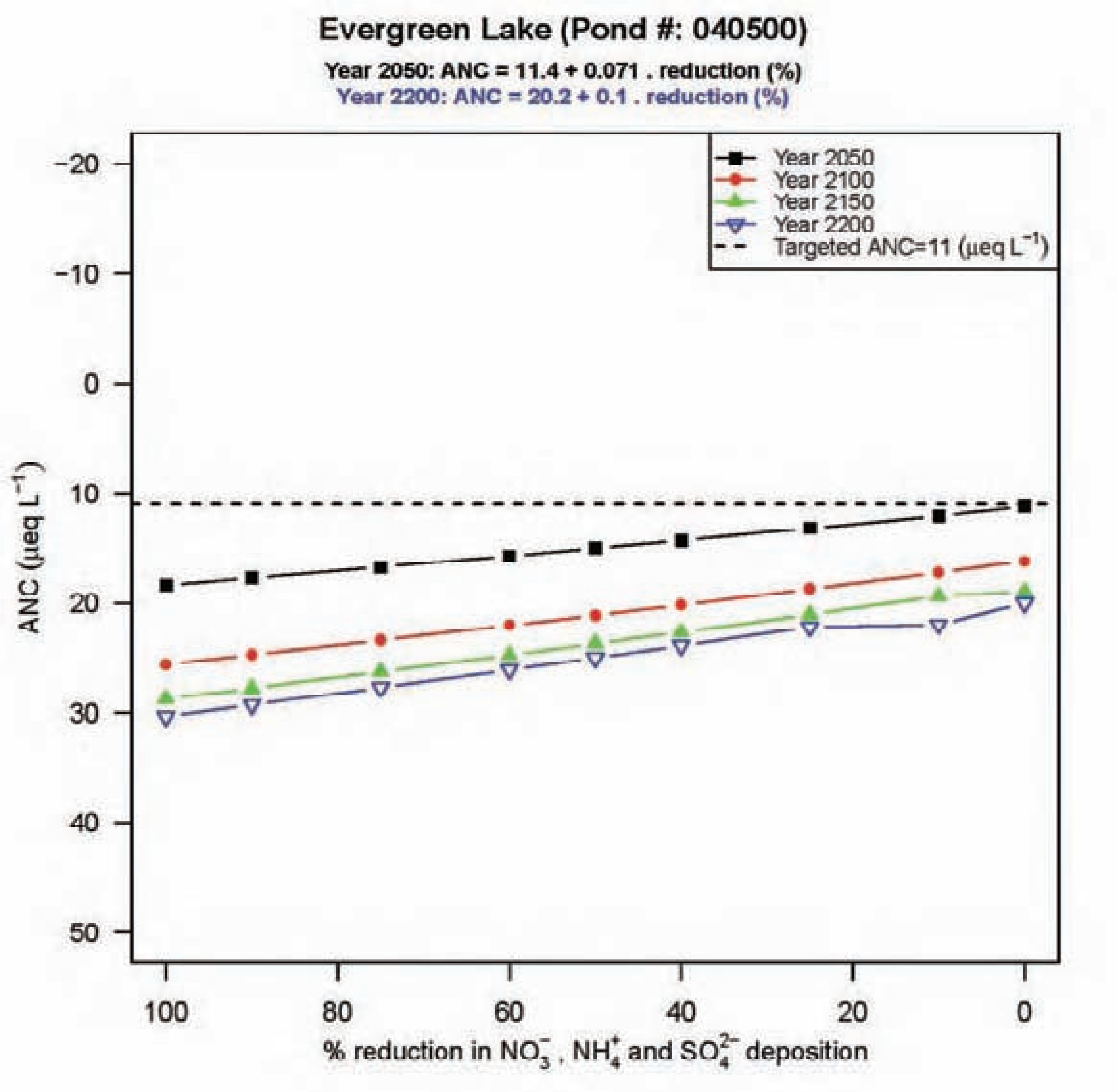

Raven Lake (Pond #: 040496)
Year 2050: ANC = 14.7 + 0.079 . reduction (%)
Year 2200: ANC = 24.5 + 0.143 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

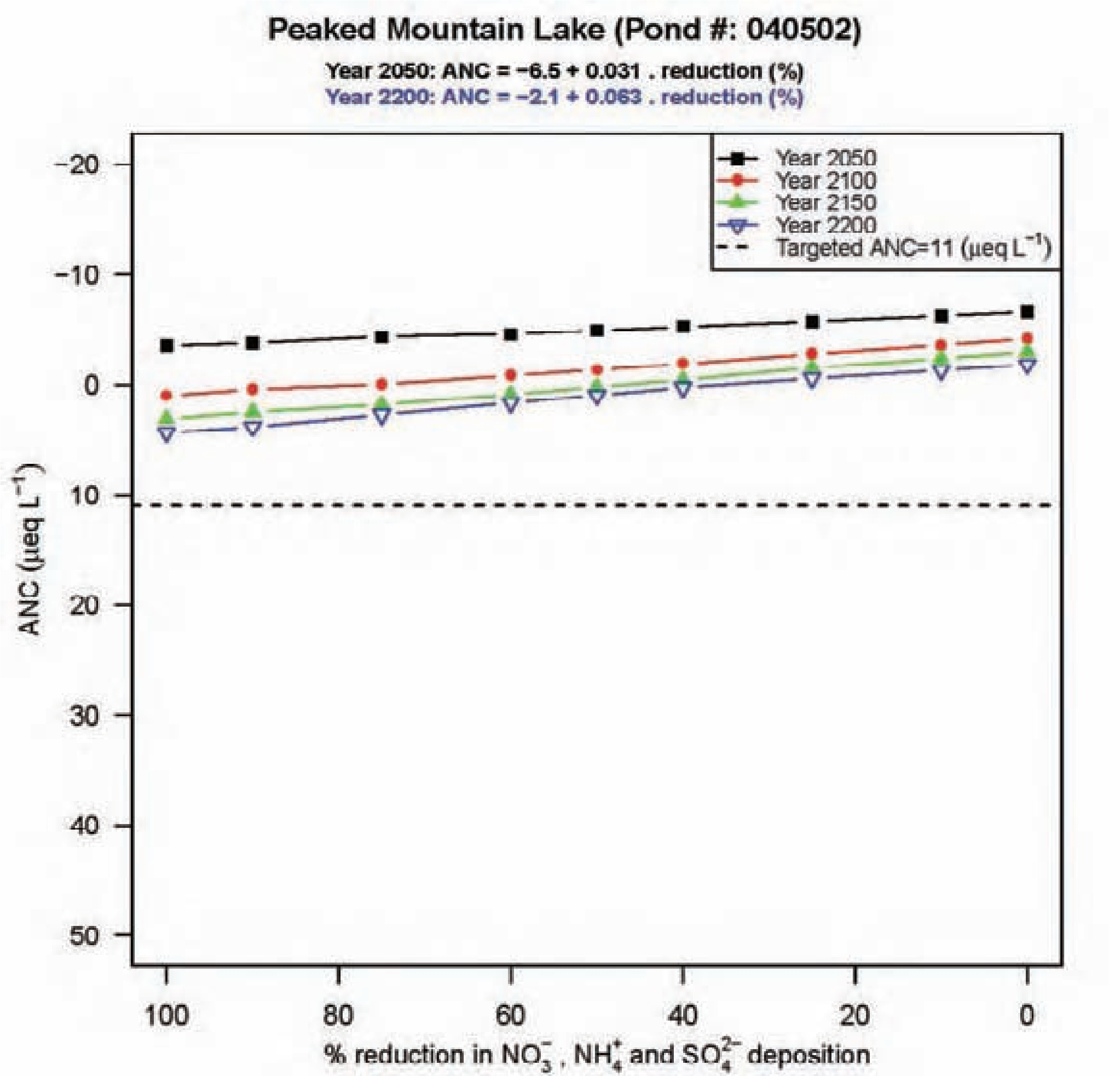

Unnamed Pond (Pond #: 040497)
Year 2050: ANC = −7 + 0.037 . reduction (%)
Year 2200: ANC = −2.3 + 0.075 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
−20
−10
0
10
20
30
40
50
ANC (μeq L−1)
100
80
60
40
20
0
% reduction in NO3−, NH4+ and SO42− deposition



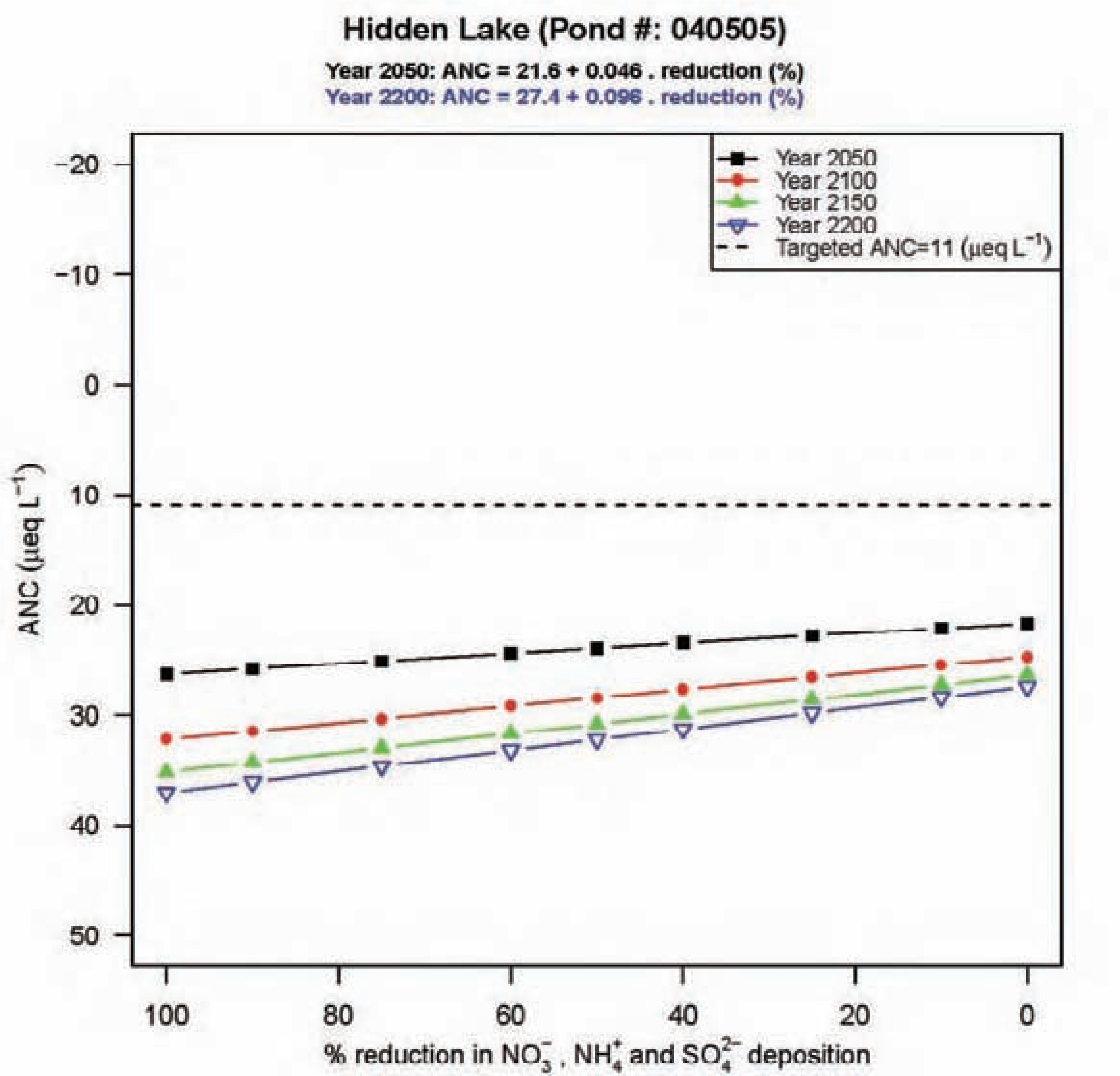
Lyon Lake (Pond #: 040498)
Year 2050: ANC = 13.2 + 0.062 . reduction (%)
Year 2200: ANC = 20.4 + 0.122 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Slim Pond (Pond #: 040499)
Year 2050: ANC = 22.4 + 0.046 . reduction (%)
Year 2200: ANC = 28 + 0.098 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

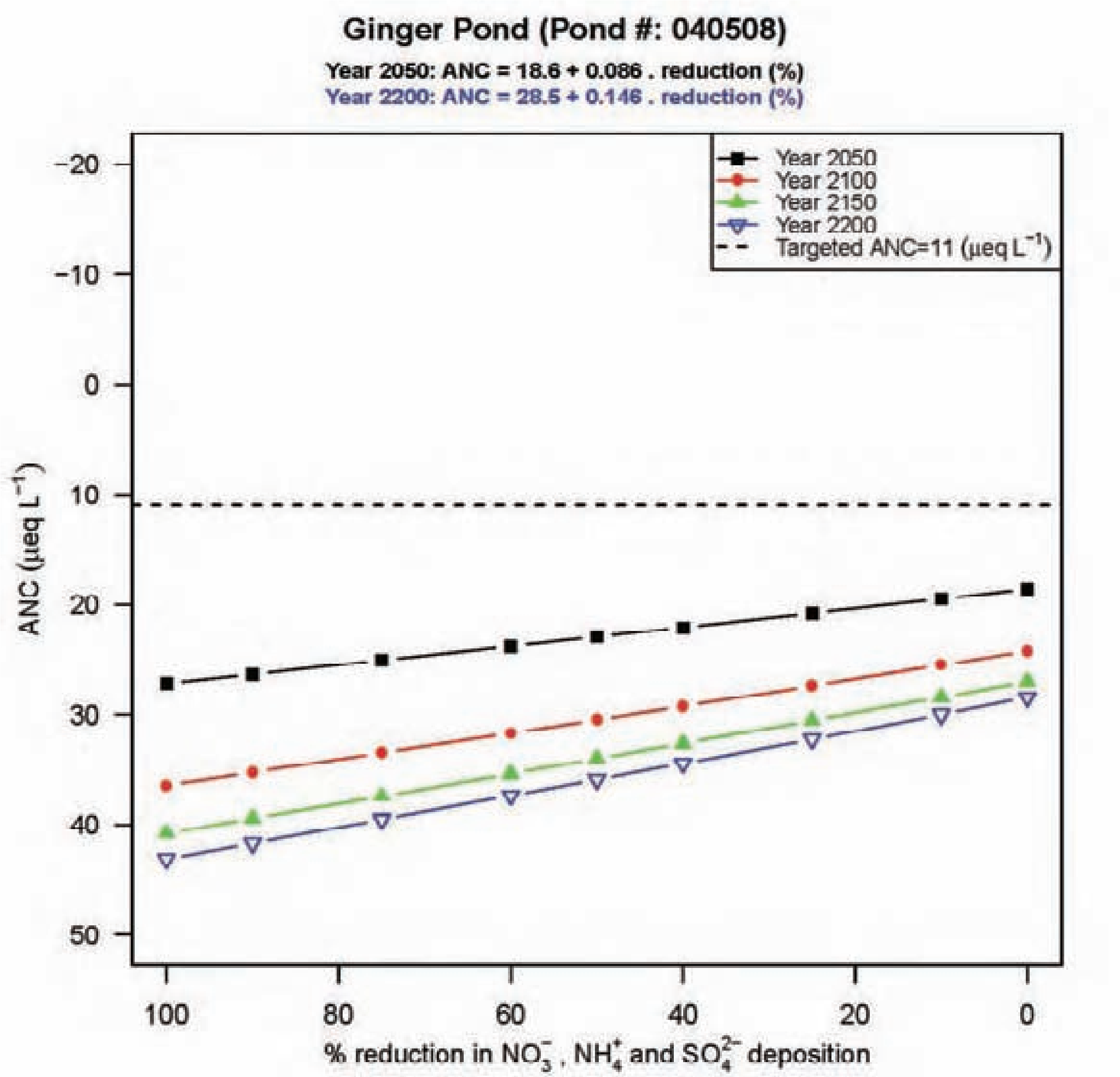

Evergreen Lake (Pond #: 040500)
Year 2050: ANC = 11.4 + 0.071 . reduction (%)
Year 2200: ANC = 20.2 + 0.1 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition



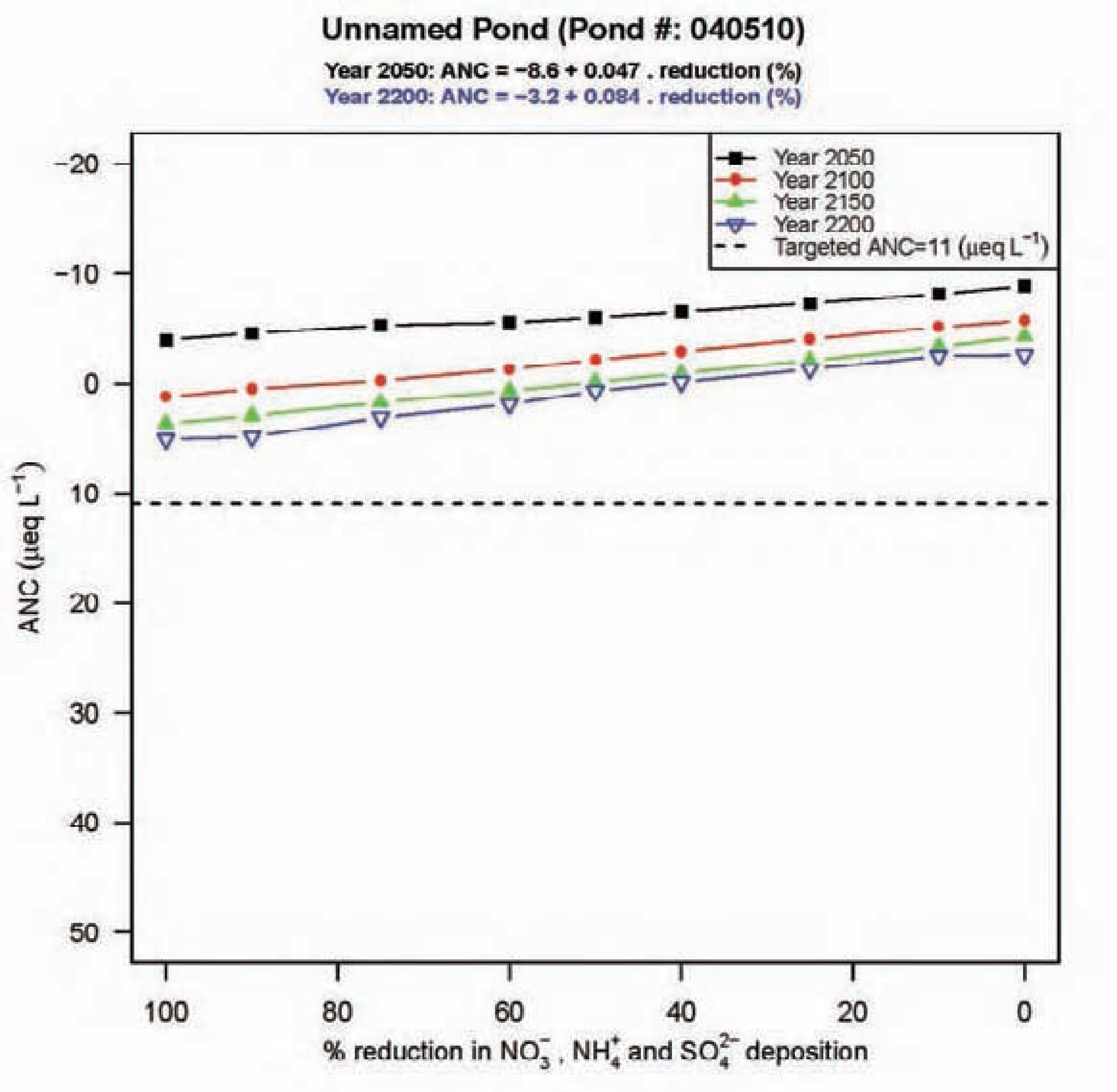
Peaked Mountain Lake (Pond #: 040502)
Year 2050: ANC = −6.5 + 0.031 . reduction (%)
Year 2200: ANC = −2.1 + 0.063 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

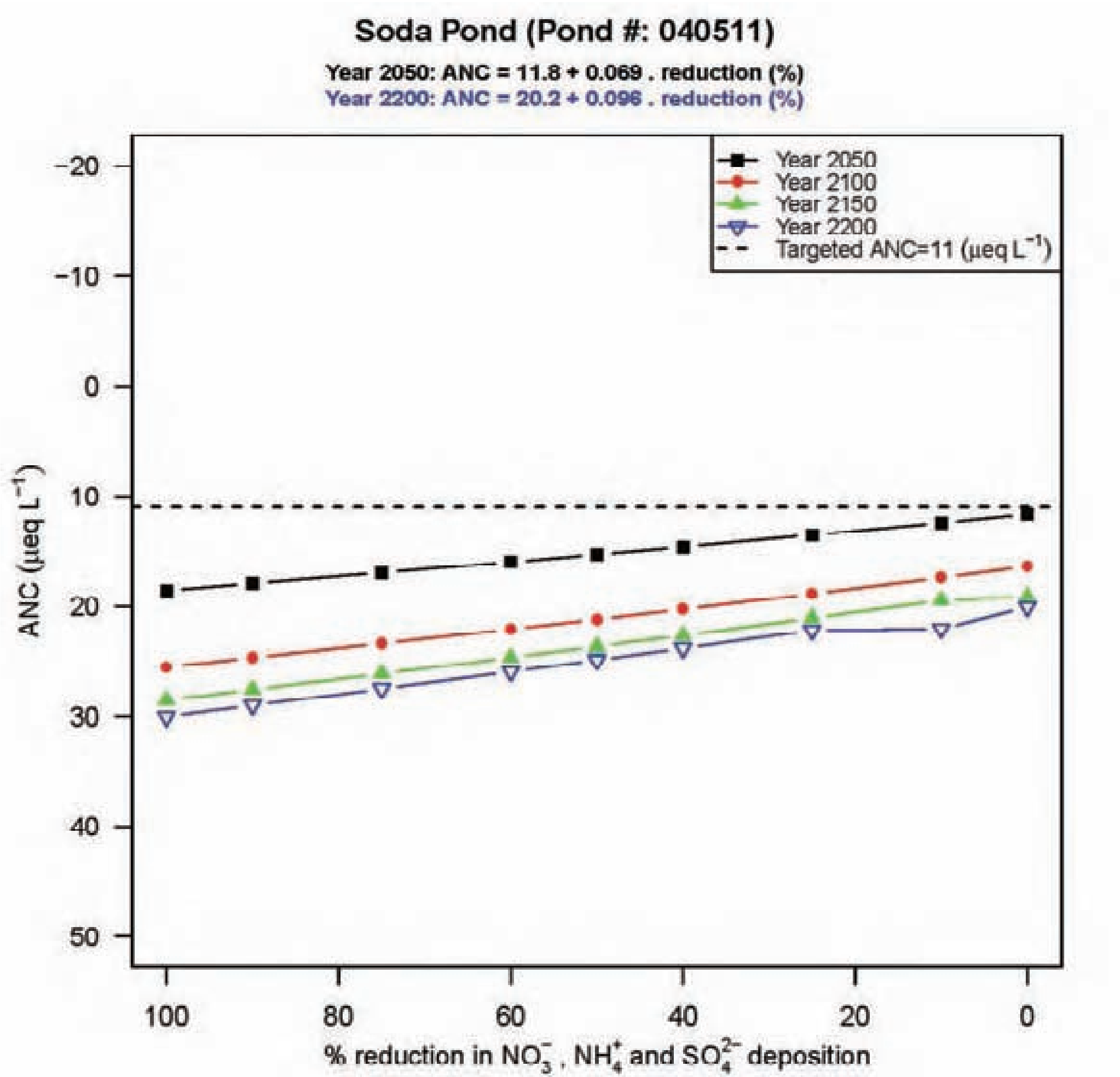


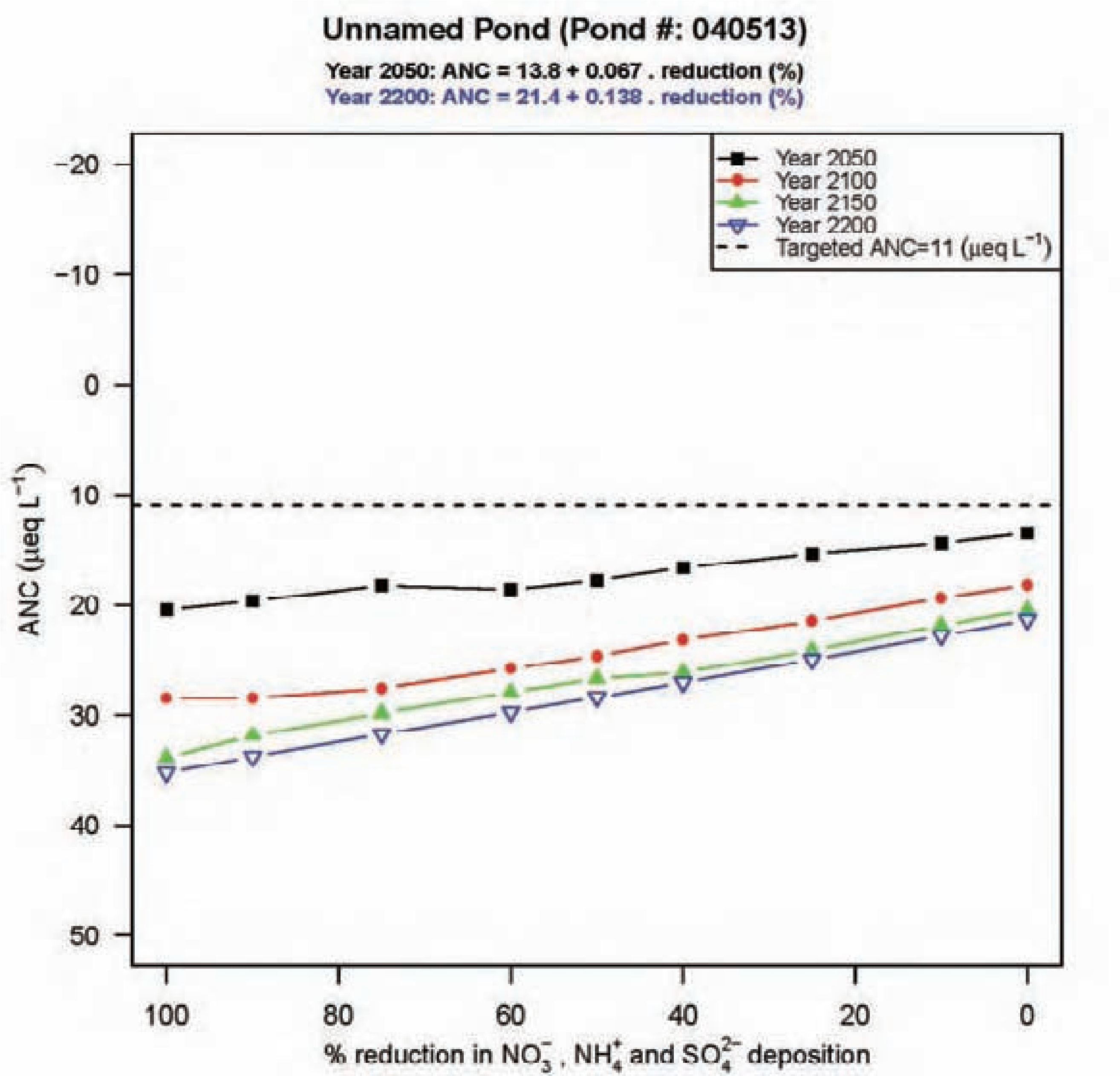
Hidden Lake (Pond #: 040505)
Year 2050: ANC = 21.6 + 0.046 . reduction (%)
Year 2200: ANC = 27.4 + 0.096 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



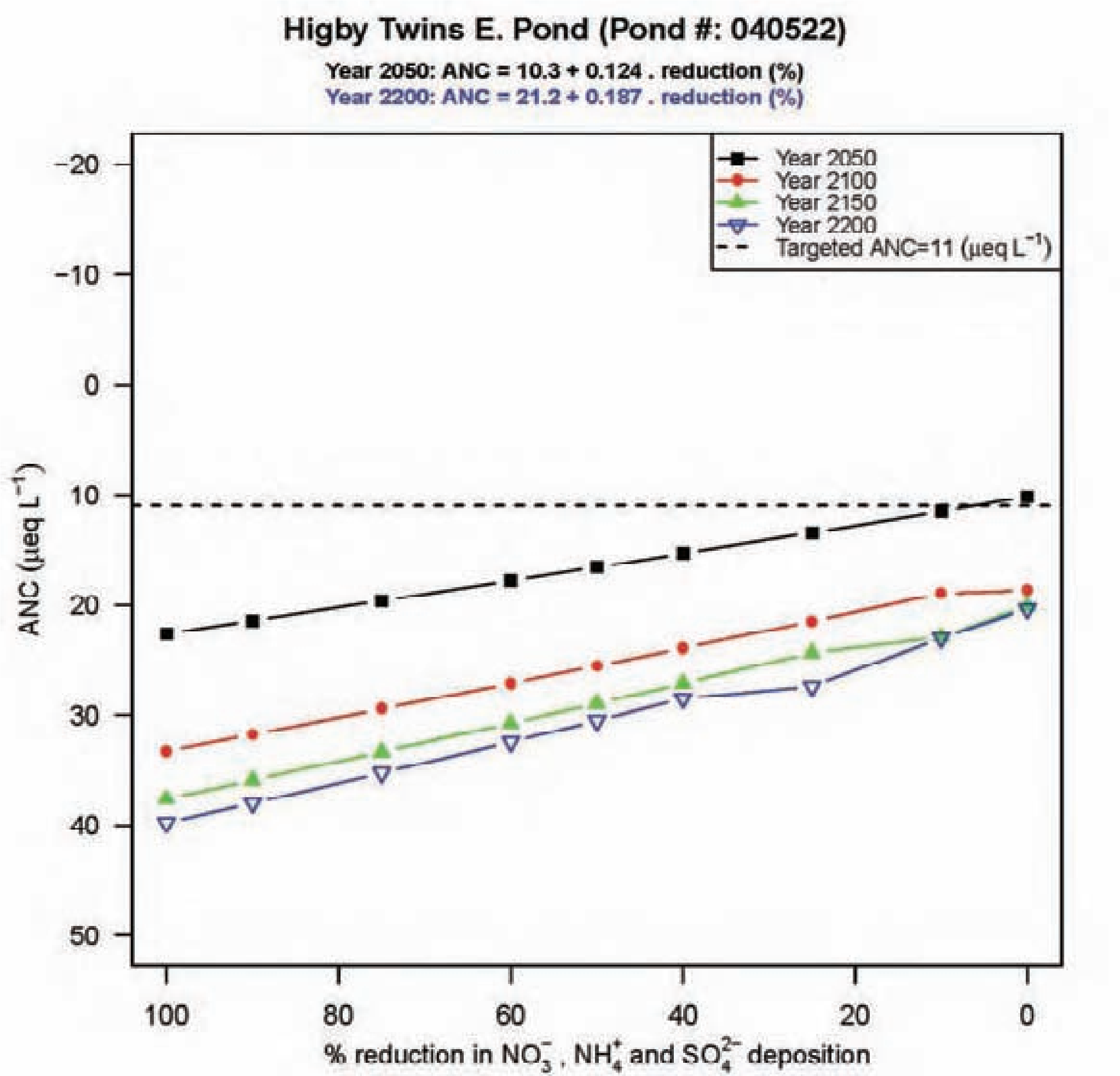
Ginger Pond (Pond #: 040508)
Year 2050: ANC = 18.6 + 0.086 . reduction (%)
Year 2200: ANC = 28.5 + 0.146 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

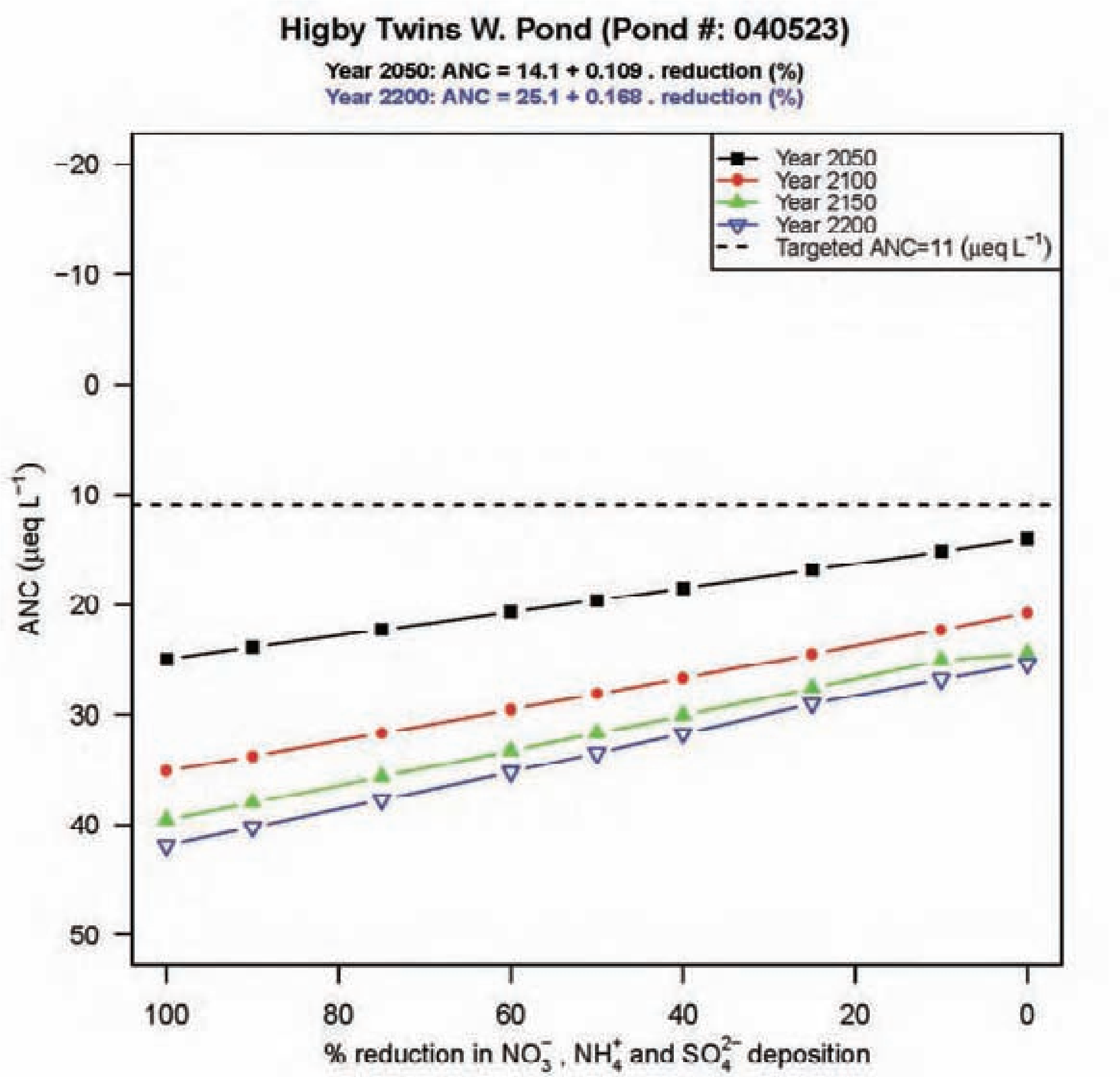

Unnamed Pond (Pond #: 040510)
Year 2050: ANC = −8.6 + 0.047 . reduction (%)
Year 2200: ANC = −3.2 + 0.084 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

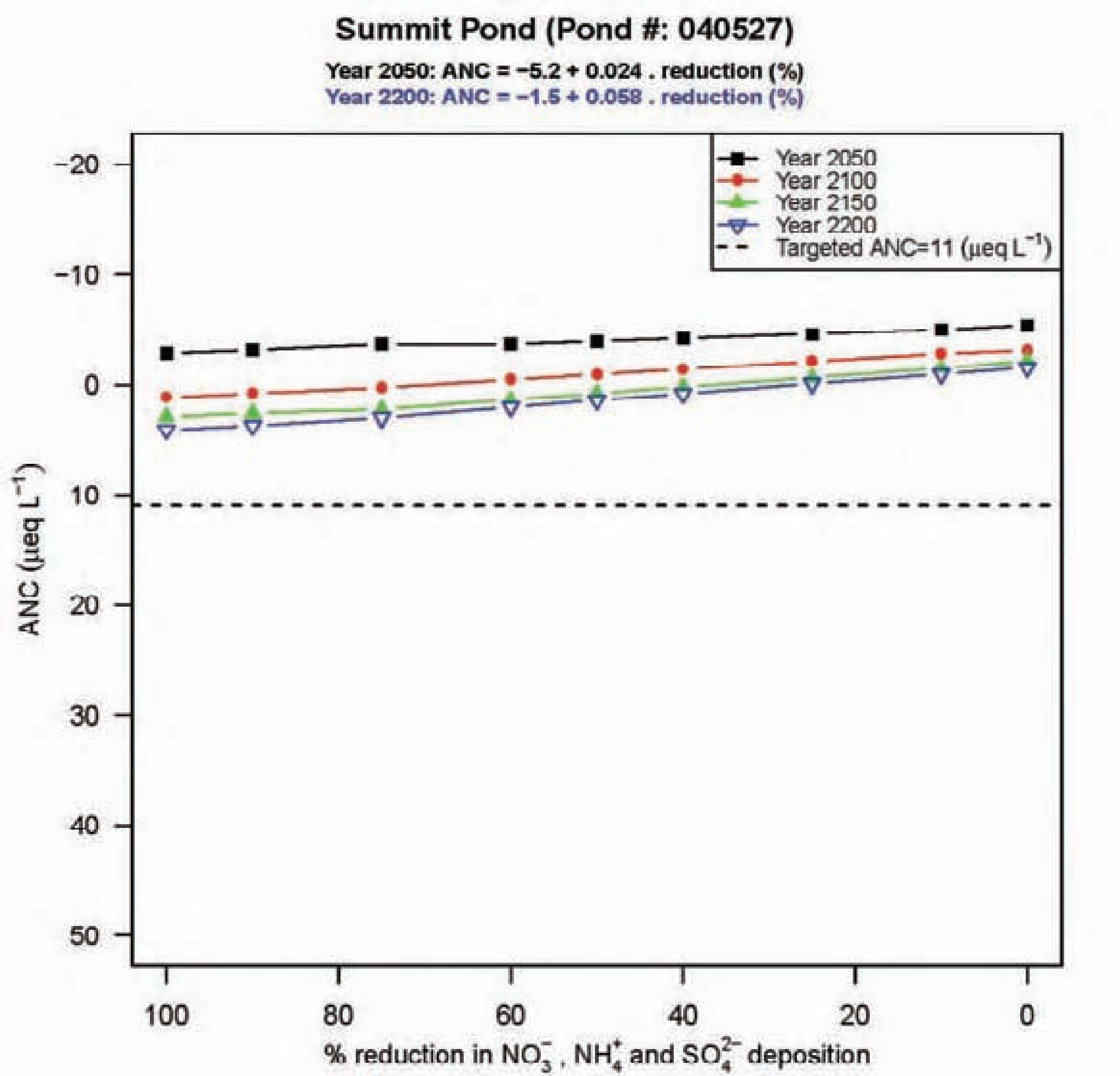

Soda Pond (Pond #: 040511)
Year 2050: ANC = 11.8 + 0.069 . reduction (%)
Year 2200: ANC = 20.2 + 0.096 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



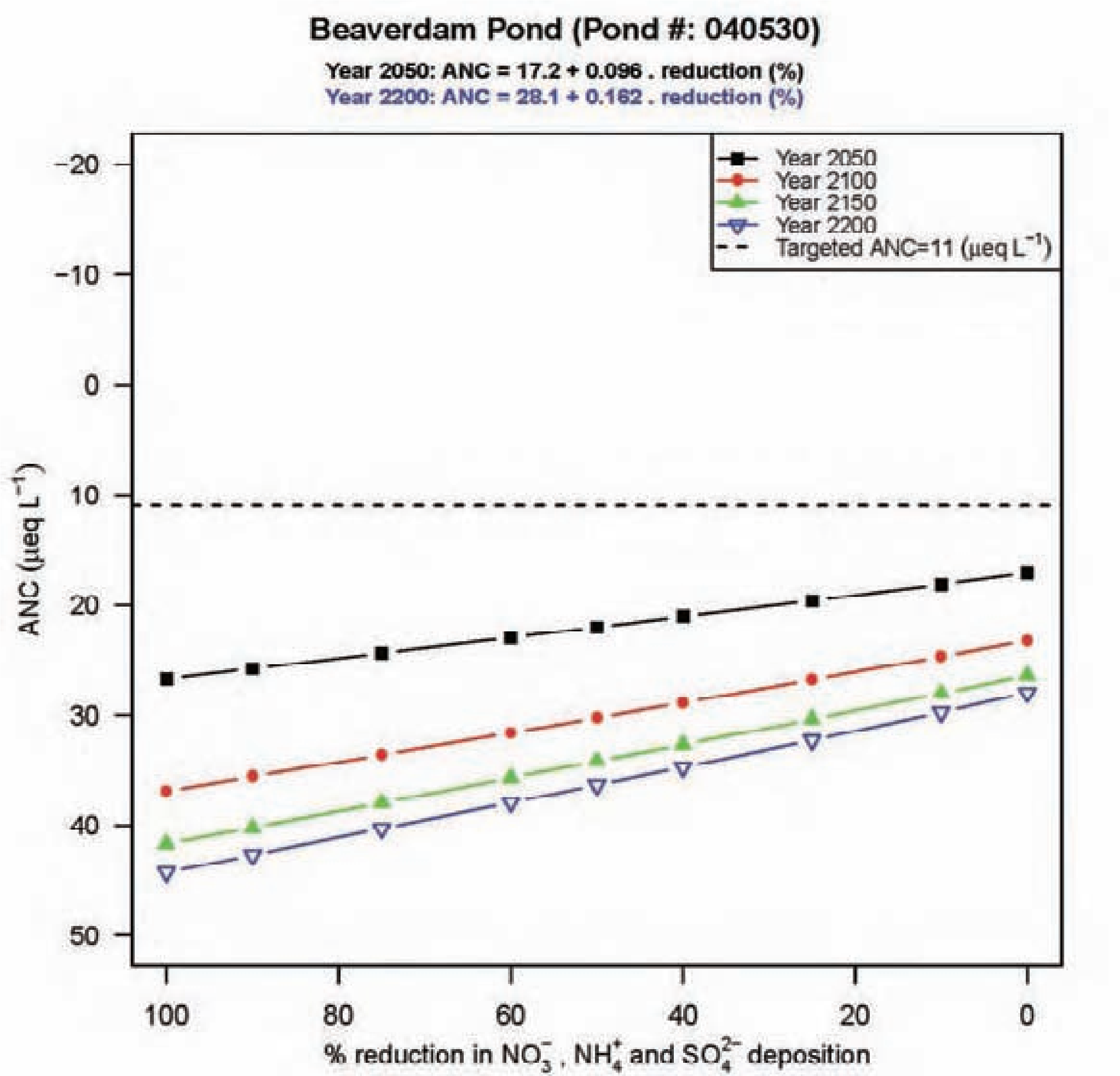
Unnamed Pond (Pond #: 040513)
Year 2050: ANC = 13.8 + 0.067 . reduction (%)
Year 2200: ANC = 21.4 + 0.138 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

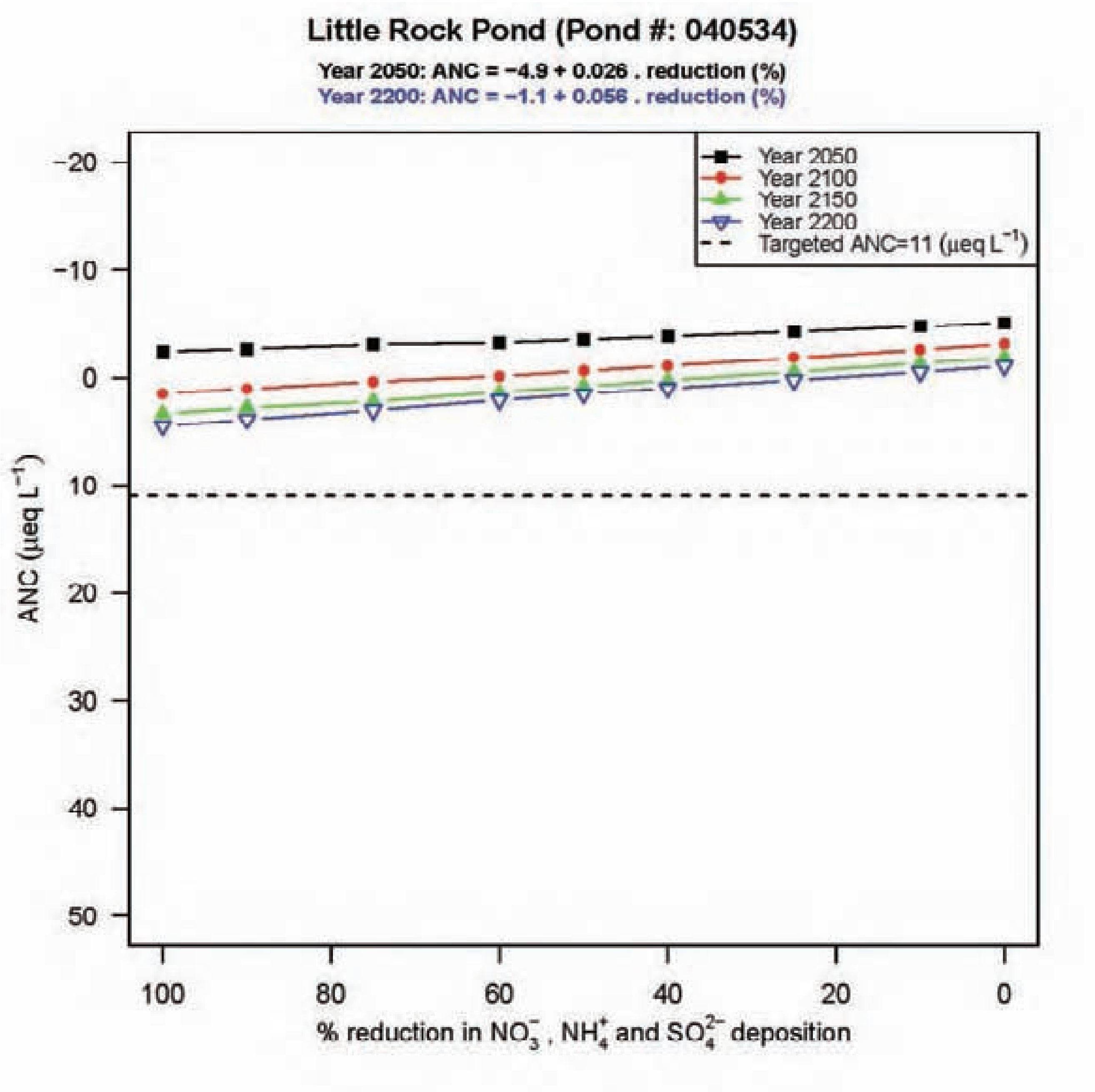

Higby Twins E. Pond (Pond #: 040522)
Year 2050: ANC = 10.3 + 0.124 . reduction (%)
Year 2200: ANC = 21.2 + 0.187 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
ANC (µeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition


Higby Twins W. Pond (Pond #: 040523)
Year 2050: ANC = 14.1 + 0.109 . reduction (%)
Year 2200: ANC = 25.1 + 0.168 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

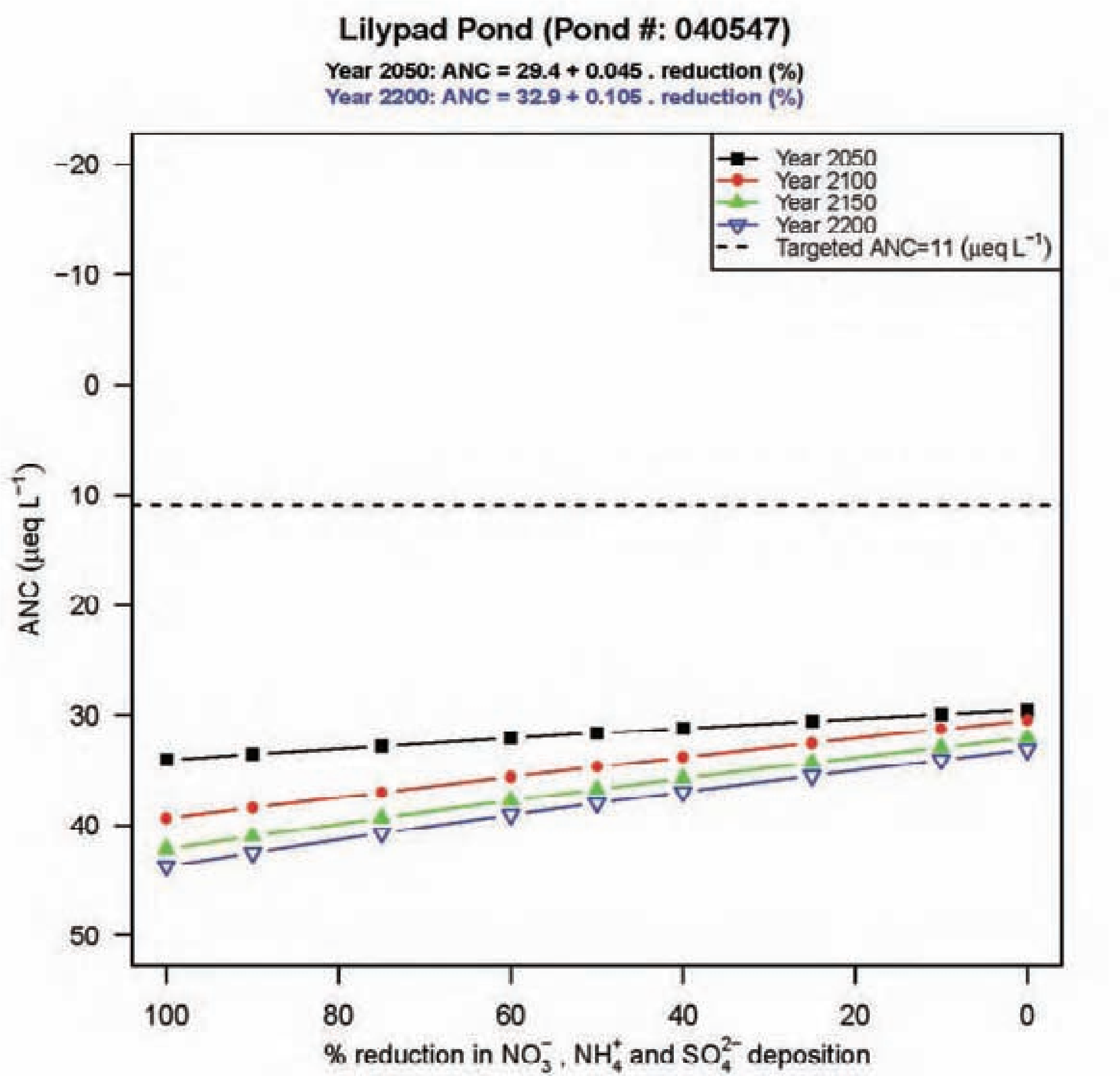


Summit Pond (Pond #: 040527)
Year 2050: ANC = −5.2 + 0.024 . reduction (%)
Year 2200: ANC = −1.5 + 0.058 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
−20
−10
0
10
20
30
40
50
ANC (μeq L^{-1})
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

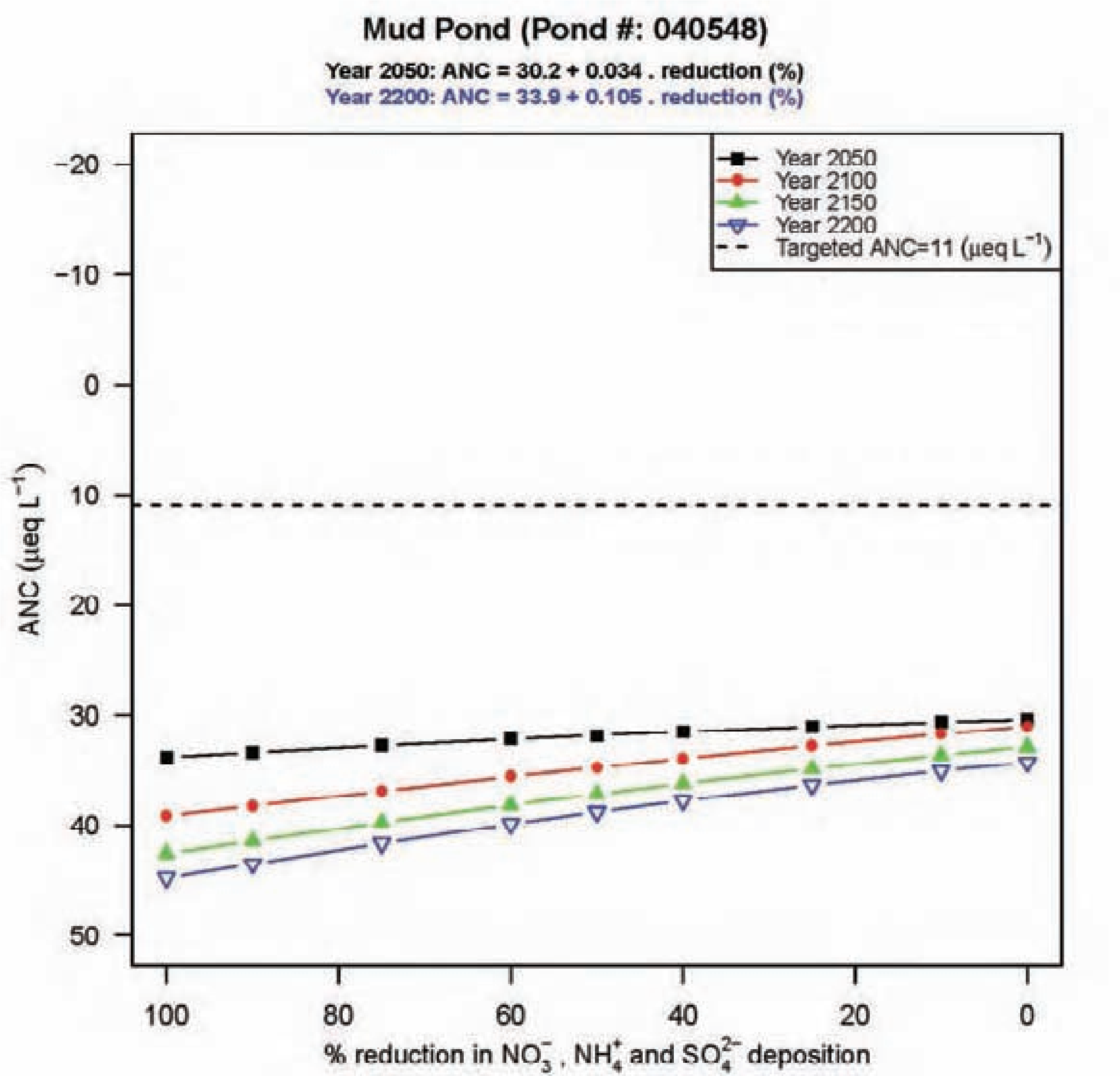

Beaverdam Pond (Pond #: 040530)
Year 2050: ANC = 17.2 + 0.096 . reduction (%)
Year 2200: ANC = 28.1 + 0.162 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

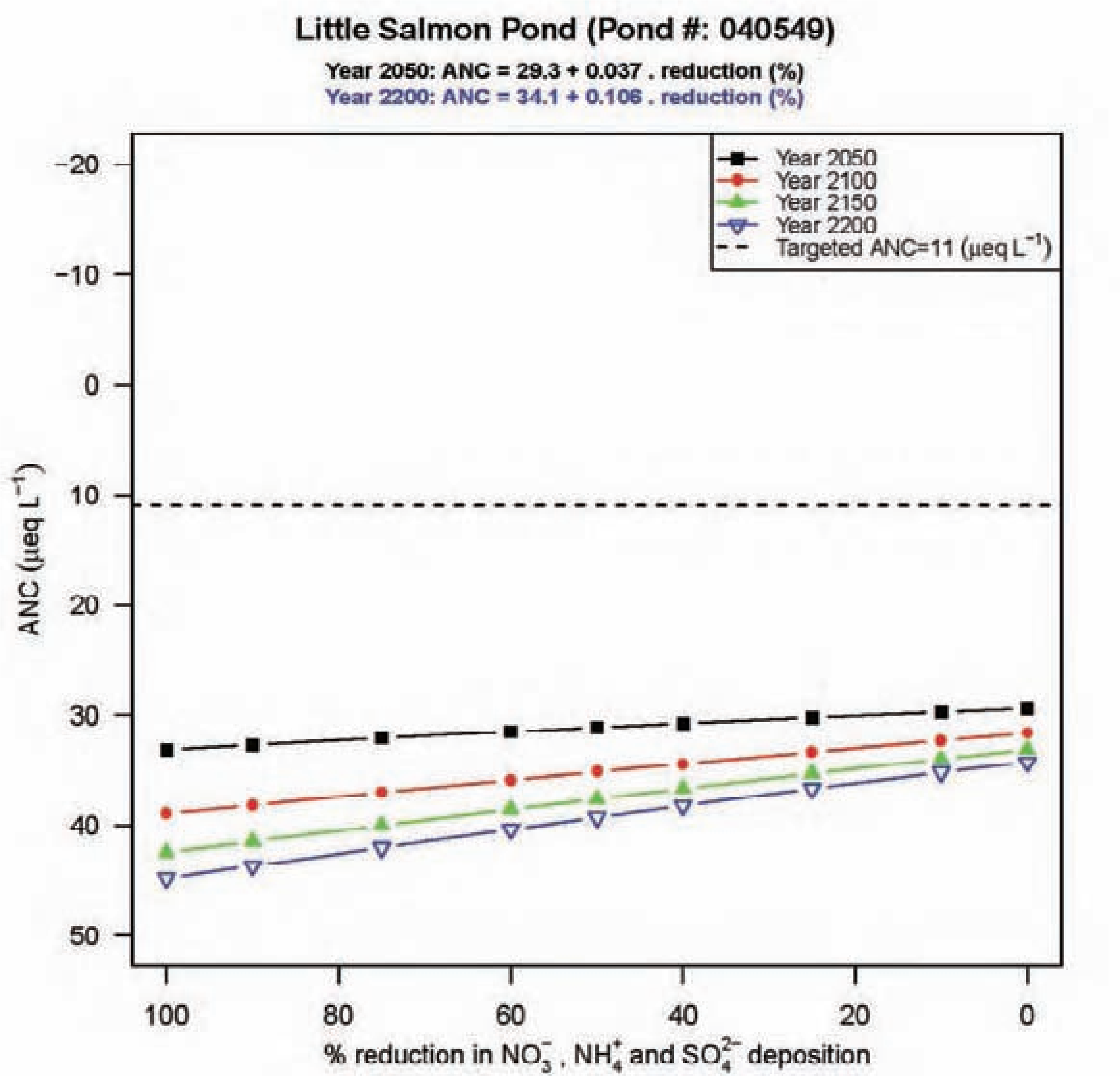


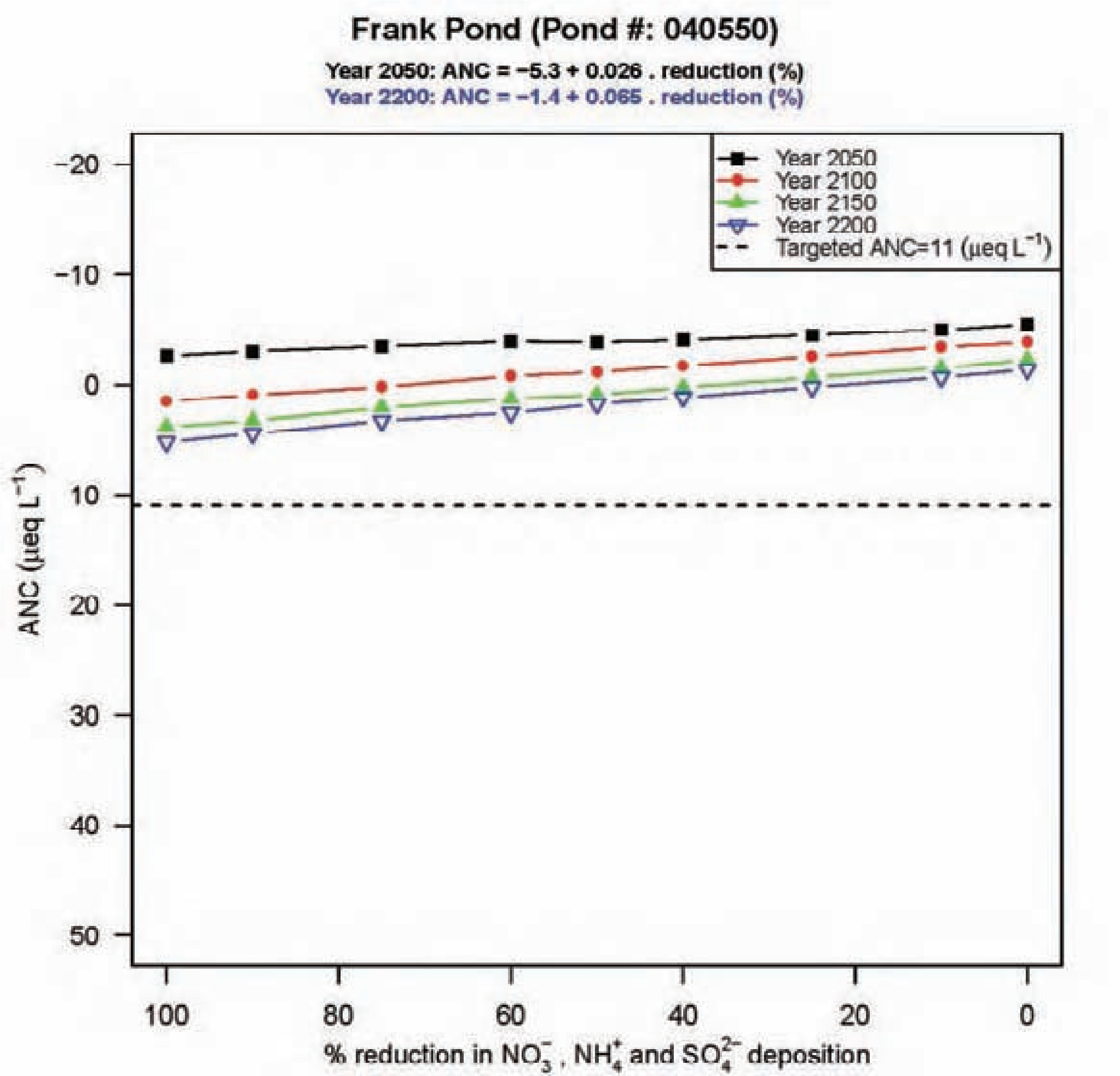
Little Rock Pond (Pond #: 040534)
Year 2050: ANC = −4.9 + 0.026 . reduction (%)
Year 2200: ANC = −1.1 + 0.056 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition



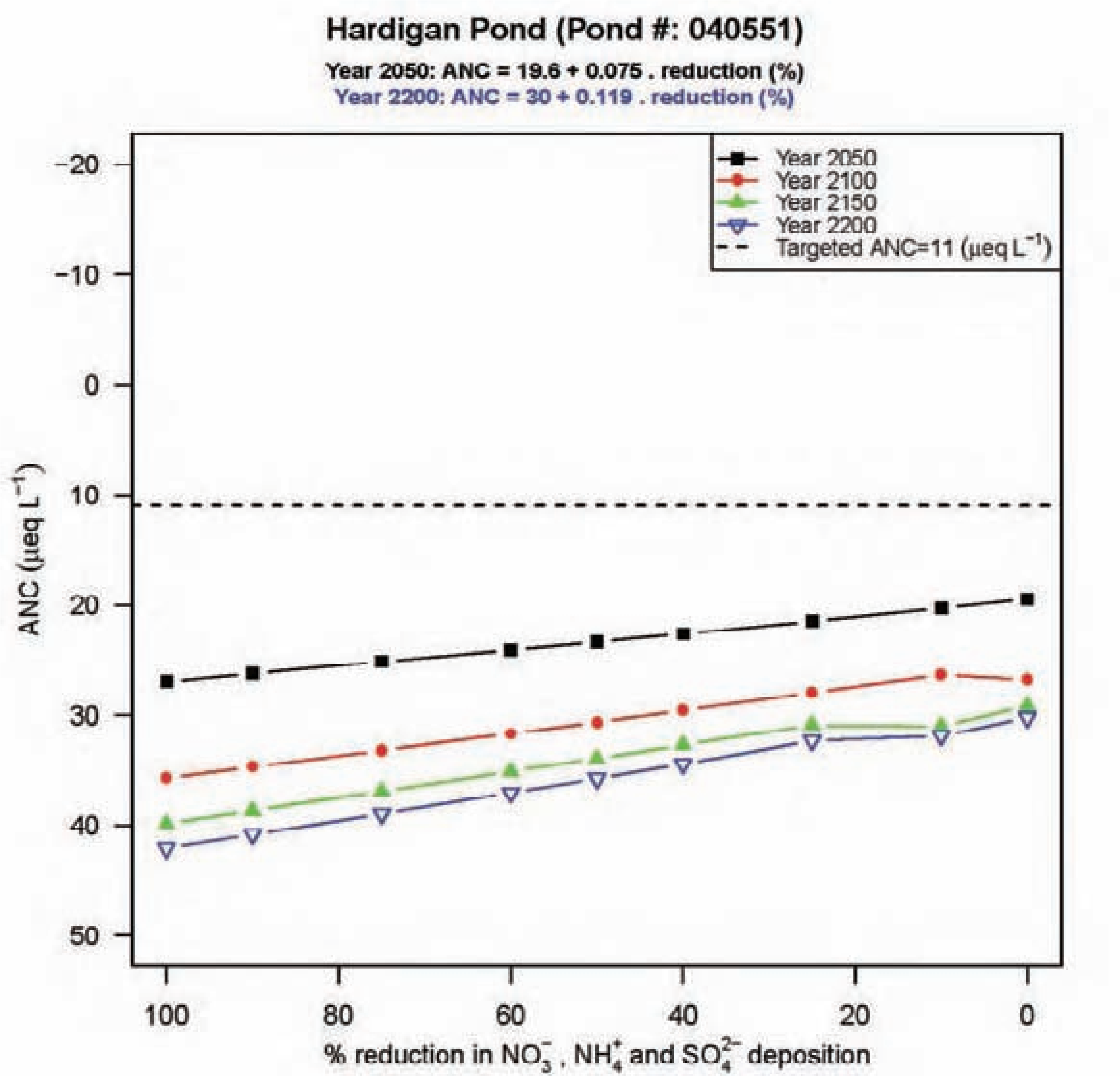
Lilypad Pond (Pond #: 040547)
Year 2050: ANC = 29.4 + 0.045 . reduction (%)
Year 2200: ANC = 32.9 + 0.105 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition


Mud Pond (Pond #: 040548)
Year 2050: ANC = 30.2 + 0.034 . reduction (%)
Year 2200: ANC = 33.9 + 0.105 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

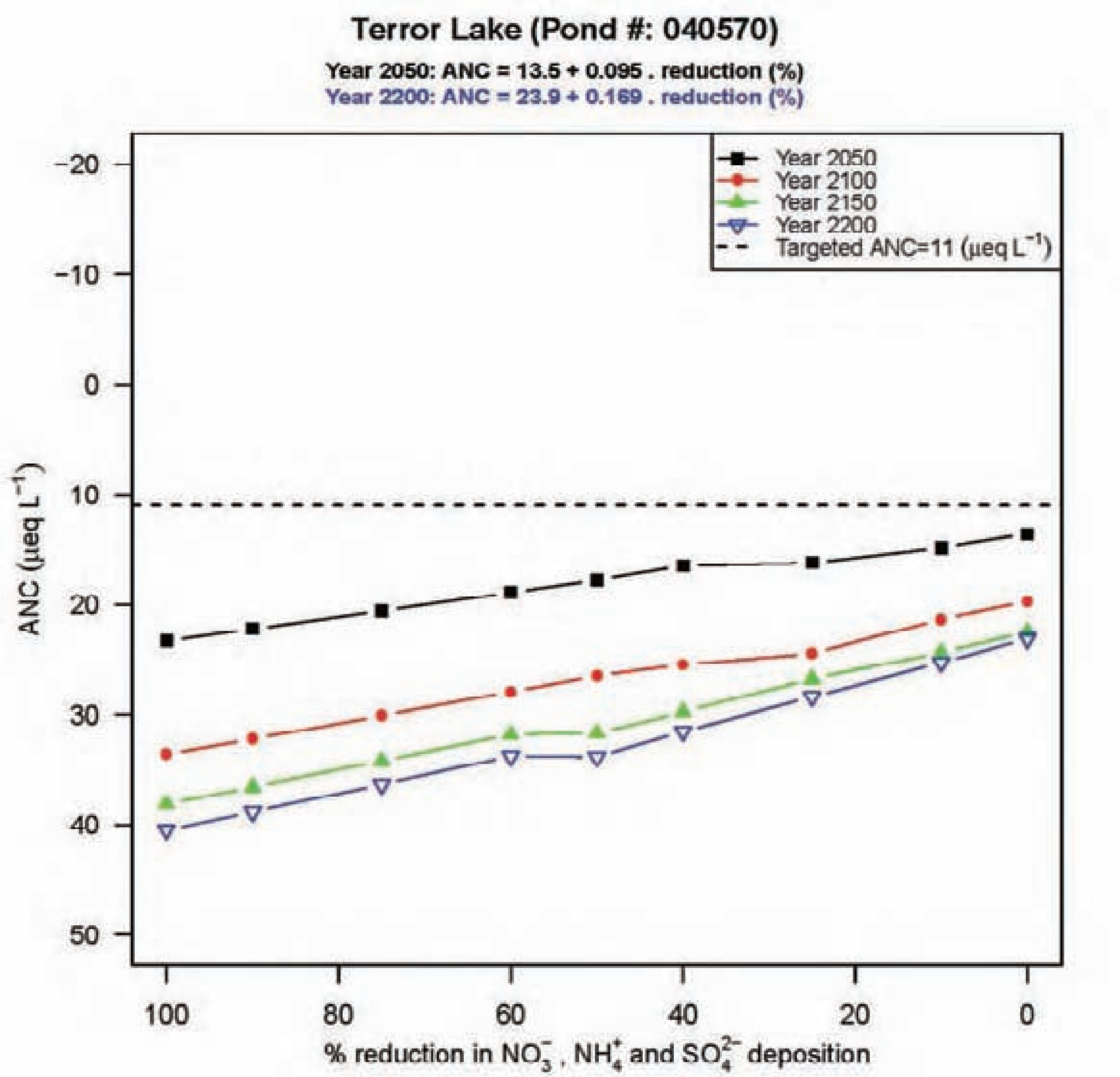

Little Salmon Pond (Pond #: 040549)
Year 2050: ANC = 29.3 + 0.037 . reduction (%)
Year 2200: ANC = 34.1 + 0.106 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



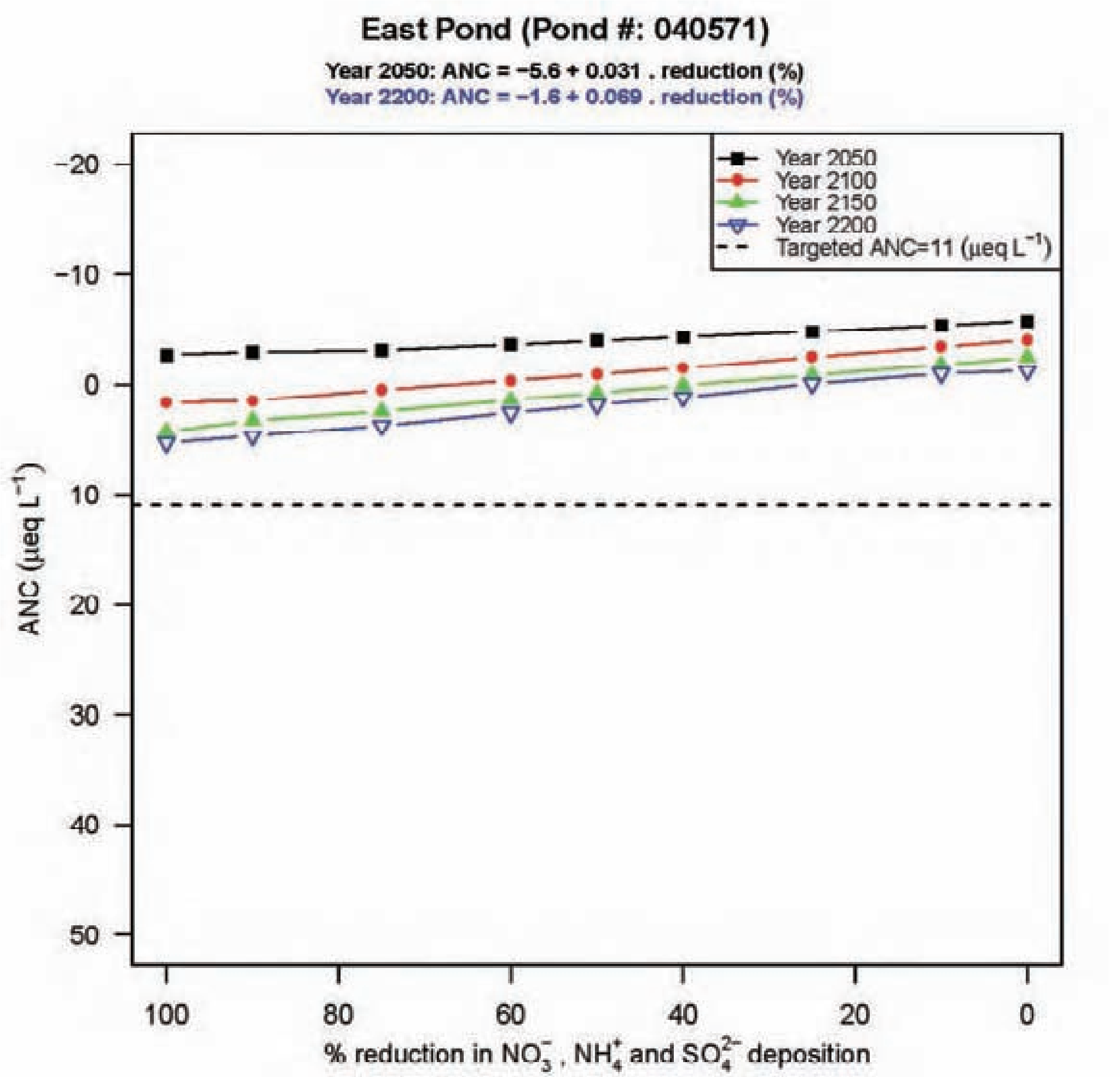
Frank Pond (Pond #: 040550)
Year 2050: ANC = −5.3 + 0.026 . reduction (%)
Year 2200: ANC = −1.4 + 0.065 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



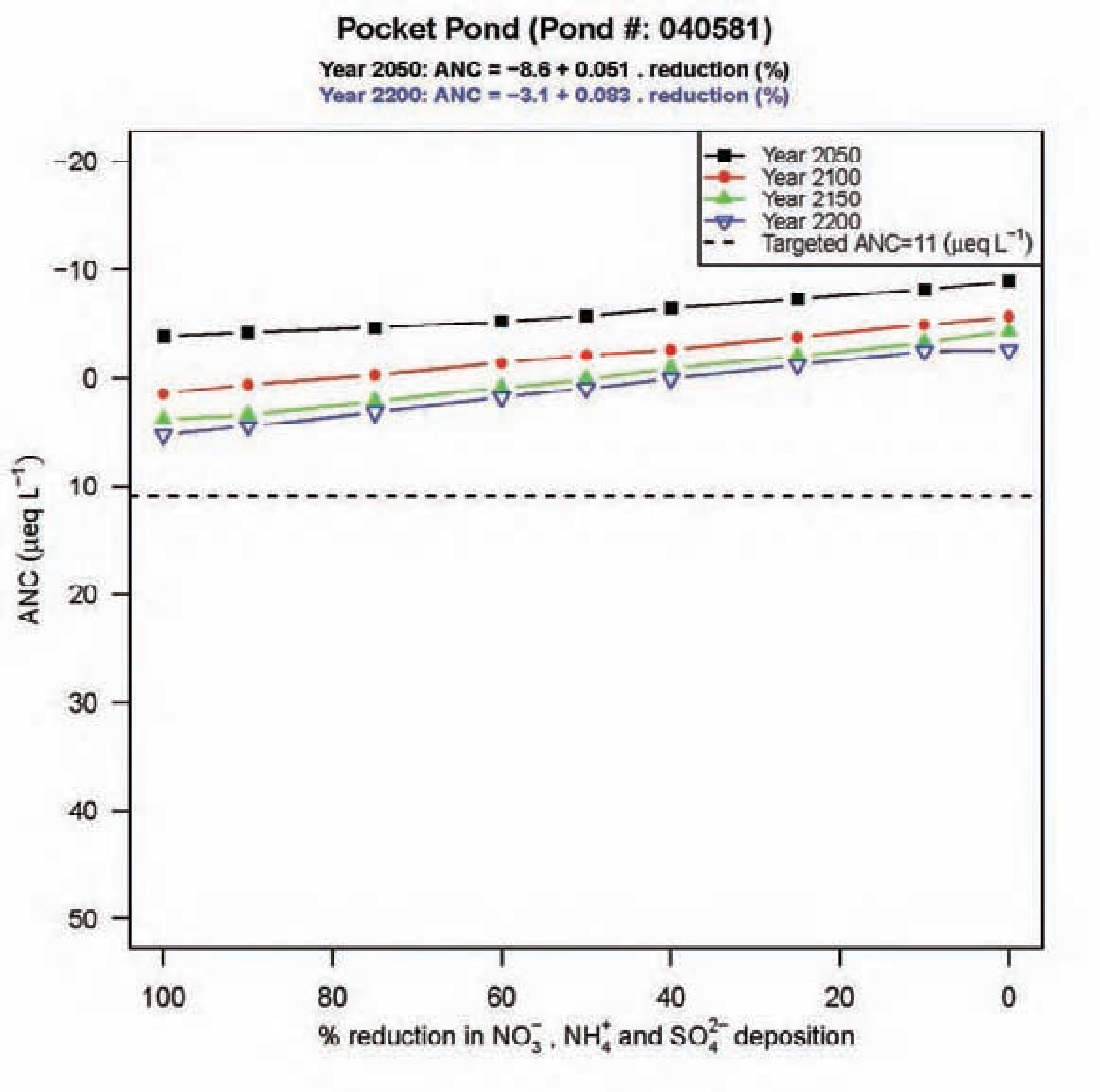
Hardigan Pond (Pond #: 040551)
Year 2050: ANC = 19.6 + 0.075 . reduction (%)
Year 2200: ANC = 30 + 0.119 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

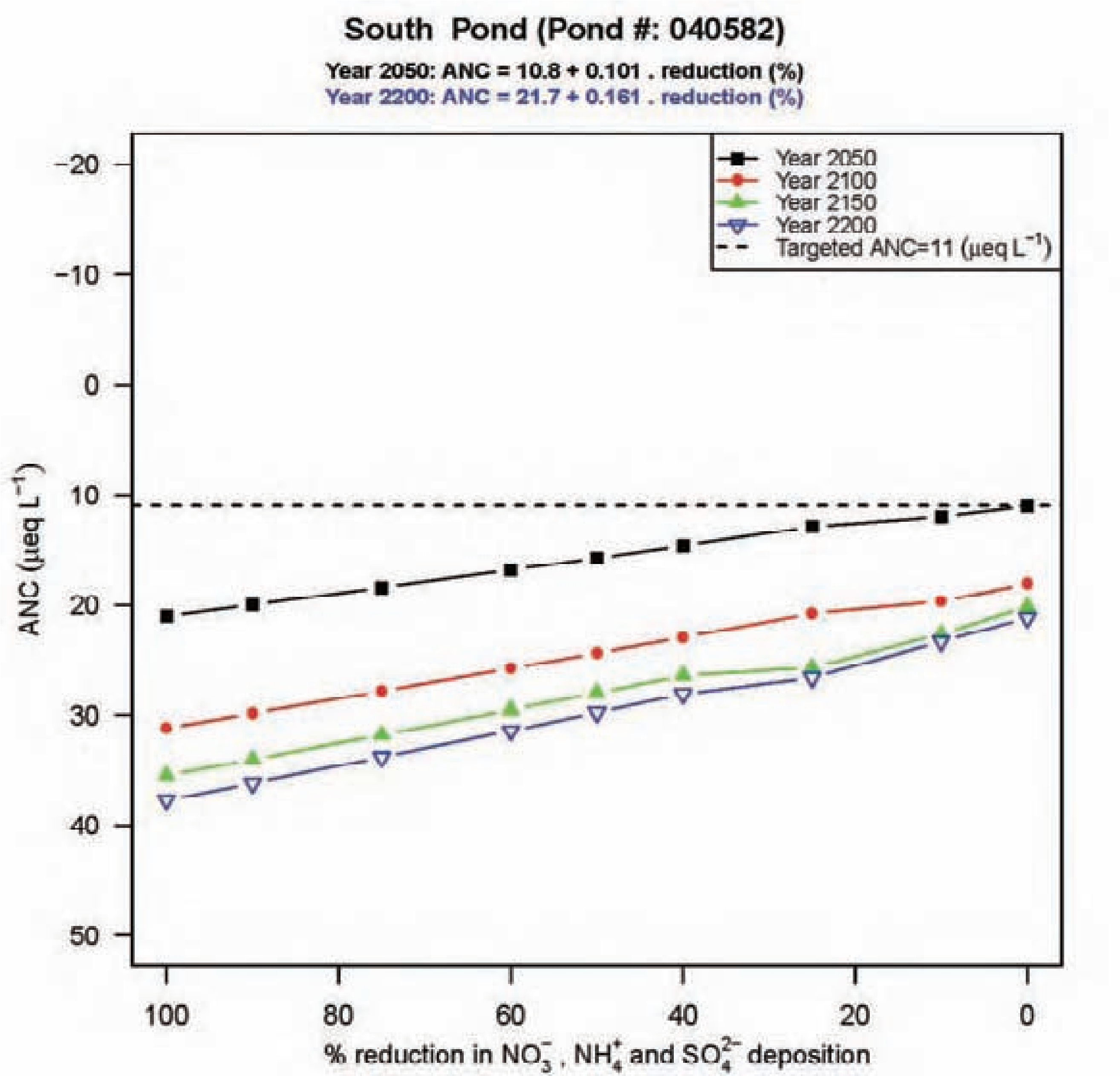


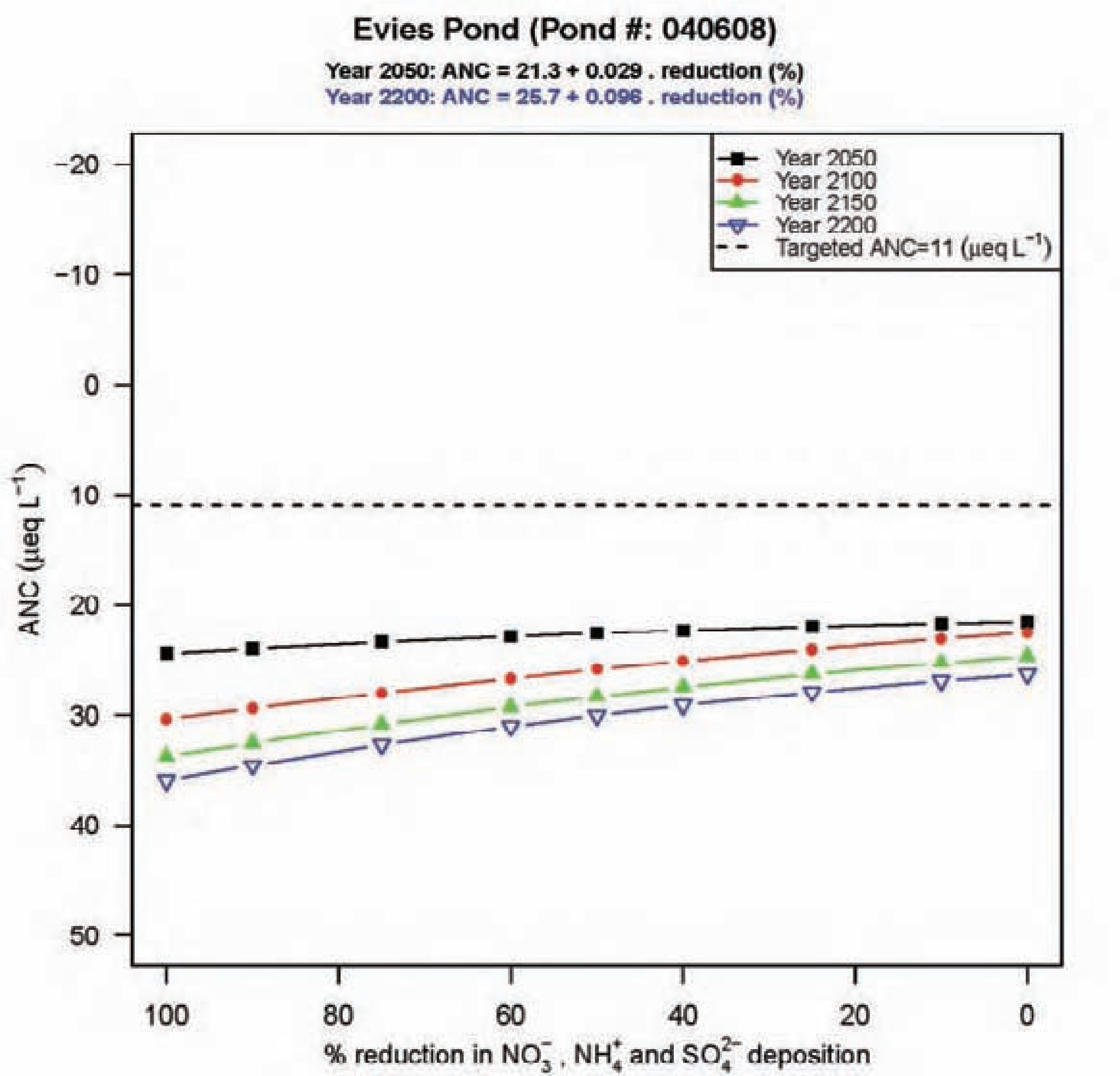
Terror Lake (Pond #: 040570)
Year 2050: ANC = 13.5 + 0.095 . reduction (%)
Year 2200: ANC = 23.9 + 0.169 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

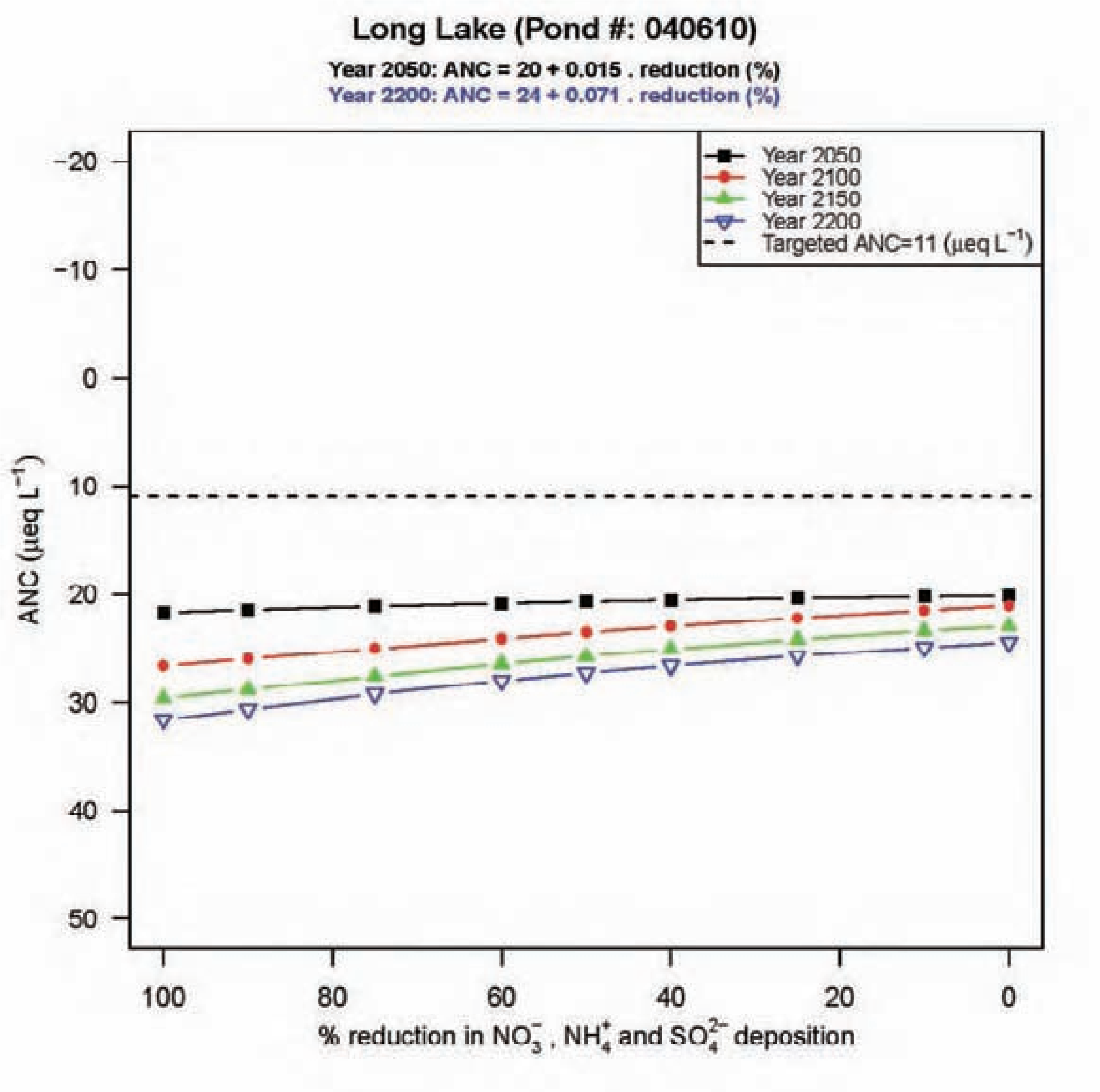


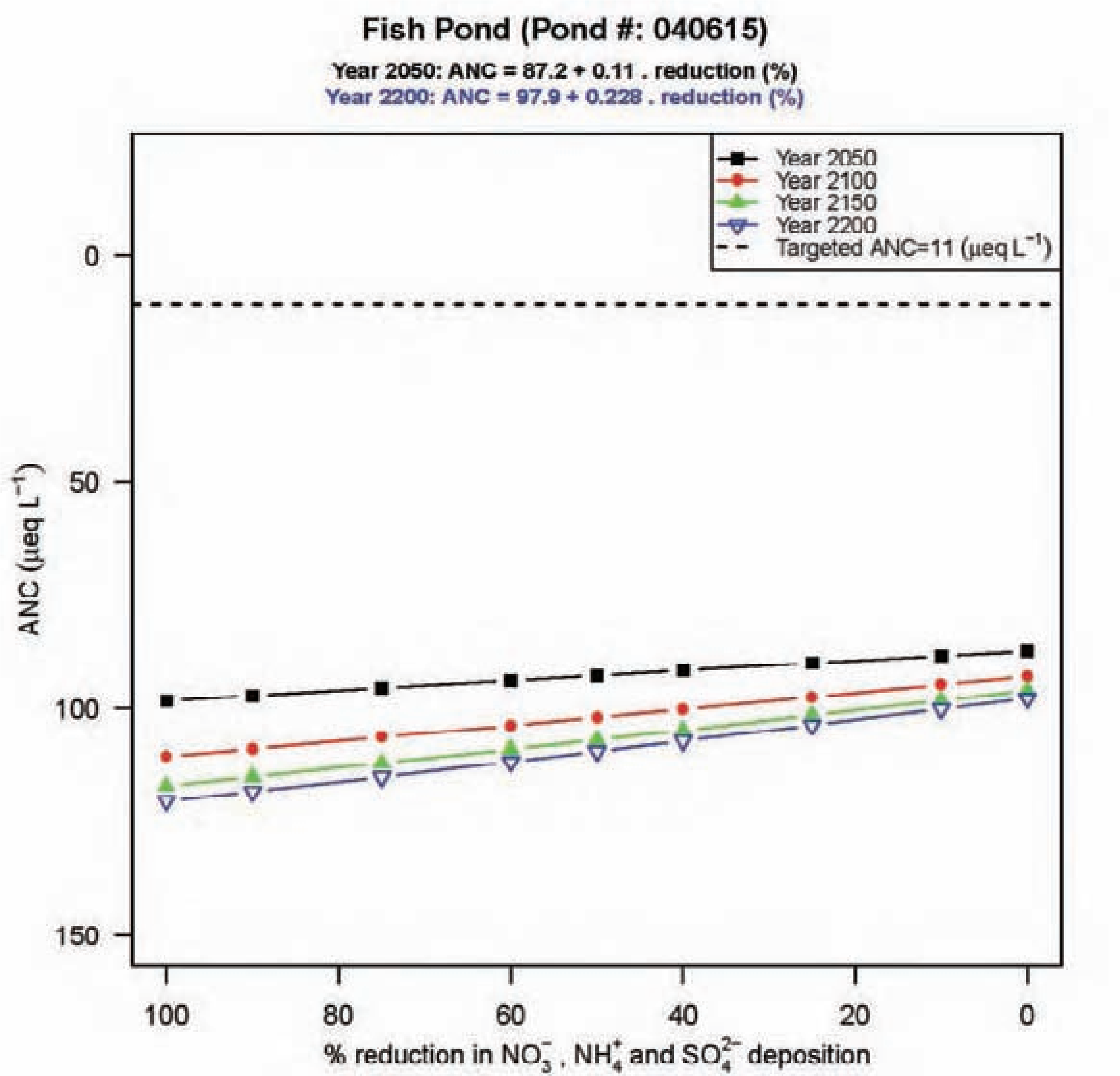
East Pond (Pond #: 040571)
Year 2050: ANC = −5.6 + 0.031 . reduction (%)
Year 2200: ANC = −1.6 + 0.069 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Pocket Pond (Pond #: 040581)
Year 2050: ANC = −8.6 + 0.051 . reduction (%)
Year 2200: ANC = −3.1 + 0.083 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

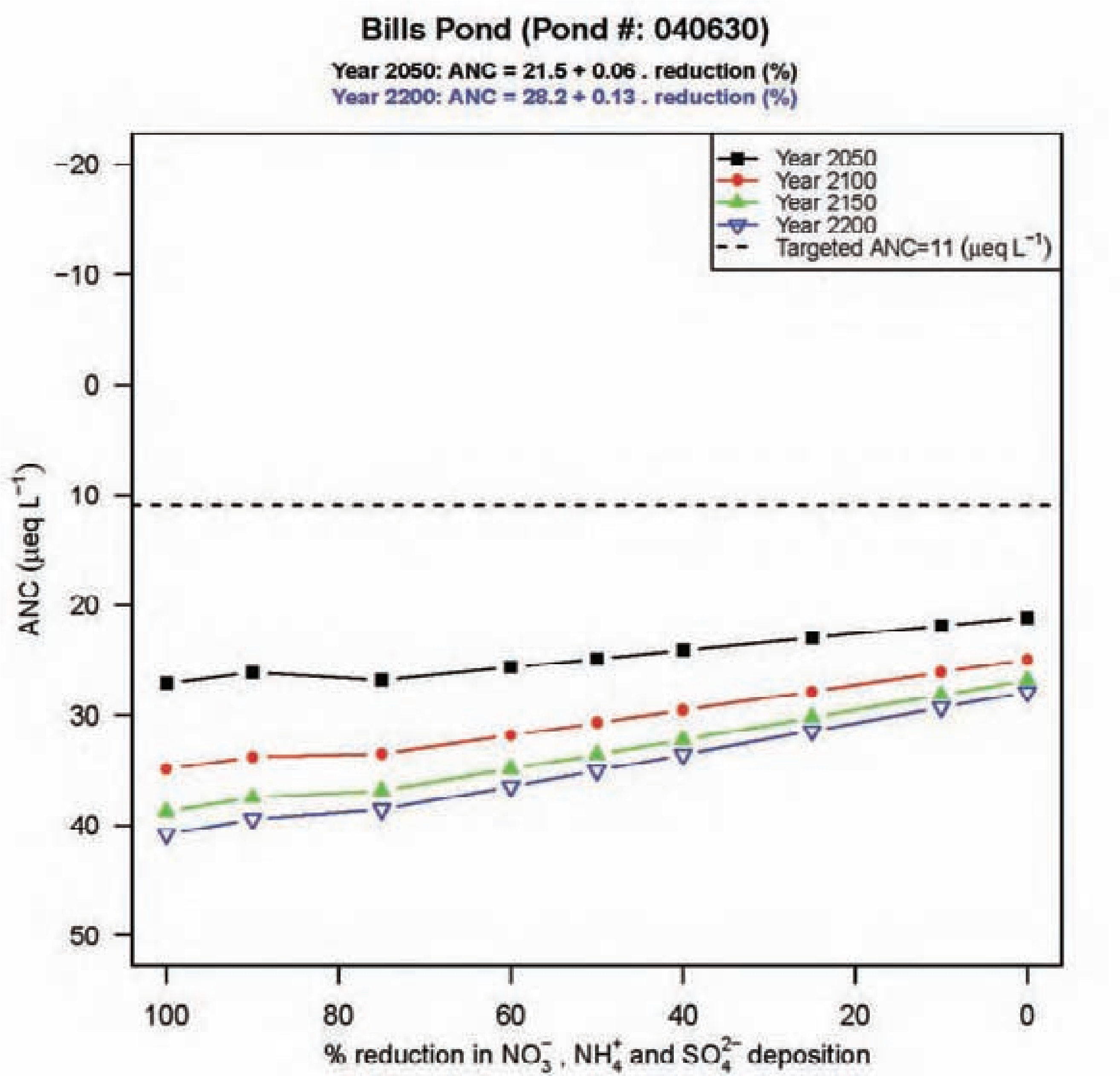

South Pond (Pond #: 040582)
Year 2050: ANC = 10.8 + 0.101 . reduction (%)
Year 2200: ANC = 21.7 + 0.161 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Evies Pond (Pond #: 040608)
Year 2050: ANC = 21.3 + 0.029 . reduction (%)
Year 2200: ANC = 25.7 + 0.096 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

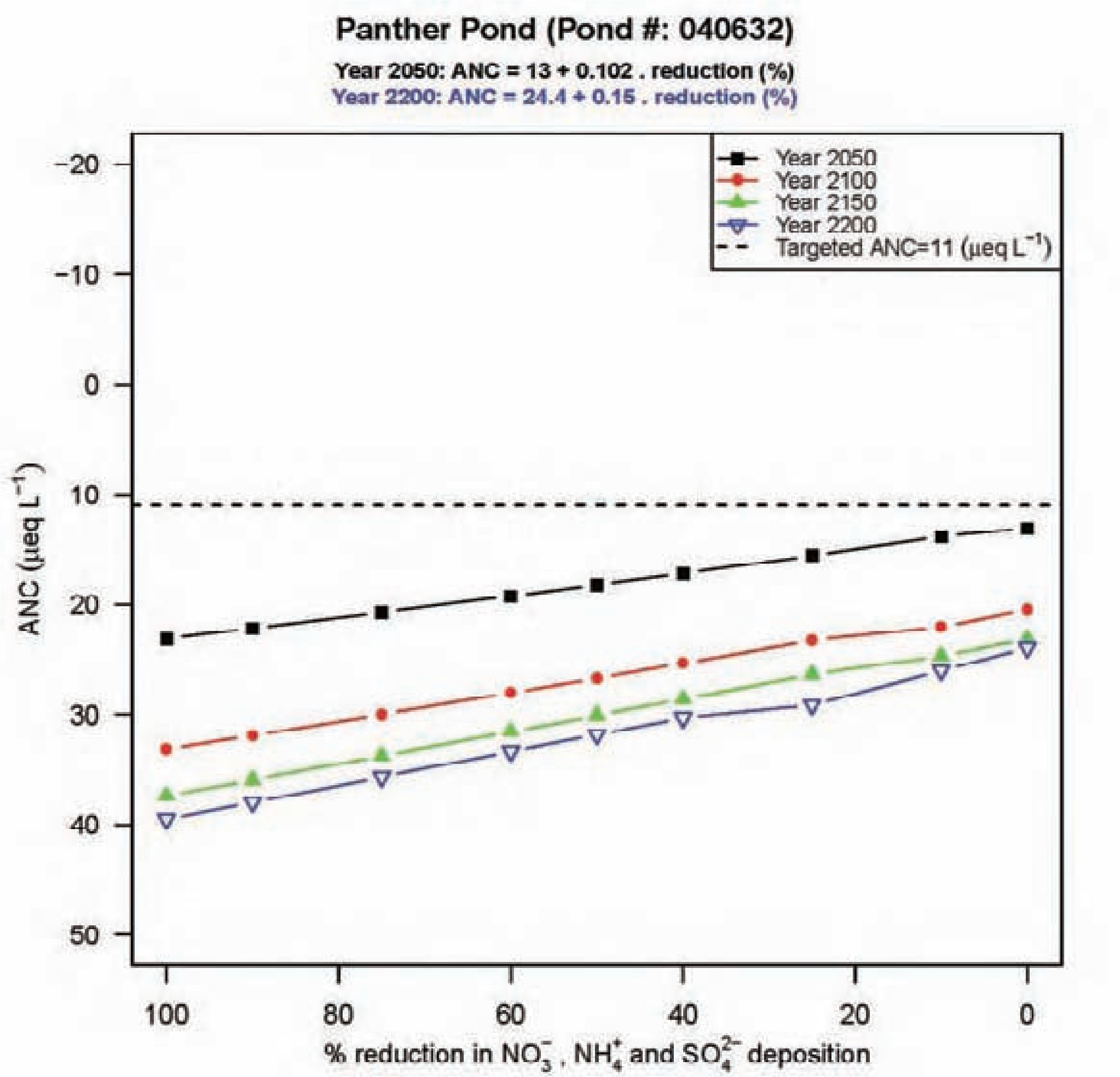

Long Lake (Pond #: 040610)
Year 2050: ANC = 20 + 0.015 . reduction (%)
Year 2200: ANC = 24 + 0.071 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3-, NH4+ and SO42- deposition



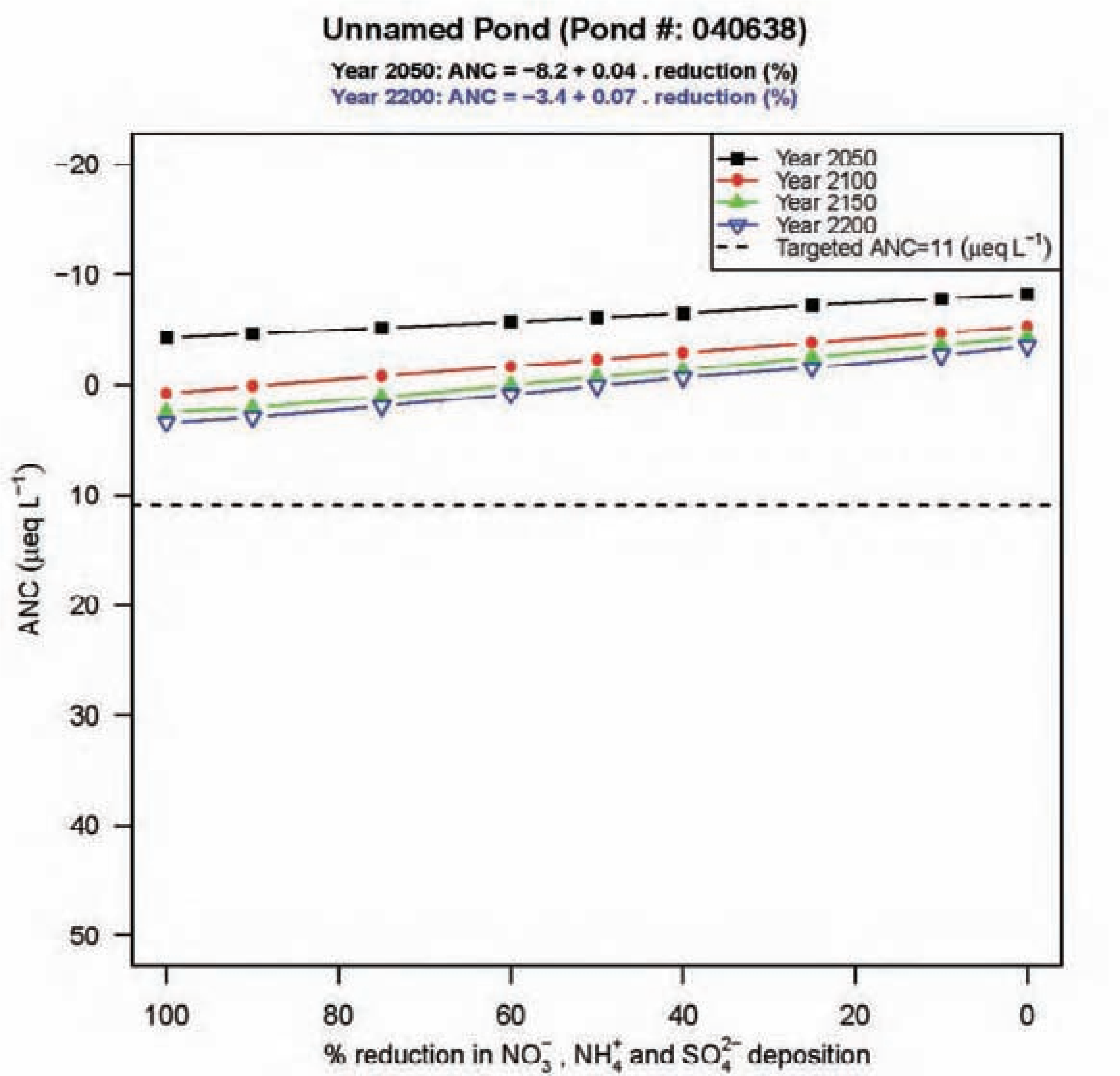
Fish Pond (Pond #: 040615)
Year 2050: ANC = 87.2 + 0.11 . reduction (%)
Year 2200: ANC = 97.9 + 0.228 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
0
50
100
150
ANC (µeq L^{-1})
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition



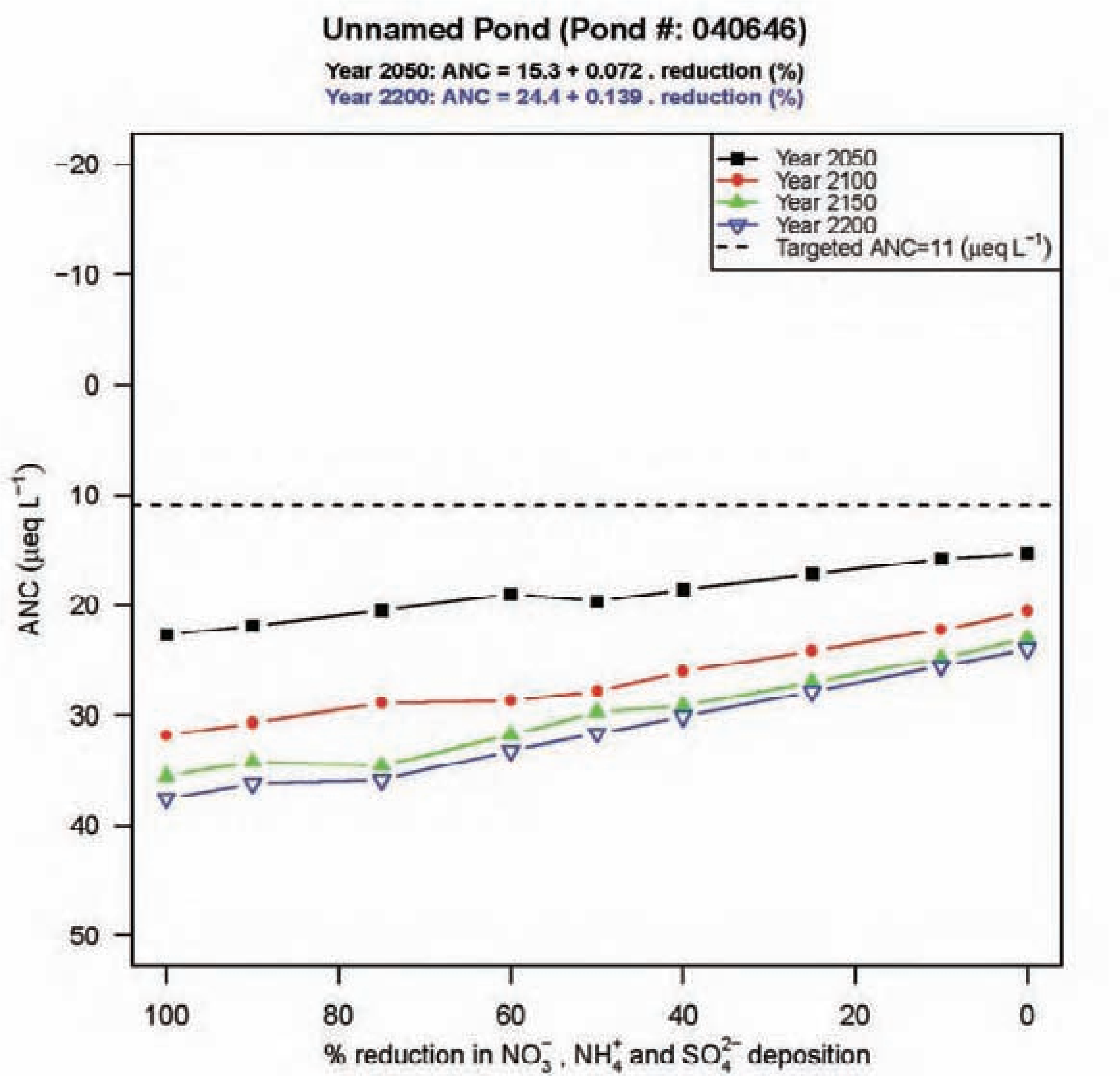
Bills Pond (Pond #: 040630)
Year 2050: ANC = 21.5 + 0.06 . reduction (%)
Year 2200: ANC = 28.2 + 0.13 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

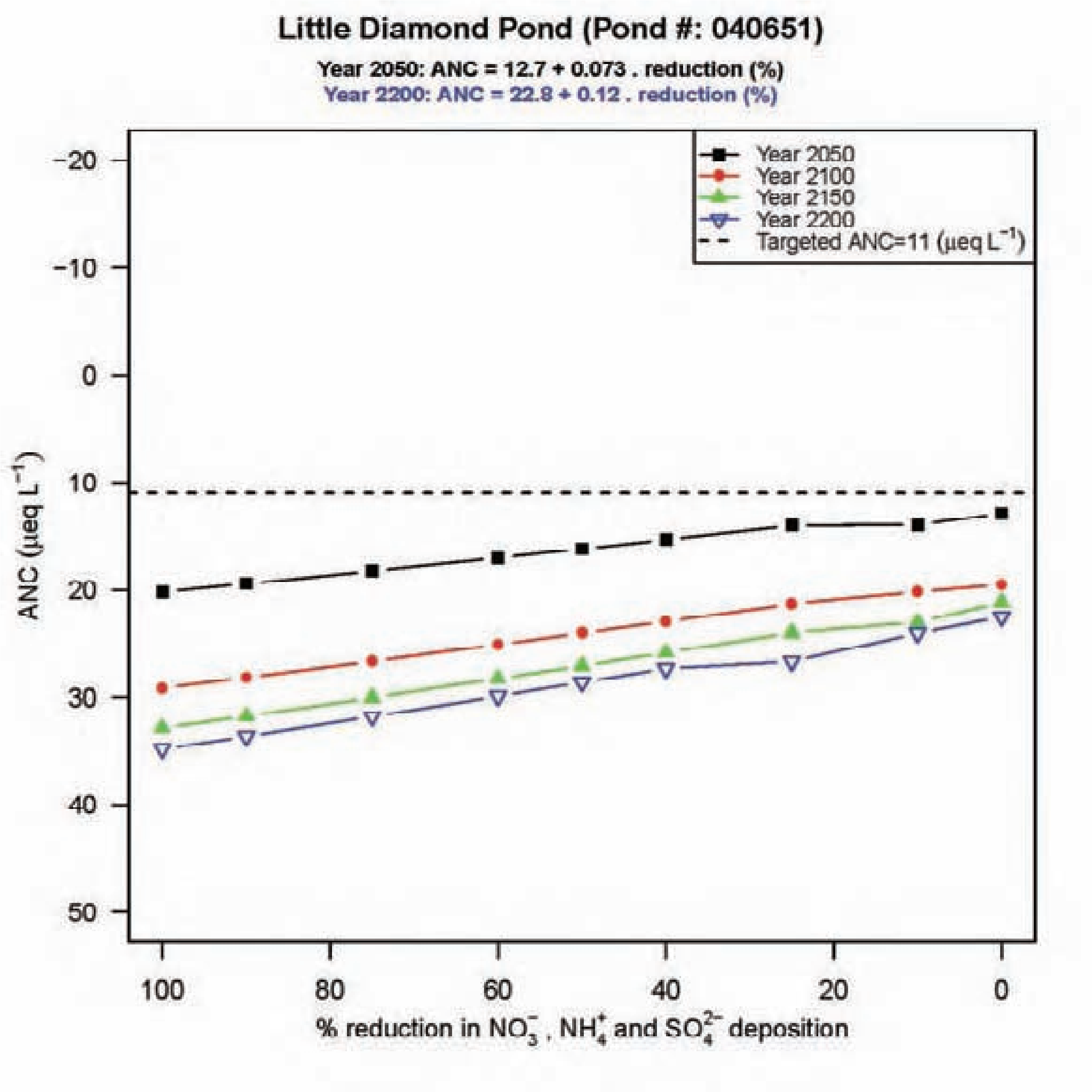


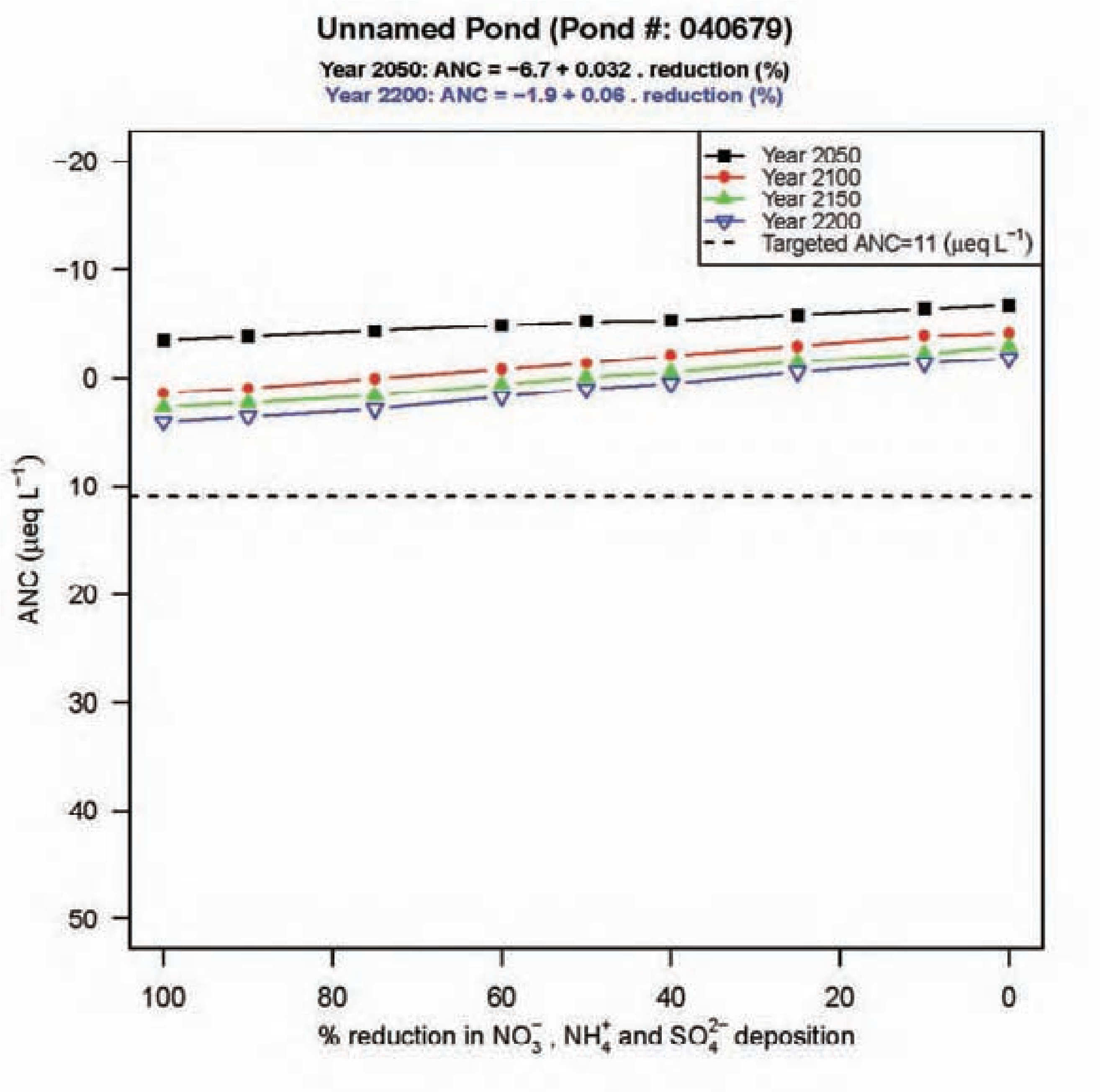
Panther Pond (Pond #: 040632)
Year 2050: ANC = 13 + 0.102 . reduction (%)
Year 2200: ANC = 24.4 + 0.15 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

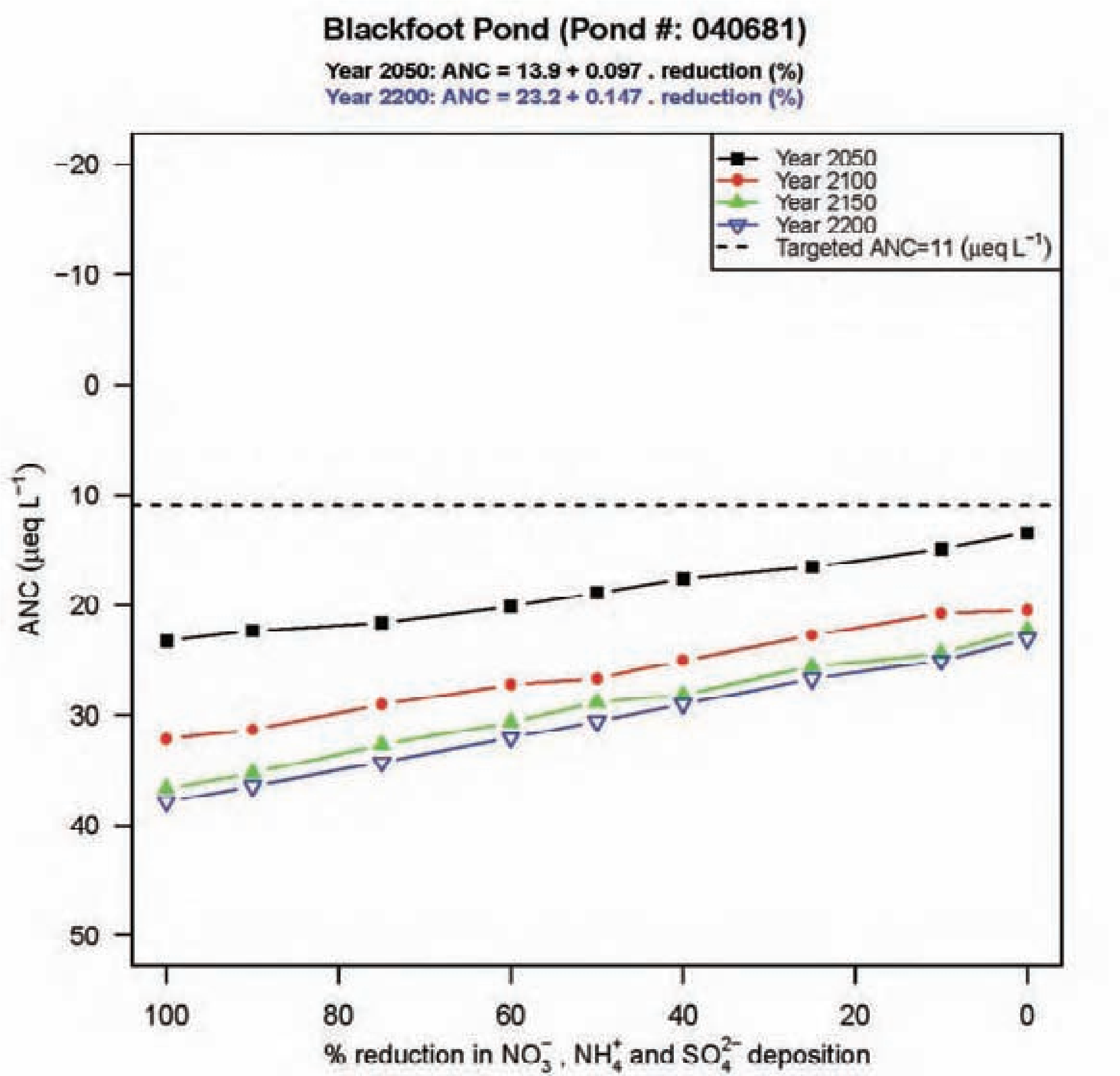


Unnamed Pond (Pond #: 040638)
Year 2050: ANC = −8.2 + 0.04 . reduction (%)
Year 2200: ANC = −3.4 + 0.07 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

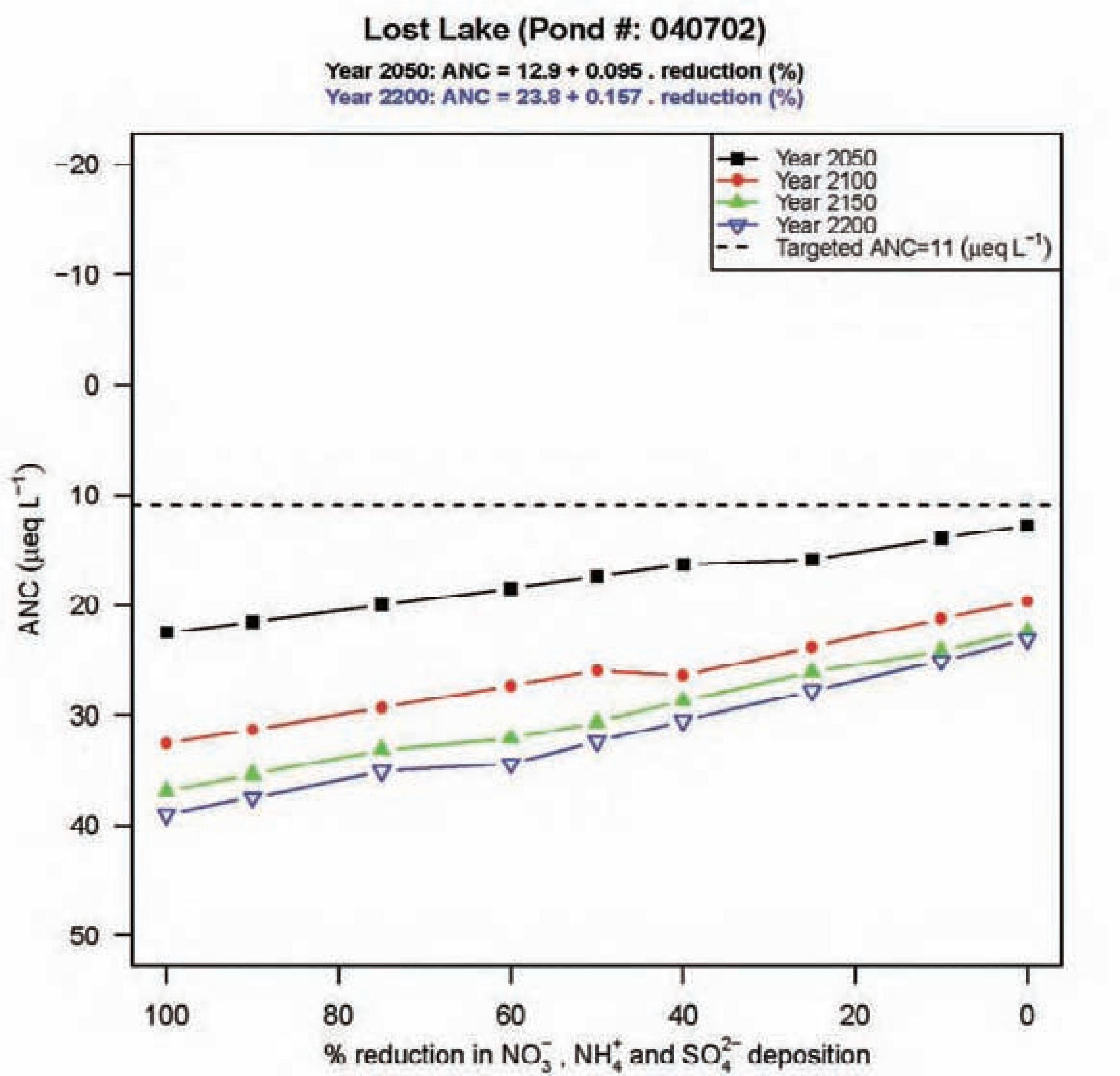

Unnamed Pond (Pond #: 040646)
Year 2050: ANC = 15.3 + 0.072 . reduction (%)
Year 2200: ANC = 24.4 + 0.139 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
ANC (µeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition


Little Diamond Pond (Pond #: 040651)
Year 2050: ANC = 12.7 + 0.073 . reduction (%)
Year 2200: ANC = 22.8 + 0.12 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

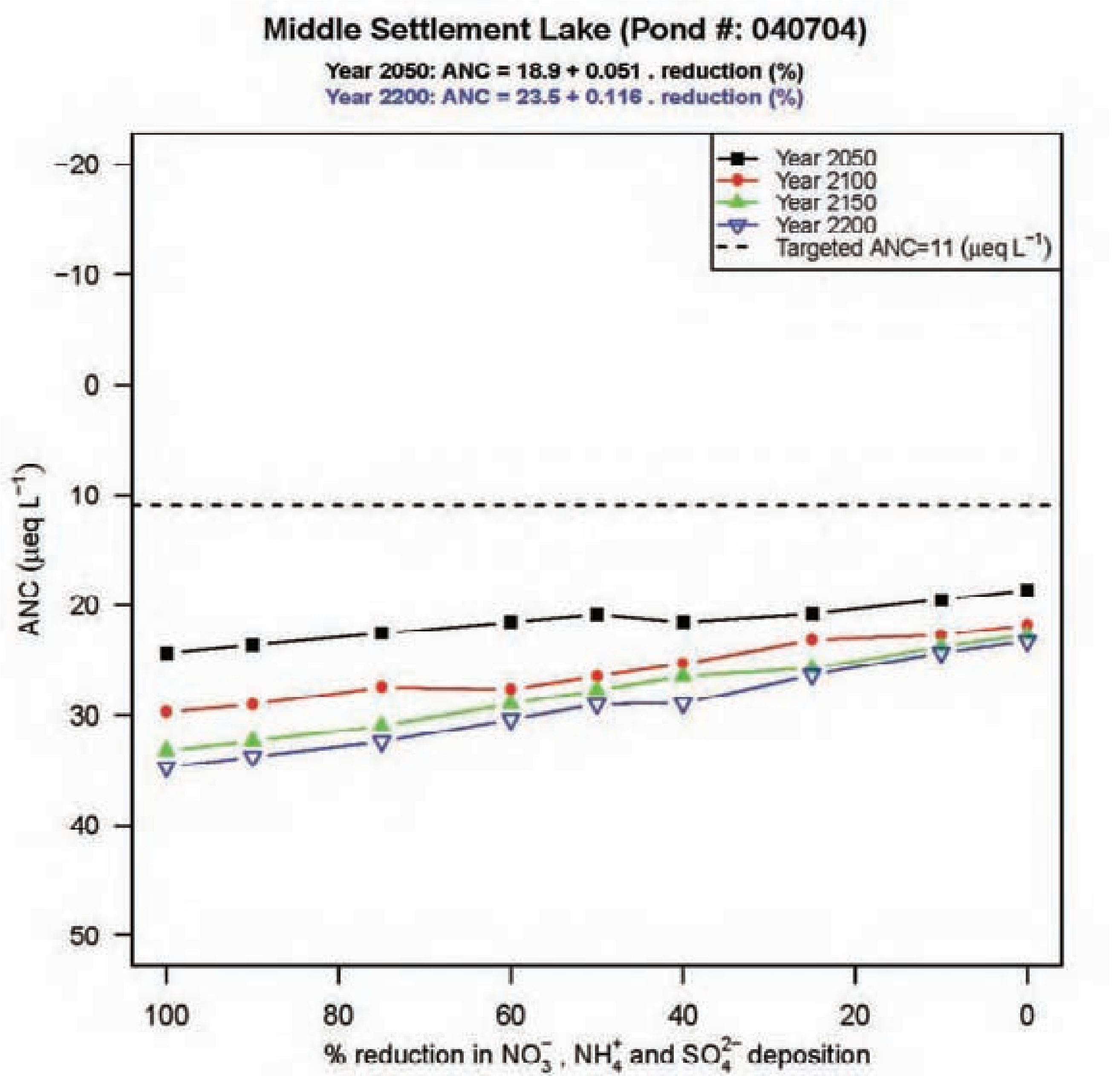

Unnamed Pond (Pond #: 040679)
Year 2050: ANC = −6.7 + 0.032 . reduction (%)
Year 2200: ANC = −1.9 + 0.06 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3−, NH4+ and SO42− deposition

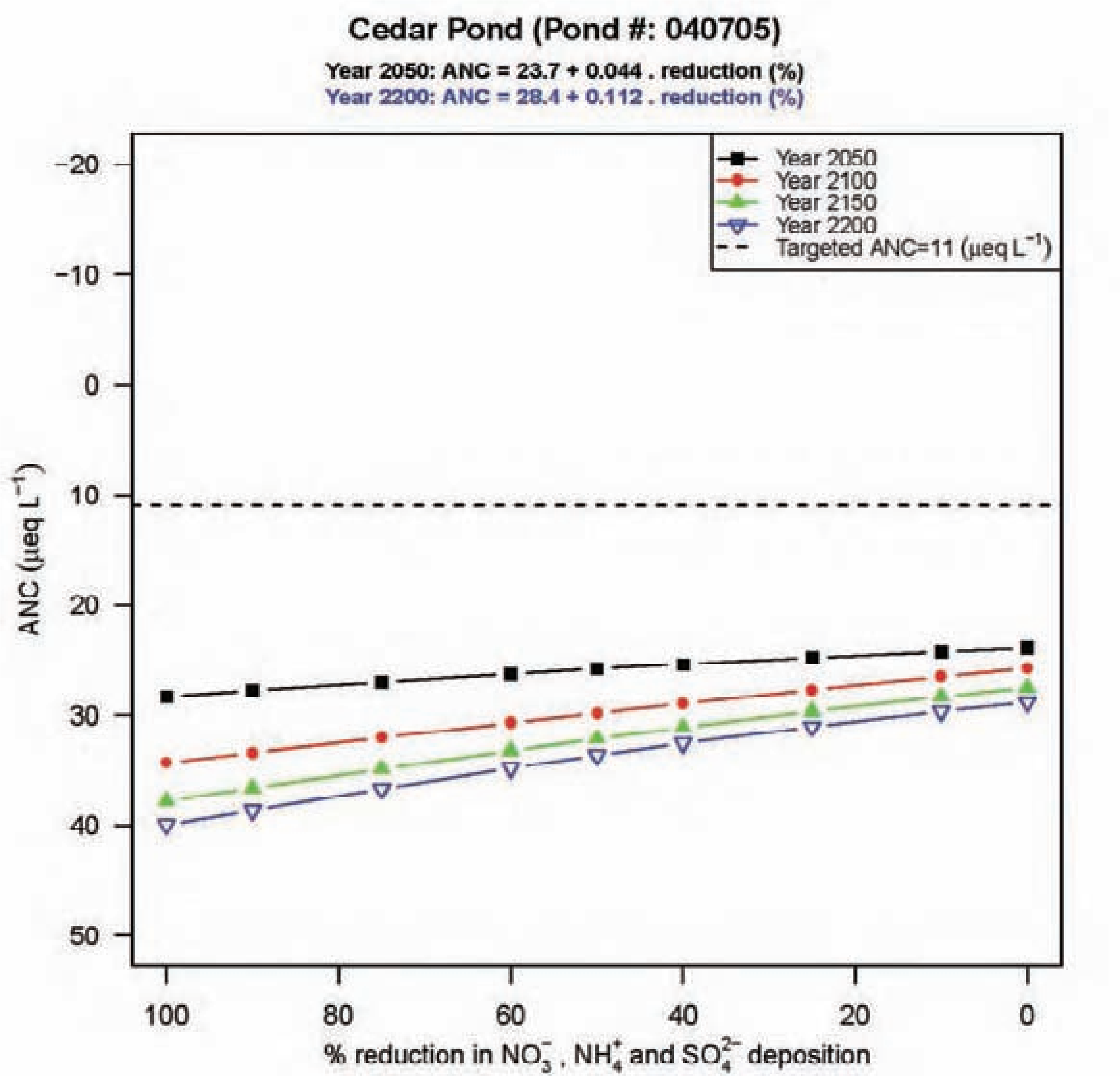


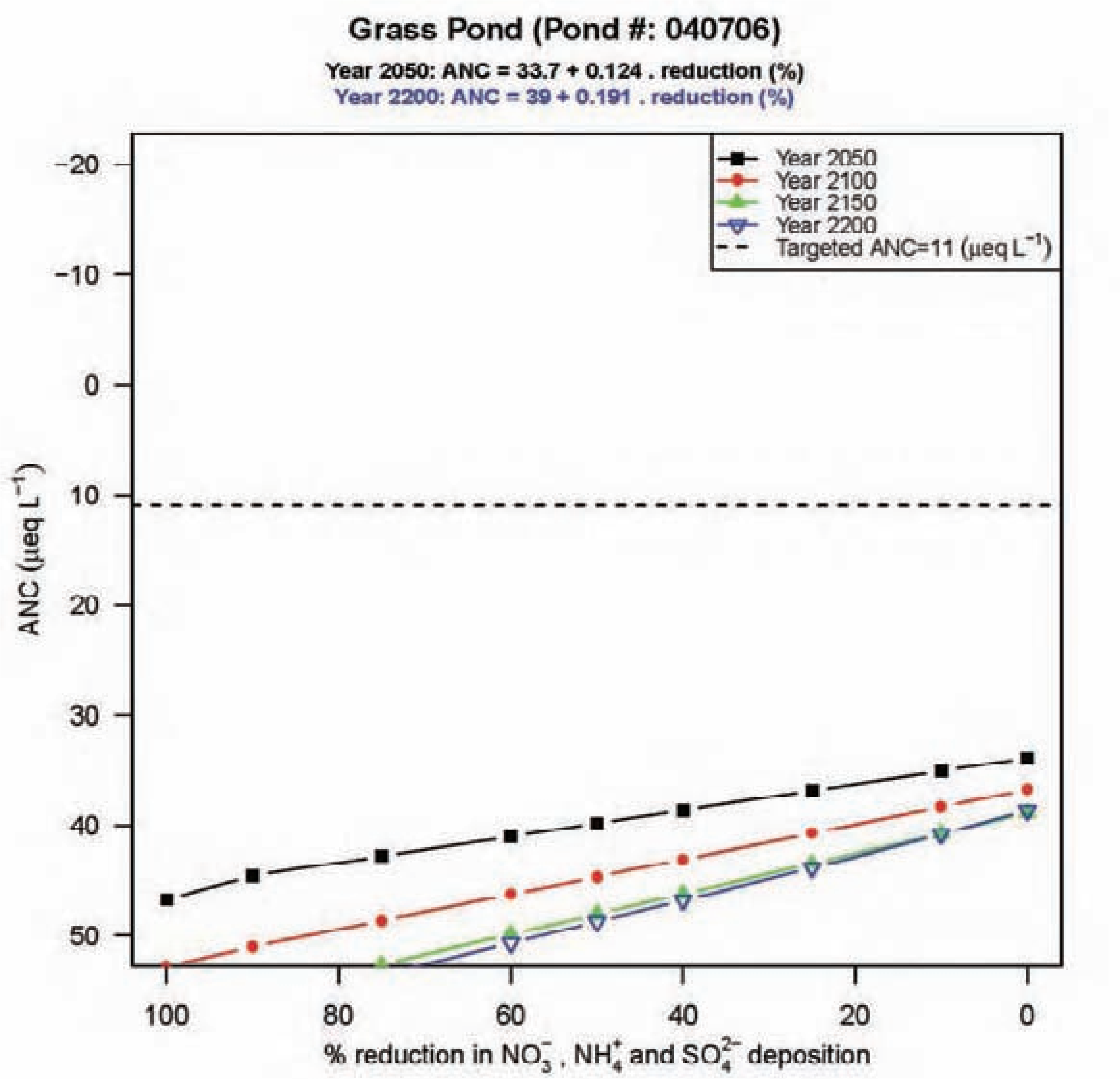
Blackfoot Pond (Pond #: 040681)
Year 2050: ANC = 13.9 + 0.097 . reduction (%)
Year 2200: ANC = 23.2 + 0.147 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



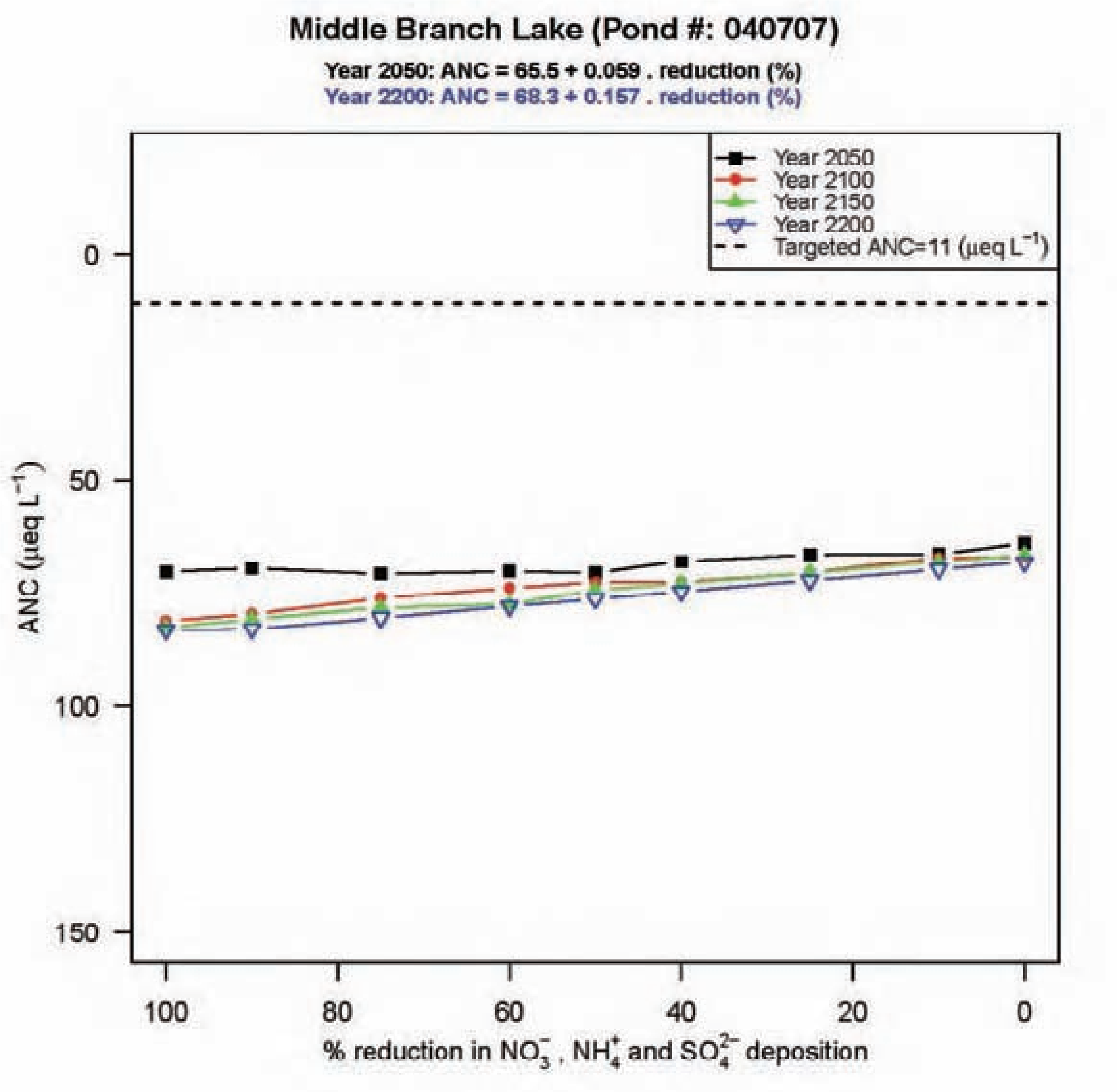
Lost Lake (Pond #: 040702)
Year 2050: ANC = 12.9 + 0.095 . reduction (%)
Year 2200: ANC = 23.8 + 0.157 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition


Middle Settlement Lake (Pond #: 040704)
Year 2050: ANC = 18.9 + 0.051 . reduction (%)
Year 2200: ANC = 23.5 + 0.116 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

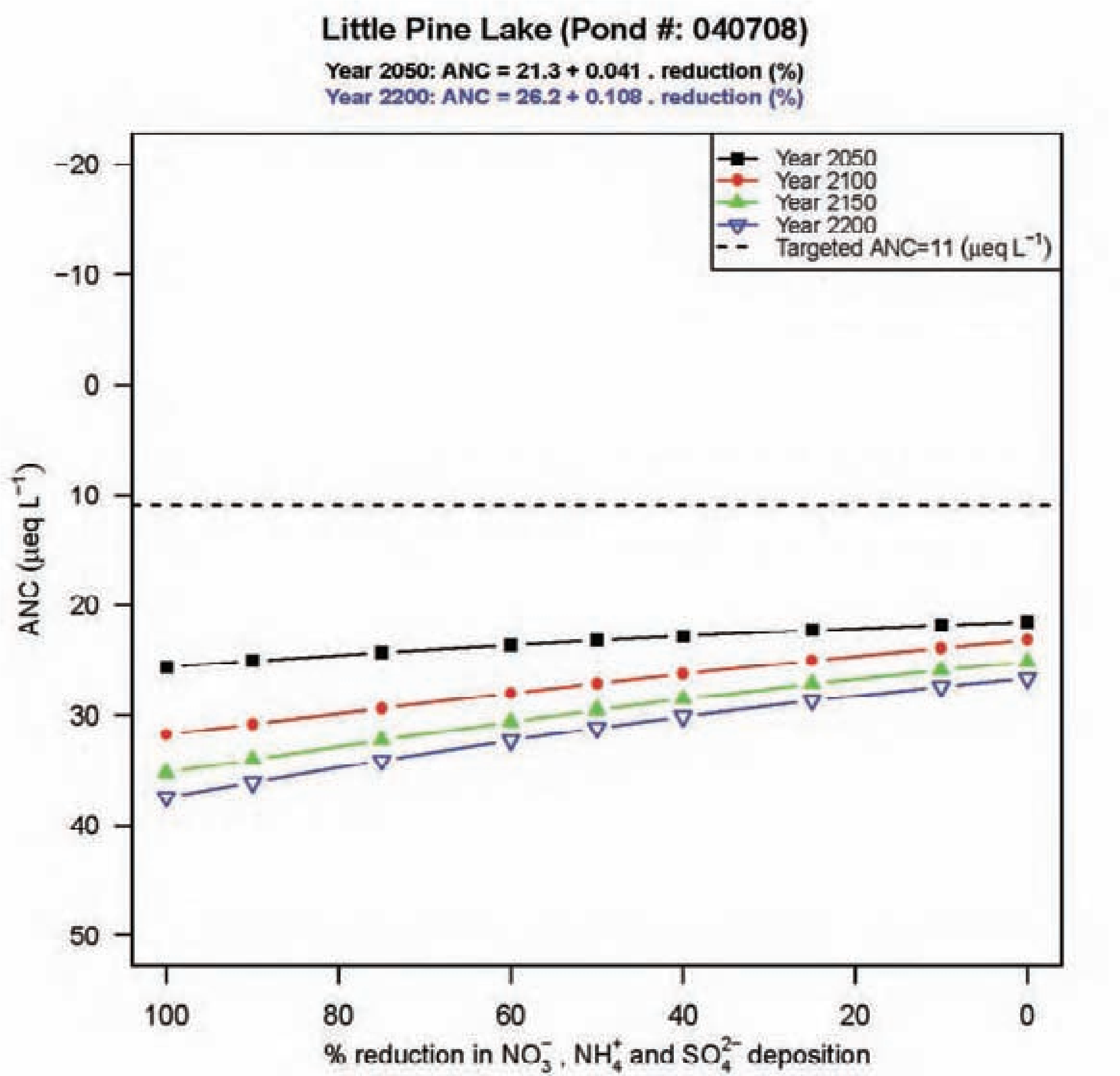

Cedar Pond (Pond #: 040705)
Year 2050: ANC = 23.7 + 0.044 . reduction (%)
Year 2200: ANC = 28.4 + 0.112 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

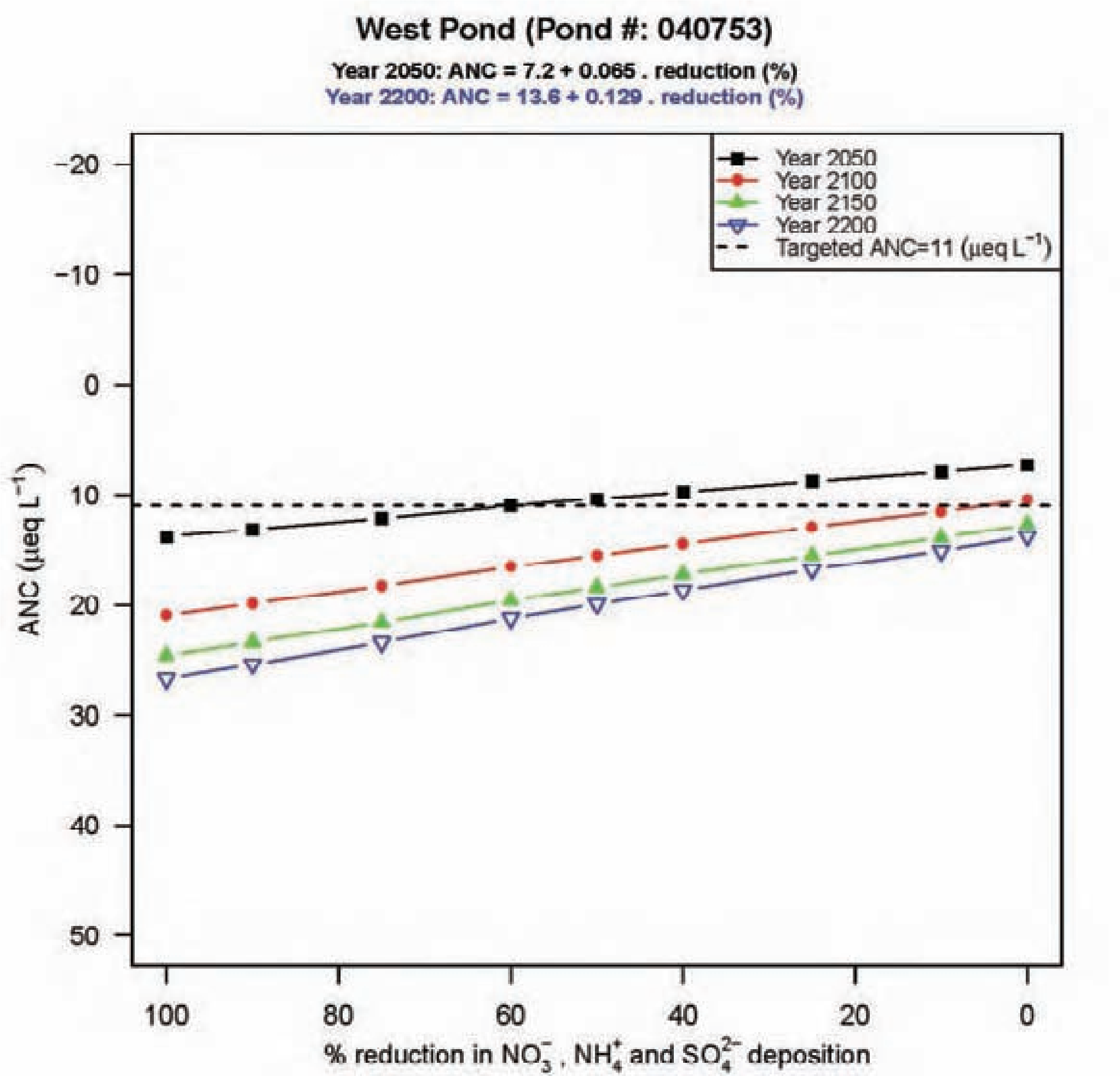


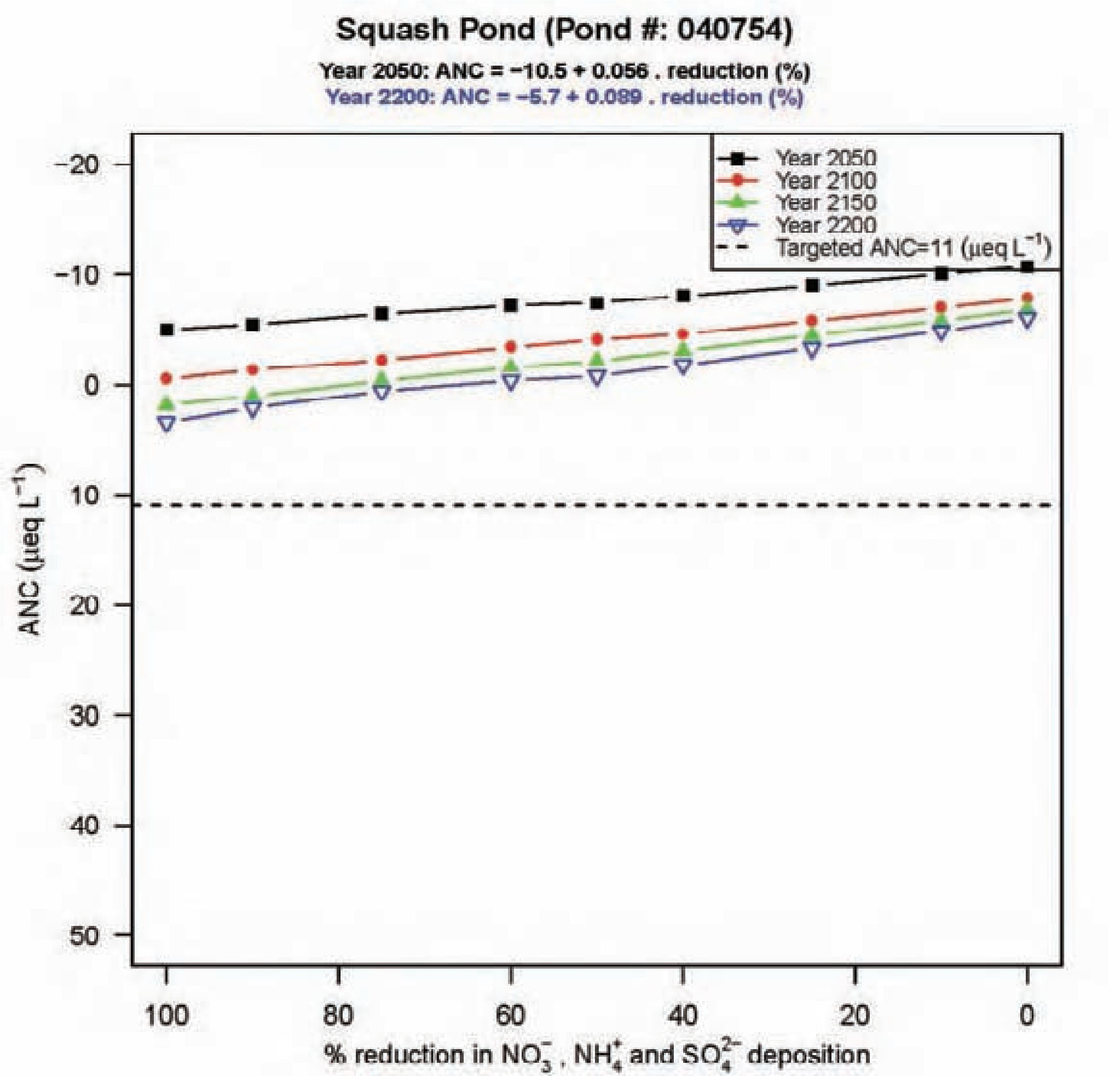
Grass Pond (Pond #: 040706)
Year 2050: ANC = 33.7 + 0.124 . reduction (%)
Year 2200: ANC = 39 + 0.191 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

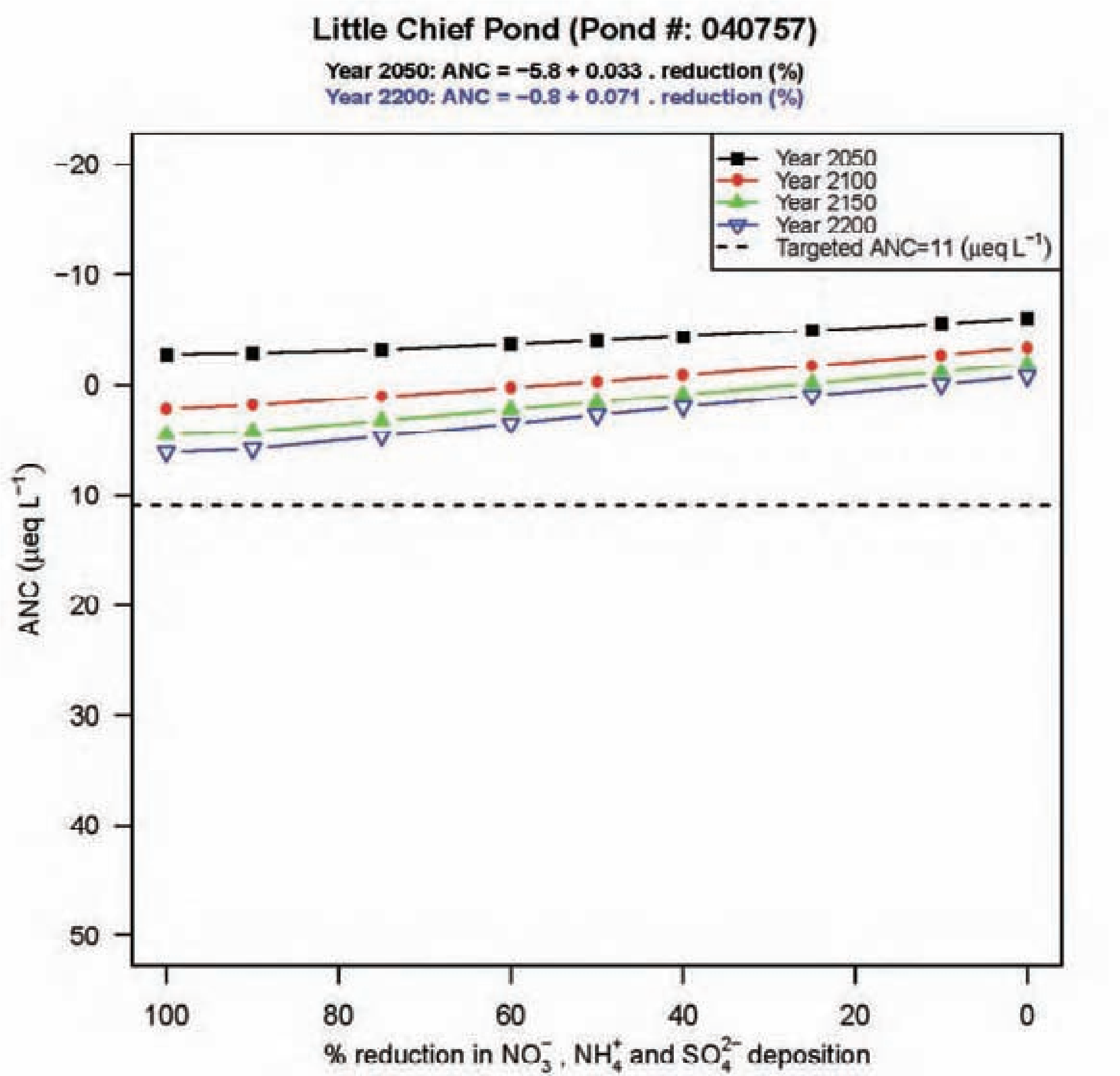


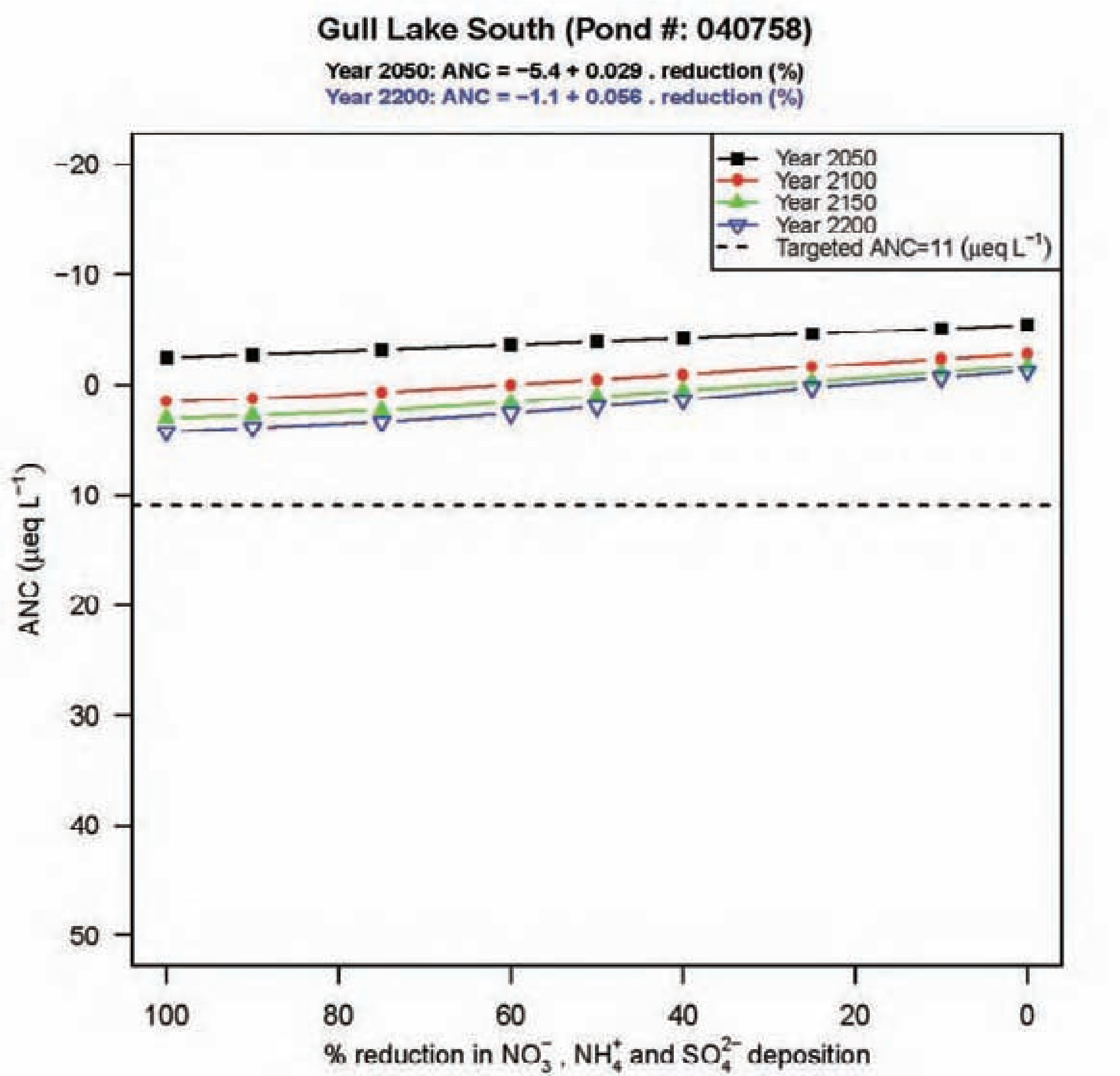
Middle Branch Lake (Pond #: 040707)
Year 2050: ANC = 65.5 + 0.059 . reduction (%)
Year 2200: ANC = 68.3 + 0.157 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Little Pine Lake (Pond #: 040708)
Year 2050: ANC = 21.3 + 0.041 . reduction (%)
Year 2200: ANC = 26.2 + 0.108 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

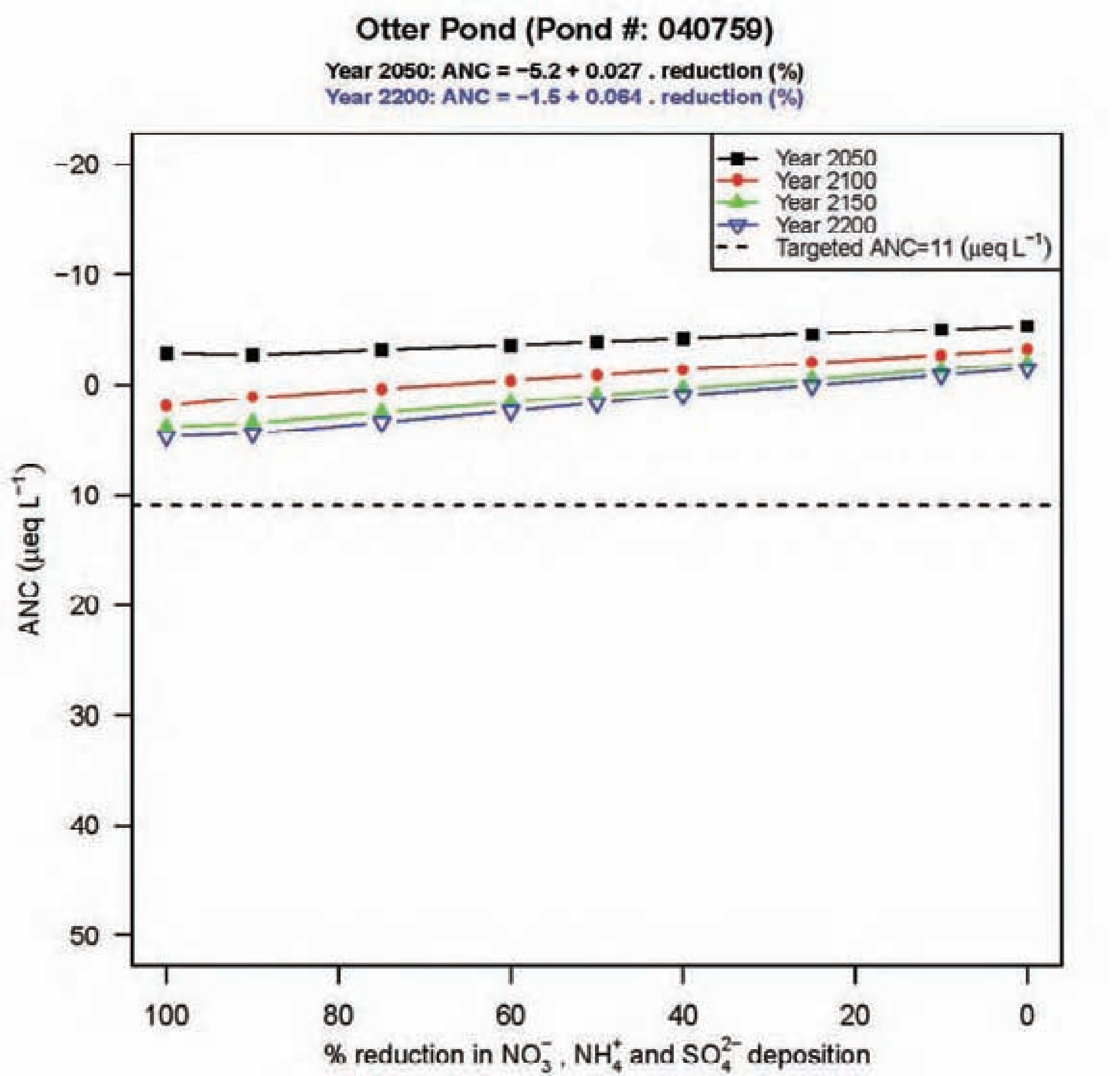

West Pond (Pond #: 040753)
Year 2050: ANC = 7.2 + 0.065 . reduction (%)
Year 2200: ANC = 13.6 + 0.129 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

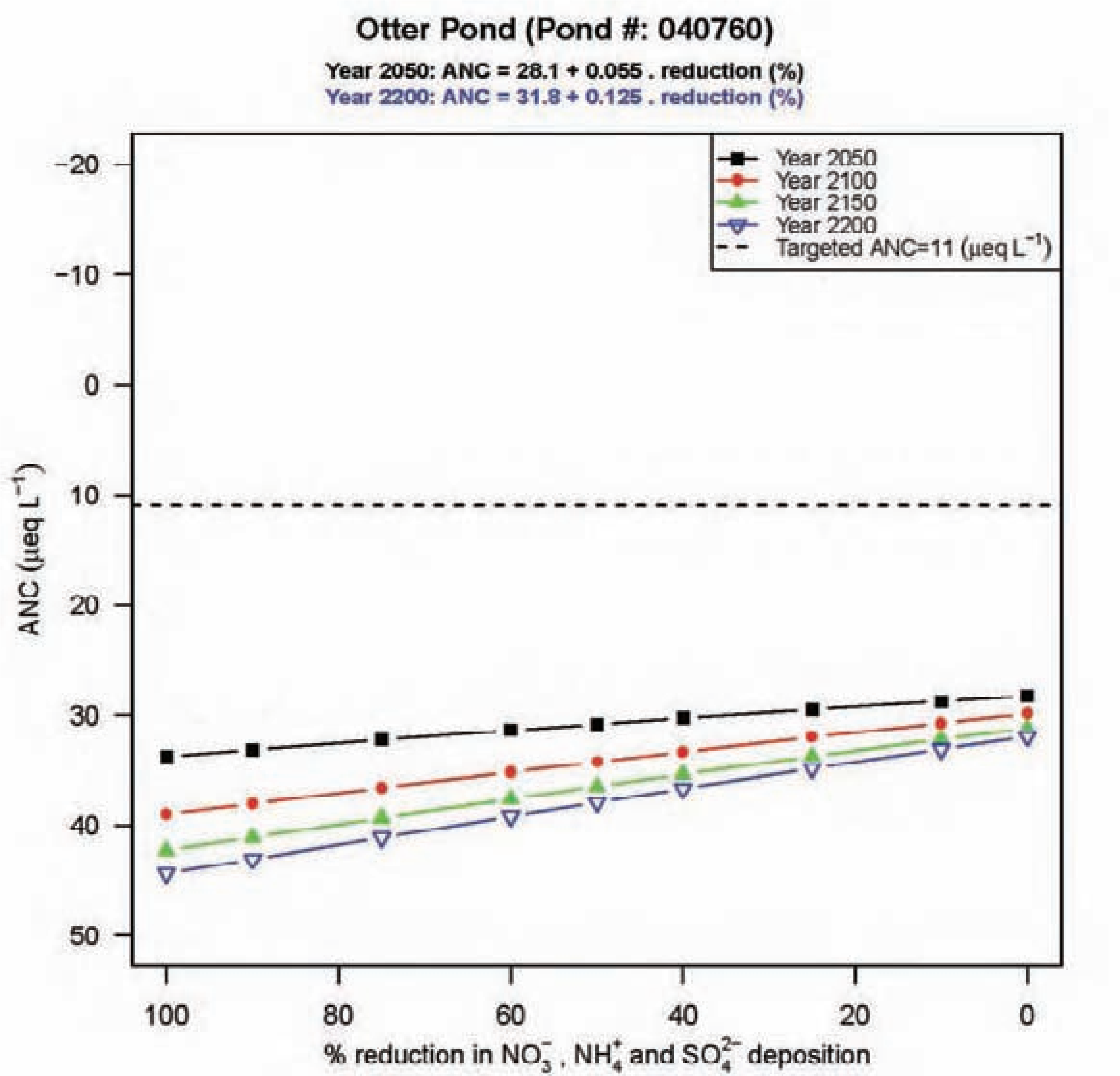

Squash Pond (Pond #: 040754)
Year 2050: ANC = −10.5 + 0.056 . reduction (%)
Year 2200: ANC = −5.7 + 0.089 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Little Chief Pond (Pond #: 040757)
Year 2050: ANC = −5.8 + 0.033 . reduction (%)
Year 2200: ANC = −0.8 + 0.071 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L−1)
ANC (μeq L−1)
% reduction in NO3−, NH4+ and SO42− deposition

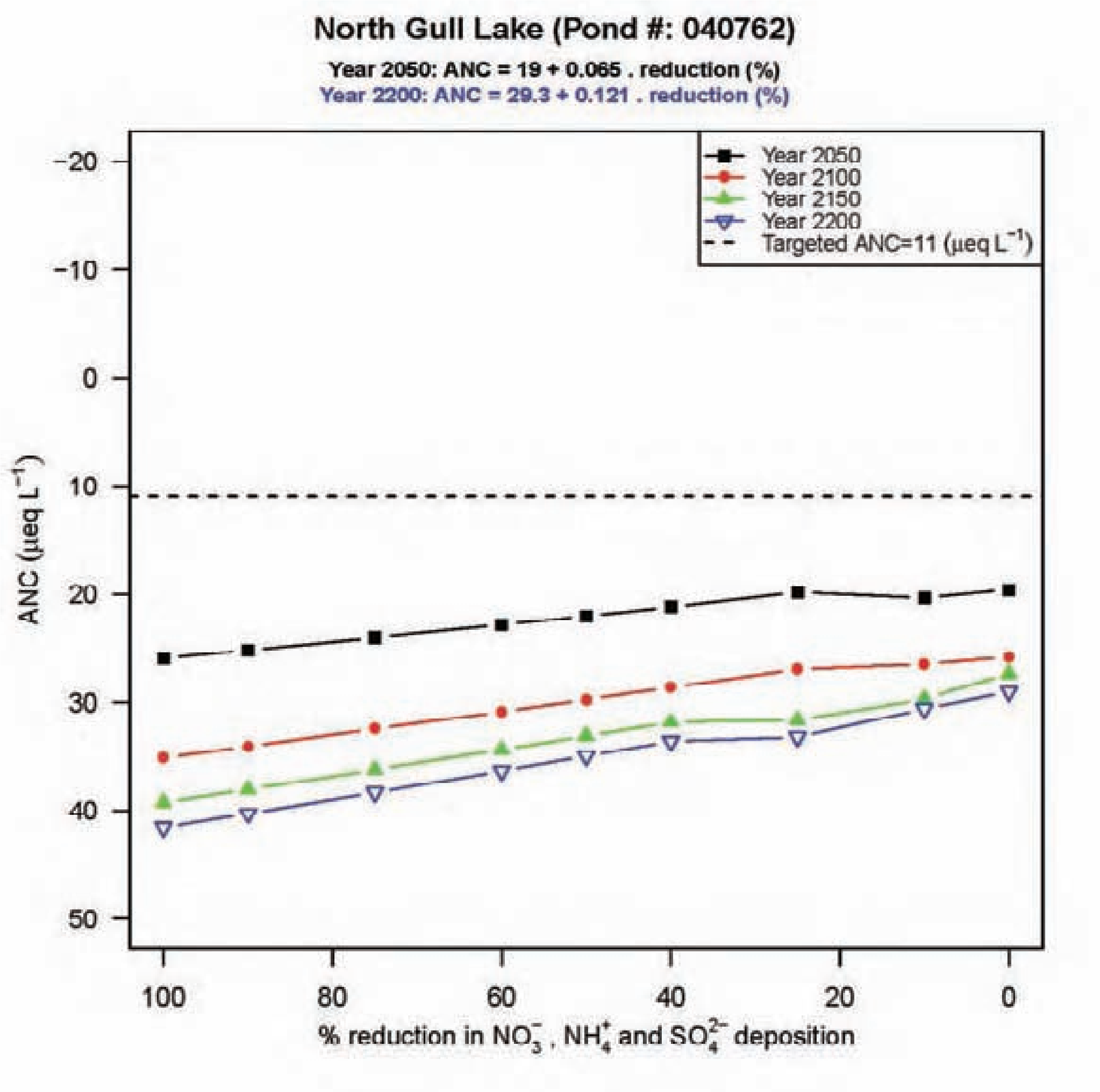


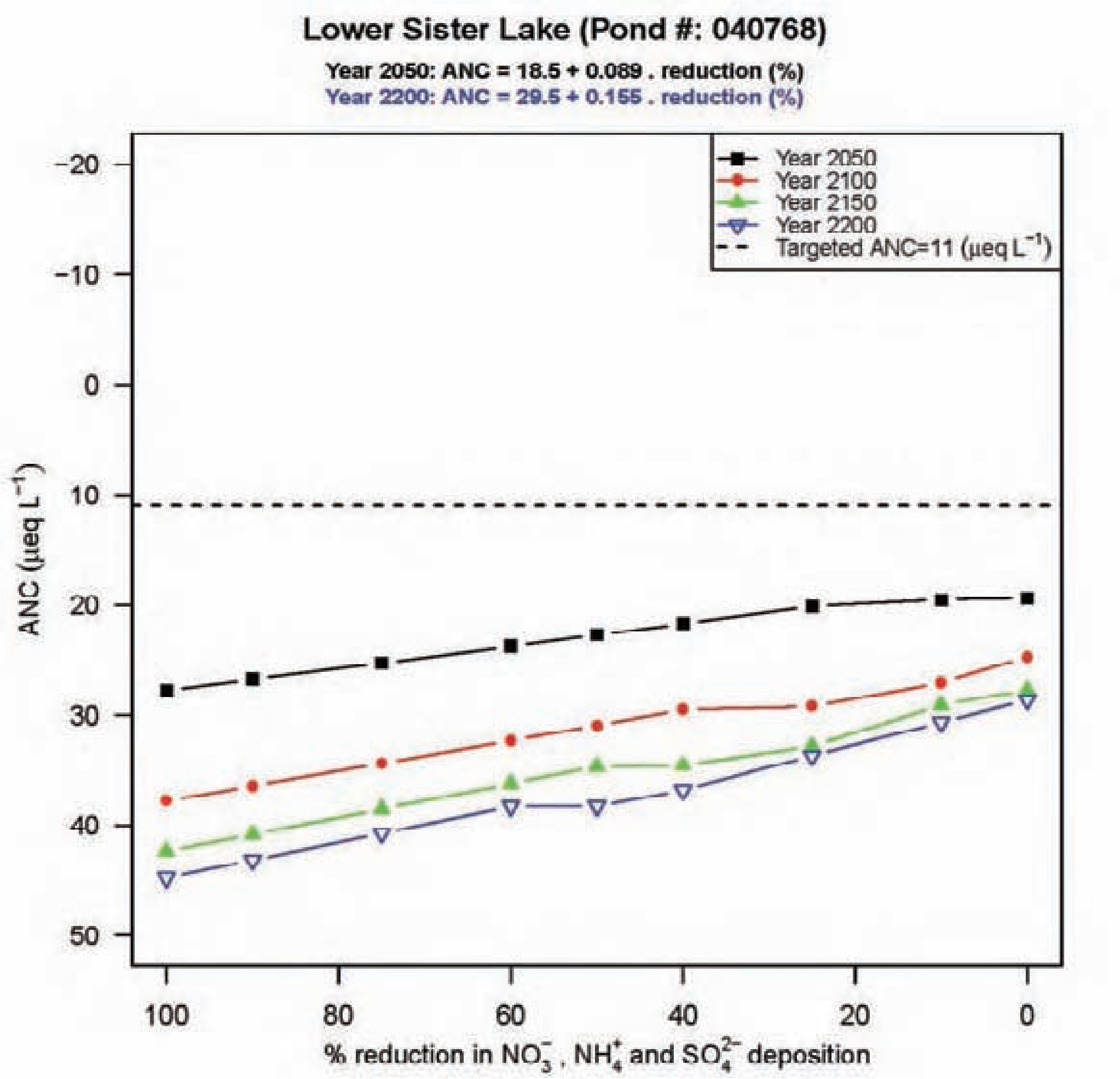
Gull Lake South (Pond #: 040758)
Year 2050: ANC = −5.4 + 0.029 . reduction (%)
Year 2200: ANC = −1.1 + 0.056 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3−, NH4+ and SO42− deposition

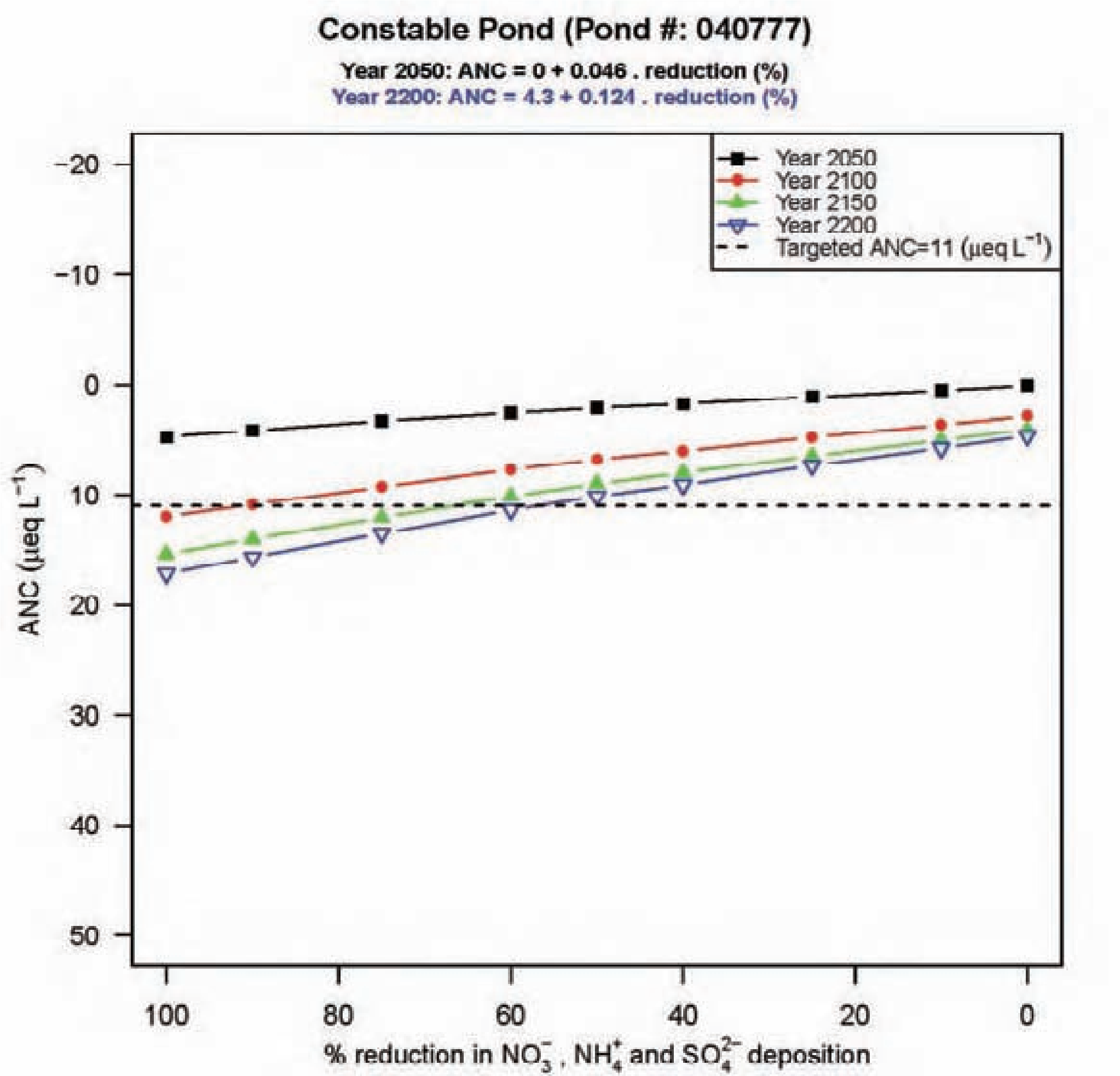

Otter Pond (Pond #: 040759)
Year 2050: ANC = −5.2 + 0.027 . reduction (%)
Year 2200: ANC = −1.5 + 0.064 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



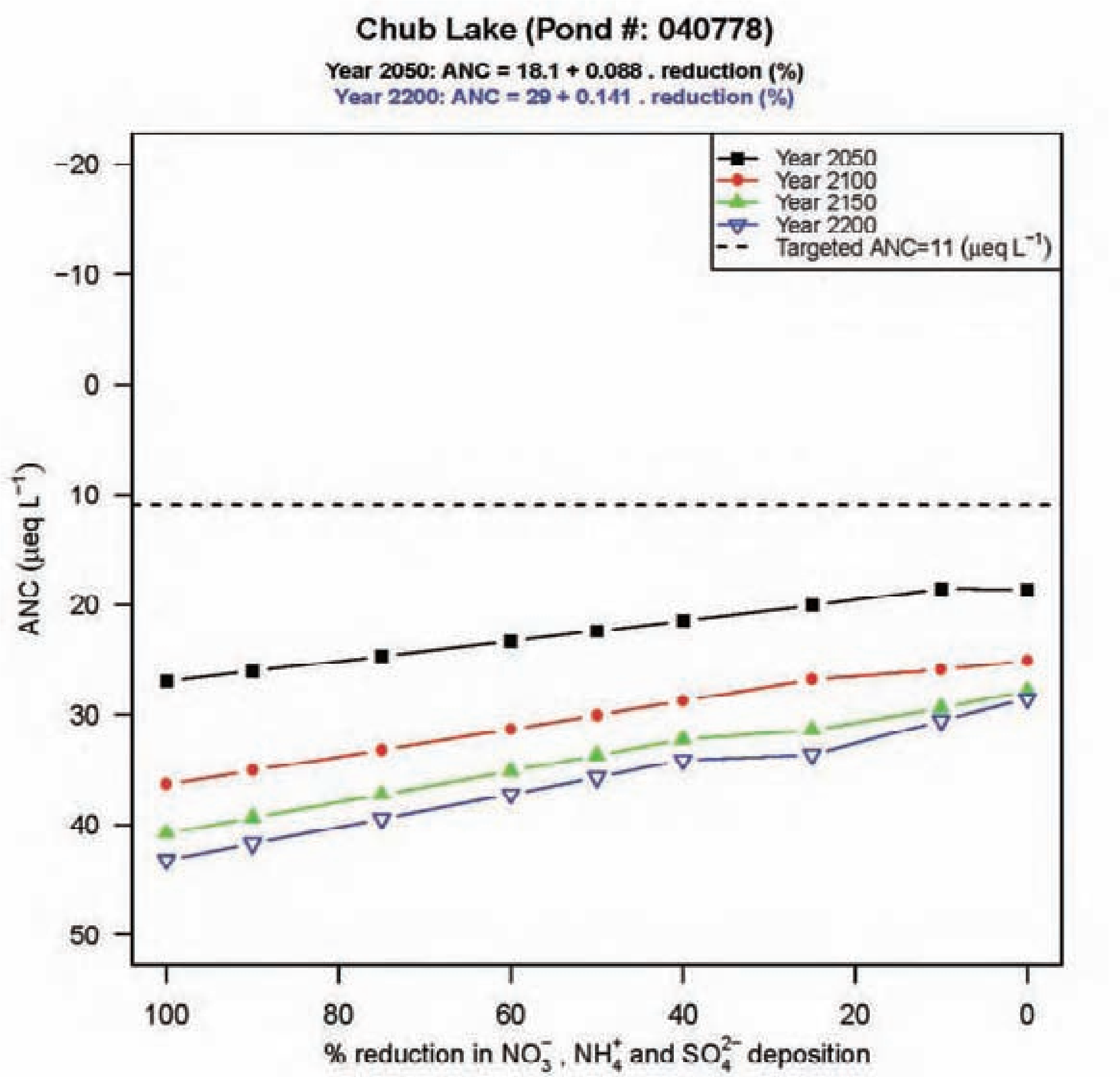
Otter Pond (Pond #: 040760)
Year 2050: ANC = 28.1 + 0.055 . reduction (%)
Year 2200: ANC = 31.8 + 0.125 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

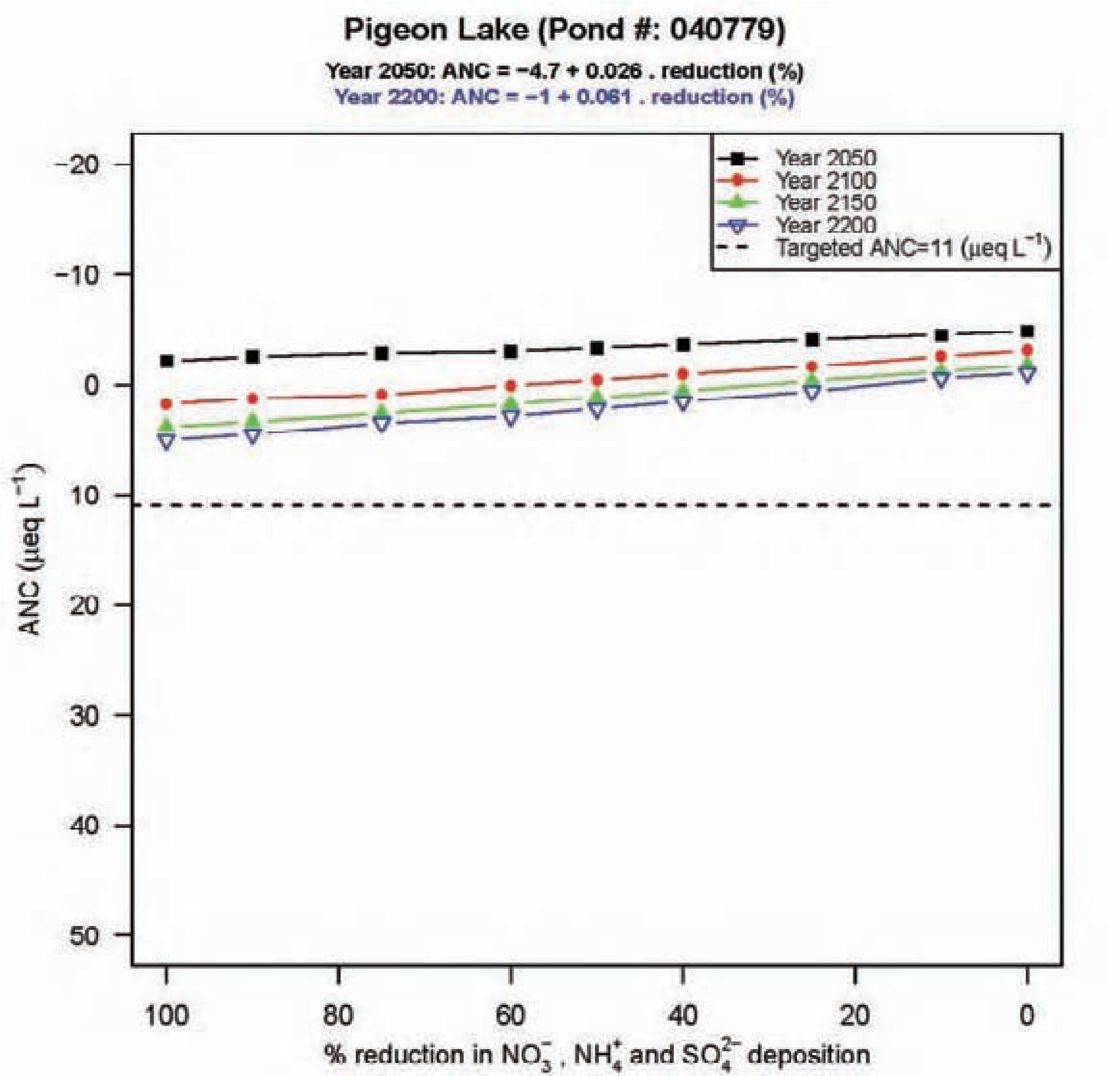

North Gull Lake (Pond #: 040762)
Year 2050: ANC = 19 + 0.065 . reduction (%)
Year 2200: ANC = 29.3 + 0.121 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

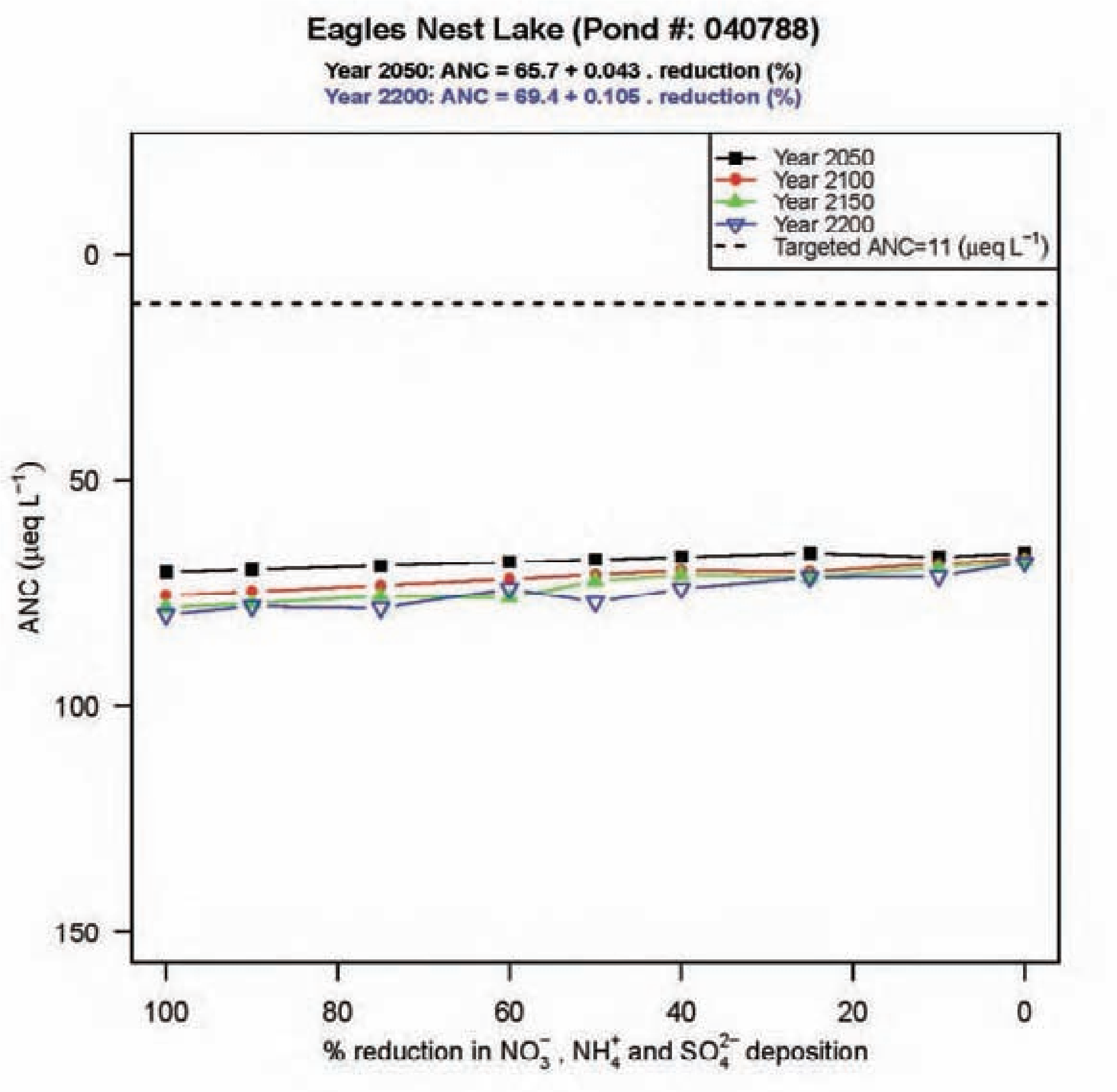

Lower Sister Lake (Pond #: 040768)
Year 2050: ANC = 18.5 + 0.089 . reduction (%)
Year 2200: ANC = 29.5 + 0.155 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

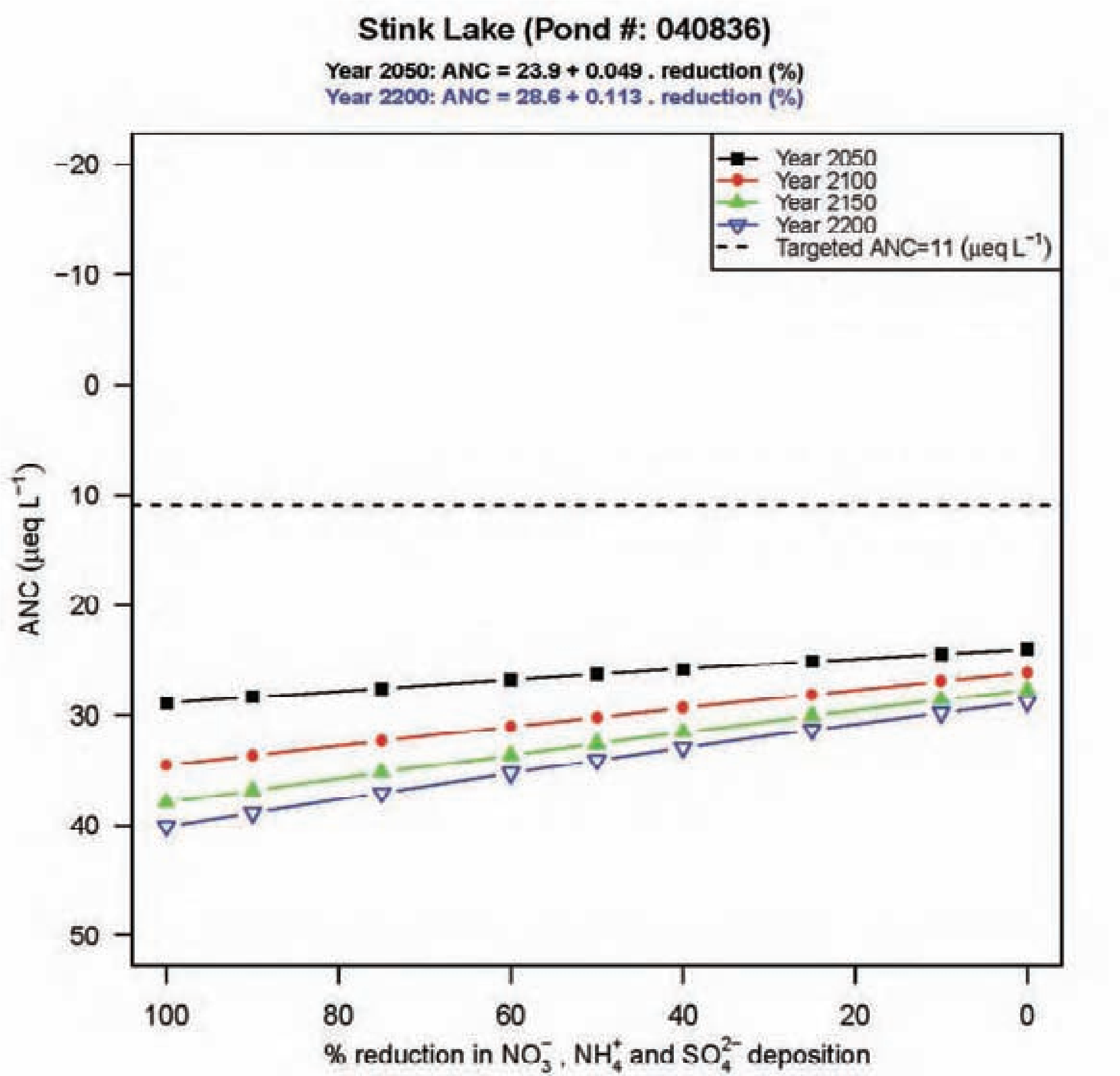


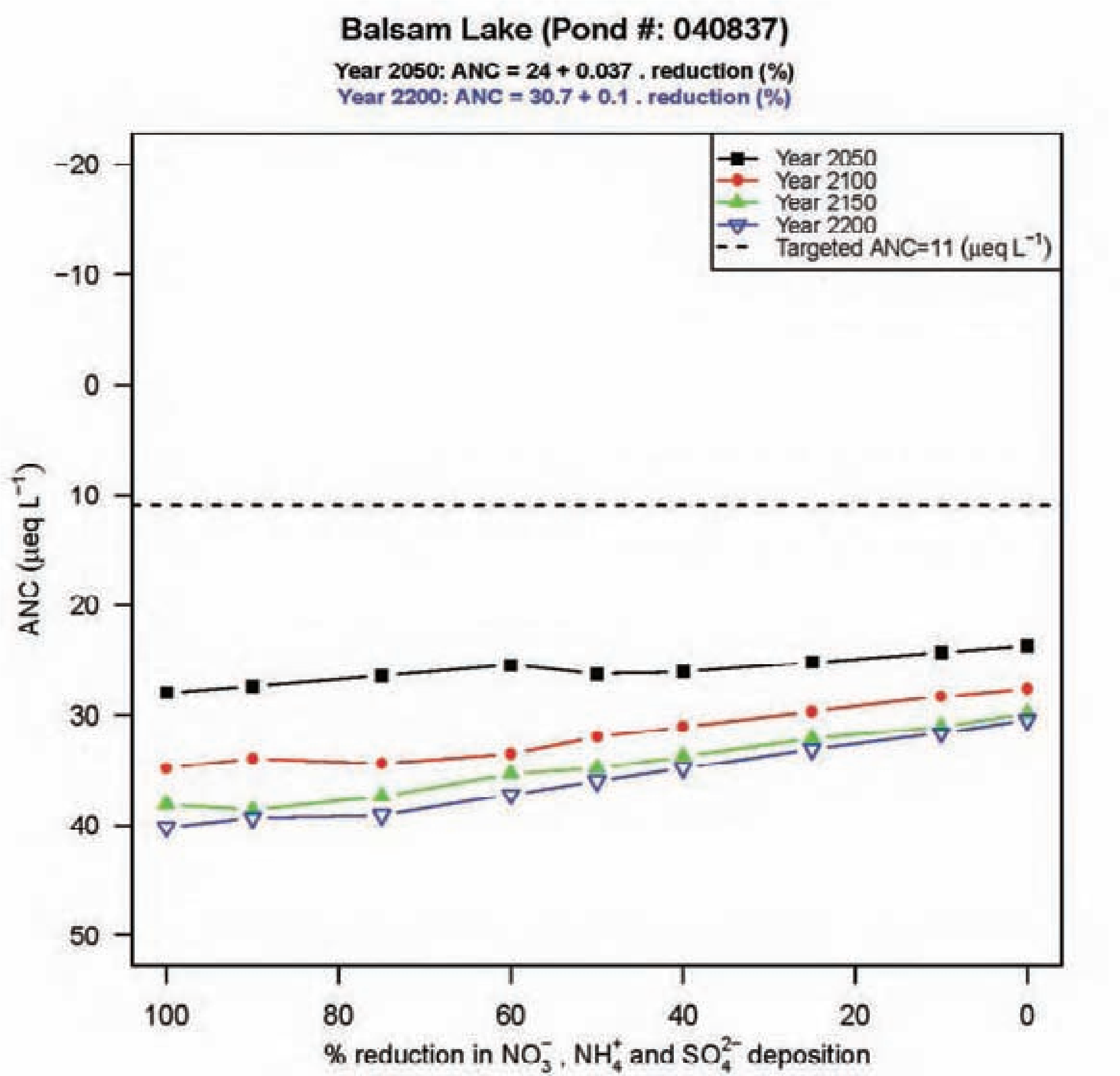
Constable Pond (Pond #: 040777)
Year 2050: ANC = 0 + 0.046 . reduction (%)
Year 2200: ANC = 4.3 + 0.124 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0

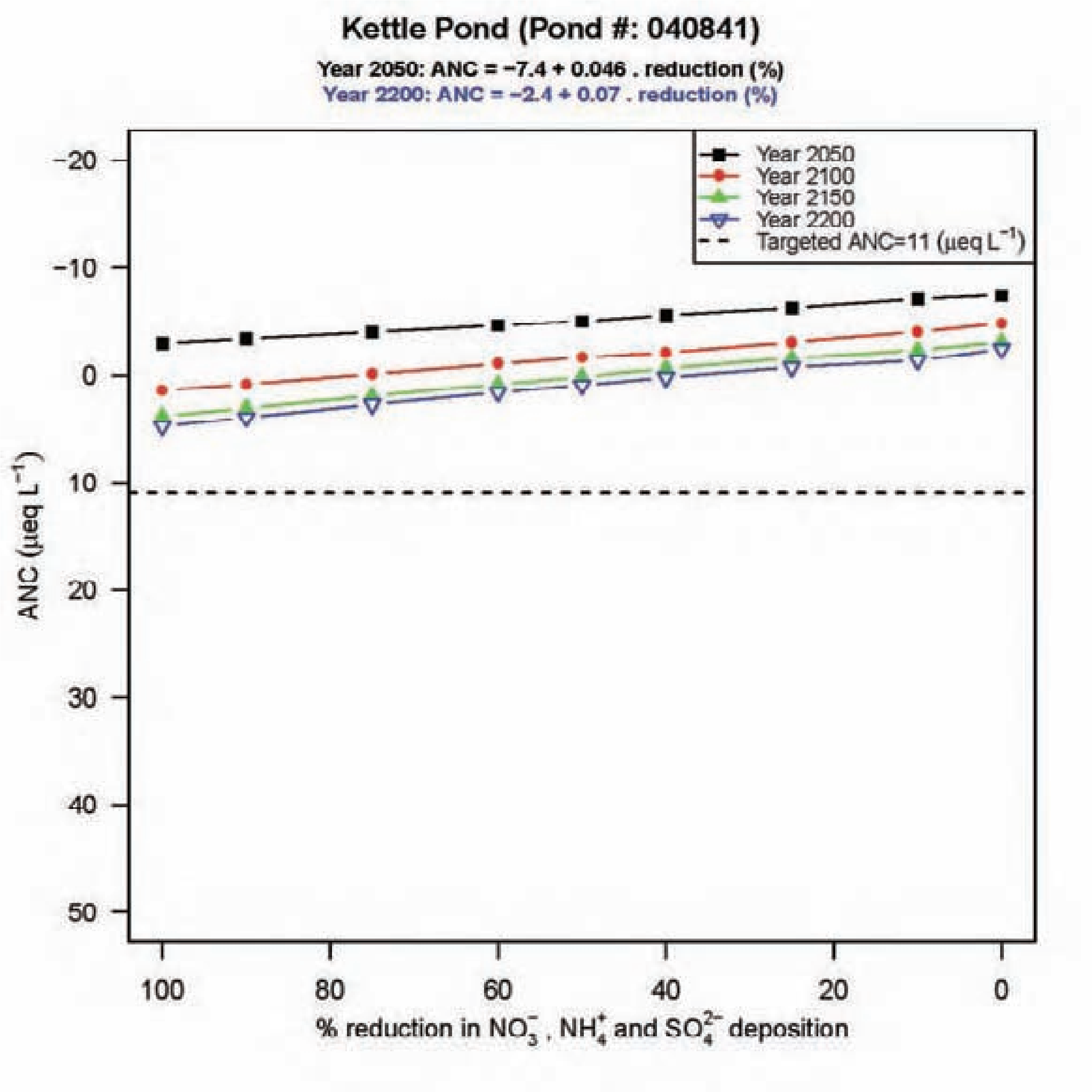

Chub Lake (Pond #: 040778)
Year 2050: ANC = 18.1 + 0.088 . reduction (%)
Year 2200: ANC = 29 + 0.141 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

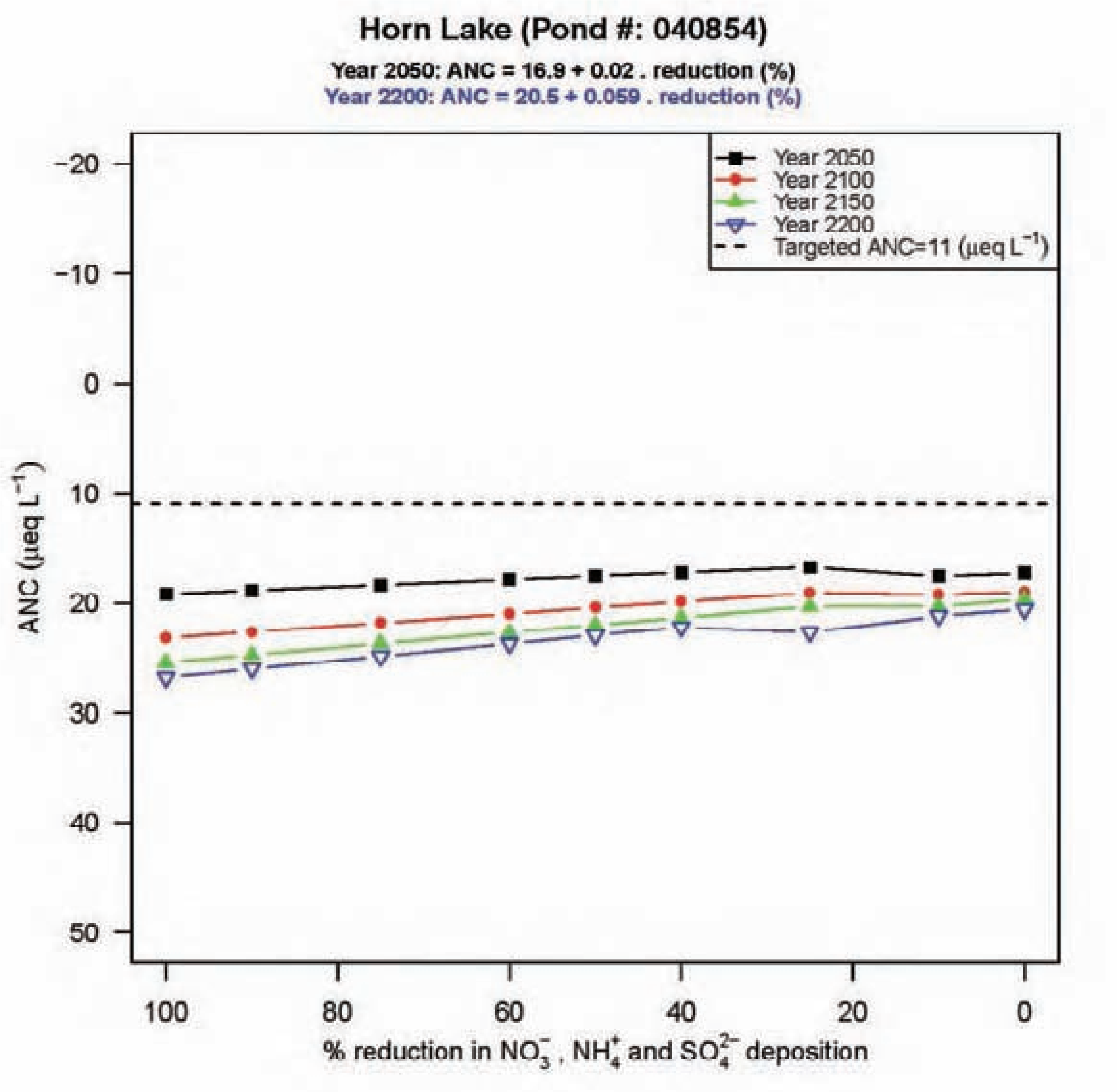

Pigeon Lake (Pond #: 040779)
Year 2050: ANC = −4.7 + 0.026 . reduction (%)
Year 2200: ANC = −1 + 0.061 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO3−, NH4+ and SO42− deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0


Eagles Nest Lake (Pond #: 040788)
Year 2050: ANC = 65.7 + 0.043 . reduction (%)
Year 2200: ANC = 69.4 + 0.105 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
ANC (µeq L^{-1})
0
50
100
150
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

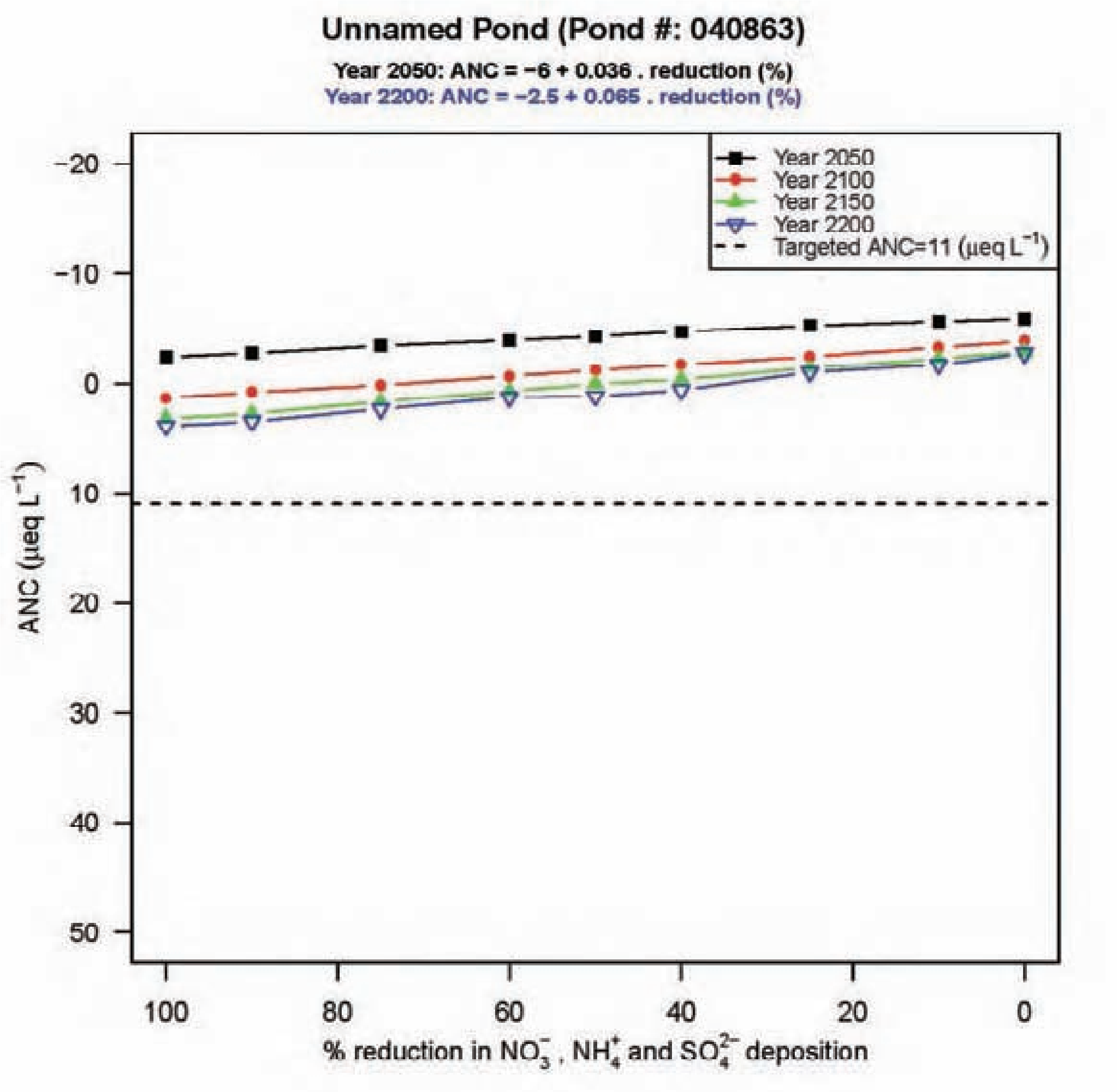

Stink Lake (Pond #: 040836)
Year 2050: ANC = 23.9 + 0.049 . reduction (%)
Year 2200: ANC = 28.6 + 0.113 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

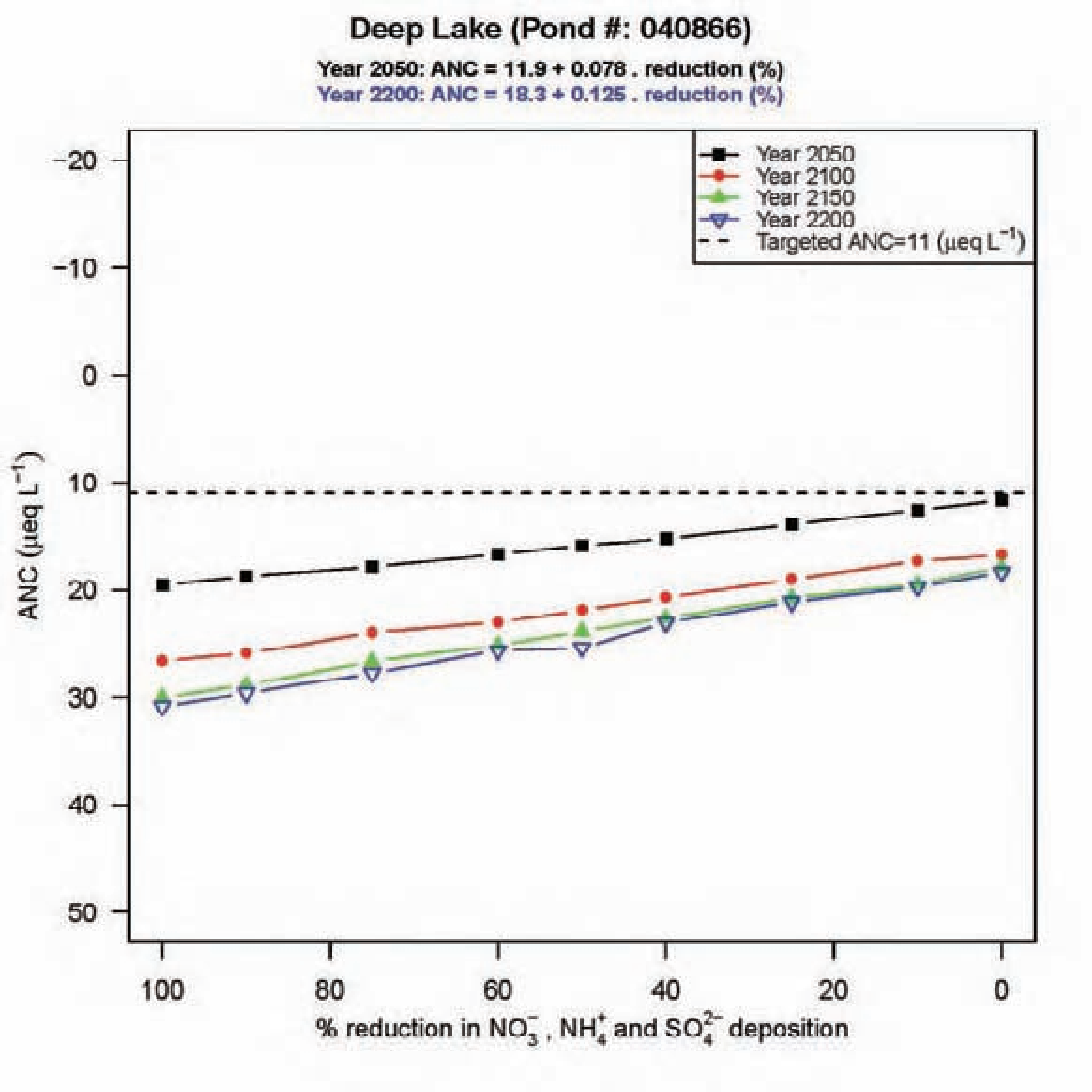

Balsam Lake (Pond #: 040837)
Year 2050: ANC = 24 + 0.037 . reduction (%)
Year 2200: ANC = 30.7 + 0.1 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L^{-1})
ANC (µeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition


Kettle Pond (Pond #: 040841)
Year 2050: ANC = −7.4 + 0.046 . reduction (%)
Year 2200: ANC = −2.4 + 0.07 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

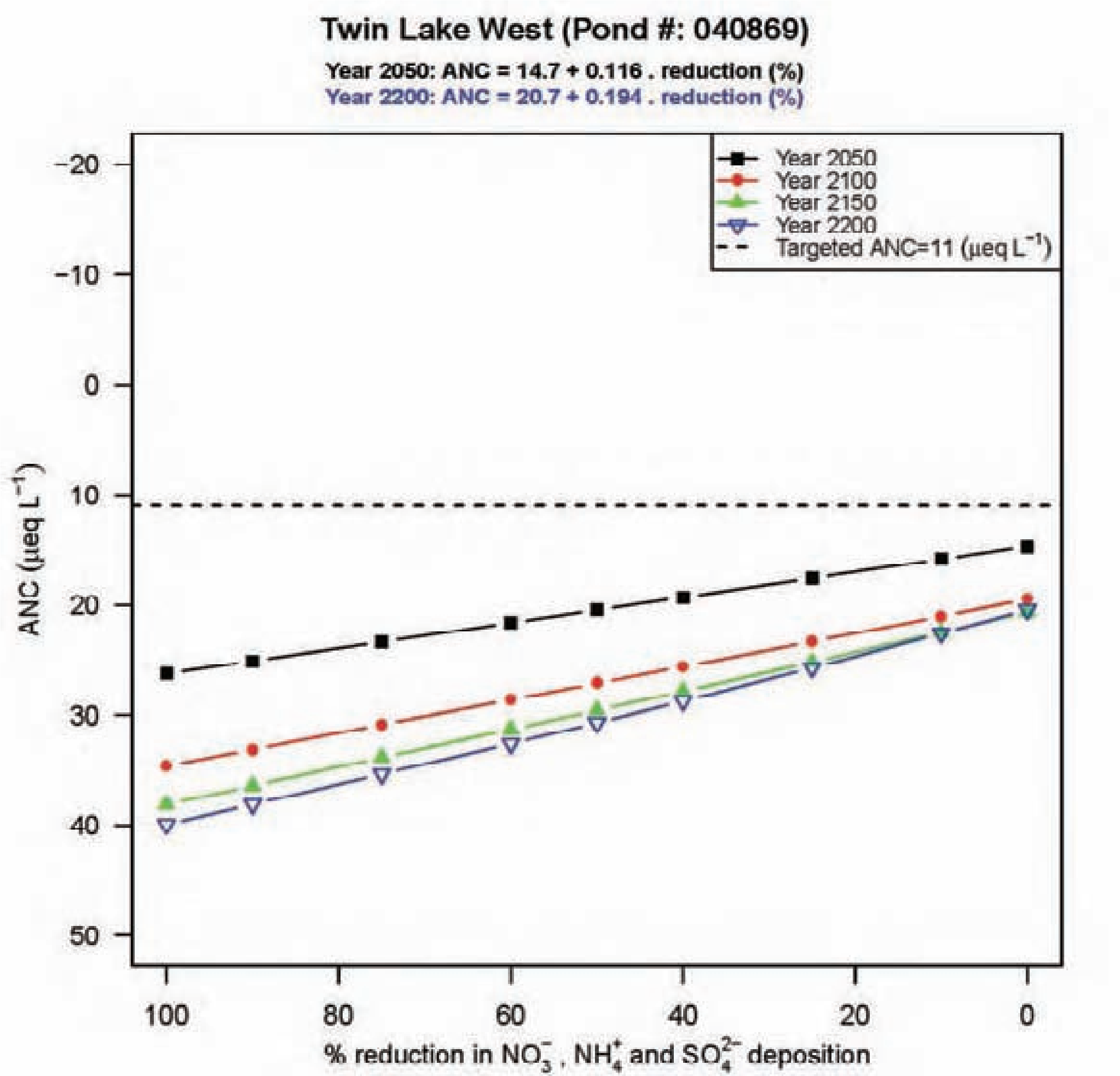


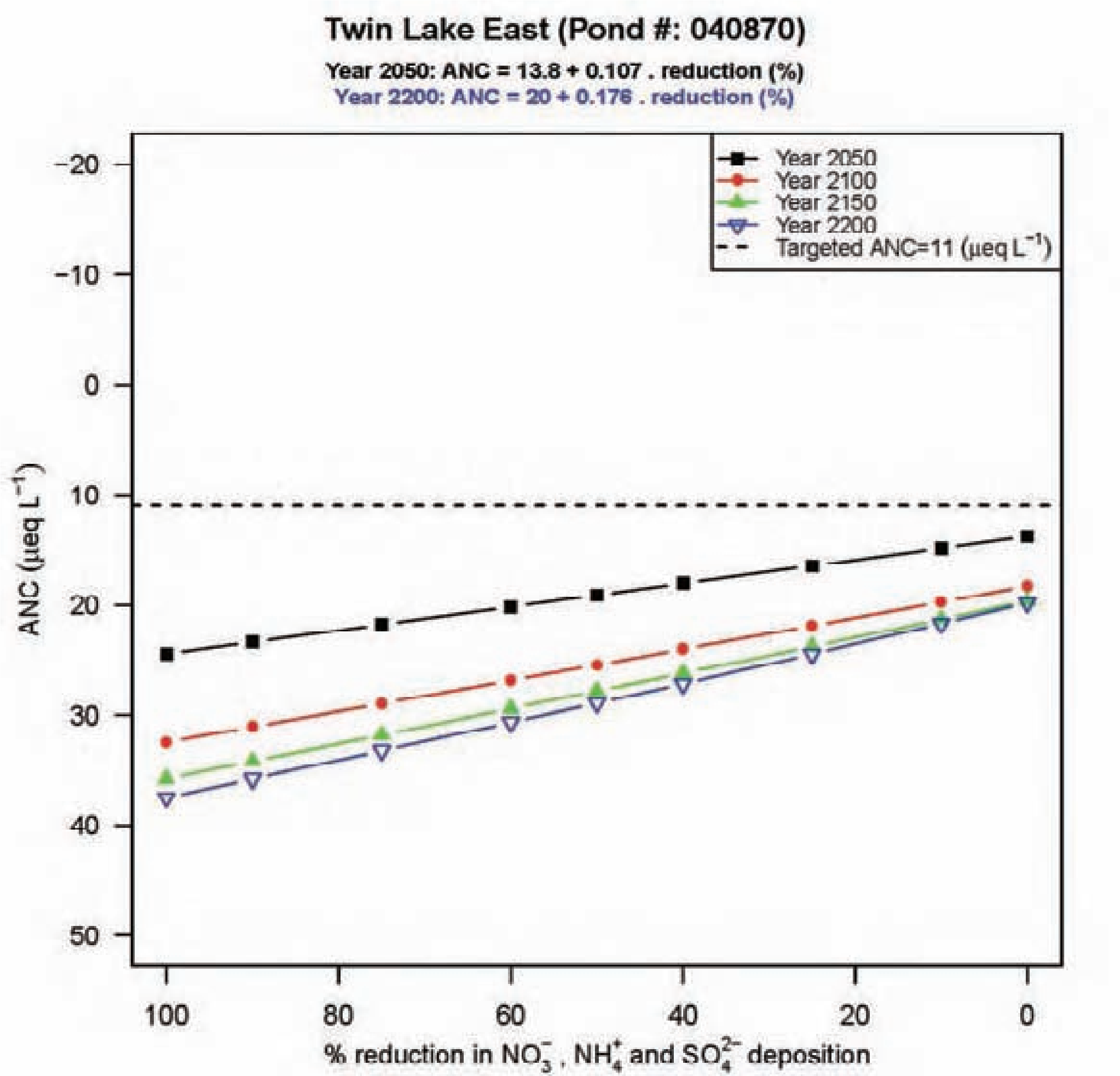
Horn Lake (Pond #: 040854)
Year 2050: ANC = 16.9 + 0.02 . reduction (%)
Year 2200: ANC = 20.5 + 0.059 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition


Unnamed Pond (Pond #: 040863)
Year 2050: ANC = −6 + 0.036 . reduction (%)
Year 2200: ANC = −2.5 + 0.065 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

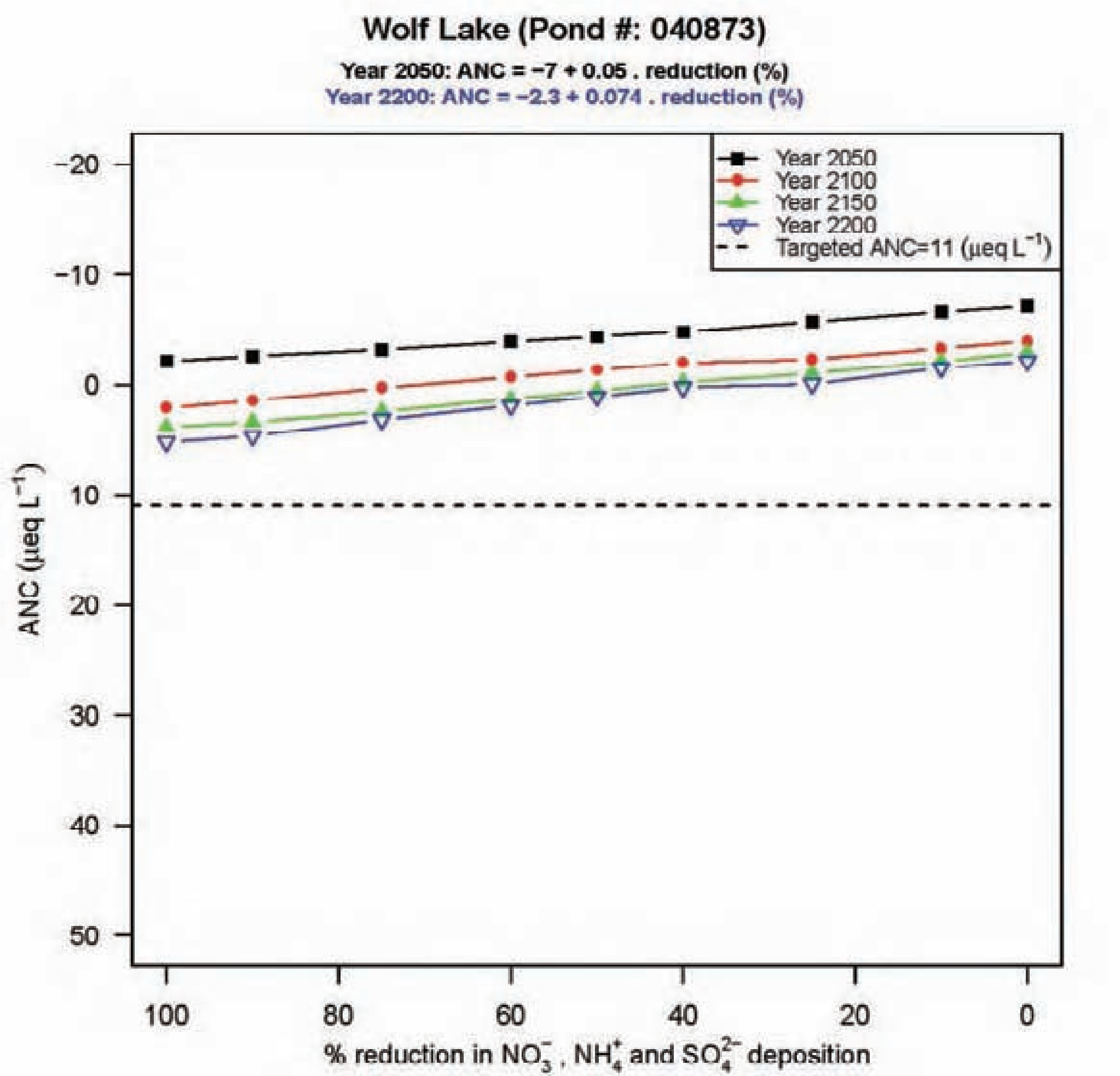


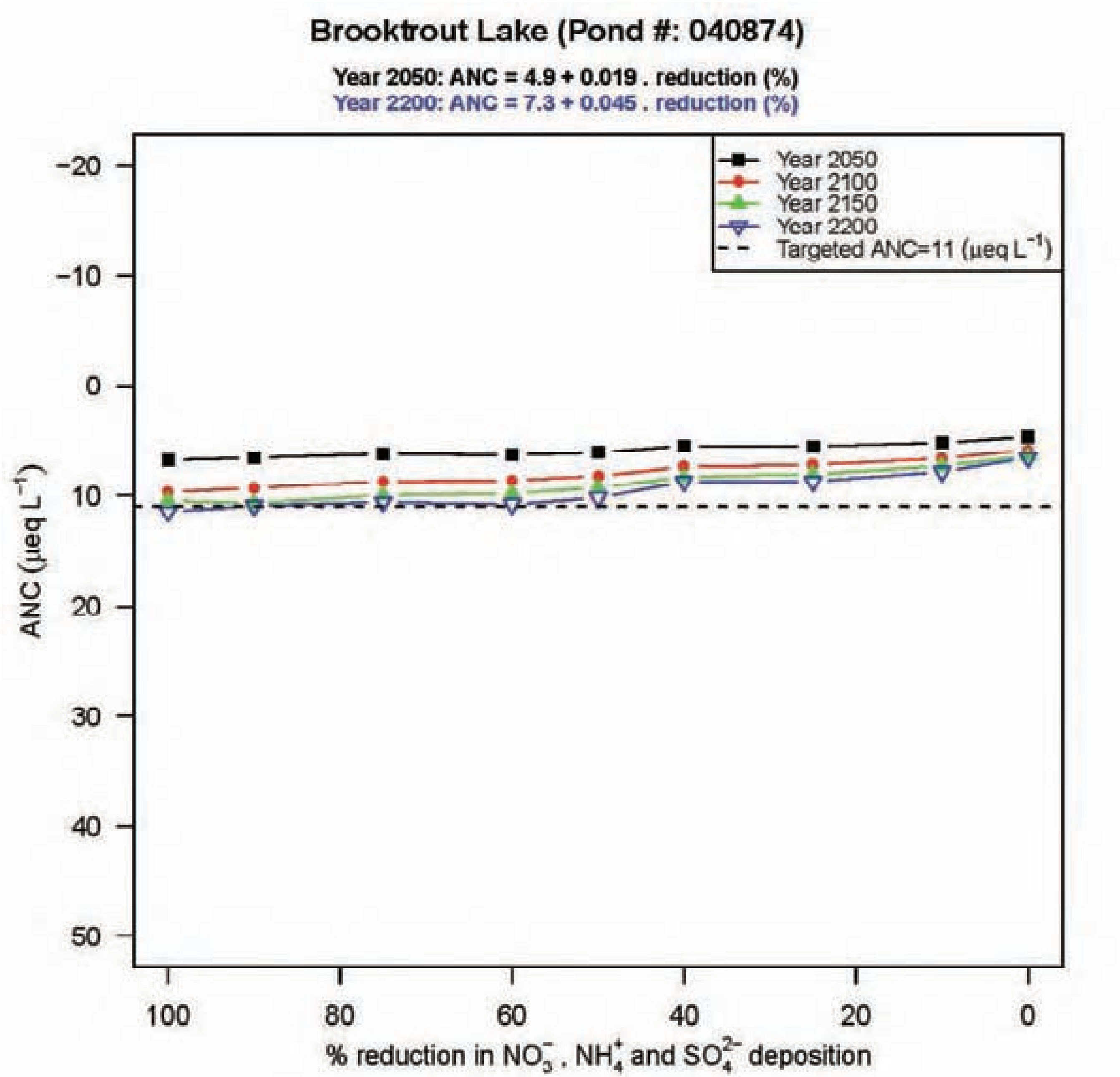
Deep Lake (Pond #: 040866)
Year 2050: ANC = 11.9 + 0.078 . reduction (%)
Year 2200: ANC = 18.3 + 0.125 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

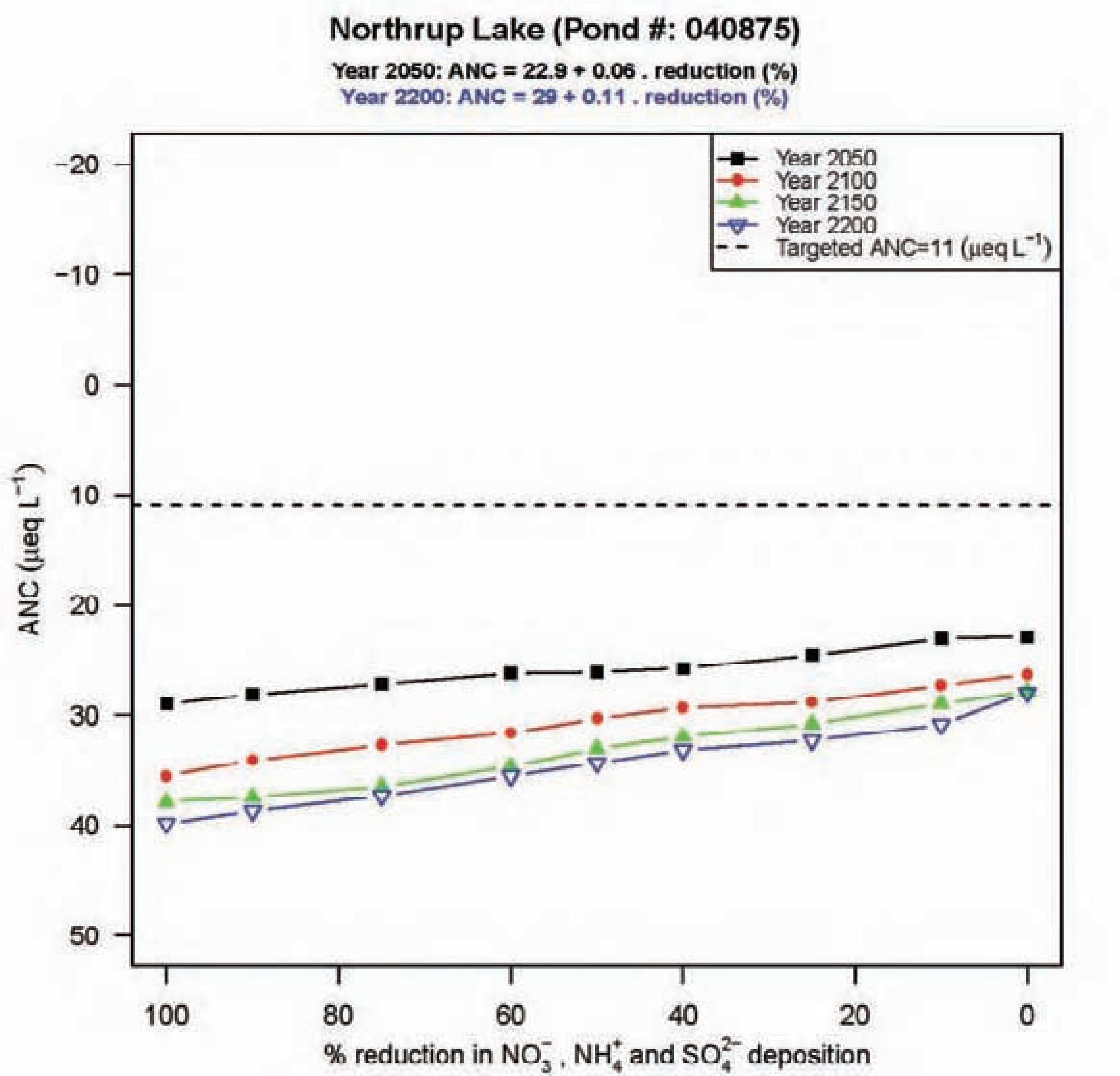

Twin Lake West (Pond #: 040869)
Year 2050: ANC = 14.7 + 0.116 . reduction (%)
Year 2200: ANC = 20.7 + 0.194 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition



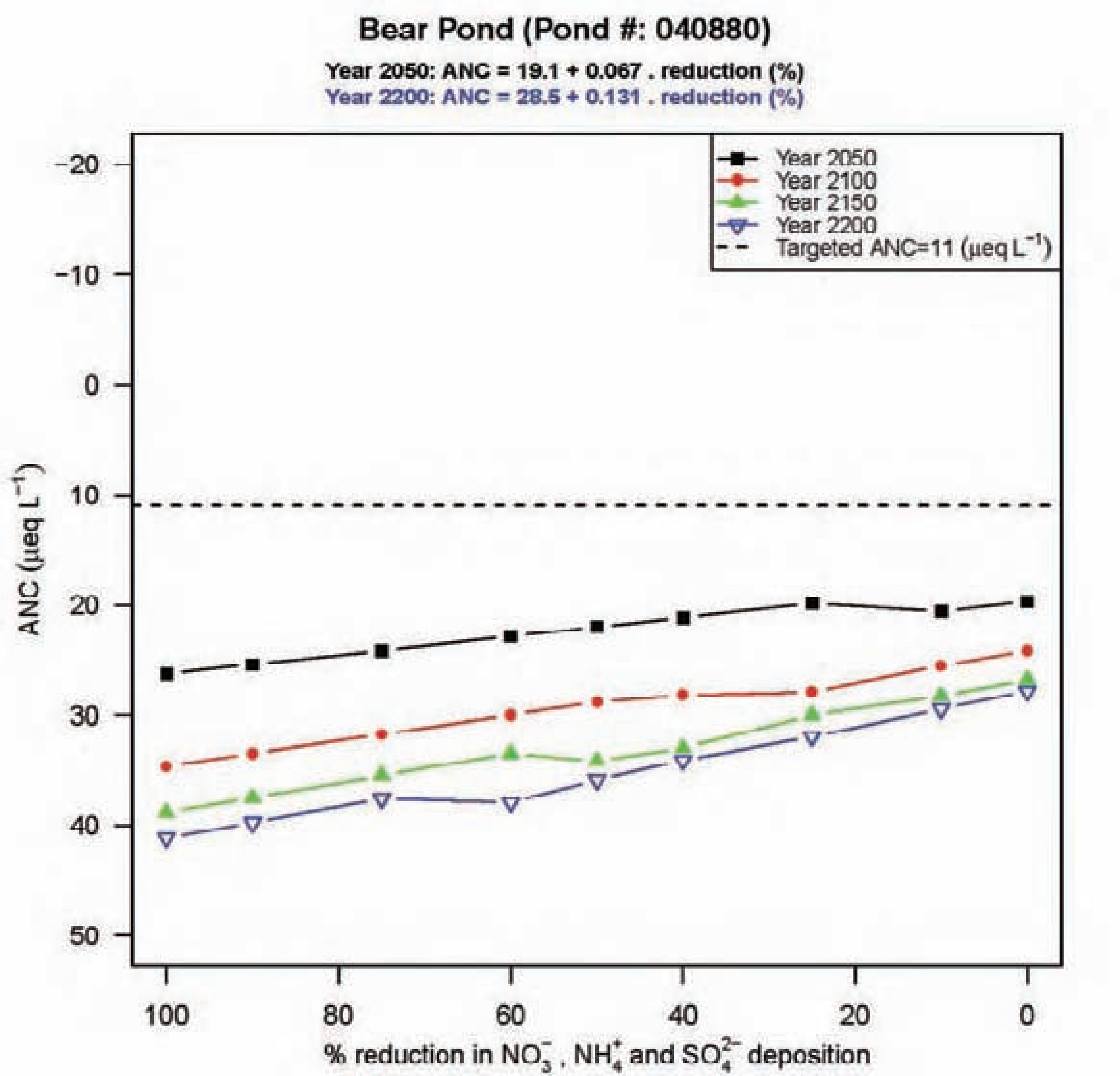
Twin Lake East (Pond #: 040870)
Year 2050: ANC = 13.8 + 0.107 . reduction (%)
Year 2200: ANC = 20 + 0.176 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

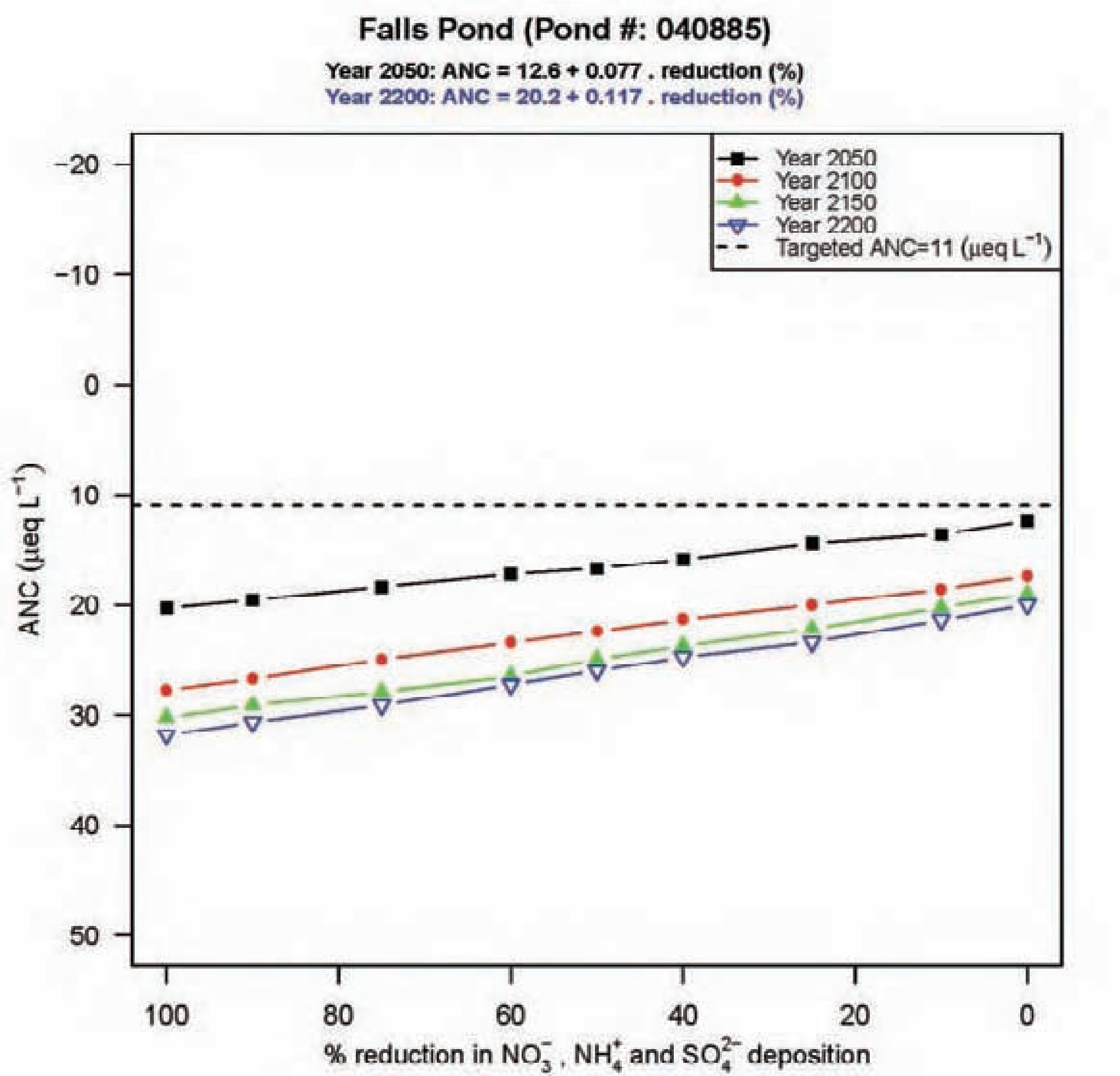

Wolf Lake (Pond #: 040873)
Year 2050: ANC = −7 + 0.05 . reduction (%)
Year 2200: ANC = −2.3 + 0.074 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

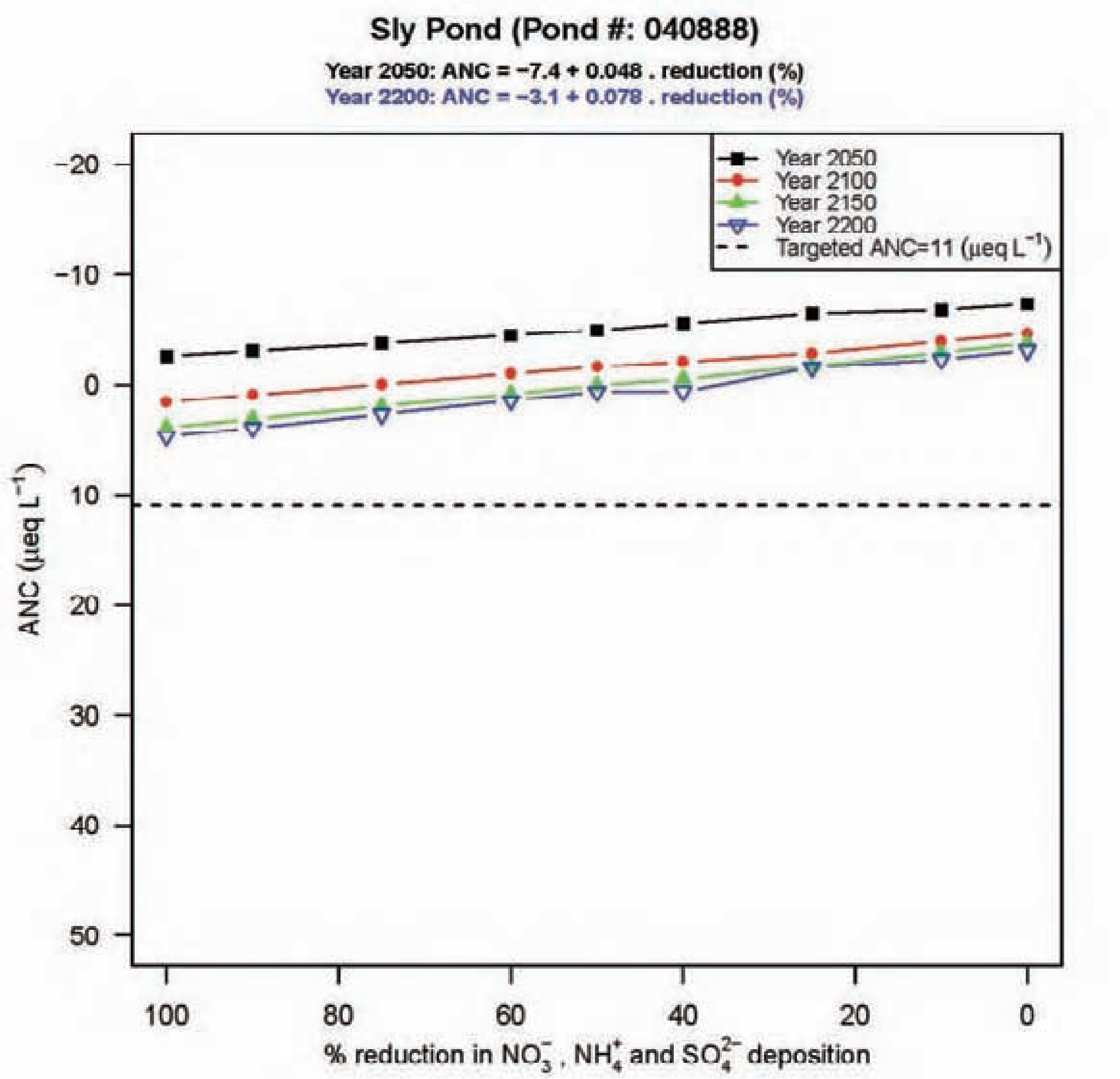

Brooktrout Lake (Pond #: 040874)
Year 2050: ANC = 4.9 + 0.019 . reduction (%)
Year 2200: ANC = 7.3 + 0.045 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



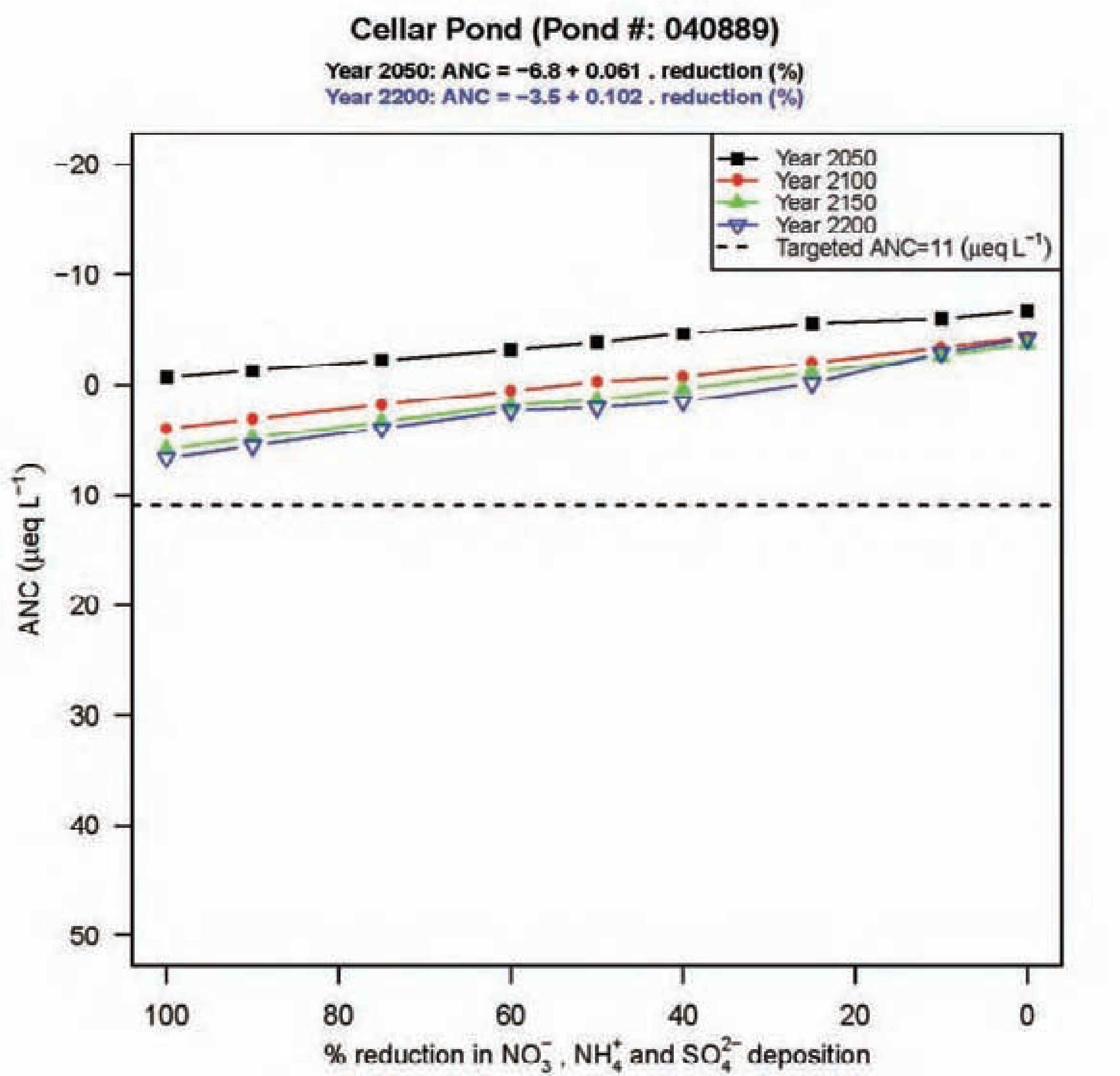
Northrup Lake (Pond #: 040875)
Year 2050: ANC = 22.9 + 0.06 . reduction (%)
Year 2200: ANC = 29 + 0.11 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition


Bear Pond (Pond #: 040880)
Year 2050: ANC = 19.1 + 0.067 . reduction (%)
Year 2200: ANC = 28.5 + 0.131 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

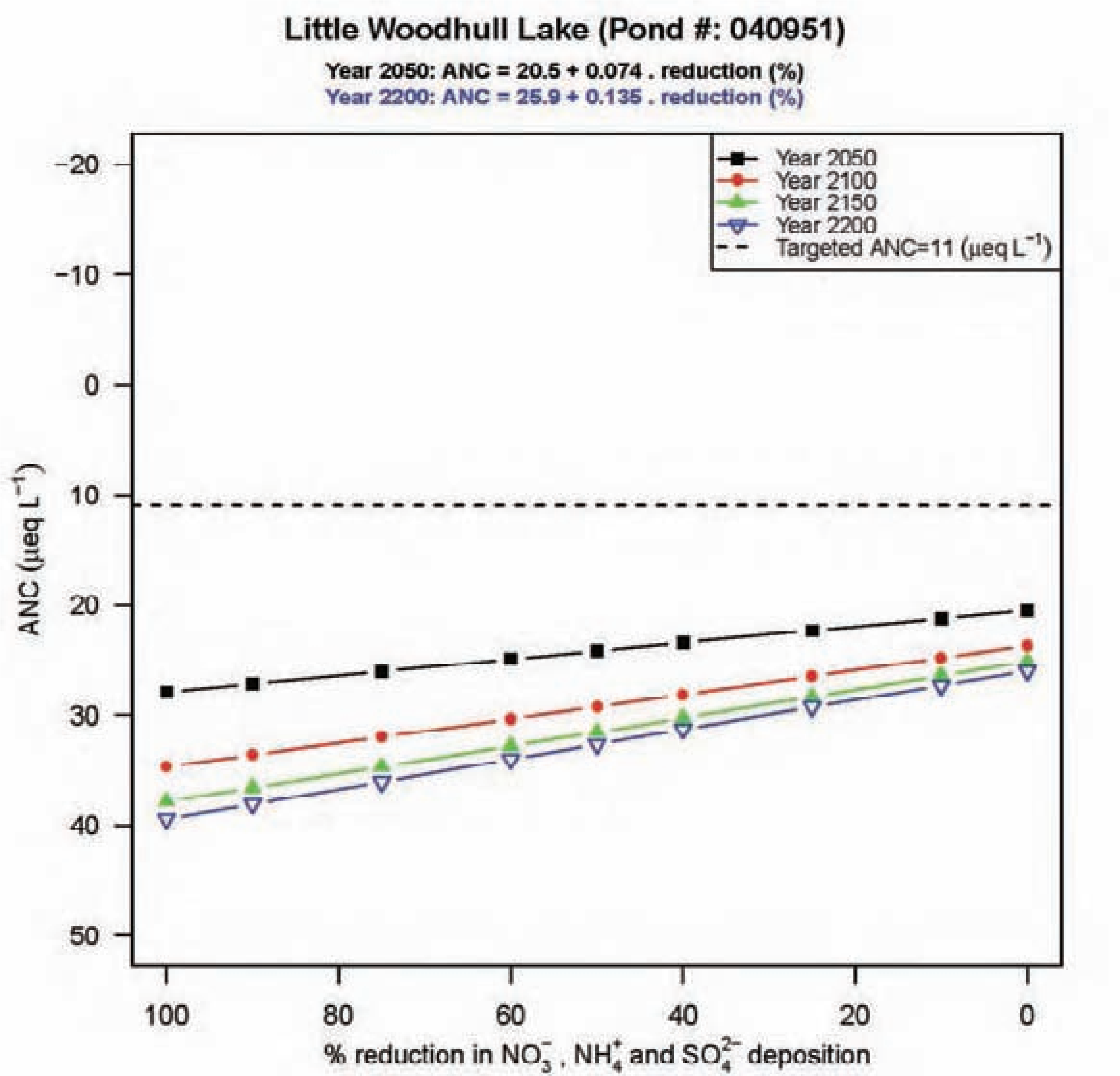

Falls Pond (Pond #: 040885)
Year 2050: ANC = 12.6 + 0.077 . reduction (%)
Year 2200: ANC = 20.2 + 0.117 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0



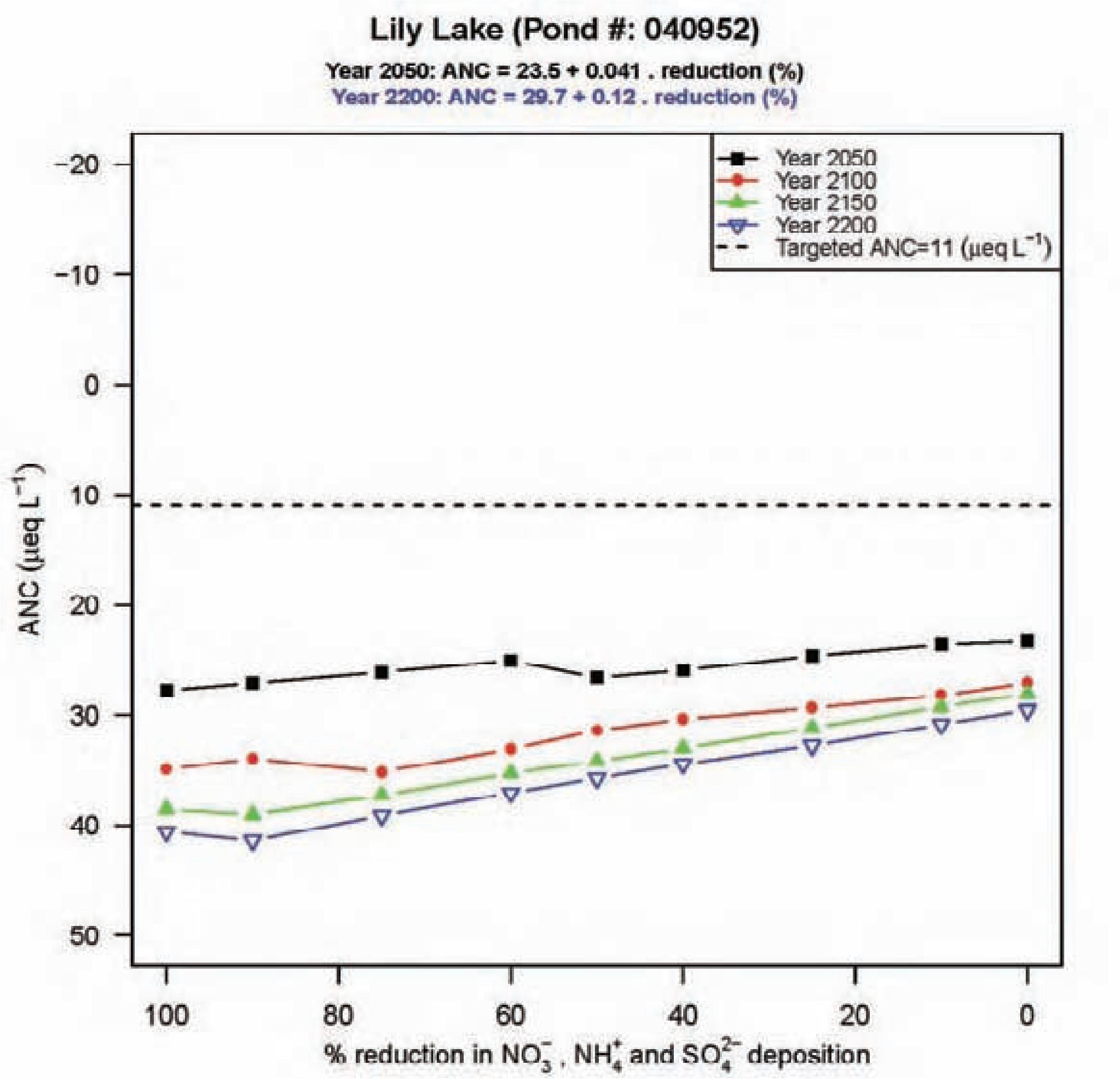
Sly Pond (Pond #: 040888)
Year 2050: ANC = −7.4 + 0.048 . reduction (%)
Year 2200: ANC = −3.1 + 0.078 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0

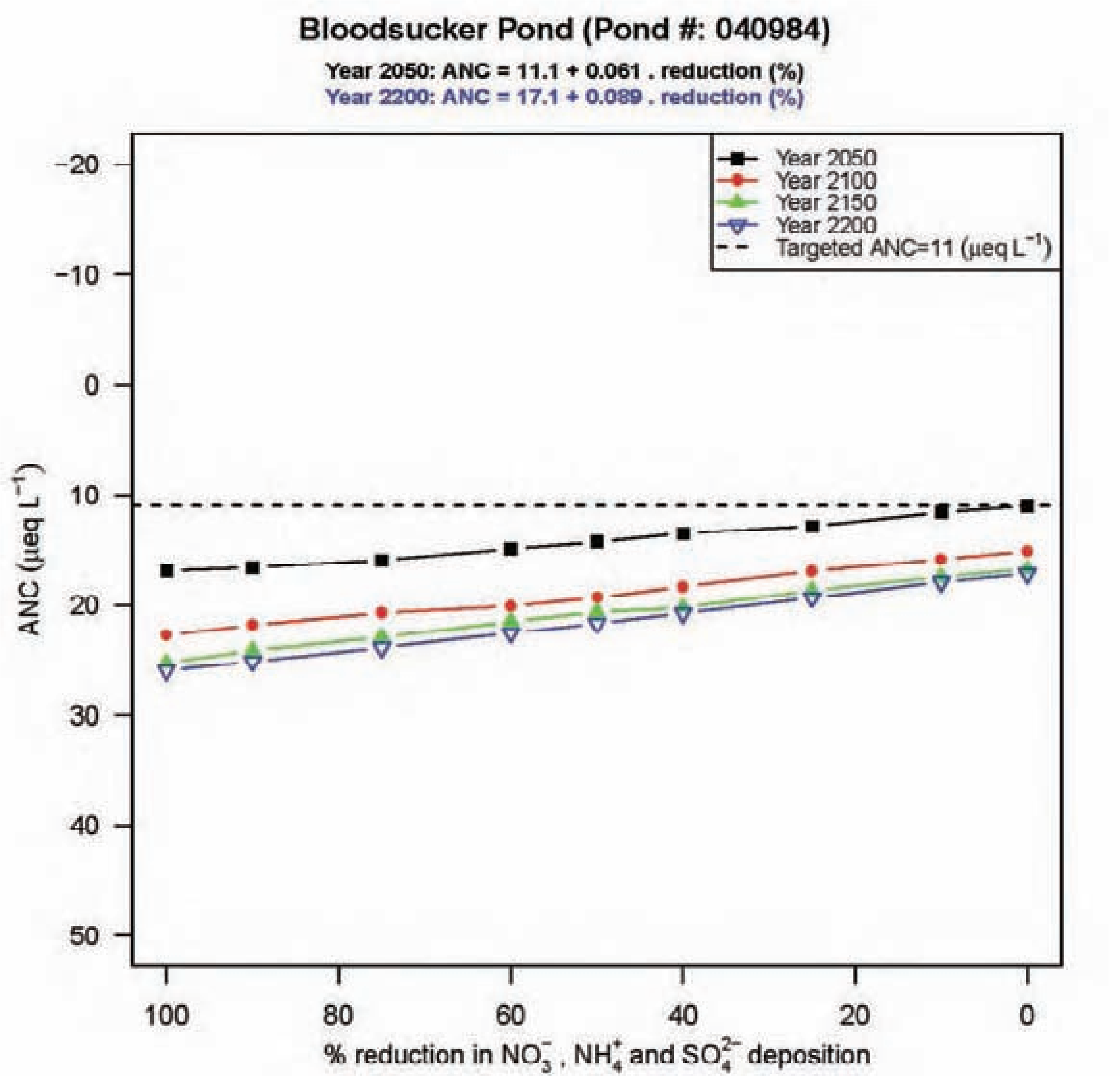


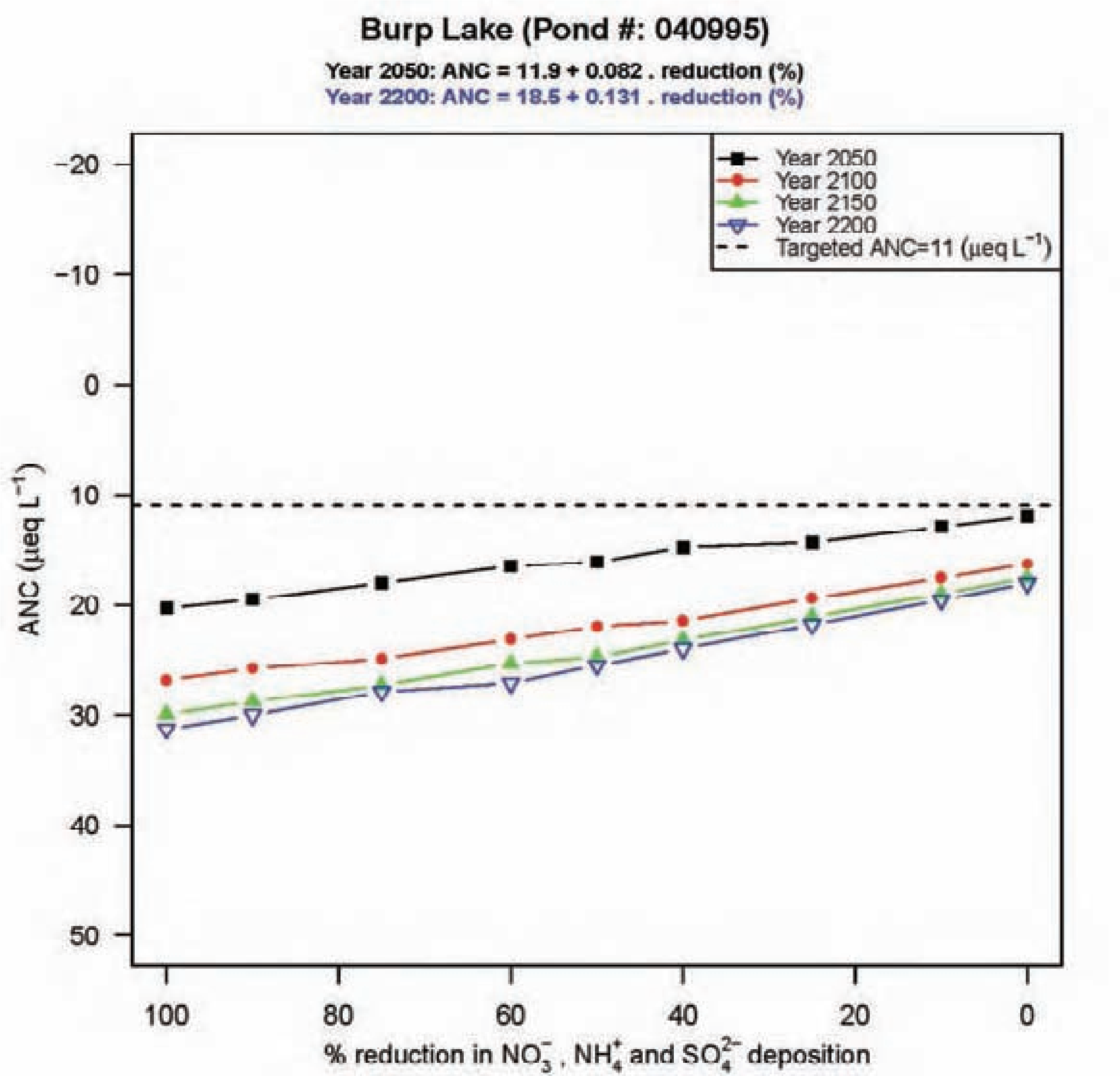
Cellar Pond (Pond #: 040889)
Year 2050: ANC = −6.8 + 0.061 . reduction (%)
Year 2200: ANC = −3.5 + 0.102 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

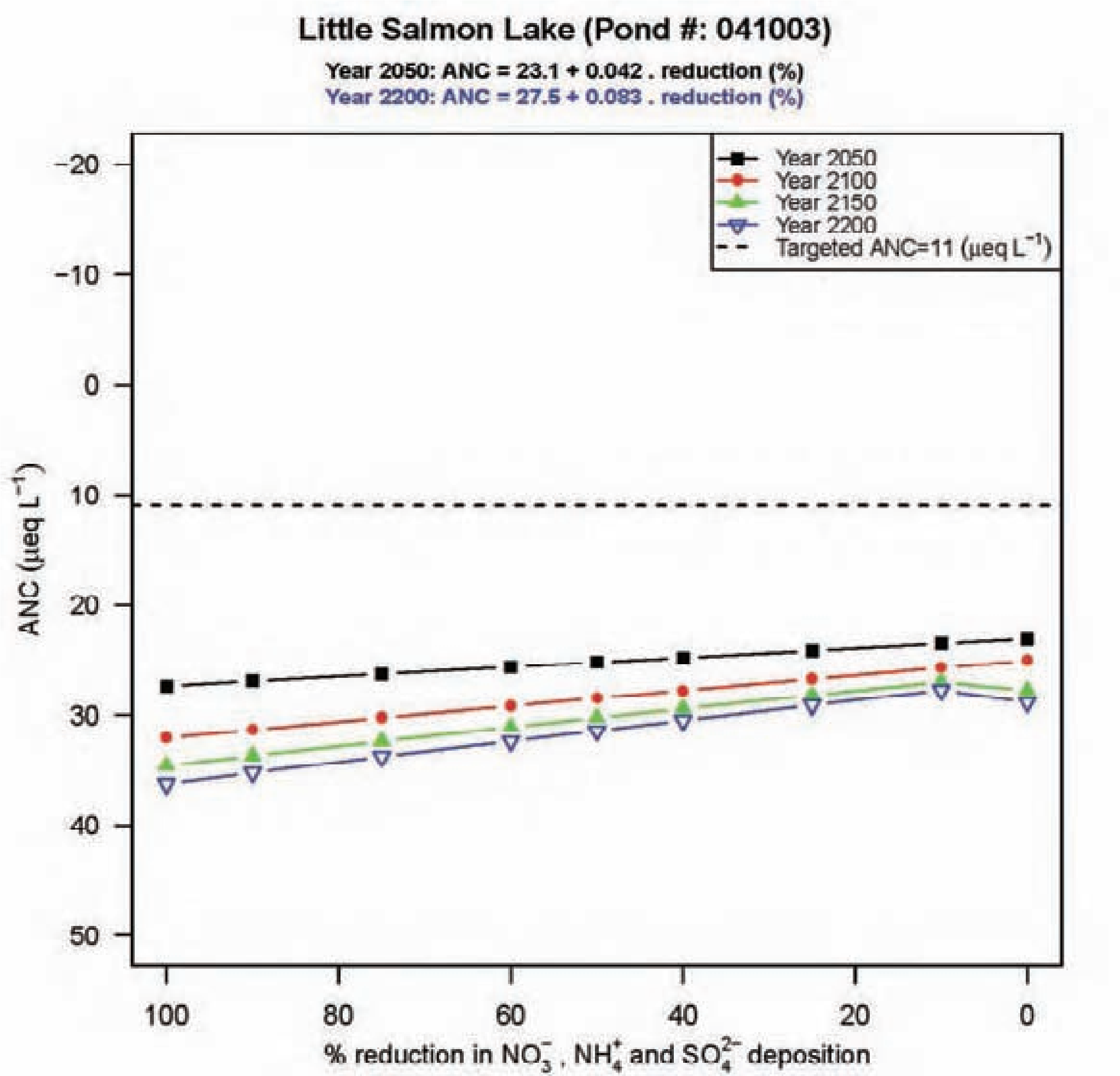


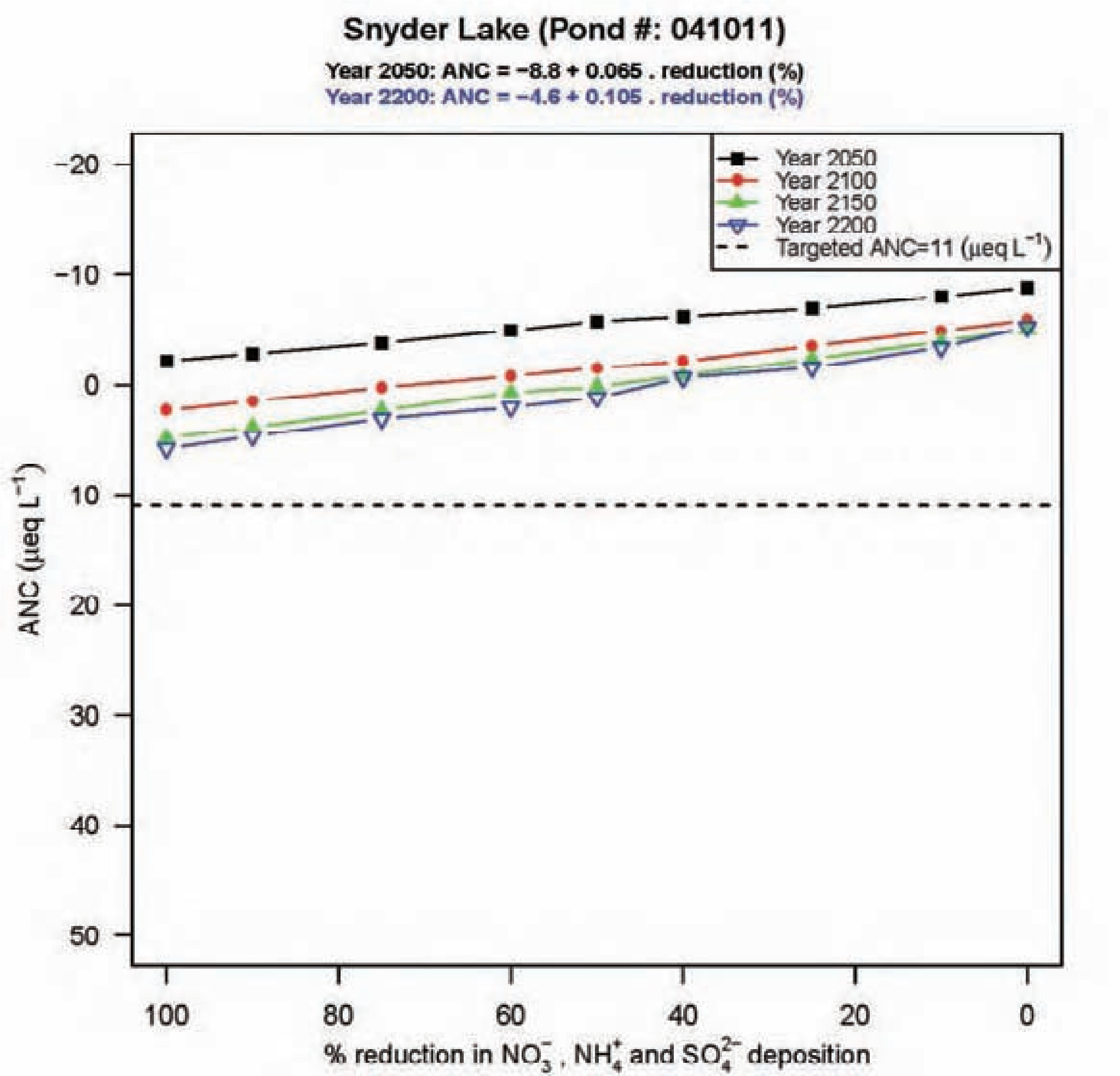
Little Woodhull Lake (Pond #: 040951)
Year 2050: ANC = 20.5 + 0.074 . reduction (%)
Year 2200: ANC = 25.9 + 0.135 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

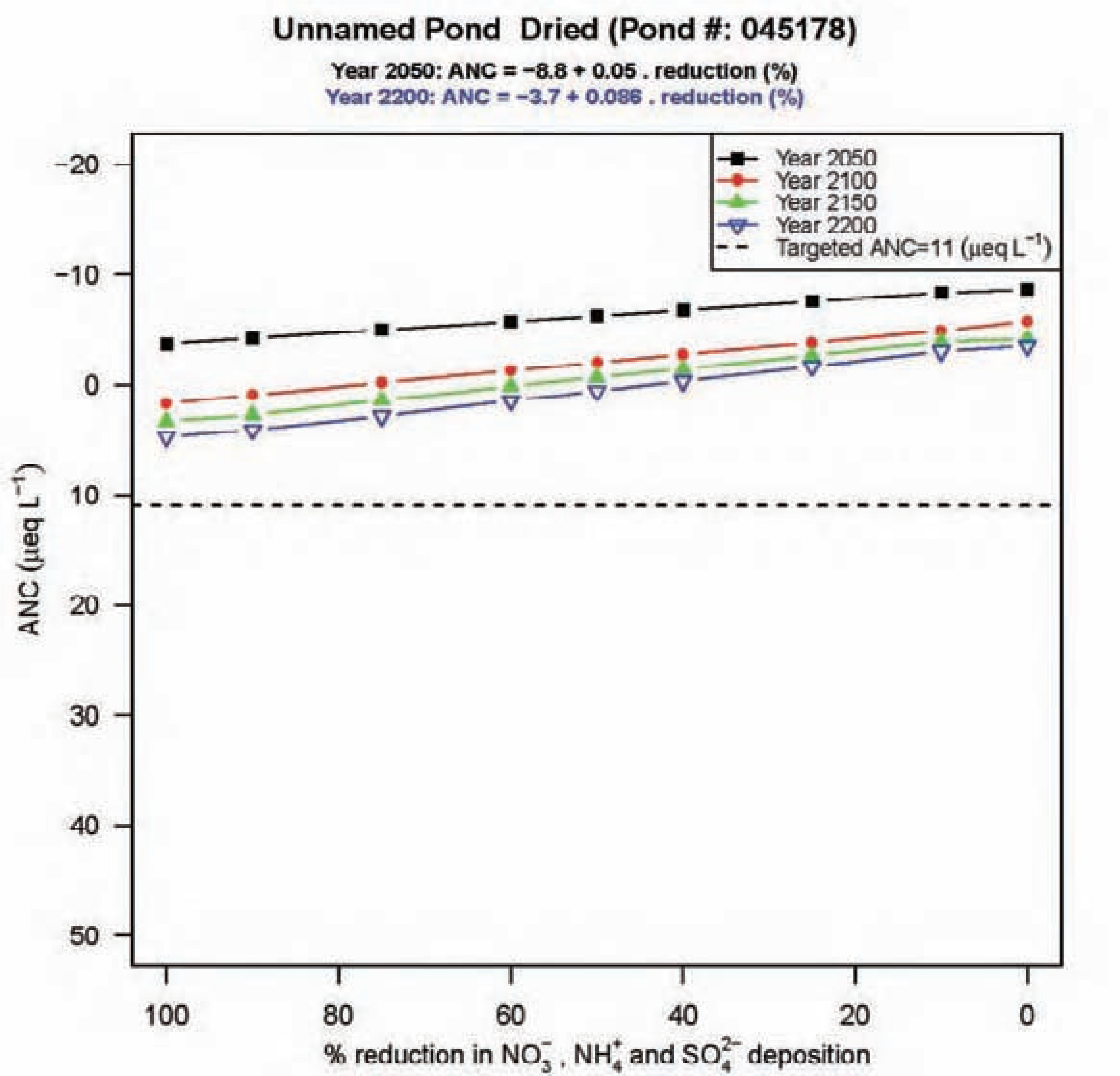

Lily Lake (Pond #: 040952)
Year 2050: ANC = 23.5 + 0.041 . reduction (%)
Year 2200: ANC = 29.7 + 0.12 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

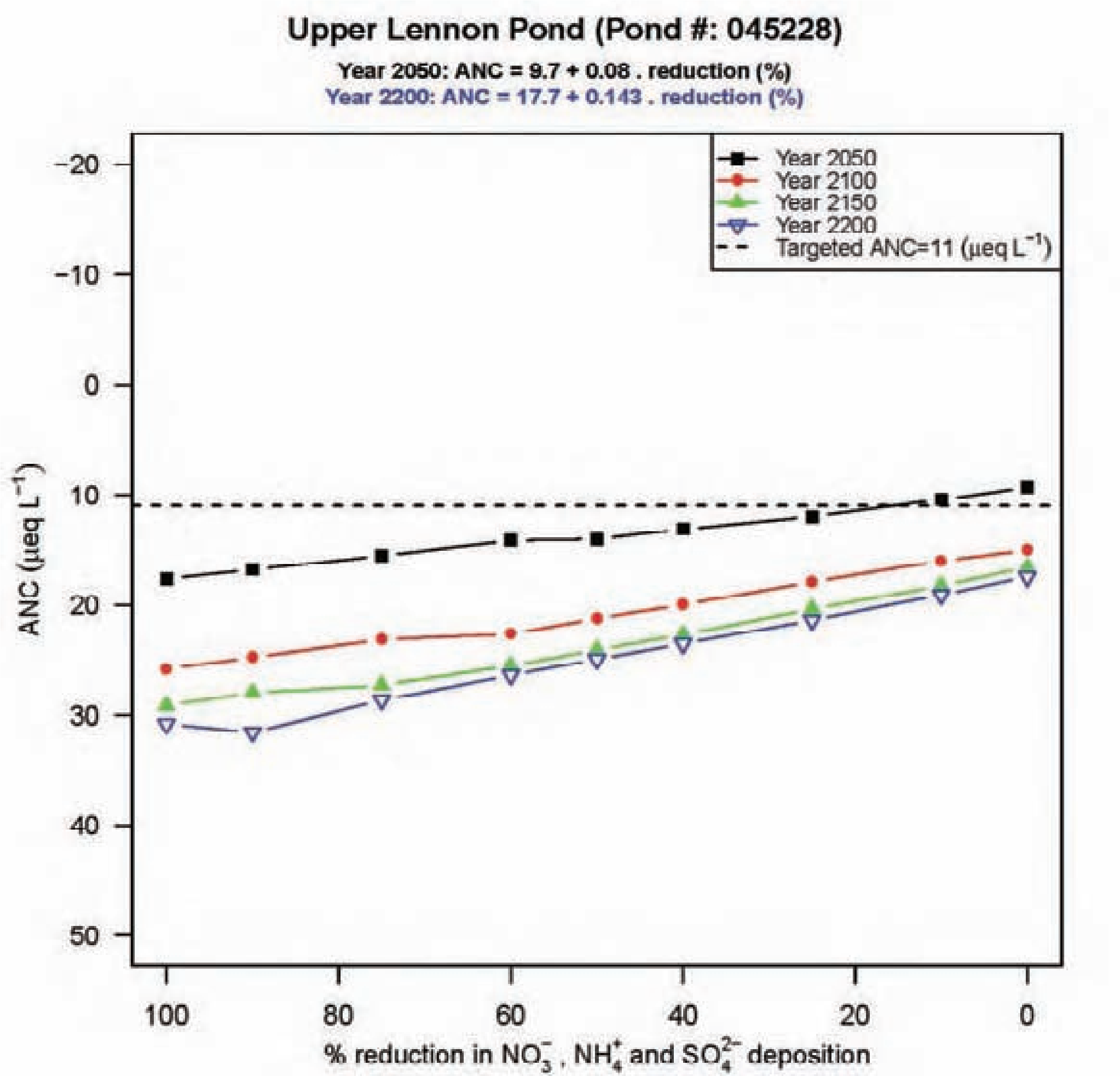

Bloodsucker Pond (Pond #: 040984)
Year 2050: ANC = 11.1 + 0.061 . reduction (%)
Year 2200: ANC = 17.1 + 0.089 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

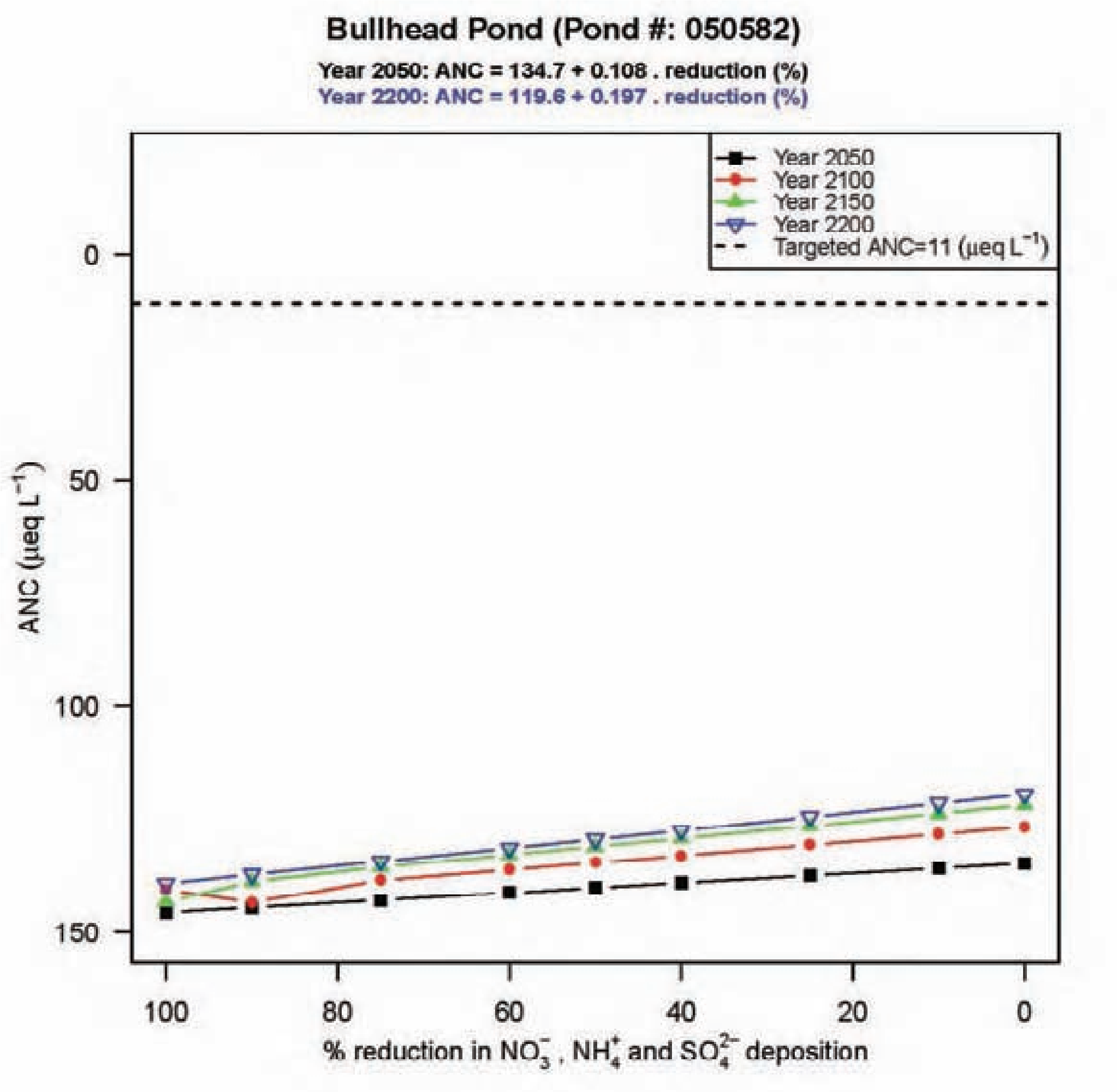

Burp Lake (Pond #: 040995)
Year 2050: ANC = 11.9 + 0.082 . reduction (%)
Year 2200: ANC = 18.5 + 0.131 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

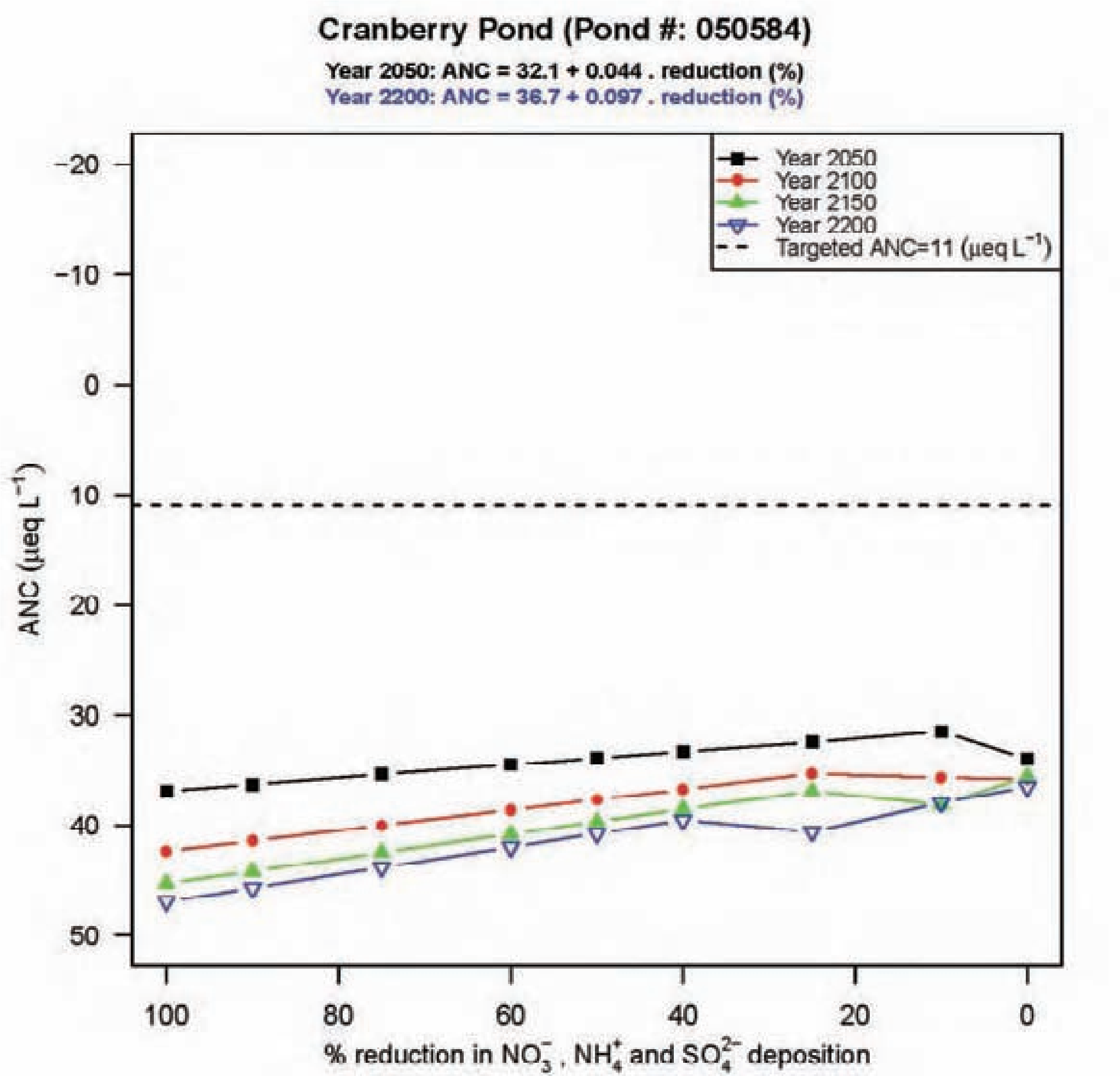

Little Salmon Lake (Pond #: 041003)
Year 2050: ANC = 23.1 + 0.042 . reduction (%)
Year 2200: ANC = 27.5 + 0.083 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

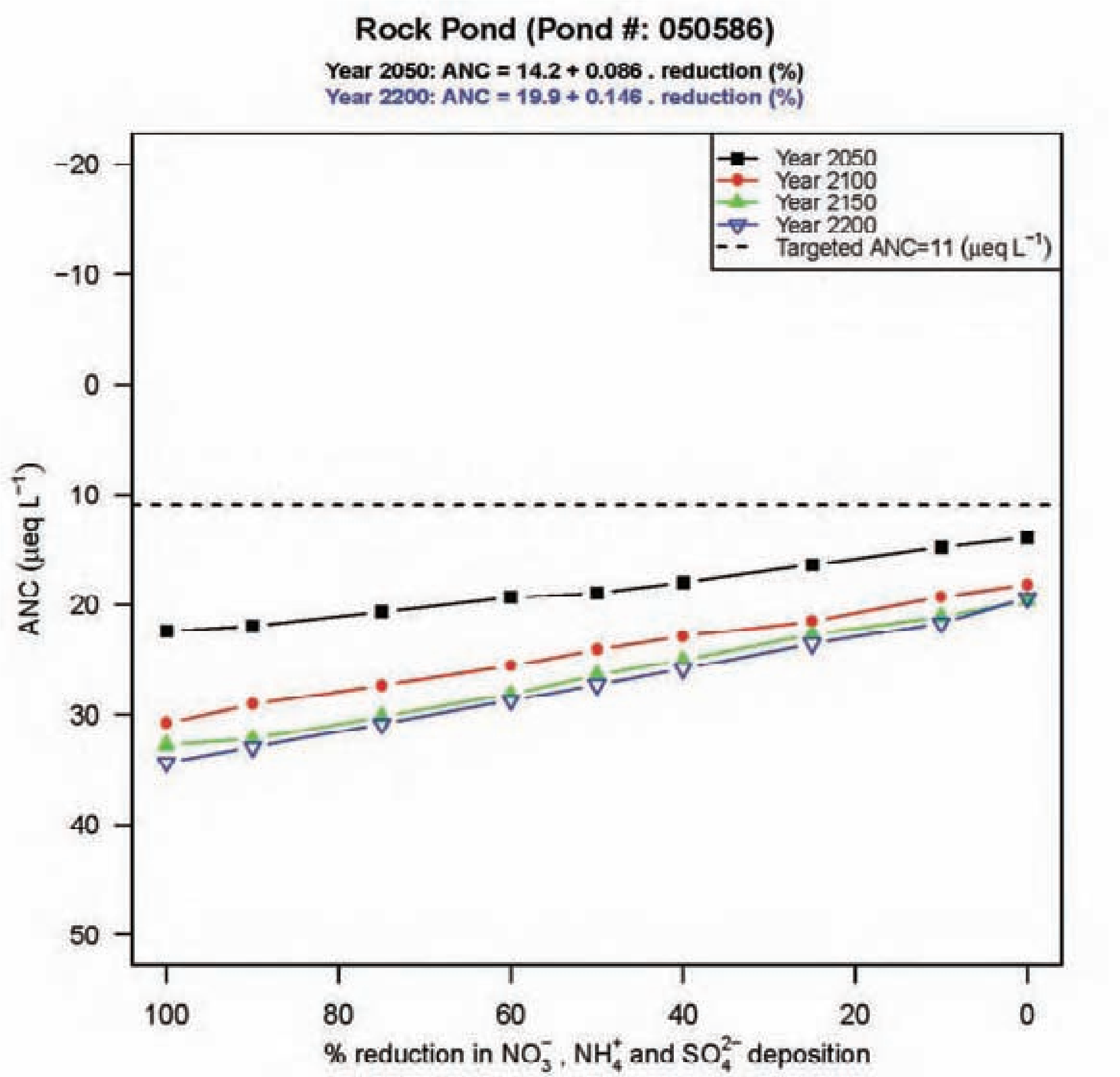

Snyder Lake (Pond #: 041011)
Year 2050: ANC = −8.8 + 0.065 . reduction (%)
Year 2200: ANC = −4.6 + 0.105 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Unnamed Pond Dried (Pond #: 045178)
Year 2050: ANC = −8.8 + 0.05 . reduction (%)
Year 2200: ANC = −3.7 + 0.086 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

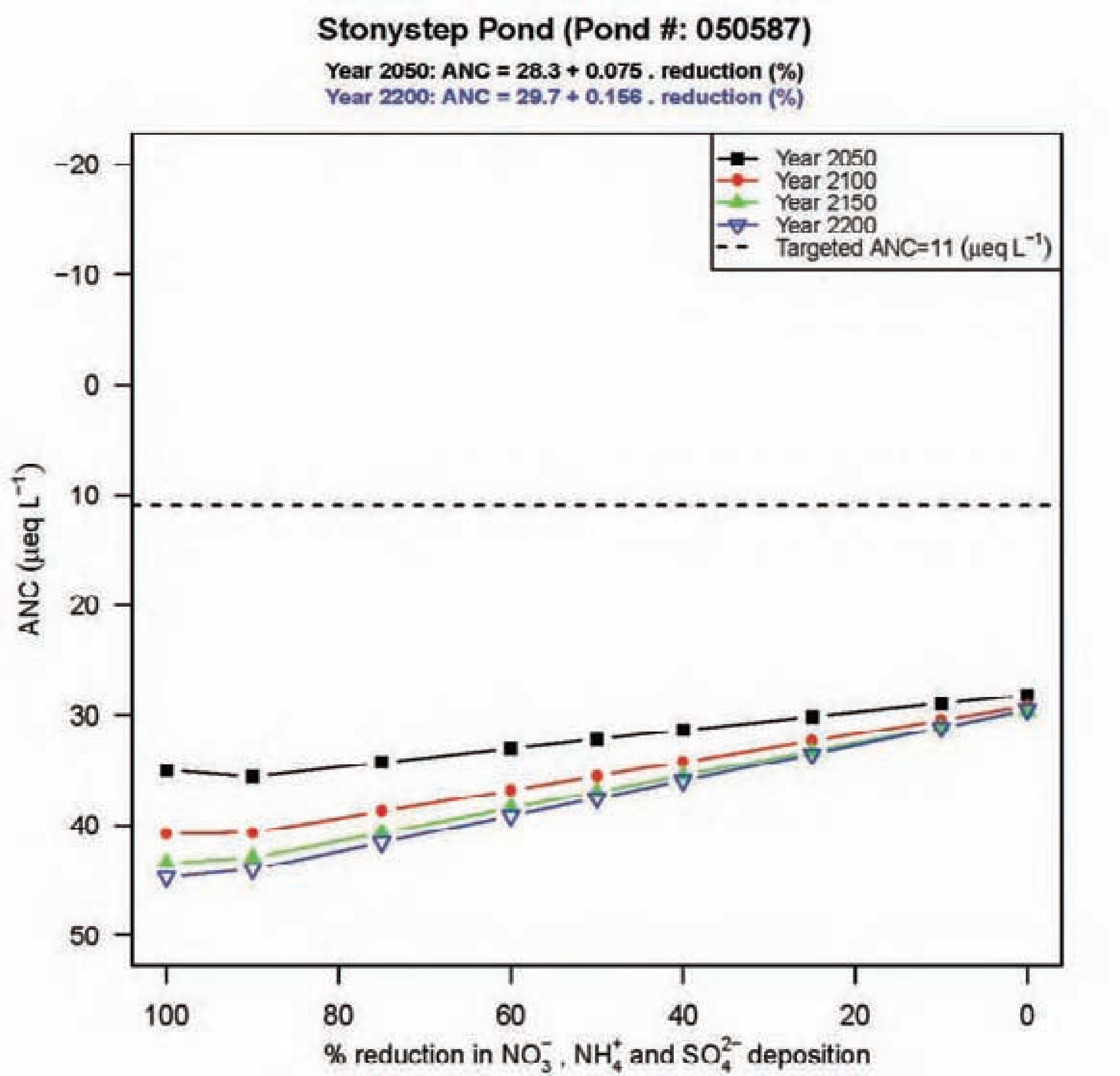

Upper Lennon Pond (Pond #: 045228)
Year 2050: ANC = 9.7 + 0.08 . reduction (%)
Year 2200: ANC = 17.7 + 0.143 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition


Bullhead Pond (Pond #: 050582)
Year 2050: ANC = 134.7 + 0.108 . reduction (%)
Year 2200: ANC = 119.6 + 0.197 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

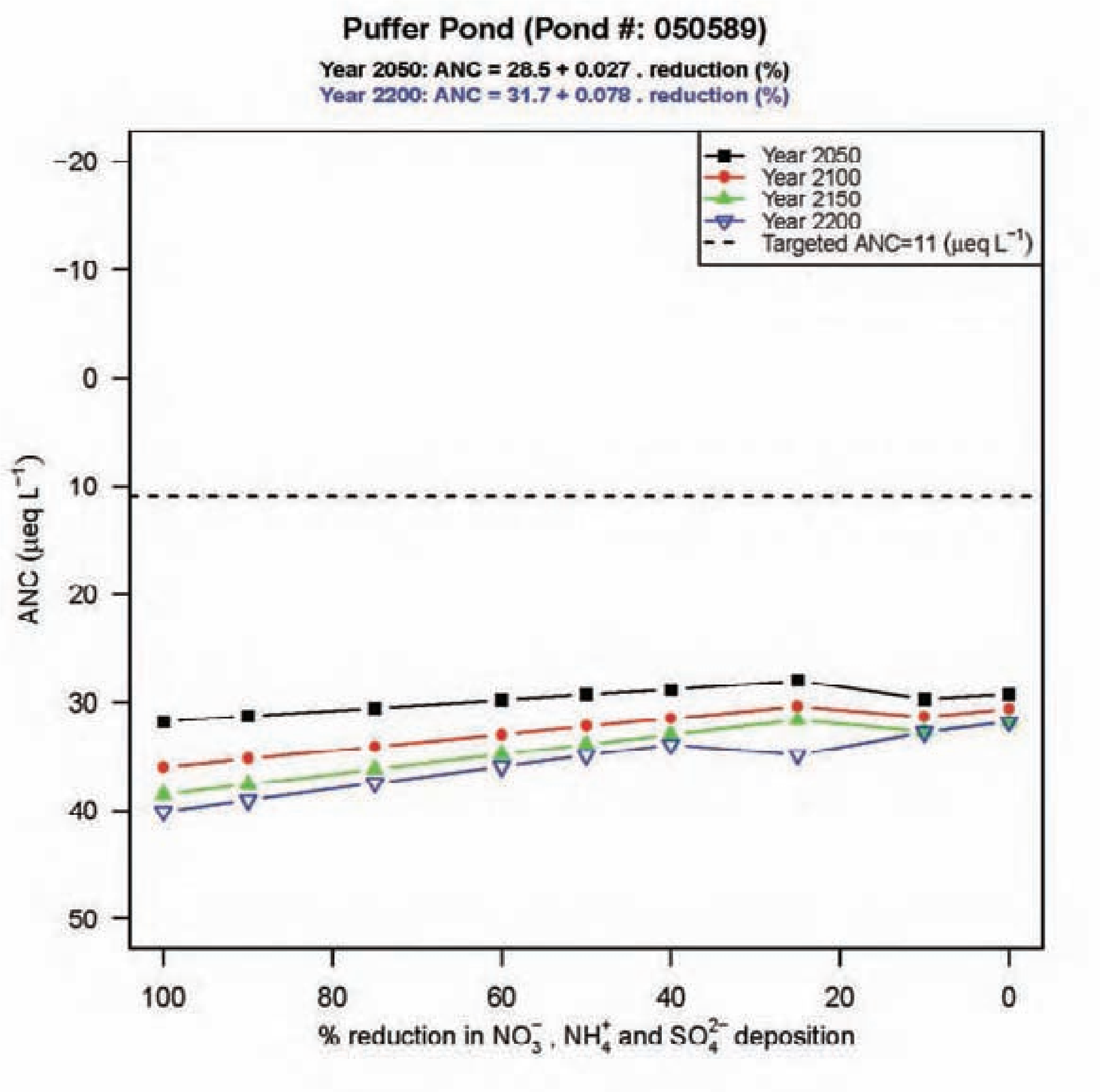

Cranberry Pond (Pond #: 050584)
Year 2050: ANC = 32.1 + 0.044 . reduction (%)
Year 2200: ANC = 36.7 + 0.097 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0



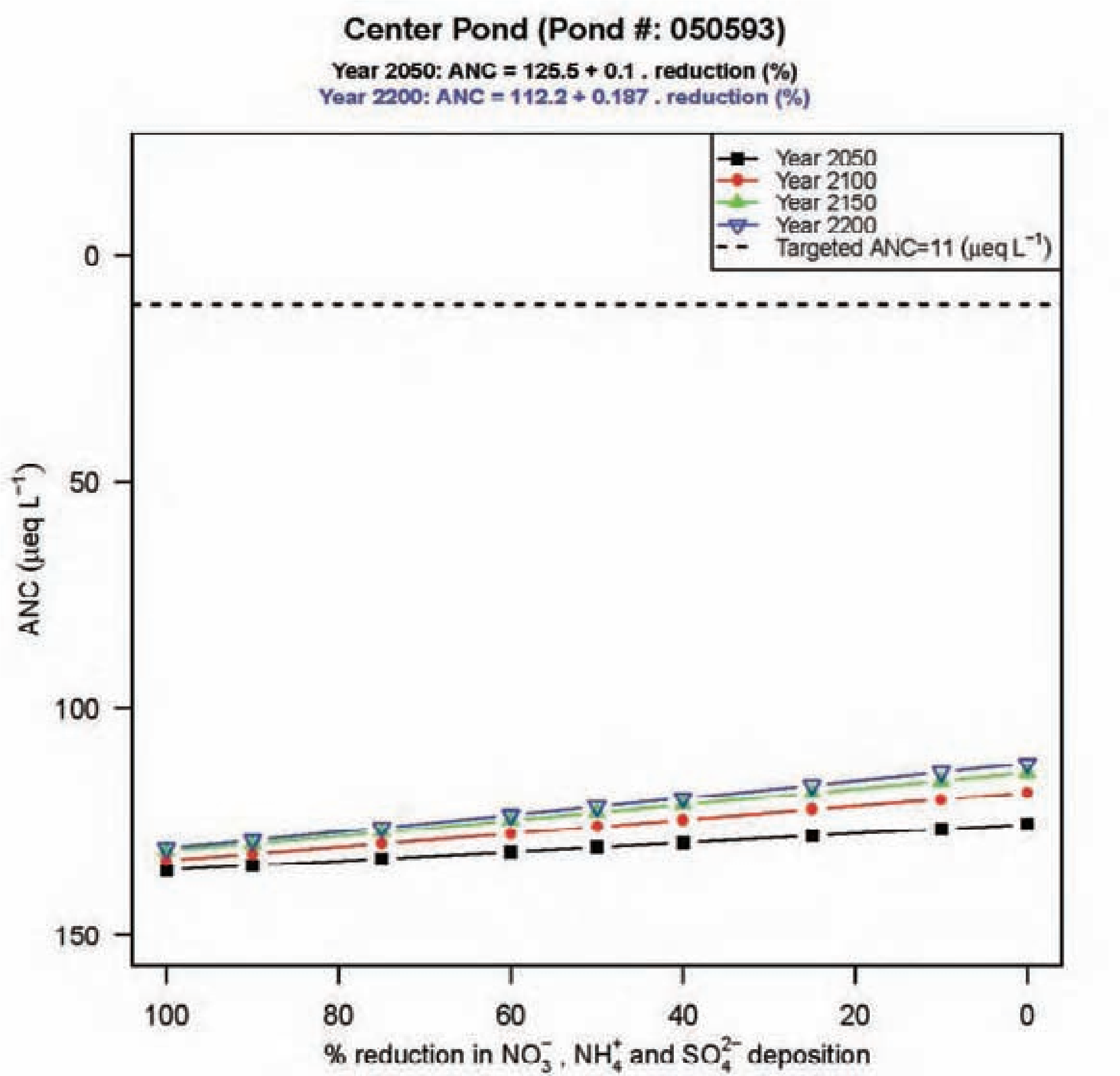
Rock Pond (Pond #: 050586)
Year 2050: ANC = 14.2 + 0.086 . reduction (%)
Year 2200: ANC = 19.9 + 0.146 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

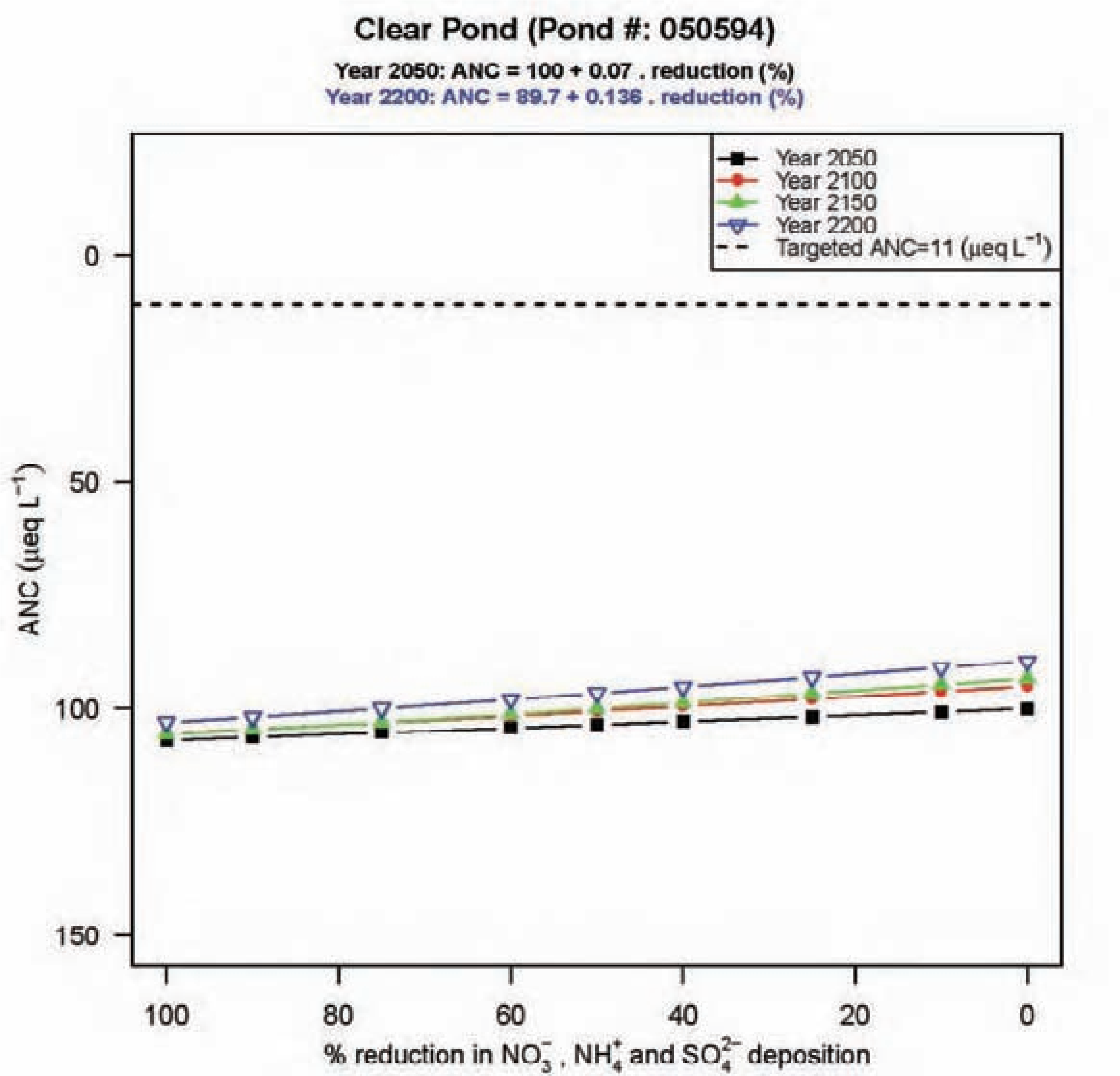


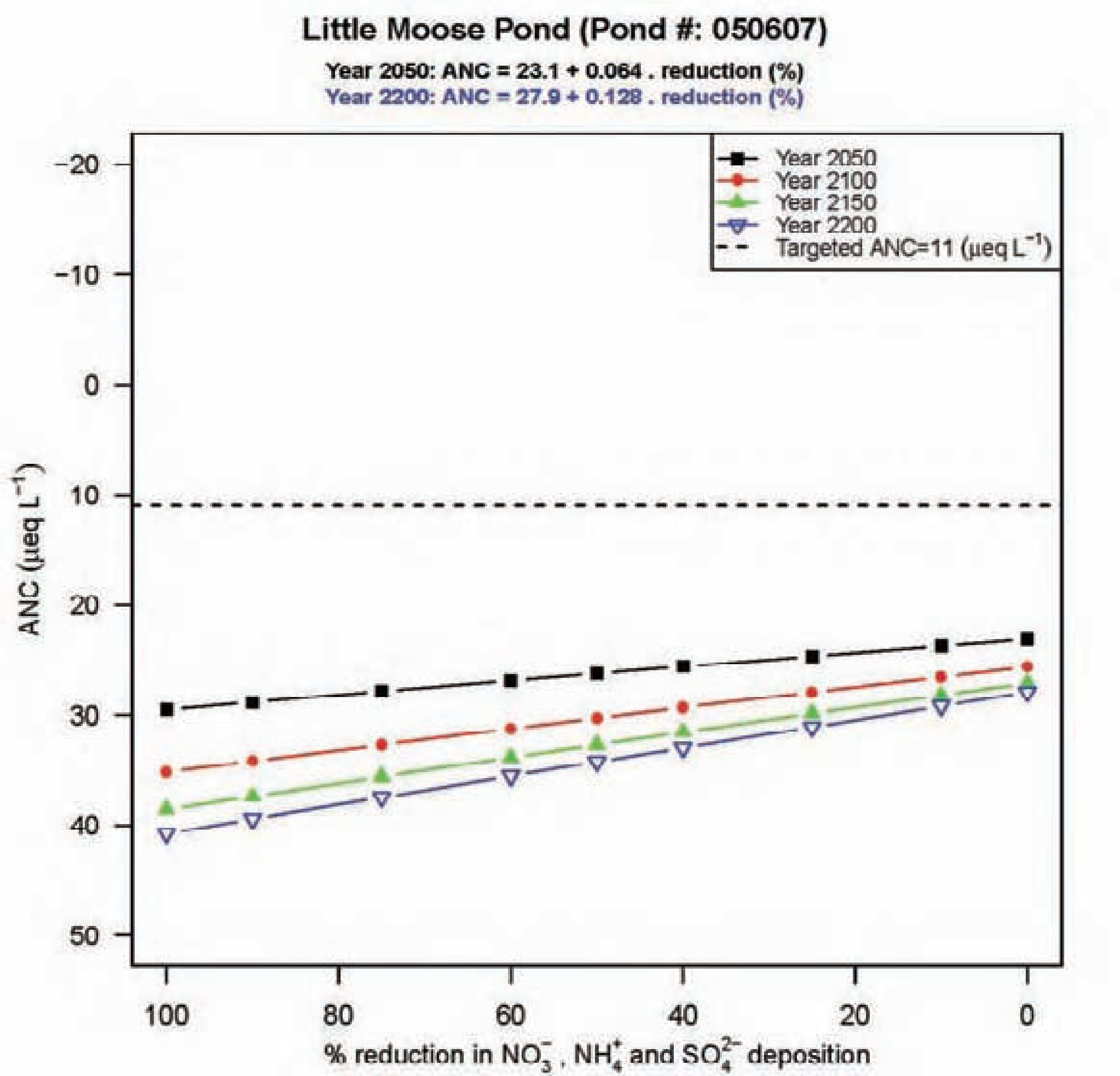
Stonystep Pond (Pond #: 050587)
Year 2050: ANC = 28.3 + 0.075 . reduction (%)
Year 2200: ANC = 29.7 + 0.156 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

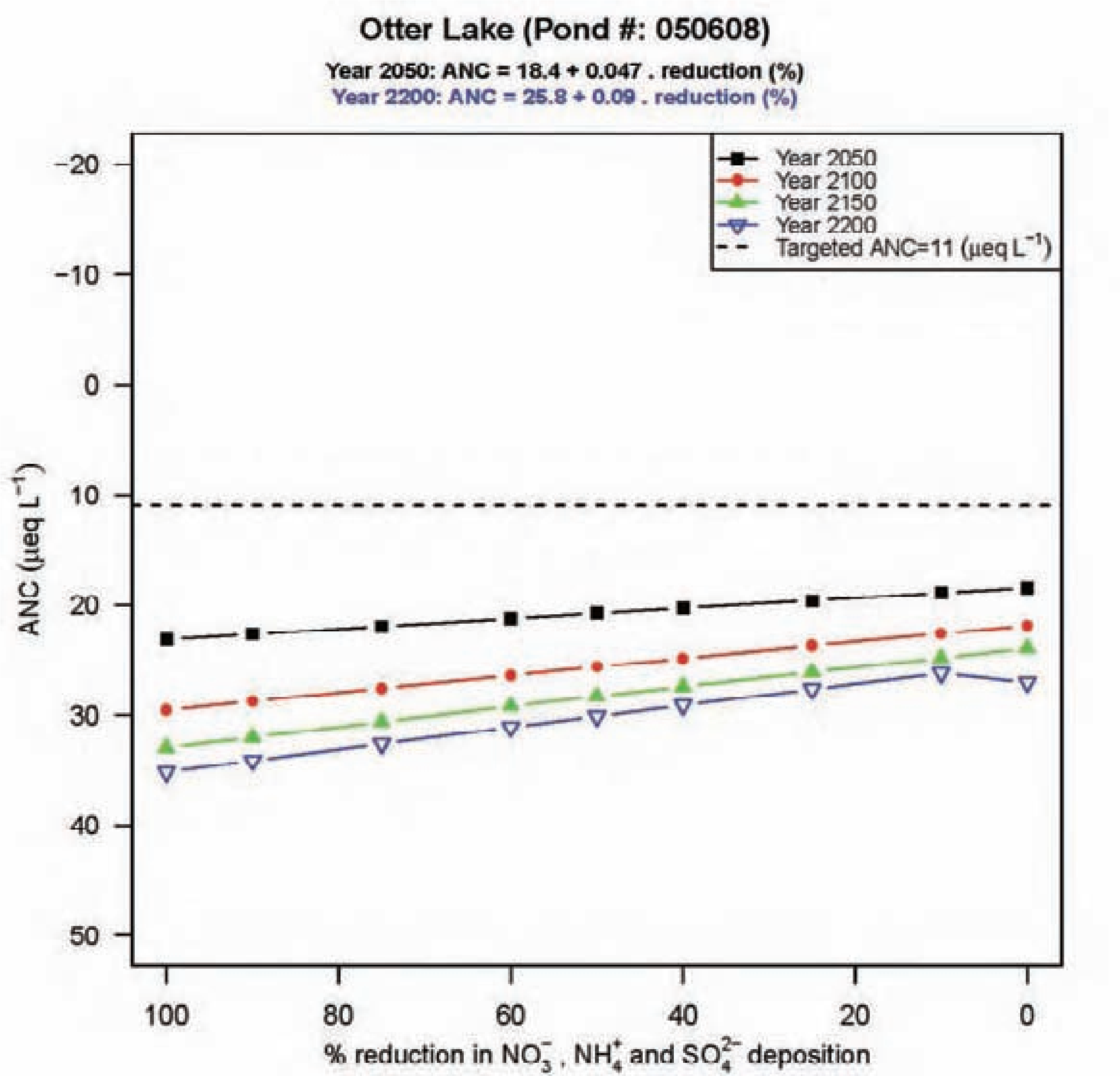


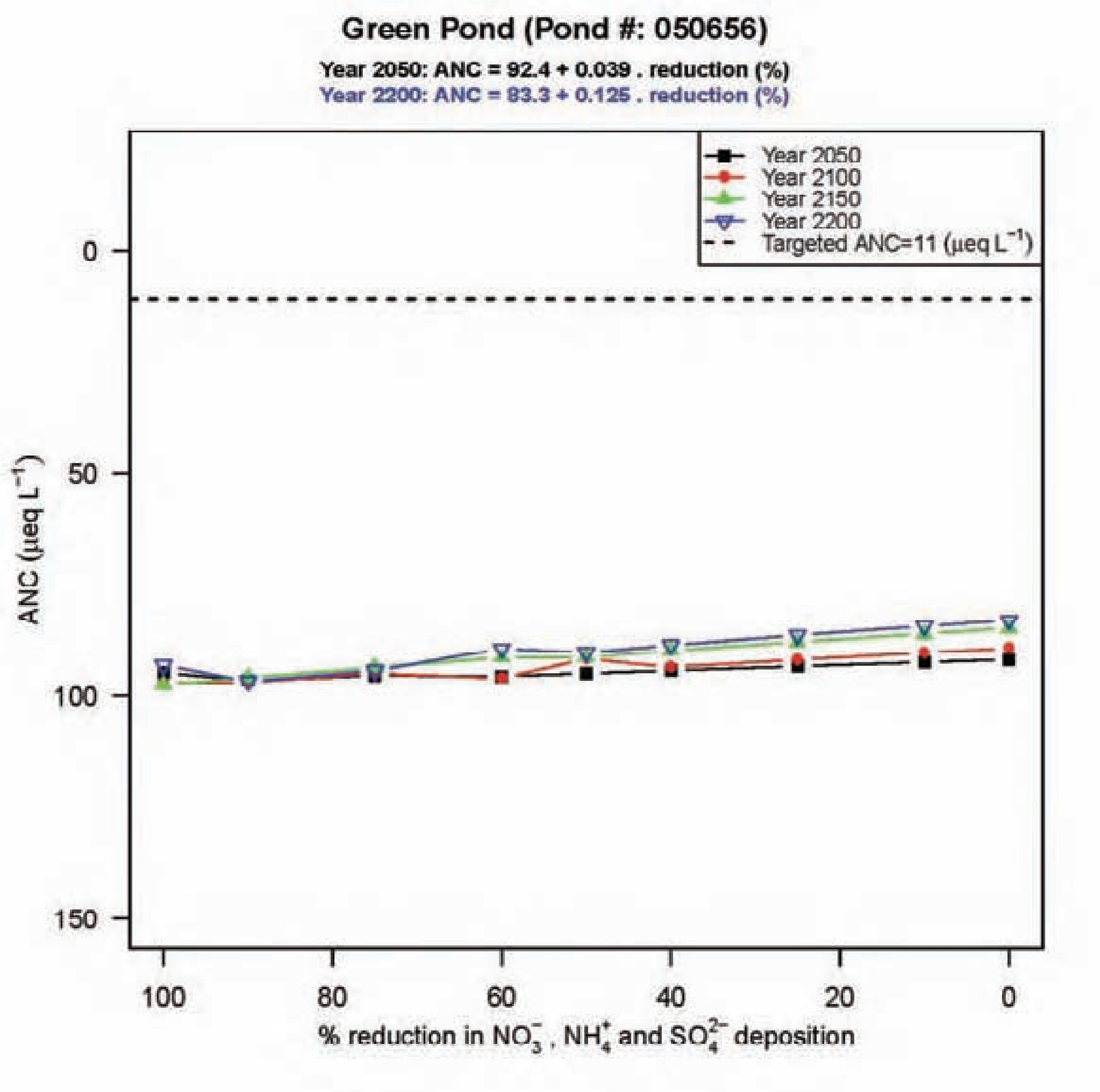
Puffer Pond (Pond #: 050589)
Year 2050: ANC = 28.5 + 0.027 . reduction (%)
Year 2200: ANC = 31.7 + 0.078 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

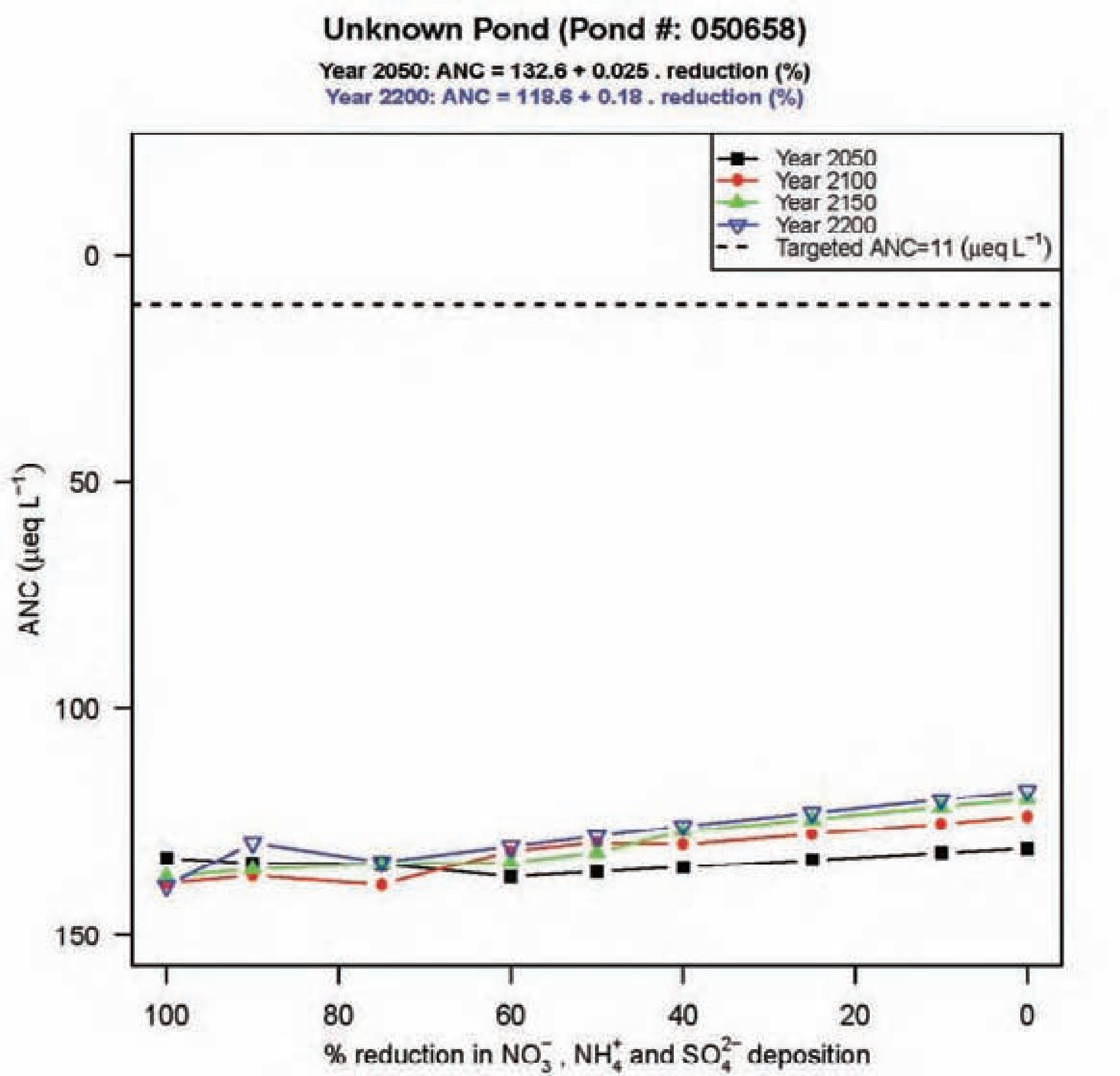

Center Pond (Pond #: 050593)
Year 2050: ANC = 125.5 + 0.1 . reduction (%)
Year 2200: ANC = 112.2 + 0.187 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
0
50
100
150
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Clear Pond (Pond #: 050594)
Year 2050: ANC = 100 + 0.07 . reduction (%)
Year 2200: ANC = 89.7 + 0.136 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

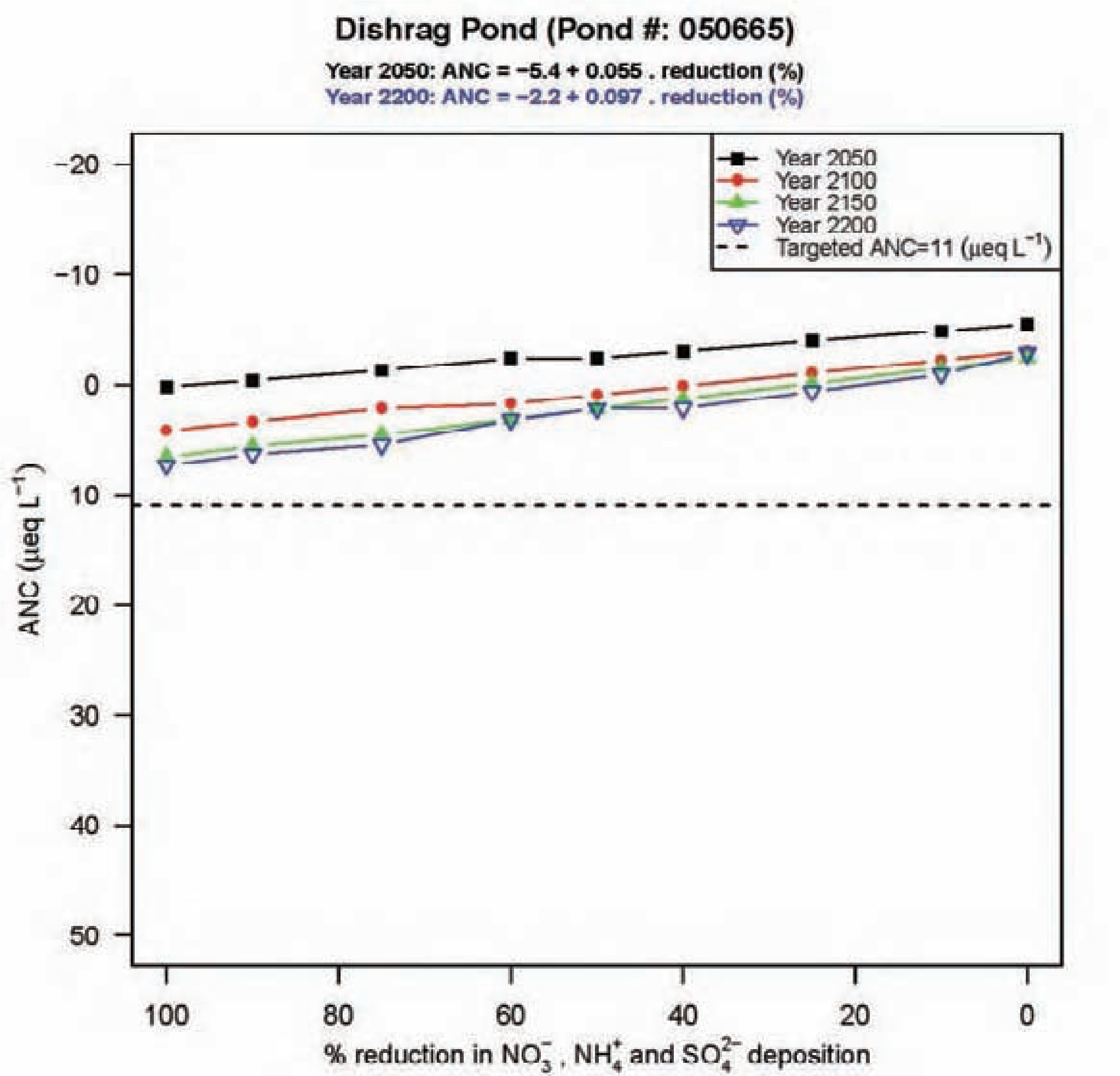

Little Moose Pond (Pond #: 050607)
Year 2050: ANC = 23.1 + 0.064 . reduction (%)
Year 2200: ANC = 27.9 + 0.128 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0


Otter Lake (Pond #: 050608)
Year 2050: ANC = 18.4 + 0.047 . reduction (%)
Year 2200: ANC = 25.8 + 0.09 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

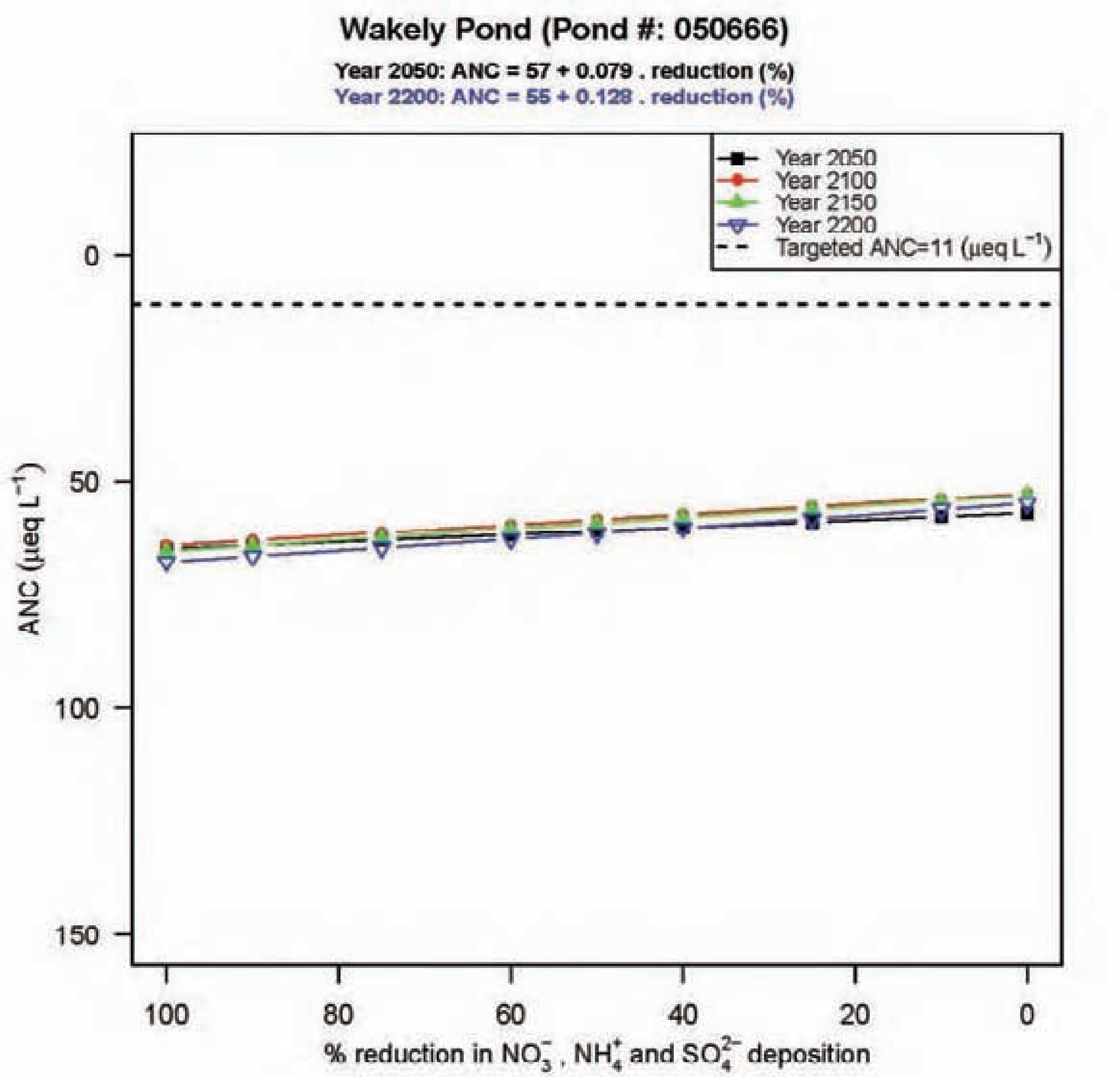

Green Pond (Pond #: 050656)
Year 2050: ANC = 92.4 + 0.039 . reduction (%)
Year 2200: ANC = 83.3 + 0.125 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
0
50
100
150
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



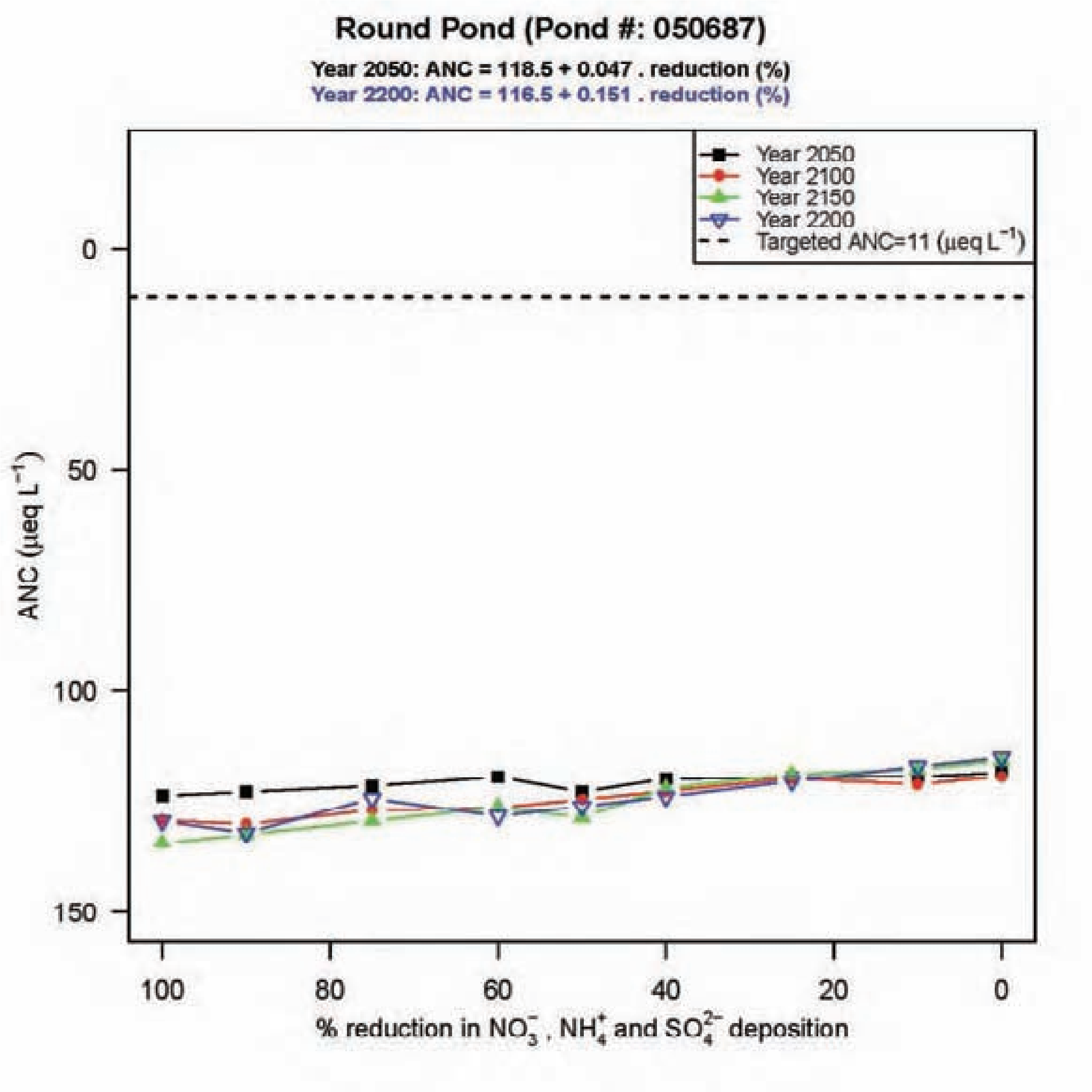
Unknown Pond (Pond #: 050658)
Year 2050: ANC = 132.6 + 0.025 . reduction (%)
Year 2200: ANC = 118.6 + 0.18 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L^{-1})
ANC (μeq L^{-1})
0
50
100
150
100
80
60
40
20
0
% reduction in NO_3^-, NH_4^+ and SO_4^{2-} deposition

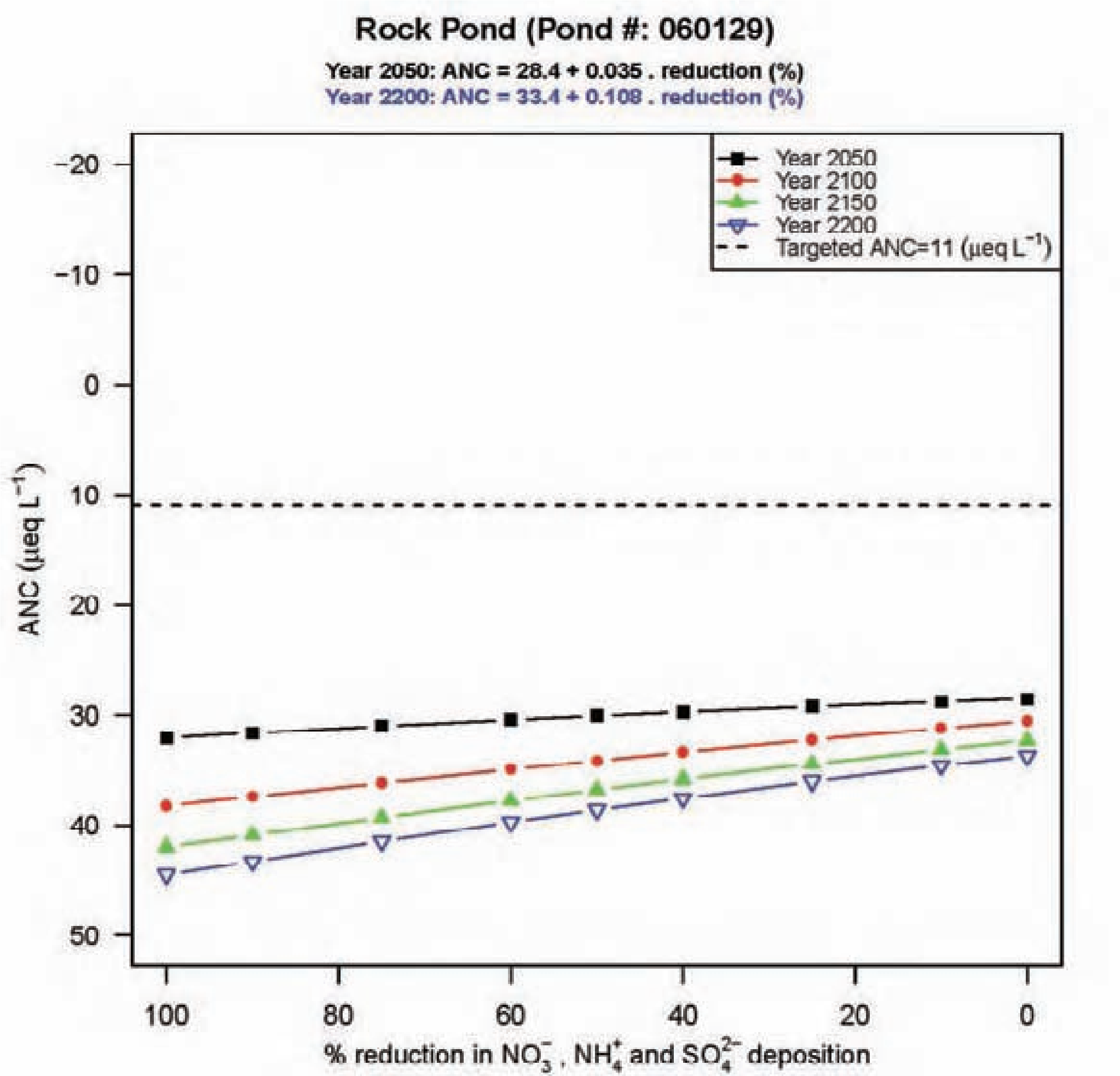


Dishrag Pond (Pond #: 050665)
Year 2050: ANC = −5.4 + 0.055 . reduction (%)
Year 2200: ANC = −2.2 + 0.097 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

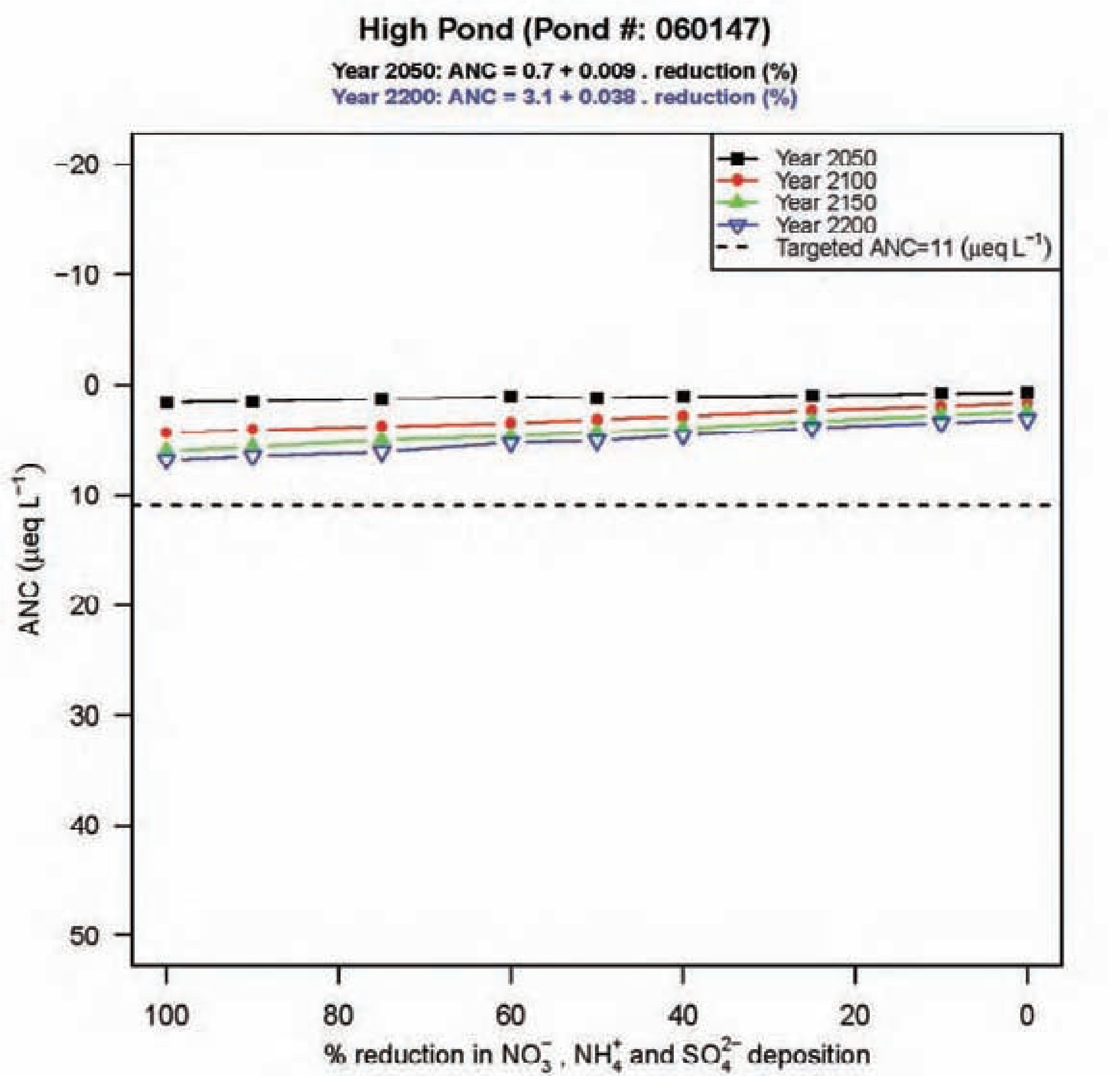


Wakely Pond (Pond #: 050666)
Year 2050: ANC = 57 + 0.079 . reduction (%)
Year 2200: ANC = 55 + 0.128 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

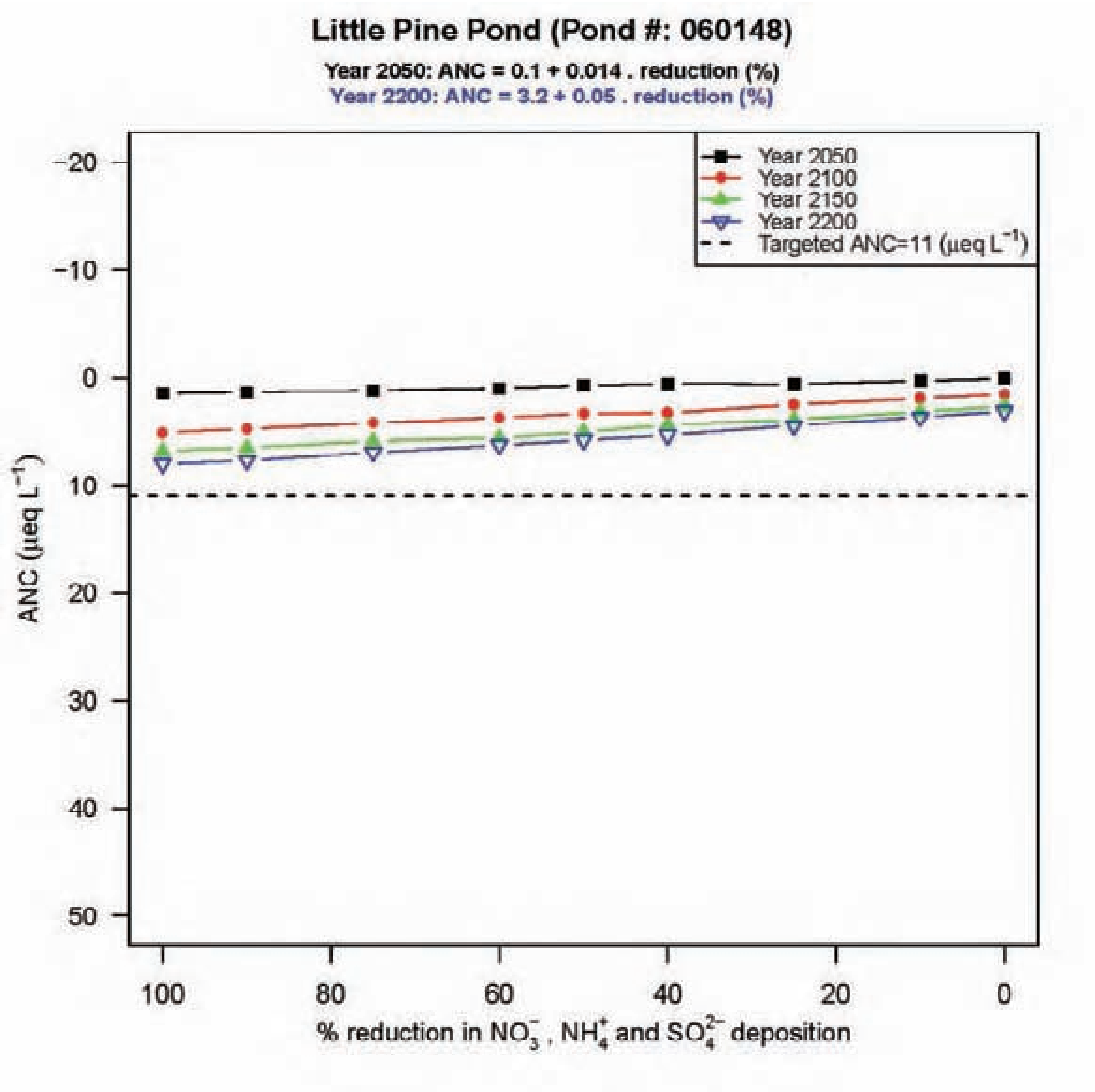

Round Pond (Pond #: 050687)
Year 2050: ANC = 118.5 + 0.047 . reduction (%)
Year 2200: ANC = 116.5 + 0.151 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
0
50
100
150
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



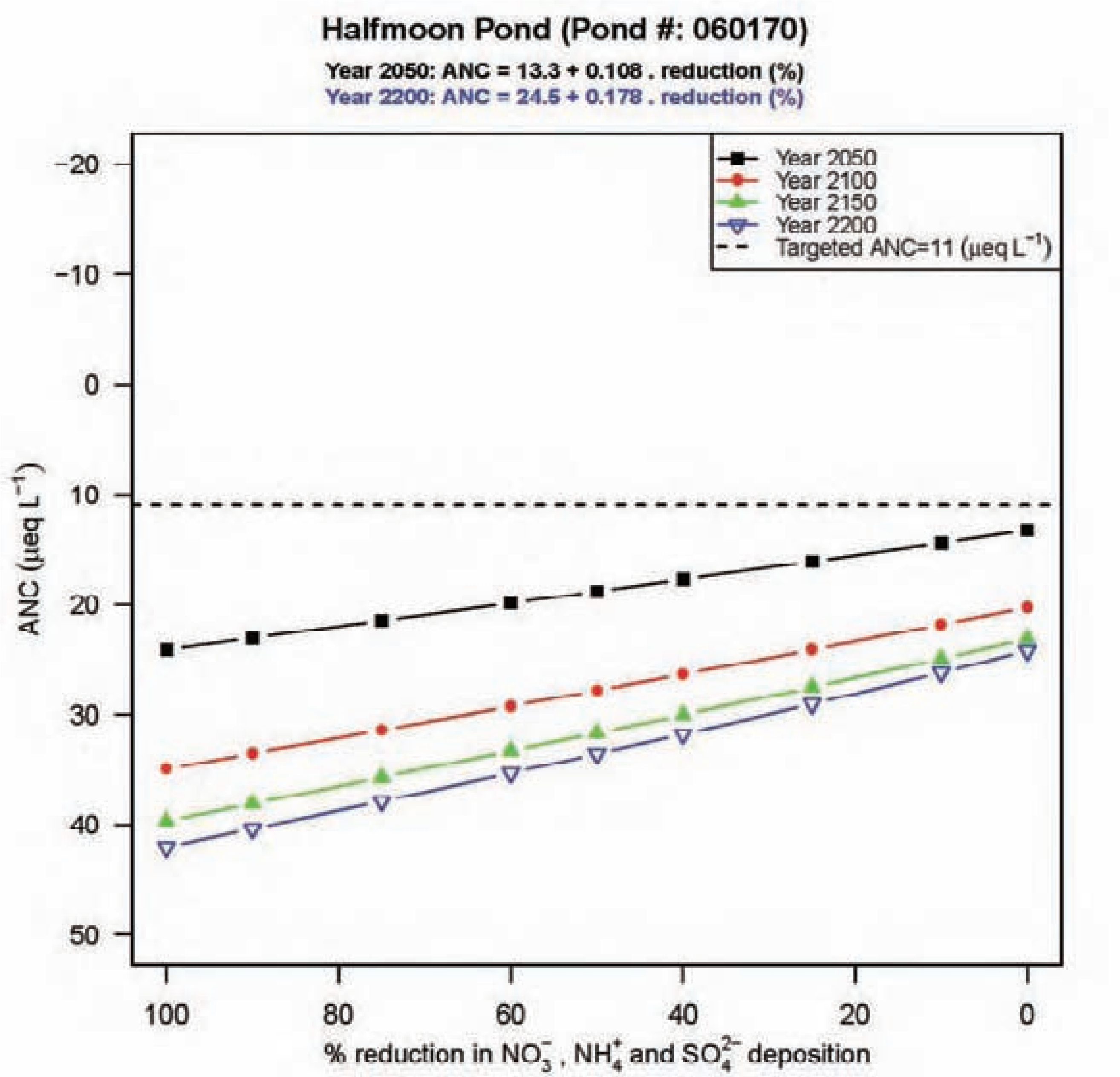
Rock Pond (Pond #: 060129)
Year 2050: ANC = 28.4 + 0.035 . reduction (%)
Year 2200: ANC = 33.4 + 0.108 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
ANC (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition

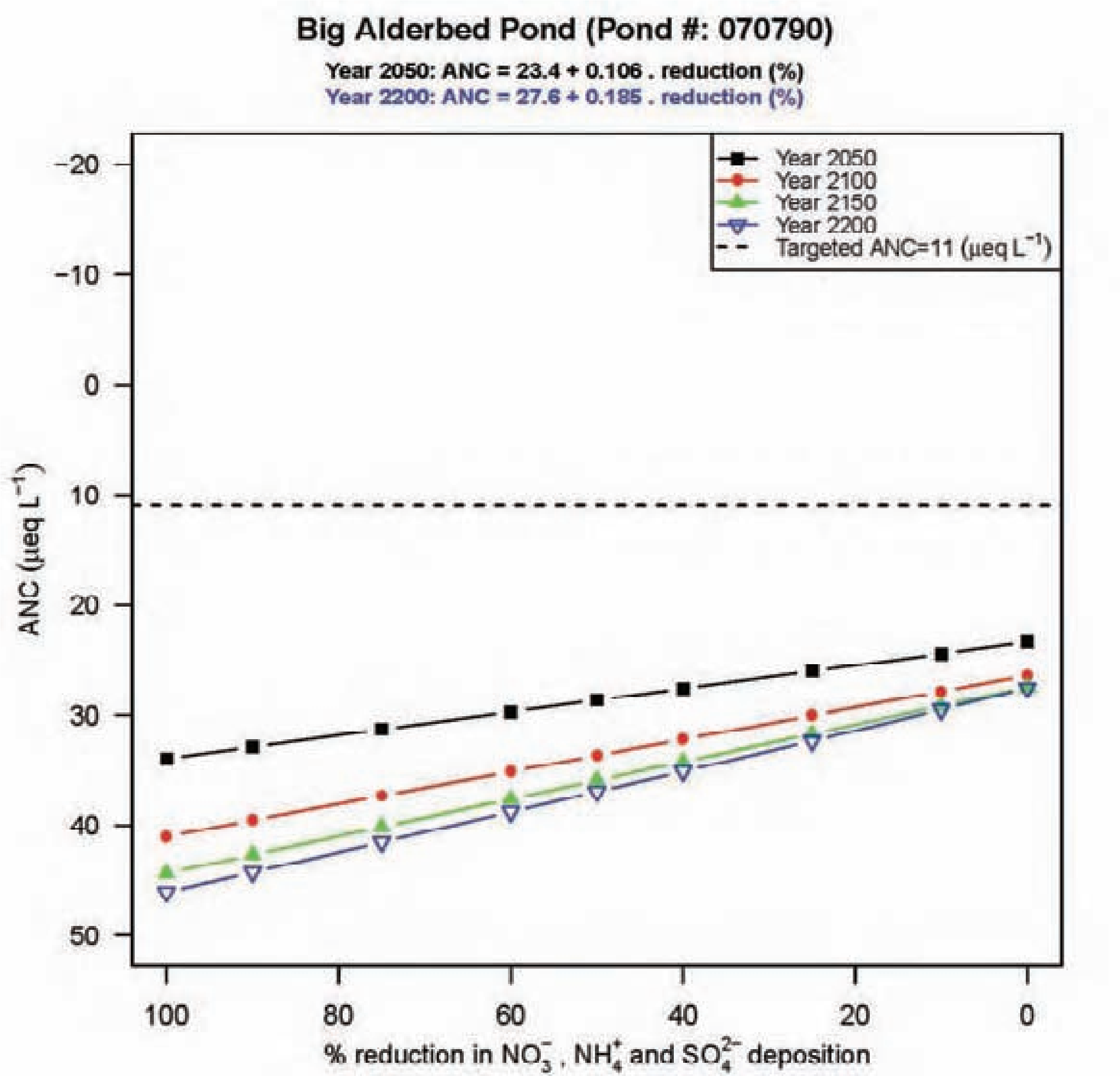


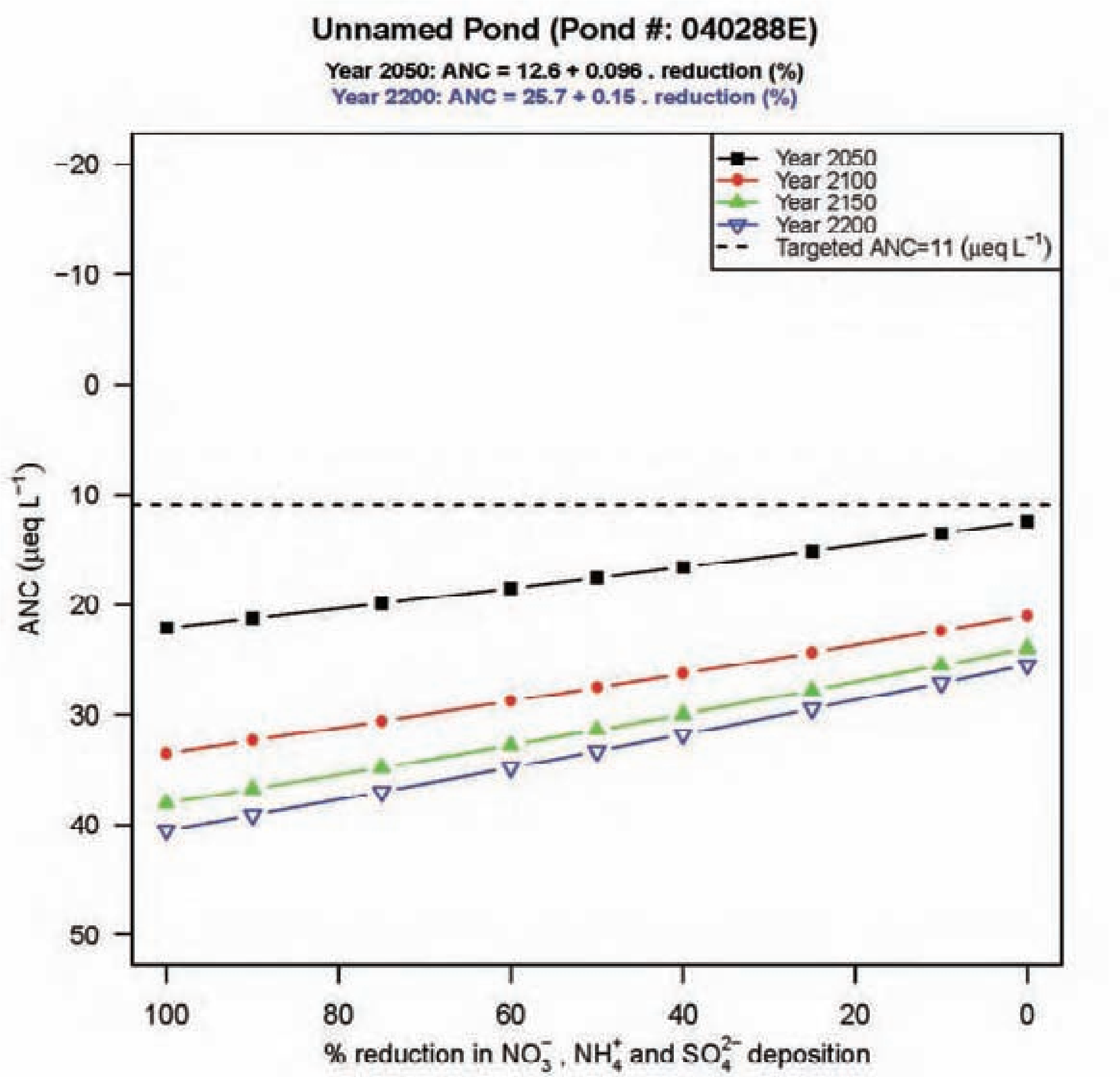
High Pond (Pond #: 060147)
Year 2050: ANC = 0.7 + 0.009 . reduction (%)
Year 2200: ANC = 3.1 + 0.038 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
ANC (μeq L⁻¹)
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition



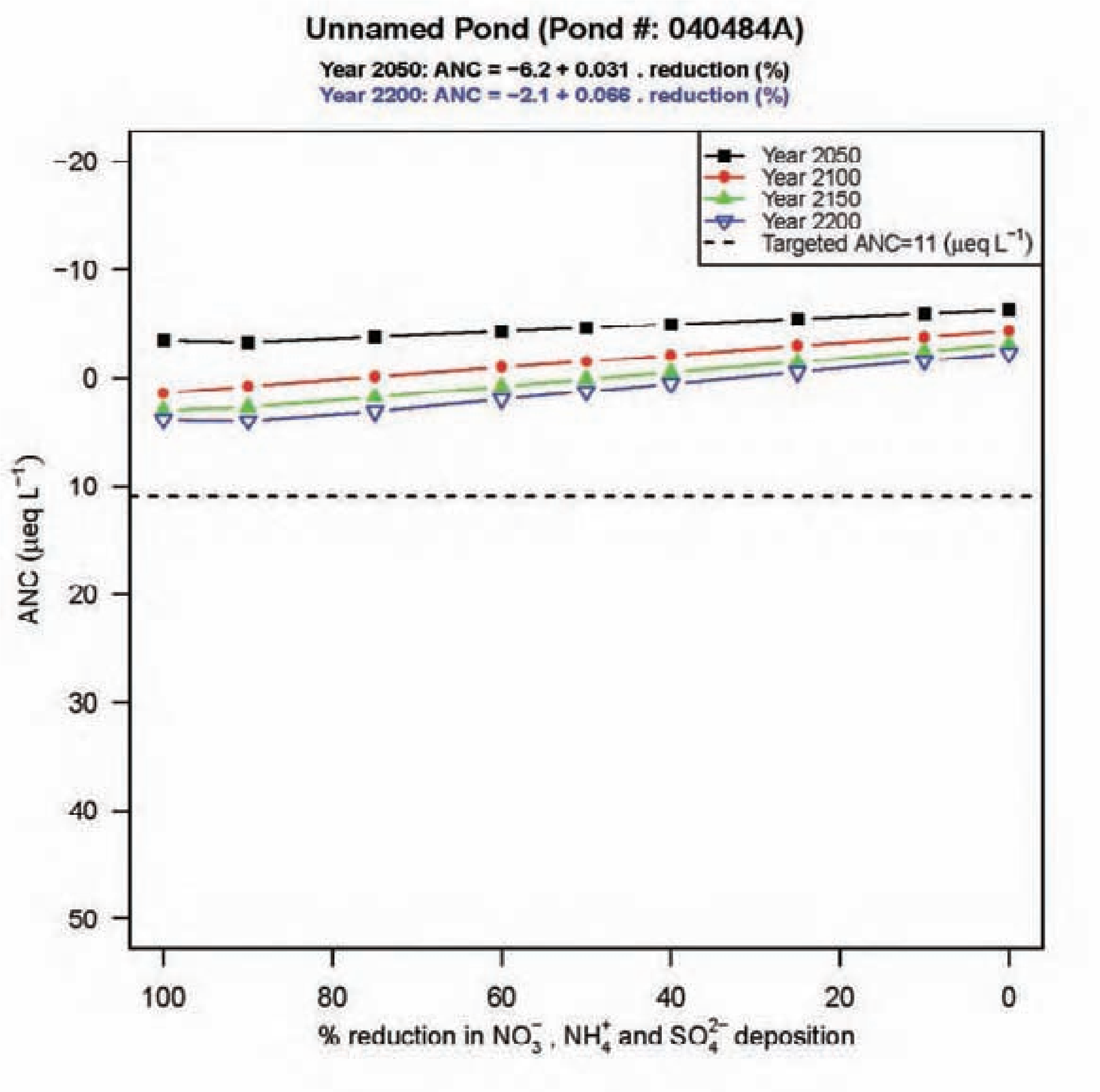
Little Pine Pond (Pond #: 060148)
Year 2050: ANC = 0.1 + 0.014 . reduction (%)
Year 2200: ANC = 3.2 + 0.05 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition


Halfmoon Pond (Pond #: 060170)
Year 2050: ANC = 13.3 + 0.108 . reduction (%)
Year 2200: ANC = 24.5 + 0.178 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

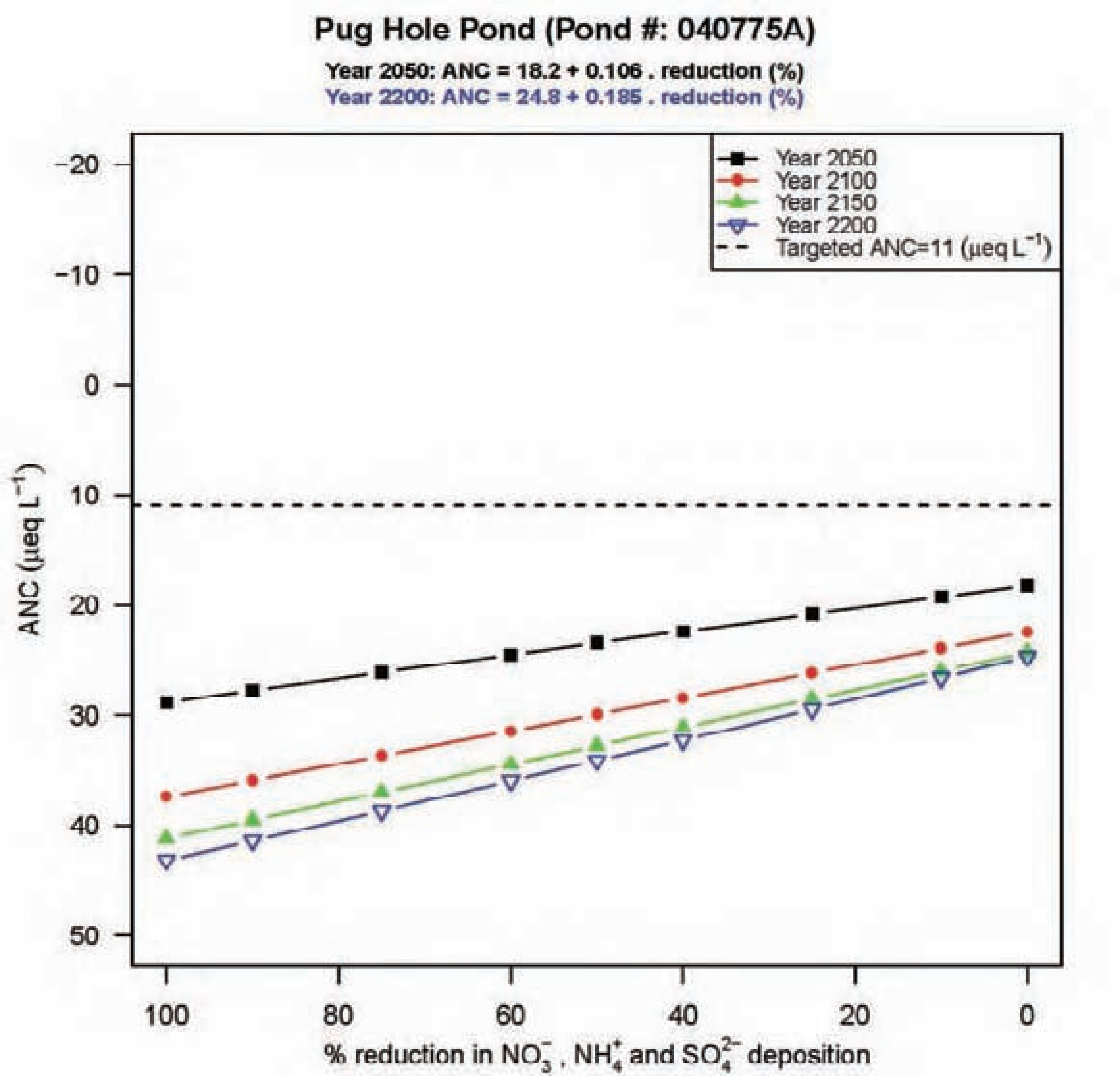

Big Alderbed Pond (Pond #: 070790)
Year 2050: ANC = 23.4 + 0.106 . reduction (%)
Year 2200: ANC = 27.6 + 0.185 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
−20
−10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3⁻, NH4⁺ and SO4²⁻ deposition

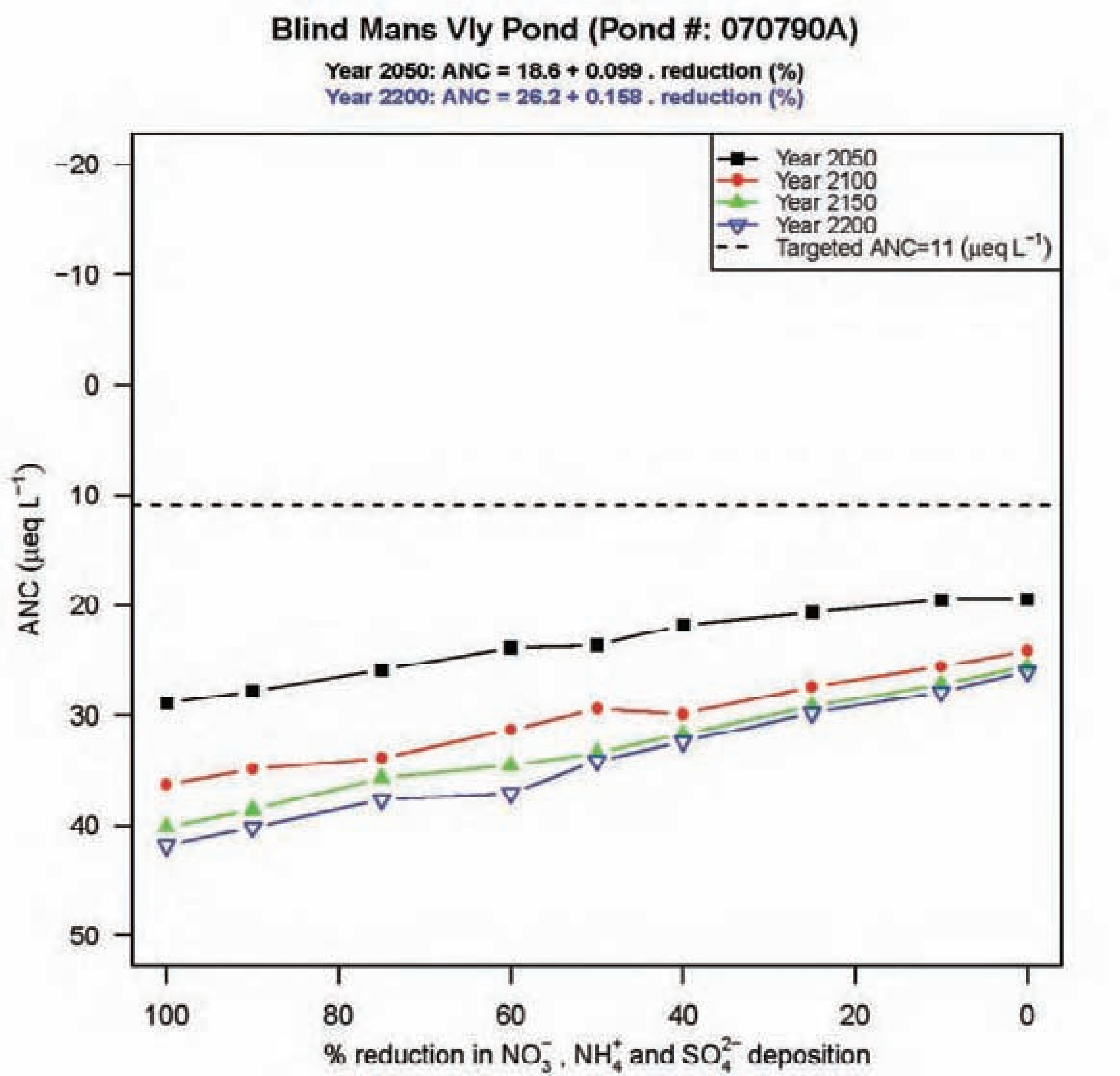


Unnamed Pond (Pond #: 040288E)
Year 2050: ANC = 12.6 + 0.096 . reduction (%)
Year 2200: ANC = 25.7 + 0.15 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (µeq L⁻¹)
-20
-10
0
10
20
30
40
50
ANC (µeq L⁻¹)
100
80
60
40
20
0
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition



Unnamed Pond (Pond #: 040484A)
Year 2050: ANC = −6.2 + 0.031 . reduction (%)
Year 2200: ANC = −2.1 + 0.066 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition


Pug Hole Pond (Pond #: 040775A)
Year 2050: ANC = 18.2 + 0.106 . reduction (%)
Year 2200: ANC = 24.8 + 0.185 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
% reduction in NO₃⁻, NH₄⁺ and SO₄²⁻ deposition
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0



Blind Mans Vly Pond (Pond #: 070790A)
Year 2050: ANC = 18.6 + 0.099 . reduction (%)
Year 2200: ANC = 26.2 + 0.158 . reduction (%)
Year 2050
Year 2100
Year 2150
Year 2200
Targeted ANC=11 (μeq L⁻¹)
ANC (μeq L⁻¹)
-20
-10
0
10
20
30
40
50
100
80
60
40
20
0
% reduction in NO3-, NH4+ and SO42- deposition

Appendix 8
Estimated annual baseline atmospheric deposition (average of 2009 - 2011) of SO_4^{2-}, NO_3^- and NH_4^+ for the sites considered in this study

Pond #	Pond Name	Application	Estimated Average Baseline (2009 -2011) Depostion (meq/m^2-yr)		
			NH_4^+	NO_3^-	SO_4^{2-}
020138	East Copperas Pond	TMDL/Calibration	10.72	16.48	26.28
020201	St. Germain Pond	TMDL	10.66	15.81	19.70
030221	Benz Pond	TMDL	10.67	16.13	24.01
035219	Duck Pond	TMDL	9.05	18.79	22.86
040181	Gregg Lake	TMDL	12.03	17.73	25.15
040184	Green Pond	TMDL	12.07	17.56	24.93
040195	Muskrat Pond	TMDL	12.11	17.39	22.24
040197	Diana Pond	TMDL	12.26	16.63	24.61
040200	Upper South Pond	TMDL	12.14	17.02	21.16
040201	Unnamed Pond	TMDL	12.16	16.86	20.52
040203	Lower Beech Ridge pond	TMDL/Confirmation	12.21	16.63	20.50
040210	Willys Lake	Confirmation	12.18	16.57	24.76
040240	Desert Pond	TMDL	11.59	19.25	31.74
040245	Jakes Pond	TMDL	11.73	18.97	23.12
040246	Buck Pond	TMDL	11.90	18.00	22.73
040247	Hog Pond	TMDL	11.97	17.82	23.80
040289	Crystal Lake	TMDL	11.42	18.99	24.11
040365	Oven Lake	TMDL	12.02	16.62	21.93
040368	Hitchens Pond	TMDL	12.02	16.60	24.72
040436	Sand Pond	TMDL	11.79	19.09	24.20
040438	Ikes Pond	TMDL	11.86	19.03	22.94
040443	Pepperbox Pond	TMDL	12.05	17.93	21.46
040444	Lower Spring Pond	TMDL	11.86	18.71	23.43
040446	Tied Lake	TMDL	12.02	17.71	22.61
040457	Unnamed Pond	TMDL	11.70	19.40	24.52
040458	Bear Pond	TMDL	11.87	18.75	22.86
040473	Sunday Lake	TMDL/Confirmation	11.80	19.20	23.54
040485	Deer Pond	TMDL	12.14	17.46	22.73
040491	Upper Moshier Pond	TMDL	12.03	17.89	22.80
040494	Shallow Pond	TMDL	12.09	17.56	22.41
040496	Raven Lake	TMDL	12.08	17.53	22.38
040497	Unnamed Pond	TMDL	12.23	16.87	22.13
040498	Lyon Lake	TMDL	12.16	17.09	22.50
040499	Slim Pond	TMDL	12.17	17.13	22.56
040500	Evergreen Lake	TMDL	12.18	17.12	22.58
040502	Peaked Mountain Lake	TMDL	11.80	18.35	23.48
040505	Hidden Lake	TMDL	11.87	18.03	22.04
040508	Ginger Pond	TMDL	12.05	17.45	23.30
040510	Unnamed Pond	TMDL	12.05	17.37	24.87
040511	Soda Pond	TMDL	12.32	16.55	22.59
040513	Unnamed Pond	TMDL	12.21	16.81	22.47
040522	Higby Twins E. Pond	TMDL	11.95	17.23	26.04

Pond #	Pond Name	Application	Estimated Average Baseline (2009 -2011) Depostion (meq/m^2-yr)		
			NH_4^+	NO_3^-	SO_4^{2-}
040523	Higby Twins W. Pond	TMDL	12.02	17.03	25.75
040527	Summit Pond	TMDL	12.13	16.43	20.46
040530	Beaverdam Pond	TMDL	11.63	18.02	25.00
040534	Little Rock Pond	TMDL	11.76	17.74	23.50
040547	Lilypad Pond	TMDL	11.44	17.53	26.75
040548	Mud Pond	TMDL	11.45	17.56	25.14
040549	Little Salmon Pond	TMDL	11.46	17.42	22.10
040550	Frank Pond	TMDL	11.71	16.50	22.67
040551	Hardigan Pond	TMDL	11.49	17.20	21.86
040570	Terror Lake	TMDL	12.00	16.68	24.08
040571	East Pond	TMDL	12.20	16.34	23.18
040581	Pocket Pond	TMDL	12.37	15.94	24.82
040582	South Pond	TMDL	12.10	16.83	24.86
040608	Evies Pond	TMDL	11.45	21.84	33.60
040610	Long Lake	TMDL	11.51	21.71	30.79
040615	Fish Pond	TMDL	11.33	22.06	27.13
040630	Bills Pond	TMDL	11.82	19.47	24.58
040632	Panther Pond	TMDL	11.69	20.13	28.87
040638	Unnamed Pond	TMDL	11.84	19.33	23.43
040646	Unnamed Pond	TMDL	12.24	17.65	21.59
040651	Little Diamond Pond	TMDL	12.13	17.30	21.66
040679	Unnamed Pond	TMDL	12.10	18.13	21.91
040681	Blackfoot Pond	TMDL	12.16	18.01	23.71
040702	Lost Lake	TMDL	11.85	20.01	28.08
040704	Middle Settlement Lake	TMDL/Calibration	11.97	19.42	27.28
040705	Cedar Pond	TMDL	11.91	19.48	27.58
040706	Grass Pond	TMDL/Calibration	12.02	19.00	26.70
040707	Middle Branch Lake	TMDL/Calibration	11.82	19.88	23.45
040708	Little Pine Lake	TMDL	11.75	20.50	29.80
040748	Bubb Lake	Confirmation	11.78	18.11	25.23
040753	West Pond	TMDL/Calibration	11.95	17.57	25.62
040754	Squash Pond	TMDL/Calibration	12.23	16.52	22.95
040757	Little Chief Pond	TMDL	11.75	17.82	23.17
040758	Gull Lake South	TMDL	11.90	17.15	20.42
040759	Otter Pond	TMDL	11.78	17.08	21.31
040760	Otter Pond	TMDL	12.04	16.04	23.98
040762	North Gull Lake	TMDL	11.97	16.91	21.14
040768	Lower Sister Lake	TMDL	11.81	17.08	24.70
040777	Constable Pond	TMDL/Calibration	11.84	17.38	22.46
040778	Chub Lake	TMDL	11.91	16.98	23.69
040779	Pigeon Lake	TMDL	12.01	16.41	22.01
040788	Eagles Nest Lake	TMDL	11.79	17.33	21.93

Pond #	Pond Name	Application	Estimated Average Baseline (2009 -2011) Depostion (meq/m^2-yr)		
			NH_4^+	NO_3^-	SO_4^{2-}
040826	Limekiln Lake	Confirmation	11.86	17.85	21.39
040836	Stink Lake	TMDL	11.91	17.98	24.36
040837	Balsam Lake	TMDL	11.95	17.77	21.16
040841	Kettle Pond	TMDL	12.20	16.80	25.59
040852	Indian Lake	Confirmation	12.18	16.66	21.37
040854	Horn Lake	TMDL	12.46	16.04	25.47
040863	Unnamed Pond	TMDL	12.71	14.36	23.01
040866	Deep Lake	TMDL	12.65	14.00	22.67
040869	Twin Lake West	TMDL	12.71	13.55	28.55
040870	Twin Lake East	TMDL	12.70	13.49	28.49
040873	Wolf Lake	TMDL	12.65	13.90	22.08
040874	Brooktrout Lake	TMDL/Calibration	12.36	15.27	21.10
040875	Northrup Lake	TMDL	12.61	14.48	21.77
040880	Bear Pond	TMDL	12.00	16.60	23.19
040885	Falls Pond	TMDL	12.55	14.59	23.90
040888	Sly Pond	TMDL	12.93	12.10	24.25
040889	Cellar Pond	TMDL	12.98	11.22	28.77
040951	Little Woodhull Lake	TMDL	12.09	18.98	25.20
040952	Lily Lake	TMDL	12.11	18.93	24.24
040984	Bloodsucker Pond	TMDL	12.20	18.52	23.37
040995	Burp Lake	TMDL	12.36	17.61	24.12
041003	Little Salmon Lake	TMDL	12.42	16.79	22.22
041007	North Lake	Confirmation	11.99	19.11	22.55
041011	Snyder Lake	TMDL	12.63	15.51	28.31
045178	Unnamed Pond Dried	TMDL	11.85	18.93	23.24
045228	Upper Lennon Pond	TMDL	11.89	19.14	26.21
050215	Willis Lake	Confirmation	10.57	20.94	28.67
050259	Jockeybush Lake	Confirmation	11.83	18.10	21.96
050458	Clear Pond	Calibration	10.70	14.68	18.08
050582	Bullhead Pond	TMDL	10.94	17.20	21.65
050584	Cranberry Pond	TMDL	10.87	17.04	22.85
050586	Rock Pond	TMDL/Confirmation	10.88	17.11	25.43
050587	Stonystep Pond	TMDL	10.91	17.04	25.57
050589	Puffer Pond	TMDL	11.54	14.93	22.26
050593	Center Pond	TMDL	11.06	16.80	21.08
050594	Clear Pond	TMDL	11.27	15.86	19.72
050607	Little Moose Pond	TMDL/Confirmation	12.11	15.61	23.58
050608	Otter Lake	TMDL	12.11	15.79	21.24
050656	Green Pond	TMDL	10.89	17.40	22.85
050658	Unknown Pond	TMDL	10.99	17.22	21.08
050665	Dishrag Pond	TMDL	12.38	13.30	25.61
050666	Wakely Pond	TMDL	11.74	15.88	19.84

Pond #	Pond Name	Application	Estimated Average Baseline (2009 -2011) Depostion (meq/m^2-yr)		
			NH_4^+	NO_3^-	SO_4^{2-}
050669	Carry Pond	Calibration	11.82	15.93	21.61
050684	Arbutus Pond	Calibration	10.85	16.73	23.60
050687	Round Pond	TMDL	10.81	16.83	21.34
060129	Rock Pond	TMDL	11.35	17.43	23.63
060147	High Pond	TMDL	11.53	16.42	20.77
060148	Little Pine Pond	TMDL	11.31	16.97	20.78
060170	Halfmoon Pond	TMDL	11.65	17.03	24.13
060313	Sagamore Lake	Confirmation	11.65	17.20	23.94
060329	Queer Lake	Confirmation	11.91	17.21	24.28
070790	Big Alderbed Pond	TMDL/Confirmation	11.75	19.23	24.62
040288E	Unnamed Pond	TMDL	11.50	18.72	22.85
040484A	Unnamed Pond	TMDL	12.12	17.53	21.57
040775A	Pug Hole Pond	TMDL	12.10	16.51	27.51
060315A	Raquette Lake Reservoir	Calibration	11.63	17.33	24.53
070790A	Blind Mans Vly Pond	TMDL	11.98	18.20	21.65

Appendix 9
Derivation of TMDL endpoint for NYS forest preserve waters

1 Introduction

Forest Preserve lands of the Adirondacks are protected by the "forever wild" provisions of Article XIV, §1 of the New York State Constitution, which reads in part as follows: "The lands of the state, now owned or hereafter acquired, constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands." A reasonable and generally accepted interpretation of the State Constitution language suggests that the waters of the Forest Preserve are to be maintained in their natural condition. Because protection of the Forest Preserve lands and waters is governed by the language of the State Constitution rather than the parameter-specific numeric water quality standards, it is necessary to establish a numeric water quality endpoint. Accordingly, a TMDL endpoint that is based on a water bodies acid neutralizing capacity (ANC), adjusted for strong acid organic anions (ANC_{OAA}), was derived to protect freshwater aquatic life within the Forest Preserve.

1.1 Summary of Information

The atmospheric deposition of oxides of sulfur and nitrogen (SO_x and NO_x) onto watersheds that are generally low in substances such as calcium can lead to acidification (that is, lowered pH) of waterbodies within the watershed as well as elevated levels of inorganic aluminum (Al) in the water column. This can be harmful to fish communities, leading to a loss of acid-sensitive species, or possibly all fish life in a severely-affected water body. (Driscoll et al., 1980; Schindler et al., 1985, 1991). The mechanism of Al toxicity to fish is ion-osmoregulatory dysfunction (i.e., the inability of a fish to maintain the correct balance of dissolved solutes and water in their body fluids), as well as various respiratory problems related to aluminum precipitation on the gills (Gensemer and Playle, 1999; Rosseland and Staurnes, 1994). Acidification can cause reproductive failure of acid sensitive fish species.

Alkalinity and ANC are measures of the ability of a water to neutralize strong acid and reduce or eliminate the adverse effects resulting from the atmospheric deposition of SO_x and NO_x onto sensitive watersheds. Alkalinity consists of the sum of titratable carbonate and noncarbonate chemical species in a filtered water sample. ANC is the acid-neutralizing capacity of solutes plus particulates in an unfiltered water sample (USGS, 2012). ANC is equivalent to alkalinity for samples without titratable particulate matter, and both are reported in milliequivalents or microequivalents per liter, which is the molar equivalent to the mass of acidity-related ions in the water. ANC (or alkalinity) can be directly linked to both underlying water chemistry, e.g., pH and Al, and to biological impairment, specifically fish mortality, reproduction, and the number of fish species present in a water body (USEPA, 2011). Both terms are widely used as indices of the extent of acidification or the susceptibility of a natural water to acidification. Alkalinity is often used as an analyzed value through titration, while ANC is often calculated from ions in solution (Lydersen, 2004).

Calculated ANC (as opposed to ANC measured by titration), is commonly defined as a difference in charge balance of base cations ([BC]) and strong acid anions ([SAA]) (Reuss and Johnson, 1986):

$$\text{Calculated ANC} = [BC] - [SAA]$$

where: $[BC] = [Ca^{2+}] + [Mg^{2+}] + [Na^{+}] + [K^{+}]$ and,

$$[SAA] = [SO_4^{2-}] + [Cl^-] + [NO_3^-]$$

This method of estimating ANC is generally regarded as a more suitable index of a natural water's acid-base status than measured (titrated) ANC because it is considered not to vary with transient (e.g., diurnal) changes in the partial pressure of CO_2, as ANC (or alkalinity) measured as a titration would (Reuss and Johnson, 1986). ANC of natural waters is often evaluated as a key water quality parameter in both regional water quality surveys and intensive watershed studies as well as the primary output of several watershed acidification models, rather than pH or inorganic Al (Driscoll et al., 1991; Thornton et al., 1990).

Many natural waters contain high concentrations of organic acids. These acids result from the breakdown of plant material in the water, and are usually present as humic and fulvic acids. For example, in many lakes and streams in the Adirondacks, the water appears to be stained brown, almost like tea. This color is imparted by the presence of tannin, or tannic acid, a class of naturally occurring organic acids. The concentration of these naturally-occurring organic acids can be sufficient enough to contribute significantly to the ionic balance of the water, or even to dominate the water's acid-base status in some ecosystems (Hemond, 1980; Gorham et al., 1985). The impact of the presence of such organic acids can significantly influence the ANC, but that impact cannot be taken into account by only measuring the molar concentrations of [BC] and [SAA].

Lydersen et al. (2004) proposed an alternative method for calculating ANC that takes the presence of organic acids into account. The ANC calculation is modified so as the permanent anionic charge of the organic acids is included as a part of the strong acid anions. In many humic lakes (dissolved organic carbon (DOC) > 4 mg carbon/L), the natural organic acids are the predominant pH-buffering system. The p*K*-value is a measure of the strength of an acid on a logarithmic scale and is used to compare the strengths of different acids. The p*K*-value is given by $\log_{10}(1/K_a)$, where K_a is the acid dissociation constant. The larger the p*K*-value, the smaller the extent of dissociation, a strong acid is almost completely dissociated in aqueous solution. Because a significant amount of the organic acids in humic lakes have p*K*-values ≤ 3.5, these relatively strong acids will be permanently deprotonated in almost all natural waters (i.e., waters with pH > 4.5). This means that they will be permanently present as anions, in the same manner as the strong acid inorganic anions, SO_4^{2-}, NO_3^- and Cl^-. Lydersen et al. (1996) reported that the average ionic charge density of organic acids was approximately 10.2 µeq/ mg of carbon (i.e., DOC), and that about 1/3 of the concentration of organic material would be permanently present as anions. So the molar charge contribution of the DOC in water can be estimated as (10.2)/3 = 3.4 µeq/mg DOC.

The organic acid adjusted ANC (ANC_{OAA}), is then calculated by first determining the calculated ANC as described above, and subtracting the concentration of anions contributed by organic acids:

$$ANC_{OAA} = [BC] - [SAA] – (3.4 * DOC\ mg/L)$$, which can be simplified as:

$$ANC_{OAA} = \text{calculated ANC} – (3.4 * DOC\ mg/L)$$

To calculate ANC_{OAA}, the mass of the cations and anions must be converted to their equivalent ionic charge. This is done by converting the mass value to molar values. For divalent ions, the molar equivalent is multiplied by two, because each divalent ion contributes two charges instead of one. Consider a lake where the following base cations (calcium (Ca), magnesium (Mg), sodium (Na), and potassium (K)); strong acid ions (sulfate (SO_4), nitrate (NO_3), and chlorine (Cl); and DOC were measured. The first step is to convert the concentration of the various ions in micrograms per liter (µg/L) to micromoles per liter (µmol/L) by dividing the concentration by the ion’s molecular weight. For divalent ions (Ca, Mg, and NO_3), the resulting ionic charge equivalent is multiplied by 2. The calculated ANC can then be determined by subtracting the sum of the strong acid anions (SAA) from the sum of the base cations (BC). The ionic charge equivalent for DOC is determined by multiplying the DOC concentration in mg/L times 3.4. ANC_{OAA} can then be found by subtracting the DOC equivalent from the calculated ANC. The following table provides an example of the computation procedure for deriving ANC_{OAA} in surface water:

	Base Cations (BC)				Strong Acid Anions (SAA)			DOC
Ion →	$(Ca)^{+2}$	$(Mg)^{+2}$	$(Na)^{+1}$	$(K)^{+1}$	$(SO_4)^{-2}$	$(NO_3)^{-1}$	$(Cl)^{-1}$	mg/L
Concentration measured in water, µg/L	4000	560	11580	370	4140	200	18630	2.84
Molecular weight (not rounded)	40.08	24.312	22.9898	39.102	96.0616	62.0049	35.453	
Ionic charge, µeq/L	199.60	46.07	503.70	9.46	86.19	3.23	525.48	
Group sums	Base Cations = 758.83				Strong acid ions = 614.90			
Calculated ANC = (BC-SAA) = 758.83 - 614.90 = 143.93 µeq/L								
DOC µeq/L = (3.4 * 2.84 mg/L) = 9.66								
ANC_{OAA} = Calculated ANC – (3.4 * DOC mg/L) = 143.9 – 9.66 = 134.27								

Thus, the concentration of permanent organic anions present in the form of natural organic acids is incorporated in the ANC_{OAA}. When calculating ANC_{OAA}, the humic conditions in lakes are better taken into account. In a water body where there is little organic matter present, then the calculated ANC and the ANC_{OAA} would be approximately equal. However, in waters with a significant concentration of organic matter, the ANC_{OAA} can be much smaller than the calculated ANC. This difference does not affect the potential of the water body to support aquatic life, because the organic acids present will impact the overall acidity of the water whether they are being measured or not. The ANC_{OAA} provides a more realistic measure of a water body's ability to neutralize strong acids, because the impact of organic acids is being taken into account. This is of particular importance for surface waters that are recovering from acidification, because recent changes in surface water chemistry are probably linked to a higher organic carbon content (Skjelkvale et al., 2001, 2005; Evans et al., 2005).

1.2 Derivation of the ANC_{OAA} Endpoint

Lien et al. (1996) conducted an extensive study of the relationship between calculated ANC and impacts to fish populations throughout Norway. They examined the effects of acidification on the populations of primarily seven species, brown trout (*Salmo trutta*), perch (*Perca fluviatilis*), Arctic char (*Salvelinus alpinus*), whitefish (*Coregonus lavaretus*), pike (*Esox lucius*), roach (*Rutilus rutilius*), and a minnow (*Phoxinus phoxinus*).

Of these seven species, two occur commonly in New York: brown trout and pike (i.e., northern pike). Four of the remaining five species do not occur in New York, but New York waters are inhabited by closely related species of the same genus: yellow perch (*Perca flavescens*), brook trout (*Salvelinus fontinalis*), cisco (*Coregonus artedii*) lake whitefish (*Coregonus clupeaformis*), northern redbelly dace (*Phoxinus eos*) finescale dace (*Phoxinus neogaeus*). The roach is not known to occur in North America.

The close overlap/similarity of these Norwegian fish populations to New York State fish populations strongly suggests that the analyses of Lien et al. (1996) are equally applicable to New York. Furthermore, all six species/genera common to both regions are known to occur throughout the parts of New York most impacted by lake acidification (Smith, 1985).

For these seven species, Lien et al. (1996) evaluated the status of the populations in over 1,000 Norwegian lakes for which water chemistry data was available and graded them as either extinct, reduced, or unaffected. Logistic regression analysis was used to compare calculated ANC with fish population. They then determined the calculated ANC value at which there would be a 95% probability that the population would be unaffected. A similar analysis was also conducted for invertebrates.

Their overall finding was that at calculated ANC of 20 μeq/L, no fish populations were extinct and only 10% were reduced, and no severe damage to invertebrate fauna was reported. For individual species, Lydersen et al. (2004) reviewed Lien et al. (1996) and reported that they detected no damage to populations at the following ANCs:

Fish species	calculated ANC, μeq/L
Brown trout	19
Arctic char	23
Perch	14

Although the relationship between ANC and fish species has been examined in New York State and Eastern United States, no such study with similar quantitative results has been published, although similar values for ANC, i.e., 25 – 30 μeq/L have been suggested as being similarly protective (Kahl, 2004) (although Kahl (2004) reported values as measured (titrated) ANC).

Lien's work was based on calculated ANC and did not take into account the impact of the presence of organic acids. If any of the lakes evaluated by Lien et al. (1996) contained quantities of natural organic acids that added to the overall water column acidity, then the status of the fish in that lake would be dependent upon a potentially much lower value of ANC, when measured as ANC_{OAA}.

Lydersen et al. (2004) repeated the analysis conducted by Lien et al. (1996) using ANC_{OAA} instead of calculated ANC. As an example, the relationship for arctic char *(Salvelinus alpinus)* is presented in Figure 1. Results show a 95% probability of no population damage to arctic char at a calculated ANC of 23 μeq/L, However, the same level of protection is also achieved at ANC_{OAA} value of 11 μeq/L. ANC_{OAA} provides significantly lower values of ANC in order to achieve equal fish status compared with the conventional (charge balance) ANC calculation.

Lydersen et al. (2004) reported the values of ANC_{OAA} that provided the same protection of individual fish species as the calculated ANC values reported by Lien et al. (1996); that is, the value associated with a 95% probability that the population would be unaffected:

Fish species	calculated ANC, μeq/L (Lien et al., 1996)	ANC_{OAA}, μeq/L (Lydersen et al., 2004)
Brown trout	19	8
Arctic char	23	11
Perch	14	-2

ANC is itself, not directly harmful to or protective of fish communities. ANC is a measure of the capacity of the water to neutralize acids, such as sulfuric and nitric acid that result from deposition of SO_x and NO_x onto the watershed. The larger the ANC, the greater the capability of a water body to neutralize these strong acids from anthropogenic sources. Arctic char are more sensitive to acidification than brown trout or perch, so it takes a larger ANC to protect them. Less sensitive fish species can tolerate more acidification, thus they require less ANC. Higher values of ANC are more protective, and lower values are less protective.

The brook trout *(Salvelinus fontinalis)* is chosen as the appropriate indicator species for setting the TMDL endpoint, because it represents an acid-sensitive fish species indigenous to surface waters throughout New York State. The brook trout is also closely related to the arctic char (Doiron et al., 2002) as both are within the same Genus with analogous habitat and environmental requirements (Scott and Crossman, 1973). Furthermore, of the seven species evaluated by Lien et al. (1996), the arctic char was the most sensitive to ANC. Lydersen et al. (2004) proposed an ANC_{OAA} value of 11 µeq/L to protect arctic char in Scandinavian lakes. Based on the relationship between arctic char and brook trout, an ANC_{OAA} of 11 µeq/L is selected as the minimum ANC required to protect the indicator species (i.e., brook trout), and, therefore, is also selected as the TMDL endpoint for Forest Preserve waters..

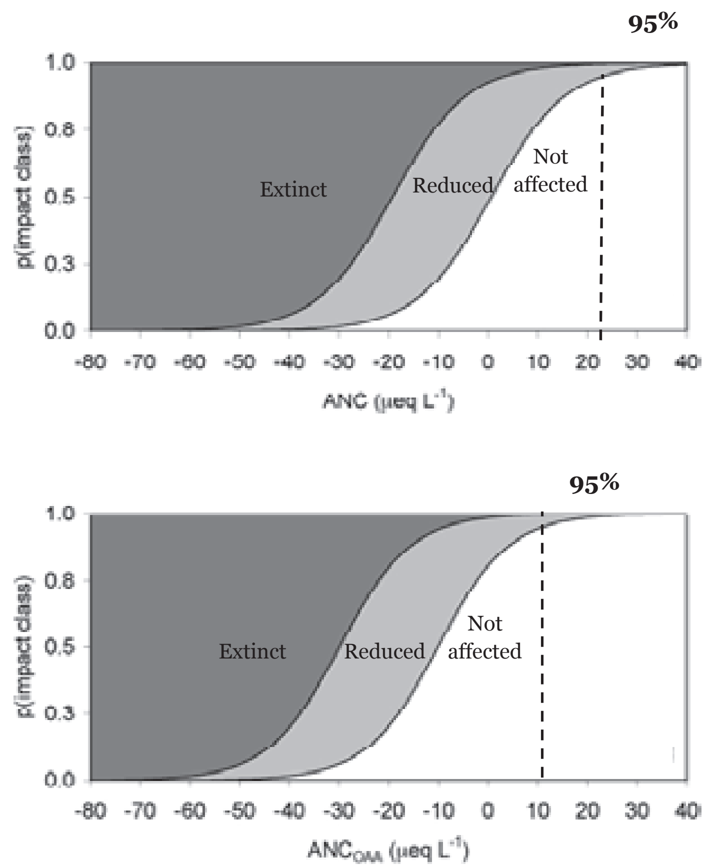


Figure 1. Relationship between fish status of arctic char and acid neutralizing capacity (ANC) of 66 Norwegian lakes, for both conventional ANC calculations and organic acid adjusted ANC (ANC_{OAA}) (modified from Lydersen et al., 2004).

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Division of Water and Division of Fish, Wildlife and Marine Resources
SOQ, TJS; January 10, 2013

Appendix 10
Characteristics of 37 lakes that will remain impaired even with 100% reduction in acid deposition

Pond #	Pond Name	Latitude	Longitude	Lake Type	Watershed Area (m^2)	Lake Surface Area (m^2)	HRT (yr)
060147	High Pond	44.0864	-74.6509	Thin Till, Low DOC	391600	162400	3.28
060148	Little Pine Pond	44.1332	-74.6578	Thin Till, Low DOC	298590	34048	0.50
030221	Benz Pond	44.5154	-74.4550	Mounded Seepage, Low DOC	744680	101800	1.29
020201	St. Germain Pond	44.3785	-74.2627	Mounded Seepage, Low DOC	121800	45680	1.00
040757	Little Chief Pond	43.8446	-74.8332	Thin Till, High DOC	67900	27517	0.20
040779	Pigeon Lake	43.8465	-74.7621	Thin Till, Low DOC	1058600	170900	0.40
040534	Little Rock Pond	43.9605	-74.9104	Thin Till, Low DOC	1031700	270500	1.77
040758	Gull Lake South	43.8564	-74.8208	Thin Till, Low DOC	800400	118200	0.32
040571	East Pond	43.8639	-74.8630	Thin Till,Low DOC	1566600	106900	0.56
040550	Frank Pond	43.9808	-74.6910	Thin Till, Low DOC	1020200	95030	0.41
040759	Otter Pond	43.8767	-74.7548	Thin Till, Low DOC	440800	39269	0.77
040203	Lower Beech Ridge pond	43.9642	-74.9825	Thin Till, Low DOC	417200	99544	0.97
040527	Summit Pond	43.9925	-74.9242	Thin Till, Low DOC	387300	63766	0.95
040679	Unnamed Pond	43.7643	-75.0220	Thin Till, Low DOC	442100	72949	0.07
040502	Peaked Mountain Lake	43.9139	-75.0037	Thin Till, Low DOC	940400	171700	0.80
040497	Unnamed Pond	43.9394	-75.0158	Thin Till, Low DOC	345900	7687	0.08
040201	Unnamed Pond	43.9681	-74.9937	Thin Till, Low DOC	649000	65069	0.29
040873	Wolf Lake	43.6297	-74.6530	Thin Till, High DOC	2023400	44809	0.08
040484A	Unnamed Pond	43.9258	-75.0556	Thin Till, Low DOC	343400	28155	0.08
040438	Ikes Pond	43.9028	-75.1446	Thin Till, Low DOC	247900	32848	0.92
040485	Deer Pond	43.9342	-75.0574	Thin Till, Low DOC	2727800	78812	0.20
040841	Kettle Pond	43.6762	-74.8211	Thin Till, High DOC	3828500	25450	0.61
040581	Pocket Pond	43.8340	-74.8811	Thin Till, High DOC	68600	14702	0.25
040365	Oven Lake	44.0201	-74.9127	Thin Till, Low DOC	5810600	428600	0.21
040510	Unnamed Pond	43.9350	-74.9965	Thin Till, High DOC	2771200	42587	0.30
040184	Green Pond	43.9624	-75.0599	Thin Till, Low DOC	278600	43014	0.31
040863	Unnamed Pond	43.5805	-74.7210	Thin Till, Low DOC	199400	30624	0.68
050665	Dishrag Pond	43.7815	-74.4906	Mounded Seepage, High DOC	2285900	20598	0.002
040494	Shallow Pond	43.9236	-75.0382	Thin Till, Low DOC	6274860	52737	0.50
040458	Bear Pond	43.9204	-75.1173	Thin Till, High DOC	398200	33798	0.20
040888	Sly Pond	43.6709	-74.5950	Thin Till, Low DOC	814800	90239	0.12

Pond #	Pond Name	Latitude	Longitude	Lake Type	Watershed Area (m^2)	Lake Surface Area (m^2)	HRT (yr)
040638	Unnamed Pond	43.8154	-75.1130	Thin Till, High DOC	170200	28584	0.18
045178	Unnamed Pond	43.9006	-75.1225	No Data	1054600	33003	0.05
040889	Cellar Pond	43.7243	-74.5366	Thin Till, High DOC	2171500	25726	0.02
020138	East Copperas Pond	44.3138	-74.3732	Thin Till, High DOC	169900	40604	1.98
041011	Snyder Lake	43.5703	-74.8218	Thin Till, Low DOC	2148100	76479	0.04
040754	Squash Pond	43.8254	-74.8863	Thin Till, High DOC	931600	46213	0.05

Appendix 11
TMDL load calculations including WLA, LA and MOS for each of the 91 lake watersheds

Pond #	Pond Name	SO_4^{2-} Critical Load	2200 ANC	Watershed Area	TMDL	WLA	LA	Explicit MOS (10%)
		(meq/m^2-yr)	μeq/L	(m^2)	(eq/day)	(eq/day)	(eq/day)	(eq/day)
050582	Bullhead Pond	21.65	119.5	1494400	88.6	0	79.7	8.9
050658	Unknown Pond	21.08	118.1	4525300	261.2	0	235.0	26.1
050687	Round Pond	21.34	115.1	15731000	919.0	0	827.1	91.9
050593	Center Pond	21.08	112.1	1868300	107.8	0	97.1	10.8
040615	Fish Pond	27.13	97.7	8338600	619.4	0	557.4	61.9
050594	Clear Pond	19.72	89.6	525900	28.4	0	25.6	2.8
050656	Green Pond	22.85	83.0	457700	28.6	0	25.8	2.9
040788	Eagles Nest Lake	21.93	68.2	1481510	89.0	0	80.1	8.9
040707	Middle Branch Lake	23.45	68.1	2503300	160.7	0	144.7	16.1
050666	Wakely Pond	19.84	54.8	954100	51.8	0	46.6	5.2
040706	Grass Pond	26.70	38.7	2558800	187.0	0	168.3	18.7
050584	Cranberry Pond	22.85	36.5	1107000	69.3	0	62.3	6.9
040548	Mud Pond	25.14	34.3	31162900	2144.6	0	1930.1	214.5
040549	Little Salmon Pond	22.10	34.3	28369600	1716.8	0	1545.1	171.7
060129	Rock Pond	23.63	33.7	32861500	2125.6	0	1913.1	212.6
040547	Lilypad Pond	26.75	33.1	31712900	2322.4	0	2090.1	232.2
040760	Otter Pond	23.98	32.0	1321000	86.7	0	78.1	8.7
040473	Sunday Lake	23.54	31.9	12899400	831.2	0	748.1	83.1
050589	Puffer Pond	22.26	31.8	2580200	157.2	0	141.5	15.7
040446	Tied Lake	22.61	31.3	397700	24.6	0	22.2	2.5
040247	Hog Pond	23.80	30.5	438800	28.6	0	25.7	2.9
040837	Balsam Lake	21.16	30.4	334400	19.4	0	17.4	1.9
040551	Hardigan Pond	21.86	30.2	1792400	107.3	0	96.5	10.7
040444	Lower Spring Pond	23.43	30.1	2118800	135.9	0	122.3	13.6
040952	Lily Lake	24.24	29.6	752900	50.0	0	45.0	5.0
050587	Stonystep Pond	25.57	29.5	545900	38.2	0	34.4	3.8
040457	Unnamed Pond	24.52	29.4	3011700	202.2	0	182.0	20.2
040762	North Gull Lake	21.14	29.0	1169300	67.7	0	60.9	6.8
041003	Little Salmon Lake	22.22	28.8	1890100	115.0	0	103.5	11.5
040705	Cedar Pond	27.58	28.8	5115200	386.3	0	347.7	38.6
040836	Stink Lake	24.36	28.8	3575200	238.5	0	214.6	23.8

Pond #	Pond Name	SO_4^{2-} Critical Load	2200 ANC	Watershed Area	TMDL	WLA	LA	Explicit MOS (10%)
		(meq/m^2-yr)	µeq/L	(m^2)	(eq/day)	(eq/day)	(eq/day)	(eq/day)
040768	Lower Sister Lake	24.70	28.6	16514400	1116.8	0	1005.1	111.7
040778	Chub Lake	23.69	28.6	2489000	161.4	0	145.3	16.1
040508	Ginger Pond	23.30	28.4	3780200	241.2	0	217.1	24.1
040246	Buck Pond	22.73	28.3	344200	21.4	0	19.3	2.1
040499	Slim Pond	22.56	28.1	376300	23.2	0	20.9	2.3
040530	Beaverdam Pond	25.00	28.0	4600300	314.9	0	283.4	31.5
040875	Northrup Lake	21.77	28.0	478200	28.5	0	25.6	2.8
040630	Bills Pond	24.58	27.9	909800	61.2	0	55.1	6.1
050607	Little Moose Pond	23.58	27.9	6496600	419.4	0	377.5	41.9
040181	Gregg Lake	25.15	27.8	5189500	357.3	0	321.6	35.7
040880	Bear Pond	23.19	27.8	1770300	112.4	0	101.2	11.2
035219	Duck Pond	22.86	27.7	121000	7.6	0	6.8	0.8
070790	Big Alderbed Pond	24.62	27.5	16104400	1085.4	0	976.9	108.5
040505	Hidden Lake	22.04	27.4	228700	13.8	0	12.4	1.4
040240	Desert Pond	31.74	27.3	499800	43.4	0	39.1	4.3
050608	Otter Lake	21.24	27.0	6155800	358.0	0	322.2	35.8
040708	Little Pine Lake	29.80	26.7	9178000	748.7	0	673.8	74.9
040245	Jakes Pond	23.12	26.4	468600	29.7	0	26.7	3.0
040608	Evies Pond	33.60	26.3	156000	14.3	0	12.9	1.4
070790A	Blind Mans Vly Pond	21.65	26.1	1422200	84.3	0	75.9	8.4
040951	Little Woodhull Lake	25.20	26.0	11386900	785.7	0	707.1	78.6
040436	Sand Pond	24.20	25.6	2835700	187.9	0	169.1	18.8
040288E	Unnamed Pond	22.85	25.5	5125100	320.7	0	288.6	32.1
040523	Higby Twins W. Pond	25.75	25.4	455900	32.1	0	28.9	3.2
040775A	Pug Hole Pond	27.51	24.7	612590	46.1	0	41.5	4.6
040610	Long Lake	30.79	24.5	736900	62.1	0	55.9	6.2
060170	Halfmoon Pond	24.13	24.2	634400	41.9	0	37.7	4.2
040646	Unnamed Pond	21.59	24.0	781900	46.2	0	41.6	4.6
040632	Panther Pond	28.87	23.9	953500	75.4	0	67.8	7.5
040496	Raven Lake	22.38	23.9	7016400	430.0	0	387.0	43.0
040491	Upper Moshier Pond	22.80	23.8	2477000	154.6	0	139.2	15.5

Pond #	Pond Name	SO_4^{2-} Critical Load	2200 ANC	Watershed Area	TMDL	WLA	LA	Explicit MOS (10%)
		(meq/m^2-yr)	μeq/L	(m^2)	(eq/day)	(eq/day)	(eq/day)	(eq/day)
040195	Muskrat Pond	22.24	23.5	675800	41.1	0	37.0	4.1
040704	Middle Settlement Lake	27.28	23.3	1138400	85.0	0	76.5	8.5
040200	Upper South Pond	21.16	23.2	425900	24.7	0	22.2	2.5
040702	Lost Lake	28.08	23.1	217500	16.7	0	15.1	1.7
040570	Terror Lake	24.08	23.1	2502300	164.9	0	148.4	16.5
040681	Blackfoot Pond	23.71	23.1	1856400	120.5	0	108.5	12.1
040368	Hitchens Pond	24.72	22.7	3048600	206.3	0	185.7	20.6
040651	Little Diamond Pond	21.66	22.5	151700	9.0	0	8.1	0.9
040443	Pepperbox Pond	21.46	22.3	727000	42.7	0	38.4	4.3
040513	Unnamed Pond	22.47	21.3	1104800	68.0	0	61.2	6.8
040582	South Pond	24.86	21.2	1745500	118.8	0	106.9	11.9
040289	Crystal Lake	24.11	20.7	146430	9.7	0	8.7	1.0
040854	Horn Lake	25.47	20.6	787310	54.9	0	49.4	5.5
040869	Twin Lake West	28.55	20.5	2315900	181.0	0	162.9	18.1
040522	Higby Twins E. Pond	26.04	20.3	1097100	78.2	0	70.4	7.8
040498	Lyon Lake	22.50	20.3	1658100	102.2	0	91.9	10.2
040511	Soda Pond	22.59	20.1	352600	21.8	0	19.6	2.2
040500	Evergreen Lake	22.58	20.0	676100	41.8	0	37.6	4.2
040885	Falls Pond	23.90	20.0	992500	64.9	0	58.5	6.5
040870	Twin Lake East	28.49	19.8	1349700	105.3	0	94.8	10.5
050586	Rock Pond	25.43	19.4	194830	13.6	0	12.2	1.4
040197	Diana Pond	24.61	19.1	588700	39.7	0	35.7	4.0
040866	Deep Lake	22.67	18.4	652200	40.5	0	36.4	4.0
040995	Burp Lake	24.12	18.0	309800	20.5	0	18.4	2.0
045228	Upper Lennon Pond	26.21	17.5	260800	18.7	0	16.8	1.9
040984	Bloodsucker Pond	23.37	17.2	63900	4.1	0	3.7	0.4
040753	West Pond	25.62	13.8	1014500	71.1	0	64.0	7.1
040777	Constable Pond	9.21	11.1	9349300	235.8	0	212.2	23.6
040874	Brooktrout Lake	5.70	11.0	1567000	24.4	0	22.0	2.4

Appendix 12
New York State Energy Research and Development Authority (NYSERDA) Research and Monitoring Plan for Acidic and Mercury Deposition

NYSERDA
ENVIRONMENTAL RESEARCH PROGRAM PLAN - DRAFT

Ecological Effects of Deposition of Sulfur, Nitrogen, and Mercury

2013 DRAFT
FOR REVIEW AND DISCUSSION

UPDATED 4/10/13
Please provide feedback and comments to:

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1 Ecological Effects of Deposition of Sulfur, Nitrogen, and Mercury

This EMEP program area supports research to improve the scientific and technical foundation to support and respond to policy needs. Over the next five years, this research will be guided by the following policy-relevant questions:

- How have New York ecosystems been affected by, and how are they responding to, emission reduction policies associated with acidification and mercury pollution?
- How will current and anticipated national, regional, and local strategies to reduce SOx, NOx, and mercury emissions affect New York State ecosystems?
- Given financial resource constraints, how can New York State maintain an appropriate multi-media monitoring program that is robust enough to identify impacts on ecosystems and track changes related to emissions policies?
- How will ecosystem responses to acidic deposition and mercury be influenced by other concurrent environmental changes, such as invasive species and climate change?
- Are there practical options for accelerated recovery of ecosystems beyond emissions reductions? If yes, what are their costs and benefits?
- How does the impairment of New York's ecosystems from SOx, NOx, and mercury deposition impact New York State's ecosystem services and economy, and what are the potential economic benefits of environmental improvement strategies?

2 A.1. Monitoring / Surveys / Synthesis

2.1 Introduction

The processes of acidification and recovery take place over long time scales and involve various ecosystem compartments. New York State would benefit from additional data to evaluate landscape-scale or whole-ecosystem changes from decreased levels of acidic deposition and mercury. For example, there is some information on lake chemistry, but information is more limited on other ecosystem components, including both terrestrial and aquatic biota. Furthermore, information that evaluates how streams, terrestrial systems, forests, soils, and biota are responding to decreased deposition is limited.

In 2012, EMEP completed an "Assessment of Long-Term Monitoring of Nitrogen, Sulfur, and Mercury Deposition and Environmental Effects in New York State."[1] NYSERDA developed this stakeholder-driven effort to find greater efficiencies, gaps, and redundancies in monitoring that are responsive to changing policies and research needs. NYSERDA presented this assessment to a stakeholder group for feedback on July 26, 2012, and finalized the report in November 2012. Policymakers should consider its findings when making changes to New York's deposition network and monitoring activities.

2.2 Topic A.1.a: Deposition Monitoring and Trend Analysis for Sulfur, Nitrogen, and Mercury

2.2.1 Background

To be effective, deposition monitoring programs must provide high-quality, reliable data that inform current scientific and/or policy questions and issues. Deposition monitoring networks are most effective when the data is collected using consistent equipment and methods over broad geographic areas. This consistency allows for mapping and modeling of measured data across multijurisdictional boundaries and landscape features. With changing policies and advances in scientific understanding, these monitoring networks and the data they generate should be reassessed periodically to optimize their value and effectiveness.

For more than 25 years, DEC's Division of Air Resources (DAR) operated an acidic-deposition-monitoring network in 20 locations across New York State. DAR supported weekly collection and analysis of wet-deposition chemistry as well as a number of air quality parameters. This program recently merged with the National Atmospheric Deposition Program's (NADP's) National Trends Network (NTN).

EMEP has traditionally supported a number of deposition monitoring activities, either directly (Agmt. 6818), through other monitoring activities (Agmts. 4915 and 25352), or as components of more focused research projects (Agmts. 10659 and 10660). Syracuse University (Agmt. 10659) is also developing estimates of mercury deposition to the Adirondacks based on models (e.g., Big Leaf) and experimental and deposition data.

[1] http://www.nyserda.ny.gov/Publications/Research-and-Development-Technical-Reports/Environmental-Reports.aspx

2.2.2 Research Focus Going Forward

- Atmospheric deposition networks provide the best sources of information on what is actually being deposited on New York State. Support ongoing long-term deposition monitoring efforts and adaptation of the networks to facilitate robust trend analysis.
- Relatively little information on acidic and mercury deposition on New York's most sensitive and unique ecosystems, such as alpine systems and Pine Barrens, exists. Evaluate the full extent of mercury and acidic deposition on these and other sensitive and unique ecosystems in the state.
- The U.S. Environmental Protection Agency (EPA) has included the Adirondack Park as a pilot location in the development of the EPA's final National Ambient Air Quality Standard (NAAQS). The DEC worked with the EPA to identify and monitor three sites that provide a south-west to north-east transect across the Adirondack Park, representing a range of acidified regions of the Park. Support research to develop the appropriate NAAQS and Aquatic Acidification Index.
- Annual average SO_2 concentrations, particularly in rural areas, have been steadily decreasing and now average below one part per billion (ppb), which is very close to the measurement detection limit for the Federal Reference Method (FRM) for continuous SO_2 measurement. Ambient SO_2 varies substantially on short time scales, and this variation is lost in integrated Clean Air Status and Trends Network (CASTNet) filter pack data. To understand the best monitoring method for SO_2 going forward, conduct research to address two key questions: Is the deposition mechanism of SO_2 linear over the concentration ranges 0.1-10 ppb, and is dry deposition driven by peak short-term (1 hour) events or longer-term average (week, season, annual) atmospheric concentrations?

2.2.3 Relevance to Other Research in the Region and the Nation

Acid and mercury deposition continues to affect important ecosystems in New York State (e.g., Adirondacks, Catskills). Scientists need data and information compiled through monitoring to assess the comprehensive impacts of deposition as well as response and recovery rates from emissions reduction efforts.

NADP is a member-supported deposition network, and program participants fund its operating costs. By applying and following the program's Quality Assurance Plan, any organization can participate. Many regulatory and environmental entities (e.g., DEC, EPA, Environmental Defense Fund) use resulting data on trends in deposition chemistry for scientific purposes and to provide accountability for policy changes.

NADP is comprises five separate sub-programs, and each fulfills a different role.

1. NTN conducts precipitation chemistry analysis on weekly samples.
2. The Mercury Deposition Network MDN provides mercury concentrations and deposition from weekly samples.
3. The Atmospheric Mercury Network (AMNet) provides continuous collection of dry and gaseous atmospheric mercury in conjunction with MDN wet mercury deposition.
4. The Atmospheric Integrated Research Monitoring Network collects daily single-event deposition chemistry.
5. The Ammonia Monitoring Network continuously monitors ambient ammonia gas.

EPA's Clean Air Markets Division administers and operates the CASTNet, which is a national long-term environmental monitoring program. A single contractor conducts its chemical analysis. CASTNet was established in 1991 under the Clean Air Act Amendments to assess trends in acid deposition as a response to emission reduction regulations such as the Acid Rain Program and NO_X Budget Trading Program. CASTNet has since evolved to measure concentrations of both wet and dry air pollutants involved in acid deposition affecting regional ecosystems and rural ambient ozone levels. CASTNet is not synonymous with any combination of NADP sub-programs. Today three CASTNet sites operate in New York State (i.e., Huntington Forest in the Adirondacks, Ithaca in central New York, and Biscuit Brook in the Catskills).

Based in part on the Assessment of Long-Term Monitoring of Nitrogen, Sulfur, and Mercury Deposition and Environmental Effects in New York State, DEC recently merged the Acid Deposition Network into NADP's NTN. This transition combined relatively collocated sites, expanded NTN sites where appropriate, and closed a few sites where data needs were less pressing. DEC continues to support mountain cloud chemistry monitoring at the summit of Whiteface Mountain from June through September. Additionally, DEC operates approximately 20 continuous SO_2 air monitors across the state.

Mercury deposition monitoring has been much more limited in New York State than acid deposition monitoring. Today three AMNet sites (i.e., Rochester, Bronx, and Huntington Forest) operate in New York State. AMNet collects continuous data relating to gaseous and particulate mercury. It is the most costly to operate and most technically rigorous of the NADP networks. Wet deposition (snow and rainfall) is collected through MDN. Four MDN sites operate in New York State, with a fifth (Cedar Beach on the eastern end of Long Island) expected to come on-line in the spring of 2013. An additional site at West Point in the Hudson Valley shut down in 2010 due to lack of funding.

2.3 Topic A.1.b: Multi-Media Monitoring and Trend Analysis for Sulfur and Nitrogen

2.3.1 Background

Emissions of sulfur and nitrogen compounds from combustion sources, including fossil-fuel power plants, are precursors to acidic deposition, which can adversely affect the health and productivity of ecosystems. Yet, how reducing these emissions allows ecosystems to rebound, and the extent to which reductions correlates to recovery rates, is not well understood. For example, surface waters in the Adirondacks have shown less recovery in response to decreases in emissions of acid-gas compounds than anticipated. To establish environmental trends with confidence and provide decision-makers with the information they need to evaluate the effectiveness of current public policy and provide a sound scientific basis for future decision-making, scientists need a much better understanding of how emissions reductions relate to ecosystem response.

To this end, EMEP has supported monitoring and trend analysis on lakes (Agmts. 4915 and 25352), streams (Agmts. 4915A, 25552, 7613, 16295 and 16299), and through ad hoc soil surveys and re-surveys (Agmts. 16299). The recent release and extension of the Adirondack Effects Assessment Program (AEAP) and its dataset (Agmt.16298) has added a needed aquatic biota component to lake sampling. The Adirondack Stream Surveys (Agmt.7613 and 16295), which are coupled with soils sampling, have also helped provide missing linkages between soils and streams. In addition, EMEP-sponsored studies that are evaluating the acidification of the Tug Hill Plateau (Agmt. 8646) and a new project assessing the acidification (Agmt. 28431) and mercury (Agmt. 25929) impacts on the Suffolk County Pine Barrens will help assess the spatial extent of acidification beyond the Catskills and Adirondacks.

These activities are providing the scientific and policymaking communities with the data and analysis to better understand soil, stream, and lake acidification and their recovery through trends analysis across multiple media. To untangle the complex biogeochemical processes, these analyses often call for additional specific and more intensive investigations.

2.3.2 Research Focus Going Forward

- The response to declines in acidic deposition may be less marked in lakes than streams due to their higher buffering capacity and the neutralizing effect of in-lake processes during storage. Due to the close coupling of shallow groundwater flow paths for small streams, soil conditions, and below ground vegetation systems, stream chemistry can help provide an indicator of ecosystem response to decreased deposition and recovery from acidification. Prioritize stream sampling in the Adirondacks for additional long-term monitoring of both hydrology and chemistry. Include three levels of monitoring intensity: index streams, routine chemistry monitoring, and periodic extensive surveys.
- Include soil monitoring at coordinated ecosystem monitoring sites, especially in relation to stream chemistry to allow for a better understanding of belowground biogeochemical dynamics.
- Research examining changes in fish populations associated with decreases in acidic deposition has demonstrated that lakes in the region have not made clear, systematic progress toward recovery. Continue surveys to monitor Adirondack lake biological recovery. These populations do not require annual data collection, so sampling on a rotating basis could be an appropriate strategy.
- Monitoring phytoplankton and zooplankton (rotifers, crustaceans, and copepods) aids in understanding trends in species richness, community composition, and the appearance and disappearance of important indicator species in connection with changes in water chemistry, such as recovery from acidification. This data can provide the first biological indicators of chemical recovery and as such is needed to understand the condition trends in aquatic biota.
- Calcium loss from terrestrial systems may be causing changes in plant growth/health, which in turn alters the population of terrestrial fauna (i.e., microorganisms, isopods, caterpillars, etc.) and the organisms that feed on them, namely songbirds. Explore in depth the role of declining soil calcium levels in the Adirondacks and Catskill mountains in altering these systems and in decreasing neo-tropical songbird populations.
- Advances in environmental sensor technology and wireless communications present an opportunity to deploy wireless sensor networks to monitor key environmental conditions over a broad landscape. Deploy these tools to aid in the understanding of real-time ecological processes and how acid deposition and mercury affect ecosystems.
- Compared with precipitation, cloud water exhibits significantly higher concentrations of major ions. Cloud water chemistry is believed to play a major role in the acidification of sensitive, high-elevation ecosystems. Continue research into cloud water chemistry and its effects on high-elevation ecosystems to better chart how to protect these systems.

2.3.3 Relevance to Other Research in the Region and the Nation

In cooperation with the DEC and EPA, the Adirondack Lakes Survey Corporation (ALSC) continues to monitor Adirondack lakes as part of the Adirondack Long-Term Monitoring program (ALTM). ALTM resurveys fisheries in its 52 lakes and conducts limited episodic sampling during high-flow events. ALTM also conducts annual sampling in 43 lakes in cooperation with EPA's Temporally Integrated Monitoring of Ecosystems Program.

AEAP's long-term biological monitoring of 32 Adirondack lakes has been reduced to 16 lakes, two times per year. The program is working on making data of the past 18 years available via publications and reports. Plankton data is currently being used to develop critical loads models.

ALSC and the U.S. Geological Survey monitor Buck Creek, Bald Mountain Brook, and Fly Pond. The State University of New York College of Environmental Science and Forestry (SUNY ESF) monitors the Arbutus Lake inlet and outlet at Huntington Forest as well as two sub-watersheds. The Western Adirondack Stream Survey was an experimental design and test of a stream survey strategy in a large (400,000 ha) landscape. During 2003-2005 the USGS lead a team to survey 200 streams during five hydrologically sensitive time periods. The survey design was efficient, providing the first large-scale stream assessment linking terrestrial (soils), stream, and lake chemistry signals. The East-Central Adirondack Stream Survey has expanded this survey design (2010-2012) to other parts of the Adirondack Park.

In the Catskill Mountains, USGS continues to monitor four streams for continuous flow, and biweekly and event sampling as part of EPA's long-term monitoring. The steering committee for the biennial Catskill Environmental Research and Monitoring Conference has been working to develop a web-based bibliography and data catalog for Catskills-based research. Additionally, the group is moving forward with developing plans for a Catskill Research Forest and better research coordination of research and monitoring efforts.

2.4 Topic A.1.c: Multi-Media Monitoring and Trend Analysis for Mercury

2.4.1 Background

Monitoring of the various mercury species in ambient air is inconsistently applied. How other pollutants affect the dry deposition of mercury and the fate of total annual atmospheric emissions of mercury is difficult to determine, as is the variation of dry and wet deposition of mercury. Speciation of the ambient concentrations of mercury and dry-deposition measurements is important for source attribution and assessment as well as improvements in predictive models. However, no standardized protocols for measuring speciated ambient concentrations of mercury exist, and there are no easily deployable methods to measure dry deposition directly.

To address these concerns, EMEP is conducting a comparison of multimedia monitoring options for mercury (Agmt. 10659). This research is assessing and comparing surrogate surfaces for the collection of dry mercury deposition. Each resulting new technique is likely to offer its own strengths and weaknesses. Accurate characterization of mercury deposition will likely continue to be difficult for the foreseeable future. Along with DEC and the Great Lakes Commission, EMEP is helping to support an AMNet site at Rochester (Agmt. 24012) and working with SUNY ESF (Agmt. 31250), Clarkson (Agmts. 26578 and 30460), and DEC to maintain an AMNet site at Huntington forest, two of only three sites in New York. DEC maintains a third site in the Bronx. AMNet provides estimates of gaseous, elemental, and particulate mercury. These estimates are coupled with MDN sites, which provide wet deposition measurements. Together, these provide the best calculations of mercury deposition.

As mercury emissions from various sources around the world change, the species and sources of mercury deposited in New York State will likely shift. Mercury emissions policies in New York State, across the country, and around the world influence deposition in New York State. It is important to understand how these different sources effect deposition and how those contributions affect the state's ecosystems. A pilot project with the Biodiversity Research Institute is seeking to determine if stable isotopes of mercury in bird blood samples can be used to identify the sources of the mercury (Agmt. 30388).

2.4.2 Research Focus Going Forward

- Wet deposition of mercury is easier and less expensive to monitor than air concentrations or dry deposition. Though wet and dry deposition tend to show similar trends, dry deposition comprises a large portion of total deposition and may be more spatially and temporally variable than wet deposition. Research dry deposition velocities and surrogate monitoring methods to incorporate into models of total and dry mercury deposition.
- Mercury in litterfall may serve as a proxy for dry mercury deposition because mercury deposited in particulate and gaseous forms adheres to leaves. While annual litterfall mercury deposition only approximates the lower bound of annual dry mercury fluxes, measuring litterfall is much more cost-effective than other methods. Establish a model of dry-only deposition based on dry mercury deposition in litterfall for both long-term monitoring and short-term research projects.
- Determining sources of mercury pollution in ecosystems is complex but increasingly important and feasible. Develop and refine emerging techniques that quantify the natural abundance of mercury isotope ratios in environmental samples give new insight into the origin of mercury in an ecosystem.

2.4.3 Relevance to Other Research in the Region and the Nation

Measures to reduce mercury emissions are being implemented by fossil fuel fired electrical generation power plants under EPA's Mercury and Air Toxics Standards. Under the guidance of the United Nations Environment Programme, a global mercury treaty has been under development since 2010, and the final document will be open for signature in the fall of 2013. To understand the ecosystem response to reductions in mercury deposition, it is important to know how much is being deposited, how much is being re-emitted, and to what extent the legacy mercury load in soils and watersheds will be the drivers in mercury bioaccumulation.

NADP recently completed a pilot program and is implementing a litterfall mercury monitoring program to complement MDN and AMNet. This pilot has evolved to be an official NADP program that provides a way to collect measurements to approximate a large part of the mercury dry deposition in a forest landscape in a consistent manner across the country. Various entities, including EPA and NADP, are working to standardize methods for speciated monitoring (e.g., for Tekran). These entities are establishing protocols on data collection and standardizing measurement procedures so that the same methodology can be used across the network to facilitate data sharing and comparisons.

2.5 Topic A.1.d: Mercury in Biota

2.5.1 Background

Current information and data are not sufficient to determine the full extent to which biota—fish and wildlife in particular—have been affected by, are recovering from, or how they are responding to changes in the deposition rates of mercury, nitrogen, and sulfur. Monitoring is needed to address data gaps that prevent determining how bioaccumulation may be linked to emissions or depositional changes. Additionally, baseline data is needed to understand the extent of biological contamination in different regions and ecosystems. With a reliable, continuous dataset for bio-indicators of mercury exposure, scientists could develop a consistent benchmark. This would allow more effective tracking of changes in mercury concentrations in selected biota in a consistent manner over time.

EMEP has supported the monitoring of mercury levels in Adirondack common loons for nearly a decade (Agmts. 7608 and 27965). Results show that mercury is the primary anthropogenic stressor and results in a lower population growth rate than modeled results project. EMEP has also supported fish surveys and re-surveys for mercury (Agmt. 7612) across the state and continues to support ALSC's re-sampling of

Adirondack fish (Agmts. 4915 and 25352), which includes mercury analysis. DEC has continued to survey mercury in fish in state waters, with a focus on state parks, although sampling has been somewhat limited by budget constraints. In addition, EMEP has conducted a number of passerine bird surveys, which have included their food sources and, in some cases, stable isotope mapping of food webs (Agmt. 7608, 16296, 22258, 19881, PO 9956). Researchers have collected samples from a variety of habitats and regions around that state including hardwood forests, bogs, boreal forests, mountain sites, and coastal salt marshes.

EMEP is sponsoring an effort to survey birds and their food sources in the Pine Barrens of Long Island (Agmt. 25929), in conjunction with an evaluation of acidification status (Agmt. 28431). These habitats have characteristics that make them susceptible to high levels of mercury bioaccumulation, such as high mercury deposition rates, low soil buffering capacity, and fluctuating water levels. A pilot project (Agmt. 30388) is using residual bird blood samples from this project (Agmt. 25929), along with bird blood samples from previous projects (Agmts. 16296 and 22258) and new prey samples, to determine whether stable isotopes of mercury in bird blood samples can be used to identify mercury sources. This technique could help identify which mercury sources pose the greatest risk to wildlife.

Scientists are now beginning to understand the extent of mercury accumulation in wildlife, but more work remains. For many organisms, the body burden of mercury that begins to affect behavior or reproductive success is not fully understood. Mercury data from loon recaptures over time has shown that some individuals have declining mercury levels, while others have increased mercury body burdens (per personal communication N. Schoch 2012). Similarly, trends of mercury in inland lake fish generally show declines over time, but the results are mixed, with some inland lakes increasing while others are decreasing. This inconsistency is likely due to the variety of factors that affect mercury bioaccumulation in individual organisms. Better methods, longer-term data collection, and more data in general are needed to identify and evaluate trends in biotic mercury levels. These trends are critical to informing policy makers of the benefits of regional and national mercury emissions reductions. Additionally, research regarding the extent to which legacy mercury in soils will move into the food chain would help policy makers understand how quickly changes in mercury emissions affect wildlife.

2.5.2 Research Focus Going Forward

- Support diverse biological monitoring for mercury to illustrate how emissions policies are affecting wildlife within the state. This monitoring also would provide better information to consumers (e.g., fish-consumption advisories). Sampling diverse groups of organisms, and their environments, over time will help clarify patterns and trends in mercury bioaccumulation and how environmental factors influence mercury methylation.
- Traditionally, studies and monitoring programs looking at mercury levels in fish have been conducted in freshwater systems. Conduct large-scale, systematic measures of mercury levels in fish in marine systems or estuaries and in fish caught commercially. Assess mercury’s impact and trends in fish in marine and estuary ecosystems, both spatially and temporally.
- Mercury deposition has had a detrimental impact on the health of common loon populations. Some short-term monitoring studies have reported that the concentration of methylated mercury in loons decreased by up to 50 percent when sources of mercury pollution were eliminated. Conduct follow-up studies to monitor the long-term trends of mercury concentration levels in loons. Continue monitoring loon populations and mercury levels to provide insight into mercury levels and how changing mercury emissions affect wildlife behavior and population dynamics.
- Researchers have found a correlation between increased methylmercury levels in fish tissue and increases in dissolved organic carbon (DOC) in the water. Similar correlations have been found

with common loon bioaccumulation and the pH of their nesting lake. As a result, changes in deposition do not necessarily translate to similar changes in the bioaccumulation at all locations. Conduct research to better understand these interrelationships and how emissions policies affect wildlife and share results with policy makers.

- Re-sample the 2003-2005 fish mercury survey conducted by Simonin et al. to detect changes in both fish and surface water mercury concentrations over the last decade and help refine current models of fish mercury concentrations.
- Measuring mercury tissue concentrations of aquatic invertebrates is often used as an indicator for mercury concentrations in the substrate in which the organisms live, as well as for studies of dynamics of mercury in food webs. These organisms may be a suitable, lower-cost proxy for higher-level organisms or for measuring mercury concentrations in water, which are often so low that they cannot be detected. Conduct additional research to help determine the best use of aquatic invertebrates in mercury surveys.
- Researchers can use tissue concentrations of mercury in terrestrial invertebrates as an indicator for mercury concentrations in the substrate in which the organisms live as well as for studies of dynamics of mercury in food webs. There is no long-term monitoring of terrestrial invertebrates, though some collections have been included in other food web studies. Conduct periodic monitoring of mercury in terrestrial invertebrates to inform studies of a variety of other ecosystem components.
- Songbirds serve as good indicators of mercury in terrestrial ecosystems. Repeat surveys of song birds and birds of prey every several years to track trends in deposition effects on bird populations and overall terrestrial ecosystem health throughout the state.
- Determining the relative source of mercury pollution to specific ecosystems is complex but becoming increasingly important and feasible. Develop and refine emerging techniques that quantify natural abundance of mercury isotope ratios in environmental samples give new insight into the origin of mercury in food webs.

2.5.3 Relevance to Other Research in the Region and the Nation

DEC has been monitoring mercury in fish in New York State for decades. These data inform the New York State Department of Health (DOH) fish consumption advisories and aid in the development of trends in mercury bioaccumulation in aquatic systems, which can be related back to emissions reduction policies. Because of budget constraints in recent years, DEC's sampling efforts have slowed considerably. ALSC, however, has continued to sample a limited number of ALTM waters each year for fish mercury.

As in aquatic systems, mercury concentrations in terrestrial animals increase as mercury moves through the food chain, but the transfer mechanisms are not well understood, and spatial patters of mercury bioaccumulation in terrestrial systems are not well documented. Monitoring of songbird populations can help to determine temporal trends in mercury concentrations in terrestrial biota. New data is showing that some guilds of birds in different regions of the state have blood mercury levels high enough to cause physiological effects. In 2012, the Biodiversity Research Institute and the Nature Conservancy released "Hidden Risk: Mercury in Terrestrial Systems of the Northeast," which highlights the high levels of mercury contamination in songbirds and bats throughout 11 northeastern states, including New York.

NYSERDA's recently published report indicates that common loons in the Adirondacks with territories on acidic lakes had extremely high levels of mercury in their blood and decreased reproductive success. Population model results indicated that the portion of the Adirondack loon population exposed to high mercury levels has a reduced growth rate compared to birds with low body burdens of mercury.

Continuing to monitor loon mercury levels and how mercury levels control population dynamics is important to a better understanding of how changes in emissions policies affect these organisms.

The Coastal and Marine Mercury Ecosystem Research Collaborative (C-MERC) recently release a series of papers and a summary report outlining the issues associated with marine mercury. Approximately 85 percent of the methylmercury exposure to the U.S. population is from consuming estuarine and marine fish which often exceed human health consumption guidelines. With increasing mercury emissions globally, these levels can be expected to rise.

2.6 Topic A.1.e: Synthesis and Reexamination of Data to Evaluate Acidic Deposition and Mercury Affects and Policies

2.6.1 Background

Several baseline (synoptic and temporal) studies and many intensive studies have been conducted by researchers, especially in the Adirondacks and Catskills, to understand the processes of acidification and mercury cycling. While individual studies often include policy implications in their findings, more collective synthesis of research projects and long-term monitoring data will better inform policy.

Trend analysis for projects collecting monitoring data (e.g., ALTM and AEAP) is ongoing by a number of entities, and EMEP is sponsoring a synthesis of acidic deposition and mercury research, from deposition to eutrophication of coastal regions, which is scheduled to be complete in the spring of 2013 (Agmt. 16300). Additionally, EMEP completed a reassessment of monitoring activities related to sulfur, nitrogen, and mercury in 2012 (Agmt. 22951). This work has helped determine what could be expected if spatial or temporal monitoring activities are changed. It also identified areas and sampling media where coverage is insufficient, adequate, or redundant.

EMEP's Outreach Program (Agmt. 21309) is designed to identify key policy makers and groups, the best channels to reach them, their informational needs, and the most appropriate formats to use to convey scientific findings and information. Reassessing the state of the science and policy through synthesis activities is helpful in assuring that the research questions and focus are policy relevant. Additionally, synthesis and reexamination of existing datasets and research in new ways can provide new understanding by identifying linkages not seen within individual research projects. It can also extract additional value from data that has already been collected.

2.6.2 Research Focus Going Forward

- Reanalyze datasets and synthesize multiple datasets to gain new understanding of ecosystem function and response to changing N, S, and mercury depositional loads. Reexamining existing and historic data could extract additional value and bring a greater understanding of ecosystem changes at minimal costs. The emerging science of complex systems has not been sufficiently applied to existing data. These systems are statistical by nature, and they must be analyzed in concert with other existing datasets to expand on integrating and understanding complex systems.
- Narrow the gaps between ecological and social sciences research to accelerate the transfer of information from researchers to policy makers.

2.6.3 Relevance to Other Research in the Region and the Nation

Long-term programs for lake water chemistry and biota (e.g. ALTM, AEAP) in New York do not integrate information they generate. A synthesis of research findings and datasets can improve the understanding of how acid deposition influenced water chemistry effects. Additionally, more data is needed to link stream, soil, and lake chemistry. Linkages between forest` structure and soil and stream chemistry could be further explored in relation to the USDA Forest Service's Forest Inventory and Analysis and Forest Health Monitoring programs. In 2009, EMEP developed a synthesis of acid deposition related impacts entitled "Actions and Response." It synthesizes information to discuss emissions policies and the environmental response.

Many other organizations have worked to synthesize information about mercury in the environment. In 2012, C-MERC issued "Sources to Seafood," a report that addresses mercury pollution in the marine environment. In 2013, the Biodiversity Research Institute and the International Persistent Organic Pollutants Elimination Network released "Global Mercury Hotspots," a report that discusses how fish is consumed around the world in spite of advisories warning against doing so because of elevated levels of mercury.

Finally, EMEP is completing a multi-disciplinary synthesis of published research findings on effects of acid and mercury deposition on sensitive ecosystems in New York State (Adirondack and Catskill Mountains, Great Lakes, estuaries, and coastal ecosystems). This project is building upon a wealth of EMEP-sponsored and other research projects that have previously categorized, quantified, and advanced understanding of ecosystem processes related to atmospheric deposition of strong acids and mercury, nutrient and mercury cycling, element interactions and leaching, response of watershed ecosystems to changes in atmospheric deposition, and associated biological effects in aquatic, transitional, and forest environments.

3 A.2. Biogeochemical Processes and Ecosystem Response

3.1 Introduction

After several decades of acid deposition, surface waters in New York and the Northeast became more acidic, less productive, and higher in such toxic metals as aluminum and mercury. Soils have become more acidic and less fertile, and forests in many areas are showing signs of acidification-related stress. The acidification of surface waters can lead to declines in the fish population. Acidic water also affects aquatic plants and insects eaten by fish. As a result, the entire aquatic food chain can be "simplified," leaving a lake or stream less healthy, resilient, and productive. In addition, acid deposition has altered the chemistry of soils across large areas of New York and the Northeast by causing the depletion of calcium and other nutrients, increasing the accumulation of sulfur and nitrogen, and mobilizing inorganic aluminum, which enters soil waters and ultimately surface waters.

3.2 Topic A.2.a: Soil Processes and Recovery from Acidification

3.2.1 Background

Soil base conditions have been deteriorating over recent years in some acid-sensitive Adirondack lake watersheds, while the lake water chemistry has generally been improving. The availability of base cations in the soil is expected to continue to decline. This is important because the extent to which acid-sensitive lakes continue to recover is highly associated with soil processes. Moreover, further deterioration of soil conditions could contribute to adverse impacts on vegetation. Recent research and sampling efforts have begun to bridge important data gaps regarding the relationship between soil conditions and surface water chemistry. However, some critical questions remain, particularly in relation to forest responses to changes over time in soil base status. Limited information exists on what is controlling the observed increased retention of nitrogen--the increasing supply of DOC or the mechanisms influencing these processes. Further research is needed to ascertain how changes in soil conditions over extended periods impact lakes, streams, forests, and other ecosystem components and on forest response to the offsetting effects of varying degrees of declining acidic inputs and continuing base cation depletion.

EMEP's research on soil processes is ongoing and has included interactions between carbon, nitrogen and calcium (PO9955) linkages between DOC and NO3 export (Agmt. 10662) and the impacts of weather and climate on biogeochemistry and sulfate export (10661). A stream survey in the Adirondacks (Agmt. 16295) seeks to link soil chemistry and stream chemistry, while a separate project is assessing similar links in the Catskills (Agmt. 16299). Projects have also been funded to assess linkages between forests, soils and stream chemistry (Agmt. 10660). Additionally, a recently completed project evaluated different computer modeling techniques to assess aluminum mobilization in streams at it relates to recovery from acidic deposition in the western Adirondacks (10658). In general, research has tended to have moved from an early focus on aquatic systems (primarily lake assessments) to a greater emphasis on streams, soils, and forest interactions.

3.2.2 Research Focus Going Forward

- Develop stronger links between soils, streams, and forest structure/health. Stream chemistry indicators of soil and forest health conditions would aid in the development of stronger mass balance or dynamic models describing, among other things, the loading and unloading of nitrogen in soils.
- Conduct research on microbic activity to help determine how it affects soil chemistry/quality, biogeochemical processes, acidification, and TMDL data. Collect more data on microbe biodiversity, microbic activity, and how microbes affect soil chemistry/quality, biogeochemical processes, acidification, and TMDL data.
- Research and document observed delays in ecosystem recovery given the decreases in emissions and deposition over the past 30 years.
- Biogeochemical changes may be occurring because of loss of biodiversity, or declines in biodiversity may be causing changes in biogeochemistry. Monitor species compositional changes/trends to better understand the cause and effect relationship of these changes.
- Better define the relationship between DOC and ecosystem response to acidification and recovery. This relationship may also have implications for mercury methylation.

3.2.3 Relevance to Other Research in the Region and the Nation

The need for terrestrial research on field data to link soil acid-base chemistry with aquatic and forest response indicators is becoming more widely recognized. National Park Service and Forest Service in Shenandoah National Park, Virginia, and on Forest Service lands in West Virginia, North Carolina, Tennessee, and South Carolina are supporting model-based assessments of ecosystem response to changing levels of sulfur and nitrogen deposition. Many EMEP-supported projects also include biogeochemical connections of soils to surface waters.

3.3 Topic A.2.b: Acidic Deposition Critical Loads Assessments and Other Modeling

3.3.1 Background

Research aimed at evaluating the effectiveness of emissions reductions often stop short of determining whether the targeted reductions allow ecosystems to recover. Critical loads research aims to determine whether and over what time scale ecosystems are recovering, and whether further emission reductions may be needed to promote full recovery. Ecosystem recovery can be broadly defined as a return of key ecosystem processes and variables to pre-acidification conditions. Important parameters to assess may include acid-neutralizing capacity of surface waters, base saturation of soils, and the degree of re-establishment of key biotic components and their respective functions. Chemical measures serve as indices that reflect the suitability of habitat for sensitive biota. Biogeochemical models such as MAGIC and PnET-BGC are available to predict and evaluate ecosystem responses to historical changes and future scenarios of atmospheric deposition. However, there is limited information on whether currently observable trends in some of these variables are likely to persist and whether and at what chemical condition biological components will likely respond. Critical loads assessments can help set a chemical limit that is sufficiently protective of sensitive biological indicators in sensitive ecosystems.

A number of EMEP supported projects have contributed to the national, regional and local critical loads assessments including ALTM, AEAP, and stream and soil surveys. EMEP funded two projects to model critical loads. One project (Agmt. 10658) was developed to calculate the critical loads of sulfur and nitrogen to cause aluminum mobilization. This project also compared and evaluated three approaches for estimating future acid-base chemistry conditions and the critical load of sulfur and/or nitrogen needed to avoid future stream acidification in the Adirondack region of New York: the *empirical critical load*; the *dynamic critical load*; and *scenario modeling*. The results of this comparison are being used in the second project to protect and restore acid sensitive resources in the Adirondacks, "Critical Loads of Sulfur and Nitrogen" (Agmt. 10657).

EMEP's terrestrial critical load project (Agmt. 10657) has shown that the computer models (MAGIC) that identify target loads are extremely sensitive to soil percent base saturation. This research has identified a need to better understand the percent base saturation where sensitive plant species are adversely affected.

3.3.2 Research Focus Going Forward

- Establish steady-state aquatic and terrestrial critical loads/TMDLs or target loads to identify the key sulfur and nitrogen deposition loads that are necessary to promote recovery in ecosystems with a range of acid sensitivities. Conduct additional research and monitoring to improve the current models.
- To understand critical loads for forests, conduct additional research and monitoring to improve the models on tree species composition and net forest productivity. For example, calciophilic species such as Sugar maples do not respond well to spring frost events and can be expected to be adversely affected by a changing climate. Monitor forest composition trends as changes may correlate with other changes in TMDL, net forest productivity and base saturation percent, and forest dynamics.
- Research of terrestrial critical loads has shown that the computer models used in identifying target loads are extremely sensitive to soil percent base saturation. Support studies to better understand the percent base saturation where sensitive vegetation is adversely impacted.
- Include critical load figures for pH levels, along with nitrogen and sulfur, in modeling to outline specific risks and pH thresholds for different species of plants, microbes, and animals.
- Map impacted areas across the state according to an ecosystem sensitivity index to identify species that are, or projected to be, at risk and help prioritize recovery efforts. Conduct mapping based on some combination of existing data, any required new information, and modeled projections.

3.3.3 Relevance to Other Research in the Region and the Nation

In 2010, NADP formed the Critical Loads of Atmospheric Deposition Science Committee (CLAD). CLAD provides a national platform to discuss current and emerging issues regarding the science and use of critical loads for effects of atmospheric deposition on ecosystems in the United States. Most researchers engaged in critical load research work with CLAD to disseminate findings and to discuss approaches. In this way, CLAD facilitates technical information sharing on critical loads topics within a broad multi-agency/entity audience; fills gaps in critical loads development nationally; provides consistency in development and use of critical loads nationally, and; promotes understanding of critical loads approaches through development of outreach and communications materials.

There are also ongoing efforts to conduct total maximum daily load (TMDL) analyses for specific New York water bodies as required by the Clean Water Act. Critical load models are proving useful in developing TMDLs. Coordination of ongoing critical load and TMDL efforts will be beneficial.

3.4 Topic A.2.c: Mercury Biogeochemical Processes

3.4.1 Background

Scientists are making progress in understanding the biogeochemical processes driving the methylation of mercury in freshwater systems. This includes correlations with sulfur, anoxic conditions, DOC, acidic environments and other factors. But given the importance of wetlands in mercuy methylation biogeochemistry, relatively little work has focused on these systems. EMEP is assessing methylmercury bioaccumulation in the Hudson River based on DOC (Agmt. 16297). Similarly, another EMEP project (Agmt. 10661) is assessing the effects of climate and weather on mercury methylation and mercury flux from upland watersheds. While at least one model (MERGANSER) has been developed to predict mercury in freshwater piscivores, it has not been applied to New York waters.

More coastal or marine research is needed to advance the understanding of mercury methylation and how confounding factors, such as climate change or nutrients, will affect bioaccumulation in fin fish, shell fish, and other seafood. Additionally, given the vast amount of legacy mercury in marine systems, *in situ* mitigation efforts to constrain mercury methylation could be an important management tool going forward.

3.4.2 Research Focus Going Forward

- Conduct more research on the mercury methylation process and its relationship to DOC availability in different environments, including wetlands, lakes, streams, estuaries, and coastal areas. The methylation processes may vary at these diverse locations, given the different profiles in organic matter availability and other variables.
- Recent research suggests that anthropogenic nitrogen loading and methylmercury bioaccumulation in fish are inversely related in estuarine systems. Continue studying the relationship between nitrogen and mercury bioaccumulation in these systems.
- Research how mercury methylation could be inhibited *in situ* to provide a valuable management tool in controlling bioaccumulation of mercury.
- Biodiversity changes in plants and/or animals may be affecting mercury bioaccumulation in wildlife. Research whether biodiversity changes can be expected to result in changes of commonly assumed mercury bioaccumulation rates up the food chain.
- Conduct research, monitor, and synthesize data to better understand how increasing/decreasing N or S deposition (acidification) will affect mercury methylation and bioaccumulation in terrestrial and aquatic ecosystems. Additionally, research the relationship between mercury deposition in terrestrial ecosystems and its subsequent impact on aquatic ecosystems.
- Develop models (e.g., MERGANSER) that can predict methylation and bioaccumulation of mercury in lakes, reservoirs estuaries, and near-shore marine environments to support fish consumption advisories.

3.4.3 Relevance to Other Research in the Region and the Nation

These process-level research recommendations represent an important step in advancing knowledge concerning the biogeochemical cycling of mercury and methylmercury in lakes, streams, wetlands, terrestrial systems and coastal waters; the linkages to nutrient inputs and eutrophication; the connections to atmospheric mercury deposition and cycling of legacy mercury; the influence of climate on mercury retention within the watershed; and the bioaccumulation of methylmercury in marine biota, including those for human consumption.

Such mechanistically focused studies will not only benefit the state, but they will also add and complement efforts in selected coastal regions of the United States (e.g., C-MERC). This information will be especially useful in developing/improving models for the behavior and fate of mercury and provide significant value to local and federal public health and environmental agencies that issue human health advisories for commercial and sport fish consumption.

3.4.4 Topic A.2.d: Effect of Multiple Stressors on Aquatic and Terrestrial Ecosystems and Biota

3.4.5 Background

Changes in deposition are occurring at the same time as other large-scale influences on ecosystems. Climate change will undoubtedly cause changes in key processes as well as shifts in biological communities. Analyses of the interaction between climate change and the influences of atmospheric deposition will be critical for making long-term predictions of ecosystem health. Other factors, including changes in land use, species invasions/introductions, and extinctions, will alter biological communities and the rates of key processes such as decomposition and nutrient cycling. There is also a lack of specific ecological endpoints (chemical and biological) for the array of aquatic and terrestrial ecosystems/communities in the New York State Forest Preserve, which are necessary in determining the "loading standards" being sought.

Research on surface-water chemistry shows that surface waters in a large number of New York lakes are slowly improving as a result of decreased acidic deposition rates. However, time-series analyses of water chemistry suggest that the rates of improvement exhibited at these lakes have slowed. Various biological communities have decreased in extent, persistence, and composition over the past few decades. Wildlife populations have changed. Migrating songbirds and amphibians have declined, yet the major causes of these changes are not well established. The breadth and depth of widespread fish recovery is not well known; while fish species richness is no longer widely declining, it does not show widespread recovery.

Scientists recognize that mercury has an effect on aquatic food webs. Surveys have shown elevated mercury levels in terrestrial food webs as well, which have the potential to biomagnify methylmercury at higher rates than fish webs. Yet once mercury is deposited on ecosystems, there is very limited information to assess how it may be transformed by various processes. Songbirds (e.g., gleaners, red-winged blackbirds, tree sparrows) and other insectivore species are likely to continue to be affected, even after emissions are reduced.

EMEP studies have specifically evaluated a number of these research focus questions such as lake ANC/pH correlations with mercury bioaccumulation (Agmt. 7608), weathering rates of calcium in soils to aid in soil recovery (Agmt. 8649), mercury bioaccumulation in relation to DOC (Agmt. 16297), and the effects of climate and weather on sulfur, nitrogen, and mercury flux (Agmt. 10661). A project on eastern Long Island is looking at acidification of the Pine Barrens and how that acidification may be influencing mercury bioaccumulation (Agmts. 25929 and 28431). Similarly, an assessment of mercury in saltmarsh sparrows showed that in addition to habitat loss, partially due to climate change, mercury in these organisms may be playing a role in their decline (Agmts. 19881 and 22258). Many other projects have also helped address multiple stressor issues, but have approached questions relating to multiple stressors in a less direct way. Ecosystems research projects contribute to the scientific knowledge of multiple stressors by touching on individual stressors and receptors or biogeochemical interactions in soils and aquatic systems.

3.4.6 Research Focus Going Forward

- Multi-pollutant interactions, including reactions among SO_2, NO_X, ozone, and mercury, and their commensurate ecosystem impacts are not well known. Research the interaction of these pollutants and how policy changes may result in unintended consequences or co-benefits.
- Geochemistry and soil processes are linked with tree/plant species composition. To better understand how climate change will affect acidification, recovery, and mercury effects, research on how native tree/plant species will respond to changing environmental conditions and the effect they have on ecosystems.
- Monitor invasive plant/insect species composition and distribution more closely to evaluate the impact they are having on geochemical processes, other species, and ecosystems.
- Precipitation is projected to increase in New York State with periodic longer droughts. Research how the biogeochemistry of mercury, acidification, and soil recovery may be affected by these episodic rain events and other changes in other water cycling conditions.
- Key plants and animals can serve as representatives of the health of ecosystems. Evaluate the overall population health of certain key species or groups of species to determine and track the health of different ecosystems or use them experimentally to see how different recovery efforts and tests accelerate, decelerate, or do not affect the recovery process.

3.4.7 Relevance to Other Research in the Region and the Nation

With global climatic change, invasive species, continued acidic and mercury deposition, and other stressors, many ecosystems, and the biodiversity they support, are undergoing major changes from anthropogenic stress. The Millennium Ecosystem Assessment details the issues that that ecosystems are facing on a global level. Understanding how these rapid environmental changes are going to impact how ecosystems function and their services will be critical to knowing the extent of human impacts and identifying the steps to mitigate those impacts. While many studies look at the effects of individual stressors and how they affect natural systems, few studies have considered their combined or cumulative effects. In New York, the report "Responding to Climate Change in New York State"[2] explores multiple stressors that could be alleviated to ease ecosystem stress to climate change.

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[2] http://www.nyserda.ny.gov/climaid

4 A.3. Ecosystem Management

4.1 Introduction

As the levels of acid and mercury deposition have declined, some watersheds in the state have begun to show signs of recovery. At the same time, many watersheds and water bodies, particularly those with poor buffering capacity, may never recover without intervention. Through the use of several ecosystem management options (e.g., watershed/in-stream liming, restoration of lake/stream ecosystem resilience through stocking of native fishes), scientists may be able to accelerate ecological recovery. Some liming projects have taken place in the northeast region over the past 20 to 30 years, including the Adirondack Lake Acidification Mitigation Project, Living Lakes Project, Woods Lake investigations, and New York State Department of Environmental Conservation Lake Liming Program. Additionally, multi-institutional collaborative effort has begun on a new in-stream and watershed liming project at Honnedaga Lake. Many ALTM lakes were part of these intensive investigations, either as limed lakes or control lakes, but limited information is available to guide resource managers in selecting cost-effective restoration projects that are most likely to succeed both in the short- and long-term. Policy makers and resource managers tasked with protecting and restoring impaired ecosystems need a better understanding of management options, costs, benefits, and applications.

4.2 Topic A.3.a: Accelerated Recovery

4.2.1 Background

Today's Adirondack and Catskill soil databases do not necessarily constitute an adequate baseline (density, elevation, types of data) for terrestrial and aquatic resource recovery tracking. Also, managers of ecological resources need more information to guide them on which restoration projects best promote the recovery of biota. While scientists have conducted several major liming/mitigation studies over the past few decades, the costs, benefits and long-term impacts of these projects have not been well documented or developed to serve as useful resource management tools.

EMEP continues to conduct research into accelerated recovery processes. An ongoing project with USGS is looking at sugar maple health and growth rates in relation to calcium availability. Another project (PO9955) is comparing the previously limed Woods Lake watershed with control watersheds to assess the interactions among carbon, nitrogen, and calcium on the forest floor and within soils. Another project (Agmt. 16299) is assessing how liming of watersheds (Woods Lake and Hubbard Brook, NH) have altered soil and stream chemistry over the long term. Until recently, no in-stream liming had taken place in New York State, but with the Honnondaga Lake Watershed Liming project (Agmts. 22237 and 27329), researchers can now compare the ecological effects of watershed and in-stream liming on aquatic and terrestrial systems. Additionally, this project also affords an opportunity to assess the effects of watershed liming on mercury mobilization and recovery of heritage strain brook trout.

Long-term monitoring of lake biota (Agmt. 16298) has shown changes in zooplankton and phytoplankton communities, and work by ALSC (Agmt. 4915) has shown changes in the number and species of fish in relation to increases in pH and ANC. Yet researchers still do not fully understand what a "recovered" assemblage of biota would look like given the myriad of other ecological changes that have been taking place, making the definition of a “recovered” ecosystem difficult to define.

4.2.2 Research Focus Going Forward

- Conduct experiments and demonstrations for accelerated recovery of terrestrial and aquatic ecosystems and organisms. Do not limit projects to soil restoration. Expand restoration efforts to other ecosystem compartments such as forests, fish, plants, and other biota.
- Given that many watersheds in the Adirondack and Catskill mountains have been irreversibly changed by acidification, mercury deposition, invasive species, etc., evaluate the definition of what “restored” ecosystems might look like in these regions. Describe what these systems might look like in terms of measureable metrics and how to develop an index of recovery.
- Assess past research on lake and watershed liming projects and interpret results relative to what is known. Evaluate the success of past efforts to re-introduce fish or other species in restoration efforts to inform future accelerated recovery activities.
- Investigate how the application of lime to streams and watersheds influences mercury mobilization and bioaccumulation in aquatic and terrestrial organisms.
- An alternative to soil amendments to restore soils to a previous condition is re-stocking trees/plants adapted to the current soil conditions. This approach may improve diversity in impacted ecosystems by working with the current soil conditions rather than trying to change them and may prove to be more effective and less expensive. Investigate the effectiveness, costs and benefits of planting trees and other woody and non-woody vegetation to accelerate soil recovery of soils and/or enhance ecosystem resiliency.
- Hydroacoustic devices have been successful in locating fish in deep waters of lakes that were previously thought to be fishless. Similarly, a new approach to using environmental DNA shows promise as an inexpensive method to determine presence or absence of particular species in aquatic systems. Evaluate these technologies for use in surveying lakes for fish. In the lakes that have fish, amplify recovery and stocking efforts to try and restore fish populations.

4.2.3 Relevance to Other Research in the Region and the Nation

Some liming projects have taken place in the northeast region over the past 20-30 years, including the Adirondack Lake Acidification Mitigation Project, Living Lakes Project, Woods Lake investigations, and New York State Department of Environmental Conservation Lake Liming program. Additionally, work has begun on a new in-stream and watershed liming project at Honnedaga Lake. A number of ALTM lakes were part of these intensive investigations, either as limed lakes or control lakes, but limited information is available to guide resource managers in selecting cost-effective restoration projects that are most likely to succeed both in the short- and long-term. A better understanding of management options, costs, benefits, and applications would be useful to policy makers and resource managers tasked with protecting and restoring impaired ecosystems.

5 A.4. Economic Assessments

5.1 Introduction

Environmental policies and regulations that reinforce the connections between the wellbeing of humans and the environment often find support from a wider range of stakeholders. Information about the links between the natural and social sciences is weak in some areas, which undermines efforts to perform social or economic valuation of ecosystems, or evaluate environmental changes in terms of cost-benefit analysis. When ecosystem services provided by healthy natural systems are not accounted for in terms of benefits to humans, a substantial portion of the benefits of environmental regulations remain outside of this cost-benefit calculation. Further, the issue of "discounting" is critical to cost-benefit analysis in relation to issues of fairness and ethics in the choice of a discount rate. Research to improve the understanding of how mercury pollution and the acidification of ecosystems affects ecosystem services (e.g., provisioning, regulating, supporting or cultural services), and thereby New York State's economy, would aid in a better appreciation and more comprehensive understanding of the benefits resulting from emissions regulations and other policies.

5.2 Topic A.4.a: Ecosystem Economic Valuation

5.2.1 Background

The benefits of the regulation of environmental pollutants such as SOx, NOx and mercury are increasingly being weighed against the potential negative economic impacts. The links between the natural and social sciences are weak in some areas, which undermine efforts to perform economic valuation of ecosystems or evaluate changes in benefit-cost analysis. A particular weakness for social science valuation is the lack of information and modeling (analogous to MAGIC or PnET) about how terrestrial ecosystems respond. Integrated scientific assessments can help build a crucial bridge between scientific findings and the social science community, especially in reference to valuation of resources. It also provides a method for identifying the value of additional information that can help inform research priorities over the chain of effects linking human activities and ecological impacts.

Meaningful economic analyses consider changes in ecological resources from a baseline to a changed condition. To help with economic valuations, it is important to relate scientific findings to endpoints and measures that people can understand, such as human health, recreation, and wildlife. Connections between EMEP funded scientific research and the social sciences have been limited to the EMEP Outreach program. Additional efforts to provide some type of valuation of resources and the jobs that a restored ecosystem would support is essential for informing policy makers of the true costs and benefits of policy decisions. EMEP has not funded any research to address this need.

5.2.2 Research Focus Going Forward

- Collect and synthesize information to describe the different human uses of ecosystems (ecosystem services), their current magnitudes and values, and how such uses and values respond to changes in ecosystem quality related to acid and mercury deposition.

- Working with an aspect of ecosystem services (i.e., regulation, provisioning services) or a specific resource (e.g. timber, tourism) and changes relating to acid and mercury deposition, develop a baseline value and calculate how the current state of the environment compares and/or how changes going forward can be expected to compare to the baseline in terms of cost-benefit and/or overall value to New York State.
- Evaluate the limits to the quantification of costs and benefits and how non-quantifiable costs and benefits associated with acidification and mercury issues can be included in policy analysis.

5.2.3 Relevance to Other Research in the Region and the Nation

Information about the links between the natural and social sciences is weak in some areas, which undermines efforts to perform social or economic valuation of ecosystems, or evaluate environmental changes in terms of cost-benefit analysis. When ecosystem services provided by healthy natural systems are not accounted for in terms of benefits to humans, a substantial portion of the benefits of environmental regulations remain outside of this cost-benefit calculation. In 2012, EPA's National Center for Environmental Economics issued "Retrospective Study of the Costs of EPA Regulations: An Interim Report of Five Case Studies." This report developed costs associated with EPA regulations but did not include the environmental benefits associated. Research to improve the understanding of how mercury pollution and the acidification of ecosystems affects ecosystem services (e.g., provisioning, regulating, supporting or cultural), and thereby New York State's economy, would aid in a better appreciation and more comprehensive understanding of the benefits resulting from emissions regulations and other policies.

NYSERDA Agreements Cited in the Environmental Research Program Plan – Ecological Effects of Deposition of Sulfur, Nitrogen, and Mercury

Contract #	Project Title	Entity
4915* and 4915A 25352 and 25552	Long-Term Monitoring Program for Evaluating Changes in Water Quality in Adirondack Lakes & Streams	Adirondack Lakes Survey Corp. and the US Geological Survey
6818*	Mercury Deposition Monitoring in the Catskills	US Geological Survey
7608* and 27965	Long-term Monitoring and Assessment of Mercury Based on Integrated Sampling using the Common Loon, Prey Fish, Water, and Sediment	Wildlife Conservation Society and Biodiversity Research Institute
7612* and 7716	Strategic Monitoring of Mercury in New York State Fish	NYS Dept. Environmental Conservation and Adirondacks Lakes Survey Corp.
7613*, 7717, and 7718	Assessment of Chemistry and Benthic Communities in Streams of the Oswegatchie-Black River Basins	US Geological Survey, Adirondack Lakes Survey Corp. and University of Texas at Arlington
8646*	Assessment of Nitrogen and Acidic Deposition Impacts to Terrestrial and Aquatic Ecosystems of Tug Hill	SUNY College of Environmental Science and Forestry
8649*	Assessing the Sensitivity of New York Forests to Cation Depletion	SUNY College of Environmental Science and Forestry
10657	Critical Loads of Sulfur & Nitrogen Deposition to Protect & Restore Acid-Sensitive Resources in the Adirondacks	E&S Environmental Chemistry
10658* and 10658A	Empirical Estimation of the Critical Load for Inorganic Aluminum Mobilization in the Western Adirondacks	Cary Institute and E&S Environmental Chemistry
10659	Land Atmosphere Dynamics of Mercury & Ecological Implications for Adirondack Forest Ecosystems	Syracuse University
10660	Acid Deposition Effects on Adirondack Ecosystems: Linkages Among Streams, Soils, & Sugar Maple Health	E&S Environmental Chemistry and US Geological Survey
10661	Evaluation & Protection of Adirondack Ecosystems: Impacts of Acid & Mercury Deposition on Watersheds	SUNY College of Environmental Science and Forestry
10662	Deacidification: Dissolved Organic Carbon & Nitrate Export--Identifying Connections	Cornell University
16295	East Central Adirondack Stream Survey	US Geological Survey, Adirondack Lakes Survey Corp. and University of Texas at Arlington
16296	Methylmercury Bioaccumulation within Montane, Terrestrial Food webs in the Adirondack Park of New York State	Syracuse University
16297	Geographic Variation of Methylmercury Bioaccumulation in the Hudson	SUNY Stony Brook
16298	Chemical & Biological Monitoring of Adirondack Lakes to Examine Ecosystem Impacts & Recovery from S & N Deposition to inform Policy	Rensselaer Polytechnic Institute
16299	Response of Acidified Soils and Associated Surface Waters to Reduced Atmospheric	Syracuse University

Contract #	Project Title	Entity
	Acid Inputs and Calcium Mitigation Strategies	
16300*	Acid Deposition and Mercury Research Synthesis	E&S Environmental Chemistry and Syracuse University
19881*	Mercury Assessment of Saltmarsh Sparrows in Long Island, NY	Biodiversity Research Institute
21309	Environmental R&D: Outreach and Writing	Eastern Research Group, Inc.
22237	Experimental In-Stream Liming to Restore Spawning and Young-of-Year Habitat for Heritage Strain Brook Trout in Honnedaga Lake	US Geological Survey
22258*	Mercury Assessment of Saltmarsh Sparrows in Long Island, NY; Phase II	Biodiversity Research Institute
22951*	LTM Evaluation Fellowship	SUNY College of Environmental Science and Forestry
24012	AMNet at Rochester (NY43)	NYS Dept. Environmental Conservation, NADP, Great Lakes Commission
25929	A Survey of Mercury Effects on Wildlife of Suffolk County Pine Barrens and Coastal Ponds	Biodiversity Research Institute and the Nature Conservancy
26578 and 30460	AMNet at Huntington Forest (NY20)	Clarkson University
27329	The Effects of Watershed and In-Stream Liming on Mercury in Surface Waters and Biota of Honnedaga Lake	US Geological Survey
28431	Effects of acid rain on the ecological health of Long Island's forests and ponds in the Central Pine Barrens and TNC's Mashomack Preserve.	US Geological Survey and the Nature Conservancy
30388	Songbirds as Indicators of Major Source Types of Mercury for New York Ecosystems	Biodiversity Research Institute
31250	Monitoring of an Adirondack Ecosystems: Impacts of Acidic and Mercury Deposition and Climate Change on Watersheds	SUNY College of Environmental Science and Forestry
PO9955*	Investigating Interactions Between Carbon, Nitrogen, & Calcium in the Adirondack Forest (EMEP Fellowship)	Cornell University
PO9956	The Production & Transfer of Methylmercury Within Terrestrial Food webs Across the Northeastern Lands (EMEP Fellowship)	Syracuse University

* Indicates completed projects. Reports available at: http://www.nyserda.ny.gov/en/Publications/Research-and-Development/Environmental/EMEP-Publications/EMEP-Final-Reports.aspx