

APPENDIX C. PHYSICAL MEASUREMENTS AND CHEMICAL ANALYSES OF CHINA LAKE WATER QUALITY

Physical tests: temperature (°C), dissolved oxygen (ppm), and conductivity (µmhos) at sites 1 – 3. Data were collected using a YSI Sonde. (See Figure 12)

Depth (m)	7-Jun-05		22-Jun-05		3-Aug-05			16-Aug-05			19-Sep-05		
	Temp.	D. O.	Temp.	D. O.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.
Site 1													
0	16.0	10.9	19.9	9.6	24.8	9.8	89	24.6	9.3	90	21.2	9.6	84
1	15.7	10.3	19.8	9.5	24.8	9.8	89	24.6	9.4	90	21.2	9.5	84
2	15.6	10.5	19.7	9.5	24.7	9.8	89	24.6	9.5	89	21.1	9.6	84
3	15.6	10.4	19.4	9.6	24.7	9.8	89	24.5	9.4	89	21.0	9.6	83
4	15.4	10.5	18.9	9.6	24.1	9.7	87	24.5	9.2	89	21.0	9.6	83
5	14.0	10.5	18.8	9.4	23.8	8.8	86	23.3	7.1	86	21.0	9.6	83
6	12.9	10.3	14.9	9.8	21.2	6.6	81	21.9	6.2	83	20.7	9.4	82
7	11.9	10.0	13.7	8.9	15.9	5.8	71	18.6	5.2	77	20.5	8.9	82
8	11.5	9.7	11.7	8.8	14.0	4.2	68	14.2	2.9	69	20.4	8.7	82
9	11.1	9.6	10.9	8.1	12.3	3.8	65	12.9	2.2	67	15.7	2.8	76
10	10.9	9.7	10.6	8.1	11.7	4.0	64	11.6	2.5	64	13.0	1.1	71
11	10.8	9.8	10.5	8.2	11.3	4.3	63	11.1	3.3	63	11.8	0.5	67
12	10.6	9.6	10.4	8.1	11.1	4.4	62	10.9	3.8	62	11.4	0.8	66
13	10.4	9.5	10.4	8.0	10.9	4.6	62	10.7	3.7	62	11.2	0.8	66
14	10.4	9.5	10.3	8.1	10.7	4.8	61	10.5	3.6	62	10.7	0.8	65
15	10.3	9.3	10.3	8.1	10.5	4.8	61	10.3	3.4	61	10.7	0.8	65
16	10.3	9.4	10.2	8.0	10.8	4.0	-	10.5	2.6	-	10.6	0.7	65
17	10.2	9.2	10.2	7.9	10.6	4.1	-	10.4	2.5	-	10.5	0.7	65
18	10.2	9.1	10.2	7.9	10.4	3.8	-	10.3	2.2	-	10.4	0.6	65
19	10.1	9.1	10.2	7.7	10.3	4.0	-	10.2	1.8	-	10.3	0.5	65
20	10.1	8.9	10.2	7.5	10.2	3.6	-	10.1	1.6	-	10.3	0.4	66
21	10.0	8.8	-	-	10.1	3.2	-	10.1	1.6	-	10.2	0.2	65
22	10.0	8.9	-	-	10.1	2.8	-	10.1	1.5	-	10.2	0.2	65
23	10.0	8.9	-	-	10.0	2.6	-	10.0	1.3	-	10.2	0.1	66
24	10.0	8.7	-	-	10.0	2.5	-	10.0	1.3	-	10.2	0.1	66
25	9.9	8.6	-	-	10.0	2.4	-	10.0	1.0	-	10.2	0.1	66

APPENDIX C. (Continued)

Depth (m)	7-Jun-05		22-Jun-05		3-Aug-05			16-Aug-05			19-Sep-05		
	Temp.	D. O.	Temp.	D. O.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.
Site 1													
26	9.9	8.4	-	-	-	-	-	10.0	0.8	-	10.1	0.1	67
27	9.8	8.0	-	-	-	-	-	-	-	-	-	-	-
Site 2													
0	16.8	9.9	19.9	9.4	25.0	9.0	89	24.6	9.3	88	21.2	8.7	82
1	16.3	10.1	19.6	9.3	24.8	9.1	88	24.6	9.4	88	21.2	8.6	82
2	16.2	10.2	19.1	9.3	24.5	9.1	88	24.5	9.5	88	21.2	8.6	82
3	15.6	10.2	19.0	9.3	24.3	9.0	87	24.4	9.6	88	21.2	8.5	82
4	13.7	9.8	18.7	9.3	24.1	8.7	86	24.4	9.5	88	21.2	8.4	82
5	12.3	9.5	17.4	9.3	23.2	7.6	84	24.4	9.3	88	21.1	8.4	82
6	11.7	9.4	15.0	9.0	21.7	6.2	81	21.6	5.4	82	20.6	8.0	81
7	11.4	9.1	14.1	8.8	16.4	5.1	72	16.7	4.1	75	20.5	7.5	81
8	11.1	8.8	12.0	8.5	13.4	3.4	68	14.3	2.0	70	20.2	6.5	80
9	11.0	8.7	11.7	7.5	12.7	2.2	67	13.0	1.3	69	16.5	2.8	82
10	10.9	8.8	11.4	7.1	12.2	1.8	67	12.6	1.1	68	14.1	0.7	79
11	10.9	9.0	11.2	6.7	12.2	1.7	66	12.5	1.0	68	13.5	0.3	79
12	10.8	8.9	11.2	6.6	12.1	1.6	66	12.4	0.8	68	13.3	0.1	79
13	10.8	8.8	11.2	6.6	12.1	1.6	66	12.4	0.7	68	13.1	0.1	80
14	10.8	8.8	11.1	6.4	12.0	1.6	66	12.3	0.6	68	13.0	0.1	79
15	10.7	8.6	11.1	6.4	11.9	1.5	67	12.2	0.6	69	12.9	0.1	81
16	10.7	8.0	-	-	-	-	-	-	-	-	-	-	-
Site 3													
0	18.6	9.6	20.4	9.8	25.3	9.1	89	25.0	9.2	89	21.2	8.9	82
1	18.5	9.5	20.3	9.3	25.3	9.1	89	25.0	9.2	89	21.2	8.9	82
2	18.2	9.6	19.9	9.3	25.1	9.2	89	25.0	9.3	89	21.2	8.9	81
3	18.0	9.5	19.5	9.3	25.0	9.2	89	25.0	9.2	89	21.1	8.9	81
4	17.9	9.4	17.1	8.9	24.7	9.0	88	24.9	9.1	89	21.1	8.9	81
5	14.2	9.3	14.9	8.6	22.8	7.1	84	24.7	8.8	88	21.1	8.9	81
6	12.5	9.1	14.1	8.1	20.3	4.9	79	22.9	5.2	85	21.1	8.9	81
7	11.8	9.1	12.2	8.1	14.7	3.7	68	17.2	2.4	75	20.7	8.5	81
8	11.4	9.2	11.4	7.4	12.6	1.6	66	14.4	1.0	71	20.3	8.0	81
9	11.3	9.1	11.1	6.9	11.9	1.4	65	12.3	0.3	68	14.8	4.9	83

APPENDIX C. (Continued)

Depth (m)	7-Jun-05		22-Jun-05		3-Aug-05			16-Aug-05			19-Sep-05		
	Temp.	D. O.	Temp.	D. O.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.	Temp.	D. O.	Cond.
Site 3													
10	11.0	8.6	11.0	6.5	11.4	0.9	65	11.6	0.2	68	12.3	1.4	78
11	10.9	8.5	11.0	6.1	11.3	0.7	65	11.4	0.2	68	11.7	0.4	79
12	10.9	8.5	10.9	5.9	11.2	0.7	64	11.3	0.1	67	11.3	0.2	76
13	10.8	8.4	10.8	5.7	10.9	0.6	64	11.0	0.1	66	11.1	0.1	76
14	10.8	8.2	10.8	5.3	10.9	0.4	64	10.9	0.1	66	11.0	0.1	77
15	10.8	8.1	10.8	5.1	10.8	0.3	64	10.8	0.1	66	10.9	0.1	78
16	10.8	7.8	-	-	10.9	0.1	-	10.9	0.1	-	10.8	0.1	80
Site 4													
0	-	-	-	-	-	-	-	-	-	-	23.0	8.5	77
Site 5													
0	-	-	-	-	-	-	-	-	-	-	23.2	7.9	59
Site 6													
0	-	-	-	-	-	-	-	-	-	-	21.4	9.2	56
Site 7													
0	-	-	-	-	-	-	-	-	-	-	21.3	8.1	56
Site 8													
0	-	-	-	-	-	-	-	-	-	-	21.8	7.9	59
Site 9													
0	-	-	-	-	-	-	-	-	-	-	73.1	3.7	77
Site 10													
0	-	-	-	-	-	-	-	-	-	-	67.7	8.5	111
Site 11													
0	-	-	-	-	-	-	-	-	-	-	70.1	8.4	143

APPENDIX C. (Continued)

Sampling conditions and physical parameters: Secchi disk (m), turbidity (NTU), and true color (SPU).

	7-Jun-05	22-Jun-05	3-Aug-05	16-Aug-05	19-Sep-05	6-Oct-05
Air Temperature	21.1 °C	21.0 °C	21.3 °C	20.5 °C	23.3 °C	-
Cloud Cover	5%	10%	<5%	50%	5%	-
Wind Speed	-	15 mph	11 mph	8 mph	-	-
Wind Direction	S	N-NE	N	SE	-	-
Previous Weather	rainy & cold	rain	t-storms	hot & sunny	mild rain	-
Site 1						
Sample Depths (m)						
Epicore	5.0	6.5	7.0	7.0	9.0	-
Middle	13.5	10.5	13.0	13.0	14.0	-
Bottom	26.0	20.0	25.0	25.0	25.0	-
Secchi Disk (m)	6.10	4.30	1.25	1.20	2.55	-
Turbidity (NTU)						
Surface	0.68	0.83	5.09	6.42	4.27	-
Middle	0.73	0.72	1.10	1.61	1.19	-
Bottom	1.08	0.94	2.47	1.87	0.79	-
Color (SPU)	-	-	-	-	10	-
Site 2						
Sample Depths (m)						
Epicore	4.0	6.5	7.0	7.0	-	-
Middle	8.0	7.5	7.8	7.8	-	-
Bottom	16.0	14.5	15.0	15.0	-	-
Secchi Disk (m)	5.50	3.5	1.6	1.5	2.5	-
Turbidity (NTU)						
Surface	0.78	1.23	4.42	5.24	3.98	-
Middle	0.90	1.53	1.59	1.98	3.39	2.10
Bottom	1.56	1.78	5.48	3.78	2.51	0.85
Color (SPU)	-	-	-	-	11	-
Site 3						
Sample Depths (m)						
Epicore	5.0	6.0	7.0	7.0	-	-
Middle	8.5	8.5	8.0	8.3	-	-
Bottom	16.0	16.0	16.0	16.0	-	-

APPENDIX C. (Continued)

	7-Jun-05	22-Jun-05	3-Aug-05	16-Aug-05	19-Sep-05	6-Oct-05
Secchi Disk (m)	4.00	3.50	1.95	1.55	2.5	-
Turbidity (NTU)						
Surface	0.94	1.24	3.17	5.76	4.09	-
Middle	0.67	1.05	1.39	2.35	3.41	-
Bottom	2.21	4.32	-	17.50	1.06	-
Color (SPU)	-	-	-	-	10	-
Site 4						
Turbidity	-	-	-	-	3.09	-
Color	-	-	-	-	16	-
Site 5						
Turbidity	-	-	-	-	3.54	-
Color	-	-	-	-	14	-
Site 6						
Turbidity	-	-	-	-	2.82	-
Color	-	-	-	-	12	-
Site 7						
Turbidity	-	-	-	-	1.8	-
Color	-	-	-	-	12	-
Site 8						
Turbidity	-	-	-	-	1.81	-
Color	-	-	-	-	10	-
Site 9						
Secchi Tube^a (cm)	-	-	-	-	122	-
Color	-	-	-	-	66	-
Site 10						
Secchi Tube^a (cm)	-	-	-	-	75	-
Color	-	-	-	-	175	-
Site 11						
Secchi Tube^a (cm)	-	-	-	-	113	-
Color	-	-	-	-	58	-

^a Secchi tubes are tall cylinders with a Secchi disk symbol at the bottom. The transparency of shallow water is measured by filling the tube with water and draining it until the Secchi symbol is visible.

APPENDIX C. (Continued)

Chemical tests: nitrates (mg/L), pH, and alkalinity (mg/L).

Depth (m)	22-Jun-05		3-Aug-05		16-Aug-05		19-Sep-05		
	Nitrates	pH	Nitrates	pH	Nitrates	pH	Nitrates	Alkalinity	
Site 1									
0	-	-	-	-	-	7.18 ^a	0.02 ^a	17.00 ^a	
0	1.19	9.30	4.16	9.13	8.87	8.23	0.43	-	
1	1.20	9.38	3.40	9.24	6.30	8.20	0.46	-	
2	1.17	9.39	2.98	9.26	5.38	8.20	0.47	-	
3	1.23	9.38	2.68	9.24	4.89	8.20	0.49	-	
4	1.21	9.26	2.26	9.21	4.37	8.21	0.49	-	
5	1.25	8.83	1.44	8.61	1.05	8.20	0.52	-	
6	1.00	8.25	0.61	8.36	0.81	8.13	0.49	-	
7	0.97	8.05	0.51	8.12	0.65	7.97	0.42	-	
8	0.95	7.83	0.51	7.79	0.63	7.89	0.44	-	
9	0.96	7.72	0.53	7.52	0.66	7.57	0.30	-	
10	0.99	7.60	0.54	7.47	0.73	7.45	0.40	-	
11	1.06	7.35	0.64	7.38	0.84	7.23	0.59	-	
12	1.10	7.30	0.66	7.29	0.90	7.07	0.76	-	
13	1.11	7.25	0.72	7.22	1.02	7.04	0.81	-	
14	1.13	7.20	0.79	7.15	1.11	7.00	0.93	-	
15	1.19	7.16	0.89	7.13	1.23	6.98	0.98	-	
16	-	-	-	-	-	6.93	1.07	-	
17	-	-	-	-	-	6.91	1.13	-	
18	-	-	-	-	-	6.90	1.17	-	
19	-	-	-	-	-	6.88	1.23	-	
20	-	-	-	-	-	6.88	1.27	-	
21	-	-	-	-	-	6.87	1.30	-	
22	-	-	-	-	-	6.86	1.33	-	
23	-	-	-	-	-	6.85	1.31	-	
24	-	-	-	-	-	6.85	1.33	-	
25	-	-	-	-	-	6.85	1.32	-	
26	-	-	-	-	-	6.85	1.30	-	
Site 2									
0	-	-	-	-	-	7.28 ^a	0.05 ^a	16.00 ^a	
0	1.62	9.12	2.68	8.86	5.07	8.05	0.82	-	

APPENDIX C. (Continued)

Depth (m)	22-Jun-05	3-Aug-05		16-Aug-05		19-Sep-05		
	Nitrates	pH	Nitrates	pH	Nitrates	pH	Nitrates	Alkalinity
Site 2								
1	1.63	9.17	2.56	8.96	4.11	8.07	0.81	-
2	1.59	9.18	2.43	9.04	4.08	8.08	0.81	-
3	1.60	9.16	2.27	9.08	3.90	8.10	0.79	-
4	1.63	9.00	1.68	9.03	3.33	8.10	0.78	-
5	1.40	8.52	0.76	8.94	2.85	8.11	0.79	-
6	1.15	8.16	0.63	8.30	0.71	8.00	0.64	-
7	1.13	7.93	0.47	8.10	0.55	7.87	0.58	-
8	1.06	7.73	0.46	7.85	0.57	7.72	0.50	-
9	1.08	7.57	0.48	7.68	0.64	7.43	0.38	-
10	1.09	7.44	0.51	7.54	0.69	7.30	0.41	-
11	1.07	7.36	0.55	7.43	0.73	7.23	0.45	-
12	1.11	7.26	0.57	7.33	0.77	7.15	0.53	-
13	1.13	7.22	0.60	7.26	0.78	7.11	0.59	-
14	1.17	7.16	0.61	7.22	0.82	7.09	0.64	-
15	1.18	7.12	0.63	7.19	0.85	7.06	0.72	-
Site 3								
0	-	-	-	-	-	7.31 ^a	0.06 ^a	17.00 ^a
0	1.40	8.95	2.99	8.73	4.66	7.76	0.79	-
1	1.52	8.99	2.72	8.79	3.95	7.76	0.81	-
2	1.52	9.01	2.51	8.83	3.57	7.77	0.82	-
3	1.57	9.02	2.48	8.80	2.95	7.78	0.85	-
4	1.45	8.87	1.97	8.73	2.46	7.79	0.85	-
5	1.31	8.36	0.84	8.49	1.34	7.81	0.85	-
6	1.36	7.91	0.68	8.04	0.77	7.81	0.88	-
7	1.34	7.67	0.55	7.73	0.59	7.75	0.79	-
8	1.39	7.35	0.68	7.56	0.61	7.66	0.72	-
9	1.41	7.26	0.74	7.34	0.75	7.43	0.53	-
10	1.42	7.14	0.84	7.21	0.85	7.30	0.59	-
11	1.42	7.04	0.92	7.16	0.90	7.19	0.90	-

APPENDIX C. (Continued)

Depth (m)	22-Jun-05	3-Aug-05		16-Aug-05		19-Sep-05		
	Nitrates	pH	Nitrates	pH	Nitrates	pH	Nitrates	Alkalinity
Site 3								
12	1.44	6.99	0.96	7.12	0.94	7.15	1.06	-
13	1.44	6.96	1.12	7.04	0.95	7.11	1.41	-
14	1.43	6.88	1.21	7.01	0.95	7.08	1.76	-
15	1.44	6.86	1.25	6.99	0.93	7.08	2.36	-
16	-	-	-	-	-	7.07	3.16	-
Site 4								
0	-	-	-	-	-	7.50 ^a	0.02 ^a	17.00 ^a
Site 5								
0	-	-	-	-	-	7.40 ^a	0.02 ^a	17.00 ^a
Site 6								
0	-	-	-	-	-	7.07 ^a	0.05 ^a	18.00 ^a
Site 7								
0	-	-	-	-	-	7.63 ^a	0.07 ^a	19.00 ^a
Site 8								
0	-	-	-	-	-	7.22 ^a	0.08 ^a	17.00 ^a
Site 9								
0	-	-	-	-	-	6.76 ^a	0.04 ^a	27.00 ^a
Site 10								
0	-	-	-	-	-	-	0.03 ^a	-
Site 11								
0	-	-	-	-	-	7.54 ^a	0.05 ^a	31.00 ^a

^a Measurements made in lab, using surface sample