

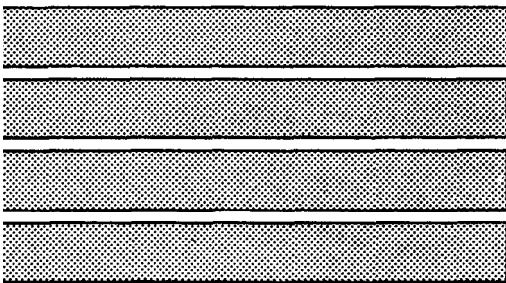
Contract Report 526A

**Appendices for
Reduction in Peak Flows and Improvements in Water Quality
in the Illinois Waterway Downstream of Lockport
Due to Implementation of Phases I and II of TARP**

by Thomas A. Butts and Dana B. Shackleford
Office of River Water Quality

Prepared for the
Metropolitan Water Reclamation District
of Greater Chicago

April 1992



Illinois State Water Survey
Chemistry Division
Champaign, Illinois

A Division of the Illinois Department of Energy and Natural Resources

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IN THE ILLINOIS WATERWAY DOWNSTREAM OF LOCKPORT
DUE TO IMPLEMENTATION OF PHASES I AND II OF TARP**

by
Thomas A. Butts, Senior Professional Scientist
Dana B. Shackleford, Assistant Professional Scientist

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of Greater Chicago

Illinois State Water Survey
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Champaign, Illinois 61820-7495

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CONTENTS

	<i>Page</i>
APPENDIX A: Conversion Table Showing Relationship Between U.S. Army Corps of Engineers Illinois Waterway Mile Points and SWS Mile Points	1
APPENDIX B: Typical Computer Printout of SWS Time of Travel (TOT) Program	5
APPENDIX C: Dissolved Oxygen (DO) Concentrations.....	13
APPENDIX D: Temperature Measurements	37
APPENDIX E: Ammonia-N, Nitrite-N, and Nitrate-N Data for 1989 and 1990	61
APPENDIX F: pH and Secchi Disk Data for 1989 and 1990.....	67
APPENDIX G: Statistical Summary of Water Quality Field Data.....	71
APPENDIX H: Sediment Oxygen Demand (SOD) Results.....	93
APPENDIX I: Typical HYDROLAB DataSonde Printout.....	119

APPENDIX A

Conversion Table Showing Relationship Between
U.S. Army Corps of Engineers Illinois Waterway
Mile Points and SWS Mile Points

SWS to Corps Illinois Waterway Mile Point Conversions

<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>	<u>Corps</u>	<u>SWS</u>
291	290.96	253	252.97	215	215.27	177	177.35	139	139.33	101	101.24	63	63.13	25	25.11		
290	289.94	252	252.00	214	214.26	176	176.33	138	138.33	100	100.22	62	62.14	24	24.16		
289	288.93	251	251.00	213	213.30	175	175.32	137	137.31	99	99.22	61	61.11	23	23.26		
288	287.93	250	249.99	212	212.30	174	174.36	136	136.33	98	98.21	60	60.09	22	22.27		
287	286.97	249	248.94	211	211.34	173	173.31	135	135.34	97	97.21	59	59.20	21	21.27		
286	286.07	248	247.94	210	210.32	172	172.35	134	134.34	96	96.20	58	58.18	20	20.25		
285	285.01	247	246.80	209	209.35	171	171.35	133	133.34	95	95.18	57	57.16	19	19.24		
284	284.00	246	245.90	208	208.34	170	170.32	132	132.34	94	94.17	56	56.21	18	18.23		
283	283.04	245	244.74	207	207.36	169	169.32	131	131.32	93	93.20	55	55.18	17	17.23		
282	282.04	244	243.67	206	206.40	168	168.29	130	130.32	92	92.15	54	54.18	16	16.22		
281	281.09	243	242.78	205	205.35	167	167.47	129	129.32	91	91.15	53	53.19	15	15.17		
280	280.09	242	241.77	204	204.39	166	166.45	128	128.32	90	90.14	52	52.19	14	14.18		
279	279.12	241	240.83	203	203.41	165	165.37	127	127.32	89	89.10	51	51.20	13	13.10		
278	278.12	240	239.45	202	202.43	164	164.36	126	126.32	88	88.09	50	50.21	12	12.11		
277	277.14	239	238.46	201	201.45	163	163.41	125	125.31	87	87.08	49	49.21	11	11.12		
276	276.02	238	237.45	200	200.48	162	162.40	124	124.31	86	86.04	48	48.21	10	10.11		
275	275.02	237	236.43	199	199.51	161	161.39	123	123.29	85	85.02	47	47.22	9	9.10		
274	274.04	236	235.56	198	198.51	160	160.37	122	122.30	84	83.95	46	46.23	8	8.08		
273	273.04	235	234.80	197	197.52	159	159.32	121	121.27	83	82.92	45	45.24	7	7.05		
272	272.05	234	233.80	196	196.53	158	158.31	120	120.26	82	81.89	44	44.22	6	5.98		
271	271.03	233	232.81	195	195.44	157	157.36	119	119.26	81	81.90	43	43.24	5	4.87		
270	270.02	232	231.80	194	194.41	156	156.36	118	118.27	80	79.82	42	42.20	4	4.02		
269	269.01	231	231.00	193	193.43	155	155.36	117	117.26	79	78.98	41	41.22	3	3.08		
268	268.00	230	230.03	192	192.47	154	154.35	116	116.26	78	77.97	40	40.22	2	2.05		
267	267.01	229	229.03	191	191.48	153	153.35	115	115.25	77	76.96	39	39.20	1	1.0		
266	266.00	228	228.06	190	190.51	152	152.36	114	114.25	76	76.20	38	38.23	0	0		
265	265.00	227	227.03	189	189.40	151	151.36	113	113.24	75	75.14	37	37.26				
264	263.99	226	226.15	188	188.42	150	150.35	112	112.24	74	74.10	36	36.22				
263	262.98	225	225.17	187	187.39	149	149.33	111	111.24	73	73.07	35	35.22				
262	261.99	224	224.16	186	186.40	148	148.36	110	110.23	72	72.06	35	34.23				
261	260.97	223	223.23	185	185.40	147	147.36	109	109.23	71	71.08	33	33.27				
260	259.98	222	222.21	184	184.39	146	146.33	108	108.23	70	70.19	32	32.20				
259	258.99	221	221.25	183	183.39	145	145.35	107	107.26	69	69.19	31	31.20				
258	257.97	220	220.24	182	182.37	144	144.35	106	106.24	68	68.19	30	30.13				
257	256.98	219	219.25	181	181.38	143	143.35	105	105.24	67	67.20	19	29.14				
256	255.98	218	218.24	180	180.40	142	142.35	104	104.24	66	66.13	28	28.09				
255	254.99	217	217.26	179	179.40	141	141.35	103	103.24	65	65.15	27	27.09				
254	254.00	216	216.26	178	178.37	140	140.34	102	102.23	64	64.15	26	26.09				

APPENDIX B

Typical Computer Printout of
SWS Time of Travel (TOT) Program

EXPLANATION OF TERMS FOR OUTPUT OF TIME OF TRAVEL PROGRAM

NO	- number of cross - section maps contained to river mile point
MILE	- river mile point (SWS mile points)
F(CFS)	- flow (cubic feet/sec)
AVF(CFS)	- average flow (cubic feet/sec)
AVA(FT2)	- average area (square feet)
AVW(FT)	- average width (feet)
AVD(FT)	- average depth (feet)
DT(D)	- time of travel for reach (days)
SUMT(D)	- sumation of time of travel (days)
DIS(FT)	- length of reach (feet)
VOL(FT3)	- volume of reach (cubic feet)

STAFF GAGE ELEVATIONS

Left Column - river mile point (SWS mile points)
Right Column - elevation in mean sea level

USGS GAGING STATIONS

Left Column - river mile point (SWS mile points)
Right Column - flow (cubic feet/sec)

TRIBUTARY CONFLUENCE

Left Column - river mile point (SWS mile points)
Right Column - flow (cubic feet/sec)

8/14-21/87 Orig DATE PROCESSED: 1991/03/05 AT 14:30:46

STAFF GAGE ELEVATIONS

0.00	417.00
21.74	421.80
43.39	423.70
56.14	425.40
61.47	425.70
70.89	427.10
80.00	428.30
80.01	428.20
88.91	430.10
119.90	435.40
128.86	436.60
137.21	437.70
145.76	438.50
153.31	439.20
158.05	441.00
158.06	441.00
164.61	444.80
196.66	446.30
218.69	448.40
223.05	449.10
231.01	450.50
231.02	458.90
246.77	460.70
246.78	483.10
271.51	488.50
271.52	504.80
286.24	506.10
286.25	538.60
291.00	539.60

USGS GAGING STATIONS

0.00	13153.
70.89	16865.
145.76	19725.
196.66	26049.
246.39	26856.

291.00 14100.

TRIBUTARY CONFLUENCE

289.94 4200.
276.96 1140.
272.90 1400.
263.52 3.
239.17 5290.
226.50 14.
211.19 1.
209.36 59.
163.41 1.
160.03 1.
148.09 5.
120.78 307.
88.94 660.
83.72 96.
23.44 42.

8/14-21/87

NO	MILE	F(CFS)	AVF(CFS)	AVA(FT2)	AVW(FT)	AVD(FT)	DT(D)	SUMT(D)	DIS(FT)	VOL(FT3)
1649	290.990	14101.350	14101.350	2296.401	149.555	15.35494	0.00010	0.00010	53.	60684.
1646	290.680	14143.134	14126.508	3646.731	240.123	15.18692	0.00455	0.00465	1637.	5614576.
1640	289.940	14242.877	14197.946	4468.995	291.909	15.30956	0.01416	0.01880	3907.	17366706.
1632	288.660	18615.408	18535.715	4840.413	418.404	11.56877	0.02065	0.03945	6758.	32703726.
1621	287.230	18808.158	18716.012	5230.488	317.610	16.46829	0.02419	0.06364	7550.	39182748.
1613	286.250	18940.254	18894.088	12093.872	1008.851	11.98777	0.03583	0.09947	5174.	59967948.
1612	286.210	18945.646	18945.646	2629.020	937.487	2.80433	0.00052	0.09999	211.	1223130.
1610	285.820	18998.213	18986.082	2194.955	578.589	3.79364	0.00244	0.10243	2059.	4377797.
1608	285.330	19064.264	19051.457	5154.369	726.752	7.09234	0.00616	0.10859	2587.	10549392.
1603	284.390	19190.963	19130.848	6146.146	612.747	10.03049	0.01852	0.12711	4963.	30643856.
1600	284.010	19242.184	19218.820	6958.504	1068.736	6.51096	0.00818	0.13529	2006.	13643032.
1598	283.720	19281.273	19271.840	6462.900	650.262	9.93892	0.00580	0.14109	1531.	10021314.
1583	281.090	19635.773	19450.213	8682.345	957.744	9.06541	0.07362	0.21472	13886.	126109688.
1579	280.470	19719.342	19682.949	8017.167	749.958	10.69016	0.01534	0.23005	3274.	26193962.
1565	278.300	20011.840	19878.395	6022.387	524.117	11.49053	0.04048	0.27053	11458.	69840416.
1564	278.120	20036.102	20036.102	8788.219	671.789	13.08181	0.00449	0.27502	950.	7800091.
1562	277.820	20076.537	20064.406	8095.009	708.635	11.42338	0.00744	0.28246	1584.	12930882.
1557	276.960	20192.459	20151.752	8775.938	1092.968	8.02946	0.02234	0.30481	4541.	390005580.

NO	MILE	F(CFS)	AVF(CFS)	AVA(FT2)	AVW(FT)	AVD(FT)	DT(D)	SUMT(D)	DIS(FT)	VOL(FT3)
1553	276.220	21432.201	21392.777	8982.492	1178.801	7.62002	0.01947	0.32428	3907.	35834844.
1537	273.560	21790.744	21624.279	8441.285	746.829	11.30284	0.06348	0.38776	14045.	119782496.
1532	272.900	21879.707	21835.762	8702.877	742.744	11.71719	0.01602	0.40378	3485.	30291640.
1528	272.410	23345.754	23313.742	11436.193	856.647	13.34995	0.01457	0.41835	2587.	29413152.
1527	272.190	23375.406	23375.406	13164.065	854.762	15.40086	0.00677	0.42511	1162.	13815982.
1523	271.670	23445.496	23407.082	16513.518	1111.353	14.85894	0.02194	0.44705	2746.	44579420.
1521	271.520	23465.719	23456.957	18572.477	1311.135	14.16520	0.00720	0.45425	792.	14599587.
1513	270.640	23584.330	23523.508	8499.655	1174.754	7.23527	0.01952	0.47377	4646.	40189448.
1512	270.230	23639.596	23639.596	6947.021	502.002	13.83863	0.00822	0.48199	2165.	17004502.
1494	267.090	24062.840	23843.430	8152.505	813.108	10.02635	0.06555	0.54754	16579.	136694720.
1484	265.000	24344.551	24218.250	8491.390	709.254	11.97229	0.04436	0.59190	11035.	93080072.
1477	263.670	24523.820	24432.160	8607.600	717.831	11.99112	0.02849	0.62039	7022.	60181092.
1476	263.520	24544.041	24544.041	7388.001	606.996	12.17142	0.00300	0.62339	792.	6405879.
1471	262.750	24650.828	24603.385	8304.765	659.542	12.59172	0.01597	0.63936	4066.	33986556.
1464	261.580	24808.535	24732.473	8087.158	728.924	11.09464	0.02346	0.66282	6178.	50276696.
1445	257.970	25295.127	25040.869	7206.173	651.310	11.06412	0.06335	0.72617	19061.	138184352.
1434	256.000	25560.664	25419.625	7842.467	711.204	11.02704	0.03735	0.76352	10402.	82243232.
1425	254.350	25783.068	25668.945	7622.135	733.787	10.38739	0.02969	0.79321	8712.	65925868.
1417	252.970	25969.078	25874.557	8732.260	750.042	11.64236	0.02850	0.82171	7286.	63804476.
1413	252.420	26043.215	26008.844	8073.588	672.763	12.00064	0.01033	0.83204	2904.	23235092.
1401	250.010	26368.059	26213.275	8466.817	745.698	11.35423	0.04744	0.87947	12725.	107802608.
1394	248.650	26551.375	26470.307	8556.840	818.205	10.45807	0.02696	0.90643	7181.	62085028.
1387	247.080	26762.994	26661.518	9316.357	800.136	11.64347	0.03282	0.93925	8290.	76133784.
1386	246.780	26803.432	26803.432	11305.642	934.103	12.10321	0.00783	0.94708	1584.	18121408.
1385	246.750	26807.475	26807.475	3315.257	2197.033	1.50897	0.00035	0.94744	158.	1157928.
1381	245.900	26922.049	26869.480	2588.481	1297.913	1.99434	0.00502	0.95246	4488.	11809120.
1370	243.730	26525.920	26667.383	2576.533	719.321	3.58190	0.01219	0.96465	11458.	29216270.
1368	243.420	26487.451	26505.445	6112.847	660.327	9.25730	0.00427	0.96892	1637.	9837726.
1362	242.680	26395.625	26450.225	7146.952	725.564	9.85020	0.01242	0.98134	3907.	28383368.
1347	239.450	25994.814	26202.541	6818.434	649.534	10.49742	0.05143	1.03276	17054.	117243504.
1346	239.170	25960.068	25960.068	9401.720	898.830	10.45996	0.00601	1.03877	1478.	13499116.
1343	238.630	31183.061	31211.187	9925.239	774.014	12.82307	0.01057	1.04934	2851.	28270448.
1334	236.970	30977.070	31073.447	7911.018	724.544	10.91861	0.02555	1.07490	8765.	69485520.
1330	236.290	30892.689	30925.572	12490.729	997.058	12.52758	0.01576	1.09065	3590.	42475000.
1320	234.300	30645.750	30764.010	9055.176	874.736	10.35190	0.03635	1.12701	10507.	99652072.
1301	231.060	30243.699	30425.264	10804.992	972.759	11.10758	0.05887	1.18588	17107.	160326256.
1300	231.020	30238.736	30238.736	20648.258	1323.897	15.59657	0.00173	1.18761	211.	4521664.
1290	229.630	30066.250	30157.457	15382.724	1361.607	11.29748	0.04354	1.23115	7339.	115093352.
1287	228.850	29969.461	30011.650	12808.583	826.247	15.50212	0.02049	1.25164	4118.	53240696.

NO	MILE	F(CFS)	AVF(CFS)	AVA(FT2)	AVW(FT)	AVD(FT)	DT(D)	SUMT(D)	DIS(FT)	VOL(FT3)
1276	226.500	29677.848	29824.162	13379.193	961.298	13.91784	0.06346	1.31510	12408.	165093152.
1268	224.890	29492.062	29588.854	14705.245	927.255	15.85889	0.04910	1.36420	8501.	126075240.
1260	223.350	29300.965	29388.293	18128.791	1406.354	12.89063	0.05314	1.41733	8131.	146962176.
1257	222.660	29215.342	29247.607	11080.987	640.980	17.28756	0.01677	1.43410	3643.	42898560.
1254	222.210	29159.502	29183.078	13123.663	1318.562	9.95301	0.01147	1.44557	2376.	29586188.
1243	220.100	28897.672	29019.393	12946.238	969.211	13.35751	0.05735	1.50292	11141.	144364256.
1234	218.240	28666.865	28773.994	14645.281	1100.198	13.31150	0.05783	1.56075	9821.	144752352.
1230	217.340	28555.182	28599.543	14232.443	969.886	14.67434	0.02708	1.58784	4752.	66968052.
1212	213.660	28098.531	28323.826	14870.804	1225.602	12.13347	0.11713	1.70496	19430.	289885568.
1201	211.190	27792.029	27941.613	15539.298	1043.195	14.89587	0.08351	1.78848	13042.	201826976.
1193	209.720	27610.617	27699.344	14932.470	1227.742	12.16254	0.04651	1.83499	7762.	112343128.
1191	209.360	27565.943	27577.111	15768.108	1313.497	12.00468	0.01292	1.84790	1901.	30937186.
1188	208.510	27519.467	27562.484	15758.378	1060.282	14.86243	0.02991	1.87781	4488.	71252144.
1172	205.350	27127.344	27320.611	15227.854	1016.779	14.97656	0.10697	1.98477	16685.	254710912.
1150	200.840	26567.695	26842.330	13539.541	920.758	14.70477	0.13854	2.12331	23813.	322100992.
1141	198.530	26281.049	26425.545	18030.898	1442.957	12.49580	0.08955	2.21286	12197.	207011232.
1134	197.450	26147.031	26213.506	18072.762	1520.463	11.88635	0.04456	2.25742	5702.	101442488.
1130	196.660	26049.000	26085.605	19339.396	1639.505	11.79588	0.03799	2.29541	4171.	87506296.
1100	190.510	25284.057	25642.941	18286.908	1720.347	10.62978	0.23873	2.53414	32472.	582723072.
1093	189.040	25101.215	25189.527	19896.943	1600.934	12.42833	0.07174	2.60588	7762.	158351888.
1090	188.420	25024.100	25056.854	19405.607	1520.310	12.76425	0.03003	2.63592	3274.	65309960.
1064	183.390	24398.463	24715.059	19924.959	1639.126	12.15584	0.24203	2.87795	26558.	527822368.
1046	179.510	23915.863	24155.918	15446.995	1480.770	10.43173	0.14879	3.02674	20486.	317339968.
1045	179.400	23902.182	23902.182	53509.836	7546.688	7.09051	0.00638	3.03313	581.	19724894.
1035	177.490	23664.615	23779.668	57364.070	7444.703	7.70535	0.27886	3.31198	10085.	576711168.
1024	175.220	23382.270	23516.148	64267.453	8258.188	7.78227	0.37818	3.69016	11986.	769115968.
1021	174.790	23328.783	23352.830	75102.930	8877.524	8.45990	0.08527	3.77543	2270.	172738208.
1007	171.260	22889.719	23082.332	58206.414	7909.629	7.35893	0.55453	4.32995	18638.	1126333700.
986	167.470	22418.314	22643.621	69987.109	8247.357	8.48600	0.71837	5.04832	20011.	1415301760.
982	166.550	22303.885	22346.484	15378.264	1075.037	14.30486	0.04161	5.08993	4858.	86278304.
979	165.690	22196.916	22259.107	40496.953	5031.536	8.04863	0.09189	5.18182	4541.	178733936.
978	165.650	22191.941	22191.941	56080.492	7284.449	7.69866	0.00536	5.18717	211.	10460009.
975	165.060	22118.557	22144.264	60341.332	6111.848	9.87285	0.09800	5.28518	3115.	187996208.
974	164.720	22076.268	22076.268	56809.598	5359.915	10.59897	0.05324	5.33842	1795.	101638960.
971	164.240	22016.564	22039.367	68939.820	7120.744	9.68155	0.08998	5.42840	2534.	171730208.
969	163.410	21913.328	21956.240	73921.672	7285.707	10.14612	0.16674	5.59513	4382.	319127552.
968	163.160	21883.232	21883.232	32526.715	2489.241	13.06692	0.03242	5.62755	1320.	75095160.
967	162.850	21844.676	21844.676	24948.826	1802.207	13.84349	0.02447	5.65202	1637.	47037612.
963	161.950	21732.730	21790.258	13083.576	847.276	15.44193	0.03020	5.68222	4752.	59680136.

NO	MILE	F(CFS)	AVF(CFS)	AVA(FT2)	AVW(FT)	AVD(FT)	DT(D)	SUMT(D)	DIS(FT)	VOL(FT3)
959	161.080	21624.520	21674.895	11198.217	864.791	12.94904	0.02737	5.70959	4594.	51301508.
958	160.930	21605.861	21605.861	16180.844	1081.230	14.96522	0.00582	5.71541	792.	11128192.
956	160.420	21542.428	21563.572	14989.457	1034.187	14.49395	0.02190	5.73731	2693.	40854728.
953	160.030	21493.920	21517.139	11476.195	916.465	12.52225	0.01299	5.75030	2059.	24298258.
952	159.680	21451.385	21451.385	16613.666	1129.164	14.71324	0.01412	5.76442	1848.	26778794.
949	158.890	21353.125	21392.514	13438.124	686.660	19.57028	0.03034	5.79477	4171.	56744480.
945	158.480	21302.129	21322.340	14311.697	721.339	19.84045	0.01683	5.81160	2165.	31050578.
944	158.310	21280.984	21280.984	11846.710	843.076	14.05177	0.00618	5.81778	898.	11416785.
941	158.060	21249.889	21263.156	14475.440	796.472	18.17445	0.00912	5.82689	1320.	17545744.
930	156.360	21038.441	21141.676	12631.687	922.392	13.69449	0.06345	5.89035	8976.	117357456.
923	155.360	20914.061	20980.338	12171.119	909.837	13.37725	0.03506	5.92541	5280.	63757416.
909	153.350	20664.055	20793.057	11169.370	716.263	15.59395	0.06588	5.99128	10613.	118668728.
902	152.360	20540.916	20598.666	11926.357	791.125	15.07519	0.03457	6.02585	5227.	61666808.
896	151.550	20440.168	20481.836	12595.708	935.394	13.46567	0.03077	6.05662	4277.	54642404.
895	151.360	20416.535	20416.535	10569.273	786.153	13.44429	0.00598	6.06259	1003.	10550110.
887	150.350	20290.910	20354.654	13792.023	1345.078	10.25370	0.03842	6.10101	5333.	70144720.
874	148.480	20058.316	20178.199	11777.614	1067.891	11.02886	0.06641	6.16742	9874.	117052904.
871	148.090	20009.809	20030.123	11289.138	877.375	12.86695	0.01304	6.18045	2059.	22680942.
868	147.620	19956.350	19980.398	10465.267	640.324	16.34370	0.01514	6.19559	2482.	26147878.
855	145.770	19726.244	19838.570	11621.663	816.238	14.23808	0.06600	6.26159	9768.	113253344.
840	143.590	19611.297	19665.896	12408.728	965.726	12.84912	0.08402	6.34560	11510.	143226288.
815	139.240	19383.369	19507.027	11305.207	869.715	12.99875	0.15114	6.49674	22968.	256234512.
790	136.060	19216.744	19314.664	12072.159	1127.093	10.71088	0.12309	6.61984	16790.	208569280.
765	132.260	19017.633	19116.852	12937.562	1478.199	8.75225	0.15306	6.77290	20064.	259518608.
747	129.590	18877.732	18946.898	11321.177	1079.163	10.49071	0.09751	6.87041	14098.	160488464.
727	126.180	18699.057	18789.469	10468.782	851.084	12.30053	0.11635	6.98676	18005.	189685888.
694	121.340	18445.453	18573.508	11701.305	1033.126	11.32612	0.18461	7.17137	25555.	298130336.
690	120.780	18416.111	18428.162	15928.632	1107.989	14.37616	0.03034	7.20171	2957.	48402160.
686	119.890	18676.477	18698.090	10662.980	782.789	13.62179	0.03155	7.23326	4699.	51223144.
681	119.410	18651.326	18660.340	10712.324	1081.487	9.90518	0.01696	7.25022	2534.	27602486.
661	116.570	18502.518	18575.875	10937.877	1023.406	10.68772	0.10131	7.35153	14995.	163561920.
642	113.540	18343.752	18422.238	10437.727	985.475	10.59157	0.10470	7.45623	15998.	166825040.
621	110.410	18179.748	18261.365	7525.706	606.362	12.41123	0.07859	7.53482	16526.	124454568.
599	107.090	18005.789	18093.010	7155.939	652.782	10.96221	0.08029	7.61512	17530.	125716744.
576	103.550	17820.303	17908.375	8929.726	914.824	9.76114	0.10735	7.72246	18691.	166456288.
551	99.700	17618.572	17718.336	8419.381	677.922	12.41940	0.11212	7.83458	20328.	171929456.
541	98.210	17540.500	17576.652	7747.389	625.134	12.39317	0.03969	7.87427	7867.	60447084.
536	97.400	17498.057	17518.910	7997.339	790.541	10.11629	0.02287	7.89715	4277.	34754820.
510	93.740	17306.283	17395.641	7380.683	695.622	10.61019	0.09488	7.99202	19325.	142918496.

NO	MILE	F(CFS)	AVF(CFS)	AVA(FT2)	AVW(FT)	AVD(FT)	DT(D)	SUMT(D)	DIS(FT)	VOL(FT3)
482	89.340	17075.734	17188.764	8204.675	829.838	9.88708	0.12791	8.11993	23232.	190490832.
480	88.940	17054.775	17063.684	8204.675	746.763	11.25470	0.01198	8.13191	2112.	17781204.
458	85.500	17534.527	17626.295	11076.319	1145.573	9.66880	0.13126	8.26317	18163.	200540864.
445	83.720	17441.260	17487.773	10992.748	1004.037	10.94854	0.06847	8.33164	9398.	103584888.
436	82.160	17455.520	17500.641	9466.542	740.724	12.78012	0.05256	8.38419	8237.	79825400.
435	82.110	17452.900	17452.900	12765.951	1013.130	12.60050	0.00225	8.38644	264.	3386167.
421	80.010	17342.865	17396.984	10590.100	824.482	12.84455	0.07797	8.46441	11088.	117578896.
420	79.860	17335.006	17335.006	13267.841	809.875	16.38257	0.00692	8.47133	792.	10372961.
395	75.140	17087.689	17213.381	13968.103	1222.184	11.42881	0.23443	8.70576	24922.	349295136.
371	70.890	16865.000	16976.477	13982.112	1335.620	10.46863	0.21259	8.91835	22440.	317679808.
340	65.150	16561.037	16708.986	13576.945	1281.012	10.59861	0.28467	9.20302	30307.	411763936.
314	60.090	16293.083	16427.895	13523.623	1338.411	10.10424	0.25219	9.45521	26717.	360015840.
288	55.180	16033.072	16161.328	12760.744	1136.404	11.22906	0.23690	9.69211	25925.	331401664.
261	50.210	15769.885	15900.076	13700.924	1340.735	10.21896	0.26085	9.95296	26242.	359033248.
236	45.240	15506.697	15641.433	12692.956	1275.655	9.95015	0.24514	10.19810	26242.	332698752.
209	40.220	15240.861	15374.719	14001.120	1526.809	9.17018	0.27995	10.47805	26506.	372878848.
183	35.220	14976.085	15106.661	14955.483	1948.571	7.67510	0.30018	10.77823	26400.	394210464.
156	30.130	14706.543	14839.225	17532.727	2669.720	6.56725	0.36506	11.14329	26875.	470465120.
121	23.440	14352.271	14525.617	11234.375	1367.192	8.21711	0.31567	11.45896	35323.	399598240.
106	20.550	14241.231	14314.097	15728.498	2040.187	7.70934	0.19012	11.64908	15259.	237638336.
78	15.170	13956.332	14095.829	15140.346	2210.061	6.85065	0.35181	12.00089	28406.	430999904.
53	10.110	13688.378	13818.117	13447.742	1201.949	11.18828	0.29920	12.30009	26717.	362631296.
26	4.870	13410.893	13549.794	13747.049	1216.941	11.29640	0.32471	12.62481	27667.	380280864.
1	0.000	13153.005	13285.876	16934.592	1053.487	16.07480	0.38279	13.00760	25713.	440055904.

APPENDIX C1

Dissolved Oxygen (DO) Concentrations:
1989 Field Data

Dissolved Oxygen Concentrations (mg/L)

MP	6/15/89				6/27/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	2.67	2.67	2.67	2.67	2.43	2.43	2.43	2.44
290.2	2.92	2.91	2.90	2.90	3.76	4.03	3.68	3.46
289.8	3.64	3.65	3.90	4.22	3.55	3.56	3.50	3.55
287.9	3.93	3.92	3.92	3.92	3.34	3.32	3.29	3.35
286.2	3.58	3.57	3.39	3.38	2.26	2.09	2.12	2.04
285.4	7.53	7.66	7.59	7.50	6.91	7.09	7.06	6.93
284.0	7.60	7.50	7.44	7.40	5.95	5.64	5.61	5.50
281.0	6.81	6.80	6.79	6.80	4.95	5.00	4.98	4.91
278.0	6.94	6.87	6.85	6.88	5.67	5.47	5.00	5.01
276.1	7.10	7.05	6.99	6.97	6.02	5.97	5.65	4.48
273.5	6.69	6.69	6.68	6.67	9.75	7.85	6.04	5.93
272.4	6.67	6.58	6.96	6.99	10.79	10.35	6.00	6.07
271.6	7.14	7.01	6.81	6.66	7.92	7.90	7.35	6.37
271.2	8.42	8.39	8.39	8.38	7.95	7.89	7.89	7.91
270.6	8.53	8.49	8.58	8.52	8.14	8.01	8.02	8.05
267.2	8.43	8.46	8.51	8.59	8.30	8.21	8.23	8.31
265.0	8.57	8.47	8.44	8.59	8.04	8.04	7.92	8.02
263.7	8.32	8.27	8.31	8.42	7.99	7.94	7.89	7.90
261.6	8.18	8.15	8.14	8.18	7.82	7.69	7.47	7.53
258.0	7.81	7.79	7.84	7.85	7.39	7.29	7.13	7.12
256.0	7.70	7.70	7.78	7.80	7.78	7.26	7.18	7.18
253.0	7.47	7.47	7.50	7.51	8.75	8.06	7.84	7.03
250.0	7.65	7.64	7.64	7.69	8.40	7.86	7.70	7.69
247.0	7.55	7.54	7.61	7.60	7.39	7.09	6.87	6.90
246.0	8.51	8.40	8.40	8.27	7.14	7.16	7.16	7.32
243.7	7.88	7.85	7.88	7.83	6.84	6.80	6.97	6.95
242.9	8.11	8.10	8.12	8.11	6.68	6.68	6.74	6.79
240.0	7.95	7.96	7.93	7.90	6.58	6.59	6.60	6.65
239.0	7.87	7.88	7.92	7.98	6.55	6.46	6.44	6.50
236.8	8.15	8.09	8.14	8.28	7.11	6.50	6.52	6.54
234.5	7.79	8.08	8.09	8.10	7.59	7.00	6.83	6.79
231.0	8.09	8.07	7.76	7.71	7.39	7.17	6.46	6.55
230.8	8.72	8.69	8.69	8.69	7.83	7.76	7.76	7.69
229.6	8.45	8.41	8.40	8.42	7.64	7.63	7.61	7.67
226.9	8.38	8.36	8.31	8.28	7.49	7.46	7.46	7.51
224.7	8.27	8.25	8.26	8.24	7.21	7.20	7.20	7.22
222.6	8.20	8.13	8.11	8.10	6.94	6.75	6.73	6.80
219.8	8.12	8.11	8.13	8.06	6.62	6.59	6.58	6.62
217.1	8.02	7.97	7.95	7.95	6.79	6.77	6.71	6.72
213.4	7.93	7.92	7.90	7.83	7.38	7.31	7.23	7.19
209.4	7.94	7.92	7.90	7.84	6.88	6.54	6.52	6.55
205.4	7.81	7.80	7.81	7.80	7.80	6.86	6.74	6.75
200.4	7.78	7.73	7.71	7.76	7.31	7.18	7.17	7.14
196.9	7.77	7.68	7.60	7.61	7.84	6.98	6.76	6.58
190.0	7.51	7.43	7.37	7.32	6.48	6.48	6.37	6.10
188.0	7.26	7.20	7.16	7.05	6.28	6.36	6.02	5.87
183.0	7.20	7.17	7.17	7.18	7.75	5.78	5.73	5.78
179.0	7.10	7.10	7.11	7.12	6.23	5.95	5.78	5.78
177.4	7.16	7.07	7.09	7.07	7.90	6.53	5.93	5.86
174.9	7.16	7.17	7.20	7.18	6.36	6.30	6.55	6.22

Dissolved Oxygen Concentrations (mg/L)

MP	6/15/89				6/27/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	6.92	6.88	6.87	6.88	8.75	7.87	7.19	6.39
167.0	6.91	6.90	6.90	6.91	13.13	11.47	8.31	6.93
166.1	6.95	6.90	6.93	6.97	15.85	8.55	7.75	7.75
165.3	6.87	6.85	6.81	6.82	9.96	9.66	7.67	7.14
164.4	6.99	6.95	6.93	6.91	9.19	8.86	7.68	7.61
162.8	7.02	7.02	7.01	7.01	10.53	10.19	7.80	7.52
161.6	6.72	6.71	6.71	6.72	10.86	8.55	7.84	7.85
160.7	6.87	6.88	6.88	6.94	9.79	10.02	8.29	8.11
159.4	6.91	6.90	6.90	6.91	9.97	7.71	7.70	7.64
158.0	6.96	6.96	6.94	6.85	12.11	8.62	7.80	7.73

Dissolved Oxygen Concentrations (mg/L)

MP	7/18/89				7/20/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	5.20	5.61	5.00	3.86	5.05	5.10	5.11	5.12
290.2	5.42	5.47	5.14	4.91	4.94	4.93	4.95	4.98
289.8	5.12	5.10	5.10	5.14	3.53	3.65	3.69	3.89
287.9	4.97	4.91	5.02	5.16	2.30	2.31	2.37	2.43
286.2	3.58	3.57	3.39	3.38	2.26	2.09	2.12	2.04
285.4	6.80	6.77	6.79	6.86	7.33	7.35	7.30	7.33
284.0	6.46	6.37	6.38	6.33	7.12	7.10	7.10	7.09
281.0	5.90	5.90	5.78	5.70	6.98	6.98	6.94	6.96
278.0	7.43	7.24	7.09	7.04	6.75	6.68	6.68	6.66
276.1	7.30	7.29	6.83	6.75	6.86	6.82	6.75	6.73
273.5	7.27	7.22	7.14	7.23	6.68	6.66	6.62	6.66
272.4	7.99	7.93	7.85	7.60	6.40	6.35	6.40	6.50
271.6	7.01	6.97	6.95	6.55	6.59	6.38	6.29	6.30
271.2	7.80	7.72	7.74	7.64	8.18	8.11	8.15	8.11
270.6	7.43	7.44	7.51	7.45	8.19	8.08	8.18	8.16
267.2	7.09	7.02	6.99	7.06	8.01	7.96	7.93	7.91
265.0	6.83	6.82	6.83	6.90	7.88	7.76	7.80	7.80
263.7	6.60	6.61	6.58	6.72	7.83	7.82	7.81	7.78
261.6	6.64	6.68	6.60	6.71	7.48	7.50	7.57	7.59
258.0	7.57	7.53	7.51	7.61	7.39	7.40	7.46	7.45
256.0	7.93	7.87	7.88	7.92	7.27	7.28	7.36	7.34
253.0	7.93	7.86	7.79	7.85	7.19	7.18	7.22	7.18
250.0	7.99	7.97	7.87	8.00	7.00	7.02	7.04	7.03
247.0	8.64	8.50	8.42	8.43	7.67	6.73	6.80	6.77
246.0	8.13	8.08	8.08	8.05	7.36	7.32	7.32	7.34
243.7	8.03	7.89	7.76	7.85	7.17	7.17	7.25	7.24
242.9	8.01	7.81	7.74	7.76	7.18	7.07	7.18	7.16
240.0	7.93	7.59	7.44	7.45	7.19	7.14	7.12	7.23
239.0	8.42	8.37	8.30	8.25	7.60	7.83	8.40	8.72
236.8	8.22	8.09	7.57	7.60	7.11	7.10	7.21	7.14
234.5	9.72	9.72	9.68	9.78	7.30	7.20	7.14	7.20
231.0	11.18	11.17	9.12	8.63	8.04	7.94	7.61	7.48
230.8	8.72	8.69	8.69	8.66	7.53	7.58	7.66	7.62
229.6	8.68	8.66	8.60	8.55	7.58	7.53	7.54	7.56
226.9	9.15	8.98	8.74	8.65	7.26	7.28	7.25	7.19
224.7	8.18	7.95	7.79	7.79	7.11	7.10	7.07	7.00
222.6	7.65	7.50	7.12	6.72	6.87	6.76	6.68	6.65
219.8	8.08	7.92	7.92	7.67	6.62	6.56	6.55	6.57
217.1	9.46	9.18	9.17	9.00	6.60	6.57	6.55	6.57
213.4	7.38	7.24	7.22	7.11	6.75	6.71	6.70	6.64
209.4	7.79	7.70	7.50	7.20	6.77	6.69	6.66	6.65
205.4	8.07	8.04	7.79	7.50	6.94	6.92	6.90	6.89
200.4	7.36	7.36	7.15	6.96	6.98	6.92	6.88	6.90
196.9	6.94	6.76	6.58	6.37	7.19	7.09	7.04	7.03
190.0	6.42	6.31	6.22	5.75	6.73	6.67	6.58	6.52
188.0	6.15	6.04	5.96	5.94	6.59	6.55	6.48	6.46
183.0	4.79	5.12	4.72	4.68	5.96	5.97	5.96	5.96
179.0	4.73	4.69	4.48	4.63	6.15	6.10	6.11	6.07
177.4	4.81	4.74	4.65	4.70	6.16	6.12	6.03	6.02
174.9	5.19	5.06	5.07	5.11	5.97	5.98	6.00	6.24

Dissolved Oxygen Concentrations (mg/L)

MP	7/18/89				7/20/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	5.46	5.50	5.73	6.17	7.25	7.23	7.25	7.23
167.0	6.09	6.04	5.95	6.57	7.71	7.71	7.70	7.67
166.1	6.93	6.91	6.79	6.83	7.48	7.52	7.54	7.50
165.3	7.21	7.17	7.49	6.78	7.50	7.44	7.43	7.39
164.4	7.13	7.11	6.97	6.96	7.13	7.16	7.23	7.18
162.8	6.60	6.49	6.54	6.54	7.65	6.63	7.66	7.82
161.6	7.72	7.67	7.68	7.57	7.68	7.63	7.62	7.61
160.7	7.68	7.34	7.20	7.05	7.64	7.65	7.63	7.66
159.4	7.40	7.22	7.06	7.01	7.39	7.47	7.37	7.38
158.0	7.27	7.21	7.15	7.01	7.18	7.17	7.13	7.10

Dissolved Oxygen Concentrations (mg/L)

MP	7/25/89				8/01/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	2.32	2.31	2.30	2.29	5.03	4.91	5.55	4.25
290.2	2.48	2.43	2.41	2.42	4.71	4.87	4.82	4.94
289.8	5.50	3.75	3.69	3.27	4.61	4.80	4.85	5.03
287.9	4.68	4.69	4.52	4.50	4.50	4.50	4.51	4.52
286.2	4.49	4.47	4.50	4.51	4.04	4.04	4.04	4.07
285.4	7.43	7.46	7.48	7.44	7.82	7.82	7.81	7.91
284.0	7.20	7.13	6.80	6.47	7.12	6.97	6.92	6.85
281.0	7.17	6.85	6.18	6.04	6.49	6.49	6.52	6.52
278.0	6.65	6.09	5.75	5.77	6.70	6.33	6.26	6.24
276.1	8.10	6.05	6.02	5.98	7.12	6.72	6.32	6.36
273.5	6.95	6.38	6.19	6.18	7.06	6.50	6.38	6.32
272.4	7.94	3.73	6.16	5.86	7.48	6.22	6.12	6.05
271.6	6.65	6.59	6.36	5.84	7.00	6.71	6.22	6.09
271.2	7.84	7.82	7.81	7.92	7.92	7.90	7.95	7.90
270.6	7.73	7.73	7.69	7.84	7.19	6.79	6.66	6.86
267.2	7.62	7.61	7.59	7.73	6.90	6.82	6.60	6.57
265.0	7.62	7.61	7.56	7.64	6.80	6.47	6.46	6.49
263.7	7.44	7.46	7.53	7.62	6.89	6.65	6.56	6.44
261.6	7.47	7.43	7.58	7.47	6.81	6.41	6.35	6.35
258.0	7.16	7.13	7.10	7.28	6.56	6.15	6.13	6.15
256.0	7.15	7.14	7.27	7.25	6.36	6.16	5.90	5.85
253.0	7.16	7.16	7.14	7.24	5.93	5.90	5.86	5.87
250.0	7.30	7.31	7.30	7.39	5.62	5.57	5.63	5.62
247.0	7.24	7.30	7.27	7.27	5.61	5.46	5.41	5.35
246.0	7.61	7.61	7.60	7.59	6.81	6.81	6.81	6.70
243.7	7.41	7.40	7.42	7.45	5.87	5.84	5.80	5.83
242.9	7.42	7.35	7.35	7.47	5.92	5.86	5.86	5.95
240.0	7.52	7.51	7.51	7.55	5.79	5.64	5.68	5.70
239.0	7.64	7.68	7.65	7.61	6.24	6.15	6.19	6.28
236.8	10.30	8.20	8.12	8.13	6.02	5.99	5.96	5.95
234.5	7.66	7.62	7.60	7.73	5.89	5.65	5.67	5.70
231.0	9.83	8.35	8.45	8.14	7.90	7.06	6.55	5.48
230.8	7.99	7.96	7.92	7.89	7.86	7.89	7.89	7.90
229.6	7.85	7.83	7.84	7.93	8.04	7.91	7.48	6.97
226.9	7.73	7.77	7.76	7.80	8.60	7.72	7.35	7.25
224.7	7.75	7.72	7.64	7.63	7.97	7.76	7.70	7.73
222.6	7.81	7.47	7.50	7.53	7.97	7.72	7.13	7.17
219.8	7.39	7.36	7.38	7.43	7.98	7.68	7.59	7.60
217.1	7.34	7.26	7.25	7.28	7.99	7.83	7.73	7.64
213.4	7.19	7.15	7.14	7.15	8.99	8.36	8.40	8.30
209.4	7.04	7.02	6.96	6.98	9.09	8.44	8.39	8.21
205.4	6.89	6.75	6.74	6.79	9.18	8.51	8.25	8.07
200.4	6.97	6.91	6.88	6.92	8.03	7.95	7.96	8.00
196.9	8.52	7.30	6.96	6.85	8.29	7.66	7.68	7.77
190.0	8.65	7.05	6.81	6.81	7.31	7.34	7.42	7.55
188.0	7.98	6.89	6.79	6.75	7.77	7.73	7.74	7.65
183.0	6.96	6.73	6.71	6.74	7.15	7.16	7.20	7.25
179.0	6.91	6.76	6.72	6.76	8.46	7.25	7.18	7.21
177.4	7.72	6.95	9.88	6.85	7.62	7.17	6.97	6.96
174.9	7.03	6.57	6.58	6.70	8.07	7.65	7.02	6.75

Dissolved Oxygen Concentrations (mg/L)

MP	7/25/89				8/01/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	7.39	7.09	7.07	6.98	7.51	7.06	6.74	6.64
167.0	7.98	7.39	7.58	7.50	8.70	7.83	7.65	7.38
166.1	7.31	7.28	7.27	7.36	10.44	8.10	8.17	8.32
165.3	7.21	7.11	7.13	7.25	8.99	8.45	8.41	8.29
164.4	7.98	7.09	7.06	7.07	8.36	7.27	7.16	7.10
162.8	8.32	7.31	7.26	7.26	10.77	9.83	8.83	7.79
161.6	7.37	7.37	7.36	7.36	8.99	8.98	9.05	9.09
160.7	7.40	7.37	7.36	7.39	8.60	8.33	8.35	8.40
159.4	7.43	7.41	7.42	7.45	8.23	8.12	8.14	8.17
158.0	7.45	7.34	7.31	7.39	9.30	7.79	7.58	7.57

Dissolved Oxygen Concentrations (mg/L)

MP	8/03/89				8/08/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	7.10	7.09	6.91	6.83	7.60	7.40	7.20	7.20
290.2	4.70	4.82	4.73	4.70	6.00	6.00	6.00	6.20
289.8	3.37	3.31	3.33	3.38	6.20	6.90	7.20	7.20
287.9	3.96	3.92	3.93	3.95	6.20	6.70	6.60	7.00
286.2	3.69	3.85	3.86	3.92	3.91	3.69	3.64	3.61
285.4	7.69	7.63	7.61	7.61	9.80	9.80	9.80	9.80
284.0	7.02	6.85	6.85	6.76	9.00	8.90	9.00	9.00
281.0	7.30	7.15	6.90	6.41	8.20	8.20	8.20	8.20
278.0	6.96	6.71	6.64	6.61	8.20	8.20	8.20	8.00
276.1	7.52	7.35	6.90	6.82	8.00	8.00	7.90	7.90
273.5	7.55	6.93	6.83	6.78	7.90	7.90	7.90	7.80
272.4	7.78	7.53	7.16	6.59	8.20	8.20	7.90	7.90
271.6	7.33	7.26	6.71	6.57	7.90	8.00	8.00	8.00
271.2	7.63	7.68	7.68	7.54	7.83	7.94	7.85	7.93
270.6	7.69	7.47	7.30	6.95	7.69	7.65	7.72	7.64
267.2	7.71	7.67	7.62	7.60	7.59	7.50	7.50	7.60
265.0	7.42	7.24	7.18	7.16	7.30	7.30	7.28	7.33
263.7	6.91	6.81	6.83	6.80	7.30	7.26	7.30	7.27
261.6	7.07	6.93	6.92	6.82	7.21	7.20	7.18	7.14
258.0	7.52	7.40	7.38	7.32	7.18	7.14	7.07	6.96
256.0	7.85	7.63	7.67	7.65	7.07	7.04	7.02	7.00
253.0	8.54	8.37	8.26	8.22	7.12	6.95	6.84	7.81
250.0	8.45	8.43	8.37	8.40	7.08	7.12	6.96	6.86
247.0	8.40	8.27	8.15	8.15	7.18	7.05	7.05	6.95
246.0	8.40	8.37	8.38	8.28	6.10	6.04	6.04	6.03
243.7	8.12	8.13	8.11	8.15	7.51	7.47	7.40	7.40
242.9	8.14	8.12	8.07	8.11	7.75	7.72	7.73	7.74
240.0	8.20	8.05	7.99	7.93	8.04	8.00	7.92	7.90
239.0	8.47	8.43	8.42	8.38	8.54	8.53	8.56	8.64
236.8	8.67	8.04	7.95	7.94	8.92	8.73	8.46	8.34
234.5	9.00	8.95	8.83	8.74	9.36	9.05	8.52	8.49
231.0	12.40	10.91	8.96	7.23	13.20	11.11	9.80	9.09
230.8	9.43	9.53	9.60	9.47	8.53	8.61	8.61	8.76
229.6	9.03	8.97	9.05	9.21	9.02	8.96	9.05	9.75
226.9	10.48	10.18	10.03	9.78	9.55	9.78	9.95	10.34
224.7	9.24	9.25	9.25	9.38	10.02	10.24	10.42	10.72
222.6	8.54	8.53	8.62	8.75	10.13	10.18	10.44	10.85
219.8	8.40	8.44	8.22	8.34	8.09	8.28	8.35	8.53
217.1	8.74	8.62	8.68	8.63	8.02	8.34	8.35	8.48
213.4	9.33	9.16	8.97	9.07	8.48	8.52	8.45	8.42
209.4	8.74	8.44	8.53	8.63	8.17	8.06	8.16	8.38
205.4	8.63	8.44	8.51	8.70	8.14	8.07	7.98	8.30
200.4	8.44	8.20	8.23	8.65	7.95	8.13	8.36	8.48
196.9	8.38	8.16	8.10	8.23	8.31	8.27	8.55	8.70
190.0	8.53	8.54	8.43	8.51	8.60	8.50	8.36	8.41
188.0	8.95	8.71	8.08	8.20	8.84	8.70	8.48	8.59
183.0	8.16	7.86	7.85	7.97	8.82	8.50	8.35	8.65
179.0	7.37	7.40	7.45	7.61	8.98	8.55	9.07	9.28
177.4	7.41	7.37	7.30	7.40	9.56	8.98	9.23	9.13
174.9	7.45	7.38	7.14	7.23	9.66	10.07	9.95	9.53

Dissolved Oxygen Concentrations (mg/L)

MP	8/03/89				8/08/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	6.92	6.71	6.73	6.75	9.79	8.69	9.52	9.90
167.0	6.94	6.71	6.62	6.66	10.64	9.79	10.65	9.76
166.1	7.27	6.65	6.55	6.61	9.89	9.52	9.69	9.89
165.3	7.34	6.92	6.79	6.86	9.82	9.28	9.99	9.90
164.4	7.36	6.94	6.86	6.91	10.51	8.84	9.05	9.85
162.8	7.34	6.93	6.68	7.02	10.93	9.03	9.43	9.72
161.6	7.47	7.35	7.11	7.08	9.79	9.75	9.32	10.26
160.7	7.73	7.56	7.38	7.32	8.55	8.65	9.48	10.12
159.4	8.03	7.87	7.97	7.94	9.01	8.65	9.48	10.12
158.0	7.84	7.69	7.73	7.64	8.61	8.32	8.65	9.47

Dissolved Oxygen Concentrations (mg/L)

MP	8/10/89				8/16/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	6.60	5.90	6.60	6.30	2.98	3.00	3.01	3.02
290.2	4.80	4.80	4.80	4.80	3.67	3.62	3.60	3.80
289.8	5.30	5.30	5.30	5.30	3.87	3.85	3.87	3.91
287.9	5.20	5.20	5.20	5.30	4.20	4.17	4.17	4.18
286.2	4.71	4.65	4.44	4.20	6.20	6.20	6.50	7.00
285.4	7.40	7.20	7.20	7.20	8.09	8.08	7.88	7.96
284.0	6.90	7.20	7.10	7.00	7.30	7.28	7.31	7.32
281.0	6.70	6.70	6.70	7.20	6.90	6.84	6.86	6.85
278.0	6.50	6.30	6.50	6.30	6.91	6.72	6.61	6.59
276.1	6.40	6.30	6.30	6.30	7.02	6.96	6.93	6.92
273.5	6.20	6.20	6.00	6.00	7.31	6.78	6.75	6.69
272.4	6.50	6.50	6.10	6.00	7.31	7.48	6.68	6.65
271.6	6.70	6.40	6.10	6.10	6.78	6.56	6.46	6.33
271.2	7.69	7.73	7.67	7.42	8.02	8.02	7.99	8.03
270.6	7.58	7.69	7.59	7.66	8.20	8.13	8.05	8.08
267.2	8.58	8.53	8.30	8.73	8.55	8.44	8.41	8.50
265.0	7.49	7.38	7.36	7.38	7.92	7.86	7.87	7.80
263.7	7.49	7.39	7.45	7.46	7.89	7.79	7.89	7.92
261.6	7.11	7.12	7.10	7.05	7.80	7.71	7.63	7.64
258.0	8.25	8.78	8.78	8.76	7.46	7.43	7.43	7.54
256.0	6.86	6.88	6.96	7.00	7.79	7.82	7.86	7.89
253.0	7.38	7.26	7.21	7.19	8.30	8.36	8.39	8.43
250.0	7.30	7.21	7.28	7.34	8.62	8.63	8.89	8.83
247.0	7.42	7.21	7.23	7.27	8.87	8.67	8.51	8.51
246.0	7.70	7.59	7.64	7.61	8.31	8.31	8.31	8.31
243.7	7.44	7.43	7.43	7.58	7.77	8.20	8.35	8.53
242.9	7.57	7.50	7.49	7.54	7.90	7.75	7.71	7.84
240.0	7.55	7.50	7.45	7.45	8.43	8.32	8.32	8.25
239.0	7.86	7.77	7.86	7.96	8.21	8.04	7.97	8.12
236.8	7.67	7.65	7.44	7.56	8.15	8.06	8.05	8.08
234.5	8.22	7.96	7.57	7.42	8.48	8.46	8.47	8.70
231.0	11.09	10.20	8.47	7.64	11.40	11.71	9.94	8.12
230.8	9.35	9.36	9.36	9.45	12.19	9.74	9.74	9.36
229.6	9.31	9.32	9.33	9.46	9.36	9.64	9.53	10.30
226.9	9.53	9.48	9.54	9.52	9.78	9.92	10.00	10.22
224.7	9.60	9.50	9.47	9.50	9.54	9.55	9.73	9.52
222.6	9.92	9.20	9.20	9.21	8.95	8.88	8.83	9.04
219.8	9.15	9.11	9.12	9.16	8.97	9.96	9.98	9.14
217.1	9.44	9.34	9.32	9.29	9.02	9.27	9.36	8.89
213.4	9.66	9.59	9.55	9.44	9.89	9.82	9.82	9.68
209.4	10.35	9.45	9.43	9.38	10.21	9.28	9.36	9.43
205.4	9.53	9.14	9.13	9.11	9.16	8.92	9.28	8.84
200.4	9.52	9.07	9.05	8.98	9.06	8.95	9.02	8.47
196.9	10.01	9.32	9.01	8.91	8.90	8.70	8.70	8.73
190.0	9.83	9.13	9.08	9.08	9.45	7.57	7.32	7.29
188.0	9.96	9.11	9.10	9.06	8.33	7.34	7.24	7.54
183.0	10.03	9.79	9.79	9.72	6.93	6.56	6.53	6.36
179.0	8.59	8.42	8.32	8.26	6.84	6.72	6.32	6.18
177.4	8.62	8.46	8.44	8.36	7.22	6.74	6.32	6.11
174.9	8.72	7.32	8.30	8.24	7.28	6.22	5.96	5.89

DAILY STATISTICS HIT RETURN AGAIN TO ABORT STATISTICS

PARAMETER : TEMP DEG C
OVERRANGE : 00000
READINGS : 00012
MINIMUM : +024.879 081690 1300
MAXIMUM : +026.273 081690 2300
MAX CHANGE : +000.296 081690 1600
MEAN : +025.583
STD DEV : +000.507

PARAMETER : PH UNITS
OVERRANGE : 00000
READINGS : 00012
MINIMUM : +006.786 081690 1300
MAXIMUM : +006.809 081690 1800
MAX CHANGE : +000.011 081690 1800
MEAN : +006.796
STD DEV : +000.007

PARAMETER : COND MS/CM
OVERRANGE : 00000
READINGS : 00012
MINIMUM : +000.647 081690 1300
MAXIMUM : +000.687 081690 2300
MAX CHANGE : +000.007 081690 1800
MEAN : +000.665
STD DEV : +000.014

PARAMETER : SALIN PPT
OVERRANGE : 00000
READINGS : 00012
MINIMUM : +000.000 081690 1200
MAXIMUM : +000.000 081690 1200
MAX CHANGE : +000.000 081690 1200
MEAN : +000.000
STD DEV : +000.000

PARAMETER : DO MG/L(PPM)
OVERRANGE : 00000
READINGS : 00012
MINIMUM : +002.892 081690 1200
MAXIMUM : +003.299 081690 1800
MAX CHANGE : +000.155 081690 1800
MEAN : +003.104
STD DEV : +000.125

APPENDIX C2

Dissolved Oxygen (DO) Concentrations:
1990 Field Data

Dissolved Oxygen Concentrations (mg/L)

MP	6/11/90				6/18/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	3.66	3.77	3.77	3.80	2.76	2.74	2.75	2.74
290.2	4.42	4.28	4.15	4.07	2.91	2.88	2.85	2.78
289.8	6.16	4.99	4.90	4.86	4.61	4.47	4.24	3.83
287.9	6.34	6.32	4.41	4.04	3.94	3.91	3.82	3.94
286.2	4.83	3.78	3.71	3.76	3.87	3.77	3.62	3.60
285.4	8.59	8.64	8.66	8.67	7.79	7.77	7.57	7.35
284.0	8.15	8.13	8.38	8.59	7.25	7.08	7.08	7.29
281.0	7.89	7.74	7.11	7.13	6.70	6.71	6.17	6.12
278.0	6.51	6.50	6.54	6.55	7.45	7.31	6.49	6.41
276.1	7.08	6.90	6.60	6.73	7.74	7.33	6.85	8.22
273.5	7.73	6.76	6.34	6.41	7.18	6.95	6.73	6.21
272.4	7.92	7.33	6.49	6.70	7.13	7.12	6.92	6.36
271.6	7.45	7.39	6.62	6.92	6.91	6.88	6.55	6.58
271.2	8.63	8.81	8.81	8.97	9.10	9.11	9.11	9.26
270.6	8.50	8.73	8.80	9.14	8.93	8.97	9.09	9.36
267.2	8.40	8.64	8.76	9.05	8.65	8.63	8.74	9.10
265.0	8.33	8.54	8.59	8.75	8.79	8.80	8.90	9.17
263.7	8.40	8.66	8.65	8.90	9.78	9.75	9.66	9.93
261.6	8.20	8.49	8.48	8.76	9.63	9.56	9.65	9.83
258.0	8.24	8.33	7.99	7.72	8.92	8.90	8.98	9.24
256.0	8.00	8.21	8.17	8.35	9.12	9.19	9.26	9.56
253.0	8.14	8.07	7.81	7.87	9.25	9.26	9.28	9.60
250.0	7.93	8.09	8.09	8.38	9.30	9.18	9.40	9.72
247.0	8.15	8.17	8.17	8.28	9.79	9.72	9.43	9.50
246.0	8.65	8.50	8.50	8.50	9.66	9.71		9.85
243.7	8.27	8.46	8.58	8.80	9.56	9.58	9.67	9.95
242.9	8.35	8.90	8.50	8.80	9.12	9.05	9.04	9.10
240.0	8.34	8.40	8.55	8.94	9.28	9.23	9.12	9.27
239.0	8.99	8.68	8.78	8.98	8.56	8.45	8.41	8.30
236.8	9.67	9.06	8.56	8.60	8.63	8.35	8.46	8.50
234.5	9.45	9.22	9.18	9.34	8.65	8.66	8.60	8.81
231.0	11.95	9.63	7.83	8.08	9.25	9.04	2.66	2.91
230.8	10.25		10.25	10.00	8.36		8.34	8.32
229.6	9.90	10.10	9.90	9.90	8.15		8.23	8.21
226.9	10.75	10.75	9.95	10.10	8.26	8.25	8.20	8.20
224.7	10.25	10.25	10.15	10.25	7.99	7.92	7.94	8.02
222.6	9.80	9.65	9.60	9.50	8.15	8.10	8.02	8.04
219.8	9.95	9.15	9.80	10.25	8.09	8.01	8.11	8.12
217.1	9.85	9.80	9.80	9.75	8.08	8.08	8.02	7.96
213.4	10.75	10.50	10.40	10.50	8.14	8.03	7.97	7.94
209.4	10.70	10.95	10.80	10.65	7.85	7.75	7.74	7.72
205.4	10.65	10.80	10.60	10.50	7.56	7.49	1.49	7.50
200.4	11.00	10.80	10.25	9.95	7.34	7.31	7.31	7.31
196.9	12.40	12.00	10.70	10.50	7.17	7.17	7.20	7.17
190.0	11.80	11.20	10.30	10.30	6.81	6.72	6.53	6.43
188.0	11.40	10.80	10.30	10.20	6.61	6.53	6.48	6.40
183.0	11.10	10.60	10.40	10.35	6.45	6.41	6.31	6.24
179.0	10.90	10.85	10.80	10.60	6.24	6.20	6.20	6.21
177.4	11.10	10.90	10.50	10.50	6.26	6.31	6.28	6.27
174.9	10.90	10.80	10.60	10.50	6.96	5.93	5.92	5.91

Dissolved Oxygen Concentrations (mg/L)

MP	6/11/90				6/18/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	10.90	10.90	10.90	10.80	6.03	5.98	5.85	5.82
167.0	12.20	12.00	9.90	9.50	6.22	6.14	6.10	6.09
166.1	10.80	10.80	10.20	10.30	5.83	5.82	5.84	5.83
165.3	11.00	10.80	10.50	10.60	6.34	6.34	6.34	6.43
164.4	11.50		10.30	10.00	6.08	6.02		
162.8	13.40	11.50	10.90	10.80	7.51	6.82	6.34	6.32
161.6	12.10	12.00	12.20	11.90	6.24	6.24	6.24	6.17
160.7	11.70	11.50	11.50	11.40	6.48	6.44	6.36	6.28
159.4	11.30	11.40	11.50	11.20	6.30	6.34	6.53	6.30
158.0	10.60	10.60	10.50	10.20	6.55	6.59	6.42	6.34

Dissolved Oxygen Concentrations (mg/L)

MP	6/25/90				7/02/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	3.12	3.28	3.25	3.19	3.10	3.07	3.05	3.04
290.2	3.75	3.84	3.71	4.02	3.27	3.16	3.16	3.24
289.8	4.88	4.05	3.88	3.74	4.39	3.82	3.93	3.60
287.9	4.78	4.74	4.70	4.60	4.39	4.47	4.57	4.70
286.2	4.22	4.15	4.11	3.87	4.63	3.87		3.86
285.4	7.34	7.33	7.29	7.30	8.34	8.33	8.32	8.31
284.0	7.63	7.70	7.62	7.64	7.69	7.81	7.73	7.64
281.0	6.86	6.51	6.21	6.15	7.44	7.11	7.04	7.06
278.0	6.84	6.65	6.31	6.31	6.93	6.68	6.55	6.52
276.1	7.18	6.67	6.57	6.43	7.07	6.89	6.62	6.63
273.5	6.37	6.54	6.32	6.55	6.97	6.86	6.86	6.86
272.4	7.17	6.59	6.20	6.32	7.46	6.61	6.71	7.15
271.6	6.80	6.78	6.80	6.53	7.71	7.39	7.14	6.81
271.2	8.81	8.75		8.74	8.58		8.78	7.65
270.6	8.75	8.59	8.60	8.61	8.91	8.21	8.23	8.55
267.2	8.52	8.47	8.45	8.43	8.31	8.28	8.49	9.23
265.0	8.35	8.32	8.28	8.39	8.30	8.17	8.34	8.95
263.7	8.36	8.31	8.30	8.34	8.36	8.04	8.10	8.46
261.6	8.18	8.19	8.15	8.22	8.05	7.92	8.06	8.45
258.0	8.08	8.07	8.05	8.15	7.48	7.66	7.68	7.69
256.0	8.05	8.01	7.98	8.07	7.46	7.59	7.64	7.70
253.0	8.11	8.04	8.02	8.03	7.29	7.48	7.51	7.60
250.0	7.89	7.96	7.93	8.03	7.15	7.36	7.40	7.55
247.0	8.04	7.96	7.95	7.95	7.11	7.26	7.24	7.40
246.0	8.50			8.55				
243.7	8.26	8.24	8.27	8.30				
242.9	8.24	8.17	8.08	8.35				
240.0	8.40	8.38	8.37	8.29				
239.0	8.87	8.93	8.93	8.90				
236.8	9.06	8.89	8.70	8.56				
234.5	8.70	8.63	8.57	8.53				
231.0	8.72	8.40	7.80	7.68				
230.8	9.27	9.23		9.24	8.05	8.00	7.85	7.52
229.6	8.74	8.75	8.74	8.74	7.18	7.27	7.34	7.41
226.9	8.63	8.58	8.58	8.60	7.00	7.02	7.07	7.14
224.7	8.67	8.62	8.54	8.55	7.20	7.19	7.19	7.33
222.6	8.61	8.62	8.61	8.60	6.91	6.96	7.04	7.09
219.8	8.73	8.53	8.53	8.52	6.76	6.84	6.92	6.98
217.1	8.53	8.45	8.45	8.44	6.95	6.98	6.99	7.05
213.4	8.42	8.33	8.26	8.26	6.65	6.74	6.88	6.95
209.4	8.39	8.31	8.25	8.19	6.61	6.67	6.75	6.80
205.4	8.16	8.08	8.05	8.00	6.29	6.38	6.45	6.48
200.4	8.14	7.86	7.83	7.84	6.19	6.26	6.31	6.30
196.9	8.42	7.93	7.74	7.75	6.08	5.92	6.02	6.09
190.0	7.83	7.80	7.76	7.76	6.05	5.87	5.94	6.02
188.0	7.57	7.51	7.49	7.47	5.78	5.80	5.83	5.86
183.0	7.53	7.38	7.37	7.36	5.62	5.68	5.77	5.92
179.0	7.41	7.38	7.37	7.38	5.43	5.48	5.56	5.66
177.4	7.51	7.47	7.47	7.45	5.44	5.49	5.56	5.70
174.9	7.35	7.31	7.28	7.27	7.15	7.10	5.39	5.83

Dissolved Oxygen Concentrations (mg/L)

MP	6/25/90				7/02/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	6.69	6.67	6.65	6.64	5.77	5.81	5.91	6.00
167.0	7.11	6.95	6.78	6.76	6.53	5.75	5.89	6.00
166.1	6.88	6.80	6.93	6.95	5.94	5.99	6.02	6.10
165.3	7.02	6.94	6.93	6.93	5.90	5.93	5.98	6.02
164.4	7.11	7.05	6.97	6.88	6.34	6.00	6.03	6.13
162.8	8.90	9.27	7.34	7.39	6.47	5.99	6.04	6.12
161.6	7.32	7.31	7.33	7.33	5.96	6.06	6.12	6.19
160.7	7.47	7.52	7.57	7.71	5.99	6.07	7.15	6.24
159.4	7.60	7.47	7.41	7.38	6.13	6.19	6.30	6.33
158.0	7.48	7.41	7.26	7.23	6.04	6.10	6.25	6.33

Dissolved Oxygen Concentrations (mg/L)

MP	7/09/90				7/16/90			
	DO-O	DO-3	DO-M	DO-B	DO-O	DO-3	DO-M	DO-B
291.0	3.33	3.27	3.24	3.21	3.06	3.05	3.05	3.05
290.2	3.33	3.34	3.31	3.28	3.73	3.72	3.54	3.45
289.8	5.20	4.85	4.86	4.81	3.71	3.72	3.74	3.73
287.9	3.76	3.75	3.70	3.73	4.38	3.97	3.87	3.80
286.2	4.15	3.64	3.33	3.18	3.76	3.72	3.70	3.65
285.4	7.78	7.72	7.68	7.54	7.69	7.71	7.71	7.72
284.0	7.11	7.02	6.90	6.82	7.10	7.07	7.06	7.04
281.0	7.28	6.37	6.38	6.37	6.65	6.65	6.66	6.65
278.0	7.70	6.98	6.91	6.86	6.57	6.54	6.54	6.52
276.1	8.56	8.02	7.48	7.26	6.60	6.60	6.59	6.59
273.5	8.64	7.94	7.59	7.56	6.40	6.41	6.40	6.40
272.4	9.54	9.08	7.61	7.58	6.65	6.68	6.82	6.86
271.6	8.85	8.96	8.13	7.93	7.20	7.18	6.99	6.94
271.2	8.46		8.56	8.57	8.94	9.19		9.19
270.6	8.53	8.61	8.56	8.63	8.77	8.87	9.23	9.91
267.2	9.45	9.48	9.49	9.51	8.84	9.00	9.37	10.09
265.0	9.51	9.83	9.53	9.71	9.17	8.53	8.72	9.30
263.7	9.76	9.63	9.56	9.64	8.75	8.91	9.29	10.43
261.6	9.01	9.00	9.08	9.09	8.89	8.92	9.24	9.90
258.0	8.78	8.83	8.81	8.83	8.82	8.44	8.50	8.97
256.0	8.57	8.62	8.69	8.71	8.40	8.67	8.93	9.74
253.0	9.07	8.73	8.58	8.47	8.50	8.30	8.67	9.35
250.0	9.45	9.39	9.32	9.31	8.40	6.90	6.68	6.55
247.0	9.26	9.25	9.11	9.07	8.15	8.51	8.89	9.83
246.0	8.55		8.69	8.83				
243.7	8.30	8.26	8.42	8.38	8.60	8.71	8.89	9.16
242.9	8.68	8.81	8.77	8.89	8.47	8.73	9.18	10.11
240.0	8.64	8.61	8.57	8.60	8.19	8.53	8.86	9.79
239.0	8.30	8.52	8.70	8.72	8.68	8.62	8.87	9.54
236.8	8.74	8.38	8.34	8.44	9.80	8.32	6.43	6.52
234.5	11.43	10.10	9.39	8.97	8.54	8.41	8.70	9.26
231.0	16.32	13.79	7.95	7.23	8.70	8.21	8.50	8.73
230.8	11.36		11.24	10.94				
229.6	9.99	9.96	9.96	9.86				
226.9	9.71	9.58	9.44	9.38				
224.7	8.96	8.88	8.91	8.94				
222.6	9.47	8.98	8.51	8.45				
219.8	8.73	8.51	8.45	8.40				
217.1	8.88	8.72	8.36	8.24				
213.4	7.79	7.72	7.79	7.82	7.49	6.89	6.91	6.96
209.4	8.23	7.86	7.60	7.47	7.24	7.22	7.07	7.17
205.4	7.89	7.60	7.52	7.60	7.04	7.08	7.07	7.15
200.4	7.88	7.73	7.29	7.18	7.02	7.01	6.85	7.24
196.9	8.65	7.96	7.16	7.21	7.05	7.07	6.94	6.96
190.0	7.68	7.11	7.05	7.00	6.83	6.84	6.74	6.85
188.0	7.91	7.08	7.04	6.97	6.11	6.37	6.58	7.36
183.0	7.54	7.74	7.54	7.00	6.02	6.17	6.54	7.34
179.0	7.01	6.85	6.88	6.82	6.00	6.52	6.85	7.43
177.4	7.19	6.80	6.78	6.71	6.08	6.68	7.30	8.00
174.9	9.01	6.80	6.63	6.56	6.29	7.13	7.55	7.57

Dissolved Oxygen Concentrations (mg/L)

MP	7/09/90				7/16/90			
	DO-O	DO-3	DO-M	DO-B	DO-O	DO-3	DO-M	DO-B
170.9	7.58		6.66	6.50	6.91	7.41		7.98
167.0	9.88	8.40	6.76	6.75	6.37	7.11	7.85	9.00
166.1	7.63	7.60	7.60	7.65	6.92	6.95	7.79	8.18
165.3	6.01	5.51	5.62	6.21	7.41	7.78	8.00	8.63
164.4	5.54	5.41	5.53	6.14	7.65	7.76		8.40
162.8	7.83	5.76	6.02	6.66	7.19	7.87	8.33	8.69
161.6	6.84	6.32	6.44	7.10	7.25	7.85	8.36	8.96
160.7	8.50	8.16	8.48	8.60	7.30	8.71	9.14	9.28
159.4	8.11	8.15	8.10	8.14	8.81	9.72	10.07	10.21
158.0	7.39	7.35	7.39	7.70	9.39	9.43	9.21	8.94

Dissolved Oxygen Concentrations (mg/L)

MP	7/23/90				7/30/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	1.72	1.71	1.71	1.66	2.90	2.83	2.89	2.80
290.2	1.98	2.05	2.31	2.50	3.38	3.55	3.35	3.10
289.8	2.01	2.01	2.00	2.04	3.90	3.84	3.80	3.42
287.9	2.35	2.33	2.10	2.20	4.34	4.31	4.23	4.15
286.2	3.03	2.83	2.83	2.69	3.79	3.70		3.19
285.4	7.54	7.57	7.59	7.55	7.25	7.11	6.88	6.31
284.0	7.10	7.14	7.11	7.14	7.18	7.13	7.09	7.03
281.0	6.71	6.50	6.30	6.43	6.95	6.28	6.22	6.22
278.0	6.31	6.31	6.29	6.28	7.12	6.57	6.30	6.14
276.1	6.37	6.18	6.16	6.17	7.50	7.05	6.74	6.50
273.5	6.16	6.22	6.20	6.12	7.78	7.73	7.30	6.40
272.4	6.22	6.19	6.22	6.22	8.06	6.90	7.13	6.87
271.6	6.64	6.55	6.47	6.37	7.43	7.13	7.08	6.92
271.2	8.86		8.80	8.88	8.09	8.01		8.01
270.6	8.74	8.70	8.74	8.90	7.94	7.96	7.98	8.09
267.2	8.58	8.56	8.65	8.86	7.88	7.88	7.86	8.01
265.0	8.69	8.53	8.55	8.69	7.80	7.76	7.73	7.79
263.7	8.84	8.37	7.40	6.66	7.76	7.71	7.73	7.78
261.6	8.52	8.43	8.70	8.89	7.72	7.68	7.72	7.73
258.0	8.70	8.88	8.70	9.19	7.58	7.59	7.58	7.68
256.0	8.90	8.36	8.27	8.37	7.53	7.54	7.58	7.59
253.0	9.40	6.85	6.53	6.56	7.51	7.49	7.47	7.48
250.0	9.56	9.25	10.11	10.57	7.29	7.24	7.25	7.21
247.0	7.81	7.75	7.93	8.17	7.25	7.16	7.18	7.21
246.0	8.22		8.39	8.60	7.81	7.78		7.78
243.7	8.40	7.99	8.03	8.39	7.63	7.57	7.56	7.64
242.9	8.30	8.08	8.22	8.84	7.76	7.70	7.65	7.53
240.0	8.39	7.90	7.92	8.30	7.64	7.69	7.68	7.68
239.0	8.19	8.18	8.40	8.96	8.02	7.82	7.76	7.91
236.8	8.26	6.76	6.17	6.21	7.72	7.70	7.70	7.73
234.5	7.78	7.93	8.38	8.89	8.41	7.79	7.77	7.75
231.0	7.87	7.63	7.93	8.32	9.20	7.71	7.60	7.42
230.8	7.39	7.41	7.44	7.44	8.70	8.70	8.70	
229.6	8.04	8.04	8.05	8.18	7.46	7.42	7.42	7.38
226.9	7.89	7.87	7.89	7.97	7.89	7.85	7.88	7.18
224.7	7.26	7.25	7.21	7.23	7.83	7.95	7.96	8.68
222.6	7.20	7.32	7.28	7.33	8.78	8.52	8.45	8.48
219.8	8.07	8.11	8.09	8.09	8.44	8.24	8.22	8.21
217.1	8.04	8.05	8.03	8.02	7.93	7.66	7.63	7.63
213.4	6.79	6.78	6.79	6.82	7.75	7.70	7.71	7.72
209.4	7.50	8.42	8.54	8.63	7.44	7.36	7.30	7.19
205.4	8.36	8.40	8.42	8.62	7.32	7.29	7.30	7.32
200.4	6.31	6.52	6.55	6.58	7.09	7.09	7.03	7.12
196.9	6.49	6.42	6.42	6.50	7.16	7.06	7.18	7.09
190.0	6.16	6.10	6.16	6.06	6.99	6.89	6.86	6.90
188.0	6.08	6.00	6.06	6.05	7.02	6.96	6.89	7.19
183.0	5.95	5.78	5.85	5.88	6.86	6.78	6.82	7.03
179.0	5.73	5.72	5.76	5.76	6.90	6.83	6.82	6.82
177.4	5.81	5.67	5.72	5.72	7.37	7.11	7.06	6.88
174.9	5.61	5.55	5.66	5.58	6.90	6.87	6.89	6.84

Dissolved Oxygen Concentrations (mg/L)

MP	7/23/90				7/30/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	5.59	5.36	5.44	5.43	6.77	6.79	6.78	6.77
167.0	5.66	5.75	5.82	6.00	7.24	7.22	7.17	7.14
166.1	6.86	6.97	7.09	7.69	6.91	6.93	7.01	6.97
165.3	6.10	6.03	6.02	6.09	7.08	6.94	6.91	7.00
164.4	6.03	5.88	5.92	6.03	7.11	6.89	6.84	6.85
162.8	6.52	6.27	6.22	6.18	7.21	7.24	7.18	7.51
161.6	6.08	6.13	6.18	6.22	6.98	7.05	7.09	7.05
160.7	6.14	6.14	6.05	5.95	7.04	6.98	7.07	7.09
159.4	6.21	6.20	6.21	5.93	6.93	6.99	6.81	7.10
158.0	6.38	6.40	6.36	6.39	7.03	6.98	6.97	6.92

Dissolved Oxygen Concentrations (mg/L)

MP	8/06/90				8/13/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
291.0	3.43	3.41	3.40	3.42	2.37	2.36	2.33	2.33
290.2	3.59	3.60	3.64	3.80	2.65	2.71	2.75	2.75
289.8	3.91	3.91	3.95	4.30	2.59	2.72	2.74	2.70
287.9	4.54	4.53	4.54	4.58	3.34	3.34	3.33	3.28
286.2	4.33	4.29	4.30	4.23	3.66	3.30	3.21	3.19
285.4	7.82	7.81	7.81	7.77	7.71	7.63	7.63	7.62
284.0	7.62	7.61	7.61	7.49	7.48	7.46	7.45	7.42
281.0	7.02	6.88	6.94	6.88	7.00	6.97	6.90	6.00
278.0	7.12	6.70	6.57	6.52	7.14	6.63	6.41	6.49
276.1	7.08	7.01	7.01	6.98	6.80	6.70	6.54	6.46
273.5	6.83	6.84	6.65	6.75	7.33	7.21	6.66	6.51
272.4	7.16	6.88	6.81	7.04	8.04	6.87	6.18	6.40
271.6	7.39	7.30	7.05	6.87	6.98	6.86	6.52	6.46
271.2	8.30	8.26		8.31	8.64	8.47	8.47	8.44
270.6	8.22	8.22	8.17	8.23	8.22	8.26	8.22	8.26
267.2	8.12	8.09	8.12	8.20	8.39	8.41	8.36	8.53
265.0	7.92	7.87	7.86	7.98	8.69	8.75	8.69	8.62
263.7	7.70	7.75	7.74	7.76	8.73	8.75	8.73	8.82
261.6	7.71	7.68	7.65	7.75	8.68	8.68	8.74	8.64
258.0	7.57	7.54	7.55	7.62	8.36	8.38	8.46	8.52
256.0	7.59	7.55	7.54	7.59	8.18	8.20	8.21	8.22
253.0	7.65	7.56	7.56	7.62	8.26	8.18	8.20	8.30
250.0	7.82	7.73	7.67	7.65	8.11	8.08	8.06	8.18
247.0	8.18	8.06	8.07	8.02	8.16	8.15	8.13	8.24
246.0	8.59	8.59		8.56	8.00	8.01	7.99	7.92
243.7	8.65	8.60	8.53	8.54	7.60	7.52	7.63	7.62
242.9	8.65	8.66	8.57	8.62	8.43	8.27	8.24	8.27
240.0	8.82	8.75	8.80	8.88	8.43	8.17	8.13	8.18
239.0	8.98	8.96	8.90	8.91	8.64	8.63	8.65	8.78
236.8	9.26	9.27	9.31	9.13	8.86	8.76	8.78	8.90
234.5	9.35	9.11	8.95	8.88	9.34	8.72	8.38	8.55
231.0	10.96	10.82	8.85	8.79	11.14	10.85	10.01	7.10
230.8	8.89	8.88		8.84	7.64	8.09		8.30
229.6	8.93	8.88	8.83	8.78	7.82	7.95	8.07	8.42
226.9	9.03	8.87	8.83	8.82	8.00	8.08	8.13	8.19
224.7	9.02	8.88	8.91	8.79	8.65	8.72	8.84	9.02
222.6	8.12	8.17	8.10	7.87	8.80	8.56	8.35	8.64
219.8	8.18	8.17	8.13	8.14	8.79	8.73	8.93	9.09
217.1	8.49	8.44	8.46	8.34	9.07	8.86	8.82	8.95
213.4	8.67	8.64	8.61	8.55	8.67	8.50	8.61	8.98
209.4	8.33	8.04	7.68	7.60	8.56	8.31	7.99	8.35
205.4	7.74	7.67	7.64	7.58	7.69	7.62	7.57	7.66
200.4	7.27	7.08	7.02	6.97	7.89	7.24	7.22	7.50
196.9	7.05	6.96	6.81	6.80	7.61	7.33	7.23	7.31
190.0	6.25	6.27	5.95	4.25	7.77	7.65	7.25	7.20
188.0	6.39	6.32	6.31	6.18	8.05	6.82	6.77	6.82
183.0	5.95	6.04	6.06	6.02	7.50	7.51	7.65	8.00
179.0	6.08	6.03	6.10	6.14	8.27	7.82	7.54	7.75
177.4	5.89	6.06	6.02	5.96	8.29	7.90	7.63	7.87
174.9	6.07	6.06	6.08	6.31	8.98	7.76	7.07	7.39

Dissolved Oxygen Concentrations (mg/L)

MP	8/06/90				8/13/90			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	6.01	6.01	5.96	6.15	8.35	8.23	8.19	8.41
167.0	6.42	6.35	6.36	6.70	7.51	7.38	7.23	7.48
166.1	6.36	6.28	6.26	6.25	8.04	8.11	8.24	8.65
165.3	6.35	6.30	6.29	6.32	7.87	7.80	7.75	8.05
164.4	6.93	7.05	7.05	7.24	7.49	7.48	7.43	7.61
162.8	7.20	7.25	7.24	7.36	10.83	10.31	9.60	8.96
161.6	6.75	6.70	6.66	6.97	9.10	8.38	8.23	8.41
160.7	6.84	6.78	6.81	6.96	8.35	8.23	8.26	8.82
159.4	6.76	7.05	7.09	7.01	7.71	7.61	7.58	7.59
158.0	6.89	6.92	6.94	6.93	8.85	7.85	7.76	7.95

APPENDIX D1

Temperature Measurements:
1989 Field Data

Temperatures (Celsius)

MP	6/15/89				6/27/89			
	T-O	T-3	T-M	T-B	T-O	T-3	T-M	T-B
291.0	19.7	19.7	19.7	19.7	25.6	25.6	25.6	25.6
290.2	19.7	19.7	19.7	19.7	25.6	25.6	25.6	25.6
289.8	19.6	19.6	19.6	19.5	25.9	26.0	25.8	25.8
287.9	19.5	19.5	19.5	19.5	25.7	25.7	25.7	25.6
286.2	19.7	19.7	19.6	19.6	25.2	25.2	25.2	25.0
285.4	19.7	19.8	19.8	19.8	25.3	25.3	25.3	25.3
284.0	20.9	20.4	20.2	19.9	28.2	28.0	27.9	27.8
281.0	20.3	20.3	20.3	20.3	27.2	27.2	27.2	27.2
278.0	20.5	20.5	20.5	20.5	29.2	29.0	28.5	28.4
276.1	20.7	20.7	20.7	20.7	28.5	28.3	28.0	27.0
273.5	21.0	21.0	21.0	21.0	27.5	27.0	26.6	26.5
272.4	21.1	20.9	20.4	20.3	28.1	27.7	26.7	26.7
271.6	23.2	22.5	21.4	21.1	29.5	29.5	28.3	27.2
271.2	21.2	21.2	21.2	21.2	28.9	28.9	28.9	28.9
270.6	21.0	21.0	21.0	21.1	28.9	28.9	28.9	28.9
267.2	20.3	20.3	20.3	20.3	28.6	28.6	28.6	28.5
265.0	20.4	20.5	20.4	20.5	28.6	28.6	28.5	28.5
263.7	20.7	20.7	20.7	20.7	28.6	28.6	28.5	28.5
261.6	20.8	20.8	20.8	20.8	28.6	28.5	28.4	28.4
258.0	20.7	20.7	20.7	20.7	28.8	28.7	28.7	28.6
256.0	20.6	20.7	20.7	20.7	29.0	28.7	28.7	28.7
253.0	20.7	20.7	20.7	20.7	28.8	28.5	28.4	28.4
250.0	20.6	20.7	20.7	20.6	28.6	28.2	28.2	28.2
247.0	20.7	20.7	20.7	20.7	28.5	28.2	28.2	28.1
246.0	20.7	20.7	20.7	20.7	28.3	28.3	28.3	28.2
243.7	20.8	20.8	20.8	20.8	28.2	28.2	28.2	28.2
242.9	20.8	20.7	20.7	20.7	28.1	28.1	28.1	28.1
240.0	20.8	20.8	20.8	20.8	27.8	27.8	27.8	27.9
239.0	20.9	20.9	20.9	20.9	27.8	27.7	27.7	27.7
236.8	20.8	20.8	20.8	20.8	28.0	27.8	27.8	27.7
234.5	20.8	20.8	20.8	20.8	28.1	28.0	27.9	27.9
231.0	20.2	20.2	20.1	20.1	27.7	27.6	27.5	27.4
230.8	20.6	20.6	20.6	20.6	27.7	27.7	27.7	27.7
229.6	20.4	20.4	20.4	20.3	27.7	27.7	27.7	27.7
226.9	20.5	20.5	20.5	20.5	27.8	27.8	27.8	27.8
224.7	20.6	20.6	20.7	20.6	27.9	27.9	27.9	27.9
222.6	20.8	20.8	20.8	20.8	28.0	28.0	28.0	28.0
219.8	20.9	20.9	20.9	20.9	28.2	28.2	28.2	28.2
217.1	21.0	21.0	21.0	20.9	28.1	28.1	28.1	28.1
213.4	21.0	21.1	21.1	21.0	27.9	27.9	27.9	27.9
209.4	21.2	21.2	21.2	21.1	28.1	28.0	28.0	28.0
205.4	21.0	21.0	21.0	21.0	28.5	28.2	28.2	28.2
200.4	21.1	21.1	21.1	21.1	28.4	28.4	28.4	28.3
196.9	21.0	21.0	20.9	20.9	29.0	28.1	27.9	27.8
190.0	21.2	21.2	21.2	21.2	28.4	28.4	28.3	28.3
188.0	21.2	21.2	21.2	21.2	28.2	28.2	28.1	28.0
183.0	21.3	21.3	21.3	21.3	28.4	27.9	27.9	27.9
179.0	21.6	21.6	21.6	21.6	28.3	28.2	28.2	28.1
177.4	21.6	21.6	21.6	21.6	28.6	28.4	28.1	28.1
174.9	21.8	21.7	21.8	21.8	28.1	28.0	28.0	27.9

Temperatures (Celsius)

MP	6/15/89				6/27/89			
	T-O	T-3	T-M	T-B	T-O	T-3	T-M	T-B
170.9	21.0	21.0	20.9	20.7	28.0	27.7	27.5	27.4
167.0	20.6	20.6	20.5	20.4	29.6	29.4	28.3	28.0
166.1	20.7	20.7	20.7	20.7	29.5	28.4	28.2	28.1
165.3	20.7	20.7	20.7	20.8	28.6	28.5	28.2	28.1
164.4	21.0	21.0	21.0	21.0	28.6	28.5	28.3	28.2
162.8	21.2	21.2	21.1	21.0	29.1	28.8	28.3	28.2
161.6	21.7	21.7	21.7	21.7	29.1	28.7	28.6	28.5
160.7	21.6	21.5	21.5	21.5	29.5	29.5	28.6	28.6
159.4	21.8	21.8	21.8	21.8	29.3	28.8	28.7	28.7
158.0	22.1	22.1	22.1	22.1	29.6	29.1	29.0	28.9

Temperatures (Celsius)

MP	7/18/89				7/20/89			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	24.5	24.5	24.5	24.5	22.8	22.8	22.8'	22.8
290.2	24.5	24.6	24.5	24.5	22.8	22.7	22.7	22.7
289.8	24.5	24.5	24.5	24.5	22.5	22.3	22.3	22.1
287.9	24.5	24.5	24.5	24.5	22.2	22.2	22.2	22.1
286.2	24.5	24.5	24.6	24.5	22.3	22.3	22.3	22.3
285.4	24.9	24.9	24.9	24.8	22.9	23.0	23.0	22.9
284.0	24.8	24.8	24.8	24.8	23.0	22.9	22.9	22.9
281.0	25.2	25.2	25.2	25.2	23.2	23.2	23.2	23.2
278.0	26.5	26.4	26.3	26.3	23.5	23.5	23.4	23.4
276.1	26.2	26.1	26.1	25.9	23.5	23.5	23.5	23.4
273.5	26.2	26.2	26.2	26.2	23.2	23.2	23.2	23.2
272.4	26.6	26.6	26.6	26.6	23.2	23.2	22.8	22.4
271.6	28.3	28.4	27.8	27.6	24.8	23.5	23.4	23.1
271.2	27.9	27.9	27.9	27.9	24.4	24.2	24.3	24.2
270.6	27.7	27.7	27.7	27.7	24.1	24.1	24.1	24.1
267.2	27.6	27.6	27.6	27.6	23.8	23.8	23.8	23.8
265.0	27.3	27.3	27.3	27.3	24.0	23.9	23.9	23.9
263.7	27.4	27.4	27.4	27.4	23.9	23.9	23.9	23.9
261.6	27.6	27.6	27.6	27.6	23.4	23.4	23.4	23.4
258.0	27.5	27.6	27.6	27.6	23.6	23.5	23.5	23.6
256.0	27.4	27.4	27.4	27.4	23.6	23.6	23.6	23.6
253.0	27.0	27.0	27.0	27.0	23.7	23.7	23.7	23.7
250.0	27.0	27.0	27.0	27.0	23.7	23.7	23.7	23.7
247.0	27.1	27.1	27.0	27.0	23.9	23.8	23.8	23.8
246.0	27.2	27.2	27.2	27.1	24.1	24.0	24.0	24.0
243.7	27.1	27.0	27.0	27.0	24.1	24.1	24.1	24.0
242.9	26.9	26.9	26.9	26.9	24.1	24.1	24.1	24.1
240.0	26.8	26.8	26.8	26.8	24.0	24.0	24.0	24.0
239.0	26.7	26.7	26.7	26.7	24.1	23.6	23.5	23.4
236.8	27.0	27.0	27.0	26.9	24.3	24.3	24.3	24.2
234.5	27.2	27.2	27.2	27.2	24.5	24.4	24.4	24.5
231.0	26.4	26.4	26.3	26.3	24.9	24.8	24.8	24.7
230.8	26.5	26.5	26.5	26.5	24.7	24.7	24.7	24.7
229.6	26.6	26.6	26.6	26.6	24.8	24.8	24.8	24.8
226.9	26.9	26.9	26.9	26.9	25.0	25.0	25.0	25.0
224.7	26.9	26.9	26.9	26.8	25.3	25.2	25.2	25.2
222.6	27.0	27.0	27.0	27.0	25.3	25.3	25.3	25.3
219.8	27.3	27.3	27.2	27.2	25.4	25.4	25.4	25.4
217.1	27.1	27.0	27.0	27.0	25.4	25.4	25.4	25.4
213.4	26.7	26.7	26.7	26.7	25.4	25.4	25.4	25.4
209.4	27.4	27.4	27.3	27.3	25.7	25.7	27.7	25.6
205.4	27.5	27.5	27.5	27.4	25.5	25.4	25.4	25.4
200.4	27.2	27.2	27.1	27.1	25.1	25.1	25.1	25.1
196.9	27.3	27.3	27.2	27.2	25.1	25.1	25.0	25.0
190.0	27.2	27.2	27.0	27.0	25.0	25.0	25.0	25.0
188.0	27.2	27.2	27.2	27.2	24.7	24.7	24.7	24.7
183.0	27.3	27.3	27.3	27.3	24.9	24.9	24.9	24.9
179.0	26.9	26.0	26.5	26.4	25.1	25.1	25.0	25.0
177.4	26.6	26.6	26.6	26.6	25.1	25.1	25.0	25.0
174.9	26.2	26.2	26.1	26.1	25.2	25.2	25.1	25.1

Temperatures (Celsius)

<u>MP</u>	7/18/89				7/20/89			
	<u>T-0</u>	<u>T-3</u>	<u>T-M</u>	<u>T-B</u>	<u>T-0</u>	<u>T-3</u>	<u>T-M</u>	<u>T-B</u>
170.9	26.1	26.1	25.7	25.4	23.3	23.3	23.3	23.4
167.0	26.2	26.2	26.0	25.9	22.8	22.7	22.7	22.6
166.1	26.1	26.1	26.1	26.1	22.7	22.7	22.7	22.6
165.3	25.9	25.9	26.0	25.9	22.8	22.8	22.7	22.7
164.4	26.1	26.1	26.1	26.1	22.8	22.8	22.8	22.8
162.8	26.2	26.1	25.7	25.7	23.4	23.4	23.3	23.1
161.6	25.9	25.9	25.9	25.9	23.2	23.2	23.2	23.2
160.7	26.3	26.0	25.9	25.9	23.1	23.1	23.1	23.1
159.4	26.1	26.1	26.1	26.1	23.3	23.3	23.2	23.2
159.0	26.1	26.1	26.1	26.1	23.5	23.5	23.4	23.4

Temperatures (Celsius)

MP	7/25/89				8/01/89			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	24.2	24.2	24.2	24.2	24.5	24.5	24.5	24.5
290.2	24.6	24.5	24.5	24.5	24.5	24.5	24.5	24.5
289.8	25.6	24.8	24.8	24.8	24.5	24.5	24.4	24.4
287.9	24.9	24.9	24.9	24.9	24.4	24.3	24.3	24.3
286.2	25.1	25	24.9	24.9	24.2	24.1	24.0	24.0
285.4	25.5	25.5	25.2	25.2	24.5	24.5	24.5	24.5
284.0	29.8	27.8	27.0	26.2	27.2	25.3	25.1	25.0
281.0	26.7	25.9	25.4	25.4	24.7	24.7	24.7	24.7
278.0	27.0	25.7	25.5	25.4	25.0	24.8	24.7	24.7
276.1	27.4	25.2	25.3	25.2	25.4	24.8	24.6	24.5
273.5	25.5	25.2	25.1	25.1	25.3	25.0	24.9	24.9
272.4	29.1	26.8	25.3	25.1	25.8	25.0	25.0	24.9
271.6	28.7	27.8	27.0	25.4	28.3	27.3	25.9	25.7
271.2	26.3	26.2	26.2	26.2	27.1	27.1	27.1	27.1
270.6	26.1	26.0	26.0	25.9	27.0	27.0	27.0	27.0
267.2	26.0	26.0	26.0	26.0	27.1	27.1	27.1	27.1
265.0	26.1	26.0	26.0	26.0	27.2	27.2	27.2	27.2
263.7	26.2	26.1	26.1	26.2	27.1	27.0	27.0	27.0
261.6	26.3	26.2	26.2	26.2	27.0	27.0	27.0	27.0
258.0	26.2	26.2	26.2	26.1	27.0	27.0	27.0	27.0
256.0	25.8	25.8	25.8	25.8	27.1	27.1	27.1	27.1
253.0	25.7	25.7	25.6	25.6	27.6	27.5	27.5	27.4
250.0	25.7	25.7	25.7	25.7	27.5	27.5	27.4	27.4
247.0	26.0	25.9	25.9	25.9	27.5	27.4	27.4	27.4
246.0	26.4	26.4	26.4	26.4	27.7	27.6	27.6	27.6
243.7	26.4	26.4	26.4	26.4	27.6	27.6	27.6	27.6
242.9	26.4	26.4	26.4	26.4	27.7	27.7	27.7	27.7
240.0	26.3	26.3	26.3	26.3	27.8	27.8	27.8	27.8
239.0	26.3	26.2	26.2	26.2	27.2	27.2	27.2	27.0
236.8	27.6	25.9	25.9	25.9	26.6	26.5	26.5	26.5
234.5	25.9	25.7	25.8	25.7	26.8	26.6	26.6	26.6
231.0	28.0	26.7	25.8	25.4	28.7	28.3	26.9	25.9
230.8	26.1	26.1	26.1	26.1	26.0	26.0	26.0	26.0
229.6	26.1	26.0	26.0	26.0	26.1	26.1	26.1	26.1
226.9	25.9	25.9	25.9	25.9	26.0	26.0	26.0	26.0
224.7	25.9	25.9	25.9	25.9	26.3	26.1	26.1	26.1
222.6	25.9	25.8	25.8	25.8	26.5	26.2	26.2	26.2
219.8	25.8	25.8	25.8	25.8	26.6	26.5	26.5	26.5
217.1	26.0	26.0	25.9	25.9	26.8	26.8	26.7	26.7
213.4	25.9	25.9	25.9	25.9	27.0	26.9	26.9	26.8
209.4	25.7	25.6	25.6	25.6	27.5	27.3	27.2	27.1
205.4	25.2	25.2	25.1	25.1	27.5	27.3	27.3	27.2
200.4	25.6	25.5	25.5	25.5	27.9	27.8	27.8	27.7
196.9	27.2	26.1	25.7	25.7	28.0	27.5	27.5	27.5
190.0	26.5	25.7	25.5	25.5	27.2	27.2	27.2	27.2
188.0	26.6	25.6	25.5	25.5	27.2	27.1	27.1	27.0
183.0	25.9	25.6	25.6	25.6	27.1	27.1	27.1	27.1
179.0	25.7	25.7	25.6	25.6	27.3	27.2	27.1	27.1
177.4	26.2	25.8	25.7	25.7	27.4	27.3	27.1	27.1
174.9	25.6	25.5	25.5	25.5	27.8	27.7	27.2	27.1

Temperatures (Celsius)

MP	7/25/89				8/01/89			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
170.9	26.2	26.1	26.0	25.9	27.1	26.7	26.5	26.2
167.0	26.7	26.2	26.1	26.1	26.9	26.5	26.4	26.2
166.1	26.2	26.2	26.2	26.2	26.6	26.3	26.3	26.3
165.3	26.2	26.2	26.2	26.2	26.5	26.4	26.3	26.3
164.4	26.3	26.2	26.2	26.2	26.6	26.2	26.2	26.1
162.8	26.3	26.2	26.2	26.1	27.3	26.7	26.6	26.3
161.6	26.3	26.3	26.3	26.3	26.7	26.6	26.6	26.6
160.7	26.3	26.3	26.2	26.2	26.9	26.6	26.6	26.5
159.4	26.3	26.3	26.2	26.2	26.6	26.5	26.5	26.4
159.0	26.4	26.4	26.4	26.4	27.2	26.6	26.5	26.5

Temperatures (Celsius)

MP	8/03/89				8/08/89			
	T-O	T-3	T-M	T-B	T-O	T-3	T-M	T-B
291.0	25.5	25.5	25.5	25.5	24.0	24.0	24.0	24.0
290.2	25.7	25.7	25.6	25.7	24.0	24.0	24.0	24.0
289.8	25.7	25.6	25.6	25.7	24.0	23.0	23.0	22.5
287.9	25.6	25.6	25.6	25.6	23.5	23.0	23.0	23.0
286.2	26.0	26.0	25.8	25.7	22.8	22.5	22.5	22.5
285.4	25.9	25.9	25.9	25.8	22.5	22.5	22.5	22.5
284.0	30.0	28.3	28.3	28.0	27.0	24.5	23.0	23.0
281.0	26.8	26.6	26.4	26.3	23.5	23.3	23.3	23.3
278.0	27.7	27.5	27.4	27.4	23.5	23.5	23.0	23.0
276.1	27.3	27.2	26.9	26.9	23.8	23.5	23.3	23.3
273.5	27.3	27.0	26.9	26.9	23.3	23.3	23.0	23.0
272.4	27.3	27.2	27.1	26.8	23.8	23.5	23.5	23.5
271.6	29.2	29.1	27.7	27.2	26.0	26.0	25.0	24.0
271.2	27.5	27.5	27.5	27.5	25.5	25.5	25.5	25.5
270.6	27.6	27.4	27.4	27.3	25.5	25.5	25.5	25.5
267.2	26.9	26.8	26.8	26.8	25.3	25.3	25.3	25.3
265.0	28.2	28.2	28.1	28.1	25.3	25.2	25.2	25.2
263.7	28.3	28.2	28.1	28.2	25.0	25.0	25.0	25.2
261.6	27.9	27.7	27.7	27.7	25.0	25.0	25.0	24.9
258.0	27.7	27.6	27.6	27.6	24.7	24.7	24.6	24.6
256.0	27.8	27.7	27.7	27.7	24.8	24.7	24.7	24.7
253.0	27.5	27.5	27.4	27.4	25.1	25.0	25.0	25.0
250.0	27.2	27.2	27.2	27.2	25.2	25.1	25.1	25.0
247.0	27.3	27.2	27.1	27.1	25.2	25.1	25.1	25.1
246.0	27.5	27.5	27.5	27.5	25.4	25.4	25.4	25.4
243.7	27.5	27.6	27.6	27.6	25.5	25.5	25.5	25.5
242.9	27.5	27.5	27.5	27.5	25.5	25.5	25.5	25.4
240.0	27.5	27.5	27.5	27.4	25.6	25.5	25.5	25.5
239.0	27.2	27.1	27.1	27.1	25.5	24.7	24.6	24.6
236.8	27.4	27.1	27.1	27.1	24.8	24.7	24.6	24.5
234.5	27.4	27.3	27.3	27.3	25.0	24.8	24.7	24.7
231.0	28.5	28.4	26.6	26.1	25.7	25.7	25.2	24.3
230.8	27.3	27.3	27.3	27.3	24.8	24.8	24.8	24.8
229.6	27.2	27.2	27.2	27.1	24.8	24.8	24.8	24.7
226.9	27.4	27.4	27.3	27.3	24.9	24.9	24.8	24.8
224.7	27.5	27.5	27.4	27.5	24.9	24.9	24.9	24.9
222.6	27.4	27.4	27.4	27.5	25.0	25.0	25.0	25.0
219.8	27.6	27.6	27.6	27.6	25.1	25.0	25.1	25.2
217.1	27.7	27.7	27.6	27.7	25.2	25.3	25.2	25.3
213.4	27.5	27.5	27.3	27.4	25.5	25.5	25.3	25.4
209.4	27.4	27.4	27.3	27.3	25.4	25.5	25.3	25.4
205.4	27.6	27.6	27.6	27.7	25.3	25.3	25.2	25.2
200.4	27.9	27.7	27.7	27.8	25.5	25.5	25.4	25.5
196.9	27.3	27.3	27.2	27.2	25.4	25.3	25.0	25.1
190.0	27.4	27.4	27.3	27.3	26.0	25.9	25.5	25.4
188.0	27.7	27.7	27.5	27.4	25.9	25.8	25.5	25.5
183.0	27.8	27.8	27.7	27.7	26.1	25.7	25.5	25.5
179.0	27.6	27.6	27.5	27.5	25.9	25.6	25.5	25.6
177.4	27.7	27.7	27.6	27.6	26.3	26.1	25.8	25.7
174.9	27.6	27.5	27.4	27.4	26.3	26.2	26.0	25.9

Temperatures (Celsius)

MP	8/03/89				8/08/89			
	T-O	T-3	T-M	T-B	T-O	T-3	T-M	T-B
170.9	27.3	27.3	27.3	27.3	25.1	25.1	24.9	24.8
167.0	27.5	27.5	27.2	27.1	25.5	25.1	24.9	24.4
166.1	27.5	27.3	27.3	27.3	25.1	24.7	24.6	24.6
165.3	27.4	27.4	27.3	27.3	25.0	24.8	24.7	24.8
164.4	27.4	27.4	27.4	27.4	24.3	24.4	24.3	24.4
162.8	27.5	27.5	27.1	27.1	25.4	24.8	24.0	24.0
161.6	27.4	27.4	27.4	27.4	25.0	24.4	24.4	24.3
160.7	27.8	27.5	27.5	27.5	24.8	24.4	24.1	24.1
159.4	27.4	27.4	27.4	27.3	24.5	24.3	24.2	24.2
159.0	27.6	27.5	27.5	27.5	24.4	24.4	24.2	24.2

Temperatures (Celsius)

MP	8/10/89				8/16/89			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	24.0	23.8	23.5	24.0	24.1	24.1	24.1	3.0
290.2	23.8	23.8	23.8	23.8	24.2	24.1	24.1	3.7
289.8	23.5	23.5	23.5	23.0	24.2	24.2	24.2	3.9
287.9	23.0	23.0	23.0	23.0	24.1	24.1	24.1	4.2
286.2	23.3	23.0	23.0	23.0	24.2	24.0	24.0	24.0
285.4	23.5	23.5	23.5	23.5	24.2	24.2	24.2	8.1
284.0	28.0	24.0	24.0	24.0	24.0	24.0	24.0	7.3
281.0	24.0	24.0	24.0	24.0	23.7	23.7	23.7	6.9
278.0	24.5	24.0	24.0	24.0	23.8	23.7	23.7	6.9
276.1	24.3	24.0	24.0	24.0	24.0	24.0	24.0	7.0
273.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	7.3
272.4	25.5	24.5	24.0	24.0	24.4	24.2	24.2	7.3
271.6	27.0	26.0	25.0	24.3	26.8	26.4	26.2	26.0
271.2	25.1	25.1	25.1	25.1	26.2	26.2	26.2	8.0
270.6	25.2	25.2	25.2	25.2	26.1	26.1	26.1	8.2
267.2	25.1	25.1	25.1	25.1	25.8	25.8	25.8	8.6
265.0	25.3	25.2	25.2	25.2	25.9	25.9	25.9	7.9
263.7	25.3	25.3	25.3	25.3	25.9	25.9	25.8	7.9
261.6	25.2	25.2	25.2	25.2	26.1	26.1	26.0	7.8
258.0	25.2	25.2	25.2	25.2	26.3	26.3	26.2	7.5
256.0	25.1	25.1	25.1	25.0	26.2	26.2	26.2	7.8
253.0	25.3	25.3	25.2	25.2	26.1	26.1	26.1	8.3
250.0	25.3	25.2	25.2	25.2	26.8	26.9	27.4	8.6
247.0	25.4	25.1	25.1	25.1	26.2	26.3	26.0	8.9
246.0	25.5	25.5	25.5	25.5	26.6	26.6	26.6	8.3
243.7	25.5	25.4	25.4	25.4	26.3	26.3	26.3	7.8
242.9	25.5	25.4	25.4	25.4	26.2	26.2	26.2	7.9
240.0	25.4	25.3	25.6	25.3	26.5	26.5	26.3	8.4
239.0	25.0	24.8	24.7	24.6	26.0	26.0	25.7	8.2
236.8	24.8	24.7	24.7	24.7	25.9	25.9	25.8	8.2
234.5	25.0	24.9	24.8	24.7	25.8	25.9	25.8	8.5
231.0	27.2	26.0	24.8	23.7	27.0	26.6	25.7	24.6
230.8	25.0	24.9	24.9	24.9	25.1	25.1	25.1	12.2
229.6	24.9	24.9	24.9	24.9	25.2	25.1	25.1	9.4
226.9	24.5	24.6	24.6	24.6	25.2	25.2	25.2	9.8
224.7	24.4	24.4	24.4	24.4	25.3	25.3	25.3	9.5
222.6	25.1	24.4	24.4	24.4	25.3	25.3	25.3	9.0
219.8	24.6	24.6	24.6	24.6	25.4	25.4	25.4	9.0
217.1	24.8	24.8	24.7	24.7	25.4	25.4	25.4	9.0
213.4	24.9	24.8	24.8	24.8	25.3	25.2	25.2	9.9
209.4	25.4	24.7	24.7	24.7	25.4	25.3	25.3	10.2
205.4	24.9	24.7	24.6	24.6	25.6	25.6	25.6	9.2
200.4	25.3	25.1	25.1	25.1	25.7	25.7	25.7	9.1
196.9	25.4	25.0	24.8	24.7	25.6	25.6	25.6	8.9
190.0	24.9	24.7	24.7	24.7	25.5	25.3	25.3	9.5
188.0	25.1	24.8	24.8	24.7	25.3	25.4	25.3	8.3
183.0	25.4	25.3	25.2	25.3	25.4	25.3	25.2	6.9
179.0	25.3	25.2	25.2	25.2	25.6	25.4	25.4	6.8
177.4	25.1	25.1	25.1	25.1	25.7	25.5	25.5	7.2
174.9	25.1	25.0	24.9	24.9	25.7	25.5	25.5	7.3

Temperatures (Celsius)

MP	8/10/89				8/16/89			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
170.9	24.2	24.2	24.2	23.9	24.9	24.6	24.6	6.8
167.0	24.5	24.4	24.3	24.2	25.5	25.2	25.1	11.0
166.1	24.3	24.0	23.8	23.8	25.3	25.1	25.0	8.2
165.3	24.3	24.1	24.1	24.1	25.0	24.9	24.9	7.3
164.4	24.4	24.3	24.2	24.2	25.1	24.7	24.7	7.3
162.8	24.6	24.4	24.1	24.0	25.6	24.9	24.7	8.4
161.6	24.5	24.4	24.4	24.4	25.1	25.0	25.0	9.7
160.7	24.5	24.5	24.4	24.4	25.2	25.2	25.1	7.8
159.4	24.5	24.5	24.5	24.5	25.3	25.2	25.2	8.5
159.0	24.7	24.7	24.6	24.6	25.9	25.3	25.1	25.1

APPENDIX D2

Temperature Measurements:
1990 Field Data

Temperatures (Celsius)

MP	6/11/90				6/18/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	21.9	21.9	21.9	21.9	24.9	24.9	24.9	24.9
290.2	21.9	21.9	21.9	21.9	24.8	24.8	24.8	24.8
289.8	22.5	22.3	22.2	22.2	25.4	25.4	25.2	25.2
287.9	22.4	22.4	22.3	22.3	25.1	25.1	25.0	25.0
286.2	22.2	22.1	21.6	21.6	24.4	24.4	24.3	24.3
285.4	21.9	22.0	22.0	22.0	24.7	24.7	24.7	24.7
284.0	28.5	26.6	22.8	22.2	30.5	27.4	25.7	25.3
281.0	23.1	22.4	22.1	22.1	26.6	26.6	26.2	26.1
278.0	22.4	22.4	22.4	22.4	27.4	27.3	26.9	26.9
276.1	23.2	22.9	22.7	22.7	26.5	26.3	25.9	25.7
273.5	23.7	22.8	22.7	22.6	26.4	26.2	26.1	25.9
272.4	23.7	23.2	22.7	22.3	26.6	26.7	26.4	26.1
271.6	24.1	23.1	22.4	22.4	28.9	28.8	28.3	27.4
271.2	23.2	23.2	23.2	23.2	27.9	27.9	27.9	27.8
270.6	23.2	23.2	23.2	23.1	27.9	27.9	27.9	27.9
267.2	23.1	23.1	23.1	23.1	28.7	28.7	28.7	28.7
265.0	23.1	23.1	23.1	23.1	27.7	27.8	27.8	27.7
263.7	23.2	23.2	23.2	23.2	26.8	26.8	26.8	26.8
261.6	23.3	23.3	23.3	23.2	26.7	26.7	26.6	26.6
258.0	23.3	23.2	23.2	23.2	26.4	26.4	26.3	26.3
256.0	23.2	23.1	23.3	23.1	26.3	26.4	26.4	26.4
253.0	23.4	23.2	23.2	23.2	26.4	26.4	26.4	26.4
250.0	23.2	23.2	23.2	23.2	26.3	26.3	26.3	26.3
247.0	23.4	23.4	23.3	23.3	26.8	26.8	26.5	26.5
246.0	23.3	23.3	23.3	23.2	26.8	26.8		26.8
243.7	23.3	23.3	23.3	23.3	26.9	26.9	26.8	26.8
242.9	23.2	23.2	23.2	23.2	26.7	26.6	26.6	26.5
240.0	23.1	23.1	23.1	23.1	26.6	26.5	26.4	26.3
239.0	23.0	23.0	22.9	22.9	25.9	25.6	25.5	25.1
236.8	23.2	22.9	22.8	22.7	26.0	25.9	25.6	25.4
234.5	23.3	23.0	22.9	22.9	26.0	25.9	25.9	25.9
231.0	24.5	23.2	22.0	21.9	26.0	25.9	25.8	25.2
230.8	22.4		22.4	22.0	25.8		25.8	25.7
229.6	22.4	22.4	22.4	22.4	25.7		25.8	25.8
226.9	22.0	22.1	22.1	22.0	25.7	25.7	25.7	25.6
224.7	20.0	20.0	19.0	22.0	25.4	25.4	25.4	25.4
222.6	22.5	22.3	22.3	22.3	25.7	25.6	25.6	25.6
219.8	22.9	22.7	22.7	22.2	25.8	25.8	25.8	25.8
217.1	23.0	22.9	22.8	22.1	25.9	25.9	25.9	25.8
213.4	23.0	22.9	22.8	22.8	26.1	25.9	25.9	25.9
209.4	23.0	23.0	22.9	22.9	26.0	25.9	25.9	25.9
205.4	22.5	22.6	22.6	22.6	25.8	25.7	25.7	25.6
200.4	23.0	22.7	22.6	22.7	25.9	25.8	25.8	25.8
196.9	23.5	23.1	23.0	23.0	26.0	26.0	26.1	26.0
190.0	23.2	23.0	22.8	22.8	26.4	26.3	25.9	25.8
188.0	23.2	23.0	22.9	22.9	26.3	26.3	26.1	26.0
183.0	22.9	22.5	22.5	22.3	26.2	26.2	26.1	26.0
179.0	22.9	22.9	22.9	22.9	26.3	26.3	26.3	26.3
177.4	23.0	22.8	22.6	22.5	26.6	26.7	26.7	26.5
174.9	23.0	22.9	22.9	22.9	26.5	26.5	26.5	26.4

Temperatures (Celsius)

MP	6/11/90				6/18/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
170.9	23.1	23.0	23.0	23.0	26.4	26.3	26.3	26.2
167.0	24.5	23.5	23.0	22.5	26.6	26.5	26.5	26.5
166.1	23.1	23.1	23.0	23.0	26.6	26.6	26.6	26.6
165.3	23.3	23.2	23.2	23.0	26.6	26.6	26.6	26.6
164.4	24.4		23.8	23.0	26.5	26.4	6.1	6.1
162.8	24.1	23.7	23.5	23.1	27.4	27.1	26.8	26.8
161.6	24.2	24.1	24.1	24.0	26.8	26.8	26.7	26.7
160.7	23.9	23.2	23.2	23.2	26.9	26.9	26.8	26.8
159.4	23.6	23.6	23.5	23.1	26.8	26.8	26.8	26.8
158.0	23.5	23.5	23.3	23.2	26.9	27.0	26.9	26.9

Temperatures (Celsius)

MP	6/25/90				7/02/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	22.3	22.5	22.5	22.7	23.5	23.5	23.5	23.5
290.2	22.5	22.4	22.3	22.4	23.6	23.6	23.6	23.6
289.8	23.4	22.9	22.7	22.7	24.2	23.8	23.8	23.7
287.9	22.5	22.5	22.6	22.5	23.8	23.8	23.8	23.8
286.2	22.5	22.4	22.2	22.1	24.1	23.2		23.2
285.4	22.6	22.6	22.7	23.0	23.7	23.7	23.7	23.7
284.0	25.6	24.0	23.7	23.6	28.4	25.0	24.8	24.5
281.0	23.6	23.2	23.1	23.1	25.0	24.4	24.4	24.3
278.0	23.4	23.1	22.8	23.4	25.1	24.6	24.5	24.5
276.1	23.5	23.3	23.4	23.5	25.2	24.8	24.4	24.3
273.5	23.2	23.4	23.4	23.5	25.0	24.9	24.9	24.8
272.4	24.1	23.3	23.7	23.6	25.3	24.8	24.8	24.7
271.6	25.8	25.1	24.3	24.4	27.2	26.5	25.7	25.4
271.2	23.9	23.9		23.9	26.0		26.0	26.0
270.6	23.8	23.8	23.8	23.8	26.1	26.0	26.0	26.0
267.2	23.8	23.8	23.8	23.8	26.0	26.0	26.0	26.0
265.0	23.8	23.8	23.8	23.8	26.1	26.1	26.1	26.0
263.7	23.7	23.7	23.7	23.7	26.2	26.2	26.2	26.2
261.6	23.4	23.5	23.4	23.4	25.7	25.6	25.6	25.6
258.0	23.1	23.1	23.1	23.1	25.8	25.8	25.8	25.8
256.0	23.0	23.0	22.9	22.9	25.9	25.8	25.8	25.8
253.0	23.0	22.9	22.9	22.9	26.2	26.1	26.1	26.1
250.0	22.8	22.9	22.8	22.8	26.0	26.0	26.0	26.0
247.0	23.1	22.9	22.9	22.9	26.1	26.0	26.0	26.0
246.0	23.4			23.4				
243.7	23.4	23.4	23.5	23.5				
242.9	23.4	23.4	23.4	23.4				
240.0	23.5	23.4	23.4	23.4				
239.0	22.8	22.8	22.8	22.8				
236.8	22.7	22.7	22.6	22.6				
234.5	23.1	22.9	22.7	22.7				
231.0	23.8	23.4	22.9	22.8				
230.8	22.9	22.8		22.8	25.6	25.6	25.7	25.7
229.6	22.9	22.9	22.9	22.9	25.5	25.5	25.5	25.5
226.9	22.9	22.8	22.8	22.8	25.2	25.2	25.2	25.2
224.7	22.6	22.4	22.3	22.3	24.8	24.7	24.6	24.5
222.6	22.5	22.4	22.4	22.4	24.6	24.6	24.6	24.6
219.8	23.0	22.6	22.6	22.6	24.7	24.6	24.6	24.6
217.1	22.9	22.7	22.7	22.7	24.8	24.8	24.7	24.8
213.4	23.0	22.9	22.8	22.9	23.1	23.0	24.9	24.9
209.4	23.0	22.9	22.8	22.8	25.1	25.0	25.0	25.0
205.4	22.3	22.4	22.4	22.4	24.7	24.8	24.7	24.7
200.4	22.6	22.2	22.2	22.2	24.9	24.6	24.6	24.6
196.9	22.8	22.3	22.2	22.2	25.6	24.5	24.5	24.5
190.0	22.7	22.7	22.7	22.7	25.8	25.7	24.6	24.6
188.0	22.8	22.7	22.6	22.6	24.8	24.8	24.7	24.7
183.0	23.0	22.8	22.8	22.7	24.9	24.9	24.9	24.9
179.0	22.9	22.9	22.9	22.9	24.9	24.7	24.7	24.7
177.4	23.1	23.1	23.0	23.0	24.9	24.8	24.7	24.7
174.9	23.1	23.1	23.1	23.0	26.1	26.5	24.7	24.5

Temperatures (Celsius)

MP	6/25/90				7/02/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
170.9	23.1	23.0	23.0	22.6	24.6	24.5	24.5	24.5
167.0	23.5	23.3	23.2	23.2	26.1	25.1	25.0	25.0
166.1	23.4	23.3	22.5	22.4	25.1	25.1	25.1	25.1
165.3	23.1	23.0	22.8	22.8	25.2	25.1	25.1	25.1
164.4	23.2	23.1	23.0	22.9	26.4	25.1	25.1	25.1
162.8	23.2	22.9	22.9	22.5	26.0	25.1	25.1	25.1
161.6	23.0	23.0	22.9	22.9	25.2	25.2	25.2	25.2
160.7	23.0	22.9	22.2	22.8	25.2	25.2	25.2	25.2
159.4	23.0	23.0	23.0	23.0	25.2	25.2	25.2	25.2
159.0	23.0	22.9	22.7	28.9	25.3	25.3	25.2	25.2

Temperatures (Celsius)

MP	7/09/90				7/16/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	24.7	24.7	24.7	24.8	21.4	21.4	21.4	21.4
290.2	24.8	24.8	24.8	24.8	21.3	21.3	21.3	21.3
289.8	25.5	25.1	25.1	25.1	21.2	21.2	21.2	21.2
287.9	25.2	25.2	25.2	25.2	21.0	21.0	21.0	21.0
286.2	25.7	25.3	25.1	25.0	21.0	21.0	21.0	21.0
285.4	25.6	25.6	25.6	25.5	21.0	21.0	21.0	21.0
284.0	31.5	28.2	25.4	25.4	22.8	22.2	21.8	21.6
281.0	26.4	25.9	25.9	25.7	21.6	21.6	21.6	21.5
278.0	27.9	27.0	27.0	27.0	21.8	21.7	21.6	21.6
276.1	28.1	26.8	26.6	26.4	21.7	21.6	21.6	21.6
273.5	26.6	26.2	26.2	26.1	21.4	21.4	21.3	21.3
272.4	27.7	26.5	26.2	26.2	21.3	21.1	21.0	20.9
271.6	28.3	27.5	27.1	26.9	23.3	23.2	22.7	22.2
271.2	28.1		28.1	28.1	22.7	22.7		22.9
270.6	28.1	28.1	28.1	28.1	23.0	23.0	22.9	22.8
267.2	28.0	28.0	28.0	28.0	22.9	22.9	22.9	22.9
265.0	28.2	28.2	28.2	28.1	22.7	22.7	22.7	22.7
263.7	28.3	28.2	28.2	28.2	22.7	22.7	22.6	22.6
261.6	28.1	28.1	28.1	28.1	22.3	22.3	22.3	22.3
258.0	28.0	27.9	27.9	27.9	22.3	22.3	22.3	22.3
256.0	27.9	27.9	27.9	27.9	22.3	22.3	22.3	22.3
253.0	27.8	27.7	27.7	27.7	22.2	22.2	22.2	22.2
250.0	27.9	27.7	27.7	27.7	22.3	22.3	22.3	22.3
247.0	27.9	27.8	27.8	27.8	22.0	21.9	21.9	21.9
246.0	28.0		28.0	28.0				
243.7	28.1	28.0	28.0	28.0	22.1	22.1	22.1	22.1
242.9	28.0	28.0	27.9	27.9	22.0	22.0	22.0	22.0
240.0	27.8	27.7	27.7	27.7	21.9	21.9	21.9	21.9
239.0	27.7	27.6	27.6	27.6	21.4	21.3	21.3	21.2
236.8	28.0	27.6	27.5	27.5	21.3	21.2	21.1	21.1
234.5	28.8	27.8	27.6	27.6	21.4	21.3	21.3	21.2
231.0	29.8	28.1	27.1	27.0	21.3	21.3	21.3	21.2
230.8	28.6		28.6	28.6				
229.6	28.3	28.3	28.3	28.3				
226.9	28.1	28.0	28.0	27.9				
224.7	27.9	27.8	27.8	27.8				
222.6	28.3	28.1	27.7	27.7				
219.8	28.0	27.9	27.9	27.8				
217.1	28.8	28.1	28.1	28.0				
213.4	28.3	28.0	27.9	27.9	21.7	21.7	21.7	21.9
209.4	29.1	28.3	28.0	27.9	21.8	21.8	21.9	22.2
205.4	28.5	28.1	28.0	27.9	21.9	21.9	22.1	22.2
200.4	29.2	28.7	28.0	27.9	22.2	22.3	22.4	22.8
196.9	29.3	28.6	27.7	27.7	22.5	22.5	22.0	22.0
190.0	28.4	27.8	27.6	27.5	22.3	22.3	22.2	22.2
188.0	28.6	27.9	27.7	27.6	22.3	22.3	22.5	22.6
183.0	28.4	28.7	28.4	27.7	22.7	22.6	22.6	22.8
179.0	28.0	27.7	27.7	27.7	22.7	22.7	22.7	22.9
177.4	28.3	27.7	27.6	27.5	22.8	22.8	22.8	23.1
174.9	30.2	27.6	27.4	27.3	22.8	22.7	22.8	22.9

Temperatures (Celsius)

<u>MP</u>	<u>7/09/90</u>				<u>7/16/90</u>			
	<u>T-0</u>	<u>T - 3</u>	<u>T-M</u>	<u>T-B</u>	<u>T-0</u>	<u>T - 3</u>	<u>T-M</u>	<u>T-B</u>
170.9	28.3		27.6	27.6	22.5	22.5		22.8
167.0	30.8	29.1	27.4	27.4	22.7	22.6	22.6	22.5
166.1	27.6	27.6	27.6	27.6	22.7	22.6	22.6	22.8
165.3	28.2	28.3	28.3	28.5	22.5	22.4	22.4	22.6
164.4	28.3	28.3	28.4	28.5	22.5	22.5		22.1
162.8	28.8	28.3	20.3	28.4	22.4	22.3	22.3	22.4
161.6	28.3	28.3	28.4	28.4	22.5	22.5	22.6	22.7
160.7	28.2	28.1	28.1	28.2	22.3	22.2	22.2	22.3
159.4	27.8	27.8	27.9	28.0	21.6	21.6	21.7	21.7
159.0	28.0	27.8	27.8	27.5	21.8	21.8	21.9	22.0

Temperatures (Celsius)

MP	7/23/90				7/30/90			
	T-0	T-3	T-M	T-B	T-0	T - 3	T-M	T-B
291.0	23.5	23.5	23.5	23.5	25.9	25.9	25.9	25.9
290.2	23.5	23.5	23.4	23.4	25.8	25.8	25.8	25.8
289.8	23.6	23.4	23.4	23.4	26.0	25.9	25.9	25.9
287.9	23.2	23.2	23.1	22.2	25.9	25.9	25.9	25.9
286.2	23.0	22.8	22.8	22.7	26.2	26.2		26.0
285.4	22.8	22.8	22.8	22.8	26.1	26.0	25.9	25.6
284.0	22.9	22.9	22.8	22.8	26.2	26.2	26.2	26.1
281.0	23.7	22.8	22.8	22.9	26.7	26.2	26.2	26.1
278.0	23.0	22.9	22.9	22.9	27.9	27.3	27.2	27.1
276.1	23.2	22.9	22.9	22.9	27.7	27.5	27.2	26.9
273.5	22.8	22.7	22.7	22.7	26.5	26.5	26.3	26.2
272.4	22.6	22.6	22.6	22.6	26.6	26.2	25.1	25.0
271.6	23.9	23.5	22.4	22.5	27.5	27.2	26.0	25.7
271.2	24.0		24.0	24.0	26.8	26.8		26.8
270.6	23.5	23.6	23.4	23.4	26.9	26.8	26.8	26.7
267.2	23.5	23.5	23.5	23.5	27.3	27.3	27.3	27.3
265.0	23.5	23.5	23.5	23.5	27.4	27.4	27.4	27.3
263.7	23.5	23.4	23.4	23.4	27.2	27.2	27.2	27.2
261.6	23.3	23.3	23.2	23.2	27.3	27.2	27.2	27.2
258.0	23.2	23.2	23.2	23.3	26.9	26.9	26.9	26.9
256.0	23.3	23.3	23.3	23.3	26.7	26.7	26.7	26.7
253.0	23.5	23.5	23.5	23.5	26.7	26.6	26.7	26.6
250.0	23.7	23.6	23.6	23.6	26.8	26.7	26.7	26.7
247.0	23.6	23.6	23.6	23.6	26.8	26.7	26.7	26.7
246.0	23.6		23.6	23.6	26.9	26.9		26.9
243.7	23.4	23.5	23.5	23.5	27.0	26.9	26.9	26.9
242.9	23.5	23.5	23.5	23.4	27.1	27.0	27.0	27.0
240.0	23.6	23.5	23.5	23.5	26.9	27.0	26.9	26.9
239.0	23.4	23.4	23.4	23.4	26.9	26.9	26.9	26.8
236.8	23.6	23.5	23.5	23.4	27.0	27.0	27.0	27.0
234.5	23.5	23.5	23.4	23.4	27.3	26.9	26.9	26.9
231.0	24.0	23.6	23.3	23.2	27.5	26.7	26.6	26.6
230.8	23.6	23.6	23.6	23.6	27.1	27.1	27.1	27.1
229.6	23.8	23.7	23.7	23.8	26.9	26.9	26.9	26.9
226.9	23.5	23.4	23.4	23.3	26.6	26.6	26.6	26.6
224.7	23.2	23.1	23.0	23.0	26.7	26.6	26.8	26.9
222.6	23.0	23.0	23.0	23.0	26.6	26.4	26.4	26.4
219.8	23.1	23.1	23.1	23.1	26.6	26.5	26.5	26.5
217.1	23.4	23.4	23.4	23.4	26.7	26.6	26.6	26.6
213.4	23.8	23.8	23.8	23.7	26.9	26.9	26.8	26.8
209.4	23.8	23.8	23.8	23.8	26.8	26.7	26.7	26.6
205.4	23.9	23.9	23.9	23.9	26.4	26.4	26.4	26.4
200.4	23.8	23.7	23.7	23.7	26.4	26.4	26.4	26.3
196.9	23.8	23.7	23.7	23.6	26.6	26.5	26.5	26.5
190.0	23.7	23.6	23.6	23.6	26.6	26.4	26.4	26.5
188.0	23.9	23.7	23.7	23.7	26.4	26.3	26.3	26.2
183.0	24.1	23.9	23.9	23.9	26.1	26.1	26.1	26.1
179.0	24.0	24.0	24.0	24.0	26.3	26.2	26.2	26.2
177.4	24.2	24.1	24.0	24.0	26.7	26.5	26.4	26.3
174.9	24.2	24.1	24.1	24.1	26.1	26.0	25.9	25.9

Temperatures(Celsius)

MP	7/23/90				7/30/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
170.9	24.0	23.8	23.7	23.6	25.5	25.5	25.5	25.5
167.0	24.2	24.0	24.0	23.9	26.1	26.0	26.0	25.9
166.1	24.0	24.0	24.0	24.0	26.0	25.9	25.9	25.9
165.3	23.7	23.8	23.7	23.7	26.1	25.9	25.9	25.9
164.4	24.2	24.0	24.0	23.9	26.3	26.1	26.0	26.0
162.8	24.0	23.9	23.9	23.4	26.1	26.1	26.0	26.0
161.6	24.1	24.1	24.1	24.1	26.2	26.2	26.2	26.2
160.7	24.0	24.0	24.5	24.6	26.2	26.2	26.2	26.2
159.4	23.8	23.8	23.8	24.9	26.3	26.2	26.2	26.1
159.0	23.9	23.8	23.8	23.7	26.3	26.2	26.2	26.2

Temperatures (Celsius)

MP	8/6/90				8/13/90			
	T-0	T-3	T-M	T-B	T-0	T-3	T-M	T-B
291.0	25.2	25.2	25.1	25.1	24.3	24.2	24.3	24.3
290.2	25.0	25.0	25.0	25.0	24.2	24.1	24.1	24.1
289.8	25.0	25.0	25.0	25.0	24.1	24.0	24.0	24.0
287.9	24.7	24.8	24.8	24.8	23.8	23.8	23.8	23.8
286.2	24.6	24.6	24.6	24.6	23.8	23.5	23.5	23.5
285.4	24.7	24.7	24.7	24.7	23.9	23.9	23.9	23.9
284.0	26.7	26.6	25.3	25.0	26.4	26.2	26.2	25.3
281.0	25.2	25.2	25.2	25.2	24.1	24.1	24.1	24.0
278.0	25.6	25.2	25.2	25.1	25.1	24.2	24.0	24.0
276.1	25.3	25.3	25.3	25.3	24.1	24.1	24.0	23.8
273.5	25.3	25.3	25.3	25.3	24.4	24.3	24.1	24.0
272.4	25.6	25.4	24.6	24.9	29.8	29.2	23.9	23.5
271.6	26.1	26.1	25.4	25.2	26.5	26.3	25.5	25.3
271.2	25.7	25.7		25.7	25.9	25.9	25.5	25.9
270.6	25.7	25.7	25.7	25.7	25.9	25.8	25.8	25.8
267.2	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
265.0	26.4	26.3	26.3	26.3	26.3	26.4	26.4	26.4
263.7	26.3	26.3	26.3	26.3	26.5	26.5	26.5	26.5
261.6	26.4	26.3	26.3	26.3	26.5	26.5	26.5	26.5
258.0	26.3	26.3	26.3	26.3	26.5	26.5	26.5	26.5
256.0	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
253.0	26.3	26.3	26.3	26.3	26.2	26.2	26.2	26.2
250.0	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
247.0	26.4	26.4	26.4	26.4	26.6	26.6	26.6	26.6
246.0	26.6	26.6		26.6	26.9	26.9	26.9	26.9
243.7	26.5	26.5	26.5	26.5	26.7	26.7	26.7	26.7
242.9	26.6	26.6	26.6	26.6	27.0	27.0	27.0	27.0
240.0	26.4	26.4	26.4	26.4	26.8	26.8	26.8	26.8
239.0	26.2	26.2	26.1	26.1	26.5	26.4	26.4	26.5
236.8	26.1	26.1	26.1	26.0	26.4	26.4	26.4	26.4
234.5	26.2	26.2	26.2	26.1	26.7	26.5	26.4	26.4
231.0	26.0	26.0	25.5	25.4	27.2	27.0	26.6	25.4
230.8	26.6	26.4		26.4	25.5	25.5		25.5
229.6	26.5	26.4	26.4	26.4	25.5	25.5	25.5	25.5
226.9	26.9	26.8	26.8	26.8	25.5	25.4	25.4	25.4
224.7	26.3	26.3	26.3	26.3	25.3	25.2	25.2	25.2
222.6	26.9	26.9	26.9	26.9	25.6	25.5	25.3	25.3
219.8	27.0	26.9	26.9	26.8	25.6	25.5	25.5	25.5
217.1	26.8	26.8	26.8	26.8	25.8	25.7	25.7	25.7
213.4	26.5	26.5	26.5	26.5	25.7	25.6	25.6	25.6
209.4	26.7	26.6	26.5	26.5	25.9	25.8	25.6	25.5
205.4	26.6	26.5	26.5	26.4	25.5	25.4	25.4	25.4
200.4	27.2	27.1	27.1	27.1	25.6	25.6	25.6	25.6
196.9	26.7	26.9	27.0	27.0	25.6	25.6	25.4	25.3
190.0	26.4	27.2	27.0	25.7	25.4	25.4	25.2	25.1
188.0	25.7	25.7	25.7	25.7	25.4	25.2	25.1	25.1
183.0	25.8	25.8	25.8	25.8	25.2	25.2	25.2	25.0
179.0	25.7	25.7	25.8	25.8	25.5	25.3	25.1	25.0
177.4	25.8	25.8	25.9	26.1	25.5	25.2	25.1	25.0
174.9	25.6	25.5	25.5	25.3	26.3	25.5	25.2	25.2

Temperatures (Celsius)

<u>MP</u>	8/6/90				8/13/90			
	<u>T-0</u>	<u>T-3</u>	<u>T-M</u>	<u>T-B</u>	<u>T-0</u>	<u>T-3</u>	<u>T-M</u>	<u>T-B</u>
170.9	24.7	24.8	24.7	24.6	24.9	24.7	24.7	24.7
167.0	25.1	25.1	25.0	24.6	24.7	24.7	24.6	24.6
166.1	24.5	24.9	24.9	25.0	24.7	24.6	24.6	24.6
165.3	25.0	25.0	25.0	25.0	24.7	24.7	24.6	24.6
164.4	25.2	25.0	25.0	24.8	25.2	25.0	25.0	24.8
162.8	25.0	24.9	24.9	25.4	26.0	25.7	25.2	25.0
161.6	25.4	25.4	25.4	25.4	25.7	25.1	25.0	24.5
160.7	25.3	25.6	25.3	25.4	25.1	25.2	23.2	25.2
159.4	25.7	25.5	25.5	25.5	25.4	25.4	25.4	25.3
159.0	25.4	25.5	25.0	25.5	25.5	25.5	25.4	25.4

APPENDIX E

Ammonia-N, Nitrite-N, and Nitrite-N Data for 1989 and 1990

Ammonia-N Concentrations (mg/L)

1989

MP	6/15	6/27	7/18	7/25	8/1	8/3	8/8	8/10	8/16
291.0	0.42	1.44	0.28	0.64	0.22	0.25	0.19	0.29	0.16
285.4	0.58	0.55	1.10	0.40	0.60	0.15	0.49	0.24	0.22
278.0	0.43	0.55	1.05	0.75	0.66	0.36	0.39	0.25	0.34
273.5	0.17	0.36	0.78	0.25	0.30	0.29	0.20	0.15	0.18
271.2	0.24	0.26	0.70	0.14	0.83	0.31	0.31	0.18	0.31
265.0	0.22	0.18	0.48	0.14	0.47	0.27	0.30	0.21	0.34
261.6	0.22	0.16	0.36	0.20	0.35	0.18	0.30	0.18	0.33
253.0	0.28	0.18	0.30	0.21	0.32	0.17	0.30	0.16	0.28
247.0	0.28	0.06	0.23	0.22	0.32	0.14	0.30	0.16	0.24
243.7	0.26	0.13	0.21	0.18	0.32	0.14	0.29	0.13	0.22
236.8	0.11	0.12	0.11	0.20	0.14	0.11	0.15	0.11	0.15
231.0	0.09	0.09	0.03	0.07	0.11	0.01	0.25	0.01	0.06
226.9	0.08	0.13	0.02	0.07	0.14	0.01	0.24	0.01	0.05
222.6	0.09	0.14	0.09	0.06	0.11	0.04	0.17	0.01	0.09
213.4	0.07	0.10	0.13	0.05	0.08	0.03	0.18	0.02	0.07
196.9	0.06	0.08	0.15	0.04	0.06	0.03	0.13	0.02	0.04
179.0	0.07	0.09	0.11	0.03	0.04		0.10	0.02	0.04
166.1	0.08	0.08	0.11	0.03	0.03	0.03	0.05	0.03	0.04
162.8	0.09	0.04	0.11	0.06	0.02	0.05	0.03	0.05	0.06
160.7	0.10	0.02	0.12	0.07	0.02	0.09	0.02	0.09	0.05
158.0	0.08	0.06	0.10	0.07	0.01	0.19	0.02	0.19	0.03

1990

MP	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13
291.0	0.36	0.53	0.39		0.14	0.39	0.29	0.23	0.94	1.00
285.4	1.22	0.68	0.63	0.78	0.22	0.34	0.48	0.47	0.53	0.79
278.0	0.99	0.41	0.47	0.67	0.11	0.56	0.28	0.21	0.34	0.49
273.5	0.44	0.22	0.05	0.39	0.08	0.07	0.18	0.13	0.22	0.16
271.2	0.44	0.16	0.12	0.52	0.04	0.41	0.13	0.03	1.52	0.11
265.0	0.30	0.22	0.16	0.46	0.05	0.24	0.13	0.09	0.52	0.14
261.6	0.24	0.12	0.23	0.50	0.06	0.29	0.12	0.11	0.25	0.20
253.0	0.26	0.10	0.26	0.53	0.09	0.29	0.10	0.09	0.23	0.20
247.0	0.13	0.06	0.29	0.49	0.14	0.27	0.10	0.09	0.19	0.19
243.7	0.10	0.06	0.20		0.14	0.28	0.12	0.04	0.14	0.54
236.8	0.02	0.06	0.20		0.52	0.30	0.24	0.04	0.11	0.26
231.0	0.05	0.25	0.09	0.16	0.03		0.07	0.04	0.03	0.53
226.9	0.07	0.12	0.08	0.12	0.04		0.10	0.02	0.05	0.26
222.6	0.10	0.05	0.09	0.10	0.06		0.08	0.03	0.09	0.10
213.4	0.08	0.06	0.10	0.13	0.06	0.13	0.08	0.03	0.15	0.10
196.9	0.07	0.04	0.12	0.10	0.05	0.19	0.08	0.07	0.16	0.08
179.0	0.01	0.05	0.12	0.11	0.06	0.33	0.09	0.07	0.18	0.11
166.1	0.03	0.09	0.11	0.10	0.07	0.22	0.12	0.12	0.16	0.14
162.8	0.03	0.13	0.14	0.12	0.06	0.26	0.12	0.21	0.25	0.10
160.7	0.02	0.14	0.15	0.11	0.06	0.52	0.13	0.32	0.45	0.08
158.0	0.03	0.17	0.08	0.09	0.08	0.77	0.13	1.15	1.35	0.14

Nitrite-N Concentrations (mg/L)

1989

MP	6/15	6/27	7/18	7/25	8/1	8/3	8/8	8/10	8/16
291.0	0.28	0.23	0.18	0.28	0.10	0.18	0.10	0.16	0.12
285.4	0.15	0.45	0.66	0.26	0.18	0.31	0.13	0.09	0.19
278.0	0.15	0.19	0.35	0.23	0.21	0.14	0.12	0.11	0.18
273.5	0.10	0.25	0.38	0.26	0.19	0.15	0.10	0.09	0.16
271.2	0.23	0.16	0.32	0.16	0.57	0.32	0.10	0.33	0.15
265.0	0.08	0.14	0.23	0.13	0.17	0.12	0.14	0.11	0.18
261.6	0.10	0.13	0.21	0.11	0.17	0.11	0.14	0.11	0.17
253.0	0.12	0.15	0.23	0.13	0.18	0.14	0.15	0.12	0.16
247.0	0.13	0.14	0.21	0.12	0.20	0.14	0.15	0.12	0.16
243.7	0.12	0.12	0.17	0.12	0.19	0.14	0.14	0.11	0.17
236.0	0.10	0.14	0.12	0.10	0.12	0.12	0.08	0.10	0.07
231.0	0.12	0.09	0.13	0.11	0.13	0.12	0.15	0.11	0.10
226.9	0.11	0.09	0.13	0.10	0.13	0.13	0.15	0.11	0.09
222.6	0.14	0.09	0.13	0.10	0.09	0.13	0.13	0.11	0.10
213.4	0.14	0.09	0.13	0.12	0.10	0.12	0.13	0.11	0.08
196.9	0.15	0.09	0.12	0.15	0.08	0.10	0.11	0.13	0.06
179.0	0.16	0.10	0.11	0.20	0.08		0.06	0.09	0.05
166.1	0.16	0.10	0.10	0.21	0.09	0.08	0.05	0.05	0.05
162.8	0.16	0.09	0.11	0.21	0.08	0.08	0.05	0.05	0.06
160.7	0.16	0.10	0.10	0.19	0.08	0.09	0.05	0.05	0.06
158.0	0.15	0.09	0.10	0.35	0.08	0.10	0.05	0.13	0.06

1990

M P	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13
291.0	0.15	0.18	0.12		0.06	0.26	0.10	0.14	0.24	0.18
285.4	0.20	0.26	0.20	0.21	0.21	0.23	0.32	0.21	0.25	0.19
278.0	0.27	0.25	0.24	0.20	0.17	0.26	0.18	0.19	0.24	0.19
273.5	0.24	0.16	0.15	0.21	0.12	0.08	0.07	0.13	0.21	0.07
271.2	0.15	0.12	0.28	0.48	0.11	0.23	0.07	0.29	0.08	0.06
265.0	0.13	0.13	0.15	0.16	0.10	0.15	0.07	0.09	0.11	0.12
261.6	0.13	0.14	0.13	0.16	0.10	0.14	0.06	0.10	0.11	0.12
253.0	0.12	0.13	0.14	0.16	0.10	0.13	0.06	0.08	0.12	0.13
247.0	0.13	0.11	0.14	0.15	0.08	0.14	0.06	0.08	0.13	0.11
243.7	0.10	0.08	0.09		0.05	0.11	0.06	0.05	0.08	0.06
236.8	0.09	0.12	0.11		0.27	0.06	0.40	0.06	0.10	0.08
231.0	0.12	0.10	0.12	0.12	0.06		0.06	0.05	0.07	0.06
226.9	0.12	0.11	0.11	0.10	0.04		0.04	0.04	0.06	0.06
222.6	0.10	0.12	0.14	0.13	0.07		0.08	0.13	0.06	0.05
213.4	0.11	0.12	0.16	0.14	0.10	0.11	0.11	0.05	0.06	0.05
196.9	0.13	0.14	0.20	0.14	0.13	0.13	0.15	0.06	0.07	0.05
179.0	0.13	0.16	0.18	0.14	0.14	0.15	0.16	0.08	0.08	0.06
166.1	0.11	0.18	0.14	0.12	0.15	0.14	0.11	0.09	0.08	0.06
162.8	0.08	0.20	0.14	0.12	0.15	0.13	0.01	0.09	0.07	0.06
160.7	0.09	0.20	0.14	0.12	0.15	0.13	0.01	0.09	0.07	0.06
158.0	0.08	0.19	0.16	0.13	0.16	0.48	0.12	0.25	0.07	0.06

Nitrate-N Concentrations (mg/L)

1989

MP	6/15	6/27	7/18	7/25	8/1	8/3	8/8	8/10	8/16
291.0	2.54	2.97	2.91	3.28	3.52	3.42	2.54	2.92	2.73
285.4	3.64	3.76	2.26	3.32	3.38	3.19	2.63	2.58	2.95
278.0	4.32	4.42	3.36	3.25	3.66	3.28	2.54	2.86	3.06
273.5	4.81	4.17	3.52	3.30	3.94	3.32	2.54	2.99	3.37
271.2	5.02	3.82	2.81	4.58	3.91	3.02	2.38	2.33	2.33
265.0	4.84	3.91	2.88	4.18	4.08	3.19	2.30	2.58	2.82
261.6	4.74	4.02	2.91	4.91	5.62	3.19	2.26	2.40	2.90
253.0	5.22	4.00	2.98	5.15	4.08	3.42	2.32	2.40	2.84
247.0	5.57	4.12	2.78	5.19	4.01	3.52	2.35	2.47	2.78
243.7	5.71	4.25	2.88	5.29	4.43	3.68	2.44	2.47	2.88
236.8	5.36	4.34	2.02	4.77	4.22	3.68	2.44	2.33	1.60
231.0	6.30	4.12	2.64	4.74	4.04	3.84	2.71	2.19	2.36
226.9	8.36	4.17	2.67	5.78	3.94	3.88	2.89	2.40	2.29
222.6	6.34	4.21	2.60	4.53	3.92	4.17	2.99	2.26	1.70
213.4	6.13	4.04	2.84	4.15	3.63	4.01	2.89	2.37	2.27
196.9	6.03	4.04	2.98	3.94	3.42	3.68	3.06	2.51	2.20
179.0	6.41	3.91	2.84	4.08	3.52		2.87	2.54	2.02
166.1	6.48	3.36	2.33	2.42	3.49	3.80	2.82	2.54	1.75
162.8	6.48	2.84	2.33	2.52	2.80	3.81	2.83	2.44	1.64
160.7	6.44	3.06	2.40	3.14	3.18	3.65	2.96	2.33	1.75
158.0	5.99	2.89	2.26	2.83	3.72	3.48	2.93	2.09	1.71

1990

M P	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13
291.0	4.27	6.39	3.85		4.46	3.88	3.18	4.10	3.32	3.73
285.4	3.10	5.26	3.75	3.65	4.19	3.95	4.05	4.10	3.78	4.27
278.0	3.31	5.92	4.75	3.58	4.53	3.81	3.91	4.67	4.24	4.25
273.5	4.23	6.46	6.63	3.99	4.59	5.46	6.24	5.10	4.39	3.63
271.2	5.33	7.40	6.63	4.86	5.00	4.60	6.03	5.74	4.60	3.43
265.0	5.58	8.13	5.91	5.74	5.34	5.03	5.96	5.66	3.96	4.15
261.6	5.79	8.64	6.34	6.55	5.81	5.38	6.38	5.88	4.17	3.98
253.0	6.00	9.00	6.34	7.57	5.94	4.81	6.27	6.02	4.32	4.11
247.0	6.36	9.22	7.06	7.57	5.95	5.17	6.10	6.09	4.32	4.25
243.7	6.22	10.20	7.78		4.93	5.60	6.52	5.17	3.89	4.63
236.8	5.04	9.87	7.35		7.64	6.60	6.45	6.09	4.32	4.01
231.0	5.93	8.86	8.21	8.58	6.28		6.73	6.16	4.60	3.98
226.9	6.22	9.91	13.00	14.60	14.00		10.80	8.29	7.50	4.01
222.6	9.58	18.00	9.58	9.59	7.30		6.80	7.16	4.74	5.85
213.4	7.17	15.50	8.89	8.78	7.30	6.74	6.72	6.59	4.67	4.15
196.9	6.57	16.40	8.57	7.57	7.64	6.74	6.73	7.23	5.17	4.97
179.0	6.32	15.30	7.49	7.16	7.97	6.10	6.73	7.23	4.88	3.52
166.1	6.11	14.40	6.70	7.16	7.70	6.03	6.38	7.23	5.31	3.98
162.8	5.79	14.30	6.77	6.96	7.97	6.10	6.38	7.16	5.24	3.87
160.7	5.86	14.20	6.99	6.82	8.11	6.39	6.52	7.16	5.74	4.53
158.0	5.92	13.90	7.06	7.57	8.72	3.95	6.73	6.09	5.31	3.84

APPENDIX F

pH and Secchi Disk Data for 1989 and 1990

pH Values

1989

MP	6/15	6/27	7/18	7/20	7/25	8/1	8/3	8/8	8/10	8/16
291.0	7.07	7.00	7.21	7.15	6.65	7.24	7.15	6.85	7.24	6.69
285.4	7.35	7.19	7.25	7.15	7.02	7.25	7.23	7.21	7.30	6.79
278.0	7.24	7.18	7.24	7.20	7.10	7.10	7.29	7.20	7.15	6.73
273.5	7.29	7.64	7.39	7.33	6.91	7.46	7.30	7.34	7.20	6.86
271.2	7.75	7.91	7.64	7.22	7.46	7.75	7.41	7.94	7.42	7.53
265.0	7.77	7.91	7.68	7.17	7.40	7.69	7.99	7.85	7.61	7.73
261.6	7.69	8.02	7.78	7.32	7.47	7.71	8.01	7.90	7.73	7.78
253.0	7.62	8.04	7.72	7.33	7.48	7.91	8.05	7.81	7.86	7.80
247.0	7.71	7.91	7.89	7.35	7.54	7.69	8.09	7.71	7.85	7.91
243.7	7.75	7.75	7.91	7.41	7.62	7.80	7.94	7.76	8.05	8.05
236.8	7.91	7.96	8.09	7.48		7.68	8.27	8.02	8.22	8.33
231.0	8.07	7.64	8.45	7.55	7.96	7.75	8.17	7.79	8.27	8.30
226.9	8.05	7.47	8.50	7.02	8.02	7.40	8.02	8.03	8.24	8.36
222.6	7.98	7.62	8.49	7.33	7.88	7.85	8.08	7.99	8.30	8.46
213.4	7.98	7.69	8.37	7.79	7.88	7.92	7.97	7.95	8.23	8.55
196.9	8.09	7.84	7.80	8.00	7.97	8.07	7.92	8.07	8.34	8.51
179.0	7.82	7.54	7.60	8.10	7.81	7.75		8.29		8.32
166.1	7.78	8.29	7.81	7.78	8.08	8.73	8.14	8.82	8.45	8.69
162.8	7.85	8.14	8.09	7.88	8.18	8.66	8.12	8.85	8.48	8.77
160.7	7.80	8.09	8.05	7.90	8.06	8.48	8.18	8.61	8.43	8.58
158.0	7.78	8.51	7.66	8.16	8.10	8.30	8.16		8.62	8.61

1990

MP	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13
291.0	7.89	7.16	7.11	7.23	7.31	7.37	7.25	7.18	7.49	7.32
285.4	7.73	7.23	7.35	7.35	7.50	7.27	7.25	7.30	7.57	7.56
278.0	7.68	7.75	7.41	7.27	7.53	7.37	7.21	7.63	7.50	7.57
273.5	7.73	7.65	7.47	7.43	7.73	7.46	7.25	7.63	7.34	7.70
271.2	7.88		7.68	7.51	7.94	8.39	7.92	7.89	7.82	7.90
265.0	7.92	7.93	7.63	7.45	8.09	8.18	7.81	7.87	7.91	7.77
261.6	7.96	7.69	7.74		8.13	8.37	7.84	7.90	7.91	7.72
253.0	7.73	7.70	7.78		8.07	8.24	7.85	7.93	7.88	7.59
247.0	7.66	7.48	7.89		7.67	8.39	7.86	7.93	7.83	7.76
243.7	7.55	7.78	8.98		7.78	8.35	7.91	7.99	8.03	7.22
236.8	7.63	7.73	8.17		8.10	8.40	7.73	8.01	8.24	7.68
231.0	9.57	8.10	7.74	7.84	8.31		7.94	8.50	8.45	8.13
226.9	8.87	7.98	7.65	7.80	8.26		7.68	8.25	8.44	8.21
222.6	8.93	7.94	7.66	7.76	8.12		7.72	8.20	8.49	8.26
213.4	8.85	8.12	7.63	7.75	7.95	7.94	7.63	8.19	8.52	8.28
196.9	8.73	8.02	7.66	7.70	8.08	7.83	7.78	8.18	8.46	8.29
179.0	8.60	7.90	7.60	7.80	7.88	7.72	7.73	8.17	8.23	8.40
174.9	8.66									
166.1	8.63	7.95	7.68	8.00	7.82	7.72	7.77	8.27	8.25	8.20
162.8	8.67	8.06	7.87	8.60	8.29	7.68	7.73	8.23	8.35	8.52
160.7	8.80	8.10	7.70	7.60	7.86	7.58	7.76	8.19	8.83	8.29
158.0		8.10	7.75	7.65	7.74	7.45	7.69	8.05	8.42	8.30

Secchi Disk Readings (in.)

1989

MP	6/15	6/27	7/18	7/20	7/25	8/1	8/3	8/8	8/10	8/16
291.0	24	36	42	44	52	44	36	48	32	38
285.4	18	24	23	21	34	24	28	20	23	28
278.0	11	24	24	18	36	30	28	24	24	26
273.5	11	22	18	18	24	22	24	22	25	26
271.2	8	12	14	10	11	16	17	11	17	14
265.0	12	16	22	10	13	17	26	15	16	17
261.6	14	23	24	7	13	13	27	17	18	22
253.0	13	21	15	6	14	26	27	23	23	19
247.0	16	23	21	7	14	33	6	23	25	27
243.7	8	15	24	5	11	20	18	14	14	22
236.8	13	25	20	8	14	12	23	16	15	11
231.0	9	10	12	7	8	10	11	9		10
226.9	10	13	19	9	8	11	18	11	13	13
222.6	9	14	14	11	9	13	16	12	15	14
213.4	10	17	13	9	9	13	21	16	12	14
196.9	6	11	9	12	11	14	10	15	13	12
179.0	7	8	8	7	12	10		9	10	10
166.1	3	6	6	5	9	8	7	7	9	7
162.8	5	7	8	4	10	7	9	8	11	8
160.7	4	7	8	6	9	7	8	8	11	8
158.0	6	8	8	6	8	6	8	7	10	10

1990

MP	6/11	6/18	6/25	7/2	7/9	7/16	7/23	7/30	8/6	8/13
291.0	42	38	41	24	36	36	16	48	34	38
285.4	26	18	19	20	20	22	16	30	20	16
278.0	23	27	21	20	30	26	13	22	23	21
273.5	21	16	13	16	18	18	10	18	15	20
271.2	7		8	13	10	10	8	11	14	12
265.0	5	15	15	14	12	15	9	14	16	18
261.6	7	12	15		14	11	10	13	14	18
253.0	11	16	18		18	8	8	15	20	24
247.0	11	15	18		19	12	11	17	20	24
243.7	10	18	10		11	6	9	8	10	26
236.8	15	14	16		14	9	13	7	15	27
231.0	12	6	3	1	7		4	12	10	14
226.9	13	7	7	2	10		5	13	17	16
222.6	14	12	7	4	7		5	13	18	17
213.4	15	12	7	2	6	7	5	14	17	12
196.9	18	6	6	2	3	4	9	13	8	8
179.0	6	7	3	2	5	5	5	13	4	8
174.9	7									
166.1	4	4	3	3	4	2	5	10	5	5
162.8	5	4	5	3	3	2	7	10	5	8
160.7		3	3	1	3	3	4	8	5	8
158.0		4	4	2	2	3	5	12	4	6

APPENDIX G1

Statistical Summary of Water Quality Field Data:
DO, Temperature, pH, and Secchi Disk Data for 1989 and 1990

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
158.0	average	8.211	7.70								
	sd	0.341	1.49								
	min	7.660	6.00								
	max	8.620	10.00								
159.4	average			25.51	25.43	25.38	25.36	8.26	7.82	7.85	7.91
	sd			2.13	2.04	2.04	2.02	1.04	0.80	0.98	1.11
	min			21.80	21.80	21.80	21.80	6.91	6.90	6.87	6.87
	max			29.30	28.80	28.70	28.70	9.97	9.59	9.58	10.12
160.7	average	8.218	7.60	25.65	25.46	25.31	25.29	8.16	8.06	7.93	7.97
	sd	0.288	1.84	2.28	2.26	2.11	2.11	0.95	1.03	0.93	1.06
	min	7.800	4.00	21.60	21.50	21.50	21.50	6.87	6.88	6.88	6.94
	max	8.610	11.00	29.50	29.50	28.60	28.60	9.79	10.02	9.48	10.12
161.6	average			25.53	25.37	25.35	25.33	8.60	8.09	7.92	8.00
	sd			2.10	2.05	2.04	2.03	1.38	1.07	1.04	1.21
	min			21.70	21.70	21.70	21.70	6.72	6.71	6.71	6.72
	max			29.10	28.70	28.60	28.50	10.86	9.75	9.61	10.26
162.8	average	8.302	7.70	25.73	25.47	25.13	25.02	8.74	8.06	7.79	7.69
	sd	0.362	2.11	2.24	2.15	2.10	2.10	1.64	1.41	1.09	1.08
	min	7.850	4.00	21.20	21.20	21.10	21.00	6.60	6.49	6.54	6.54
	max	8.850	11.00	29.10	28.80	28.30	28.20	10.93	10.19	9.50	9.72
164.4	average			25.27	25.20	25.12	25.11	8.21	7.65	7.43	7.47
	sd			2.24	2.20	2.18	2.15	1.30	0.97	1.01	1.20
	min			21.00	21.00	21.00	21.00	6.99	6.87	6.06	5.83
	max			28.60	28.50	28.30	28.20	10.51	9.40	9.30	9.85
165.3	average			25.24	25.18	25.11	25.11	8.20	7.90	7.77	7.63
	sd			2.27	2.26	2.22	2.17	1.27	1.12	1.09	1.11
	min			20.70	20.70	20.70	20.80	6.87	6.85	6.77	6.74
	max			28.60	28.50	28.20	28.10	9.96	9.66	9.99	9.90
166.1	average	8.257	6.70	25.41	25.17	25.10	25.07	8.96	7.85	7.74	7.93
	sd	0.404	1.83	2.46	2.26	2.24	2.24	2.73	1.00	1.02	1.31
	min	7.780	3.00	20.70	20.70	20.70	20.70	6.93	6.65	6.55	6.61
	max	8.820	9.00	29.50	28.40	28.20	28.10	15.85	9.52	9.69	10.55
167.0	average			25.64	25.41	25.16	25.00	8.78	8.06	7.71	7.50
	sd			2.52	2.46	2.25	2.23	2.19	1.59	1.31	1.07
	min			20.60	20.60	20.50	20.40	6.09	6.04	5.95	6.57
	max			29.60	29.40	28.30	28.00	13.13	11.47	10.65	9.76
170.9	average			25.38	25.24	25.09	24.96	7.53	7.10	7.07	7.04
	sd			2.10	2.02	1.99	2.00	1.22	1.03	1.20	1.27
	min			21.00	21.00	20.90	20.70	5.46	5.50	5.27	5.19
	max			28.00	27.70	27.50	27.40	9.79	8.69	9.52	9.90

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
174.9	average			26.00	25.87	25.75	25.72	7.29	6.97	6.98	6.91
	sd			1.82	1.81	1.73	1.71	1.31	1.34	1.36	1.25
	min			21.80	21.70	21.80	21.80	5.19	5.06	5.07	5.11
	max			28.10	28.00	28.00	27.90	9.66	10.07	9.95	9.53
177.4	average			26.04	25.94	25.81	25.80	7.42	7.01	7.18	6.85
	sd			1.92	1.88	1.82	1.82	1.29	1.17	1.60	1.28
	min			21.60	21.60	21.60	21.60	4.81	4.74	4.65	4.70
	max			28.60	28.40	28.10	28.10	9.56	8.98	9.88	9.13
179.0	average	7.904	9.00	25.93	25.78	25.76	25.75	7.14	6.89	6.85	6.89
	sd	0.299	1.66	1.86	1.81	1.82	1.80	1.29	1.15	1.30	1.32
	min	7.540	7.00	21.60	21.60	21.60	21.60	4.73	4.69	4.48	4.63
	max	8.320	12.00	28.30	28.20	28.20	28.10	8.98	8.55	9.07	9.28
183.0	average			25.97	25.83	25.78	25.78	7.38	7.06	7.00	7.03
	sd			2.00	1.94	1.94	1.94	1.45	1.38	1.44	1.47
	min			21.30	21.30	21.30	21.30	4.79	5.12	4.72	4.68
	max			28.40	27.90	27.90	27.90	10.03	9.79	9.79	9.72
188.0	average			26.00	25.76	25.70	25.65	7.81	7.46	7.31	7.31
	sd			2.02	2.02	1.98	1.96	1.25	1.07	1.04	1.09
	min			21.20	21.20	21.20	21.20	6.15	6.04	5.96	5.87
	max			28.20	28.20	28.10	28.00	9.96	9.11	9.10	9.06
190.0	average			26.03	25.82	25.70	25.69	7.95	7.50	7.40	7.33
	sd			2.01	2.01	1.98	1.98	1.23	0.95	0.96	1.09
	min			21.20	21.20	21.20	21.20	6.42	6.31	6.22	5.75
	max			28.40	28.40	28.30	28.30	9.83	9.13	9.08	9.08
196.9	average	8.061	11.30	26.15	25.83	25.68	25.67	8.22	7.79	7.70	7.68
	sd	0.218	2.58	2.22	2.03	2.04	2.03	0.87	0.82	0.86	0.94
	min	7.800	6.00	21.00	21.00	20.90	20.90	6.94	6.76	6.58	6.37
	max	8.510	15.00	29.00	28.10	27.90	27.80	10.01	9.32	9.01	8.91
200.4	average			25.98	25.91	25.89	25.89	7.94	7.84	7.84	7.83
	sd			2.11	2.09	2.09	2.07	0.86	0.77	0.82	0.80
	min			21.10	21.10	21.10	21.10	6.97	6.91	6.88	6.90
	max			28.40	28.40	28.40	28.30	9.52	9.07	9.05	8.98
205.4	average			25.87	25.78	25.75	25.74	8.22	7.95	7.91	7.88
	sd			2.13	2.09	2.10	2.09	0.91	0.86	0.92	0.88
	min			21.00	21.00	21.00	21.00	6.89	6.75	6.74	6.75
	max			28.50	28.20	28.20	28.20	9.53	9.14	9.28	9.11
209.4	average			25.97	25.82	25.96	25.74	8.30	7.95	7.94	7.93
	sd			1.96	1.97	2.04	1.97	1.29	1.00	1.04	1.06
	min			21.20	21.20	21.20	21.10	6.77	6.54	6.52	6.55
	max			28.10	28.00	28.00	28.00	10.35	9.45	9.43	9.43

Water Quality Statistics 1989

Mile Pt		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
213.4	average	8.033	13.40	25.71	25.70	25.65	25.65	8.30	8.18	8.14	8.08
	sd	0.268	3.81	1.94	1.91	1.90	1.92	1.13	1.09	1.08	1.07
	min	7.690	9.00	21.00	21.10	21.10	21.00	6.75	6.71	6.70	6.64
	max	8.550	21.00	27.90	27.90	27.90	27.90	9.89	9.82	9.82	9.68
217.1	average			25.75	25.75	25.70	25.71	8.14	8.12	8.11	8.05
	sd			2.01	2.00	1.99	2.02	1.02	1.02	1.05	0.97
	min			21.00	21.00	21.00	20.90	6.60	6.57	6.55	6.57
	max			28.10	28.10	28.10	28.10	9.46	9.34	9.36	9.29
219.8	average			25.69	25.67	25.67	25.68	7.94	8.00	7.98	7.91
	sd			2.06	2.05	2.04	2.04	0.86	1.05	1.06	0.91
	min			20.90	20.90	20.90	20.90	6.62	6.56	6.55	6.57
	max			28.20	28.20	28.20	28.20	9.15	9.96	9.98	9.16
222.6	average	7.998	12.70	25.63	25.52	25.52	25.53	8.30	8.11	8.04	8.08
	sd	0.362	2.41	1.99	2.01	2.01	2.02	1.11	1.10	2.23	1.37
	min	7.330	9.00	20.80	20.80	20.80	20.80	6.87	6.75	6.68	6.65
	max	8.490	16.00	28.00	28.00	28.00	28.00	10.13	10.18	10.44	10.85
224.7	average			25.50	25.47	25.47	25.46	8.49	8.45	8.45	8.47
	sd			2.06	2.05	2.02	2.05	1.04	1.10	1.17	1.23
	min			20.60	20.60	20.70	20.60	7.11	7.10	7.07	7.00
	max			27.90	27.90	27.90	27.90	10.02	10.24	10.42	10.72
226.9	average	7.911	12.50	25.41	25.42	25.40	25.40	8.80	8.69	8.64	8.65
	sd	0.467	8.60	2.05	2.05	2.04	2.04	1.08	1.11	1.16	1.23
	min	7.020	8.00	20.50	20.50	20.50	20.50	7.26	7.28	7.25	7.19
	max	8.500	19.00	27.80	27.80	27.80	27.80	10.48	10.18	10.03	10.34
229.6	average			25.38	25.37	25.36	25.33	8.50	8.49	8.44	8.58
	sd			2.03	2.02	2.02	2.04	0.68	0.74	0.78	1.08
	min			20.40	20.40	20.40	20.30	7.58	7.53	7.48	6.97
	max			27.70	27.70	27.70	27.70	9.36	9.64	9.53	10.30
231.0	average	7.995	9.56	25.39	25.37	25.37	25.37	8.82	8.58	8.59	8.55
	sd	0.305	1.51	1.97	1.98	1.98	1.98	1.35	0.78	0.78	0.73
	min	7.550	7.00	20.60	20.60	20.60	20.60	7.53	7.58	7.66	7.62
	max	8.450	12.00	27.70	27.70	27.70	27.70	12.19	9.74	9.74	9.47
234.5	average			25.65	25.55	25.54	25.52	8.10	7.97	7.84	7.87
	sd			2.19	2.17	2.17	2.17	1.18	1.24	1.18	1.19
	min			20.80	20.80	20.80	20.80	5.89	5.65	5.67	5.70
	max			28.10	28.00	27.90	27.90	9.72	9.72	9.68	9.78
236.8	average	7.996	15.70	25.72	25.47	25.46	25.41	8.03	7.65	7.54	7.56
	sd	0.279	5.42	2.16	2.01	2.01	2.00	1.17	0.85	0.79	0.79
	min	7.480	8.00	20.80	20.80	20.80	20.80	6.02	5.99	5.96	5.95
	max	8.330	25.00	28.00	27.80	27.80	27.70	10.30	8.73	8.46	8.34

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
239.0	average			25.69	25.49	25.46	25.39	7.74	7.71	7.77	7.84
	sd			2.02	2.06	2.08	2.07	0.79	0.80	0.82	0.83
	min			20.90	20.90	20.90	20.90	6.24	6.15	6.19	6.28
	max			27.80	27.70	27.20	27.70	8.54	8.53	8.56	8.72
240.0	average			25.88	25.83	25.86	25.81	7.52	7.43	7.40	7.40
	sd			2.15	2.14	2.13	2.14	0.81	0.80	0.78	0.75
	min			20.80	20.80	20.80	20.80	5.79	5.64	5.68	5.70
	max			27.80	27.80	27.80	27.90	8.43	8.32	8.32	8.25
242.9	average			25.88	25.85	25.85	25.84	7.47	7.40	7.40	7.45
	sd			2.15	2.18	2.18	2.18	0.71	0.70	0.68	0.67
	min			20.80	20.70	20.70	20.70	5.92	5.86	5.86	5.95
	max			28.10	28.10	28.10	28.10	8.14	8.12	8.12	8.11
243.7	average	7.804	15.10	25.91	25.89	25.89	25.88	7.40	7.42	7.44	7.48
	sd	0.197	6.06	2.17	2.17	2.17	2.18	0.67	0.70	0.71	0.74
	min	7.410	5.00	20.80	20.80	20.80	20.80	5.87	5.84	5.80	5.83
	max	8.050	24.00	28.20	28.20	28.20	28.20	8.12	8.20	8.35	8.53
246.0	average			25.94	25.92	25.92	25.90	7.61	7.57	7.57	7.55
	sd			2.23	2.23	2.23	2.21	0.78	0.77	0.77	0.75
	min			20.70	20.70	20.70	20.70	6.10	6.04	6.04	6.03
	max			28.30	28.30	28.30	28.20	8.51	8.40	8.40	8.31
247.0	average	7.765	19.50	25.80	25.67	25.66	25.62	7.60	7.38	7.33	7.32
	sd	0.212	8.67	2.23	2.18	2.17	2.15	0.92	0.95	0.92	0.94
	min	7.350	6.00	20.70	20.70	20.70	20.70	5.61	5.46	5.41	5.35
	max	8.090	33.00	28.50	28.20	28.20	28.10	8.87	8.67	8.51	8.51
250.0	average			25.70	25.71	25.71	25.74	7.54	7.48	7.47	7.49
	sd			2.27	2.22	2.21	2.28	0.90	0.86	0.88	0.89
	min			20.60	20.70	20.70	20.60	5.62	5.57	5.63	5.62
	max			28.60	28.20	28.20	28.20	8.62	8.63	8.89	8.83
253.0	average	7.762	18.70	25.75	25.70	25.66	25.65	7.58	7.46	7.41	7.43
	sd	0.232	6.62	2.30	2.26	2.24	2.23	0.83	0.75	0.74	0.72
	min	7.330	6.00	20.70	20.70	20.70	20.70	5.93	5.90	5.86	5.87
	max	8.050	27.00	28.80	28.50	28.40	28.40	8.75	8.37	8.39	8.43
256.0	average			25.74	25.70	25.70	25.69	7.38	7.28	7.29	7.29
	sd			2.40	2.33	2.33	2.33	0.52	0.52	0.60	0.62
	min			20.60	20.70	20.70	20.70	6.36	6.16	5.90	5.85
	max			29.00	28.70	28.70	28.70	7.93	7.87	7.88	7.92
258.0	average			25.77	25.75	25.74	25.72	7.43	7.40	7.38	7.40
	sd			2.35	2.35	2.35	2.32	0.44	0.65	0.67	0.66
	min			20.70	20.70	20.70	20.70	6.56	6.15	6.13	6.15
	max			28.80	28.70	28.70	28.60	8.25	8.78	8.78	8.76

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
261.6	average	7.741	17.80	25.79	25.75	25.74	25.72	7.36	7.28	7.25	7.25
	sd	0.219	6.20	2.33	2.30	2.29	2.29	0.48	0.52	0.53	0.54
	min	7.320	7.00	20.80	20.80	20.80	20.80	6.64	6.41	6.35	6.35
	max	8.020	27.00	28.60	28.50	28.40	28.40	8.18	8.15	8.14	8.18
263.7	average			25.84	25.81	25.79	25.82	7.47	7.40	7.42	7.43
	sd			2.33	2.31	2.29	2.30	0.55	0.57	0.60	0.62
	min			20.70	20.70	20.70	20.70	6.60	6.61	6.56	6.44
	max			28.60	28.60	28.50	28.50	8.32	8.27	8.31	8.42
265.0	average	7.680	16.40	25.84	25.80	25.77	25.78	7.59	7.50	7.47	7.51
	sd	0.243	4.70	2.38	2.36	2.36	2.34	0.55	0.59	0.58	0.60
	min	7.170	10.00	20.40	20.50	20.40	20.50	6.80	6.47	6.46	6.49
	max	7.990	26.00	28.60	28.60	28.50	28.50	8.57	8.47	8.44	8.59
267.2	average			25.65	25.64	25.64	25.63	7.88	7.82	7.77	7.86
	sd			2.33	2.32	2.32	2.31	0.60	0.60	0.63	0.70
	min			20.30	20.30	20.30	20.30	6.90	6.82	6.60	6.57
	max			28.60	28.60	28.60	28.50	8.58	8.53	8.51	8.73
270.6	average			25.93	25.89	25.89	25.88	7.84	7.75	7.73	7.72
	sd			2.22	2.20	2.20	2.17	0.41	0.47	0.53	0.53
	min			21.00	21.00	21.00	21.10	7.19	6.79	6.66	6.86
	max			28.90	28.90	28.90	28.90	8.53	8.49	8.58	8.52
271.2	average	7.603	13.00	26.01	25.98	25.99	25.98	7.93	7.92	7.91	7.88
	sd	0.235	3.09	2.17	2.18	2.17	2.18	0.23	0.21	0.22	0.28
	min	7.220	8.00	21.20	21.20	21.20	21.20	7.63	7.68	7.67	7.42
	max	7.940	17.00	28.90	28.90	28.90	28.90	8.42	8.39	8.39	8.38
272.4	average			25.59	24.98	24.56	24.45	7.71	7.49	6.73	6.62
	sd			2.40	2.13	2.05	2.07	1.26	1.23	0.71	0.69
	min			21.10	20.90	20.40	20.30	6.40	6.22	6.00	5.86
	max			29.10	27.70	27.10	26.80	10.79	10.35	7.90	7.90
273.5	average	7.272	21.20	24.74	24.59	24.49	24.48	7.34	6.91	6.65	6.63
	sd	0.236	4.47	2.02	1.88	1.83	1.82	0.98	0.58	0.57	0.57
	min	6.860	11.00	21.00	21.00	21.00	21.00	6.20	6.20	6.00	5.93
	max	7.640	26.00	27.50	27.00	26.90	26.90	9.75	7.90	7.90	7.80
276.1	average			25.12	24.73	24.64	24.49	7.14	6.85	6.66	6.52
	sd			2.32	2.14	2.07	1.89	0.64	0.63	0.62	0.88
	min			20.70	20.70	20.70	20.70	6.02	5.97	5.65	4.48
	max			28.50	28.30	28.00	27.00	8.10	8.00	7.90	7.90
278.0	average	7.143	24.50	25.15	24.87	24.70	24.68	6.87	6.66	6.56	6.51
	sd	0.157	6.69	2.51	2.40	2.32	2.30	0.65	0.73	0.83	0.79
	min	6.730	11.00	20.50	20.50	20.50	20.50	5.67	5.47	5.00	5.01
	max	7.290	36.00	29.20	29.00	28.50	28.40	8.20	8.20	8.20	8.00

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
281.0	average			24.54	24.41	24.34	24.33	6.74	6.69	6.59	6.56
	sd			2.08	1.99	1.93	1.92	0.86	0.83	0.84	0.89
	min			20.30	20.30	20.30	20.30	4.95		4.98	4.91
	max			27.20	27.20	27.20	27.20	8.20		8.20	8.20
284.0	average			26.29	25.00	24.72	24.56	7.17		7.05	6.97
	sd			3.01	2.49	2.49	2.42	0.79		0.86	0.90
	min			20.90	20.40	20.20	19.90	5.95	5.64	5.61	5.50
	max			30.00	28.30	28.30	28.00	9.00	8.90	9.00	9.00
285.4	average	7.174	24.30	23.89	23.91	23.88	23.85	7.68	7.69	7.65	7.65
	sd	0.162	4.64	1.85	1.82	1.79	1.78	0.84	0.83	0.83	0.84
	min	6.790	18.00	19.70	19.80	19.80	19.80	6.80	6.77	6.79	6.86
	max	7.350	34.00	25.90	25.90	25.90	25.80	9.80	9.80	9.80	9.80
287.9	average			23.74	23.68	23.68	23.66	4.33	4.36	4.35	4.43
	sd			1.85	1.86	1.86	1.86	1.07	1.17	1.14	1.23
	min			19.50	19.50	19.50	19.50	2.30	2.31	2.37	2.43
	max			25.70	25.70	25.70	25.60	6.20	6.70	6.60	7.00
289.8	average			24.00	23.80	23.77	23.65	4.47	4.39	4.44	4.49
	sd			1.87	1.85	1.82	1.92	1.01	1.13	1.19	1.21
	min			19.60	19.60	19.60	19.50	3.37	3.31	3.33	3.27
	max			25.90	26.00	25.80	25.80	6.20	6.90	7.20	7.20
290.2	average			23.94	23.93	23.90	23.91	4.34	4.39	4.30	4.31
	sd			1.71	1.72	1.70	1.71	1.11	1.12	1.11	1.14
	min			19.70	19.70	19.70	19.70	2.48	2.43	2.41	2.42
	max			25.70	25.70	25.60	25.70	6.00	6.00	6.00	6.20
291.0	average	7.025	39.60	23.89	23.87	23.84	23.89	4.70	4.64	4.68	4.40
	sd	0.222	8.15	1.67	1.67	1.68	1.67	2.00	1.92	1.93	1.87
	min	6.650	24.00	19.70	19.70	19.70	19.70	2.32	2.31	2.30	2.29
	max	7.240	52.00	25.60	25.60	25.60	25.60	7.60	7.40	7.20	7.20
DsP	average			23.78		26.10	24.54	8.83		9.05	9.21
	sd			2.67		1.30	2.23	3.66		3.58	3.98
	min			19.00		24.80	21.40	4.63		5.70	4.64
	max			27.40		27.40	27.40	16.68		12.82	16.82
Dup	average			24.50		26.35	25.23	8.54		10.44	8.60
	sd			3.70		3.32	2.36	1.90		3.86	2.02
	min			17.70		24.00	21.80	6.93		7.71	6.91
	max			30.00		28.70	28.70	13.42		13.17	12.50
Fox	average			24.39	24.28	24.30	24.26	10.53	9.95	9.90	9.88
	sd			2.36	2.31	2.33	2.31	2.26	2.36	2.41	2.38
	min			20.20	20.20	20.20	20.20	7.51	6.25	6.25	6.45
	max			27.80	27.60	27.50	27.50	14.93	14.21	14.22	14.19

Water Quality Statistics 1989

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
Kan	average			24.93	24.25	24.11	23.76	9.21	8.56	8.16	7.39
	sd			2.88	2.50	2.43	2.22	2.13	1.30	1.07	0.99
	min			19.30	19.40	19.40	19.30	6.97	6.97	6.78	6.40
	max			28.00	27.60	27.60	26.60	13.20	10.52	10.00	9.40
Ver	average			25.16	23.98	23.88	24.53	8.53	5.49	7.50	7.04
	sd			2.30	2.79	1.90	2.28	2.84	1.63	1.93	2.03
	min			21.10	21.10	21.10	21.00	4.65	4.06	4.64	3.91
	max			28.40	27.80	27.60	27.80	12.55	7.43	10.85	9.87

Water Quality Statistics 1990

Mile pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
	average	7.917	4.67								
	sd	0.395	3.41								
	min	7.450	2.00								
	max	8.420	12.00								
159.4	average			24.92	24.89	24.90	24.96	7.59	7.71	7.76	7.72
	sd			1.90	1.88	1.89	1.90	1.58	1.68	1.73	1.72
	min			21.60	21.60	21.70	21.70	6.13	6.19	6.21	5.93
	max			27.80	27.80	27.90	28.00	11.30	11.40	11.50	11.20
160.7	average	8.800	4.22	25.01	24.95	24.76	24.99	7.58	7.65	7.84	7.83
	sd	0.470	2.39	1.79	1.87	1.91	1.85	1.67	1.63	1.61	1.71
	min	7.580	1.00	22.30	22.20	22.20	22.30	5.99	6.07	6.05	5.95
	max	8.830	8.00	28.20	28.10	28.10	28.20	11.70	11.50	11.50	11.40
161.6	average			25.14	25.07	25.06	25.01	7.52	7.40	7.49	7.63
	sd			1.76	1.75	1.76	1.76	1.92	1.79	1.84	1.76
	min			22.50	22.50	22.60	22.70	5.96	6.06	6.12	6.17
	max			28.30	28.30	28.40	28.40	12.10	12.00	12.20	11.90
162.8	average	8.200	5.20	25.30	25.00	24.89	24.81	8.31	7.83	7.52	7.60
	sd	0.356	2.49	1.95	1.87	1.83	1.97	2.21	1.93	1.64	1.50
	min	7.680	2.00	22.40	22.30	22.30	22.40	6.47	5.76	6.02	6.12
	max	8.670	1.00	28.80	28.30	28.30	28.40	13.40	11.50	10.90	10.80
164.4	average			25.24	25.08	25.20	24.75	7.18	6.63	6.91	7.13
	sd			1.75	1.78	1.62	1.91	1.66	0.80	1.42	1.28
	min			22.50	22.50	23.00	22.10	5.54	5.41	5.53	6.02
	max			28.30	28.30	28.40	28.50	11.50	7.76	10.30	10.00
165.3	average			24.84	24.80	24.76	24.78	7.11	7.04	7.03	7.23
	sd			1.77	1.81	1.84	1.87	1.52	1.52	1.44	1.47
	min			22.50	22.40	22.40	22.60	5.90	5.51	5.62	6.02
	max			28.20	28.30	28.30	28.50	11.00	10.80	10.50	10.60
166.1	average	8.290	4.50	24.77	24.77	24.68	24.70	7.22	7.23	7.30	7.46
	sd	0.341	2.17	1.58	1.60	1.71	1.70	1.43	1.43	1.28	1.36
	min	7.680	2.00	22.70	22.60	22.50	22.40	5.83	5.82	5.84	5.83
	max	8.630	1.00	27.60	27.60	27.60	27.60	10.80	10.80	10.20	10.30
167.0	average			25.43	24.99	24.73	24.61	7.51	7.31	6.99	7.14
	sd			2.24	1.89	1.58	1.65	2.01	1.84	1.21	1.22
	min			22.70	22.60	22.60	22.50	5.66	5.75	5.82	6.00
	max			30.80	29.10	27.40	27.40	12.20	12.00	9.90	9.50
170.9	average			24.71	24.23	24.78	24.51	7.06	7.02	6.93	7.05
	sd			1.73	1.26	1.52	1.60	1.60	1.70	1.69	1.61
	min			22.50	22.50	23.00	22.60	5.59	5.36	5.44	5.43
	max			28.30	26.30	27.60	27.60	10.90	10.90	10.90	10.80

Water Quality Statistics 1990

Mile Pt.		pH	Sechi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-3	D.O.-M	D.O.-M	D.O.-B
174.9	average	8.660	7.00	25.39	25.04	24.81	24.75	7.52	7.13	6.91	6.98
	sd			2.24	1.73	1.58	1.54	1.63	1.46	1.48	1.42
	min	8.660	7.00	22.80	22.70	22.80	22.90	5.61	5.55	5.39	5.58
	max	8.660	7.00	30.20	27.60	27.40	27.30	10.90	10.80	10.60	10.50
177.4	average			25.09	24.95	24.88	24.87	7.09	7.04	7.03	7.11
	sd			1.83	1.74	1.76	1.71	1.68	1.56	1.42	1.46
	min			22.80	22.80	22.60	22.50	5.44	5.49	5.56	5.70
	max			28.30	27.70	27.60	27.50	11.10	10.90	10.50	10.50
179.0	average	8.300	5.80	24.92	24.84	24.83	24.84	7.00	6.97	6.99	7.06
	sd	0.330	3.85	1.77	1.70	1.70	1.67	1.62	1.54	1.49	1.44
	min	7.600	2.00	22.70	22.70	22.70	22.90	5.43	5.48	5.56	5.66
	max	8.600	13.00	28.00	27.70	27.70	27.70	10.90	10.85	10.80	10.60
183.0	average			24.93	24.87	24.83	24.72	7.05	7.01	7.03	7.11
	sd			1.81	1.97	1.90	1.76	1.60	1.46	1.37	1.35
	min			22.70	22.50	22.50	22.30	5.62	5.68	5.77	5.88
	max			28.40	28.70	28.40	27.70	11.10	10.60	10.40	10.35
188.0	average			24.94	24.79	24.73	24.71	7.29	7.02	6.98	7.05
	sd			1.94	1.83	1.77	1.72	1.65	1.42	1.26	1.24
	min			22.30	22.30	22.50	22.60	5.78	5.80	5.83	5.86
	max			28.60	27.90	27.70	27.60	11.40	10.80	10.30	10.20
190.0	average			25.09	25.04	24.80	24.65	7.42	7.25	7.05	6.88
	sd			2.01	1.99	1.92	1.78	1.68	1.52	1.28	1.53
	min			22.30	22.30	22.20	22.20	6.05	5.87	5.94	4.25
	max			28.40	27.80	27.60	27.50	11.80	11.20	10.30	10.30
196.9	average	8.730	7.70	25.24	2.97	24.81	24.78	7.81	7.58	7.34	7.34
	sd	0.349	4.83	2.10	2.09	2.04	2.03	1.79	1.67	1.27	1.20
	min	7.660	2.00	22.50	22.30	22.00	22.00	6.08	5.92	6.02	6.09
	max	8.730	18.00	29.30	28.60	27.70	27.70	12.40	12.00	10.70	10.50
200.4	average			25.08	24.91	24.84	24.87	7.61	7.49	7.37	7.40
	sd			2.23	2.19	2.06	1.98	1.35	1.26	1.10	1.00
	min			22.20	22.20	22.20		6.19	6.26	6.31	6.30
	max			29.20	28.70	28.00	27.90	11.00	10.80	10.25	9.95
205.4	average			24.81	24.77	24.77	24.75	7.87	7.84	7.81	7.84
	sd			2.15	2.04	1.99	1.94	1.14	1.17	1.11	1.08
	min			21.90	21.90	22.10	22.20	6.29	6.38	6.45	6.48
	max			28.50	28.10	28.00	27.90	10.65	10.80	10.60	10.50
209.4	average			25.12	24.98	24.91	24.91	8.09	8.09	7.97	7.98
	sd			2.22	2.05	1.99	1.91	1.10	1.15	1.13	1.10
	min			21.80	21.80	21.90	22.20	6.61	6.67	6.75	6.80
	max			29.10	28.30	28.00	27.90	10.70	10.95	10.80	10.65

Water Quality Statistics 1990

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
213.4	average	8.860	9.70	24.81	24.72	24.87	24.89	8.11	7.98	7.99	8.05
	sd	0.393	4.95	2.16	2.12	2.03	1.99	1.16	1.13	1.09	1.12
	min	7.630	2.00	21.70	21.70	21.70	21.90	6.65	6.74	6.79	6.82
	max	8.850	17.00	28.30	28.00	27.90	27.90	10.75	10.50	10.40	10.50
217.1	average			25.34	25.21	25.19	25.10	8.42	8.34	8.28	8.26
	sd			2.00	1.89	1.91	2.00	0.82	0.79	0.78	0.77
	min			22.90	22.70	22.70	22.10	6.95	6.98	6.99	7.05
	max			28.80	28.10	28.10	28.00	9.85	9.80	9.80	9.75
219.8	average			25.19	25.07	25.07	24.99	8.42	8.25	8.35	8.42
	sd			1.88	1.93	1.93	1.99	0.85	0.64	0.77	0.88
	min			22.90	22.60	22.60	22.20	6.76	6.84	6.92	6.98
	max			28.00	27.90	27.90	27.80	9.95	9.15	9.80	10.25
222.6	average	8.120	1.78	25.08	24.98	24.91	24.91	8.43	8.32	8.22	8.22
	sd	0.411	5.20	2.08	2.06	1.98	1.98	0.95	0.81	0.75	0.73
	min	7.660	4.00	22.50	22.30	22.30	22.30	6.91	6.96	7.04	7.09
	max	8.930	18.00	28.30	28.10	27.70	27.70	9.80	9.65	9.60	9.50
224.7	average			24.69	24.61	24.49	24.82	8.43	8.41	8.41	8.53
	sd			2.41	2.41	2.69	2.05	0.97	0.95	0.94	0.93
	min			20.00	20.00	19.00	22.00	7.20	7.19	7.19	7.23
	max			27.90	27.80	27.80	27.80	10.25	10.25	10.15	10.25
226.9	average	8.127	1.00	25.16	25.11	25.11	25.07	8.57	8.54	8.44	8.40
	sd	0.395	5.12	2.00	1.97	1.97	1.98	1.12	1.10	0.87	0.96
	min	7.650	2.00	22.00	22.10	22.10	22.00	7.00	7.02	7.07	7.14
	max	8.870	17.00	28.10	28.00	28.00	27.90	10.75	10.75	9.95	10.10
229.6	average			25.28	25.20	25.27	25.28	8.47	8.55	8.50	8.54
	sd			1.93	2.05	1.93	1.92	1.00	1.07	0.95	0.91
	min			22.40	22.40	22.40	22.40	7.18	7.27	7.34	7.38
	max			28.30	28.30	28.30	28.30	9.99	10.10	9.96	9.90
231.0	average	8.287	7.67	25.34	25.34	25.53	25.27	8.88	8.39	8.97	8.83
	sd	0.547	4.56	2.04	1.65	2.26	2.11	1.27	0.67	1.47	1.21
	min	7.740	1.00	22.40	22.40	22.40	22.00	7.39	7.41	7.44	7.44
	max	9.570	14.00	28.60	27.10	28.60	28.60	11.36	9.23	11.24	10.94
234.5	average			24.95	24.69	24.61	24.59	9.04	8.73	8.69	8.80
	sd			2.50	2.31	2.31	2.32	1.10	0.75	0.50	0.50
	min			21.40	21.30	21.30	21.20	7.78	7.79	7.77	7.75
	max			28.80	27.80	27.60	27.60	11.43	10.10	9.39	9.34
236.8	average	7.966	14.44	24.92	24.81	24.73	24.68	8.89	8.39	8.05	8.07
	sd	0.289	5.57	2.27	2.26	2.27	2.27	0.66	0.77	1.08	1.04
	min	7.630	7.00	21.30	21.20	21.10	21.20	7.72	6.76	6.17	6.21
	max	8.400	27.00	28.00	27.60	27.50	27.50	9.80	9.27	9.31	9.13

Water Quality Statistics 1990

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
239.0	average			24.87	24.80	24.77	24.71	8.58	8.53	8.60	8.78
	sd			2.22	2.20	2.20	2.21	0.35	0.36	0.37	0.46
	min			21.40	21.30	21.30	21.20	8.02	7.82	7.76	7.91
	max			27.70	27.60	27.60	27.60	8.99	8.96	8.93	9.54
240.0	average			25.18	25.14	25.12	25.11	8.46	8.41	8.44	8.66
	sd			2.13	2.14	2.12	2.11	0.45	0.46	0.47	0.64
	min			21.90	21.90	21.90	21.90	7.64	7.69	7.68	7.68
	max			27.80	27.70	27.70	27.70	9.28	9.23	9.12	9.79
242.9	average			25.28	25.26	25.24	25.22	8.44	8.49	8.47	8.72
	sd			2.21	2.20	2.18	2.18	0.37	0.45	0.48	0.70
	min			22.00	22.00	22.00	22.00	7.76	7.70	7.65	7.53
	max			28.00	28.00	27.90	27.90	9.12	9.05	9.18	10.11
243.7	average	7.954	12.00	25.27	25.26	25.26	25.26	8.36	8.33	8.40	8.53
	sd	0.498	6.18	2.18	2.15	2.13	2.13	0.58	0.63	0.65	0.72
	min	7.220	6.00	22.10	22.10	22.10	22.10	7.60	7.52	7.56	7.62
	max	8.980	26.00	28.10	28.00	28.00	28.00	9.56	9.58	9.67	9.95
246.0	average			25.69	26.10	25.45	25.68	8.50	8.52	8.39	8.57
	sd			1.91	1.57	2.36	1.93	0.56	0.75	0.30	0.63
	min			23.30	23.30	23.30	23.20	7.81	7.78	7.99	7.78
	max			28.00	26.90	28.00	28.00	9.66	9.71	8.69	9.85
247.0	average	7.830	16.33	25.27	25.21	25.17	25.17	8.19	8.20	8.21	8.37
	sd	0.252	4.47	2.03	2.04	2.03	2.03	0.81	0.80	0.74	0.85
	min	7.480	11.00	22.00	21.90	21.90	21.90	7.11	7.16	7.18	7.21
	max	8.390	24.00	27.90	27.80	27.80	27.80	9.79	9.72	9.43	9.83
250.0	average			25.16	25.13	25.12	25.12	8.29	8.12	8.19	8.32
	sd			1.96	1.91	1.93	1.93	0.87	0.88	1.08	1.23
	min			22.30	22.30	22.30	22.30	7.15	6.90	6.68	6.55
	max			27.90	27.70	27.70	27.70	9.56	9.39	10.11	10.57
253.0	average	7.863	15.33	25.17	25.11	25.12	25.11	8.32	8.00	7.96	8.09
	sd	0.199	5.45	1.93	1.94	1.95	1.94	0.74	0.69	0.77	0.90
	min	7.590	8.00	22.20	22.20	22.20	22.20	7.29	6.85	6.53	6.56
	max	8.240	24.00	27.80	27.70	27.70	27.70	9.40	9.26	9.28	9.60
256.0	average			25.12	25.11	25.12	25.10	8.18	8.19	8.23	8.39
	sd			1.96	1.97	1.96	1.98	0.57	0.54	0.58	0.76
	min			22.30	22.30	22.30	22.30	7.46	7.54	7.54	7.59
	max			27.90	27.90	27.90	27.90	9.12	9.19	9.26	9.74
258.0	average			25.18	25.16	25.15	25.16	8.25	8.26	8.23	8.36
	sd			2.00	1.99	1.98	1.97	0.56	0.53	0.53	0.67
	min			22.30	22.30	22.30	22.30	7.48	7.54	7.55	7.62
	max			28.00	27.90	27.90	27.90	8.92	8.90	8.98	9.24

Water Quality Statistics 1990

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
261.6	average	7.918	12.67	25.30	25.28	25.25	25.24	8.46	8.46	8.55	8.73
	sd	0.218	3.16	2.03	2.00	2.02	2.03	0.61	0.61	0.66	0.75
	min	7.690	7.00	22.30	22.30	22.30	22.30	7.71	7.68	7.65	7.73
	max	8.370	18.00	28.10	28.10	28.10	28.10	9.63	9.56	9.65	9.90
263.7	average			25.44	28.42	25.41	25.41	8.64	8.59	8.52	8.67
	sd			1.97	1.96	1.98	1.98	0.71	0.70	0.80	1.13
	min			22.70	22.70	22.60	22.60	7.70	7.71	7.40	6.66
	max			28.30	28.20	28.20	28.20	9.78	9.75	9.66	10.43
265.0	average	7.856	13.30	25.52	25.53	25.53	25.49	8.56	8.51	8.52	8.74
	sd	0.212	3.77	2.06	2.07	2.07	2.03	0.53	0.58	0.52	0.59
	min	7.450	5.00	22.70	22.70	22.70	22.70	7.80	7.76	7.73	7.79
	max	8.180	18.00	28.20	28.20	28.20	28.10	9.51	9.83	9.53	9.71
267.2	average			25.53	25.53	25.53	25.53	8.51	8.54	8.63	8.90
	sd			2.11	2.11	2.11	2.11	0.43	0.45	0.50	0.63
	min			22.90	22.90	22.90	22.90	7.88	7.88	7.86	8.01
	max			28.70	28.70	28.70	28.70	9.45	9.48	9.49	10.09
270.6	average			25.41	25.39	25.36	25.33	8.55	8.51	8.56	8.77
	sd			1.93	1.90	1.94	1.96	0.33	0.33	0.41	0.57
	min			23.00	23.00	22.90	22.80	7.94	7.96	7.98	8.09
	max			28.10	28.10	28.10	28.10	8.93	8.97	9.23	9.91
271.2	average	7.881	1.33	25.42	25.16	25.78	25.43	8.64	8.66	8.76	8.60
	sd	0.236	2.40	1.90	1.94	1.99	1.86	0.30	0.43	0.22	0.51
	min	7.510	7.00	22.70	22.70	23.20	22.90	8.09	8.01	8.47	7.65
	max	8.390	14.00	28.10	27.90	28.10	28.10	9.10	9.19	9.11	9.26
272.4	average			25.33	24.90	24.10	23.98	7.54	7.03	6.71	6.75
	sd			2.51	2.39	1.68	1.71	0.92	0.79	0.46	0.43
	min			21.30	21.10	21.00	20.90	6.22	6.19	6.18	6.22
	max			29.80	29.20	26.40	26.20	9.54	9.08	7.61	7.58
273.5	average	7.539	16.50	24.53	24.37	24.30	24.24	7.14	6.95	6.71	6.58
	sd	0.172	3.27	1.76	1.74	1.74	1.69	0.77	0.55	0.45	0.41
	min	7.250	1.00	21.40	21.40	21.30	21.30	6.16	6.22	6.20	6.12
	max	7.730	21.00	26.60	26.50	26.30	26.20	8.64	7.94	7.59	7.56
276.1	average			24.85	24.55	24.40	24.31	7.20	6.94	6.72	6.80
	sd			2.09	1.93	1.82	3.73	0.62	0.49	0.35	0.58
	min			21.70	21.60	21.60	21.60	6.37	6.18	6.16	6.17
	max			28.10	27.50	27.20	26.90	8.56	8.02	7.48	8.22
278.0	average	7.492	22.60	24.96	24.57	24.45	24.49	6.97	6.69	6.49	6.46
	sd	0.177	4.60	2.27	2.09	2.06	2.00	0.43	0.28	0.18	0.19
	min	7.210	13.00	21.80	21.70	21.60	21.60	6.31	6.31	6.29	6.14
	max	7.750	3.00	27.90	27.30	27.20	27.10	7.70	7.31	6.91	6.86

Water Quality Statistics 1990

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
281.0	average			24.60	24.24	24.16	24.10	7.05	6.77	6.59	6.50
	sd			1.68	1.72	1.71	1.67	0.39	0.43	0.38	0.41
	min			21.60	21.60	21.60	21.50	6.65	6.28	6.17	6.00
	max			26.70	26.60	26.20	26.10	7.89	7.74	7.11	7.13
284.0	average			26.95	25.53	24.47	24.18	7.43	7.42	7.40	7.41
	sd			2.87	1.96	1.58	1.54	0.35	0.38	0.45	0.50
	min			22.80	22.20	21.80	21.60	7.10	7.02	6.90	6.82
	max			31.50	28.20	26.20	26.10	8.15	8.13	8.38	8.59
285.4	average	7.411	2.70	23.70	23.70	23.70	23.69	7.79	7.76	7.71	7.61
	sd	0.168	4.37	1.63	1.60	1.58	1.50	0.41	0.44	0.49	0.62
	min	7.230	16.00	21.00	21.00	21.00	21.00	7.25	7.11	6.88	6.31
	max	7.730	3.00	26.10	26.00	25.90	25.60	8.59	8.64	8.66	8.67
287.9	average			23.76	23.77	23.75	23.65	4.22	4.17	3.93	3.90
	sd			1.52	1.52	1.52	1.60	1.03	1.03	0.78	0.74
	min			21.00	21.00	21.00	21.00	2.35	2.33	2.10	2.20
	max			25.90	25.90	25.90	25.90	6.34	6.32	4.70	4.70
289.8	average			24.09	23.90	23.85	23.84	4.14	3.84	3.80	3.70
	sd			1.48	1.49	1.50	1.50	1.21	0.91	0.88	0.87
	min			21.20	21.20	21.20	21.20	2.01	2.01	2.00	2.04
	max			26.00	25.90	25.90	25.90	6.16	4.99	4.90	4.86
290.2	average			23.74	23.72	23.70	23.71	3.30	3.31	3.28	3.30
	sd			1.46	1.47	1.48	1.47	0.67	0.64	0.53	0.54
	min			21.30	21.30	21.30	21.30	1.98	2.05	2.31	2.50
	max			25.80	25.80	25.80	25.80	4.42	4.28	4.15	4.07
291.0	average	7.331	35.30	23.76	23.77	23.77	23.80	2.94	2.95	2.94	2.92
	sd	0.225	9.17	1.51	1.48	1.48	1.47	0.56	0.58	0.58	0.60
	min	7.110	16.00	21.40	21.40	21.40	21.40	1.72	1.71	1.71	1.66
	max	7.890	48.00	25.90		25.90	25.90	3.66	3.77	3.77	3.80
DsP	average			25.46	27.57	24.60	25.09	9.29	9.99	8.83	9.36
	sd			2.60	2.12		2.51	2.39	2.09	3.01	2.42
	min			20.50	25.20	24.60	20.40	6.60	8.51	6.84	6.62
	max			29.40	29.30	24.60	29.30	13.22	11.47	12.30	12.45
DuP	averag			23.40	21.80		23.01	7.99	8.18		7.44
	sd			1.83			2.56	0.39			0.53
	min			21.80	21.80		18.90	7.52	8.18		6.60
	max			25.60	21.80		26.70	8.40	8.18		8.05
Fox	average			23.83	24.40	23.16	23.77	11.67	11.78	11.22	11.60
	sd			2.62	2.22	2.46	2.64	3.03	2.84	3.16	2.58
	min			18.90	22.20	18.90	18.90	8.22	8.26	8.29	8.50
	max			27.80	27.80	26.80	27.80	17.40	16.58	16.58	16.41

Water Quality Statistics 1990

Mile Pt.		pH	Secchi	Temp-0	Temp-3	Temp-M	Temp-B	D.O.-0	D.O.-3	D.O.-M	D.O.-B
Kan	average			23.77	23.40	23.27	23.08	7.96	7.68	7.56	7.30
	sd			2.41	2.24	2.17	1.93	0.91	0.43	0.39	0.55
	min			19.50	19.50	19.50	19.50	6.90	6.98	6.98	6.02
	max			28.30	27.20	26.80	25.70	10.21	8.36	8.26	8.00
Ver	average			23.36	24.50	23.03	23.03	8.71	8.54	8.56	8.73
	sd			2.44	3.23	2.29	2.40	0.70	0.72	0.76	0.77
	min			2.50	20.50	21.10	20.50	7.64	7.94	7.60	7.60
	max			27.80	27.60	25.80	27.60	9.46	9.39	9.40	9.50

APPENDIX G2

Statistical Summary of Water Quality Field Data:
Nitrogen Data for 1989 and 1990

Water Quality Ammonia Statistics

1989				
mpt.	average	sd	min	max
291.0	0.4322	0.4052	0.1600	1.4400
285.4	0.4811	0.2860	0.1500	1.1000
278.0	0.5311	0.2523	0.2500	1.0500
273.5	0.2978	0.1938	0.1500	0.7800
271.2	0.3644	0.2369	0.1400	0.8300
265.0	0.2900	0.1211	0.1400	0.4800
261.6	0.2533	0.0808	0.1600	0.3600
253.0	0.2444	0.0637	0.1600	0.3200
247.0	0.2167	0.0837	0.0600	0.3200
243.7	0.2089	0.0704	0.1300	0.3200
236.8	0.1333	0.0304	0.1100	0.2000
231.0	0.0800	0.0731	0.0100	0.2500
226.9	0.0833	0.0758	0.0100	0.2400
222.6	0.0889	0.0488	0.0100	0.1700
213.4	0.0811	0.0501	0.0200	0.1800
196.9	0.0678	0.0449	0.0200	0.1500
179.0	0.0625	0.0345	0.0200	0.1100
166.1	0.0533	0.0296	0.0300	0.1100
162.8	0.0567	0.0283	0.0200	0.1100
160.7	0.0644	0.0384	0.0200	0.1200
158.0	0.0833	0.0671	0.0100	0.1900
1990				
mpt.	average	sd	min	max
291.0	0.4888	0.3194	0.1400	1.0000
285.4	0.5467	0.1931	0.2200	0.7900
278.0	0.3933	0.1766	0.1100	0.6700
273.5	0.1667	0.1046	0.0500	0.3900
271.2	0.3378	0.4735	0.0300	1.5200
265.0	0.2233	0.1627	0.0500	0.5200
261.6	0.2089	0.1329	0.0600	0.5000
253.0	0.2100	0.1435	0.0900	0.5300
247.0	0.2022	0.1335	0.0600	0.4900
243.7	0.1900	0.1604	0.0400	0.5400
236.8	0.2163	0.1553	0.0400	0.5200
231.0	0.1500	0.1713	0.0300	0.5300
226.9	0.0988	0.0749	0.0200	0.2600
222.6	0.0750	0.0256	0.0300	0.1000
213.4	0.0933	0.0394	0.0300	0.1500
196.9	0.0989	0.0499	0.0400	0.1900
179.0	0.1244	0.0863	0.0500	0.3300
166.1	0.1256	0.0442	0.0700	0.2200
162.8	0.1544	0.0693	0.0600	0.2600
160.7	0.2178	0.1694	0.0600	0.5200
158.0	0.4400	0.5101	0.0800	1.3500

Water Quality Nitrate Statistics

1989				
mpt.	average	sd	min	max
291.0	2.9811	0.3594	2.5400	3.5200
285.4	3.0789	0.5096	2.2600	3.7600
278.0	3.4167	0.6262	2.5400	4.4200
273.5	3.5511	0.6714	2.5400	4.8100
271.2	3.3556	1.0160	2.3300	5.0200
265.0	3.4200	0.8613	2.3000	4.8400
261.6	3.6611	1.2046	2.2600	5.6200
253.0	3.6011	1.0892	2.3200	5.2200
247.0	3.6433	1.1737	2.3500	5.5700
243.7	3.7811	1.2140	2.4400	5.7100
236.8	3.4178	1.3491	1.6000	5.3600
231.0	3.6600	1.3378	2.1900	6.3000
226.9	4.0422	1.9588	2.2900	8.3600
222.6	3.6356	1.4115	1.7000	6.3400
213.4	3.5922	1.1952	2.2700	6.1300
196.9	3.5400	1.1205	2.2000	6.0300
179.0	3.5238	1.3582	2.0200	6.4100
166.1	3.2211	1.3817	1.7500	6.4800
162.8	3.0767	1.3987	1.6400	6.4800
160.7	3.2122	1.3360	1.7500	6.4400
158.0	3.1000	1.2592	1.7100	5.9900
1990				
mpt.	average	sd	min	max
291.0	4.1138	1.0053	3.1800	6.3900
285.4	4.1111	0.4788	3.6500	5.2600
278.0	4.4067	0.6920	3.5800	5.9200
273.5	5.1656	1.1033	3.6300	6.6300
271.2	5.3656	1.2056	3.4300	7.4000
265.0	5.5422	1.2147	3.9600	8.1300
261.6	5.9033	1.3835	3.9800	8.6400
253.0	6.0422	1.5593	4.1100	9.0000
247.0	6.1922	1.5898	4.2500	9.2200
243.7	6.0900	2.0472	3.8900	10.2000
236.8	6.5413	1.8708	4.0100	9.8700
231.0	6.6750	1.8029	3.9800	8.8600
226.9	10.2638	3.6116	4.0100	14.6000
222.6	8.6275	4.1363	4.7400	18.0000
213.4	7.7044	3.3257	4.1500	15.5000
196.9	7.8911	3.3926	4.9700	16.4000
179.0	7.3756	3.2857	3.5200	15.3000
166.1	7.2100	2.9224	3.9800	14.4000
162.8	7.1944	2.9168	3.8700	14.3000
160.7	7.3844	2.7407	4.5300	14.2000
158.0	7.0189	3.0401	3.8400	13.9000

Water Quality Nitrite Statistics

1989				
mpt.	average	sd	min	max
291.0	0.1811	0.0701	0.1000	0.2800
285.4	0.2689	0.1827	0.0900	0.6600
278.0	0.1867	0.0733	0.1100	0.3500
273.5	0.1867	0.0957	0.0900	0.3800
271.2	0.2600	0.1444	0.1000	0.5700
265.0	0.1444	0.0439	0.0800	0.2300
261.6	0.1389	0.0372	0.1000	0.2100
253.0	0.1533	0.0346	0.1200	0.2300
247.0	0.1522	0.0327	0.1200	0.2100
243.7	0.1422	0.0282	0.1100	0.1900
236.8	0.1056	0.0219	0.0700	0.1400
231.0	0.1178	0.0179	0.0900	0.1500
226.9	0.1156	0.0207	0.0900	0.1500
222.6	0.1133	0.0194	0.0900	0.1400
213.4	0.1133	0.0200	0.0800	0.1400
196.9	0.1100	0.0308	0.0600	0.1500
179.0	0.1063	0.0507	0.0500	0.2000
166.1	0.0989	0.0544	0.0500	0.2100
162.8	0.0989	0.0540	0.0500	0.2100
160.7	0.0978	0.0484	0.0500	0.1900
158.0	0.1233	0.0906	0.0500	0.3500
1990				
mpt.	average	sd	min	max
291.0	0.1600	0.0685	0.0600	0.2600
285.4	0.2311	0.0404	0.1900	0.3200
278.0	0.2190	0.0367	0.1700	0.2700
273.5	0.1333	0.0545	0.0700	0.2100
271.2	0.1911	0.1408	0.0600	0.4800
265.0	0.1200	0.0304	0.0700	0.1600
261.6	0.1178	0.0295	0.0600	0.1600
253.0	0.1167	0.0312	0.0600	0.1600
247.0	0.1111	0.0318	0.0600	0.1500
243.7	0.0725	0.0212	0.0500	0.1100
236.8	0.1500	0.1213	0.0600	0.4000
231.0	0.0800	0.0288	0.0500	0.1200
226.9	0.0700	0.0316	0.0400	0.1100
222.6	0.0975	0.0362	0.0500	0.1400
213.4	0.1000	0.0394	0.0500	0.1600
196.9	0.1189	0.0491	0.0500	0.2000
179.0	0.1278	0.0429	0.0600	0.1800
166.1	0.1189	0.0379	0.0600	0.1800
162.8	0.1078	0.0565	0.0100	0.2000
160.7	0.1078	0.0565	0.0100	0.2000
158.0	0.1800	0.1267	0.0600	0.4800

APPENDIX H1

Sediment Oxygen Demand (SOD) Results:
Tabulated Results

Illinois Waterway SOD Rates
August 1990

Station	Date	Pool	Σt (min)	ΣDO used (mg/L)	Temp T°C	Gross SOD chamber respiration (g/m ² /day) at			Dark chamber respiration (g/m ² /day) at			Net SOD (g/m ² /day) at		
						T°C	20°C	25°C	T°C	20°C	25°C	T°C	20°C	25°C
164.4R	8/14	Peoria	0	-	-	-	-	-	-	-	-	-	-	-
			14	-0.01	24.6	-0.13	-0.11	-0.14	-	-	-	-	-	-
			49	0.31	24.4	1.71	1.40	1.76	0.77	0.60	0.79	0.94	0.80	0.97
			59	0.43	24.4	2.25	1.84	2.31	0.57	0.45	0.60	1.68	1.39	1.71
			69	0.49	24.4	1.12	0.92	1.16	0.57	0.45	0.60	0.55	0.47	0.56
			79	0.58	24.3	1.69	1.38	1.74	0.57	0.45	0.60	1.12	0.93	1.14
			Avg. for t=14-79		24.4	1.70	1.39	1.75	0.57	0.45	0.60	1.13	0.94	1.15
174.9R	8/14	Peoria	0	-	-	-	-	-	-	-	-	-	-	
			4	0.13	25.5	6.09	4.73	5.95	0.39	0.29	0.37	5.70	4.44	5.58
			7	0.13	25.5	0.00	0.00	0.00	0.39	0.29	0.37	0.00	0.00	0.00
			15	0.24	25.4	2.58	2.01	2.53	0.39	0.29	0.37	2.19	1.72	2.16
			75	0.82	25.2	1.81	1.43	1.79	0.39	0.29	0.37	1.42	1.14	1.42
			Avg. for t= 7-75		25.3	1.90	1.49	1.88	0.39	0.29	0.37	1.51	1.20	1.51
179.0R	8/15	Peoria	0	-	-	-	-	-	-	-	-	-		
			15	0.04	25.2	0.50	0.39	0.50	0.19	0.15	0.19	0.31	0.24	0.31
			70	0.24	25.2	0.68	0.54	0.68	0.42	0.34	0.42	0.26	0.20	0.26
			75	0.30	25.2	2.24	1.77	2.23	0.42	0.34	0.42	1.82	1.43	1.81
			Avg.		25.2	0.75	0.59	0.74	0.42	0.34	0.42	0.33	0.25	0.32
179.0L	8/15	Peoria	0	-	-	-	-	-	-	-	-	-		
			11	0.00	25.0	0.00	0.00	0.00	0.27	0.21	0.27	0.00	0.00	0.00
			52	0.10	25.0	0.46	0.36	0.46	0.27	0.21	0.27	0.19	0.15	0.19
			82	0.20	25.0	0.62	0.50	0.62	0.27	0.21	0.27	0.35	0.29	0.35
			Avg.		25.0	0.46	0.36	0.46	0.27	0.21	0.27	0.19	0.15	0.19
183.0R	8/14	Peoria	0	-	-	-	-	-	-	-	-	-		
			15	0.11	24.4	1.39	1.14	1.43	0.39	0.31	0.40	1.00	0.83	1.03
			35	0.24	24.4	1.23	1.01	1.27	0.39	0.31	0.40	0.84	0.70	0.87
			45	0.30	24.4	1.14	0.93	1.17	0.39	0.31	0.40	0.75	0.62	0.77
			75	0.61	24.4	1.96	1.60	2.01	0.39	0.31	0.40	1.57	1.29	1.61
			Avg.		24.4	1.54	1.26	1.58	0.39	0.31	0.40	1.15	0.95	1.18
187.5R	8/15	Peoria	0	-	-	-	-	-	-	-	-	-		
			10	0.07	25.8	1.31	1.00	1.26	0.18	0.14	0.17	1.13	0.86	1.09
			35	0.30	25.6	1.72	1.33	1.68	0.39	0.30	0.37	1.54	1.19	1.51
			60	0.43	25.5	0.97	0.76	0.95	0.39	0.30	0.37	0.79	0.62	0.78
			75	0.46	25.5	0.37	0.29	0.37	0.39	0.30	0.37	0.19	0.15	0.20
			Avg.		25.6	1.15	0.89	1.12	0.39	0.30	0.37	0.97	0.75	0.95
193.0L	8/15	Peoria	0	-	-	-	-	-	-	-	-			
			16	0.09	25.6	1.05	0.81	1.03	0.45	0.34	0.42	0.60	0.47	0.63
			76	0.53	25.6	1.37	1.06	1.34	0.45	0.34	0.42	0.92	0.72	0.92
			Avg.		25.6	1.31	1.01	1.27	0.45	0.34	0.42	0.86	0.67	0.85
198.9L	8/16	Peoria	0	-	-	-	-	-	-	-	-			
			19	0.04	26.3	0.39	0.30	0.37	0.34	0.25	0.32	0.05	0.05	0.05
			34	0.13	26.3	1.12	0.84	1.06	0.34	0.25	0.32	0.78	0.59	0.74
			44	0.17	26.3	0.75	0.56	0.71	0.34	0.25	0.32	0.41	0.31	0.39
			74	0.35	26.4	1.12	0.84	1.05	0.34	0.25	0.32	0.78	0.59	0.73
			Avg.		26.3	0.89	0.66	0.83	0.34	0.25	0.32	0.55	0.41	0.51

Illinois Waterway SOD Rates
August 1990 (Continued)

Station	Date	Pool	Σt (min)	ΣDO used (mg/L)	Temp T°C	Gross SOD chamber respiration (g/m ² /day) at			Dark chamber respiration (g/m ² /day) at			Net SOD (g/m ² /day) at		
						T°C	20°C	25°C	T°C	20°C	25°C	T°C	20°C	25°C
204.6L	8/15	Peoria	0	-	-	-	-	-	-	-	-	-	-	-
			10	0.09	25.3	1.71	1.34	1.68	0.35	0.26	0.33	1.36	1.08	1.35
			20	0.13	25.3	0.76	0.59	0.75	0.35	0.26	0.33	0.41	0.33	0.42
			45	0.18	25.3	0.38	0.30	0.37	0.35	0.26	0.33	0.03	0.04	0.04
			55	0.30	25.3	2.27	1.78	2.24	0.35	0.26	0.33	1.92	1.52	1.91
			65	0.16	25.3	9.90	-7.79	9.80	0.35	0.26	0.33	0.00	0.00	0.00
			Avg. for t = 0-55		25.3	1.03	0.81	1.02	0.35	0.26	0.33	0.68	0.55	0.69
208.2L	8/15	Peoria	0	-	-	-	-	-	-	-	-	-	-	-
			5	0.01	25.5	0.38	0.29	0.37	0.00	0.00	0.00	0.00	0.00	0.00
			10	0.15	25.5	5.31	4.12	5.19	0.46	0.34	0.43	4.85	3.78	4.76
			45	0.68	25.4	2.87	2.24	2.82	0.46	0.34	0.43	2.41	1.90	2.39
			55	0.73	25.5	0.95	0.74	0.93	0.28	0.22	0.27	0.67	0.47	0.66
			65	0.85	25.5	2.27	1.77	2.22	0.36	0.25	0.34	1.91	1.52	1.86
			Avg. for t = 5-65		25.5	2.65	2.06	2.59	0.36	0.25	0.34	2.29	1.81	2.23
212.OL	8/15	Peoria	0	-	-	-	-	-	-	-	-	-	-	-
			8	0.02	25.0	0.47	0.38	0.47	0.20	0.15	0.20	0.27	0.23	0.27
			28	0.17	25.0	1.42	1.13	1.42	0.29	0.22	0.27	1.13	0.91	1.15
			43	0.38	25.1	2.65	2.10	2.64	0.29	0.22	0.27	2.36	1.88	2.37
			73	1.15	25.1	4.87	3.85	4.84	0.29	0.22	0.27	4.58	3.63	4.57
			83	1.25	25.1	1.90	1.50	1.89	0.29	0.22	0.27	1.61	1.28	1.62
			Avg. for t = 8-83		25.1	3.11	2.46	3.09	0.29	0.22	0.27	2.82	2.24	2.82
222.OL	8/15	Peoria	0	-	-	-	-	-	-	-	-	-	-	-
			10	0.02	24.9	0.38	0.30	0.38	0.24	0.18	0.24	0.14	0.12	0.14
			25	0.10	24.9	1.01	0.81	1.02	0.24	0.18	0.24	0.77	0.63	0.78
			50	0.43	24.9	2.50	2.00	2.51	0.24	0.18	0.24	2.26	1.82	2.27
			75	0.69	24.9	1.97	1.57	1.98	0.24	0.18	0.24	1.73	1.39	1.74
						Avg. for t = 10-75		24.9	1.95	1.56	1.96	0.24	0.18	0.24
231.7R	8/16	S.R.	0	-	-	-	-	-	-	-	-	-	-	-
			6	0.01	24.8	0.32	0.25	0.32	0.51	0.39	0.50	0.00	0.00	0.00
			21	0.15	24.8	1.77	1.42	1.79	0.51	0.39	0.50	1.26	1.03	1.29
			41	0.24	24.8	0.85	0.68	0.86	0.51	0.39	0.50	0.34	0.29	0.36
			56	0.38	24.8	1.77	1.42	1.79	0.51	0.39	0.50	1.26	1.03	1.29
			81	0.74	24.8	2.73	2.19	2.76	0.51	0.39	0.50	2.22	1.80	2.26
			Avg. for t = 6-81		24.8	1.85	1.48	1.86	0.51	0.39	0.50	1.34	1.09	1.36
234.2L	8/16	S.R.	0	-	-	-	-	-	-	-	-	-	-	-
			3	0	25.0	0.00	0.00	0.00	0.54	0.41	0.54	0.00	0.00	0.00
			18	0.08	25.0	1.01	0.80	1.01	0.54	0.41	0.54	0.47	0.39	0.47
			28	0.24	25.0	3.03	2.41	3.03	0.54	0.41	0.54	2.49	2.00	2.49
			38	0.31	24.9	1.33	1.06	1.33	0.54	0.41	0.54	0.79	0.65	0.79
			58	0.70	24.9	3.70	2.95	3.71	0.54	0.41	0.54	3.16	2.54	3.17
			83	1.32	25.0	4.70	3.74	4.70	0.44	0.33	0.44	4.26	3.41	4.26
			Avg. for t = 3-83		25.0	3.13	2.49	3.13	0.48	0.36	0.48	2.65	2.13	2.65
242.0	No SOD - Bottom consists of rocks, boulders, hard-pan clay													

Illinois Waterway SOD Rates
August 1990 (Continued)

Station	Date	Pool	Σt (min)	ΣDO used (mg/L)	Temp T°C	Gross SOD chamber respiration (g/m ² /day) at			Dark chamber respiration (g/m ² /day) at			Net SOD (g/m ² /day) at		
						T°C	20°C	25°C	T°C	20°C	25°C	T°C	20°C	25°C
247.1C	8/16	Mar.	0	-	-	-	-	-	-	-	-	-	-	-
			8	0.07	26.2	1.66	1.25	1.57	1.00	0.75	0.95	0.66	0.50	0.62
			39	0.09	26.2	0.12	0.09	0.12	0.34	0.25	0.30	0.00	0.00	0.00
			54	0.16	26.2	0.89	0.67	0.84	0.34	0.25	0.30	0.55	0.42	0.54
			59	0.27	26.2	4.17	3.14	3.95	0.34	0.25	0.30	3.83	2.89	3.65
			74	0.14	26.2	-1.64	1.24	-1.55	0.34	0.25	0.30	0.00	0.00	0.00
			Avg. for t = 8-59		26.2	0.74	0.56	0.70	0.34	0.25	0.34	0.40	0.31	0.36
263.1R	8/13	Mar.	0	-	-	-	-	-	-	-	-	-	-	-
			27	0.08	26.2	0.62	0.46	0.58	0.00	0.00	0.00	0.62	0.46	0.58
			62	0.30	26.2	1.31	0.98	1.24	0.29	0.21	0.27	1.02	0.77	0.97
			77	0.42	26.2	1.66	1.25	1.57	0.29	0.21	0.27	1.37	1.04	1.30
						Avg.	26.2	1.13	0.85	1.07	0.18	0.13	0.17	0.95
271.7C	8/27	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			13	0.33	26.1	4.81	3.64	4.58	0.36	0.25	0.32	4.45	3.39	4.26
			23	0.49	26.1	3.03	2.29	2.88	0.36	0.25	0.32	2.67	2.04	2.56
			58	0.72	26.0	1.25	0.95	1.19	0.36	0.25	0.32	0.89	0.70	0.87
			83	0.85	26.1	0.99	0.74	0.94	0.36	0.25	0.32	0.63	0.49	0.62
						Avg. for t = 23-83	26.1	1.14	0.86	1.08	0.36	0.25	0.32	0.78
			Avg.	26.1	1.94	1.47	1.85	0.36	0.25	0.32	1.58	1.22	1.53	
275.5L	8/27	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			19	0.13	27.1	1.30	0.94	1.18	0.48	0.35	0.44	0.82	0.59	0.74
			34	0.18	26.7	0.63	0.46	0.58	0.37	0.27	0.34	0.26	0.19	0.24
			69	0.43	26.6	1.35	1.00	1.26	0.37	0.27	0.34	0.98	0.73	0.92
			84	0.57	26.6	1.77	1.31	1.64	0.37	0.27	0.34	1.40	1.04	1.30
						Avg.	26.7	1.29	0.95	1.19	0.40	0.29	0.36	0.92
276.9R	8/27	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			23	0.07	26.9	0.58	0.42	0.53	0.16	0.12	0.15	0.42	0.30	0.38
			38	0.16	26.9	1.14	0.83	1.04	0.26	0.19	0.24	0.88	0.64	0.80
			43	0.25	26.9	3.41	2.49	3.13	0.26	0.19	0.24	3.15	2.30	2.89
			68	0.41	26.9	1.21	0.88	1.11	0.26	0.19	0.24	0.50	0.36	0.45
						Avg.	26.9	1.07	0.78	0.98	0.25	0.18	0.23	0.81
277.4L	8/28	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			25	0.01	28.2	0.08	0.05	0.07	0.08	0.05	0.07	0.00	0.00	0.00
			80	0.08	28.2	0.24	0.17	0.21	0.10	0.08	0.09	0.14	0.07	0.11
						Avg.	28.2	0.19	0.13	0.16	0.10	0.08	0.09	0.09
278.0L	8/28	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			22	0.10	28.1	0.86	0.59	0.75	0.03	0.02	0.03	0.83	0.57	0.72
			37	0.10	28.1	0.00	0.00	0.00	0.22	0.15	0.19	0.00	0.00	0.00
			72	0.43	27.9	1.79	1.24	1.56	0.22	0.15	0.19	1.57	1.09	1.37
			82	0.43	27.8	0.00	0.00	0.00	0.022	0.15	0.19	0.00	0.00	0.00
						Avg. for t = 0-72	28.0	1.13	0.78	0.99	0.18	0.13	0.16	0.95

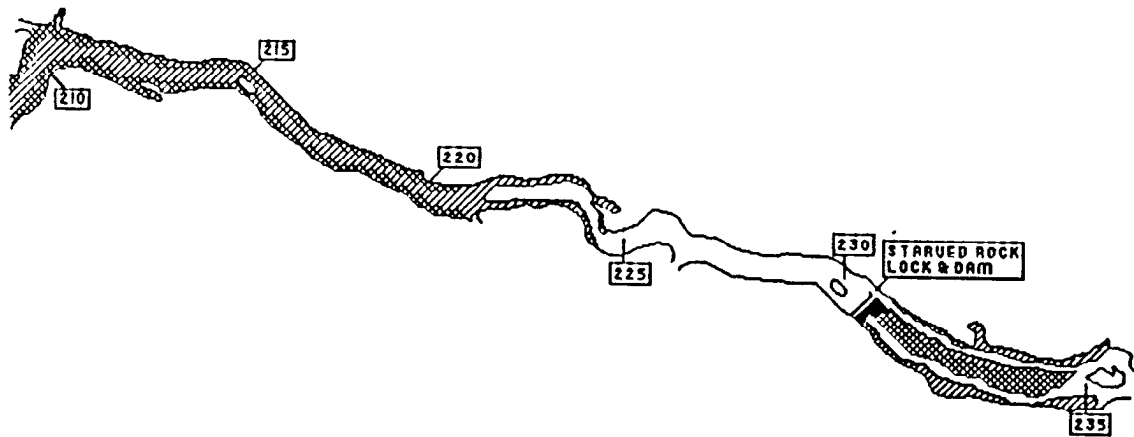
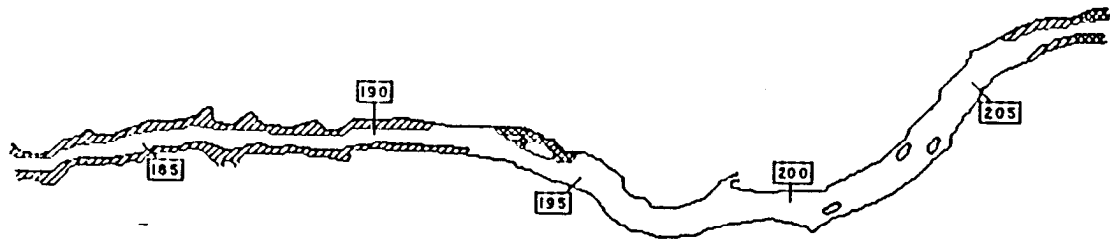
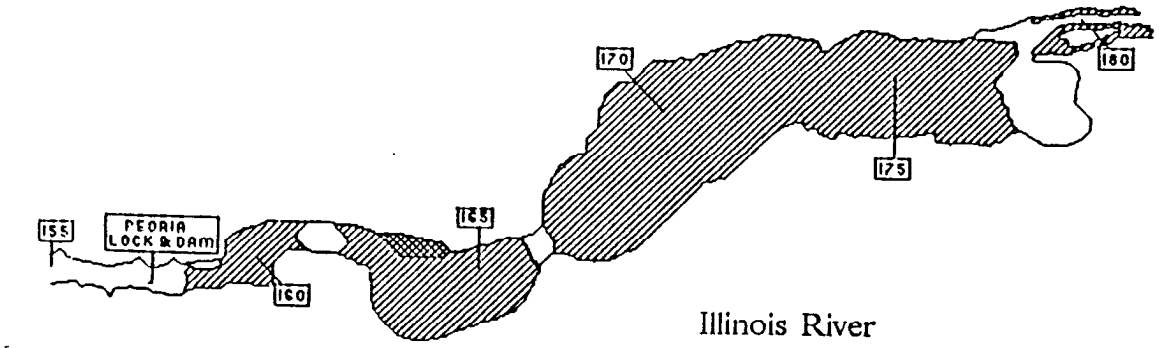
Illinois Waterway SOD Rates
August 1990 (Concluded)

Station	Date	Pool	Σt (min)	ΣDO used (mg/L)	Temp T°C	Gross SOD chamber respiration (g/m ² /day) at			Dark chamber respiration (g/m ² /day) at			Net SOD (g/m ² /day) at		
						T°C	20°C	25°C	T°C	20°C	25°C	T°C	20°C	25°C
278.9R	8/28	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			42	0.23	27.5	1.04	0.74	0.93	0.25	0.17	0.22	0.79	0.57	0.71
			62	0.28	27.4	0.47	0.34	0.42	0.25	0.17	0.22	0.22	0.17	0.20
			82	0.39	27.4	1.04	0.74	0.93	0.25	0.17	0.22	0.79	0.57	0.71
			Avg.		27.4	0.90	0.64	0.81	0.25	0.17	0.22	0.65	0.47	0.59
280.6L	8/28	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			19	0.06	27.6	0.60	0.42	0.53	0.27	0.19	0.24	0.33	0.23	0.29
			39	0.15	27.6	0.85	0.60	0.76	0.27	0.19	0.24	0.58	0.41	0.52
			49	0.23	27.7	1.52	1.06	1.34	0.27	0.19	0.24	1.25	0.87	1.10
			79	0.39	27.7	1.01	0.71	0.89	0.27	0.19	0.24	0.74	0.52	0.65
			Avg.		27.7	0.94	0.66	0.83	0.27	0.19	0.24	0.67	0.47	0.59
281.4R	8/29	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			28	0.28	26.8	1.90	1.39	1.75	0.20	0.15	0.18	1.70	1.24	1.57
			48	0.39	26.8	1.04	0.76	0.96	0.20	0.15	0.18	0.84	0.61	0.78
			83	0.51	26.8	0.65	0.48	0.60	0.20	0.15	0.18	0.45	0.33	0.42
			Avg.		26.8	1.16	0.85	1.07	0.20	0.15	0.18	0.96	0.70	0.89
282.3L	8/29	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			5	0.05	26.9	1.90	1.38	1.74	0.20	0.15	0.18	1.70	1.23	1.56
			80	0.10	26.9	0.13	0.09	0.12	0.20	0.15	0.18	0.00	0.00	0.00
			Avg.		26.9	0.33	0.24	0.30	0.20	0.15	0.18	0.13	0.09	0.12
282.3C	8/29	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			5	0.06	26.8	2.27	1.66	2.09	0.20	0.15	0.18	2.07	1.51	1.91
			75	0.13	26.9	0.19	0.14	0.17	0.20	0.15	0.18	0.00	0.00	0.00
			Avg.		26.9	0.33	0.24	0.30	0.20	0.15	0.18	0.13	0.09	0.12
282.8R	8/29	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			33	0.13	28.0	0.75	0.52	0.65	0.22	0.16	0.19	0.53	0.36	0.49
			58	0.67	28.1	4.09	2.82	3.55	0.22	0.16	0.19	3.87	2.66	3.39
			83	0.77	28.4	0.76	0.52	0.65	0.22	0.16	0.19	0.54	0.36	0.49
			Avg.		28.1	1.76	1.21	1.53	0.22	0.16	0.19	1.54	1.05	1.37
283.6R	8/29	D.I.	0	-	-	-	-	-	-	-	-	-	-	-
			27	0.12	28.5	0.84	0.57	0.72	0.22	0.16	0.19	0.62	0.41	0.53
			29	0.19	28.4	6.64	4.51	5.68	0.22	0.16	0.19	6.42	4.35	5.49
			62	0.28	28.2	0.52	0.35	0.45	0.22	0.16	0.19	0.30	0.19	0.26
			82	0.39	28.1	1.04	0.72	0.90	0.22	0.16	0.19	0.82	0.56	0.71
			Avg.		28.3	0.90	0.62	0.77	0.22	0.16	0.19	0.68	0.46	0.58
286.5C	8/30	B.R.	0	-	-	-	-	-	-	-	-	-	-	-
			5	0.20	27.1	7.58	5.47	6.89	0.21	0.15	0.19	7.37	5.32	6.70
			10	0.25	27.1	1.90	1.37	1.72	0.21	0.15	0.19	1.69	1.22	1.53
			23	0.34	27.1	1.31	0.95	1.19	0.21	0.15	0.19	1.10	0.80	1.00
			98	0.50	27.1	0.40	0.29	0.37	0.21	0.15	0.19	0.19	0.14	0.18
			Avg. for t =10-98		27.1	0.54	0.39	0.49	0.21	0.15	0.19	0.33	0.24	0.30

APPENDIX H2

**Sediment Oxygen Demand (SOD) Results:
Areal Distribution Maps**

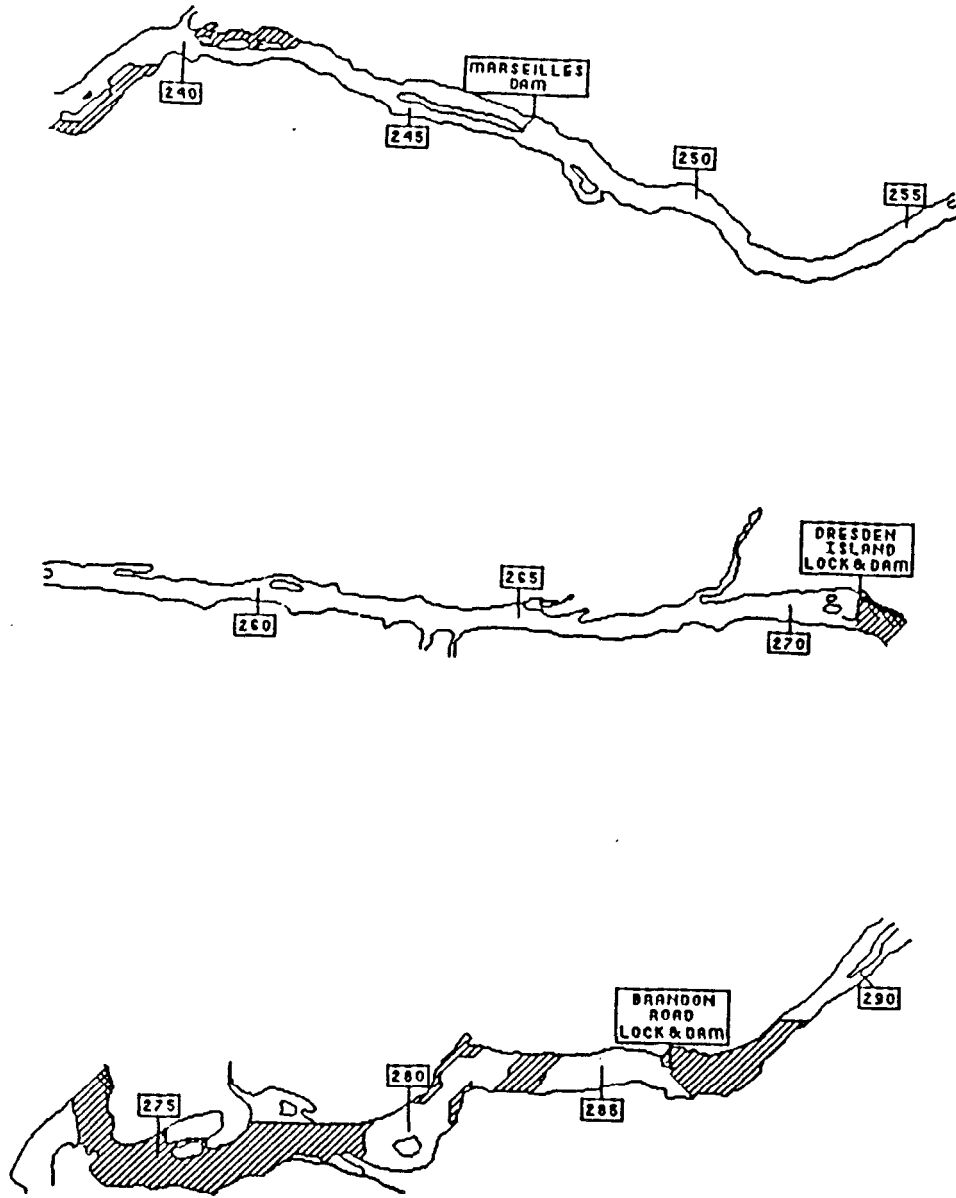
1990 Sediment Oxygen Demand Rates



EXPLANATION
g/m²/day

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

1990 Sediment Oxygen Demand Rates

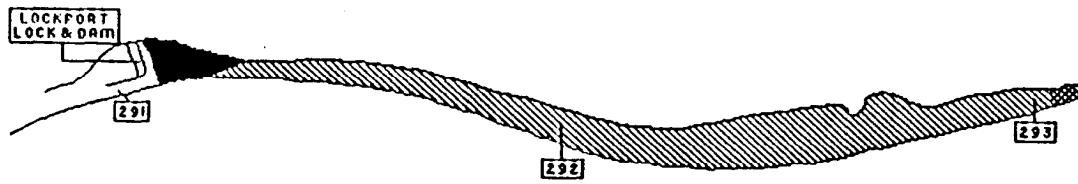


DesPlaines River

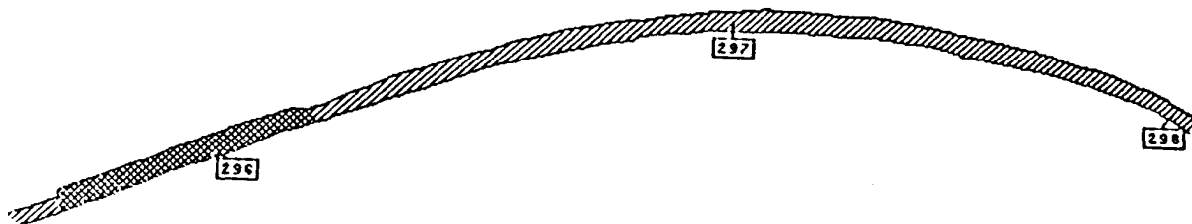
EXPLANATION
g/m²/day

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

1990 Sediment Oxygen Demand Rates



Chicago Sanitary & Ship Canal

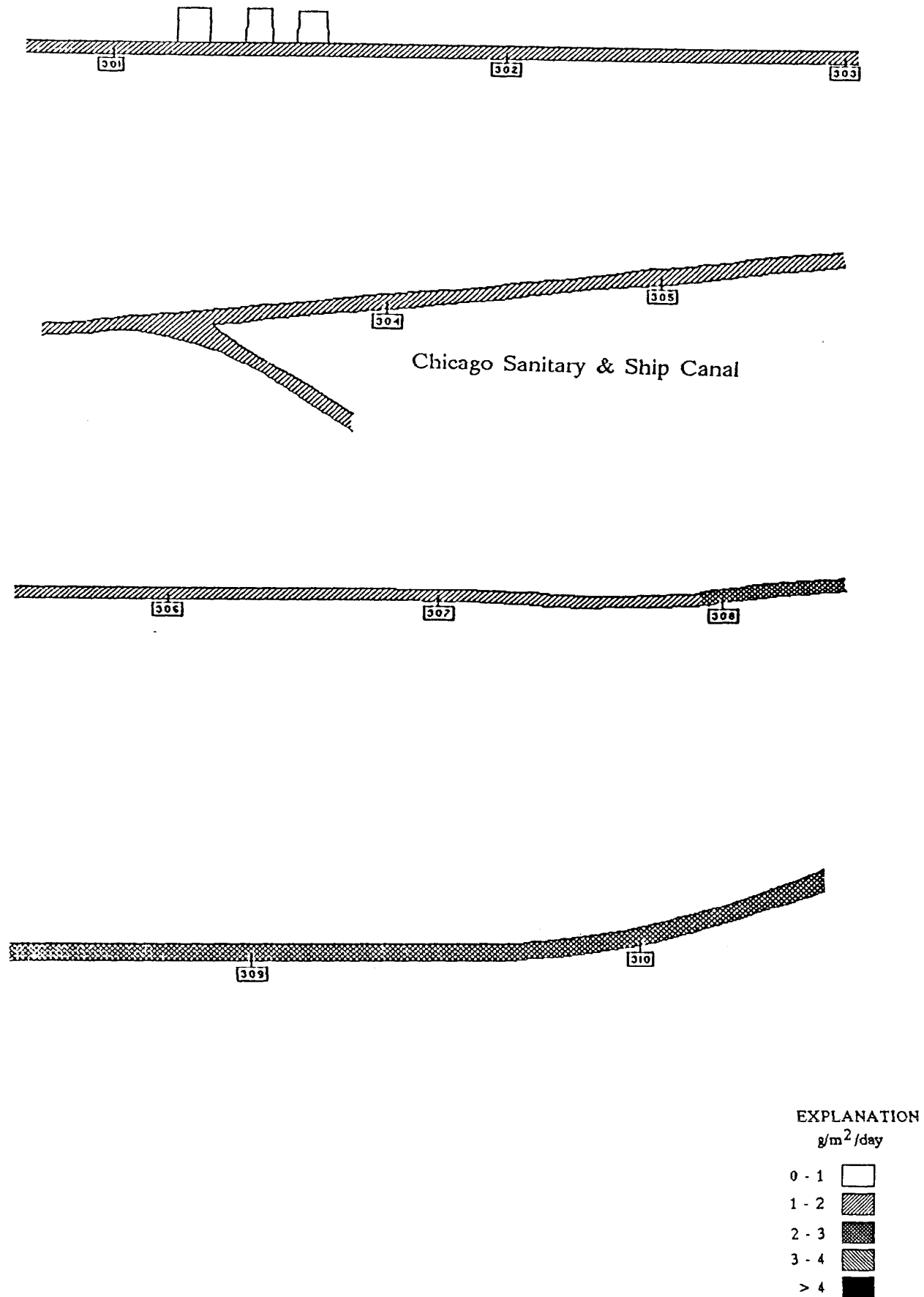


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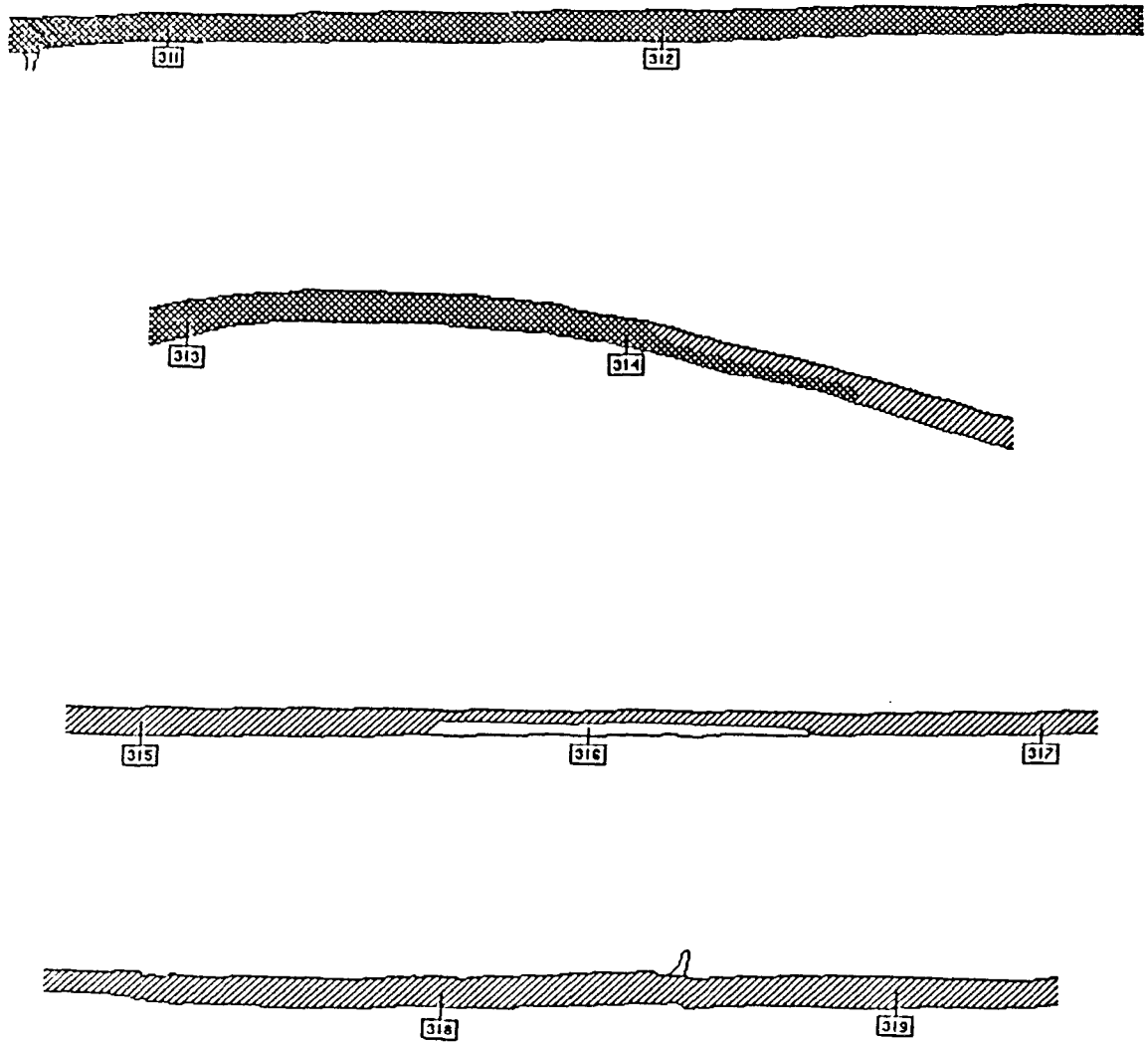
$g/m^2/day$

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

1990 Sediment Oxygen Demand Rates



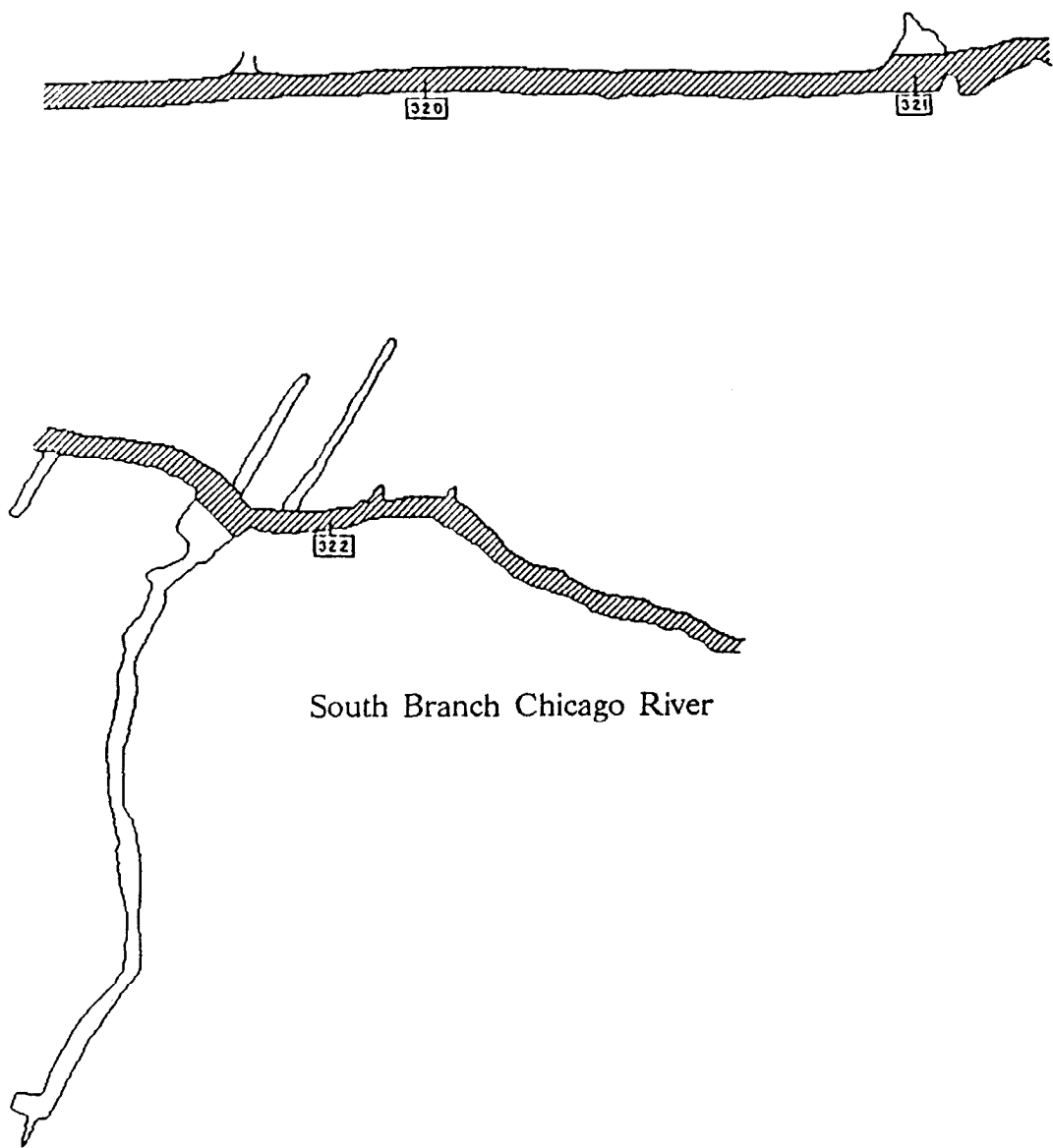
1990 Sediment Oxygen Demand Rates



EXPLANATION g/m²/day






0 - 1	
1 - 2	
2 - 3	
3 - 4	
> 4	

1990 Sediment oxygen Demand Rates

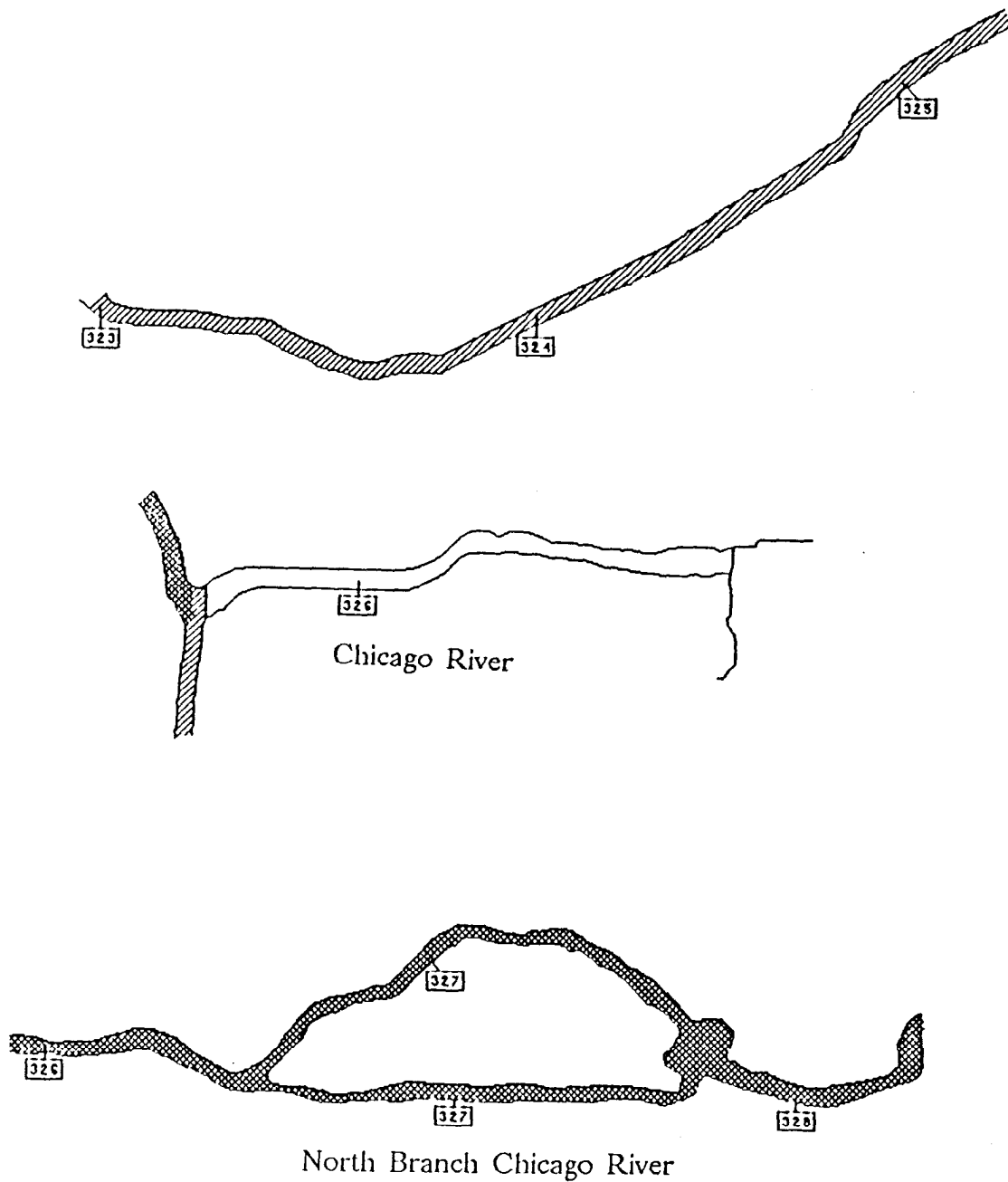


South Branch Chicago River

EXPLANATION
g/m²/day

- 0 - 1 
- 1 - 2 
- 2 - 3 
- 3 - 4 
- > 4 

1990 Sediment Oxygen Demand Rates

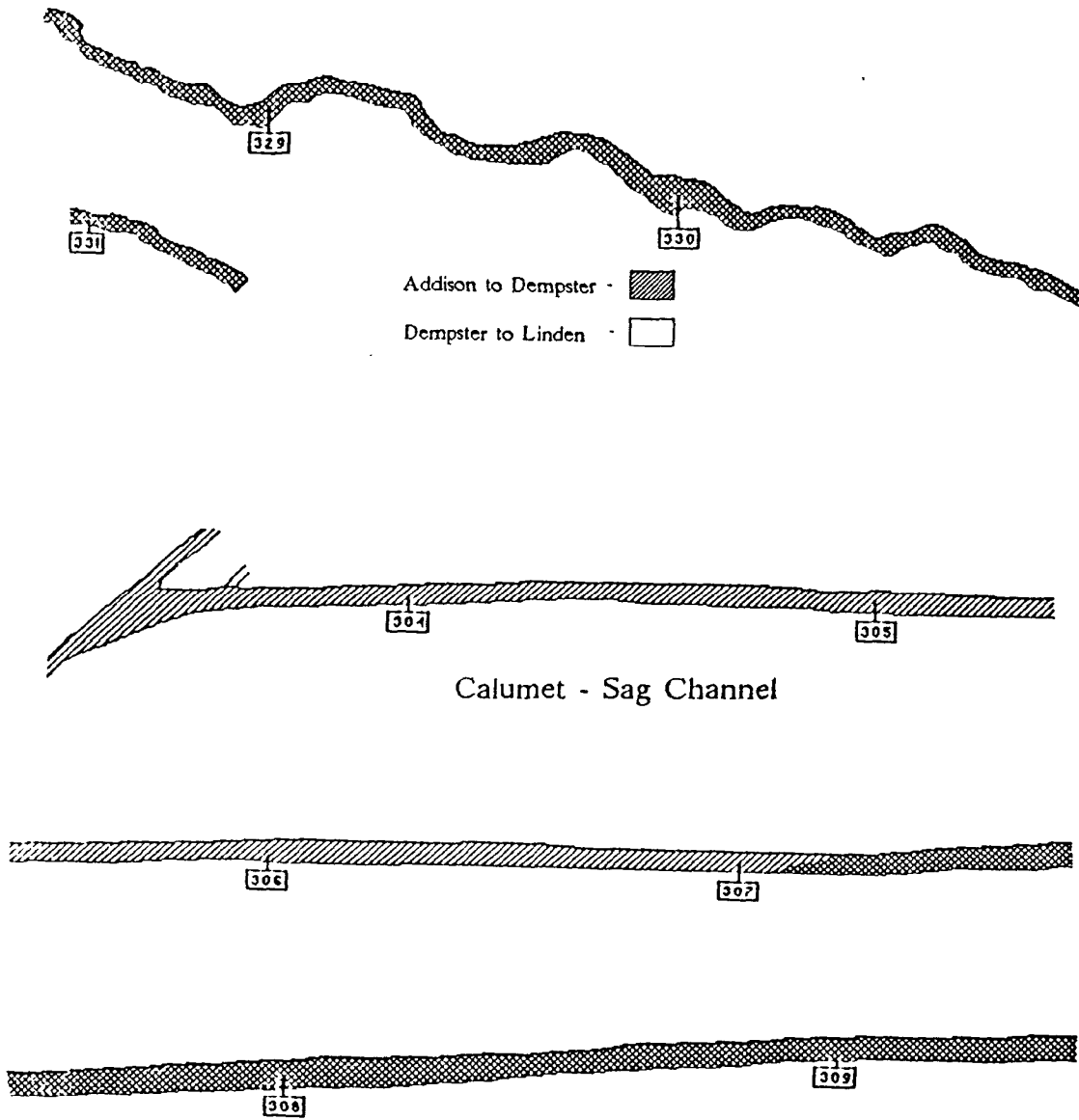


EXPLANATION

g/m²/day

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

1990 Sediment oxygen Demand Rates

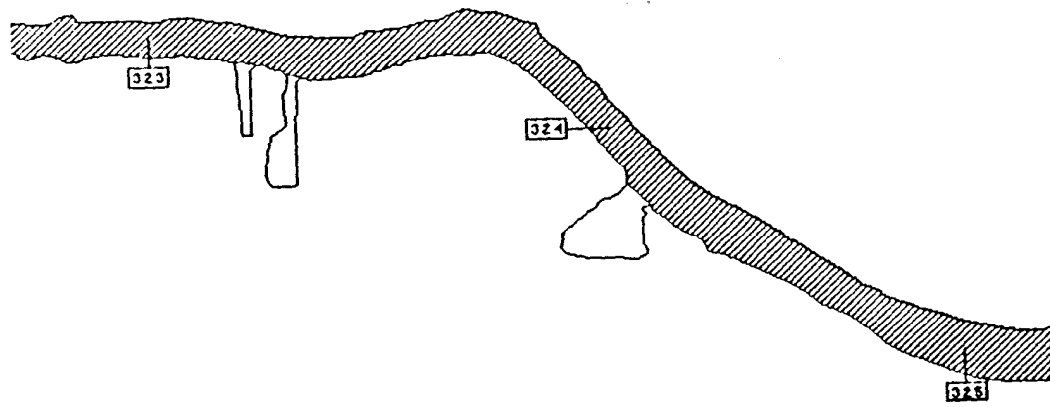
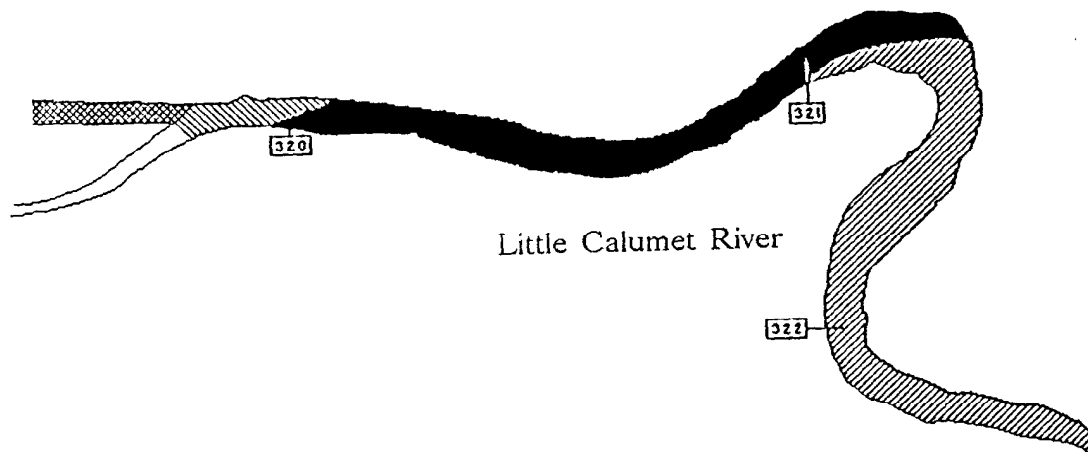


EXPLANATION






g/m²/day

- 0 - 1 [white box]
- 1 - 2 [diagonal hatching]
- 2 - 3 [cross-hatching]
- 3 - 4 [horizontal hatching]
- > 4 [solid black box]

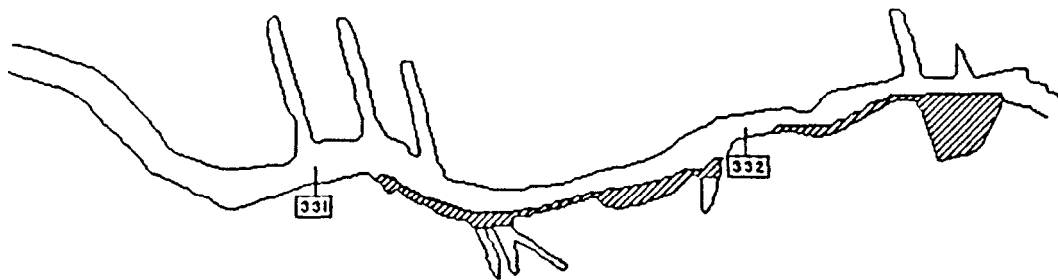
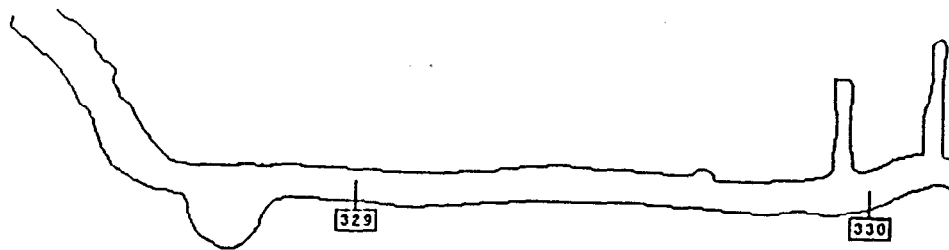
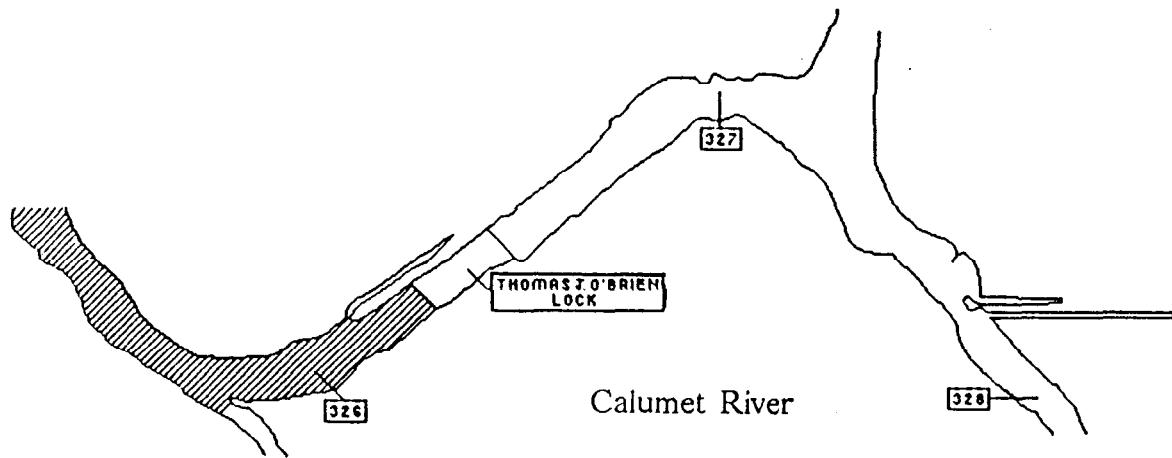
1990 Sediment Oxygen Demand Rates








EXPLANATION
g/m²/day

- 0 - 1 
- 1 - 2 
- 2 - 3 
- 3 - 4 
- > 4 

1990 Sediment Oxygen Demand Rates



EXPLANATION
g/m²/day

- 0 - 1 
- 1 - 2 
- 2 - 3 
- 3 - 4 
- > 4 

APPENDIX H3

Sediment Oxygen Demand (SOD) Results:
Sediment Descriptions

Field Characteristics of Benthic
Sediments at SOD Measuring Sites

Date (1990)	Water Course	Station	Physical Characteristics		
			Description	Solids (%)	V. Solids (%)
8/30	Des Plaines River	286.5	<p>Field - 1½ inch watery gelatinous layer of brownish/black fine gritty silt atop dense, black medium silt. Much woody detritus and many sticks. Some leeches. Petroleum appearance and odor.</p> <p>Sieved - Mostly woody detritus with some leafy detritus and coarse sand Shell fragments some whole clam and snail shells. At least one live fingernail clam. Petroleum odor.</p> <p>Lab - Hard clay with a large amount of black charcoal-like ash. Petroleum odor.</p>	48.3	10.2
8/29	Des Plaines River	283.6	<p>Field - Thin, watery layer of gray fine sand atop gray/brown silty woody detritus. Shell fragments, whole clam shells. Some whole snail shells. Many twigs.</p> <p>Sieved - Coarse sand much pulverized to woody detritus. Leafy detritus. Fragmented and whole clam and snail shells.</p> <p>Lab - Lightweight, light gray powder ash. Many small whole and half clam shells and small snail shells.</p>	36.9	10.2
8/29	Des Plaines River	282.8	<p>Field - Thin watery layer atop dark gray fine to medium sand. Some woody detritus. Some fragmented clam and snail shells.</p> <p>Sieved - Coarse dark gray sand and small to large pea gravel. Some woody detritus. Some whole snail and clam shells. Many shell fragments.</p> <p>Lab - Fine sand with some clay. Many small clam half shells and small shell fragments.</p>	67.6	4.2
8/29	Des Plaines River	282.3C	<p>Field - Thin watery layer atop dark gray/brown silt with clay present. Some small to medium pea gravel. Few rocks. Some leafy and much woody detritus. Many shell fragments.</p> <p>Sieved - Mostly brown/black pulverized to medium leafy and woody detritus. Some medium pea gravel and rock fragmented and whole clam shells.</p> <p>Lab - Grit, clay, fine sand, wood chips. Some small clam shells. Some charcoal-like ash.</p>	34.4	20.4
8/29	Des Plaines River	282.3L	<p>Field - Thin watery layer atop dark gray/left brown silt. Clay present. Some small to medium pea gravel. Few rocks. Some leafy and much woody detritus. Many shell fragments.</p> <p>Sieved - Mostly brown/black pulverized to medium leafy and woody detritus. Some medium pea gravel and rock. Fragmented and whole clam shells.</p> <p>Lab - Light to medium gray, lightweight powder ash. Some small snails and wood fibers.</p>	27.7	17.6

Field Characteristics of Benthic
Sediments at SOD Measuring Sites (Continued)

Date (1990)	Water Course	Station	Physical Characteristics		
			Description	Solids (%)	V. Solids (%)
8/29	Des Plaines River	281.4	<p>Field - Thin, watery, gray layer of silt atop dark gray gritty silt. Medium to large pea gravel. Much leafy and woody detritus. Some sticks, twigs, and shell fragments. One live clam.</p> <p>Sieved - Small to large pea gravel, some sand. Some leafy and much woody detritus. Many shell fragments.</p> <p>Lab - Much black coal ash. Light brown grit. Many small clam shells and wood fibers.</p>	54.2	13.0
8/28	Des Plaines River	280.6	<p>Field - Dark gray silt. Pulverized, fragmented and whole snail and clam shells. Some small pea gravel. Some leafy and woody detritus.</p> <p>Sieved - Small pea gravel and coarse sand. Some woody detritus. Pulverized, fragmented and whole shells, mostly snail.</p> <p>Lab - Mostly small clam half-shells with some grit and silt.</p>	34.5	13.8
8/28	Des Plaines River	278.9	<p>Field - ¼ inch layer of brown fine sand atop gelatinous black clay/silt. Leafy and woody detritus.</p> <p>Sieved - Coarse sand, some small pea gravel. Much woody detritus and shell fragments.</p> <p>Lab - Silt/clay mix. Much black charcoal-like ash. Petroleum odor.</p>	49.7	9.4
8/28	Des Plaines River	278.0	<p>Field - Thin, watery brown/gray layer atop dark gray gritty silt with some black clay and small to large rock. Leafy and woody detritus and aquatic vegetation.</p> <p>Sieved - Mostly dark tan sand. Some large pea gravel and small to large rock. Many fragmented snail and clam shells. Much leafy and woody detritus with some aquatic vegetation.</p> <p>Lab - Clay, sand and fine sand with very small clam and snail shells. Petroleum odor.</p>	58.1	8.0
8/28	Des Plaines River	277.4	<p>Field - Thin, watery, dark gray layer atop brown/black fine to coarse sand. Some small pea gravel. Leafy and woody detritus. Pulverized leafy matter.</p> <p>Sieved - Coarse medium gray sand. Much pulverized leafy and woody detritus. Leafy and woody detritus. Some shell fragments and bark.</p> <p>Lab - Fine to medium sand with some clay and small shell chips.</p>	59.2	6.8

Field Characteristics of Benthic
Sediments at SOD Measuring Sites (Continued)

Date (1990)	Water Course	Station	Physical Characteristics		
			Description	Solids V. (%)	Solids (%)
8/27	Des Plaines River	276.9	Field - Thin, gelatinous dark tan layer atop dark tan fine to coarse sand. Small to large rocks and shale. Much leafy and woody detritus. Some bark and small to large sticks. Petroleum odor and feel. Sieved - Coarse sand, small to large rocks and pea gravel. Pulverized leafy detritus. Small to large woody detritus and sticks. Some fragmented snail and clam shells. Lab - Clay and silt with many small rock chips. Petroleum odor.	56.3	7.3
8/27	Des Plaines River	275.5	Field - Very thin, watery, dark gray layer of clay atop fine, gritty black clay. Some leafy detritus. Sieved - Mostly black pulverized leafy and woody detritus with larger woody detritus. Lab - Hard-packed clay. Some black charcoal-like ash. Petroleum odor.	50.2	11.7
8/27	Illinois River	271.7	Field - ¼ inch layer of dark gray fine silt atop a gelatinous black layer of silt. Small to large pea gravel, some woody detritus. Sieved - Small to large rock and pea gravel. Much leafy and woody detritus. Pulverized detritus. Lab - Mostly clay with many fine shell chips.	40.5	10.7
8/30	Illinois River	263.1	Field - Pine to medium sand. Pea gravel. Small to large rocks. Some shell fragments. Sieved - Sand and pea gravel. Some shell fragments. Lab - Mostly pea gravel. Small amount of fine to medium sand.	92.7	0.7
8/16	Illinois River	247.1	Field - ¼ inch layer of fine tan sand atop coarse sand. Some broken shells. Very little organic material. Sieved - Mostly sand. Some leafy detritus. Lab - Silt with some clay. Some fingernail clam half-shells.	69.0	2.8
8/16	Illinois River	234.2	Field - Very thin, watery, tan silty sand atop fine to coarse tan sand. Small to large pea gravel. Small to medium gravel. Woody detritus and charcoal bits. Snail shells and shell fragments. Sieved - Small to large gravel and pea gravel. Medium to coarse sand. Much woody detritus. Some leafy detritus. Whole snail shells. Lab - Coarse sand with many small snail shells.	71.1	5.4

Field Characteristics' of Benthic
Sediments at SOD Measuring Sites (Continued)

Date (1990)	Water Course	Station	Physical Characteristics		
			Description	Solids (%)	V. Solids (%)
8/16	Illinois River	231.7	<p>Field - Very thin layer of tan, fine to medium sandy silt atop medium to coarse sand. Some small pea gravel. Some woody detritus. Snail and clam shells and shell fragments.</p> <p>Sieved - Fine to coarse sand, small to large pea gravel. Pulverized shells. Some woody detritus.</p> <p>Lab - Mostly clean medium sand.</p>	78.2	0.6
8/15	Illinois River	222.0	<p>Field - Thin tan/brown layer of gritty sand with medium pea gravel to large rock atop gray/black hard-packed clay with medium to coarse sand. Some fibrous and woody detritus.</p> <p>Sieved - Medium to coarse sand. Small to large pea gravel and gravel. Some medium rock. Little woody detritus.</p> <p>Lab - Mostly clay with some silt and rocks.</p>	68.7	4.9
8/15	Illinois River	212.0	<p>Field - Fine to coarse sand atop gray gray silt. Some small rocks and clay balls. Few small snail and clam shells and fragments.</p> <p>Sieved - Fine to coarse sand. Small to medium pea gravel. Some small rock. Snail shells, clam half-shells and shell fragments of both types. Charcoal-type woody detritus.</p> <p>Lab - Clean, medium sand.</p>	79.8	1.0
8/15	Illinois River	208.2	<p>Field - Thin layer of brown, fine to coarse sand and some silt atop gray/black hard-packed clay and fine sand to some large rock. Some woody detritus. Many snail shells and fragments. Mussel half-shell. Clam half-shells and fragments.</p> <p>Sieved - Mostly snail and clam shells and fragments. Medium to coarse sand. Small to medium pea gravel. Some woody detritus.</p> <p>Lab - Mostly fine sand and clay with many 3/4 inch snail shells and large pieces of clam shells.</p>	90.0	2.2
8/15	Illinois River	204.5	<p>Field - Tan fine to medium sand with some large rock, fine silt, and small pea gravel to medium gravel. Some woody detritus and some mussel shells and fragments.</p> <p>Sieved - Small, medium, and large rocks. Small to medium pea gravel. Fine to coarse sand. Clam and snail shells and shell fragments. Some woody detritus.</p> <p>Lab - Red medium sand with some clay.</p>	78.8	1.3
8/16	Illinois River	198.9	<p>Field - Layer of gray to dark gray mud atop fine silt with small shell fragments and leaves. Some watery clay.</p> <p>Sieved - Shell fragments and leafy and woody detritus.</p> <p>Lab - Clay. Some fingernail clam half-shells. Organic matter. Much black charcoal-like ash.</p>	57.1	6.3

Field Characteristics of Benthic
Sediments SOD Measuring Sites (Continued)

Date (1990)	Water Course	Station	Physical Characteristics		
			Description	Solids (%)	V. Solids (%)
8/29	Des Plaines River	281.4	<p>Field - Thin, watery, gray layer of silt atop dark gray gritty silt. Medium to large pea gravel. Much leafy and woody detritus. Some sticks, twigs, and shell fragments. One live clam.</p> <p>Sieved - Small to large pea gravel, some sand. Some leafy and much woody detritus. Many shell fragments.</p> <p>Lab - Much black coal ash. Light brown grit. Many small clam shells and wood fibers.</p>	54.2	13.0
8/28	Des Plaines River	280.6	<p>Field - Dark gray silt. Pulverized, fragmented and whole snail and clam shells. Some small pea gravel. Some leafy and woody detritus.</p> <p>Sieved - Small pea gravel and coarse sand. Some woody detritus. Pulverized, fragmented and whole shells, mostly snail.</p> <p>Lab - Mostly small clam half-shells with some grit and silt.</p>	34.5	13.8
8/28	Des Plaines River	278.9	<p>Field - 1/4 inch layer of brown fine sand atop gelatinous black clay/silt. Leafy and woody detritus.</p> <p>Sieved - Coarse sand, some small pea gravel. Much woody detritus and shell fragments.</p> <p>Lab - Silt/clay mix. Much black charcoal-like ash. Petroleum odor.</p>	49.7	9.4
8/28	Des Plaines River	278.0	<p>Field - Thin, watery brown/gray layer atop dark gray gritty silt with some black clay and small to large rock. Leafy and woody detritus and aquatic vegetation.</p> <p>Sieved - Mostly dark tan sand. Some large pea gravel and small to large rock. Many fragmented snail and clam shells. Much leafy and woody detritus with some aquatic vegetation.</p> <p>Lab - Clay, sand and fine sand with very small clam and snail shells. Petroleum odor.</p>	58.1	8.0
8/28	Des Plaines River	277.4	<p>Field - Thin, watery, dark gray layer atop brown/black fine to coarse sand. Some small pea gravel. Leafy and woody detritus. Pulverized leafy matter.</p> <p>Sieved - Coarse medium gray sand. Much pulverized leafy and woody detritus. Leafy and woody detritus. Some shell fragments and bark.</p> <p>Lab - Fine to medium sand with some clay and small shell chips.</p>	59.2	6.8

APPENDIX I

Typical HYDROLAB DataSonde Printout

CSTAT
HIT RETURN AGAIN TO ABORT RECOVERY

- - - - -

STATION ID : LP26
SETTING DATE-TIME (MMDDYY <CR> HHMM <CR>) : 081590 1330
STARTING DATE-TIME (MMDDYY <CR> HHMM <CR>) : 081690 1200
STOPPING DATE-TIME (MMDDYY <CR> HHMM <CR>) : 082390 1100
LOGGING INTERVAL (HHMM CR) : 0100
DO FLOW FACTOR : +1.000 H

TIME HHMM	TEMP DEG C	PH UNITS	COND MS/CM	SALIN PPT	DO MG/L(PPM)	BATTERY VOLTS

081690						
1200	+24.96	+06.79	+0.650	+00.00	+02.89	+05.39
1300	+24.88	+06.79	+0.647	+00.00	+02.90	+05.39
1400	+24.96	+06.80	+0.648	+00.00	+02.98	+05.39
1500	+25.05	+06.80	+0.652	+00.00	+03.13	+05.39
1600	+25.34	+06.80	+0.657	+00.00	+03.19	+05.39
1700	+25.51	+06.80	+0.658	+00.00	+03.14	+05.39
1800	+25.77	+06.81	+0.666	+00.00	+03.30	+05.39
1900	+25.89	+06.80	+0.673	+00.00	+03.26	+05.39
2000	+26.10	+06.80	+0.678	+00.00	+03.21	+05.39
2100	+26.06	+06.80	+0.681	+00.00	+03.09	+05.39
2200	+26.19	+06.80	+0.684	+00.00	+03.11	+05.39
2300	+26.27	+06.79	+0.687	+00.00	+03.04	+05.39

Dissolved Oxygen Concentrations (mg/L)

MP	8/10/89				8/16/89			
	DO-0	DO-3	DO-M	DO-B	DO-0	DO-3	DO-M	DO-B
170.9	8.54	8.34	8.30	8.23	6.79	5.66	5.27	5.19
167.0	8.74	8.62	8.72	8.96	10.98	8.15	7.00	6.62
166.1	9.28	9.24	9.19	10.55	8.19	7.78	7.56	7.55
165.3	9.76	9.17	9.16	9.12	7.30	6.93	6.77	6.74
164.4	10.10	9.40	9.30	9.27	7.33	6.87	6.06	5.83
162.8	9.79	9.42	9.50	9.46	8.40	7.74	7.17	6.76
161.6	9.73	9.63	9.61	9.58	9.66	7.23	6.92	6.89
160.7	9.57	9.46	9.44	9.42	7.77	7.30	7.31	7.30
159.4	9.69	9.59	9.58	9.56	8.50	7.28	6.87	6.87
158.0	9.84	9.68	9.66	9.60	8.64	7.33	6.54	6.52

PARAMETER : BATTERY VOLTS
 # OVERRANGE : 00000
 # READINGS : 00012
 MINIMUM : +005.385 081690 1400
 MAXIMUM : +005.389 081690 1200
 MAX CHANGE : +000.002 081690 1300
 MEAN : +005.387
 STD DEV : +000.002

TIME HHMM	TEMP DEG C	PH UNITS	COND MS/CM	SALIN PPT	DO MG/L(PPM)	BATTERY VOLTS

081790						
0000	+26.23	+06.79	+0.687	+00.00	+03.02	+05.39
0100	+26.23	+06.80	+0.689	+00.00	+03.02	+05.39
0200	+26.23	+06.80	+0.687	+00.00	+02.93	+05.39
0300	+26.31	+06.79	+0.688	+00.00	+02.69	+05.39
0400	+26.27	+06.78	+0.685	+00.00	+02.43	+05.39
0500	+26.36	+06.76	+0.682	+00.00	+02.37	+05.39
0600	+26.27	+06.78	+0.678	+00.00	+02.31	+05.39
0700	+26.15	+06.75	+0.673	+00.00	+02.17	+05.39
0800	+25.89	+06.74	+0.667	+00.00	+02.04	+05.39
0900	+25.34	+06.72	+0.657	+00.00	+01.78	+05.39
1000	+25.17	+06.72	+0.649	+00.00	+01.66	+05.38
1100	+25.09	+06.70	+0.632	+00.00	+01.46	+05.39
1200	+25.13	+06.71	+0.624	+00.00	+01.54	+05.38
1300	+25.22	+06.71	+0.620	+00.00	+01.84	+05.38
1400	+25.43	+06.72	+0.615	+00.00	+02.04	+05.38
1500	+25.55	+06.72	+0.613	+00.00	+02.21	+05.38
1600	+25.68	+06.71	+0.614	+00.00	+02.35	+05.38
1700	+25.68	+06.71	+0.612	+00.00	+02.38	+05.38
1800	+25.68	+06.70	+0.614	+00.00	+02.47	+05.39
1900	+25.81	+06.70	+0.614	+00.00	+02.61	+05.39
2000	+26.02	+06.70	+0.618	+00.00	+02.66	+05.38
2100	+26.06	+06.70	+0.619	+00.00	+02.68	+05.38
2200	+26.15	+06.69	+0.624	+00.00	+02.67	+05.39
2300	+26.19	+06.69	+0.628	+00.00	+02.70	+05.39

DAILY STATISTICS HIT RETURN AGAIN TO ABORT STATISTICS

PARAMETER : TEMP DEG C
OVERRANGE : 00000
READINGS : 00024
MINIMUM : +025.090 081790 1100
MAXIMUM : +026.357 081790 0500
MAX CHANGE : +000.549 081790 0900
MEAN : +025.840
STD DEV : +000.418

PARAMETER : PH UNITS
OVERRANGE : 00000
READINGS : 00024
MINIMUM : +006.686 081790 2200
MAXIMUM : +006.798 081790 0100
MAX CHANGE : +000.023 081790 0900
MEAN : +006.731
STD DEV : +000.038

PARAMETER : COND MS/CM
OVERRANGE : 00000
READINGS : 00024
MINIMUM : +000.612 081790 1700
MAXIMUM : +000.689 081790 0100
MAX CHANGE : +000.017 081790 1100
MEAN : +000.645
STD DEV : +000.030

PARAMETER : SALIN PPT
OVERRANGE : 00000
READINGS : 00024
MINIMUM : +000.000 081790 0000
MAXIMUM : +000.000 081790 0000
MAX CHANGE : +000.000 081790 0000
MEAN : +000.000
STD DEV : +000.000

PARAMETER : DO MG/L(PPM)
OVERRANGE : 00000
READINGS : 00024
MINIMUM : +001.456 081790 1100
MAXIMUM : +003.019 081790 0000
MAX CHANGE : +000.298 081790 1300
MEAN : +002.336
STD DEV : +000.438