

Old Woman Creek (OWC) NERR Site Water Quality Metadata
April through October, 1997
Latest Update: September 27, 2001

1. Principal Investigator & contact persons:

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2. Entry verification:

The data were directly downloaded from the YSI data loggers into the YSI PC6000 program in the PC. The data were graphed and visually checked for any obvious outliers. The data were then transferred to an Excel spreadsheet. The data files were edited to remove headers, footers, and spaces. All three CDMO Excel 5.0 macros were used. A CDMO Excel macro was used to determine missing dates and times, which were then added to the data file. Missing data were inserted into the spreadsheet and denoted by periods. The data files were then checked for readings that were outside the instrument range. These data were removed and replaced with a period. An explanation for the missing and the deleted data is included in this meta data sheet. The files were then transferred along with the associated metadata sheet by disk to the CDMO. The files are archived at OWC. Dr. David Klarer is responsible for both data logger deployment and data management.

3. Research Objectives:

Measurements are taken every 15 minutes over approximately two week periods at two sites within the Old Woman Creek estuary- one in the upper reaches at State Route 2 and the other near the mouth, just south of State Route

6. The purpose of this monitoring program is to document the role of Great Lakes estuaries in mitigating storm flow that passes through them.

4. Research methods:

The YSI monitoring program began on 1 April, 1997 at both sites. Prior to deployment of the data loggers, a 4 inch diameter PVC pipe was bolted to a metal sign post that had been driven into the sediment. Each pipe had 4 rows of holes drilled into it spanning the area of the probe guard on the data logger so that the probes would have direct contact with the surrounding waters. The data logger at site SU is .18 meters above the bottom, while the YSI at site WM is 0.05 meters above the bottom. Dissolved oxygen, pH, temperature, turbidity, and specific conductance readings are taken when the instrument is pulled at each site. On alternate weeks, the data loggers are pulled. The data is retrieved from each data logger and each data logger is recalibrated (according to the directions in the YSI Operations Manual) before being returned to the field. Conductivity, pH (2 point calibration), and turbidity (2 point calibration) was calibrated using commercial standards.

5. Site location and character:

Old Woman Creek National Estuarine Research Reserve is located on the southern shore of Lake Erie, slightly east of the city of Huron, Ohio (Latitude 41 22' N; longitude 82 31' W).

The data logger at the State Route 2 (SU) 41 22' 57" N, 82 30' 52" W site is very near the southern boundary of the reserve. The data logger is sited near a concrete piling of the eastbound Ohio State Route 2 bridge. At this site the creek is relatively deep and narrow. Although water direction and flow is influenced at this site by changes in Lake Erie water levels, this site doesn't have direct contact with Lake Erie waters.

The data logger at State Route 6 (WM) 41 22' 56" N, 82 30' 26" W is very close to the mouth of Old Woman Creek. In this portion of the Reserve, the creek is very shallow but extends over a large surface area. This site frequently experiences influx of Lake Erie waters.

6. Data collection periods:

Sampling at WM began on April 1, 1997 at 00:00:00. Sampling for 1997 ceased at WM site on October 31, 1997 at 23:45:00. Sampling at SU began on April 1, 1997 at 00:00:00. Sampling ceased at SU site on October 31, 1997 at 23:45:00.

7. Associated projects: Samples for chemical analysis of the water and phytoplankton analysis are collected at each site every time the data loggers are changed.

II. Physical Structure and Descriptors:

8. Variable sequence, column format, range of measurements, units, Resolution, Accuracy:

Variable	Range of Measurements (units)	Resolution	Accuracy
DATE	1-12, 1-31, 00-99 (mo,day,yr)	1 mo, 1 day, 1yr	NA
HOURL	0-24, 0-60, 0-60 (hrs,min,sec)	1hr, 1 min, 1 sec	NA
WATERTEMP	-5 to 45 (degrees C)	0.01 0C	+/-
0.15C			
SPCOND	0-100 (mS/cm)	0.01 mS/cm	+/- .5%
reading			
+ 0.001mS/cm			
SALINITY	0-70 (parts per thousand-ppt)	0.01 ppt	+/-1.0%
of			
reading or 0.1ppt (whichever is greater)			
DO%SAT	0-200 (% saturation)	0.1% @air sat	+/-2%
@air			
sat.			
DO%SAT	200-500(%saturation)	0.1% @air sat	+/-6%
@air			
sat.			
DO (mg/l)	0-20 (mg/l)	0.01 mg/l	+/-0.2
mg/l			
DO (mg/l)	20-50 (mg/l)	0.01 mg/l	+/-0.6
mg/l			
DEPTH (shallow)	0-9.1 (meters)	0.001 m	+/-
0.018 m			
pH	2 to 14 units	0.01 units	+/-0.2
units			
Turb	0-1000 NTU *	0.1 NTU	+/- 5%
of			
reading or 2 NTU (whichever is greater)			
*(Note: negative Turb values signify turbidity values greater than 1000)			

9. Coded variable indicator and variable code definitions:

SU- State Route 2 WM-State Route 6

10. Data anomalies (suspect data):

April 1997:

WM:

SU:

May 1997:

WM: Turbidity values over 1000 NTU:

05/04/97 02:15:00 1090

SU: Negative Turbidity values:

05/03/97 10:15:00 -0877

05/03/97 10:30:00 -0960

05/03/97 10:45:00 -0935

05/03/97 11:00:00 -0934

05/03/97 11:15:00 -0779

05/03/97 11:30:00 -0795

05/03/97 11:45:00 -0857

05/03/97 12:00:00 -0771

05/03/97 12:15:00 -0940

05/03/97 12:30:00 -1078

05/03/97 12:45:00 -1008

05/03/97 13:15:00 -0800

05/03/97 13:30:00 -0920

05/03/97 13:45:00 -0966

05/03/97 14:00:00 -0904

05/03/97 14:15:00 -0818

05/03/97 14:30:00 -0877

05/03/97 14:45:00 -0909

05/03/97 15:00:00 -0893

05/03/97 15:15:00 -0773

05/03/97 15:30:00 -0803

05/03/97 15:45:00 -0775

05/03/97 16:00:00 -0773

05/03/97 16:15:00 -0813

05/03/97 16:30:00 -0787

05/03/97 16:45:00 -0884

05/03/97 17:00:00 -0957

05/03/97 17:15:00 -0771

05/03/97 17:30:00 -0913

05/03/97 17:45:00 -1000

05/03/97 18:00:00 -1015

05/03/97 18:30:00 -0996

05/03/97 18:45:00 -1071

05/03/97 19:00:00 -1108

05/03/97 19:15:00 -1068

05/06/97 06:45:00 -0766

05/06/97 07:00:00 -0766

05/06/97 07:15:00 -0766

05/06/97 07:30:00 -0827

05/06/97 07:45:00 -1022

05/06/97 08:00:00 -0766

05/06/97 08:15:00 -0766

05/06/97	08:30:00	-0766
05/06/97	08:45:00	-0766
05/06/97	09:00:00	-0766
05/06/97	09:15:00	-0767
05/06/97	09:30:00	-0767
05/06/97	09:45:00	-0767
05/06/97	10:00:00	-0767
05/06/97	10:15:00	-0767
05/31/97	08:30:00	-0760
05/31/97	08:45:00	-0831
05/31/97	09:00:00	-0760
05/31/97	09:15:00	-0759
05/31/97	09:30:00	-0775
05/31/97	09:45:00	-0759
05/31/97	10:00:00	-0759
05/31/97	10:15:00	-0759
05/31/97	10:30:00	-0980
05/31/97	10:45:00	-1038
05/31/97	20:30:00	-0759
05/31/97	21:30:00	-0759
05/31/97	21:45:00	-0759

Turbidity values over 1000NTU

05/03/97	10:00:00	1050
05/06/97	10:30:00	1134
05/31/97	11:00:00	1117
05/31/97	19:45:00	1062
05/31/97	22:00:00	1101
05/31/97	22:30:00	1020
05/31/97	22:45:00	1022
05/31/97	23:15:00	1071

DO % and mg/L data deleted 05/27/97 (14:30:00). First record in deployment

ws higher than other values that followed. Data deleted.

June 1997:

WM: Turbidity values from 06/02/97 to 06/09/97 (10:00:00) questionable due to

problems with turbidity probe wiper and subsequent buildup of debris and periphyton on probe face

Negative turbidity values:

06/03/97	23:15:00	-1148
06/04/97	04:45:00	-1079
06/04/97	05:15:00	-1067
06/04/97	05:30:00	-1140
06/04/97	05:45:00	-0933
06/04/97	06:30:00	-0985
06/04/97	06:45:00	-0943
06/04/97	07:00:00	-0833
06/04/97	07:15:00	-1146

06/04/97	07:30:00	-1048
06/04/97	08:15:00	-1014
06/04/97	08:30:00	-1187
06/04/97	10:00:00	-1170
06/04/97	10:15:00	-0927
06/04/97	12:45:00	-1022
06/04/97	14:30:00	-0261
06/04/97	15:45:00	-1179
06/04/97	16:00:00	-0914
06/04/97	16:15:00	-1150
06/04/97	16:30:00	-0816
06/04/97	16:45:00	-0965
06/04/97	17:00:00	-0902
06/04/97	17:30:00	-0830
06/04/97	18:30:00	-0808
06/04/97	19:00:00	-1147
06/04/97	19:30:00	-0807
06/04/97	19:45:00	-0979
06/04/97	20:00:00	-0807
06/04/97	20:15:00	-0807
06/04/97	20:30:00	-0806
06/04/97	20:45:00	-0807
06/04/97	21:00:00	-0806
06/04/97	21:15:00	-0806
06/04/97	21:30:00	-0806
06/04/97	21:45:00	-0806
06/04/97	22:00:00	-0806
06/04/97	22:15:00	-0806
06/04/97	22:30:00	-1107
06/04/97	22:45:00	-0977
06/04/97	23:00:00	-0824
06/04/97	23:30:00	-1081
06/04/97	23:45:00	-0809
06/05/97	00:00:00	-0257
06/05/97	00:45:00	-0993
06/05/97	02:00:00	-1146
06/05/97	02:15:00	-0904
06/05/97	16:45:00	-1056
06/05/97	17:45:00	-0813
06/05/97	18:00:00	-1154
06/05/97	18:15:00	-0913
06/05/97	18:45:00	-0812
06/05/97	19:00:00	-1026
06/05/97	19:30:00	-1135
06/05/97	20:45:00	-0996
06/05/97	21:15:00	-1140
06/05/97	23:45:00	-0989
06/06/97	01:15:00	-0957
06/06/97	01:30:00	-1178
06/06/97	01:45:00	-0868
06/06/97	02:00:00	-1166
06/06/97	02:30:00	-0837
06/06/97	03:15:00	-0812
06/06/97	03:30:00	-0849

06/06/97	03:45:00	-0869
06/06/97	04:00:00	-0822
06/06/97	04:15:00	-0835
06/06/97	04:30:00	-0836
06/06/97	04:45:00	-0868
06/06/97	05:00:00	-0990
06/06/97	05:15:00	-1114
06/06/97	05:30:00	-1146
06/06/97	05:45:00	-0916
06/06/97	06:15:00	-0810
06/06/97	06:30:00	-0893
06/06/97	06:45:00	-0810
06/06/97	07:00:00	-0810
06/06/97	07:15:00	-0810
06/06/97	07:30:00	-0810
06/06/97	07:45:00	-0810
06/06/97	08:00:00	-1030
06/06/97	08:15:00	-1153
06/06/97	08:30:00	-0831
06/06/97	08:45:00	-0848
06/06/97	09:00:00	-0933
06/06/97	09:15:00	-0809
06/06/97	09:30:00	-0809
06/06/97	09:45:00	-0808
06/06/97	10:00:00	-0902
06/06/97	10:15:00	-0898
06/06/97	10:30:00	-0806
06/06/97	10:45:00	-0805
06/06/97	11:00:00	-0805
06/06/97	11:15:00	-0806
06/06/97	11:30:00	-0805
06/06/97	11:45:00	-0806
06/06/97	12:00:00	-0807
06/06/97	12:15:00	-0810
06/06/97	12:30:00	-0811
06/06/97	12:45:00	-0811
06/06/97	13:00:00	-0810
06/06/97	13:15:00	-0812
06/06/97	13:30:00	-0864
06/06/97	13:45:00	-0814
06/06/97	14:00:00	-0813
06/06/97	14:15:00	-0811
06/06/97	14:30:00	-0814
06/06/97	14:45:00	-0814
06/06/97	15:00:00	-0815
06/06/97	15:15:00	-0816
06/06/97	15:30:00	-0816
06/06/97	15:45:00	-0816
06/06/97	16:00:00	-0818
06/06/97	16:15:00	-0817
06/06/97	16:30:00	-0818
06/06/97	16:45:00	-0909
06/06/97	17:00:00	-0817
06/06/97	17:15:00	-0816

06/06/97	17:30:00	-1039
06/06/97	17:45:00	-0931
06/06/97	18:00:00	-0811
06/06/97	18:15:00	-0813
06/06/97	18:30:00	-0813
06/06/97	18:45:00	-0815
06/06/97	19:00:00	-1135
06/06/97	19:15:00	-0817
06/06/97	19:30:00	-0882
06/06/97	19:45:00	-0989
06/06/97	20:00:00	-0814
06/06/97	20:15:00	-1187
06/06/97	20:30:00	-1036
06/06/97	20:45:00	-1011
06/06/97	21:00:00	-0814
06/06/97	21:15:00	-0975
06/06/97	21:30:00	-1181
06/06/97	23:00:00	-1077
06/07/97	00:30:00	-1163
06/07/97	01:00:00	-1055
06/07/97	02:00:00	-1023
06/07/97	17:30:00	-1089
06/07/97	17:45:00	-1037
06/07/97	18:00:00	-1062
06/07/97	18:15:00	-0573
06/07/97	18:30:00	-0805
06/07/97	19:00:00	-0804
06/07/97	19:45:00	-0848
06/19/97	18:45:00	-0987
06/20/97	22:15:00	-0175

Turbidity values over 1000 NTU:

06/02/97	15:45:00	1063
06/03/97	20:15:00	1007
06/03/97	22:30:00	1033
06/04/97	04:30:00	1095
06/04/97	05:00:00	1140
06/04/97	08:45:00	1096
06/04/97	09:15:00	1125
06/04/97	10:30:00	1138
06/04/97	13:00:00	1089
06/04/97	13:15:00	1005
06/04/97	14:45:00	1001
06/04/97	17:45:00	1069
06/04/97	18:00:00	1104
06/04/97	18:15:00	1106
06/05/97	00:15:00	1108
06/05/97	00:30:00	1010
06/05/97	01:30:00	1024
06/05/97	02:30:00	1069
06/05/97	11:00:00	1117
06/05/97	13:00:00	1075
06/05/97	13:30:00	1018
06/05/97	14:30:00	1042
06/05/97	15:00:00	1040

06/05/97	16:15:00	1007
06/05/97	19:15:00	1082
06/05/97	19:45:00	1123
06/05/97	21:00:00	1088
06/05/97	21:30:00	1140
06/05/97	22:00:00	1045
06/05/97	22:15:00	1074
06/06/97	00:00:00	1124
06/06/97	00:45:00	1098
06/06/97	06:00:00	1023
06/06/97	21:45:00	1141
06/07/97	02:15:00	1086
06/07/97	13:15:00	1010
06/07/97	17:00:00	1036
06/07/97	17:15:00	1079
06/07/97	19:15:00	1153
06/07/97	19:30:00	1158
06/07/97	20:15:00	1183
06/07/97	20:30:00	1146
06/07/97	20:45:00	1161
06/07/97	21:00:00	1118
06/07/97	21:15:00	1067
06/07/97	21:30:00	1096
06/07/97	21:45:00	1098
06/07/97	22:00:00	1025
06/07/97	22:15:00	1093
06/08/97	09:15:00	1065
06/08/97	09:45:00	1032
06/08/97	10:15:00	1105
06/08/97	10:30:00	1116
06/08/97	11:15:00	1148
06/08/97	11:30:00	1110
06/08/97	11:45:00	1005
06/08/97	12:00:00	1052
06/08/97	12:45:00	1032
06/08/97	13:30:00	1085
06/08/97	13:45:00	1085
06/08/97	14:00:00	1006
06/08/97	14:15:00	1100
06/08/97	14:30:00	1098
06/08/97	14:45:00	1089
06/08/97	15:00:00	1035
06/08/97	20:45:00	1030
06/08/97	21:15:00	1001
06/08/97	22:30:00	1013
06/09/97	00:00:00	1014
06/09/97	00:30:00	1003
06/09/97	02:30:00	1002
06/09/97	03:00:00	1020
06/09/97	09:30:00	1010

SU: Negative Turbidity Values:

06/01/97	00:15:00	-0758
06/01/97	00:30:00	-0759
06/01/97	00:45:00	-0758

06/01/97	18:30:00	-0788
06/01/97	19:00:00	-0875
06/01/97	19:15:00	-1084
06/01/97	20:00:00	-0962
06/01/97	21:15:00	-0758
06/05/97	04:45:00	-0760
06/05/97	05:00:00	-0760
06/05/97	05:15:00	-0760
Turbidity Values over 1000NTU:		
06/01/97	01:15:00	1129
06/01/97	17:45:00	1121
06/01/97	19:30:00	1130

July 1997:

WM: Dissolved oxygen 07/14/97 (15:30:00 to 22:15:00) questionable data

since probe problems both before and after this data collected

Negative Turbidity Values:

07/22/97	21:45:00	-0763
07/22/97	22:45:00	-0997
07/24/97	04:00:00	-0762
07/24/97	04:15:00	-0762
07/25/97	17:15:00	-0763

SU: Dissolved oxygen gradually declined from 07/20/97 to 07/29/97 (09:15:00) due to colonization of oxygen probe by periphyton

Turbidity values suspect from 07/20/97 (14:30:00) to 07/29/97 (09:15:00) due to probe wiper problems

Negative Turbidity Values:

07/21/97	19:15:00	-0996
07/21/97	20:45:00	-1137
07/21/97	22:00:00	-1135
07/21/97	22:15:00	-1128
07/21/97	22:30:00	-1129
07/21/97	23:30:00	-1130
07/22/97	00:30:00	-1126
07/22/97	01:00:00	-1133
07/22/97	01:15:00	-1120
07/22/97	01:30:00	-1119
07/22/97	01:45:00	-1126
07/22/97	03:00:00	-1128
07/22/97	04:45:00	-1112
07/22/97	05:00:00	-1110
07/22/97	06:00:00	-1130
07/22/97	06:15:00	-1100
07/22/97	06:30:00	-1098
07/22/97	06:45:00	-1029
07/22/97	07:00:00	-1100
07/22/97	07:15:00	-1119
07/22/97	07:30:00	-1106
07/22/97	07:45:00	-1127
07/22/97	08:15:00	-1102
07/22/97	08:30:00	-1099
07/22/97	08:45:00	-1081
07/22/97	09:15:00	-1101

07/22/97	10:00:00	-1138
07/22/97	10:30:00	-1096
07/22/97	10:45:00	-1061
07/22/97	11:00:00	-1083
07/22/97	11:15:00	-1101
07/22/97	11:30:00	-1122
07/22/97	11:45:00	-1100
07/22/97	12:00:00	-1136
07/22/97	12:30:00	-1138
07/22/97	13:00:00	-1136
07/22/97	13:15:00	-1078
07/22/97	13:45:00	-1050
07/22/97	14:15:00	-1050
07/22/97	14:30:00	-1058
07/22/97	14:45:00	-1068
07/22/97	15:00:00	-1057
07/22/97	15:15:00	-1080
07/22/97	15:30:00	-1076
07/22/97	15:45:00	-1057
07/22/97	16:00:00	-1077
07/22/97	16:15:00	-1090
07/22/97	16:30:00	-1048
07/22/97	16:45:00	-1059
07/22/97	17:00:00	-1059
07/22/97	17:30:00	-1049
07/22/97	18:00:00	-1029
07/22/97	18:15:00	-1032
07/22/97	18:30:00	-1020
07/22/97	18:45:00	-1040
07/22/97	19:00:00	-1095
07/22/97	19:15:00	-1069
07/22/97	20:30:00	-1030
07/22/97	21:00:00	-1026
07/22/97	21:15:00	-1065
07/22/97	21:30:00	-1054
07/22/97	22:00:00	-1111
07/22/97	22:15:00	-1077
07/22/97	22:45:00	-1065
07/23/97	00:00:00	-1026
07/23/97	00:45:00	-1022
07/23/97	02:15:00	-1024
07/23/97	03:00:00	-1116
07/23/97	03:15:00	-1084
07/23/97	04:00:00	-1060
07/23/97	04:15:00	-1033
07/23/97	04:30:00	-1036
07/23/97	05:00:00	-1037
07/23/97	05:30:00	-1080
07/23/97	05:45:00	-1032
07/23/97	06:30:00	-1095
07/23/97	06:45:00	-1035
07/23/97	07:30:00	-1039
07/23/97	07:45:00	-1099
07/23/97	08:00:00	-1048

07/23/97	08:30:00	-1121
07/23/97	08:45:00	-1042
07/23/97	09:15:00	-1132
07/23/97	09:30:00	-1069
07/23/97	09:45:00	-1047
07/23/97	10:15:00	-1048
07/23/97	10:45:00	-1077
07/23/97	11:00:00	-1049
07/23/97	11:15:00	-1075
07/23/97	11:30:00	-1053
07/23/97	12:00:00	-1064
07/23/97	12:15:00	-1068
07/23/97	12:45:00	-1055
07/23/97	13:00:00	-1047
07/23/97	13:30:00	-1089
07/23/97	13:45:00	-1049
07/23/97	14:00:00	-1054
07/23/97	14:30:00	-1108
07/23/97	14:45:00	-1051
07/23/97	15:00:00	-1109
07/23/97	15:15:00	-1059
07/23/97	16:00:00	-1085
07/23/97	16:30:00	-1075
07/23/97	16:45:00	-1071
07/23/97	17:00:00	-1074
07/23/97	17:15:00	-1119
07/23/97	17:30:00	-1066
07/23/97	17:45:00	-1061
07/23/97	18:15:00	-1074
07/23/97	18:45:00	-1062
07/23/97	19:00:00	-1059
07/23/97	19:15:00	-1093
07/23/97	19:30:00	-1070
07/23/97	20:00:00	-1111
07/23/97	20:15:00	-1071
07/23/97	21:00:00	-1067
07/23/97	21:15:00	-1088
07/23/97	21:45:00	-1070
07/23/97	22:00:00	-1093
07/23/97	22:30:00	-1085
07/23/97	22:45:00	-1105
07/23/97	23:00:00	-1074
07/23/97	23:15:00	-1121
07/23/97	23:30:00	-1039
07/23/97	23:45:00	-1132
07/24/97	00:00:00	-1061
07/24/97	00:15:00	-1069
07/24/97	00:30:00	-1082
07/24/97	00:45:00	-1059
07/24/97	01:00:00	-1077
07/24/97	01:15:00	-1120
07/24/97	01:30:00	-1056
07/24/97	01:45:00	-1044
07/24/97	02:00:00	-1064

07/24/97	02:15:00	-1081
07/24/97	02:45:00	-1067
07/24/97	03:00:00	-1120
07/24/97	03:15:00	-1136
07/24/97	03:30:00	-1039
07/24/97	03:45:00	-1089
07/24/97	04:00:00	-1058
07/24/97	04:15:00	-1095
07/24/97	04:30:00	-1070
07/24/97	04:45:00	-1096
07/24/97	05:00:00	-1072
07/24/97	05:15:00	-1051
07/24/97	05:30:00	-1068
07/24/97	05:45:00	-1092
07/24/97	06:00:00	-1066
07/24/97	06:15:00	-1107
07/24/97	06:30:00	-1065
07/24/97	06:45:00	-1120
07/24/97	07:00:00	-1069
07/24/97	07:30:00	-1069
07/24/97	07:45:00	-1099
07/24/97	08:00:00	-1073
07/24/97	08:15:00	-1047
07/24/97	08:30:00	-1119
07/24/97	08:45:00	-1070
07/24/97	09:00:00	-1106
07/24/97	09:15:00	-1098
07/24/97	09:30:00	-1041
07/24/97	09:45:00	-1041
07/24/97	10:00:00	-1017
07/24/97	10:15:00	-1111
07/24/97	10:30:00	-1111
07/24/97	10:45:00	-1044
07/24/97	11:00:00	-1135
07/24/97	11:15:00	-1036
07/24/97	11:30:00	-1049
07/24/97	11:45:00	-1081
07/24/97	12:00:00	-1089
07/24/97	12:15:00	-1055
07/24/97	12:30:00	-1083
07/24/97	12:45:00	-1103
07/24/97	13:00:00	-1087
07/24/97	13:15:00	-1039
07/24/97	13:30:00	-1037
07/24/97	13:45:00	-1136
07/24/97	14:00:00	-1044
07/24/97	14:15:00	-1038
07/24/97	14:30:00	-1055
07/24/97	14:45:00	-1059
07/24/97	15:00:00	-1033
07/24/97	15:30:00	-1035
07/24/97	16:00:00	-1020
07/24/97	16:15:00	-1029
07/24/97	16:30:00	-1100

07/24/97	16:45:00	-1028
07/24/97	17:00:00	-1040
07/24/97	17:15:00	-1072
07/24/97	17:30:00	-1099
07/24/97	17:45:00	-1070
07/24/97	18:00:00	-1089
07/24/97	18:15:00	-1035
07/24/97	18:30:00	-1025
07/24/97	18:45:00	-1049
07/24/97	19:00:00	-1030
07/24/97	19:15:00	-1061
07/24/97	19:30:00	-1032
07/24/97	19:45:00	-1031
07/24/97	20:00:00	-1033
07/24/97	20:15:00	-1135
07/24/97	20:30:00	-1085
07/24/97	20:45:00	-1043
07/24/97	21:15:00	-1034
07/24/97	21:30:00	-1034
07/24/97	21:45:00	-1025
07/24/97	22:00:00	-1025
07/24/97	22:15:00	-1050
07/24/97	22:30:00	-1059
07/24/97	22:45:00	-1032
07/24/97	23:00:00	-1041
07/24/97	23:15:00	-1043
07/24/97	23:45:00	-1052
07/25/97	00:00:00	-1113
07/25/97	00:15:00	-1037
07/25/97	00:30:00	-1033
07/25/97	00:45:00	-1027
07/25/97	01:00:00	-1028
07/25/97	01:15:00	-1079
07/25/97	01:30:00	-1028
07/25/97	01:45:00	-1070
07/25/97	02:00:00	-1089
07/25/97	02:30:00	-1026
07/25/97	02:45:00	-1053
07/25/97	03:15:00	-1034
07/25/97	03:30:00	-1024
07/25/97	03:45:00	-1039
07/25/97	04:00:00	-1120
07/25/97	04:15:00	-1054
07/25/97	04:30:00	-1018
07/25/97	04:45:00	-1028
07/25/97	05:00:00	-1123
07/25/97	05:15:00	-1025
07/25/97	05:30:00	-1048
07/25/97	06:00:00	-1011
07/25/97	06:15:00	-1013
07/25/97	06:30:00	-1014
07/25/97	06:45:00	-1017
07/25/97	07:00:00	-1014
07/25/97	07:15:00	-1016

07/25/97	07:30:00	-1020
07/25/97	07:45:00	-1010
07/25/97	08:00:00	-1052
07/25/97	08:15:00	-1021
07/25/97	08:30:00	-1064
07/25/97	08:45:00	-1024
07/25/97	09:00:00	-1082
07/25/97	09:15:00	-1021
07/25/97	09:30:00	-1015
07/25/97	09:45:00	-1021
07/25/97	10:00:00	-1038
07/25/97	10:15:00	-1131
07/25/97	10:30:00	-1018
07/25/97	10:45:00	-1019
07/25/97	11:00:00	-1040
07/25/97	11:15:00	-1135
07/25/97	11:30:00	-1028
07/25/97	11:45:00	-1042
07/25/97	12:00:00	-1088
07/25/97	12:15:00	-1102
07/25/97	12:30:00	-1018
07/25/97	12:45:00	-1040
07/25/97	13:00:00	-1068
07/25/97	13:15:00	-1017
07/25/97	13:30:00	-1037
07/25/97	13:45:00	-1034
07/25/97	14:15:00	-1027
07/25/97	14:30:00	-1029
07/25/97	15:00:00	-1037
07/25/97	15:15:00	-1024
07/25/97	15:30:00	-1044
07/25/97	16:00:00	-1019
07/25/97	16:15:00	-1053
07/25/97	16:30:00	-1099
07/25/97	16:45:00	-1029
07/25/97	17:00:00	-1027
07/25/97	17:15:00	-1037
07/25/97	17:30:00	-1055
07/25/97	17:45:00	-1016
07/25/97	18:00:00	-1019
07/25/97	18:15:00	-0983
07/25/97	18:30:00	-0966
07/25/97	18:45:00	-0990
07/25/97	19:00:00	-1008
07/25/97	19:15:00	-1014
07/25/97	19:30:00	-0977
Turbidity values over 1000 NTU:		
07/01/97	11:45:00	1082
07/01/97	12:00:00	1026
07/01/97	12:15:00	1059
07/01/97	12:30:00	1064
07/01/97	12:45:00	1077
07/01/97	13:00:00	1049
07/01/97	13:15:00	1102

07/01/97	13:30:00	1095
07/01/97	13:45:00	1069
07/01/97	14:00:00	1068
07/01/97	14:15:00	1084
07/01/97	14:30:00	1109
07/01/97	14:45:00	1046
07/01/97	15:00:00	1073
07/01/97	15:15:00	1057
07/01/97	15:30:00	1069
07/01/97	15:45:00	1045
07/01/97	16:00:00	1065
07/01/97	16:15:00	1029
07/01/97	16:30:00	1053
07/01/97	16:45:00	1062
07/01/97	17:00:00	1024
07/01/97	17:15:00	1016
07/01/97	17:30:00	1001
07/01/97	18:00:00	1008
07/01/97	18:15:00	1017
07/01/97	18:45:00	1001
07/01/97	19:00:00	1035
07/01/97	21:00:00	1014
07/01/97	21:45:00	1026
07/02/97	00:00:00	1026
07/02/97	00:15:00	1006
07/21/97	05:45:00	1037
07/21/97	06:00:00	1048
07/21/97	06:15:00	1055
07/21/97	06:30:00	1045
07/21/97	06:45:00	1042
07/21/97	07:00:00	1047
07/21/97	07:30:00	1031
07/21/97	07:45:00	1057
07/21/97	08:00:00	1059
07/21/97	08:15:00	1020
07/21/97	08:30:00	1040
07/21/97	08:45:00	1077
07/21/97	09:00:00	1069
07/21/97	09:15:00	1059
07/21/97	09:45:00	1075
07/21/97	10:00:00	1068
07/21/97	10:15:00	1079
07/21/97	10:30:00	1079
07/21/97	10:45:00	1079
07/21/97	11:00:00	1082
07/21/97	11:15:00	1064
07/21/97	11:30:00	1039
07/21/97	12:00:00	1075
07/21/97	12:15:00	1115
07/21/97	12:30:00	1118
07/21/97	12:45:00	1124
07/21/97	13:00:00	1076
07/21/97	13:15:00	1081
07/21/97	14:15:00	1067

07/21/97	14:30:00	1101
07/21/97	14:45:00	1091
07/21/97	15:00:00	1079
07/21/97	15:15:00	1040
07/21/97	15:30:00	1122
07/21/97	15:45:00	1129
07/21/97	16:00:00	1121
07/21/97	16:15:00	1107
07/21/97	16:30:00	1102
07/21/97	16:45:00	1121
07/21/97	17:00:00	1050
07/21/97	17:15:00	1100
07/21/97	17:30:00	1124
07/21/97	17:45:00	1131
07/21/97	18:00:00	1125
07/21/97	18:15:00	1131
07/21/97	18:30:00	1127
07/21/97	18:45:00	1126
07/21/97	19:30:00	1065
07/21/97	19:45:00	1080
07/21/97	20:00:00	1043
07/21/97	20:30:00	1128
07/21/97	21:15:00	1121
07/21/97	21:30:00	1105
07/21/97	21:45:00	1105
07/21/97	22:45:00	1122
07/21/97	23:00:00	1125
07/21/97	23:15:00	1063
07/21/97	23:45:00	1039
07/22/97	00:00:00	1109
07/22/97	00:15:00	1134
07/22/97	00:45:00	1128
07/22/97	02:00:00	1120
07/22/97	02:15:00	1112
07/22/97	02:30:00	1110
07/22/97	02:45:00	1124
07/22/97	03:15:00	1130
07/22/97	03:30:00	1083
07/22/97	03:45:00	1108
07/22/97	04:00:00	1114
07/22/97	04:15:00	1126
07/22/97	04:30:00	1098
07/22/97	05:15:00	1133
07/22/97	05:30:00	1121
07/22/97	05:45:00	1121
07/22/97	08:00:00	1052
07/22/97	09:00:00	1047
07/22/97	09:30:00	1082
07/22/97	09:45:00	1076
07/22/97	10:15:00	1122
07/22/97	12:45:00	1125
07/22/97	13:30:00	1123
07/22/97	14:00:00	1133
07/22/97	17:15:00	1037

07/22/97	17:45:00	1024
07/22/97	19:30:00	1087
07/22/97	19:45:00	1018
07/22/97	20:00:00	1079
07/22/97	20:15:00	1020
07/22/97	21:45:00	1033
07/22/97	22:30:00	1069
07/22/97	23:00:00	1039
07/22/97	23:45:00	1077
07/23/97	00:30:00	1106
07/23/97	01:30:00	1108
07/23/97	01:45:00	1003
07/23/97	02:00:00	1121
07/23/97	02:30:00	1034
07/23/97	04:45:00	1027
07/23/97	05:15:00	1029
07/23/97	06:00:00	1027
07/23/97	06:15:00	1087
07/23/97	07:15:00	1085
07/23/97	08:15:00	1030
07/23/97	09:00:00	1023
07/23/97	10:00:00	1048
07/23/97	11:45:00	1074
07/23/97	12:30:00	1063
07/23/97	13:15:00	1114
07/23/97	14:15:00	1032
07/23/97	15:45:00	1062
07/23/97	16:15:00	1096
07/23/97	18:00:00	1086
07/23/97	18:30:00	1009
07/23/97	19:45:00	1015
07/23/97	20:30:00	1105
07/23/97	20:45:00	1049
07/23/97	21:30:00	1108
07/23/97	22:15:00	1077
07/24/97	02:30:00	1061
07/24/97	07:15:00	1087
07/24/97	15:15:00	1117
07/24/97	15:45:00	1022
07/24/97	21:00:00	1062
07/24/97	23:30:00	1130
07/25/97	02:15:00	1118
07/25/97	03:00:00	1066
07/25/97	05:45:00	1128
07/25/97	14:00:00	1065
07/25/97	14:45:00	1126
07/25/97	15:45:00	1110
07/25/97	19:45:00	1024

DO % and mg/L data deleted 07/29/97 (10:00:00). First record in deployment was higher than other values that followed. Data deleted.

August 1997:

SU: Dissolved oxygen gradually declined from 08/01/97 to 08/11/97
due to colonization of oxygen probe by periphyton

Negative Turbidity Values:

08/16/97	19:15:00	-0783
08/16/97	20:45:00	-1088
08/16/97	21:00:00	-1010
08/16/97	21:15:00	-0830
08/16/97	21:30:00	-0782
08/16/97	21:45:00	-0786
08/16/97	22:00:00	-0782
08/16/97	22:15:00	-0782
08/16/97	22:30:00	-0858
08/16/97	22:45:00	-0782
08/16/97	23:00:00	-0782
08/16/97	23:15:00	-0782
08/16/97	23:30:00	-0804
08/16/97	23:45:00	-0881
08/17/97	00:00:00	-0782
08/17/97	00:15:00	-0789
08/17/97	00:30:00	-0824
08/17/97	00:45:00	-0811
08/17/97	01:00:00	-0781
08/17/97	01:15:00	-0781
08/17/97	01:30:00	-0795
08/17/97	01:45:00	-0782
08/17/97	02:00:00	-0781
08/17/97	02:15:00	-0781
08/17/97	02:30:00	-0781
08/17/97	02:45:00	-0790
08/17/97	03:00:00	-0781
08/17/97	03:15:00	-1004
08/17/97	03:45:00	-0781
08/17/97	04:00:00	-0781
08/17/97	04:15:00	-0781

Turbidity Values over 1000 NTU:

8/17/97	03:00:00	1118
8/17/97	05:00:00	1023

September 1997:

WM:

SU: Negative Turbidity values:

09/20/97	01:15:00	-0777
09/20/97	01:30:00	-0777
09/20/97	01:45:00	-0777
09/20/97	02:00:00	-0777
09/20/97	02:15:00	-0852
09/20/97	02:30:00	-0814
09/20/97	02:45:00	-0777
09/20/97	03:00:00	-0777
09/20/97	03:15:00	-0778
09/20/97	03:30:00	-0777
09/20/97	03:45:00	-0777
09/20/97	04:00:00	-0777
09/20/97	04:15:00	-0793
09/20/97	04:30:00	-0777

09/20/97	04:45:00	-0777
09/20/97	05:00:00	-0777
09/20/97	05:15:00	-0782
09/20/97	05:30:00	-0777
09/20/97	05:45:00	-0777
09/20/97	06:00:00	-0777
09/20/97	06:15:00	-0777
09/20/97	06:30:00	-0777
09/20/97	06:45:00	-0777
09/20/97	07:00:00	-0777
09/20/97	07:15:00	-0959
09/20/97	07:30:00	-0943
09/20/97	07:45:00	-0777
09/20/97	08:00:00	-0980
09/20/97	08:15:00	-0777
09/20/97	08:30:00	-0913
09/20/97	08:45:00	-1033
09/20/97	09:00:00	-0965
09/20/97	09:15:00	-0958
Turbidity values over 1000NTU:		
09/20/97	09:30:00	1156

11. Missing data:

April 1997:

WM: All parameters 04/14/97 (09:45:00) change data logger
 All parameters 04/30/97 (09:00:00 to 14:30:00) change data
 logger
 SU: Oxygen- percent saturation 04/14/97 (08:30:00) to 04/30/97
 (08:00:00)- parameter not measured
 All parameters 04/30/97 (08:15:00) change data logger

May 1997:

WM: All parameters 05/26/97 (11:30:00) due to change of data logger
 SU: All parameters 05/16/97 (18:30:00) to 05/27/97 (14:15:00) data
 logger
 power failure.
 DO % and mg/L data deleted 05/27/97 (14:30:00). First record in
 deployment
 was higher than other values that followed. Data deleted.

June 1997:

WM:
 SU: All parameters 06/09/97 (09:30:00 to 10:15:00) change data
 logger

July 1997:

WM: All parameters 07/01/97 (10:15:00 to 10:45:00) change data
 logger
 Dissolved oxygen 07/01/97 (11:00:00) to 07/09/97 (10:45:00)
 probe failure
 Dissolved oxygen 07/14/97 (11:00:00 to 15:15:00) probe problems
 Dissolved oxygen 07/14/97 (22:30:00) to 07/29/97 (09:00:00)
 probe failure

All parameters 07/29/97 (09:15:00 to 10:00:00) change data
logger

SU: All parameters 07/01/97 (10:45:00 to 11:30:00) change data
logger

All parameters 07/29/97 (09:30:00 to 09:45:00) change data
logger

DO % and mg/L data deleted 07/29/97 (10:00:00). First record
in deployment
was higher than other values that followed. Data deleted.

August 1997:

WM: All parameters 08/08/97 (14:00:00 to 15:45:00) data logger
power problems

All parameters 08/08/97 (16:45:00 to 17:15:00) data logger
power problems

All parameters 08/08/97 (18:30:00 to 18:45:00) data logger
power problems

All parameters 08/08/97 (19:30:00 to 21:00:00) data logger
power problems

All parameters 08/08/97 (21:45:00) to 08/11/97 (10:45:00)
data logger power
problems

Dissolved oxygen 08/11/97 (11:00:00) to 08/18/97
(09:15:00) probe failure

All parameters 08/18/97 (09:30:00) to 08/25/97 (09:45:00)
data logger power
failure

Turbidity 08/25/97 (10:00:00) to 08/31/97 (23:45:00)
probe failure

SU: All parameters 08/11/97 (09:45:00 to 10:45:00) change data
logger

All parameters 08/25/97 (09:45:00 to 10:30:00) change data
logger

September 1997:

WM: Turbidity 09/01/97 (00:00:00) to 09/08/97 (08:45:00) probe
failure

All parameters 09/22/97 (08:15:00 to 09:00:00) change data
logger

SU: All parameters 09/22/97 (08:45:00) change data logger

October 1997:

WM: All parameters 10/28/97 (23:45:00) to 10/31/97 (23:45:00) power
failure in
data logger

SU: All parameters 10/31/97 (13:45:00 to 23:45:00) power failure in
data
logger