HYDROBIOLOGICAL MONITORING PROGRAM
DATA REPORT FOR THE PERIOD FROM MARCH 1985 THROUGH FEBRUARY 1986 COVERING THE LOWER PEACE RIVER AND CHARLOTTE HARBOR

AS PER

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
CONSUMPTIVE USE PERMIT RENEWAL, 5 MAY 1982,
FOR THE PEACE RIVER REGIONAL WATER TREATMENT PLANT

SUPPLEMENTAL REPORT

TO
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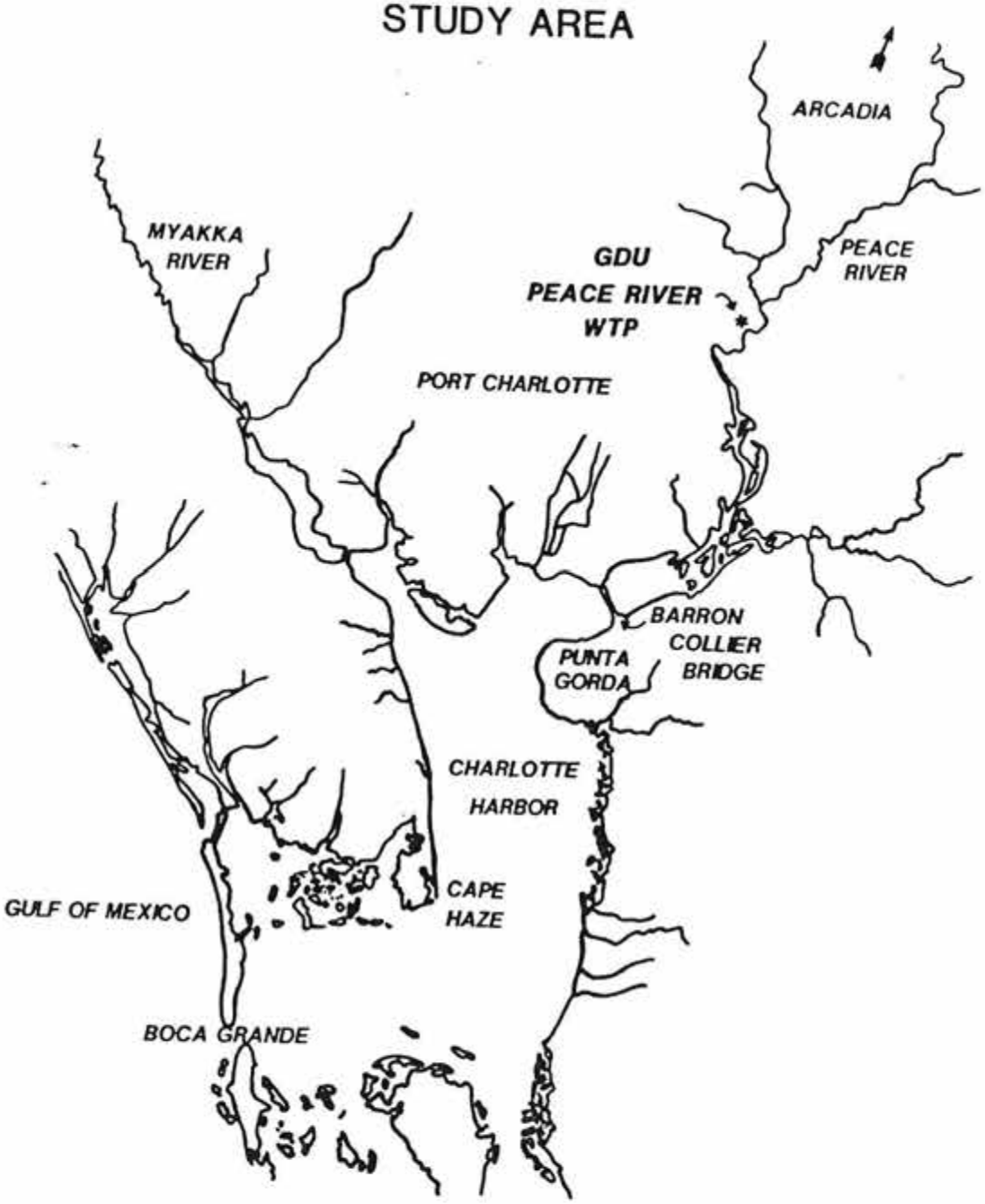
1.0 INTRODUCTION

On December 10, 1975 the consumptive use permit #7500016 for the Peace River Regional Water Treatment Plant was signed between General Development Utilities, Inc. and the Southwest Florida Water Management District (SWFWMD). Item No. 7, in conjunction with Exhibit B, of this agreement set forth a comprehensive hydrobiological monitoring program to assess the responses of various physical, chemical and biological characteristics of the Charlotte Harbor estuary to changes in Peace River flow. The program was designed to evaluate the impacts and significance of natural salinity changes on the aquatic fauna and flora in upper Charlotte Harbor, and to determine if freshwater withdrawals by the water treatment plant, totaling less than 2% of the annual river flow, could be shown to alter these patterns. The area incorporated in the study is shown in Figure 1.1.

A series of seven reports have been filed (February 1979, December 1980, July 1981, August 1982, September 1983, August 1984 and July 1985) with the SWFWMD documenting the results of the hydrobiological monitoring program during the period from January 1976 through February 1985. These reports include summarizations of data collected during the first four years of baseline monitoring, prior to the start of freshwater withdrawals, as well as comparisons of these data to the results obtained from the biological monitoring program during the first four years of water treatment plant operation. The last two report years consist of data only, which will be analyzed at the end of the fourth year in 1988.

FIGURE 1.1
CHARLOTTE HARBOR
STUDY AREA



The initial hydrobiological monitoring program was designed to provide answers to specific questions raised by SWFWMD staff during the original permit process dealing with possible salinity changes in Charlotte Harbor. Analysis of data from pre and post water treatment plant operation presented in the August 1982 report indicated the need to revise the monitoring program in order to better evaluate possible changes in the Charlotte Harbor system as related to flow. Modifications to the hydrobiological monitoring program were made in conjunction with the renewal of the consumptive use permit (C.U.P. # 202923) in May 1982. Other changes began in March 1985, as a part of the C.U.P. agreements of 1982.

As per agreement, the Environmental Quality Laboratory is submitting an annual data report in the form of this document reporting the results from March 1985 through February 1986. In addition, primary productivity physical and chemical data for ongoing phytoplankton studies from June 1983 through March 1985 are included.

2.0 PROJECT DESCRIPTION

This document reports the results obtained from March 1985 through February 1986 for the hydrobiological monitoring program set forth in Item No. 9 of Consumptive Use Permit #202923 and in the attached Exhibit 1, No. 12, for the Peace River Regional Water Treatment Plant of General Development Utilities. Physical, chemical and biological sampling station sites were selected at locations extending from inside Boca Grande Pass, in lower Charlotte Harbor, to the non-tidal portion of the Peace River at Arcadia, Florida.

The period covered within this supplemental report follows directly upon that of a prior report submitted in July 1985 and ends with the completion of sixth year of treatment plant operation. A new monitoring program, based on the analysis of data gathered during the previous permit period, was started in March 1985 as agreed to with the Southwest Florida Water Management District. The new program is based on biological, physical and chemical data.

2.1 Monitoring Parameters

The biological monitoring program is a further modification of the sampling regime begun in March 1982. Included are monthly fish trawl studies and primary productivity phytoplankton studies. Sea star and ponar collections are no longer included in this study. Infra-red photography

was flown once for this reporting period but riparian vegetation investigations will not be conducted until the last year of the present permit.

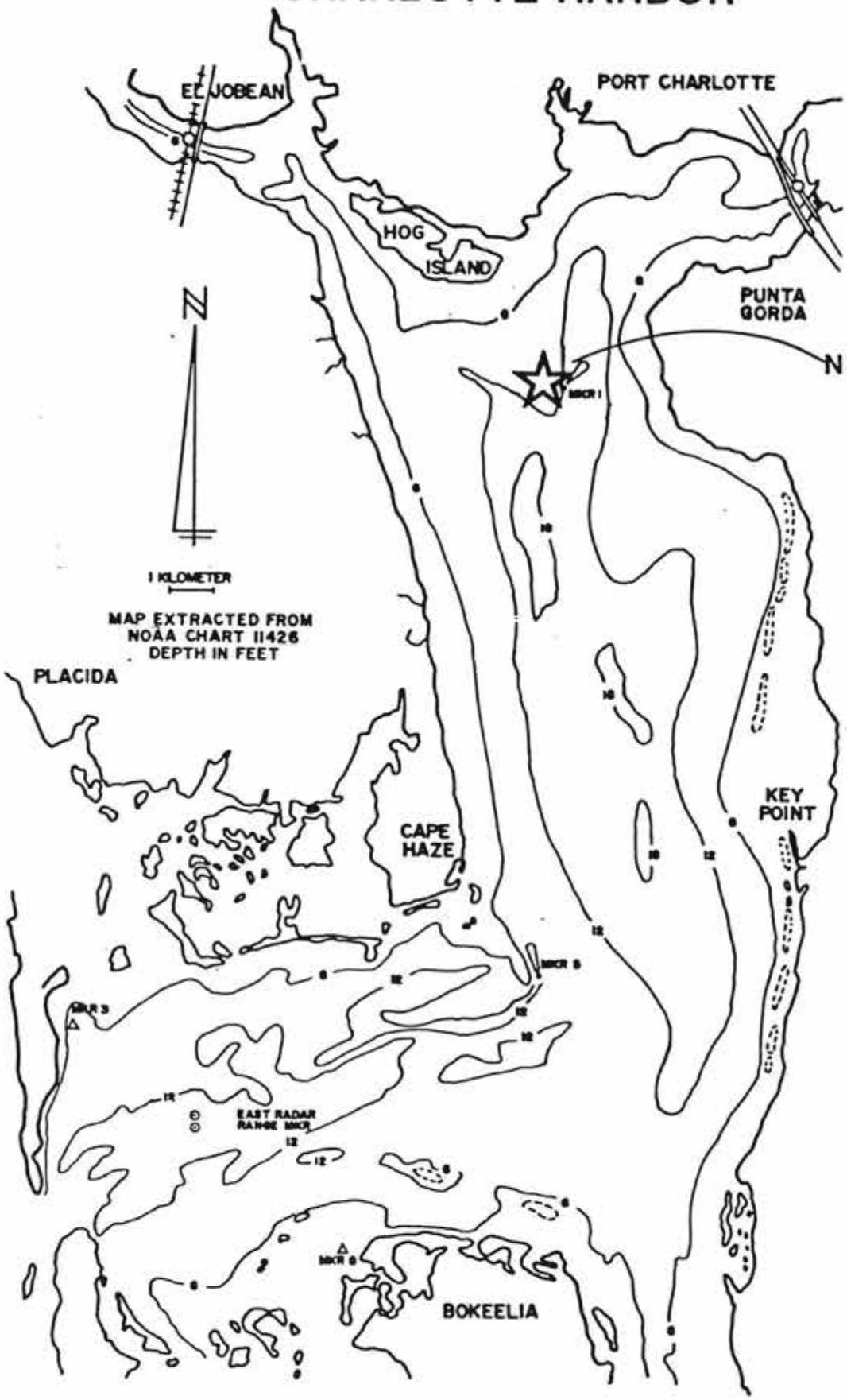
2.1.1 Fish Trawl Studies - Continued from March 1982

Eight two-minute bottom tows were taken with a 16-foot otter trawl at approximately 30 day intervals in 1985 and 1986 at an Environmental Quality Laboratory station in upper Charlotte Harbor near Marker #1 (Fig. 2.1). Corresponding in situ water column profile data were taken at one-half meter intervals for temperature, dissolved oxygen, pH and conductivity (salinity by calculation). All fish collected were preserved and identified to species level in the laboratory.

2.1.2 Primary Productivity

Water samples to be inoculated with ^{14}C were collected in 5 light and 2 black, glass bottles monthly since June 1983. These were collected in the Peace River and Charlotte Harbor within the 4 surface salinity zones of 0 o/oo, 5-7 o/oo, 11-13 o/oo, and 20-22 o/oo. The exact monthly locations of these stations in Charlotte Harbor varied being dependent on the amount of fresh water flow down the Peace River. The greater the freshwater flow, generally higher during the summer months, the further downstream the stations were located. The furthest upstream occurrence of the station at 0 o/oo was approximately one half mile below Horse Creek and the furthest occurrence of the downstream 20-22 o/oo station was near Devilfish Key, off Boca Grande. A light intensity profile was conducted at each station and the bottles were incubated at the 50% light level for 2 hours around

Figure 2.1
CHARLOTTE HARBOR



apparent noon. Temperature, dissolved oxygen, salinity and pH were measured in situ at one-half meter intervals at each salinity zone. Water chemistry samples were collected at the same time to be analyzed for the following parameters:

color
chloride
alkalinity
NO2+NO3 nitrogen
NH3 nitrogen
total Kjeldahl nitrogen
ortho-phosphorus
total phosphorus
silica
inorganic carbon

After the 2 hour incubation period all sample bottles were returned to the laboratory and 3 separate size fractioned subsamples were taken from each bottle for the determination of ^{14}C uptake. Through these procedures the overall rates of ^{14}C fixation, as well as those proportions attributable both to the pico- (less than 5 micron), nano- (less than 20 micron) and net-plankton (greater than 20 micron), and the relationships between ^{14}C uptake, biomass estimates and light quanta were determined.

Measurements of chlorophyll a were also determined for the same size fractions to provide relative estimates of both the biomass and productivity rates of the various size fractions.

2.1.3 Riparian Vegetation

False color infra-red photographs were taken in May 1986 of the vegetation along the Peace River between the Barron-Collier Bridge and Arcadia for this reporting period to be used for future review of vegetation analysis.

3.0 METHODS AND DATA

The biological, physical and chemical methods employed and data gathered in the program are contained in this section.

3.1 BIOLOGICAL METHODS

3.1.1 Fish Trawl Studies

Fishes were collected monthly near Charlotte Harbor Marker #1 in eight bottom trawls of two-minute duration. The trawl sampling began in the first hour after twilight. A 16-foot otter trawl of 5/8 inch mesh, with 3/16 inch ace mesh lining the bag, was towed by a 23-foot, Dusky boat powered by a 250 hp Perkins marine diesel engine. Reciprocal tows were made at the four cardinal points of the compass at night around Charlotte Harbor Marker #1 in Charlotte Harbor (Location: 26°53.95'N-82°07.27'W) for a total of 8 tows.

At the beginning of each night's sampling, in situ hydrolab measurements of depth, temperature, dissolved oxygen, conductivity and pH were taken at half-meter intervals (Appendix A).

All biological samples collected were immediately preserved in 10% formaldehyde for laboratory identification. Specimens were preserved in the formaldehyde for a minimum of 3 weeks post sampling, rinsed and soaked in fresh tap water every 24 hours for 3 days, then repacked in 70% alcohol or 25% ethylene glycol (new procedure) for identification and storage. All specimens were identified to the species level and the information entered into the Environmental Quality Laboratory's Data Management System (Table 3.1).

TABLE 3.1

NIGHT TRAWL FISH CATCHES

	1985										1986		
SPECIES	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	TOTAL
Cynoscion nebulosus			3		3			307	2	2			317
Prionotus scitulus	12	15	17	19	62	67		5	12	15		5	229
Lagodon rhomboides	11			6	126	13		2	11	6	11	1	187
Symphurus plagiusa	13	31	15	4	11	1		12	21	15	11	13	147
Anchoa mitchilli			113			3	8	6		1	1		132
Menticirrhus americanus		36	15	2	8	2		38	17	10			128
Eucinostomus gula		9	1		16	1		1	22	51	16	6	123
Orthopristis chrysoptera	1	5	3	5	35	1							50
Trinectes maculatus		6	5	2	7	1		11	2	1			35
Bairdiella chrysoura		3	1	2	2	1		1	24				34
Eucinostomus argenteus					3	1		1	6	14	4		29
Chaetodipterus faber		1			13	4		3	2	1			24
Arius felis		1			1	6		10					18
Leiostomus xanthurus					9	5	1						15
Prionotus tribulus	1	2	1					2	3	3	1	2	15
Syngnathus louisianae		1	1	1		2					3		8
Chloroscombrus chrysurus					2	5							7
Microgobius thalassinus			2		1	2		1	1				7
Synodus foetens		1			2				3				6
Sphoeroides nephalus			1	1	3								5
Chilomycterus schoepfi			1	1	1					1		1	5
Urophycis floridana	2											3	5
Ophichthus gomesi		2				1							3
Dasyatis sabina		1	1									1	3
Etropus crossotus		1	1									1	3
Anchoa hepsetus		1	2										3
Syngnathus scovelli	2					1							3
Gobiosoma bosci					1							1	2
Achirus lineatus					2								2
Hemicaranx amblyrhynchus						1							1
Hippocampus erectus									1				1
Hypsoblennius hentzi											1		1
Syngnathus floridae	1												1
TOTAL	43	116	183	43	308	118	9	400	127	120	48	34	1549

3.1.2 Primary Productivity Methods

Statistically comparable levels of phytoplankton ^{14}C fixation and investigations of population structure, physical hydrolab parameters and water column light profiles have been determined monthly at four salinity based stations in Charlotte Harbor since June 1983. The four stations represent nonfixed surface salinity zones such that:

Station 1 = 0 o/oo
Station 2 = 5-7 o/oo
Station 3 = 11-13 o/oo
Station 4 = 20-22 o/oo

Rates of ^{14}C fixation, as well as those proportions attributable to the pico-, nano- and net-plankton and the relationships between primary production, biomass, light, temperature and nutrients were determined utilizing the procedures outlined below. Primary productivity data for June 1983 through February 1986 are presented in Appendix B.

3.1.2.1 Field

Light intensity profiles were conducted at each station, using a LI-COR (Model LI-185B) quantum/radiometer/photometer equipped with an underwater LI-1925B quantum sensor to measure photosynthetically active radiation. Light intensities were measured in the air just above the water surface, again just below the surface, and at five equal depths between the surface and the 1% light level. Subsurface water samples were then placed in five "light" and two (black plastic dipped) "dark" acid-rinsed 450 ml glass incubation bottles. Each bottle was innoculated with 10-20 microcuries of trace metal-free ^{14}C (to obtain counts of at least ten thousand counts per minute or CPM,

depending on phytoplankton levels) and then quickly replaced to be incubated in situ at the 50% light depth, as determined above, for two hours. All incubations were conducted within two hours of apparent noon (Eastern Standard Time) and cumulative light levels during the incubation period were recorded using a LI-COR integrating quantum photometer. After incubation all samples were placed in the dark, in a cool ice chest and then returned to the laboratory to be prepared for scintillation counting.

3.1.2.2 Laboratory

Three separate subsamples were taken from each sample bottle for the determination of ^{14}C uptake.

1) 50 ml were filtered through a 2.4 cm Whatman GF/C glass fiber filter using low vacuum (less than 2 PSI). The wet fiber filter was then placed in a scintillation vial with 0.5 ml of 0.1 NHCl and allowed to stand for 3 hours before the addition of 10.0 ml of scintillation fluor.

2) A second subsample was prepared in the same manner as the first, except prior to filtering the 50 ml subsample was passed through a 20 micron Nitex screen.

3) The third subsample was prepared in a likewise manner, but passed through a 5 micron Nitex screen prior to filtering.

The corresponding filter blanks for each station were prepared by adding the same number of microcuries to a corresponding 450 ml ice stored water sample, immediately taking 50 ml subsamples, filtering and treating the blanks exactly as in (1) above.

All scintillation vials were allowed to dark adapt for at least 24 hours before being counted.

Prior to running each set of samples, background and known ^{14}C standards were run to check and validate the performance of the laboratory's Packard liquid scintillation system. Verification of the activity of the ^{14}C innoculation solution was also made.

Each sample was counted for 30 minutes providing CPM in spectal region A having standard deviation less than 0.2%. Counts per minute (CPM) were then converted to disintigrations per minute (DPM) using the filter standardization channels ratio method.

Daily determinations of photosynthetically active net solar radiation (400-700 nanometers) were recorded using the laboratory's LICOR printing integrating quantum photometer. Both daily and monthly values throughout the study period have been entered into the laboratory's data management system.

3.1.3 Algal Biomass

Chlorophyll *a* measurements have been widely used to estimate phytoplankton biomass. For the purpose of these investigations, chlorophyll *a* levels of the : 1) greater than 20 micron, 2) less than 20 micron, and 3) less than 5 micron size fractions, were determined in conjunction with the estimation of primary productivity of each of these size fractions to provide relative estimates of both the biomass and productivity rates of the various size fractions.

3.2 PHYSICAL METHODS

3.2.1 Profile Measurements

Depth, temperature, dissolved oxygen, salinity and pH were measured *in situ* with a Hydrolab™ Model 8000 system or Surveyor Model 2 system. Primary productivity hydrolab results from June 1983 through February 1986 are presented in Appendix C.

Profiles were made from the surface to the bottom at 0.5m increments at phytoplankton stations in the four previously mentioned salinity zones. Instrument calibrations were always completed less than 24 hours, and usually less than 12 hours, prior to use.

Depth measurements were determined on the basis of pre-measured marks on the unit's cable.

Temperature was measured with a linear resistance thermistor, factory calibrated and accurate to within ±0.2°C.

Dissolved oxygen (D.O.) was measured with a temperature-compensated, passive, polarographic cell with gold and silver electrodes. This type of cell is covered with an oxygen-permeable membrane and filled with a KCL electrolyte solution. The probe is temperature compensated and measures the partial pressure of oxygen, displayed as parts per million (ppm) of oxygen, ±0.2 ppm. The probe was calibrated to the oxygen tension of water-saturated air (temperature corrected) as a standard. Results from the 8000 units were corrected for varying salinities with the following formula obtained from curves given in the instrument operating manual:

$$\text{corrected D.O.} = \text{measured D.O.} \times [1 - 0.003333 \times \text{conductivity}].$$

Results from the Surveyor II models are internally salinity compensated.

The conductivity probes are six electrode cells and were calibrated using a KCl solution of 0.3488 molarity having a theoretical conductivity of 41.8 mmho/cm. Probe response was then tested with a solution of known, low conductivity to ensure that the reading was ±1.0% of the range selected. The probes automatically temperature compensate. Conductivity was later converted to salinity with the formula of Cox et al, (1967).

The Hydrolab™ probes were calibrated with standard pH buffer solutions purchased from commercial vendors. The probes are standard glass, KCl solution filled probes with silver/silver chloride reference electrodes and refillable junctions. They are automatically temperature compensated and were first calibrated to pH 7 solution. Probe response was then tested against a pH 10 buffer. If the reading was within ±0.1 units of 10.0 (the calibrated accuracy of the probe is ±0.1 pH units) no adjustments were made. Further adjustments, if necessary, were made with the "pH slope" control.

3.2.2 Peace River Flow Data

Peace River flow data were obtained from a water-stage recorder. The instrument is maintained by the United States Geological Survey on the river west of Arcadia, Florida (Fig. 3.1, Table 3.2). The records are listed as "good", which means that 95% of the daily discharge measurements are within 10% of the actual discharge (Anon. 1976-1981). Data in this report are designated as "provisional" and may be subject to revisions.

Peace River daily withdrawl data is presented in Table 3.3 for the study period. It was collected from General Development Utilities Water

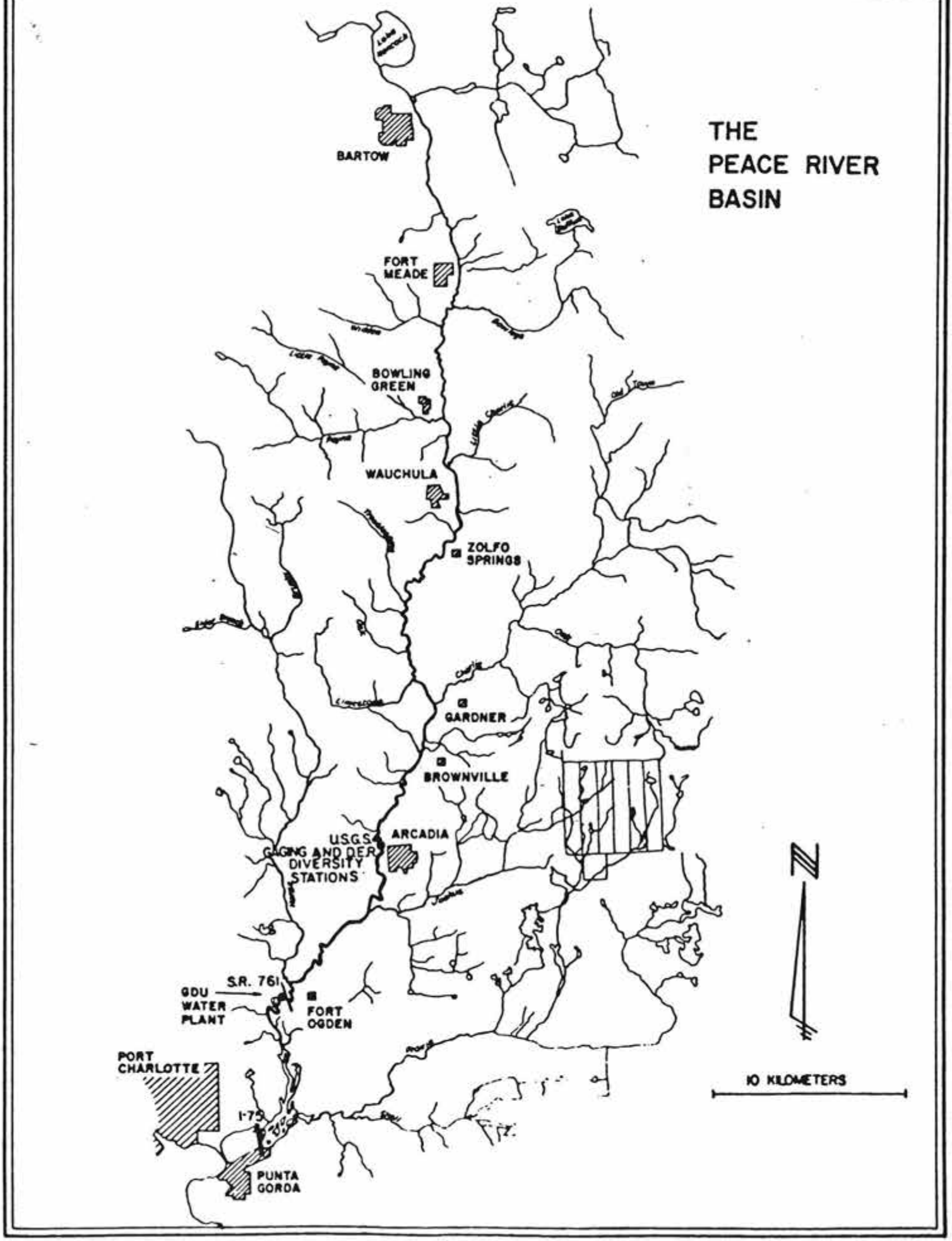

THE
PEACE RIVER
BASIN
BARTOW
FORT
MEADE
BOWLING
GREEN
WAUCHULA
ZOLFO
SPRINGS
GARDNER
BROWNVILLE
ARCADIA
U.S.G.S.
GAGING AND DER
DIVERSITY
STATIONS
S.R. 761
GDU
WATER
PLANT
FORT
OGDEN
PORT
CHARLOTTE
I-75
PUNTA
GORDA
N
10 KILOMETERS

TABLE 3.2

REVISED

DAILY DISCHARGE IN CUBIC FEET PER SECOND
AT THE U.S. GEOLOGICAL SURVEY GAUGING STATION AT ARCADIA, FLORIDA
FOR MARCH 1984 THROUGH FEBRUARY 1985

DAY	MAR84	APR84	MAY84	JUN84	JUL84	AUG84	SEP84	OCT84	NOV84	DEC84	JAN85	FEB85
1	1800	370	145	488	234	1470	613	237	99	112	62	127
2	1480	342	124	437	244	1360	559	234	85	112	63	133
3	1260	325	112	383	294	1320	511	233	86	106	73	118
4	1130	336	105	353	423	1280	413	222	86	108	87	100
5	1050	389	103	346	460	1340	367	200	88	113	94	89
6	965	448	100	317	661	1970	492	196	102	121	96	90
7	889	405	82	297	710	2180	717	186	107	130	87	87
8	822	357	89	271	598	2080	561	178	104	107	74	85
9	761	347	137	256	559	1950	447	178	96	90	72	99
10	651	363	122	238	487	1790	415	181	104	85	79	93
11	522	357	99	232	439	1590	408	179	90	86	71	83
12	520	327	91	212	426	1240	379	174	73	84	71	90
13	1980	306	87	199	449	945	355	173	64	94	70	91
14	2950	294	79	194	505	947	312	159	61	113	69	103
15	2510	310	68	204	415	1020	274	140	62	93	60	102
16	1860	370	62	208	588	940	249	119	76	86	60	97
17	1470	404	61	209	1030	869	241	116	91	77	72	88
18	1250	379	60	305	1310	822	237	108	75	68	78	85
19	1060	345	61	388	1350	687	229	103	65	75	86	91
20	896	320	60	438	1370	609	223	100	60	77	84	89
21	783	320	54	447	1530	606	216	102	91	94	90	86
22	726	323	59	429	2170	1000	204	107	134	93	95	74
23	712	311	78	432	2310	1390	187	109	136	73	95	72
24	776	304	232	398	2230	1830	166	104	171	69	100	79
25	819	303	273	370	2210	2170	157	96	205	68	101	74
26	727	294	319	336	2060	1900	149	94	181	64	93	68
27	624	274	301	319	2210	1310	139	101	137	76	90	84
28	548	259	321	282	2360	935	164	94	118	94	87	94
29	487	231	457	265	2250	756	214	100	189	86	87	-
30	439	187	439	246	1920	668	253	98	112	69	110	-
31	412	-	477	-	1650	624	-	93	-	65	127	-

TABLE 3.2 (contd)

DAILY DISCHARGE IN CUBIC FEET PER SECOND
AT THE U.S. GEOLOGICAL SURVEY GAUGING STATION AT ARCADIA, FLORIDA
FOR MARCH 1985 THROUGH FEBRUARY 1986

DAY	MAR85	APR85	MAY85	JUN85	JUL85	AUG85	SEP85	OCT85	NOV85	DEC85	JAN86	FEB86
1	95	60	30	38	103	406	744	804	323	133	50	97
2	83	78	34	34	102	509	1060	769	386	166	55	104
3	73	95	40	33	101	635	1390	724	382	164	79	101
4	68	112	39	30	98	719	1620	1130	413	50	80	104
5	66	106	37	26	88	835	1890	1500	458	46	69	109
6	68	92	36	29	113	877	2240	1360	399	43	59	111
7	69	89	34	62	115	995	2700	1240	351	41	66	97
8	67	100	34	68	108	1220	3140	1050	315	43	77	79
9	65	86	41	57	103	1390	3310	859	289	43	86	80
10	55	85	43	45	104	1420	3050	752	266	42	87	124
11	49	85	57	39	114	1340	2200	666	253	36	106	147
12	57	82	67	47	150	1190	1950	568	246	38	157	155
13	55	91	60	93	182	1020	1550	493	244	42	133	177
14	54	98	57	108	220	1090	1300	592	246	44	113	166
15	48	117	56	173	261	1210	1200	835	227	44	110	143
16	45	144	49	201	258	1220	1010	903	225	48	109	131
17	63	175	47	189	257	1160	858	823	231	52	102	126
18	114	179	41	157	294	1010	764	738	229	60	97	122
19	97	145	45	142	289	834	720	629	250	60	96	133
20	77	123	48	153	416	772	801	493	245	52	95	138
21	77	104	41	168	513	784	1790	437	221	43	94	131
22	104	78	37	190	538	798	2280	421	205	36	90	121
23	175	60	48	448	503	784	2100	424	177	34	81	112
24	193	66	105	422	462	1060	1750	441	165	40	72	122
25	143	73	118	304	472	1190	1420	411	165	49	67	115
26	111	64	105	218	480	1100	1230	328	161	51	64	111
27	100	51	73	176	426	952	1080	294	152	53	75	106
28	88	50	56	145	388	766	950	292	140	54	96	97
29	82	46	45	126	369	661	881	280	136	56	103	-
30	78	33	38	115	364	629	835	270	137	57	97	-
31	69	-	39	-	390	624	-	286	-	52	96	-

TABLE 3.3

PEACE RIVER DAILY WITHDRAWAL BY GENERAL DEVELOPMENT UTILITIES
PEACE RIVER WATER TREATMENT PLANT
IN MILLIONS OF GALLONS PER DAY
FOR MARCH 1985 THROUGH FEBRUARY 1986

DAY	MAR85	APR85	MAY85	JUN85	JUL85	AUG85	SEP85	OCT85	NOV85	DEC85	JAN86	FEB86
1	3.051	5.001	0.000	0.000	0.000	0.000	0.000	8.766	0.000	0.000	1.671	3.986
2	2.896	2.637	0.000	0.000	0.000	0.454	0.000	9.261	0.000	0.000	0.000	3.929
3	3.653	0.000	0.000	0.000	0.000	15.071	3.982	8.326	3.370	0.000	1.685	0.513
4	4.804	0.000	0.000	0.000	0.000	7.480	3.227	3.458	12.377	0.000	18.000	0.000
5	0.520	0.000	0.000	0.000	0.000	3.765	4.087	3.931	14.450	0.000	17.490	0.000
6	4.200	0.000	0.000	0.000	0.000	3.242	3.198	2.235	19.140	0.000	17.280	0.000
7	6.143	0.000	0.000	0.000	0.000	3.224	4.298	3.716	17.880	0.000	11.988	0.000
8	0.000	0.000	0.000	0.000	0.000	3.765	3.006	3.750	1.426	0.000	17.670	0.000
9	0.000	0.000	0.000	0.000	0.000	3.142	3.926	3.560	0.000	0.000	17.571	0.000
10	0.000	0.000	0.000	0.000	0.000	3.872	3.814	4.841	0.000	0.000	17.278	0.000
11	0.000	0.000	0.000	0.000	0.000	3.814	4.694	3.930	0.000	0.000	17.547	0.000
12	0.000	0.000	0.000	0.000	0.000	3.668	4.694	4.154	0.000	0.000	17.242	0.000
13	0.000	0.000	0.389	0.000	0.000	3.130	3.863	3.143	0.000	0.000	17.261	0.000
14	0.000	0.000	0.000	0.000	0.000	4.352	3.498	0.000	0.000	0.000	16.810	0.000
15	0.000	0.000	0.000	0.000	0.000	3.130	4.205	3.422	0.000	0.000	10.307	0.000
16	0.000	9.590	0.000	0.000	0.000	3.944	3.514	4.930	0.000	0.000	7.426	0.000
17	0.000	17.086	0.000	0.000	0.000	3.360	0.000	3.414	0.000	0.000	3.135	0.000
18	0.000	19.830	0.000	18.700	0.000	4.010	0.000	4.391	0.000	0.000	3.301	0.000
19	16.590	19.857	0.000	19.212	0.000	3.903	0.000	4.628	0.000	9.360	3.024	0.000
20	12.376	10.803	0.000	14.904	0.000	3.590	0.000	3.758	0.000	13.296	3.744	0.000
21	0.000	4.645	0.000	19.757	19.466	4.694	0.000	0.000	0.000	2.858	3.449	0.000
22	0.000	4.844	0.000	19.243	19.818	3.570	3.367	0.000	0.000	0.000	3.794	0.000
23	17.872	0.000	0.000	19.153	19.872	4.395	12.600	0.000	0.000	0.000	2.935	0.000
24	17.588	0.000	0.000	18.890	19.979	2.934	5.998	0.000	0.000	0.000	3.774	6.048
25	9.291	0.000	0.000	19.460	19.066	4.010	2.789	0.000	0.000	0.000	3.906	5.670
26	4.317	0.000	0.000	18.559	19.006	4.160	4.476	0.000	0.000	0.000	2.878	0.000
27	4.221	0.000	0.000	18.941	18.641	3.843	0.685	0.000	0.000	0.000	2.884	6.048
28	4.776	0.000	0.000	18.480	18.656	3.814	0.000	0.000	0.000	0.000	3.523	20.160
29	4.593	0.000	0.000	15.785	18.700	4.694	0.000	0.000	0.000	1.684	3.191	-
30	5.108	0.000	0.000	0.000	17.722	3.586	0.000	0.000	0.000	4.236	3.357	-
31	5.004	-	0.000	-	18.501	1.833	-	0.000	-	6.748	3.246	-

Treatment Plant located on the Peace River (Fig. 3.2). Chloride values from the SR 761 Bridge are presented in Table 3.4.

3.3 CHEMICAL METHODS

Surface water samples were collected monthly for analysis at each phytoplankton primary productivity station (within four salinity zones). Water was collected in pre-labeled, one liter polyethylene containers by rinsing then quickly submerging the containers to a few inches below the surface with the mouth facing upcurrent. Samples were stored on ice and in the dark and returned to the laboratory following EQL standard chain of custody and quality assurance procedures. A list of abbreviations, concentrations and symbols are presented in Table 3.5 and laboratory methods employed are presented in Table 3.6. Results of the primary productivity chemical analysis are presented in Appendix D.

Figure 3.2

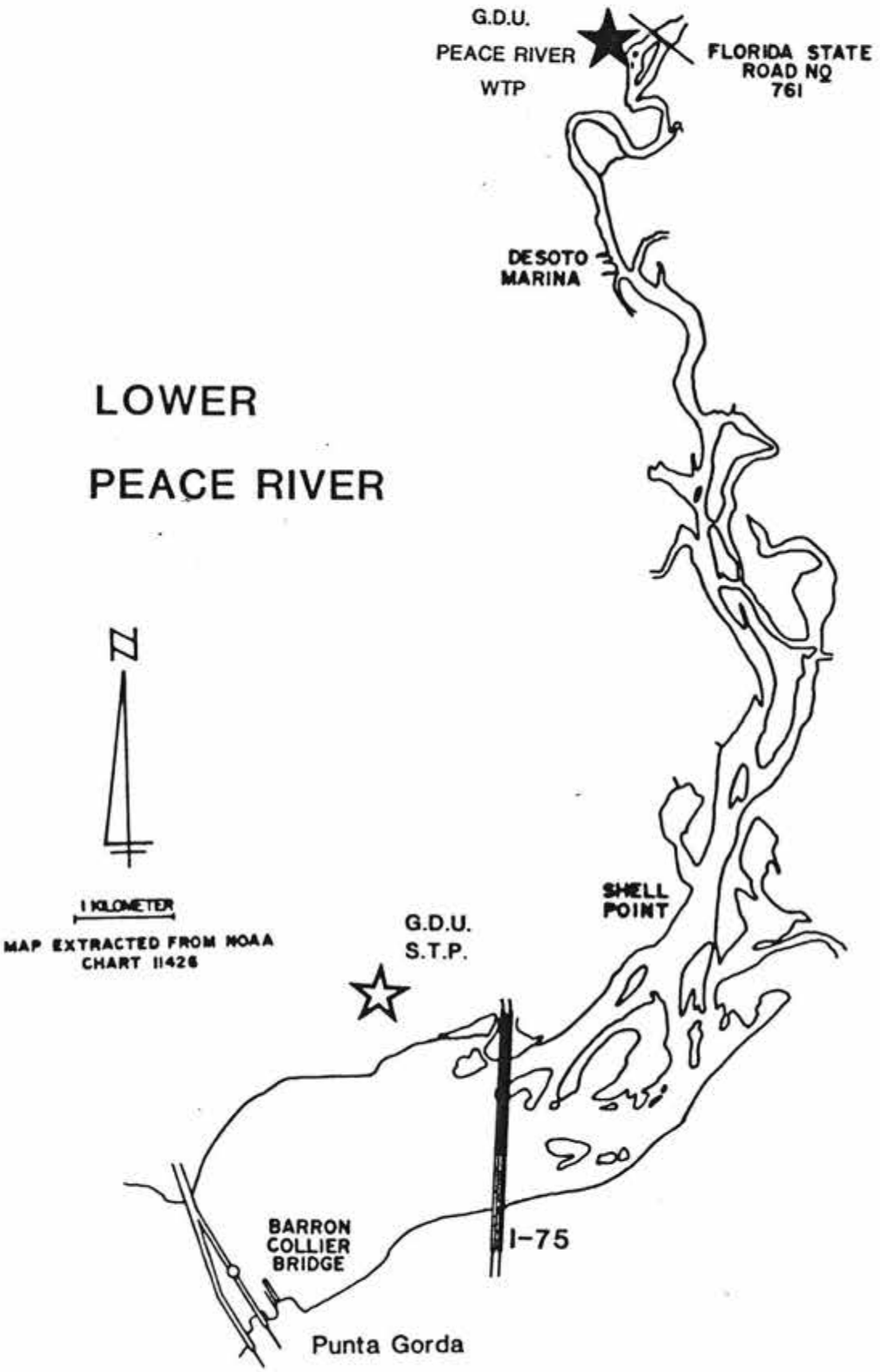

G.D.U.
PEACE RIVER
WTP
FLORIDA STATE
ROAD NO
761
DESOTO
MARINA
LOWER
PEACE RIVER
N
1 KILOMETER
MAP EXTRACTED FROM NOAA
CHART 11426
G.D.U.
S.T.P.
SHELL
POINT
BARRON
COLLIER
BRIDGE
I-75
Punta Gorda

TABLE 3.4
CHLORIDE VALUES OF PEACE RIVER WATER AT THE FLORIDA STATE ROAD 761 BRIDGE NEAR THE GENERAL DEVELOPMENT UTILITIES WATER TREATMENT PLANT FOR MARCH 1985 THROUGH FEBRUARY 1986

1985	LOCATION	CHLORIDE (mg/l)
7 March	Top	36.1
	Bottom	36.8
8 April	Top	38.1
	Bottom	38.3
6 May	Top	469
	Bottom	549
3 June	Top	1220
	Bottom	1380
9 July	Top	40.6
	Bottom	41.0
5 August	Top	20.0
	Bottom	21.2
10 September	Top	11.3
	Bottom	11.7
1 October	Top	17.1
	Bottom	17.1
11 November	Top	25.6
	Bottom	25.7
10 December	Top	28.9
	Bottom	27.7
1986		
13 January	Top	27.9
	Bottom	28.0
6 February	Top	31.0
	Bottom	31.4

TABLE 3.5

ABBREVIATIONS, CONCENTRATIONS AND SYMBOLS

In Situ Hydrolab Data	
DEPTH	Depth, in meters
TEMP.	Temberature, in °C
D.O.	Dissolved oxygen, in ppm
pH	pH, in pH units
COND.	Conductivity, in mmho/cm
SAL.	Salinity, in ppt
Water Chemistry	
Minerals	
COLOR	Color in APHA
CHLORIDE	Chloride in mg/l
ALK.-CaCO3	Alkalinity, calcium carbonate, mg/l
Chl. a	Chlorophyll a in mg/m^3
Nutrients - All expressed as mg/l	
NO2+NO3-N	Nitrite and Nitrate Nitrogen
NH3-N	Ammonia nitrogen
TOT.KJEL.N.	Total Kjeldahl nitrogen
ORTHO PO4-P	Ortho-phosphate
TOTAL P	Total phosphorus
SILICA-Si	Silica
INORG. C	Inorganic carbon

TABLE 3.6

LABORATORY METHODS

Parameter	Method	Reference	Comments
Color	Spectrophotometric	APHA 1980, 204B, p 63; EPA 110.2	Photometric measurement at 455 nm with Hach photometer & cobalt-platinum color standards
Chloride	Titrimetric (Argentometric)	APHA 1980, 407A, p 270;	Method extended to high salinity samples by micro-pipet sampling
Alkalinity	Titrimetric (indicator)	EPA 310.1	Titrimetric, pH 4.5
Nitrate + Nitrite Nitrogen	Automated cadmium reduction	APHA 1980, 418C, p 370; EPA 353.2	Measured as Nitrite after Cadmium metal reduction
Ammonia Nitrogen	Automated phenate, Colorimetric	APHA 1980, 417F, p 363; EPA 350.1	
Total Kjeldahl Nitrogen	Acid digestion on Technicon BD-40 with colorimetric	APHA 1980, 420B, p 386;	Digestion:modified from the Technicon BD-40 Block Digestor (Industrial Method 376-75W, rev. 8-21-75)procedure.Measurement by the automated phenate method (Industrial Method 329-74W).
Ortho-phosphate	Phospho-molybdate combined reagent	APHA 1980, 424G, p 422;	
Total Phosphorus	Phospho-molybdate combined reagent	EPA 365.2	
Silica	Automated molybdo-silicate	APHA 1980, 425E, p 434; EPA 370.1	Measures molybdate active dissolved or readily desorbed momomeric silicates

TABLE 3.6 (contd)

LABORATORY METHODS

Parameter	Method	Reference	Comments
Chlorophyll a	Filter pad-acetone extraction fluorometric	Strickland & Parsons, Handbook of Seawater Analysis, Bull. 167 Fisheries Resources Board of Canada, 1972, Part IV. 3. IV, p 201 or APHA 1980, 1002-G-2, Fluorometric Method, p 950	
Inorganic Carbon	Infrared method-CO_2	O.I.C. manufacturers method similar to APHA 1980,505, p.471 for removal of inorganic carbon	Measured with an Oceanography International Corp. Total Carbon System.

REFERENCES

EPA references are to: EPA 600/4-79-020, Methods for Chemical Analysis of Water and Wastes by method number.

APHA references are to: Standard Methods for the Examination of Water and Wastewater, 15th Edition, M.A. Franson, Ed., American Public Health Association, Washington, 1980, by method number and page number.

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APPENDICES

NIGHT TRAWL
IN SITU HYDROLAB DATA
1985

13 MAR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1900	0.0	24.3	6.2	7.6	49.1	32.1
		0.5	24.3	6.2	7.7	49.1	32.1
		1.0	24.3	6.2	7.7	49.1	32.1
		1.5	24.3	6.2	7.7	49.1	32.1
		2.0	24.3	6.2	7.8	49.1	32.1
		2.5	24.3	6.2	7.7	49.1	32.1
		3.0	24.2	6.0	7.7	49.1	32.1
		3.5	24.2	6.0	7.7	49.1	32.1
		4.0	24.2	6.0	7.7	49.1	32.1
		4.5	24.0	5.7	7.7	49.1	32.1

17 APR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1900	0.0	24.7	7.6	7.4	49.9	32.6
		0.5	24.8	7.7	7.5	49.9	32.6
		1.0	24.6	7.9	7.5	50.0	32.7
		1.5	24.6	7.9	7.5	50.0	32.7
		2.0	24.6	8.0	7.5	50.0	32.7
		2.5	24.6	8.0	7.5	50.0	32.7
		3.0	24.5	6.9	7.5	50.4	33.0
		3.5	24.1	5.9	7.4	51.0	33.5
		4.0	23.9	5.9	7.4	51.0	33.5

13 MAY

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	2018	0.0	28.8	5.2	7.7	50.1	32.8
		0.5	28.8	5.1	7.7	50.2	32.9
		1.0	28.8	5.0	7.7	49.5	32.3
		1.5	28.8	5.1	7.8	49.5	32.3
		2.0	28.8	5.1	7.8	49.7	32.5
		2.5	28.8	5.1	7.8	50.8	33.3
		3.0	28.8	5.1	7.8	50.4	33.0
		3.5	28.8	4.7	7.8	50.4	33.0
		4.0	28.4	4.0	7.7	50.4	33.0

APPENDIX A

NIGHT TRAWL
IN SITU HYDROLAB DATA
1985

5 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	2020	0.0	30.7	5.2	7.6	51.7	34.0
		0.5	30.7	5.2	7.6	51.7	34.0
		1.0	30.7	5.2	7.6	51.7	34.0
		1.5	30.7	5.3	7.7	51.7	34.0
		2.0	30.7	5.2	7.7	51.7	34.0
		2.5	30.7	5.3	7.7	51.8	34.0
		3.0	30.6	5.3	7.8	51.8	34.0
		3.5	30.4	5.3	7.8	52.2	34.3
		4.0	30.3	5.1	7.8	52.2	34.3

8 JUL

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	2027	0.0	30.4	5.2	7.6	49.6	32.4
		0.5	30.5	4.9	7.6	49.6	32.4
		1.0	30.5	5.2	7.6	49.6	32.4
		1.5	30.5	5.3	7.6	49.6	32.4
		2.0	30.5	4.8	7.7	49.7	32.5
		2.5	30.5	5.3	7.7	49.9	32.6
		3.0	30.5	5.4	7.7	50.1	32.8
		3.5	30.5	5.4	7.7	50.2	32.9
		4.0	30.6	4.7	7.7	50.5	33.1

13 AUG

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	2040	0.0	30.3	6.9	7.7	39.7	25.3
		0.5	30.5	5.9	7.7	39.9	25.4
		1.0	30.5	5.6	7.7	40.1	25.6
		1.5	30.6	5.6	7.7	39.7	25.3
		2.0	30.6	5.5	7.7	39.9	25.4
		2.5	30.6	5.1	7.7	40.0	25.5
		3.0	30.6	4.2	7.6	42.1	27.0
		3.5	30.5	2.4	7.5	45.9	29.7
		4.0	30.4	1.3	7.4	47.8	31.1

APPENDIX A

NIGHT TRAWL
IN SITU HYDROLAB DATA
1985

9 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	2040	0.0	29.0	5.6	7.2	28.3	17.4
		0.5	29.7	5.0	7.2	28.8	17.7
		1.0	29.4	4.6	7.2	30.0	18.5
		1.5	29.3	3.8	7.2	37.3	23.6
		2.0	28.7	1.6	7.1	41.0	26.2
		2.5	28.4	0.9	7.1	41.5	26.6
		3.0	28.2	0.8	7.1	42.3	27.1
		3.5	28.1	0.5	7.1	42.6	27.3
		4.0	27.8	0.3	7.1	42.8	27.5

12 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1945	0.0	29.0	4.7	7.7	35.0	22.0
		0.5	29.9	4.6	7.7	35.3	22.2
		1.0	28.9	4.6	7.7	35.3	22.2
		1.5	28.9	4.5	7.7	35.5	22.3
		2.0	28.9	4.5	7.7	35.4	22.2
		2.5	28.9	4.5	7.7	35.2	22.1
		3.0	28.9	4.5	7.7	35.8	22.5
		3.5	28.9	4.5	7.7	35.6	22.4
		4.0	28.9	4.5	7.7	35.1	22.0

25 NOV

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1945	0.0	25.0	7.7	8.0	38.0	24.1
		0.5	25.0	7.6	8.0	38.0	24.1
		1.0	25.0	7.5	8.0	38.0	24.1
		1.5	25.0	7.5	8.0	38.0	24.1
		2.0	25.0	7.4	8.0	38.0	24.1
		2.5	25.0	7.4	8.0	38.0	24.1
		3.0	24.9	6.6	7.9	39.5	25.1
		3.5	24.8	5.1	7.7	41.9	26.8
		4.0	24.8	3.5	7.6	42.6	27.3

APPENDIX A

NIGHT TRAWL
IN SITU HYDROLAB DATA
1985

18 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1942	0.0	NA	8.3	7.6	42.8	27.5
		0.5	NA	7.9	7.7	43.1	27.7
		1.0	NA	7.8	7.7	43.2	27.8
		1.5	NA	7.8	7.7	43.1	27.7
		2.0	NA	7.6	7.7	43.3	27.8
		2.5	NA	8.1	7.8	43.4	27.9
		3.0	NA	7.6	7.8	43.8	28.2
		3.5	NA	7.2	7.8	44.4	28.6
		4.0	NA	7.3	7.8	44.4	28.6

NA -- DATA NOT AVAILABLE

APPENDIX A

NIGHT TRAWL
IN SITU HYDROLAB DATA
1986

12 JAN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1943	0.0	18.4	6.4	7.3	46.2	29.9
		0.5	18.4	6.3	7.8	46.6	30.2
		1.0	18.4	6.3	7.8	46.2	29.9
		1.5	18.3	6.3	7.7	46.4	30.1
		2.0	18.2	6.2	7.7	46.5	30.2
		2.5	18.1	6.1	7.7	46.6	30.2
		3.0	18.1	6.1	7.7	46.6	30.2
		3.5	18.1	6.1	7.7	46.6	30.2
		4.0	18.0	6.1	7.7	46.7	30.3

14 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
6901	1900	0.0	18.2	6.9	7.8	46.1	29.9
		0.5	18.2	7.5	7.8	46.1	29.9
		1.0	18.2	7.2	7.8	46.1	29.9
		1.5	18.2	7.4	7.8	46.1	29.9
		2.0	18.2	7.0	7.8	46.1	29.9
		2.5	18.2	6.9	7.8	46.2	29.9
		3.0	18.2	6.9	7.8	46.2	29.9
		3.5	18.2	7.0	7.8	46.2	29.9
		4.0	18.2	6.9	7.8	46.2	29.9
		4.5	18.2	6.9	7.8	46.4	30.1

APPENDIX B

PRIMARY PRODUCTIVITY DATA
1983-1986

Date Station	Primary Productivity ($mgC/m^3/Em^2$)			Chlorophyll a (mg/m^3)			Extinction Coefficient
	Size Fraction			Size Fraction			
	20u	20-5u	5u	20u	20-5u	5u	
6/83							
0 o/oo	0.43	0.96	9.39	.1	2.0	13.0	2.90
6 o/oo	1.32	10.10	49.89	4.5	3.2	52.7	2.59
12 o/oo	0.60	0.80	16.32	0.0	0.9	11.6	1.59
20 o/oo	3.36	0.54	5.89	3.0	1.1	3.9	1.50
7/83							
0 o/oo	3.83	1.62	10.37	6.6	6.6	26.4	4.35
6 o/oo	0.65	0.85	29.87	12.9	0.8	58.7	3.49
12 o/oo	0.52	0.0	21.13	0.0	0.7	26.0	2.61
20 o/oo	0.0	0.0	5.83	0.2	0.0	2.9	1.13
8/83							
0 o/oo	1.29	3.15	11.80	5.6	1.5	11.2	4.36
6 o/oo	1.02	1.21	22.74	14.6	1.2	36.9	3.37
12 o/oo	1.17	0.14	27.54	3.1	2.0	17.3	1.81
20 o/oo	0.58	0.43	13.32	0.1	0.0	10.3	1.22
9/83							
0 o/oo	0.38	0.55	1.10	0.8	0.0	1.5	4.97
6 o/oo	2.36	1.04	5.80	1.7	1.0	8.9	3.61
12 o/oo	2.71	1.66	6.97	0.8	1.0	4.3	2.49
20 o/oo	1.23	2.15	7.63	0.9	1.0	4.7	1.42
10/83							
0 o/oo	1.53	0.78	3.75	4.5	2.0	6.2	4.34
6 o/oo	3.77	1.85	13.01	7.8	0.4	20.6	3.41
12 o/oo	2.62	0.85	14.90	8.4	5.5	18.1	2.34
20 o/oo	0.84	0.74	14.39	0.0	3.8	16.0	1.52
11/83							
0 o/oo	1.19	1.61	5.19	0.5	0.5	2.0	-
6 o/oo	4.83	4.83	13.52	2.1	1.1	4.7	-
12 o/oo	4.62	4.37	22.03	1.6	0.7	7.2	-
20 o/oo	0.54	0.48	12.62	0.2	0.2	3.4	-
12/83							
0 o/oo	0.72	0.40	2.15	0.6	0.4	4.7	4.08
6 o/oo	1.07	0.71	2.53	1.2	1.1	4.2	4.45
12 o/oo	5.59	0.59	4.45	12.7	0.0	10.2	3.04
20 o/oo	0.70	0.49	2.92	0.5	0.7	3.1	1.42

APPENDIX B (contd)

Date Station	Primary Productivity ($mgC/m^3/Em^2$)			Chlorophyll a (mg/m^3)			Extinction Coefficient
	Size Fraction			Size Fraction			
	20u	20-5u	5u	20u	20-5u	5u	
1/84							
0 o/oo	1.21	1.38	5.06	0.4	0.4	7.9	3.49
6 o/oo	5.48	1.22	8.14	15.2	0.8	13.7	3.15
12 o/oo	13.90	2.51	16.58	19.4	6.9	22.1	2.32
20 o/oo	0.73	1.14	32.54	4.6	2.5	19.6	1.55
2/84							
0 o/oo	0.29	1.34	2.99	0.8	1.5	4.9	2.36
6 o/oo	3.12	3.25	10.21	7.6	0.0	22.9	2.17
12 o/oo	7.72	6.14	13.01	14.0	1.3	24.1	1.93
20 o/oo	1.78	2.65	4.30	2.7	1.2	6.3	1.06
3/84							
0 o/oo	7.19	3.25	6.58	6.5	6.1	16.8	4.36
6 o/oo	9.53	1.58	7.53	31.1	18.7	18.7	3.22
12 o/oo	2.57	1.46	7.20	3.8	0.0	11.4	2.28
20 o/oo	0.9	1.12	4.26	1.4	0.3	6.4	1.27
4/84							
0 o/oo	2.21	2.09	10.55	2.9	10.2	16.4	2.76
6 o/oo	6.08	10.02	6.65	21.0	11.5	17.1	2.68
12 o/oo	4.00	10.29	7.52	1.6	17.1	10.2	1.63
20 o/oo	1.53	2.52	5.06	1.3	2.3	7.0	1.03
5/84							
0 o/oo	4.70	7.88	10.16	4.4	9.9	12.3	3.66
6 o/oo	9.43	5.40	15.95	11.4	1.1	19.1	2.86
12 o/oo	4.87	2.74	18.39	3.5	2.6	14.9	2.42
20 o/oo	2.73	1.28	8.18	1.0	1.4	5.7	1.48
6/84							
0 o/oo	1.9	8.38	20.03	3.1	4.4	21.9	3.49
6 o/oo	6.18	3.66	12.09	5.1	1.0	16.3	2.20
12 o/oo	13.48	2.72	7.68	7.9	4.1	7.6	1.71
20 o/oo	5.05	0.32	4.09	5.1	0.1	3.3	1.14
7/84							
0 o/oo	4.24	7.90	13.83	4.5	6.9	12.2	3.37
6 o/oo	2.50	1.93	6.12	5.1	0.0	7.0	2.04
12 o/oo	8.64	0.78	4.73	7.9	1.3	4.3	1.68
20 o/oo	7.97	0.94	9.32	12.2	0.3	3.3	1.09

APPENDIX B (contd)

Date Station	Primary Productivity ($mgC/m^3/Em^2$)			Chlorophyll a (mg/m^3)			Extinction Coefficient
	Size Fraction			Size Fraction			
	20u	20-5u	5u	20u	20-5u	5u	
8/84							
0 o/oo	1.33	0.67	6.11	0.8	1.1	6.4	4.81
6 o/oo	1.69	0.56	4.76	1.6	0.8	3.8	3.69
12 o/oo	10.32	1.02	6.05	3.2	20.9	19.1	2.08
20 o/oo	3.78	2.92	3.38	1.9	0.6	1.7	1.19
9/84							
0 o/oo	0.94	1.75	6.83	1.3	3.5	6.3	4.14
6 o/oo	10.13	10.97	62.07	9.0	13.3	128.8	3.87
12 o/oo	3.81	0.95	6.20	6.3	4.1	15.0	1.84
20 o/oo	1.27	0.51	4.85	2.7	0.0	4.8	1.03
10/84							
0 o/oo	1.43	2.12	11.50	0.0	5.9	13.2	2.45
6 o/oo	53.60	18.41	28.76	36.9	4.0	18.2	2.98
12 o/oo	15.89	12.78	18.76	39.7	0.0	67.7	4.08
24 o/oo	8.14	2.25	4.73	5.8	1.4	3.9	1.10
11/84							
0 o/oo	1.02	3.75	5.66	2.6	2.2	9.9	1.73
6 o/oo	1.37	0.64	7.96	1.5	1.4	5.5	1.84
12 o/oo	9.50	1.45	6.60	8.4	1.8	7.1	1.45
20 o/oo	3.61	0.55	5.82	1.3	0.4	4.1	0.91
12/84							
0 o/oo	0.16	0.63	2.41	0.0	0.3	2.4	2.34
6 o/oo	3.81	1.67	5.25	1.2	0.6	2.5	1.96
12 o/oo	26.90	11.50	4.08	9.5	2.7	2.8	2.88
20 o/oo	10.40	6.27	2.81	1.7	3.1	1.9	1.90
1/85							
0 o/oo	0.94	0.89	2.47	0.4	0.5	2.3	1.66
6 o/oo	0.54	0.58	4.10	0.2	0.5	2.0	1.97
12 o/oo	1.72	1.74	5.16	0.4	1.7	2.7	2.26
20 o/oo	12.56	7.33	6.70	3.5	3.3	2.9	2.80
2/85							
0 o/oo	0.40	0.30	2.89	0.7	0.7	2.9	1.36
6 o/oo	0.32	0.33	8.66	0.0	1.4	5.0	1.50
12 o/oo	0.94	0.77	6.90	0.3	0.9	4.4	1.40
20 o/oo	2.07	0.89	3.39	2.1	0.0	3.0	1.30

APPENDIX B (contd)

Date Station	Primary Productivity ($mgC/m^3/Em^2$)			Chlorophyll a (mg/m^3)			Extinction Coefficient
	Size Fraction			Size Fraction			
	20u	20-5u	5u	20u	20-5u	5u	
3/85							
0 o/oo	6.68	0.47	7.02	12.9	0.0	7.9	1.75
6 o/oo	1.60	0.85	9.72	9.5	3.4	20.6	1.76
12 o/oo	3.33	2.24	11.98	2.6	2.5	7.4	1.70
20 o/oo	6.06	0.76	4.55	1.5	0.0	1.0	1.08
4/85							
0 o/oo	0.53	0.31	4.72	3.5	0.2	6.2	1.41
6 o/oo	0.82	0.88	11.79	1.9	3.8	6.5	1.86
12 o/oo	14.89	12.61	29.08	12.1	14.6	36.2	2.22
20 o/oo	6.89	4.73	10.28	3.3	4.9	8.1	1.69
5/85							
0 o/oo	0.68	0.58	13.69	0.6	0.8	8.9	1.40
6 o/oo	0.47	1.16	14.76	0.8	0.2	9.7	1.51
12 o/oo	6.05	0.51	10.94	2.3	0.9	9.0	1.87
20 o/oo	4.39	0.0	6.47	2.9	0.3	4.8	1.34
6/85							
0 o/oo	0.11	0.41	5.01	0.6	1.0	3.4	1.23
6 o/oo	0.85	0.40	9.40	0.8	2.0	11.2	1.69
12 o/oo	14.91	7.38	12.42	37.8	6.3	25.2	3.09
20 o/oo	1.15	2.82	9.12	4.1	4.1	10.6	1.69
7/85							
0 o/oo	0.32	0.0	7.38	1.7	0.1	7.1	1.61
6 o/oo	1.48	2.50	7.11	2.4	3.3	10.5	1.73
12 o/oo	7.38	0.69	9.60	6.2	0.8	12.1	1.65
20 o/oo	0.95	0.28	7.24	1.0	0.0	9.3	1.40
8/85							
0 o/oo	0.34	1.22	4.03	0.2	0.0	4.2	3.52
6 o/oo	3.02	3.65	18.58	1.1	1.2	10.3	3.50
12 o/oo	5.90	5.01	37.89	2.1	2.7	12.3	2.37
20 o/oo	7.07	3.16	21.70	2.4	1.1	8.0	1.52
9/85							
0 o/oo	0.06	0.22	1.35	0.5	0.1	2.5	4.71
6 o/oo	0.24	0.55	6.07	0.8	0.4	6.1	3.83
12 o/oo	1.09	0.63	8.51	1.4	0.9	8.4	3.00
20 o/oo	8.29	0.78	7.80	12.1	2.0	7.4	1.88

APPENDIX B (contd)

Date Station	Primary Productivity ($mgC/m^3/Em^2$)			Chlorophyll a (mg/m^3)			Extinction Coefficient
	Size Fraction			Size Fraction			
	20u	20-5u	5u	20u	20-5u	5u	
10/85							
0 o/oo	0.33	0.30	0.98	0.5	0.6	1.5	4.15
6 o/oo	4.30	1.19	5.55	3.4	0.8	5.1	3.68
12 o/oo	1.66	0.60	4.61	1.6	0.9	4.1	2.96
20 o/oo	5.53	3.53	4.18	4.5	1.8	5.1	1.94
11/85							
0 o/oo	0.54	0.80	7.41	0.7	0.9	7.0	2.83
6 o/oo	0.80	1.31	8.06	0.5	1.3	7.2	2.95
12 o/oo	2.78	1.11	6.87	1.8	1.4	6.2	2.86
20 o/oo	17.59	1.90	7.54	9.9	3.3	4.4	2.27
12/85							
0 o/oo	0.15	0.29	1.03	0.5	0.5	1.9	1.65
6 o/oo	0.17	0.20	9.42	1.0	0.4	8.9	1.62
12 o/oo	0.49	0.38	5.92	0.4	0.5	6.1	1.82
20 o/oo	1.59	0.74	4.57	0.7	0.7	4.4	1.45
1/86							
0 o/oo	0.11	0.07	0.88	0.1	0.3	1.6	1.75
6 o/oo	0.30	0.19	4.87	0.5	0.3	3.8	1.92
12 o/oo	0.39	0.62	3.57	1.7	0.1	2.3	1.83
20 o/oo	1.34	0.25	2.70	0.8	0.5	3.3	1.42
2/86							
0 o/oo	10.20	9.25	9.56	10.2	16.0	13.2	2.23
6 o/oo	6.45	1.37	3.89	11.7	4.5	6.4	1.91
12 o/oo	3.88	3.41	2.64	8.2	3.2	6.5	2.00
20 o/oo	5.08	2.33	2.88	4.4	4.8	4.6	1.41

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

16 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1225	0.0	29.1	5.1	7.1	0.7	0.2
		0.5	29.1	5.0	7.1	0.7	0.2
		1.0	29.1	5.0	7.1	0.7	0.2
102	1151	0.0	28.9	8.3	8.1	10.0	5.5
		0.5	28.9	8.3	8.1	10.0	5.5
		1.0	28.8	8.0	8.0	10.6	5.9
		1.5	28.5	7.7	7.9	12.3	7.0
103	1105	0.0	28.3	6.6	7.7	19.1	11.3
		0.5	28.2	6.2	7.8	23.8	14.3
		1.0	28.2	5.5	7.7	31.0	19.2
		1.5	28.2	5.3	7.7	31.6	19.6
		2.0	28.2	5.2	7.7	31.7	19.7
		2.5	28.2	4.9	7.7	31.8	19.8
		3.0	28.2	4.7	7.7	32.0	19.9
		3.4	28.2	4.5	7.6	32.2	20.0
104	1015	0.0	28.7	6.0	7.6	36.9	23.3
		0.5	28.8	6.0	7.7	36.9	23.3
		1.0	28.8	6.0	7.7	36.9	23.3
		1.5	28.7	6.1	7.7	36.9	23.3
		2.0	28.6	6.3	7.6	36.9	23.3
		2.5	28.3	6.3	7.6	37.0	23.4
		3.0	28.4	6.3	7.6	37.0	23.4
		3.5	28.3	6.2	7.6	37.0	23.4
		4.0	28.3	6.2	7.6	37.0	23.4

22 JUL

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1219	0.0	31.0	5.1	7.0	0.5	0.1
		0.5	30.5	3.2	6.9	0.5	0.1
		1.0	30.5	3.2	6.8	0.4	0.1
		1.5	30.3	3.1	6.8	0.5	0.1
102	1152	0.0	30.7	6.4	7.4	11.2	6.3
		0.5	30.9	5.4	7.4	11.3	6.3
		1.0	30.8	4.9	7.3	11.7	6.6
		1.5	30.5	2.8	7.1	15.7	9.1
		2.0	30.1	2.6	7.1	18.4	10.8
		2.5	30.0	2.5	7.1	19.2	11.3
		3.0	30.0	2.2	7.1	20.2	12.0
		3.5	30.0	1.9	7.0	21.3	12.7

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

22 JUL

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1108	0.0	30.4	6.0	7.7	23.1	13.9
		0.5	30.5	5.3	7.7	23.5	14.1
		1.0	30.0	3.3	7.4	27.4	16.8
		1.5	30.2	3.2	7.4	28.1	17.2
		2.0	30.2	3.2	7.4	28.2	17.3
104	1026	0.0	30.8	5.6	7.7	34.3	21.5
		0.5	30.6	4.9	7.7	34.3	21.5
		1.0	30.2	4.8	7.8	34.4	21.6
		1.5	30.0	4.7	7.8	34.5	21.6
		2.0	30.6	4.7	7.8	34.5	21.6
		2.5	29.9	4.8	7.8	34.7	21.8
		3.0	30.0	4.2	7.8	34.9	21.9
		3.5	30.0	4.2	7.8	35.3	22.2
		4.0	30.1	3.2	7.6	36.7	23.2
		4.5	30.2	3.2	7.5	37.3	23.6
		5.0	30.2	2.8	7.4	37.7	23.9

19 AUG

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1209	0.0	30.5	4.2	7.0	0.6	0.2
		0.5	30.0	3.9	6.9	0.7	0.2
		1.0	29.8	3.4	6.8	2.2	1.0
		1.5	29.8	1.1	6.9	17.6	10.3
102	1139	0.0	31.4	5.0	7.3	13.4	7.6
		0.5	30.6	5.2	7.3	13.7	7.8
		1.0	30.8	1.7	7.4	28.9	17.8
		1.5	30.6	1.0	7.4	33.0	20.6
		2.0	30.7	0.9	7.4	34.2	21.4
		2.5	30.7	0.8	7.4	34.3	21.5
103	1103	0.0	31.1	4.7	7.6	26.4	16.1
		0.5	30.8	4.6	7.8	28.9	17.8
		1.0	30.8	4.4	7.8	30.8	19.1
		1.5	30.8	4.0	7.8	31.2	19.3
		2.0	30.7	1.7	7.5	33.7	21.1
		2.5	30.7	1.5	7.5	34.2	21.4
104	1019	0.0	31.0	6.3	7.8	36.4	22.9
		0.5	31.0	6.2	7.8	36.6	23.1
		1.0	31.0	6.0	7.9	37.3	23.6
		1.5	31.6	4.2	7.9	43.5	28.0

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

28 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1225	0.0	26.1	4.6	6.8	0.5	0.1
		0.5	26.1	4.7	6.8	0.5	0.1
		1.0	26.1	4.7	6.8	0.5	0.1
		1.5	26.0	4.7	6.8	0.5	0.1
		2.0	26.0	4.6	6.7	0.5	0.1
		2.5	26.0	4.7	6.7	0.5	0.1
102	1145	0.0	26.3	6.3	7.4	10.7	6.0
		0.5	26.3	6.0	7.4	10.9	6.1
		1.0	26.1	4.9	7.5	20.7	12.3
		1.5	26.2	4.8	7.6	23.8	14.3
		1.8	26.3	4.9	7.6	24.5	14.8
103	1051	0.0	25.9	6.4	7.7	19.2	11.3
		0.5	25.8	6.1	7.7	19.7	11.6
		1.0	25.7	6.2	7.7	19.8	11.7
		1.5	25.7	6.1	7.7	20.2	12.0
		2.0	25.7	6.1	7.8	21.5	12.8
		2.5	25.7	6.4	7.8	22.4	13.4
		3.0	25.7	6.5	7.8	23.2	13.9
		3.5	25.8	6.5	7.8	24.6	14.9
		4.0	25.9	6.4	7.8	26.0	15.8
		4.5	26.0	6.2	7.8	28.7	17.6
		5.0	26.3	6.1	7.8	30.0	18.5
		5.5	26.0	6.1	7.8	28.2	17.3
104	1004	0.0	26.0	6.5	7.7	31.9	19.8
		0.5	26.1	6.6	7.7	32.0	19.9
		1.0	26.0	6.6	7.8	32.1	20.0
		1.5	26.0	6.6	7.8	32.2	20.0
		2.0	26.0	6.5	7.8	32.3	20.1
		2.5	26.0	6.3	7.8	32.3	20.1
		3.0	25.9	6.1	7.8	32.6	20.3
		3.5	26.1	4.4	7.8	37.6	23.8

20 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1210	0.0	27.0	5.7	7.2	0.5	0.1
		0.5	27.0	5.6	7.2	0.9	0.3
		1.0	26.9	5.5	7.2	1.4	0.6
		1.5	26.8	5.5	7.2	1.4	0.6
		2.0	26.8	5.5	7.2	1.5	0.7
		2.2	26.8	5.5	7.1	1.6	0.7

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

20 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
102	1140	0.0	27.4	5.9	7.4	12.0	6.8
		0.5	27.4	5.6	7.4	13.8	7.9
		1.0	27.2	4.9	7.3	17.4	10.2
		1.5	26.8	5.0	7.3	18.4	10.8
		2.0	26.7	4.9	7.3	19.3	11.4
		2.5	26.8	4.6	7.4	20.9	12.4
103	1109	0.0	27.4	5.7	7.5	20.9	12.4
		0.5	27.4	5.5	7.5	22.5	13.5
		1.0	27.2	5.0	7.5	24.7	14.9
		1.5	27.2	4.3	7.5	27.9	17.1
		2.0	26.8	4.2	7.5	28.4	17.4
104	1010	0.0	26.5	6.1	7.8	33.7	21.1
		0.5	26.5	6.0	7.8	33.7	21.1
		1.0	26.5	6.0	7.8	33.7	21.1
		1.5	26.5	6.1	7.8	33.7	21.1
		2.0	26.5	5.9	7.8	34.0	21.3
		2.5	26.5	6.0	7.8	34.8	21.8
		3.0	26.8	5.8	7.8	37.6	23.8
		3.5	26.9	5.6	7.8	38.3	24.3
		3.8	26.9	5.5	7.8	38.2	24.2

22 NOV

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1150	0.0	21.0	6.8	7.2	0.8	0.3
		0.5	21.0	6.5	7.2	0.8	0.3
		1.0	20.5	6.5	7.2	0.8	0.3
		1.2	20.5	6.4	7.1	0.8	0.3
102	1113	0.0	21.5	7.4	7.5	13.0	7.4
		0.5	21.5	7.3	7.5	13.0	7.4
		1.0	21.5	7.3	7.5	13.0	7.4
		1.5	21.5	7.2	7.5	14.0	8.0
		2.0	21.5	7.2	7.5	14.0	8.0
		2.5	21.5	7.2	7.5	14.0	8.0
		3.0	21.0	7.2	7.5	15.0	8.6
		3.4	21.0	7.3	7.5	16.0	9.3

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

22 NOV

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1040	0.0	22.5	8.3	7.8	21.0	12.5
		0.5	22.0	8.1	7.9	22.0	13.1
		1.0	21.5	7.9	7.9	23.0	13.8
		1.5	21.0	7.7	8.0	24.0	14.5
		2.0	21.0	7.4	7.9	26.0	15.8
104	1000	0.0	21.5	7.1	7.8	34.0	21.3
		0.5	21.5	7.1	7.9	34.0	21.3
		1.0	21.0	7.1	7.9	34.0	21.3
		1.5	21.0	7.2	7.9	35.0	22.0
		2.0	21.0	7.2	7.9	35.0	22.0
		2.5	20.5	7.2	8.0	35.0	22.0
		3.0	20.5	6.9	8.0	35.0	22.0
		3.5	20.5	7.0	8.0	35.0	22.0
		4.0	20.5	6.4	7.9	37.0	23.4
		4.5	20.5	6.1	7.9	38.0	24.1

22 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1150	0.0	15.1	6.7	7.4	0.7	0.2
		0.5	15.3	6.8	7.4	0.7	0.2
		1.0	15.1	7.2	7.4	0.7	0.2
		1.5	15.0	7.4	7.3	0.7	0.2
		2.0	15.1	7.6	7.3	0.7	0.2
		2.5	15.0	7.7	7.3	0.7	0.2
102	1115	0.0	15.1	7.3	7.5	8.0	4.4
		0.5	14.9	7.7	7.5	8.1	4.4
		1.0	14.9	8.0	7.5	8.1	4.4
		1.5	14.9	8.2	7.5	8.1	4.4
		2.0	14.9	8.3	7.5	8.1	4.4
		2.5	14.8	8.1	7.5	8.3	4.5
		3.0	14.8	8.1	7.5	8.6	4.7
		3.5	14.8	8.3	7.5	8.7	4.8
		4.0	14.2	7.8	7.4	11.1	6.2
103	1047	0.0	15.7	7.8	8.0	18.3	10.7
		0.5	15.7	8.0	7.9	18.0	10.5
		1.0	15.5	7.8	7.8	18.6	10.9
		1.5	15.1	7.9	7.8	19.5	11.5
		2.0	14.8	7.4	7.8	21.2	12.6

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1983

22 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
104	944	0.0	15.1	6.3	7.7	34.9	21.9
		0.5	15.0	6.5	7.8	34.9	21.9
		1.0	15.0	6.7	7.9	34.9	21.9
		1.5	14.9	6.9	7.9	35.0	22.0
		2.0	14.9	7.1	7.9	35.0	22.0
		2.5	14.9	7.1	7.9	35.0	22.0
		3.0	14.9	7.2	7.9	35.0	22.0
		3.5	14.9	7.2	7.9	35.0	22.0
		4.0	14.9	6.9	7.9	35.0	22.0

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

18 JAN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1105	0.0	18.8	5.8	7.4	0.6	0.2
		0.5	18.7	6.3	7.4	0.7	0.2
		1.0	18.7	6.4	7.3	0.7	0.2
		1.5	18.7	6.5	7.3	0.7	0.2
		2.0	18.7	6.4	7.3	0.7	0.2
		2.5	18.6	6.4	7.3	0.7	0.2
		3.0	18.6	7.2	7.3	0.7	0.2
102	1035	0.0	19.5	6.7	7.5	10.3	5.7
		0.5	19.4	6.8	7.5	10.2	5.7
		1.0	19.4	7.2	7.4	10.2	5.7
		1.5	19.1	7.1	7.4	11.5	6.5
		2.0	19.0	7.0	7.4	12.1	6.8
		2.5	19.0	7.1	7.4	12.9	7.3
		3.0	19.0	7.3	7.5	13.4	7.6
		3.5	19.0	7.4	7.5	13.8	7.9
103	1010	0.0	19.4	7.2	8.0	22.3	13.3
		0.5	19.3	7.5	8.0	22.6	13.5
		1.0	18.9	7.2	7.9	24.1	14.5
		1.5	18.6	7.3	7.9	26.4	16.1
		2.0	17.8	7.1	7.9	32.4	20.2
104	945	0.0	19.4	6.9	7.9	33.5	20.9
		0.5	18.7	7.2	7.9	33.3	20.8
		1.0	18.7	7.3	7.9	33.4	20.9
		1.5	18.0	8.0	7.8	34.1	21.3
		2.0	17.7	8.1	7.8	34.8	21.8
		2.5	17.4	8.1	7.8	35.8	22.5
		3.0	17.4	8.4	7.8	36.0	22.7
		3.5	17.3	8.4	7.7	36.1	22.7
		4.0	17.1	6.9	7.7	36.3	22.9
		4.5	17.0	6.7	7.7	36.5	23.0

14 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1100	0.0	20.2	6.1	7.4	1.9	0.9
		0.5	20.1	6.5	7.4	1.9	0.9
		1.0	20.0	6.4	7.3	2.4	1.2
102	1038	0.0	19.9	7.4	7.6	12.1	6.8
		0.5	19.9	7.4	7.5	12.2	6.9
		1.0	19.9	7.0	7.5	12.5	7.1
		1.5	19.6	7.3	7.5	13.3	7.6
		2.0	19.6	7.2	7.5	13.5	7.7
		2.5	19.4	7.2	7.5	13.6	7.8
		3.0	19.4	6.7	7.5	13.6	7.8

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

14 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1016	0.0	20.1	8.7	8.0	19.4	11.4
		0.5	20.2	8.0	8.0	19.4	11.4
		1.0	20.1	7.9	7.9	20.4	12.1
		1.5	19.6	7.6	7.9	22.5	13.5
104	954	0.0	19.4	7.2	7.8	34.2	21.4
		0.5	19.2	7.3	7.8	34.3	21.5
		1.0	19.4	7.3	7.8	34.2	21.4
		1.5	18.7	6.9	7.7	35.3	22.2
		2.0	18.4	6.8	7.7	35.8	22.5
		2.5	18.4	6.7	7.7	37.2	23.5
		3.0	18.3	6.6	7.7	37.4	23.7
		3.3	18.3	6.6	7.7	37.7	23.9

9 MAR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1120	0.0	19.7	7.4	7.5	1.1	0.4
		0.5	19.7	7.4	7.5	1.1	0.4
		1.0	19.6	7.2	7.4	1.5	0.7
		1.3	19.4	7.2	7.4	1.6	0.7
102	1123	0.0	19.6	8.5	8.1	14.4	8.3
		0.5	19.5	8.3	8.1	14.0	8.0
		1.0	19.4	8.0	8.0	14.8	8.5
		1.3	19.5	7.6	8.0	17.0	9.9
103	1035	0.0	18.5	7.3	7.9	20.6	12.2
		0.5	18.5	7.4	7.9	21.3	12.7
		1.0	19.2	7.0	7.8	26.6	16.2
		1.5	18.8	6.5	7.8	29.0	17.8
		2.0	19.6	6.1	7.8	34.3	21.5
		2.5	19.6	6.0	7.8	34.5	21.6
104	1007	0.0	18.7	6.6	7.8	31.5	19.5
		0.5	18.7	6.8	7.8	31.5	19.5
		1.0	18.6	6.9	7.7	31.6	19.6
		1.5	18.6	6.9	7.7	31.6	19.6
		2.0	18.6	7.0	7.7	31.6	19.6
		2.5	18.7	7.1	7.7	31.8	19.8
		3.0	18.7	7.0	7.7	34.0	21.3
		3.4	19.1	6.7	7.7	35.4	22.2

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

19 APR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1140	0.0	23.7	6.7	7.4	0.4	0.1
		0.5	23.5	6.7	7.3	0.4	0.1
		1.0	23.2	6.6	7.3	0.4	0.1
		1.5	23.1	6.3	7.3	0.4	0.1
		2.0	23.0	6.5	7.3	0.4	0.1
102	1102	0.0	23.7	8.1	8.3	9.5	5.2
		0.5	23.6	8.3	8.3	9.5	5.2
		1.0	23.6	8.6	8.3	10.3	5.7
		1.5	23.3	8.8	8.3	11.7	6.6
		2.0	22.9	8.6	8.2	12.7	7.2
103	1040	0.0	23.6	7.4	8.1	21.1	12.6
		0.5	23.4	7.3	8.0	21.6	12.9
		1.0	23.4	7.4	8.0	21.7	13.0
		1.5	23.3	7.2	8.0	22.9	13.7
		2.0	23.0	5.0	7.6	28.7	17.6
		2.5	22.8	4.8	7.6	29.0	17.8
		3.0	22.8	4.9	7.6	29.1	17.9
104	952	0.0	22.8	6.9	7.8	31.7	19.7
		0.5	22.8	6.8	7.8	31.7	19.7
		1.0	22.8	6.9	7.8	31.7	19.7
		1.5	22.7	7.0	7.8	31.7	19.7
		2.0	22.7	6.9	7.8	31.7	19.7
		2.5	22.6	6.9	7.8	31.8	19.8
		3.0	22.6	6.7	7.8	31.9	19.8
		3.5	22.7	5.6	7.6	35.5	22.3
		4.0	22.9	5.4	7.6	35.8	22.5
		4.4	22.9	5.5	7.6	35.8	22.5

8 MAY

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1000	0.0	28.5	5.6	7.2	0.5	0.1
		0.5	28.5	5.4	7.2	0.5	0.1
		0.9	28.5	5.3	7.2	0.5	0.1
102	1036	0.0	28.5	6.0	7.0	11.0	6.2
		0.5	28.4	5.8	7.0	11.1	6.2
		1.0	28.2	5.7	7.0	11.5	6.5
		1.5	28.1	5.4	7.0	11.6	6.5
		2.0	28.1	5.3	7.0	11.6	6.5
		2.5	28.1	5.3	7.0	11.6	6.5

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

8 MAY

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1057	0.0	29.3	6.2	7.6	21.5	12.8
		0.5	29.3	5.9	7.6	21.5	12.8
		1.0	29.3	5.8	7.6	21.6	12.9
		1.5	29.3	5.7	7.6	21.6	12.9
		2.0	29.3	5.6	7.6	21.8	13.0
		2.5	29.3	5.5	7.6	21.8	13.0
		3.0	29.3	5.4	7.6	21.9	13.1
		3.5	29.3	5.4	7.6	22.0	13.1
		3.7	29.3	5.5	7.6	22.0	13.1
104	1149	0.0	28.8	6.7	7.9	30.4	18.8
		0.5	28.7	6.5	7.9	30.4	18.8
		1.0	28.7	6.5	7.9	30.4	18.8
		1.5	28.7	6.4	7.9	30.4	18.8
		2.0	28.7	6.2	7.9	30.4	18.8
		2.5	28.6	6.0	7.8	30.5	18.9
		3.0	28.6	5.7	7.8	30.5	18.9
		3.5	28.5	5.3	7.8	30.6	18.9
		4.0	28.0	2.5	7.5	32.2	20.0

2 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1117	0.0	28.1	5.1	7.1	0.4	0.1
		0.5	28.1	5.0	7.1	0.4	0.1
		1.0	28.1	4.8	7.1	0.4	0.1
		1.5	28.1	4.8	7.1	0.4	0.1
		2.0	28.1	4.6	7.1	0.4	0.1
		2.3	28.0	4.6	7.1	0.4	0.1
102	1043	0.0	27.5	5.9	6.9	10.5	5.9
		0.5	27.6	5.8	6.9	10.3	5.7
		1.0	27.6	5.5	6.9	10.8	6.0
		1.5	27.3	4.6	6.9	12.7	7.2
		2.0	27.2	4.3	6.9	12.9	7.3
		2.5	27.2	4.2	6.9	13.0	7.4
103	1020	0.0	27.7	6.9	7.6	21.4	12.8
		0.5	27.5	6.4	7.6	22.3	13.3
		1.0	27.3	5.7	7.6	23.4	14.1
		1.5	27.2	5.6	7.6	23.7	14.3
		2.0	27.2	5.6	7.6	23.9	14.4
		2.5	27.3	5.4	7.6	24.0	14.5
		3.0	27.3	5.5	7.6	24.1	14.5

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

2 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
104	945	0.0	26.9	6.4	7.7	32.5	20.2
		0.5	26.9	6.0	7.7	33.0	20.6
		1.0	26.9	5.9	7.8	33.5	20.9
		1.5	26.8	5.8	7.8	34.0	21.3
		2.0	26.8	4.9	7.8	34.4	21.6
		2.5	26.9	4.7	7.7	36.0	22.7
		2.9	26.9	4.7	7.7	36.0	22.7

9 JUL

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1230	0.0	29.9	6.7	7.1	0.7	0.2
		0.5	29.6	5.9	7.0	0.7	0.2
		1.0	29.6	5.5	7.0	0.7	0.2
		1.5	29.4	4.7	7.0	0.7	0.2
		2.0	28.8	4.7	6.9	0.8	0.3
102	1138	0.0	30.1	6.9	7.5	12.4	7.0
		0.5	30.1	6.7	7.5	12.5	7.1
		1.0	29.9	4.0	7.5	28.6	17.6
		1.5	29.9	4.1	7.5	30.4	18.8
		2.0	29.9	4.1	7.6	31.1	19.3
		2.5	29.9	3.9	7.5	31.3	19.4
		3.0	29.9	3.9	7.5	31.7	19.7
		3.5	29.9	3.8	7.5	31.7	19.7
103	1117	0.0	29.7	6.4	7.5	20.4	12.1
		0.5	29.7	5.8	7.7	31.7	19.7
		1.0	29.7	4.8	7.6	33.4	20.9
		1.5	29.7	4.3	7.6	34.6	21.7
		2.0	29.6	3.6	7.6	35.2	22.1
		2.5	29.6	3.5	7.6	35.4	22.2
		2.7	29.6	3.5	7.6	35.4	22.2
104	1030	0.0	29.4	6.2	7.6	32.5	20.2
		0.5	29.3	6.1	7.7	32.7	20.4
		1.0	29.3	5.8	7.7	33.2	20.7
		1.5	29.3	5.7	7.7	36.3	22.9
		2.0	29.3	5.4	7.7	36.6	23.1
		2.5	29.3	5.3	7.7	37.4	23.7
		3.0	29.3	4.7	7.7	38.2	24.2
		3.5	29.3	4.7	7.7	38.5	24.4
		4.0	29.4	4.4	7.7	39.1	24.8
		4.5	29.4	4.2	7.7	39.5	25.1
		5.0	29.3	3.7	7.6	40.5	25.8
		5.2	29.3	3.8	7.6	40.6	25.9

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

16 AUG

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1150	0.0	30.8	2.9	7.0	0.4	0.1
		0.5	30.8	2.8	6.9	0.4	0.1
		1.0	30.6	2.7	6.9	0.4	0.1
		1.5	30.6	2.7	6.8	0.4	0.1
		2.0	30.5	2.5	6.8	0.4	0.1
		2.4	30.5	2.3	6.8	0.4	0.1
102	1113	0.0	32.3	5.2	7.3	12.5	7.1
		0.5	30.8	3.8	7.3	20.3	12.0
		1.0	30.4	2.7	7.3	23.5	14.1
		1.5	30.5	2.3	7.4	26.1	15.9
		2.0	30.5	0.9	7.3	28.4	17.4
		2.5	30.4	0.6	7.2	30.2	18.7
		2.8	30.4	0.4	7.2	30.5	18.9
103	1044	0.0	31.4	8.7	8.0	22.5	13.5
		0.5	30.7	8.4	8.0	23.8	14.3
		1.0	30.1	7.2	8.0	25.0	15.1
		1.5	29.6	6.8	8.0	26.1	15.9
		2.0	29.7	5.8	8.0	27.2	16.6
		2.5	29.8	2.8	7.7	29.6	18.2
		3.0	30.0	2.1	7.5	31.6	19.6
		3.5	30.1	1.5	7.4	32.1	20.0
104	1002	0.0	31.1	7.1	7.8	33.6	21.0
		0.5	31.0	6.5	7.8	34.2	21.4
		1.0	30.8	5.5	7.7	35.4	22.2
		1.5	30.7	4.9	7.7	36.1	22.7
		2.0	30.5	5.0	7.7	36.8	23.2
		2.5	30.5	4.8	7.7	36.8	23.2
		3.0	30.5	4.7	7.7	37.0	23.4

13 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1113	0.0	29.0	3.5	7.0	0.6	0.2
		0.5	29.0	3.4	7.0	0.6	0.2
		1.0	28.8	3.3	7.0	0.6	0.2
		1.5	28.8	3.4	7.0	0.6	0.2
		2.0	28.6	3.5	7.0	0.6	0.2
		2.5	28.6	3.4	7.0	0.7	0.2
		3.0	28.5	3.4	7.0	0.7	0.2

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

13 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
102	1053	0.0	30.4	6.6	7.5	12.1	6.8
		0.5	30.1	6.7	7.6	12.6	7.1
		1.0	29.5	5.3	7.4	15.3	8.8
		1.5	29.1	4.4	7.4	22.6	13.5
103	1025	0.0	29.8	4.9	7.5	21.2	12.6
		0.5	29.6	5.3	7.5	21.9	13.1
		1.0	29.3	5.0	7.5	22.1	13.2
		1.5	29.1	5.2	7.5	23.1	13.9
		2.0	29.0	4.6	7.6	26.6	16.2
		2.5	28.9	4.1	7.6	31.9	19.8
104	1000	0.0	28.6	5.9	7.8	33.5	20.9
		0.5	28.6	6.0	7.8	33.5	20.9
		1.0	28.6	6.0	7.8	33.5	20.9
		1.5	28.5	6.0	7.8	33.7	21.1
		2.0	28.4	5.9	7.8	33.7	21.1
		2.5	28.4	4.8	7.8	34.3	21.5
		3.0	28.1	3.4	7.7	36.4	22.9
		3.5	28.1	3.2	7.6	36.9	23.3
		4.0	28.0	3.0	7.6	37.0	23.4

4 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1130	0.0	25.5	6.5	7.3	0.8	0.3
		0.5	25.5	6.5	7.3	0.8	0.3
		1.0	25.5	6.7	7.3	0.8	0.3
		1.5	25.5	6.6	7.3	0.8	0.3
		2.0	25.5	6.6	7.3	0.8	0.3
		2.5	25.5	6.5	7.3	0.8	0.3
102	1055	0.0	24.9	7.6	7.5	12.2	6.9
		0.5	24.8	7.4	7.5	12.4	7.0
		1.0	24.6	7.5	7.5	13.7	7.8
		1.5	24.6	8.0	7.7	15.2	8.8
		2.0	24.5	7.4	7.6	16.8	9.8
		2.5	24.5	6.2	7.4	19.3	11.4
		3.0	24.6	6.2	7.4	19.3	11.4
		3.5	24.6	6.2	7.4	19.1	11.3

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

4 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1030	0.0	24.3	10.1	8.0	20.3	12.0
		0.5	24.2	9.5	7.9	21.5	12.8
		1.0	24.2	9.2	7.9	22.3	13.3
		1.5	24.0	7.3	7.7	22.9	13.7
		2.0	23.9	6.4	7.6	24.5	14.8
		2.5	23.9	6.4	7.6	24.9	15.1
104	945	0.0	24.0	6.4	7.6	35.9	22.6
		0.5	24.0	6.4	7.6	36.1	22.7
		1.0	24.0	6.4	7.6	36.1	22.7
		1.5	24.0	6.4	7.7	36.4	22.9
		2.0	24.2	6.2	7.7	37.1	23.4
		2.5	24.2	6.1	7.7	37.1	23.4
		3.0	24.3	5.9	7.7	37.1	23.4
		3.5	24.7	5.3	7.6	38.0	24.1
		4.0	24.8	5.2	7.6	38.1	24.1

14 NOV

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1120	0.0	19.8	6.2	7.3	1.1	0.4
		0.5	19.7	6.2	7.3	1.1	0.4
		1.0	19.7	6.2	7.3	1.1	0.4
		1.5	19.7	6.3	7.2	1.1	0.4
102	1044	0.5	20.0	7.1	7.2	16.1	9.3
		0.8	19.9	6.2	7.2	17.1	10.0
103	1020	0.0	19.8	7.6	7.5	23.2	13.9
		0.5	19.7	7.9	7.6	23.4	14.1
		1.0	19.7	7.8	7.6	25.7	15.6
		1.5	19.7	7.8	7.6	26.2	15.9
		2.0	19.7	7.6	7.6	27.6	16.9
104	953	0.0	18.1	6.5	7.4	35.9	22.6
		0.5	18.0	6.5	7.4	35.6	22.4
		1.0	17.9	6.6	7.5	38.0	24.1
		1.5	18.2	5.8	7.5	41.1	26.3
		1.7	18.6	5.4	7.5	42.1	27.0

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1984

13 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1120	0.0	17.8	7.5	7.3	1.0	0.4
		0.5	17.8	7.0	7.3	1.0	0.4
		1.0	17.8	6.7	7.3	1.0	0.4
		1.5	17.8	7.1	7.2	1.0	0.4
102	1055	0.0	18.5	7.0	7.0	11.9	6.7
		0.5	18.4	6.7	7.0	12.0	6.8
		1.0	18.4	6.6	7.0	12.0	6.8
103	1030	0.0	19.2	8.7	7.6	23.4	14.1
		0.5	19.2	8.6	7.6	23.4	14.1
		1.0	19.1	8.6	7.6	23.4	14.1
		1.5	19.1	8.6	7.6	23.4	14.1
		2.0	19.1	8.4	7.6	23.4	14.1
		2.5	19.1	8.4	7.6	23.3	14.0
		3.0	19.1	8.2	7.6	23.3	14.0
		3.5	19.1	8.4	7.6	23.3	14.0
		4.0	19.1	8.1	7.6	23.5	14.1
		4.5	19.1	8.5	7.6	23.8	14.3
104	1005	0.0	18.7	8.2	7.7	33.8	21.1
		0.5	18.7	8.1	7.7	34.0	21.3
		1.0	18.7	8.1	7.8	34.1	21.3
		1.5	18.6	8.1	7.8	34.6	21.7
		2.0	18.6	8.0	7.8	35.7	22.5
		2.5	18.5	7.8	7.8	36.3	22.9
		3.0	18.5	7.5	7.8	36.7	23.2
		3.5	18.3	7.1	7.8	37.5	23.7

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

8 JAN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1120	0.0	17.5	6.7	7.3	0.9	0.3
		0.5	17.5	6.6	7.3	0.9	0.3
		1.0	17.5	6.8	7.3	0.9	0.3
		1.5	17.5	6.7	7.3	1.0	0.4
		2.0	17.4	6.7	7.3	1.0	0.4
		2.5	17.4	6.7	7.3	0.9	0.3
		3.0	17.4	6.7	7.3	1.0	0.4
		3.5	17.4	6.8	7.3	0.9	0.3
102	1050	0.0	17.6	6.3	7.0	14.4	8.3
		0.5	17.7	6.0	7.0	14.7	8.4
		1.0	17.7	5.8	7.0	14.7	8.4
		1.5	17.6	5.7	7.0	14.7	8.4
		2.0	17.6	5.7	7.0	14.9	8.6
		2.5	17.7	5.7	7.0	14.9	8.6
		3.0	17.6	5.6	7.0	15.1	8.7
		3.5	17.6	5.6	6.9	15.4	8.9
		4.0	17.6	5.6	6.9	15.6	9.0
103	1032	0.0	17.4	6.9	7.1	24.0	14.5
		0.5	17.5	6.6	7.1	23.9	14.4
		1.0	17.5	6.5	7.1	23.9	14.4
		1.5	17.5	6.3	7.1	23.9	14.4
		2.0	17.5	6.1	7.1	23.9	14.4
104	1010	0.0	16.8	7.9	7.5	34.9	21.9
		0.5	16.8	7.6	7.5	35.3	22.2
		1.0	16.7	7.5	7.5	35.5	22.3
		1.5	16.6	7.4	7.5	35.6	22.4
		2.0	16.6	7.3	7.5	35.7	22.5
		2.5	16.6	7.2	7.5	35.7	22.5

1 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1130	0.0	17.8	7.0	7.4	1.1	0.4
		0.5	17.8	7.2	7.4	1.1	0.4
		1.0	17.7	7.6	7.4	1.1	0.4
		1.5	17.6	7.7	7.4	1.1	0.4
		2.0	17.6	8.0	7.4	1.1	0.4
102	1100	0.0	18.4	6.7	7.0	11.6	6.5
		0.5	18.4	6.7	7.1	11.6	6.5
		1.0	18.4	7.0	7.1	11.7	6.6
		1.5	18.4	7.2	7.1	11.8	6.6
		2.0	18.4	7.3	7.1	11.6	6.5
		2.5	18.5	7.2	7.1	12.0	6.8
		3.0	18.5	7.2	7.1	12.1	6.8
		3.5	18.6	7.7	7.1	12.5	7.1
		4.0	18.6	7.7	7.1	12.6	7.1

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

1 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1047	0.0	17.9	6.9	7.0	20.9	12.4
		0.5	17.8	6.7	7.1	20.8	12.4
		1.0	17.9	6.6	7.5	20.8	12.4
		1.5	17.8	6.8	7.1	20.7	12.3
		2.0	17.8	6.8	7.1	20.8	12.4
		2.5	17.8	6.9	7.1	20.9	12.4
		3.0	17.7	6.8	7.2	21.6	12.9
		3.5	17.5	7.1	7.2	22.9	13.7
104	1016	0.0	17.7	7.2	7.4	33.6	21.0
		0.5	17.7	7.4	7.5	33.6	21.0
		1.0	17.6	7.6	7.5	33.6	21.0
		1.3	17.6	7.8	7.6	33.6	21.0

13 MAR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1130	0.0	26.4	6.5	7.5	0.9	0.3
		0.5	26.3	6.4	7.5	0.9	0.3
		1.0	26.0	6.3	7.4	0.9	0.3
102	1100	0.0	25.9	6.0	7.2	11.1	6.2
		0.5	25.8	6.1	7.2	12.1	6.8
		1.0	25.4	5.1	7.1	13.7	7.8
		1.5	25.3	4.9	7.1	14.1	8.1
		2.0	25.3	4.7	7.1	14.3	8.2
		2.5	25.1	4.5	7.1	14.7	8.4
		3.0	25.1	4.5	7.1	14.8	8.5
103	1033	0.0	25.5	6.2	7.3	20.8	12.4
		0.5	25.6	5.6	7.3	20.9	12.4
		1.0	25.4	5.4	7.4	24.6	14.9
		1.5	25.5	5.5	7.4	25.6	15.5
		2.0	25.5	5.3	7.4	26.5	16.1
		2.5	25.5	5.2	7.4	26.7	16.3
		3.0	25.5	5.1	7.4	26.7	16.3
104	1010	0.0	25.0	5.1	7.5	35.1	22.0
		0.5	24.9	5.1	7.5	36.1	22.7
		1.0	24.8	5.0	7.5	36.3	22.9
		1.5	24.6	4.9	7.5	37.0	23.4
		2.0	24.6	4.9	7.6	37.3	23.6

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

17 APR

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1125	0.0	25.0	7.3	7.2	0.7	0.2
		0.5	25.1	7.0	7.1	0.7	0.2
		1.0	25.0	6.4	7.2	0.7	0.2
		1.5	24.9	6.5	7.2	0.7	0.2
		2.0	24.8	6.7	7.2	0.7	0.2
		2.5	24.7	6.3	7.2	0.7	0.2
		3.0	24.7	6.5	7.2	0.7	0.2
		3.5	24.7	6.0	7.1	0.7	0.2
		4.0	24.7	6.0	7.1	0.7	0.2
102	1100	0.0	25.0	7.0	6.8	12.2	6.9
		0.5	25.0	6.7	6.9	12.2	6.9
		1.0	24.9	6.0	6.9	13.1	7.4
		1.3	24.6	5.9	6.9	13.1	7.4
103	1040	0.0	24.6	9.4	7.3	22.5	13.5
		0.5	24.5	8.6	7.4	22.6	13.5
		1.0	24.9	8.4	7.4	23.3	14.0
		1.5	24.9	8.2	7.4	23.9	14.4
104	1015	0.0	24.6	7.9	7.1	34.3	21.5
		0.5	24.6	7.5	7.2	34.3	21.5
		1.0	24.6	7.5	7.2	34.3	21.5
		1.5	24.5	7.2	7.2	35.2	22.1
		2.0	24.5	7.4	7.3	35.4	22.2
		2.5	24.5	7.4	7.3	35.5	22.3
		3.0	24.4	7.1	7.3	35.9	22.6
		3.5	24.4	6.9	7.3	36.1	22.7

1 MAY

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1128	0.0	29.9	5.8	7.3	0.6	0.2
		0.5	29.8	5.8	7.2	0.7	0.2
		1.0	29.7	5.7	7.2	0.7	0.2
		1.5	29.6	5.6	7.2	0.7	0.2
		2.0	29.6	5.6	7.2	0.7	0.2
		2.5	29.6	5.5	7.2	0.8	0.3
		3.0	29.5	5.5	7.2	0.8	0.3

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

1 MAY

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
102	1100	0.0	29.7	4.4	6.9	12.1	6.8
		0.5	29.5	4.3	6.9	12.2	6.9
		1.0	29.5	3.7	6.8	14.8	8.5
		1.5	28.8	3.5	6.8	15.5	9.0
		2.0	28.7	3.4	6.8	15.6	9.0
103	1038	0.0	29.2	6.9	7.4	21.1	12.6
		0.5	28.9	5.7	7.3	22.6	13.5
		1.0	28.8	5.3	7.2	23.6	14.2
		1.5	28.7	4.5	7.2	24.9	15.1
		2.0	28.5	4.3	7.1	25.2	15.3
		2.5	28.5	4.3	7.1	25.1	15.2
		3.0	28.5	4.1	7.1	25.5	15.5
104	1006	0.0	29.1	5.2	7.4	32.3	20.1
		0.5	28.5	4.7	7.4	34.4	21.6
		1.0	28.3	4.6	7.4	34.7	21.8
		1.5	28.3	4.5	7.4	34.8	21.8
		1.9	28.5	4.3	7.4	35.8	22.5

17 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1130	0.0	30.6	5.8	7.0	0.6	0.2
		0.5	30.4	5.0	7.0	0.6	0.2
		1.0	30.3	4.8	7.0	0.6	0.2
		1.5	30.3	4.8	7.0	0.6	0.2
		2.0	30.1	4.7	7.0	0.6	0.2
		2.5	30.1	4.7	7.0	0.6	0.2
		2.9	30.0	4.6	7.0	0.6	0.2
102	1104	0.0	30.2	4.3	6.6	4.0	2.0
		0.5	30.4	4.2	6.5	11.3	6.3
		1.0	30.3	3.9	6.6	11.7	6.6
		1.5	30.1	3.0	6.5	13.4	7.6
		2.0	29.8	2.7	6.5	14.4	8.3
		2.5	29.7	2.6	6.5	14.8	8.5
		2.8	29.7	2.4	6.5	15.9	9.2
103	1038	0.0	30.6	12.8	7.8	20.5	12.2
		0.5	30.3	11.9	7.9	22.2	13.3
		1.0	30.0	9.1	7.6	23.0	13.8
		1.5	30.0	6.4	7.1	24.1	14.5
		2.0	29.9	6.7	7.3	24.4	14.7
		2.5	29.5	5.1	7.1	25.9	15.7
		3.0	29.6	4.9	6.9	26.9	16.4
		3.5	29.5	4.7	6.9	26.9	16.4
		4.0	29.4	4.4	6.9	28.2	17.3

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

17 JUN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
104	1007	0.0	29.5	6.4	7.2	34.1	21.3
		0.5	29.4	5.6	7.3	34.7	21.8
		1.0	28.5	4.9	7.3	35.1	22.0
		1.5	28.8	4.4	7.2	36.2	22.8
		2.0	28.6	4.0	7.2	36.6	23.1
		2.5	28.9	3.9	7.2	37.7	23.9
		2.8	29.1	3.6	7.2	38.2	24.2

11 JUL

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1133	0.0	32.0	7.2	7.0	0.6	0.2
		0.5	31.6	7.3	7.0	0.6	0.2
		1.0	31.1	7.5	7.0	0.7	0.2
		1.5	30.6	7.7	6.9	0.6	0.2
		2.0	30.6	8.0	6.9	0.7	0.2
		2.5	30.5	8.1	6.9	0.7	0.2
		3.0	30.4	8.3	6.9	0.7	0.2
		3.5	30.4	8.5	6.9	0.7	0.2
		4.0	30.4	8.7	6.9	0.7	0.2
		4.3	30.4	8.8	6.9	0.7	0.2
102	1107	0.0	31.9	6.8	7.1	11.6	6.5
		0.5	31.7	5.0	7.2	13.2	7.5
		1.0	31.5	4.5	7.2	14.9	8.6
		1.5	31.4	4.1	7.2	15.2	8.8
		2.0	31.2	4.1	7.2	15.7	9.1
		2.5	31.2	3.8	7.1	16.1	9.3
103	1043	0.0	30.9	7.4	7.8	20.3	12.0
		0.5	30.7	5.8	7.9	22.4	13.4
		1.0	30.3	5.0	7.8	26.7	16.3
		1.5	30.3	4.4	7.8	29.1	17.9
		2.0	30.4	4.0	7.6	30.3	18.7
		2.5	30.6	4.5	7.6	32.9	20.5
104	1023	0.0	30.0	6.4	7.4	35.8	22.5
		0.5	30.3	5.7	7.5	35.9	22.6
		1.0	30.3	5.1	7.5	37.5	23.7
		1.5	30.5	4.9	7.5	38.9	24.7
		2.0	30.6	4.5	7.5	39.9	25.4
		2.5	30.6	3.9	7.4	40.3	25.7
		3.0	30.6	4.2	7.4	40.7	26.0
		3.5	30.5	3.9	7.5	41.1	26.3

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

7 AUG

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1057	0.0	29.4	4.6	7.0	0.7	0.2
		0.5	29.4	4.5	6.9	0.7	0.2
		1.0	29.4	4.5	7.0	0.7	0.2
		1.5	29.3	4.5	7.0	0.7	0.2
		2.0	29.3	4.5	7.0	0.7	0.2
		2.5	29.3	4.5	7.0	0.7	0.2
		2.9	29.3	4.5	7.0	0.7	0.2
102	1038	0.0	30.0	4.9	7.1	10.9	6.1
		0.5	30.1	4.7	7.1	11.5	6.5
		1.0	30.1	4.5	7.1	14.8	8.5
		1.5	30.2	4.2	7.2	21.4	12.8
		2.0	30.6	3.6	7.2	26.9	16.4
		2.5	30.8	3.4	7.3	29.0	17.8
		2.8	30.8	3.2	7.3	29.8	18.4
103	1015	0.0	30.5	6.4	7.6	21.9	13.1
		0.5	30.7	6.4	7.6	22.1	13.2
		1.0	30.2	6.4	7.7	23.0	13.8
		1.5	30.2	4.8	7.5	40.6	25.9
		2.0	30.6	4.6	7.5	41.6	26.6
104	956	0.0	30.6	7.2	7.7	35.0	22.0
		0.5	30.5	7.1	7.7	35.1	22.0
		1.0	30.3	6.8	7.7	39.8	25.3
		1.5	30.3	6.1	7.7	41.5	26.6
		2.0	30.5	4.8	7.6	44.6	28.8
		2.5	30.2	3.7	7.5	45.2	29.2
		3.0	30.2	3.3	7.4	45.4	29.4
		3.5	30.2	2.5	7.3	45.8	29.6

9 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1116	0.0	29.3	4.2	6.8	0.3	0.0
		0.5	29.3	3.9	6.8	0.3	0.0
		1.0	29.2	4.0	6.7	0.3	0.0
		1.5	29.0	3.6	6.6	2.1	1.0
		1.7	28.9	3.0	6.6	4.0	2.0
102	1055	0.0	30.1	4.3	6.9	10.9	6.1
		0.5	29.7	3.5	6.9	14.5	8.3
		1.0	29.1	1.2	7.1	33.6	21.0
		1.5	28.7	0.4	7.1	38.4	24.4
		2.0	28.5	0.4	7.1	39.0	24.8
		2.5	28.5	0.4	7.1	39.1	24.8
		3.0	28.5	0.4	7.1	39.1	24.8

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

20 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
104	1018	0.0	15.5	6.8	7.7	35.0	22.0
		0.5	15.6	7.1	7.8	37.4	23.7
		1.0	15.7	7.3	7.8	38.2	24.2
		1.5	15.7	7.3	7.8	39.2	24.9
		2.0	15.9	7.3	7.8	40.1	25.6

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

9 SEP

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1034	0.0	29.2	5.1	7.2	21.4	12.8
		0.5	28.9	4.4	7.2	23.8	14.3
		1.0	29.0	3.9	7.4	33.4	20.9
		1.5	28.7	1.4	7.2	40.1	25.6
		2.0	28.5	1.6	7.2	41.1	26.3
		2.5	28.4	1.4	7.3	41.5	26.6
104	958	0.0	29.2	6.0	7.6	32.1	20.0
		0.5	29.3	5.8	7.6	32.1	20.0
		1.0	29.1	5.8	7.7	32.1	20.0
		1.5	29.2	5.7	7.7	32.2	20.0
		2.0	29.2	4.2	7.6	34.0	21.3
		2.5	28.8	2.4	7.4	40.5	25.8
		3.0	28.6	1.0	7.3	41.8	26.8
		3.5	28.4	0.7	7.3	42.2	27.1
		4.0	28.4	0.5	7.3	42.2	27.1

9 OCT

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1040	0.0	26.5	5.5	7.0	0.5	0.1
		0.5	26.4	5.6	6.9	0.4	0.1
		1.0	26.4	5.5	6.9	0.4	0.1
		1.5	26.4	5.5	6.9	0.4	0.1
102	1010	0.0	26.9	5.7	7.1	12.1	6.8
		0.5	26.8	5.3	7.1	12.0	6.8
		1.0	26.7	5.0	7.1	12.6	7.1
		1.5	26.7	4.8	7.1	14.5	8.3
103	1027	0.0	27.5	5.1	7.4	20.6	12.2
		0.5	27.8	5.0	7.5	20.6	12.2
		1.0	27.8	5.0	7.5	21.1	12.6
		1.5	27.8	4.8	7.5	21.1	12.6
		2.0	27.7	4.8	7.5	21.5	12.8
		2.5	27.7	4.1	7.5	22.0	13.1
104	950	0.0	27.6	5.4	7.8	30.2	18.7
		0.5	27.5	5.3	7.8	30.2	18.7
		1.0	27.5	5.3	7.8	29.9	18.5
		1.5	27.5	5.3	7.8	30.3	18.7
		2.0	27.5	5.2	7.8	31.3	19.4
		2.5	27.5	5.2	7.8	31.8	19.8
		3.0	27.7	4.3	7.7	33.6	21.0
		3.5	27.9	4.0	7.7	33.9	21.2
		4.0	27.9	4.0	7.7	34.0	21.3

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1985

11 NOV

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1112	0.0	24.6	5.3	7.4	0.8	0.3
		0.5	24.5	5.2	7.4	0.9	0.3
		1.0	24.2	4.7	7.3	1.0	0.4
		1.5	24.2	4.5	7.3	1.0	0.4
102	1050	0.0	24.7	5.8	7.4	10.8	6.0
		0.5	24.7	5.6	7.3	10.9	6.1
		1.0	24.6	5.2	7.3	13.2	7.5
		1.5	24.6	5.1	7.4	15.2	8.8
		2.0	24.6	5.0	7.4	19.0	11.2
		2.4	24.8	4.8	7.4	22.9	13.7
103	1019	0.0	24.2	5.7	7.5	22.1	13.2
		0.5	24.2	5.7	7.5	22.1	13.2
		1.0	24.2	5.1	7.5	22.1	13.2
		1.5	23.9	5.0	7.5	23.0	13.8
		2.0	23.9	4.9	7.5	23.6	14.2
104	1000	0.0	24.0	5.7	7.6	33.8	21.1
		0.5	24.0	5.5	7.6	33.9	21.2
		1.0	24.0	5.3	7.6	34.1	21.3
		1.5	23.9	4.9	7.6	36.1	22.7
		2.0	24.0	4.0	7.6	38.7	24.6

20 DEC

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1128	0.0	16.4	8.9	7.9	0.5	0.1
		0.5	16.4	9.0	7.8	0.5	0.1
		1.0	16.3	8.8	7.8	0.5	0.1
		1.5	16.3	8.7	7.8	0.5	0.1
		2.0	16.3	8.6	7.8	0.5	0.1
		2.5	16.3	8.6	7.8	0.5	0.1
		3.0	16.3	8.5	7.7	0.5	0.1
		3.5	16.3	8.5	7.8	0.5	0.1
		4.0	16.3	8.5	7.7	0.5	0.1
102	1058	0.0	16.2	8.0	7.7	16.6	9.6
		0.5	16.1	8.0	7.7	16.8	9.8
		1.0	16.0	8.0	7.7	17.3	10.1
		1.5	16.0	8.1	7.7	17.8	10.4
103	1040	0.0	15.8	7.7	7.8	22.6	13.5
		0.5	15.8	7.9	7.8	23.2	13.9
		1.0	15.8	7.6	7.8	24.2	14.6
		1.5	15.8	7.5	7.8	25.6	15.5
		1.9	15.8	7.4	7.8	25.9	15.7

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1986

14 JAN

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1122	0.0	16.7	8.9	7.6	0.5	0.1
		0.5	16.8	8.4	7.6	0.5	0.1
		1.0	16.8	8.2	7.6	0.5	0.1
		1.5	16.8	7.8	7.5	0.6	0.2
		2.0	16.8	7.6	7.5	0.8	0.3
		2.5	16.8	7.6	7.5	0.8	0.3
		3.0	16.8	7.6	7.5	0.8	0.3
102	1055	0.0	17.1	8.3	7.5	14.7	8.4
		0.5	17.0	7.4	7.5	14.9	8.6
		1.0	16.9	7.2	7.5	15.1	8.7
		1.5	16.7	7.1	7.5	15.5	9.0
		2.0	17.3	7.0	7.5	18.0	10.5
		2.5	17.5	6.9	7.5	19.3	11.4
		3.0	17.7	6.5	7.6	19.9	11.8
		3.5	17.8	5.8	7.6	20.2	12.0
103	1033	0.0	16.1	7.6	7.4	22.9	13.7
		0.5	15.7	7.7	7.6	24.0	14.5
		1.0	15.6	7.6	7.6	24.5	14.8
		1.5	15.8	7.5	7.6	24.9	15.1
		2.0	15.6	7.3	7.7	26.3	16.0
		2.5	16.0	6.8	7.7	30.3	18.7
104	1015	0.0	15.0	7.9	7.5	33.5	20.9
		0.5	15.1	7.8	7.6	33.7	21.1
		1.0	15.1	7.8	7.7	34.2	21.4
		1.5	15.5	7.5	7.7	37.1	23.4
		2.0	15.7	7.1	7.7	38.0	24.1

14 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
101	1128	0.0	17.2	7.3	7.8	0.6	0.2
		0.5	17.2	7.0	7.8	0.6	0.2
		1.0	17.2	6.9	7.7	0.6	0.2
		1.5	17.1	6.8	7.7	0.4	0.1
		2.0	17.1	6.5	7.7	0.5	0.1
		2.5	17.0	6.6	7.7	0.5	0.1
102	1058	0.0	16.2	8.3	7.9	14.0	8.0
		0.5	16.2	8.0	7.9	14.6	8.4
		1.0	16.1	7.5	7.9	15.9	9.2
		1.4	15.7	6.8	7.9	19.2	11.3

APPENDIX C

PRIMARY PRODUCTIVITY IN SITU HYDROLAB DATA 1986

14 FEB

STA.	TIME	DEPTH (m)	TEMP. (c)	D. O. (ppm)	pH	COND. (mmho)	SAL. (o/oo)
103	1041	0.0	14.6	8.3	7.9	24.8	15.0
		0.5	14.7	8.1	8.0	25.2	15.3
		1.0	14.8	8.1	8.0	26.5	16.1
		1.5	15.8	6.8	7.9	39.6	25.2
		1.8	16.7	6.5	7.9	40.1	25.6
104	1021	0.0	15.7	7.7	7.8	36.2	22.8
		0.5	15.7	7.5	7.8	36.2	22.8
		1.0	15.7	7.4	7.9	36.8	23.2
		1.5	15.8	7.1	7.9	38.2	24.2
		2.0	16.5	6.9	7.9	40.3	25.7

APPENDIX D

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1983

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
616	101	125	87.1	38.3	0.478	0.081
616	102	87.5	2850	63.4	0.047	0.026
616	103	60.0	6080	73.1	0.100	0.020
616	104	27.0	12400	97.3	0.008	0.031

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
616	101	1.03	1.01	1.15	2.88	6.85
616	102	1.11	0.849	0.974	1.58	12.4
616	103	0.898	0.700	0.765	1.24	14.2
616	104	0.796	0.234	0.255	0.596	19.8

DATE	STA.	Chl. a
616	101	15.1
616	102	60.3
616	103	12.5
616	104	8.00

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
722	101	160	65.3	41.5	0.213	0.096
722	102	125	3780	68.0	0.037	0.027
722	103	90.0	6630	80.4	0.005	0.006
722	104	40.0	11900	100	0.003	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
722	101	1.50	1.18	1.22	3.51	8.16
722	102	1.54	0.680	0.762	2.87	13.3
722	103	1.11	0.576	0.616	2.60	15.6
722	104	0.736	0.297	0.297	1.79	19.7

DATE	STA.	Chl. a
722	101	39.6
722	102	72.3
722	103	26.6
722	104	9.27

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
819	101	240	108	42.3	0.175	0.065
819	102	192	3670	69.4	0.096	0.085
819	103	102	7490	85.8	0.042	0.022
819	104	41.0	11900	108	0.002	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
819	101	1.24	0.588	0.661	2.93	7.23
819	102	1.25	0.515	0.560	2.97	11.6
819	103	1.02	0.457	0.476	2.61	15.2
819	104	0.801	0.237	0.250	1.83	17.6

DATE	STA.	Chl. a
819	101	18.2
819	102	52.7

APPENDIX D

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1983

DATE	STA.	Chl. a
819	103	22.3
819	104	10.4

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
928	101	250	69.8	31.8	0.155	0.069
928	102	180	3120	57.6	0.116	0.038
928	103	120	6080	74.7	0.072	0.041
928	104	55.0	10200	99.2	0.004	0.006

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
928	101	1.12	0.569	0.659	2.63	5.20
928	102	1.17	0.381	0.432	2.54	8.59
928	103	0.957	0.299	0.325	2.25	12.1
928	104	0.647	0.162	0.170	1.09	17.7

DATE	STA.	Chl. a
928	101	2.28
928	102	11.6
928	103	6.09
928	104	6.60

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1020	101	164	185	52.2	0.423	0.080
1020	102	122	3830	64.3	0.257	0.077
1020	103	100	6320	76.4	0.162	0.116
1020	104	54.0	11200	98.1	0.038	0.033

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1020	101	1.05	0.758	0.867	3.41	5.94
1020	102	1.21	0.546	0.573	2.53	9.17
1020	103	1.34	0.387	0.419	2.07	11.0
1020	104	0.942	0.207	0.214	1.38	13.7

DATE	STA.	Chl. a
1020	101	12.7
1020	102	28.7
1020	103	32.0
1020	104	19.1

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1122	101	96.0	102	62.1	0.676	0.023
1122	102	90.0	3340	80.4	0.277	0.023
1122	103	71.0	6380	92.9	0.092	<.001
1122	104	39.0	11800	114	0.005	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1122	101	0.761	1.07	1.20	4.02	13.5
1122	102	0.991	0.642	0.686	2.64	16.7
1122	103	0.956	0.473	0.499	1.85	18.4
1122	104	0.775	0.212	0.210	1.24	21.6

APPENDIX D

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1983

DATE	STA.	Chl. a
1122	101	1.84
1122	102	4.44
1122	103	3.93
1122	104	2.15

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1228	101	190	104	44.3	0.590	0.144
1228	102	160	2450	59.0	0.454	0.073
1228	103	110	5520	74.2	0.321	0.022
1228	104	30.5	12800	105	0.084	0.002

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1228	101	1.14	0.928	0.992	3.39	7.36
1228	102	1.02	0.664	0.711	2.84	10.6
1228	103	0.951	0.504	0.530	2.32	14.0
1228	104	0.582	0.192	0.194	1.36	20.9

DATE	STA.	Chl. a
1228	101	5.71
1228	102	6.54
1228	103	17.1
1228	104	4.31

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1984

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
118	101	121	95.0	47.9	0.698	0.082
118	102	105	2740	63.4	0.442	0.076
118	103	74.0	6740	86.1	0.200	0.018
118	104	45.0	10600	102	0.038	<.004

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
118	101	1.42	0.874	0.928	2.62	10.6
118	102	1.24	0.607	0.651	2.07	13.6
118	103	1.20	0.400	0.439	1.44	16.5
118	104	0.723	0.221	0.240	1.04	21.5

DATE	STA.	Chl. a
118	101	8.69
118	102	29.7
118	103	48.3
118	104	26.6

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
215	101	91.0	396	60.7	1.04	0.100
215	102	78.0	3540	79.1	0.423	0.014
215	103	70.0	6000	87.2	0.200	<.001
215	104	41.0	11900	106	0.006	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
215	101	0.799	1.51	1.51	2.95	11.9
215	102	0.885	0.778	0.948	1.62	15.2
215	103	0.909	0.596	0.646	1.09	15.8
215	104	0.601	0.220	0.271	0.360	20.2

DATE	STA.	Chl. a
215	101	7.23
215	102	30.4
215	103	39.3
215	104	10.1

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
309	101	174	196	47.0	0.267	0.056
309	102	136	4340	71.4	0.144	0.063
309	103	108	6190	81.2	0.102	0.017
309	104	51.5	9970	100	0.022	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
309	101	1.21	0.856	0.934	2.13	8.10
309	102	1.24	0.540	0.608	1.17	12.8
309	103	0.929	0.441	0.456	0.845	14.4
309	104	0.737	0.247	0.258	0.225	18.8

DATE	STA.	Chl. a
309	101	29.3
309	102	68.4

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1984

DATE	STA.	Chl. a
309	103	15.2
309	104	8.12

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
419	101	108	41.8	52.0	0.016	0.062
419	102	94.0	2630	68.7	0.002	0.021
419	103	60.0	6900	88.8	0.001	0.008
419	104	35.0	10700	102	<.001	0.031

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
419	101	1.18	0.872	0.964	2.71	9.67
419	102	0.979	0.411	0.460	0.845	11.2
419	103	0.935	0.287	0.319	0.140	16.0
419	104	0.678	0.163	0.175	0.330	18.6

DATE	STA.	Chl. a
419	101	29.5
419	102	49.5
419	103	28.8
419	104	10.5

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
508	101	81.0	53.8	71.6	<.001	0.003
508	102	83.0	3230	70.4	0.046	0.027
508	103	63.5	6780	93.4	0.001	<.001
508	104	44.0	9890	112	<.001	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
508	101	1.54	1.12	1.25	3.14	14.8
508	102	1.32	0.542	0.591	1.76	12.4
508	103	0.971	0.410	0.451	1.31	16.9
508	104	0.682	0.219	0.223	1.08	19.6

DATE	STA.	Chl. a
508	101	53.3
508	102	31.6
508	103	20.9
508	104	8.12

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
607	101	140	34.5	48.9	0.501	0.123
607	102	80.0	2800	57.8	0.224	0.030
607	103	50.0	6500	82.7	0.001	0.035
607	104	34.0	10900	105	<.001	0.005

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
607	101	1.20	0.896	1.08	2.73	10.5
607	102	0.977	0.672	0.791	1.48	12.2
607	103	0.839	0.474	0.573	0.465	16.6
607	104	0.603	0.261	0.292	0.045	22.7

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1984

DATE	STA.	Chl. a
607	101	29.3
607	102	22.3
607	103	19.5
607	104	8.50

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
709	101	130	111	37.8	0.273	0.033
709	102	103	3100	62.3	0.204	0.006
709	103	74.0	5850	76.9	0.120	0.048
709	104	35.0	10900	97.1	0.003	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
709	101	1.08	0.580	0.646	2.69	8.74
709	102	0.876	0.486	0.502	2.10	13.1
709	103	0.888	0.433	0.449	1.48	16.5
709	104	0.768	0.277	0.287	0.450	20.3

DATE	STA.	Chl. a
709	101	23.6
709	102	12.0
709	103	13.4
709	104	15.7

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
816	101	228	25.1	41.0	0.462	0.042
816	102	156	3840	63.0	0.198	0.039
816	103	98.0	6950	78.2	0.004	0.015
816	104	42.0	11100	96.0	0.001	0.007

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
816	101	1.16	0.936	1.04	3.75	9.20
816	102	0.983	0.504	0.538	2.61	13.5
816	103	0.921	0.318	0.349	1.04	15.4
816	104	0.805	0.157	0.181	0.140	18.9

DATE	STA.	Chl. a
816	101	8.25
816	102	6.22
816	103	43.1
816	104	4.19

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
913	101	142	103	58.4	0.538	0.082
913	102	110	3150	74.6	0.146	0.021
913	103	78.0	6460	88.6	0.057	0.044
913	104	38.0	11000	110	0.004	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
913	101	1.01	0.976	1.02	3.94	12.8
913	102	1.90	0.513	0.612	2.87	15.3

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1984

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1213	101	0.683	1.01	1.04	1.60	16.5
1213	102	0.724	0.737	0.772	1.48	16.6
1213	103	0.825	0.519	0.573	0.201	19.0
1213	104	0.675	0.290	0.396	0.042	21.2

DATE	STA.	Chl. a
1213	101	2.66
1213	102	4.31
1213	103	14.9
1213	104	6.73

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1984

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
913	103	1.04	0.390	0.413	1.92	18.6
913	104	0.642	0.194	0.199	0.444	22.0

DATE	STA.	Chl. a
913	101	11.0
913	102	151
913	103	25.3
913	104	7.49

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1004	101	87.0	112	73.3	0.518	0.005
1004	102	103	3370	76.3	0.280	<.001
1004	103	109	6220	88.8	0.138	<.001
1004	104	33.0	12100	106	<.001	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1004	101	0.836	1.24	1.31	3.26	11.6
1004	102	1.72	0.704	0.792	2.80	11.8
1004	103	4.16	0.522	0.767	1.98	13.8
1004	104	0.807	0.155	0.177	0.645	17.1

DATE	STA.	Chl. a
1004	101	19.0
1004	102	59.0
1004	103	107
1004	104	11.0

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1115	101	38.0	125	71.8	0.554	0.066
1115	102	47.5	2400	67.2	0.221	0.024
1115	103	44.0	5880	82.0	0.011	0.014
1115	104	30.0	11100	94.5	0.003	0.014

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1115	101	0.722	1.19	1.24	1.22	16.7
1115	102	0.996	0.850	0.884	1.31	16.9
1115	103	0.904	0.549	0.595	0.577	17.1
1115	104	0.836	0.279	0.297	0.387	20.8

DATE	STA.	Chl. a
1115	101	14.7
1115	102	8.38
1115	103	17.2
1115	104	5.84

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1213	101	41.0	144	64.9	0.645	0.109
1213	102	45.0	3730	70.6	0.332	0.097
1213	103	38.0	7570	81.9	0.032	0.030
1213	104	29.0	11200	97.5	0.007	<.003

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PRIMARY PRODUCTIVITY CHEMICAL DATA - 1985

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
108	101	37.0	145	81.7	0.713	0.043
108	102	45.0	3920	82.9	0.328	0.119
108	103	37.0	7190	91.5	0.187	0.124
108	104	27.5	11600	106	0.029	<.009

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
108	101	0.684	1.04	1.15	1.03	19.5
108	102	0.615	0.799	0.842	1.32	19.0
108	103	0.871	0.567	0.688	1.15	20.5
108	104	0.729	0.336	0.451	0.602	22.6

DATE	STA.	Chl. a
108	101	3.17
108	102	2.66
108	103	4.82
108	104	9.71

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
206	101	36.0	176	78.6	0.628	0.086
206	102	39.0	3650	84.2	0.328	0.051
206	103	37.0	6470	92.8	0.177	0.065
206	104	27.0	10200	111	0.020	0.034

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
206	101	0.744	0.843	0.903	0.652	22.9
206	102	0.757	0.740	0.775	0.766	22.0
206	103	1.04	0.593	0.628	0.714	24.5
206	104	0.958	0.334	0.348	0.514	26.5

DATE	STA.	Chl. a
206	101	4.31
206	102	6.22
206	103	5.58
206	104	5.08

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
313	101	35.0	98.2	73.9	0.198	0.024
313	102	44.0	3040	79.1	0.139	0.006
313	103	41.0	6220	89.9	0.110	0.006
313	104	29.0	11100	107	0.003	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
313	101	1.09	1.11	1.20	0.142	17.1
313	102	1.10	0.770	1.00	0.648	17.9
313	103	1.29	0.639	0.706	0.624	19.6
313	104	1.42	0.345	0.390	0.237	23.6

DATE	STA.	Chl. a
313	101	20.8
313	102	33.5

APPENDIX D

PRIMARY PRODUCTIVITY CHEMICAL DATA - 1985

DATE	STA.	Chl. a
313	103	12.4
313	104	2.54

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
417	101	33.0	57.0	64.2	0.260	0.072
417	102	43.0	3490	67.4	0.149	0.049
417	103	48.0	6900	81.0	0.029	<.001
417	104	36.0	11100	98.8	0.003	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
417	101	0.778	1.03	1.08	0.601	14.8
417	102	0.677	0.852	0.948	1.07	15.0
417	103	0.952	0.646	0.713	0.882	16.5
417	104	0.862	0.439	0.444	0.571	21.0

DATE	STA.	Chl. a
417	101	9.90
417	102	12.1
417	103	62.8
417	104	16.2

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
510	101	37.0	87.3	73.4	0.110	0.038
510	102	44.0	3680	67.8	0.070	0.041
510	103	44.0	7060	84.2	0.003	<.001
510	104	32.0	11600	97.1	<.001	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
510	101	0.711	1.01	1.04	1.29	13.9
510	102	0.640	0.932	1.00	1.33	13.3
510	103	1.23	0.739	0.770	1.05	15.0
510	104	0.723	0.449	0.452	0.437	18.4

DATE	STA.	Chl. a
510	101	10.2
510	102	10.6
510	103	12.1
510	104	8.00

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
618	101	42.0	48.4	74.8	0.528	0.014
618	102	49.0	3240	63.2	0.152	0.024
618	103	46.0	6430	67.4	0.005	0.087
618	104	36.0	11200	86.0	<.001	0.045

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
618	101	2.05	0.906	1.02	1.64	13.9
618	102	0.903	0.987	1.04	2.05	13.2
618	103	1.52	0.736	0.888	2.05	15.1
618	104	0.796	0.448	0.496	1.00	16.9

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PRIMARY PRODUCTIVITY CHEMICAL DATA - 1985

DATE	STA.	Chl. a
618	101	4.95
618	102	13.9
618	103	69.3
618	104	18.8

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
711	101	62.0	57.7	80.0	0.352	0.041
711	102	77.0	3320	86.8	0.225	0.046
711	103	60.0	6350	102	0.010	0.022
711	104	35.0	12000	110	0.006	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
711	101	0.813	0.856	0.898	2.39	10.6
711	102	0.873	0.826	0.856	2.76	9.42
711	103	0.837	0.559	0.611	1.58	12.1
711	104	0.619	0.313	0.346	0.685	12.3

DATE	STA.	Chl. a
711	101	9.01
711	102	16.1
711	103	19.1
711	104	10.2

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
807	101	170	109	47.8	0.372	0.081
807	102	90.0	3310	68.5	0.225	0.091
807	103	100	6650	82.3	0.087	0.004
807	104	50.0	11800	96.6	0.010	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
807	101	0.996	0.825	0.840	2.79	5.03
807	102	1.08	0.650	0.665	2.61	10.0
807	103	1.06	0.408	0.454	1.74	11.1
807	104	0.805	0.263	0.303	0.490	12.2

DATE	STA.	Chl. a
807	101	4.44
807	102	12.6
807	103	17.0
807	104	11.4

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
909	101	320	42.6	32.1	0.227	0.070
909	102	240	3000	59.3	0.160	0.188
909	103	145	6250	74.8	0.111	0.188
909	104	85.0	10300	94.0	0.013	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
909	101	1.31	0.860	0.914	3.20	5.69
909	102	1.28	0.578	0.612	3.14	10.8

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PRIMARY PRODUCTIVITY CHEMICAL DATA - 1985

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
909	103	1.11	0.478	0.494	2.85	16.0
909	104	0.875	0.226	0.239	0.515	18.2

DATE	STA.	Chl. a
909	101	3.05
909	102	7.23
909	103	10.6
909	104	21.5

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1009	101	150	87.9	35.5	0.380	0.056
1009	102	100	4410	64.5	0.264	0.104
1009	103	70.0	6190	78.8	0.166	0.155
1009	104	25.0	9700	96.0	0.047	0.056

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1009	101	1.35	0.684	0.740	3.39	4.26
1009	102	1.11	0.510	0.546	2.98	12.5
1009	103	1.15	0.397	0.424	2.83	17.0
1009	104	0.823	0.231	0.256	1.92	16.3

DATE	STA.	Chl. a
1009	101	2.55
1009	102	9.27
1009	103	6.60
1009	104	11.4

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1126	101	111	173	67.6	0.390	<.001
1126	103	70.5	6900	84.7	0.194	0.025
1126	104	52.0	11400	105	0.081	0.039

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1126	101	0.740	0.910	0.980	3.07	15.1
1126	103	1.03	0.480	0.484	2.07	17.1
1126	104	0.924	0.332	0.334	1.21	19.0

DATE	STA.	Chl. a
1126	101	8.63
1126	103	9.39
1126	104	17.6

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
1220	101	58.0	39.6	87.9	0.626	0.046
1220	102	62.0	5260	91.8	0.162	0.031
1220	103	58.0	7680	97.6	0.095	0.029
1220	104	38.0	11800	105	0.037	0.026

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
1220	101	0.890	0.997	1.04	1.41	18.7

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PRIMARY PRODUCTIVTY CHEMICAL DATA - 1986

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
114	101	52.0	38.6	73.4	0.788	0.019
114	102	46.0	4860	89.7	0.229	0.024
114	103	44.0	7450	98.7	0.108	0.012
114	104	34.0	11700	108	0.035	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
114	101	0.789	0.878	0.882	1.24	15.0
114	102	0.736	0.630	0.660	1.05	19.9
114	103	1.29	0.456	0.473	0.970	21.2
114	104	1.02	0.281	0.285	0.910	22.3

DATE	STA.	Chl. a
114	101	2.00
114	102	4.57
114	103	4.06
114	104	4.57

DATE	STA.	COLOR	CHLORIDE	ALK.-CaCO3	NO2+NO3-N	NH3-N
214	101	53.0	57.5	77.4	1.24	0.141
214	102	52.0	4310	90.0	0.139	0.028
214	103	38.0	8090	97.7	0.026	<.001
214	104	27.0	12100	108	<.001	<.001

DATE	STA.	TOT.KJEL.N.	ORTHO PO4-P	TOTAL P	SILICA-Si	INORG. C
214	101	1.17	0.774	1.01	1.78	16.6
214	102	1.01	0.537	0.590	1.29	18.0
214	103	0.717	0.374	0.418	0.605	18.6
214	104	0.753	0.234	0.267	0.135	21.4

DATE	STA.	Chl. a
214	101	39.4
214	102	22.6
214	103	17.9
214	104	13.8

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