Meeker, B. Sharon.

GREAT BAY WATCH ESTUARINE MONITORING PROGRAM

FINAL REPORT

July 1, 1993 - June 30, 1994

submitted by

B. Sharon Meeker, Marine Education Specialist
Ann Reid, Great Bay Watch Coordinator

to
Office of State Planning
State of New Hampshire

June 30, 1994

This report was funded in part by a grant from the Office of State Planning, New Hampshire Coastal Program, under the auspices of the National Oceanic and Atmospheric Administration (NOAA), Award Number NA370Z0277-01.

GC
512
.N4
M4
1994

GC512.N4M4 1994 c.1

93.4.1

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

Property of CSC Library

Introduction. The Great Bay Watch Citizen Estuarine Monitoring Program grant from the Office of State Planning has enabled the program to continue to gather data on an important coastal estuary and has also served to draw the public's attention to the need to conserve coastal resources.

The Great Bay Watch now consists of 40 adults, plus 8 teachers and students from 7 local high schools, sampling 16 sites (see figure 3.) for six parameters at the high and low tides twice a month for approximately 8 months each year. (Site 8 is inactive at this time). Initial training for new recruits and up-grading training for experienced volunteers, special high school training workshops, and quality assurance/quality control sessions are highlights of the program. Monthly meetings, school visits by the coordinator, and equipment checks are also important parts of the program. A technical advisory committee consisting of scientists and extension personnel is a new and supportive part of the program.

Following is a more specific summary of the accomplishments of work tasks listed in the work program for this time period.

1. Great Bay Watch Technical Advisory Committee

The Great Bay Watch Technical Advisory Committee has been appointed and has met on the following dates:

July 15, 1993 - The committee considered first draft of the Quality Assurance/Quality Control (QA/QC) plan, reviewed sites and parameters, discussed protocols on calibration.

September 28, 1993 - A further draft of the QA/QC plan was reviewed with discussion centering around developing confidence intervals for each sampling test. High coliform counts were reported for Newmarket's Moonlight Brook area and efforts to get the town to act on this information were reported.

December 15, 1993 - The committee suggested contracting with an expert for data analysis, advised regarding equipment, and expansion to include the total suspended solids parameter. Also, there was advice on refinement of the QA/QC plan.

Members of the committee are:

Joyce Hammer, Newmarket Wastewater Treatment Facility
Joyce Tugel, Science Teacher, Marshwood High School
Steve Jones, Researcher, Jackson Estuarine Laboratory
Christopher Nash, Asst. Planner, Office of State Planning
Jeff Schloss, Coordinator, Lay Lakes Monitoring Program
Michelle Dionne, Researcher, Wells National Estuarine Reserve
Amy Lindsay, UNH Chemistry Department

2. Site monitoring dates, monthly meetings, consultations, coordination with local, state and federal agencies, scientists, and others.

Sites. Fifteen sites were monitored twice monthly from July - November, 1993 and April - June, 1994, with site 16 being added during the month of May, 1994. Each monitoring session included a high and a low tide sample.

Monthly Meetings. These are meetings held for the Great Bay Watch monitors and are open to the public. Their purposes are to:

a. Expand the monitors' knowledge of the estuary and related topics.

b. Assist with coordination and provide opportunities for re-training on specific tasks and for QA/QC checks

c. Report findings and answer questions.

Meetings were held on the following dates, with speakers and topics noted.

July 14 - Sherry Godlewski: Adopt-a-Beach Program

August 11 - Kelly Gestring, UNH zoologist: location of juvenile fish larvae in the estuary.

September 15 - QA/QC check for monitors

October 13 - Coastal Cleanup, Sample Collecting Video (made by Jane Bennett, Docent), Discussion of Moonlight Brook high coliform counts, QA/QC results

November 7 - Season wrap-up, chili-chowderfest, slide

annual meeting

February 16 - Annual meeting. Jeff Schloss presented an analysis of data, Steve Jones and Chris Nash, presented corollary data from other Great Bay projects.

March 2 - Sherry Godlewski, Piscataqua Marine Debris Council

April 6 - Jackson Lab researcher, Larry Ward - total suspended solids

May 4 - QA/QC check; Roger Rivers on the annular eclipse

June 1 - Stephanie D'Agostino, Department of Environmental Services Pollution Prevention program.

Agency, University, and Private Sector Connections.

The Great Bay Watch often sought advice from many **individuals** on several subjects:

Members of the Technical Advisory Committee

Steve Jones, Jackson Estuarine Laboratory, University of New Hampshire(UNH)
-review of data, comments on fecal coliform sampling suggestions for technique and equipment

Jeff Schloss, Cooperative Extension, (UNH)
-review of data, suggestions for technique and equipment

Larry Ward, Jackson Estuarine Laboratory (UNH)
-advice and training for total suspended solids sampling

Ted Loder, Oceanography, UNH
-advice on total suspended solids sampling

Chris Nash, Office of State Planning
-assistance with sampling procedures, QA/QC plan, equipment, techniques

Diane Switzer, Regional EPA office
-assistance with QA/QC plan

Eric Williams, Department of Environmental Services
-Lower Lamprey River coliform study - Moonlight Brook

Great Bay Watch had contacts with several **agencies** and **private sector groups,** also:

Dover Conservation Commission
Wells and Great Bay Research Reserves
Various state agencies and officials
- Department of Health - Paul Raiche
- Department of Environmental Services
- Office of State Planning
- Department of Fish and Game

New Hampshire Audubon - Richard Cook
Maine Cooperative Extension/water quality experts
Martin and Eddy, Environmental Consultants, Woburn, Mass. (working on design for Kittery Waste Water Treatment Plant)
Wastewater Treatment Facilities in Dover and Newmarker and their personnel
National Sea Grant College Program - water quality monitoring meeting of all those in Sea Grant involved with monitoring

There were many meetings with the 8 teachers involved in the Watch, some at the office and some at their respective schools in Newmarket, Exeter, Dover, Eliot, and Kittery.

3. Presentations, Exhibits and Displays

National Marine Educators Association, August 8, 1993, New Orleans: presentation

Ducker's Day, Great Bay Research Reserve, Durham, NH, September17, 1993: Interactive Exhibit

Sea Grant Water Quality Meeting in Maryland, October 20-23, 1993 : Presentation

Gulf of Maine Marine Educators Association Conference, October 23, 1993: Exhibit

Marine Docent Program, November 16, Demonstration of various techniques and presentation of the program

Maine/NH Monitoring Fair, March 26, 1994: presentation, exhibit

National Volunteer Water Monitoring conference, Portland, Oregon, April 11-14: Display

Great Bay Estuarine Research Reserve, June 2,4: Demonstration and exhibit

Market Square Day, Portsmouth, June 8: Exhibit

Elderhostel, June 28: demonstration

4. Coordination (recruitment, training, updating, checking) of volunteers.

Mid-summer, 1993 - recruited, trained and placed Alice and Mike Briggs

Fall, 1993 - trained two Exeter teachers: Brian Waslaw and Chris Matlock

Fall, 1993 - recruited, trained and placed Al Pratt, Roming Jurgens

Fall, 1993 - trained Steve Wallace

March 5, 1994 - training of 45 people: high school students, teachers, and some Watchers.

March 9 - retraining and checking veteran Great Bay Watchers

March 16, 23, 30 - training for additional new people plus those veterans who missed earlier sessions.

April 20, 23 - Field sessions at Jackson Estuarine Lab for two purposes: QA/QC on secchi disc techniques for all monitors and field practice for new recruits

There were also individual training sessions for those who couldn't make any of the other sessions.

5. Revise videotape explaining coliform testing and analysis technique.

We completed our training video on how to gather and deliver water samples for the fecal coliform test. Next, we worked together with personnel from UNH's Media Services and our volunteer videographer on an outline for the second video which would describe how to analyze the sample for fecal coliform. After we completed a story-board for the video and were ready to do some

The Technical Advisory Committee examined the first and second draft of the plan, and we have finalized it. We scheduled several QA/QC sessions for the monitors, which are detailed in the report that follows.

GREAT BAY WATCH (GBW)
QUALITY ASSURANCE (QA) MEETING PROCEDURES AND RESULTS
AUGUST 1993 - JUNE 1994

Summary

As part of the Great Bay Watch Quality Assurance Project Plan, two Quality Assessment (QA) meetings have been held since August 1993. These meetings were held to check the accuracy of and identify problems in volunteer sampling, and to attempt to quantify the quality of the data the volunteers produce. This was done by providing water samples of various salinities, pH and dissolved oxygen for the volunteers to analyze. Volunteers used normal GBW sampling procedures to test the samples for three different parameters: salinity, pH, and dissolved oxygen (total of four tests, as there were two salinity samples). Means and standard deviations for the results on each sample were calculated to see how close the volunteers' results were to each other, and the "true" value. Calibrated equipment was provided, and all samplers used the same equipment on each sample so that differing observations would not be attributed to the effects of using different equipment.

In addition to these "QA meetings", two QA sessions were held on 4/20/94 and 4/23/94 at Jackson Lab, to check the volunteers on turbidity measurements. These two meetings simply compared secchi disk readings by the volunteers to a QA officer.

Purpose

The purpose of this report is twofold. First is to describe how a QA meeting can be set up and run, by providing an example of such a meeting. The second is to use the results of the meeting to gage the accuracy of the GBW volunteers in order to quantify the quality of the data they produce from their bi-monthly sampling activities.

QA Meeting Preparation

Because the purpose of the meeting described here was to check the accuracy of the volunteer sampling technique and not to check the accuracy of each volunteers' equipment, all equipment

calibration data was provided by Amy Lindsay, UNH Chemistry Department. It is critical that participants record the identification numbers on the thermometers, hydrometers and pH meters so that if a mix-up did occur with the equipment, then the appropriate corrections could be made to their observations.

Three parameters were checked by the participants (salinity, pH, and dissolved oxygen). One sample was prepared for dissolved oxygen, salinity and pH for the Sept '93 QA/QC check. Although, for the May 1994 meeting, we ran two samples of different salinities.

Salinity sample used for the Sept. 1993 meeting was made by the biochemical lab at UNH at 20 ppt. Samples used in May 1994, were made by Amy Lindsay in the UNH Chemistry Lab at 17 and 35 ppt. using instant ocean. To ensure the same salinities were being used by all participants, the same two samples were used by all. Careful directions were given to the participants to was and dry the hydrometer after use.

pH samples were collected in the field for the first meeting, and were provided by the Biochemical Lab UNH for the May 1994 meeting. The samples were checked with a Jenco pH meter to check the "true" value. The samples were also kept in the dark until the day of the testing to prevent any biological processes from changing the samples' pH.

Dissolved oxygen samples were prepared by simply aerating a large bucket of tap water with an aquarium pump for 24 hours at room temperature. The oxygen level was then checked every half hour during testing with an Y.S.I. meter. One hour prior to the meeting about twenty samples were fixed by mixing the water in BOD bottles with manganous sulfate and alkaline iodide-azide. We ran several experiments previously to determine if adding sulfamic acid at different times would alter the results. Normal procedure is to add the sulfamic acid after the floculant has completely settled (15 - 20 minutes); we found that adding the sulfamic acid after one hour made no difference in the test results, so we had the participants add sulfamic acid when they were ready to do their D.O. titrations.

The QA Meeting

We had all of the participants previously sign up for a half

independently. It may be helpful to have the volunteers bring their sampling manuals for reference, as many volunteers split testing duties in the field and therefore are not readily familiar with the protocol for all of the tests. We found the best method was to simply explain what was needed to be done, where the testing stations were and then let them move about as they wished. One or two "QA officers" were always available to answer any questions they might have, and to look over their results for any obvious errors. If an error occurred, then we had the participant describe the procedure and asked them to repeat the measurement. A list of equipment needed for each station is given in Figure 2. Data sheets should be signed by the participant and collected before everyone leaves.

The turbidity tests were done by having the volunteer taking a secchi disk measurement and having a QA/QC "officer" perform one as well. The time, and measurements of both the volunteer and the QA/QC checker were recorded on the volunteer's data sheet.

Results and Discussion

Appendix 1 gives all of the measurements taken by each group over the two meetings. Since, the room temperature kept increasing throughout Sept. testing date, water temperature increased as well. This can be seen in the temperature spread found by the volunteers. This can also be found in the variability in the salinity measurements. The May testing date had a relatively constant room temperature so the water temp relatively remained the same.

Because we want to determine the variability that occurs when different people measure the same sample with the same equipment, we are interested in the standard deviations of the observations for each testing date (Table 1). The means, standard deviations, and true values for each sample tested are given with the graph results (below).

Table 1: Standard Deviations for Each Sample

5/4/94	Salinity A1	A2	Salinity B1	B2	pH	D.O.
	0.38	0.62	0.63	1.33	0.21	0.24

The salinity tests show that the volunteers, on average, determined the samples to be about 1 ppt higher than the true value for the May, 1994 meeting. On the other hand, the volunteers were almost 3 ppt off in Sept, 1993. This could be accounted for be the increase in room temperature. Another factor that could be partly responsible, is that for the '94 season, we incorporated a new salinity reference chart. It is more accurate than the chart used last year. The pH results were 0.1 higher than the true values, for both years. The dissolved oxygen test in 1993 was about 0.8 ppm off, while in 1994, it was only 0.1 ppm. Although the 93 data shows a greater standard deviation, this may be because of the warmer room temperature and resulting in greater fluctuation in water temperature. Therefore, dissolved oxygen levels in the water sample tended to fluctuate more.

The turbidity measurements came out to be very close. In both test dates, the biggest variance was only 10cm, a 7% error. This error can be attributed to a couple of reasons. The eyesight of each individual is going to be different so the results will always be varied. Also the testing was done beyond the slack tide and so the disks tended to be pulled with the currents to varying degrees.

Conclusions

The Great Bay Watchers who participated in these Quality Assessment meetings seem to provide data of good quality. Their precision, or how close their measurements were to everyone else's measurements, was very close to one another (See table 1. above). Their accuracy, or how close their measurements were to the true value of the sample, was in most cases a bit higher than the true value (see table 2 below).

Table 2: %Accuracy of QA/QC Meetings

	Salinity A1	A2	Salinity B1	B2	pH	D.O.
5/4/94	8.2%	18%	3.2%	4.9%	0.3%	1.0%
9/15/94	9.5%				1.3%	14%

Looking at table 2, one can see that the Watchers' accuracy has improved from the 1993 season. This can be explained by more experience due to more samplings and training sessions, (as well as QA/QC meetings themselves). Also, when the room temperature remained stable, the dissolved oxygen and salinity tests were more accurate. Whether or not these results indicate that the data generated by the Great Bay Watch is of "acceptable quality" is a decision that will have to be made by the data users.

7. Presentation of data, corrected for calibration from each site, in tabular form and graph form, corrected for calibration.

Please see Appendices Sections: 3 - 1993 Data
4 - 1994 Data
5 - 1994 Fecal Coliform

8. Program Administration.

This program has been carried out by Ann Reid, under the supervision of Sharon Meeker, both members of Cooperative Extension's Sea Grant staff, with advice and assistance from personnel from the NH Office of State Planning.

[Updated 3/3/94]

Figure 1.

GREAT BAY WATCH FIELD DATA SHEET

SAMPLING TEAM _____ Day_____ Date_____

(1st and last names) 1)_____ Tide _____ (H/L) Time_____ (Military)

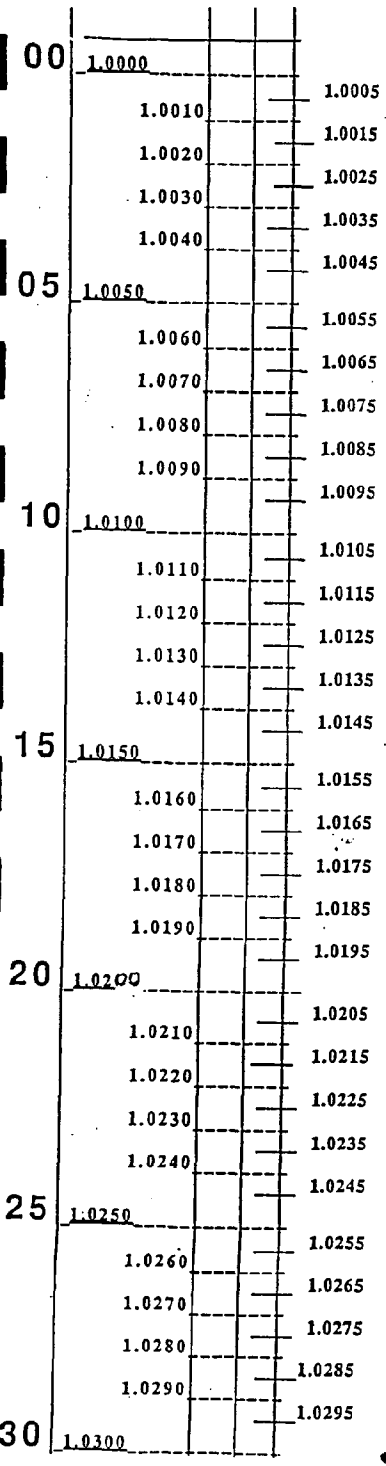
2)_____

3)_____ Site #_____

4)_____

_____ Site Name:_____

READING THE HYDROMETER



Air Temperature ..... _____ C

Turbidity_____cm_____cm _____ cm
disappear appear average

Water Depth ..... _____ cm

Water Temperature ..... _____ C
in bucket

Therm. # ..... _____

Calibration Correction Factor _____

Corrected Temperature _____

pH ..... _____

pH Meter # _____

Salinity:

Hydrometer #_____

Water Temp(Jar)_____ C

Density _____ g/cc

Salinity _____ (ppt)

Salinity Correction Factor _____

Corrected Salinity _____
(ppt)

Dissolved Oxygen:

Bottle Number: ..... _____

Add Test 1 _____ and Test 2 _____

TOTAL DO: _____
(mg/L (ppm))

*Please write observations and continue on other side...

**Make sure to sign by a QA/QC checked member

GREAT BAY WATCH FIELD DATA CONTINUED...

PLEASE DESCRIBE CONDITIONS AT YOUR SITE TODAY:

Water: Calm_____ Ripple _____ Waves _____ Whitecaps _____

Weather: Clear _____ Partly Cloudy _____ Overcast _____ Fog/Haze _____

Showers _____ Downpour _____ Snow _____ Other _____

Activities: Fishing _____ Oystering _____ Boating _____ Hunting _____

Other _____

PLEASE WRITE AN OBSERVATION NARRATIVE

Time spent doing

Fieldwork: 1)_____ 2)_____ 3)_____ 4)_____ Signature:_____

Lab work: 1)_____ 2)_____ 3)_____ 4)_____

Travel: 1)_____ 2)_____ 3)_____ 4)_____ Date:_____

TOTAL TIME _____

*Time from home and/or school and back counts for Time and Mileage Sheets!!!

[Updated 3/3/94] QAQC '94

Figure 1A 1

GREAT BAY WATCH FIELD DATA SHEET

SAMPLING TEAM _____ Day_____ Date_____

(1st and last names) 1)_____ Tide _____ Time_____

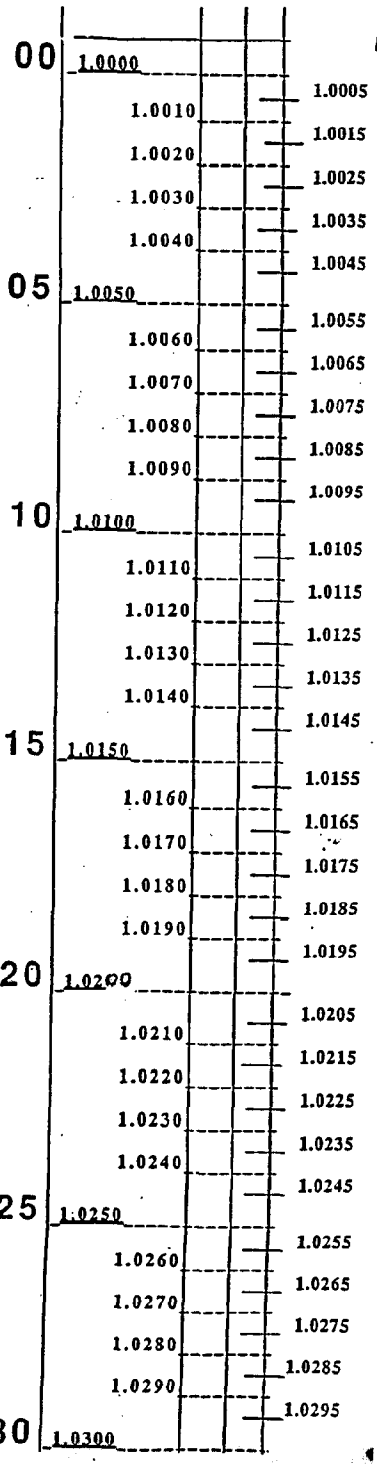
2)_____ (H/L) (Military)

3)_____ Site #_____

4)_____

_____ Site Name:_____

READING THE HYDROMETER



Air Temperature ..... _____ C

Turbidity_____cm_____cm _____ cm
disappear appear average

Water Depth ..... _____ cm

Water Temperature ..... _____ C
in bucket

Therm. # ..... _____

Calibration Correction Factor _____

Corrected Temperature _____

pH ..... _____

pH Meter # _____

Salinity:

Hydrometer #_____

Water Temp(Jar)_____C

Density _____g/cc

Salinity _____(ppt)

Salinity Correction Factor _____

Corrected Salinity _____
(ppt)

Dissolved Oxygen:

Bottle Number: ..... _____

Add Test 1 _____ and Test 2 _____

TOTAL DO: _____
(mg/L (ppm))

*Please write observations and continue on other side...

**Make sure to sign by a QA/QC checked member

GREAT BAY WATCH FIELD DATA CONTINUED...

PLEASE DESCRIBE CONDITIONS AT YOUR SITE TODAY:

Water: Calm_____ Ripple _____ Waves _____ Whitecaps _____

Weather: Clear _____ Partly Cloudy _____ Overcast _____ Fog/Haze _____

Showers _____ Downpour _____ Snow _____ Other _____

Activities: Fishing _____ Oystering _____ Boating _____ Hunting _____

Other _____

PLEASE WRITE AN OBSERVATION NARRATIVE

Time spent doing

Fieldwork: 1)_____ 2)_____ 3)_____ 4)_____ Signature:_____

Lab work: 1)_____ 2)_____ 3)_____ 4)_____

Travel: 1)_____ 2)_____ 3)_____ 4)_____ Date:_____

TOTAL TIME _____

*Time from home and/or school and back counts for Time and Mileage Sheets!!!

FIGURE 2: List of Required Equipment and Supplies for QAQC Meeting

SALINITY STATION

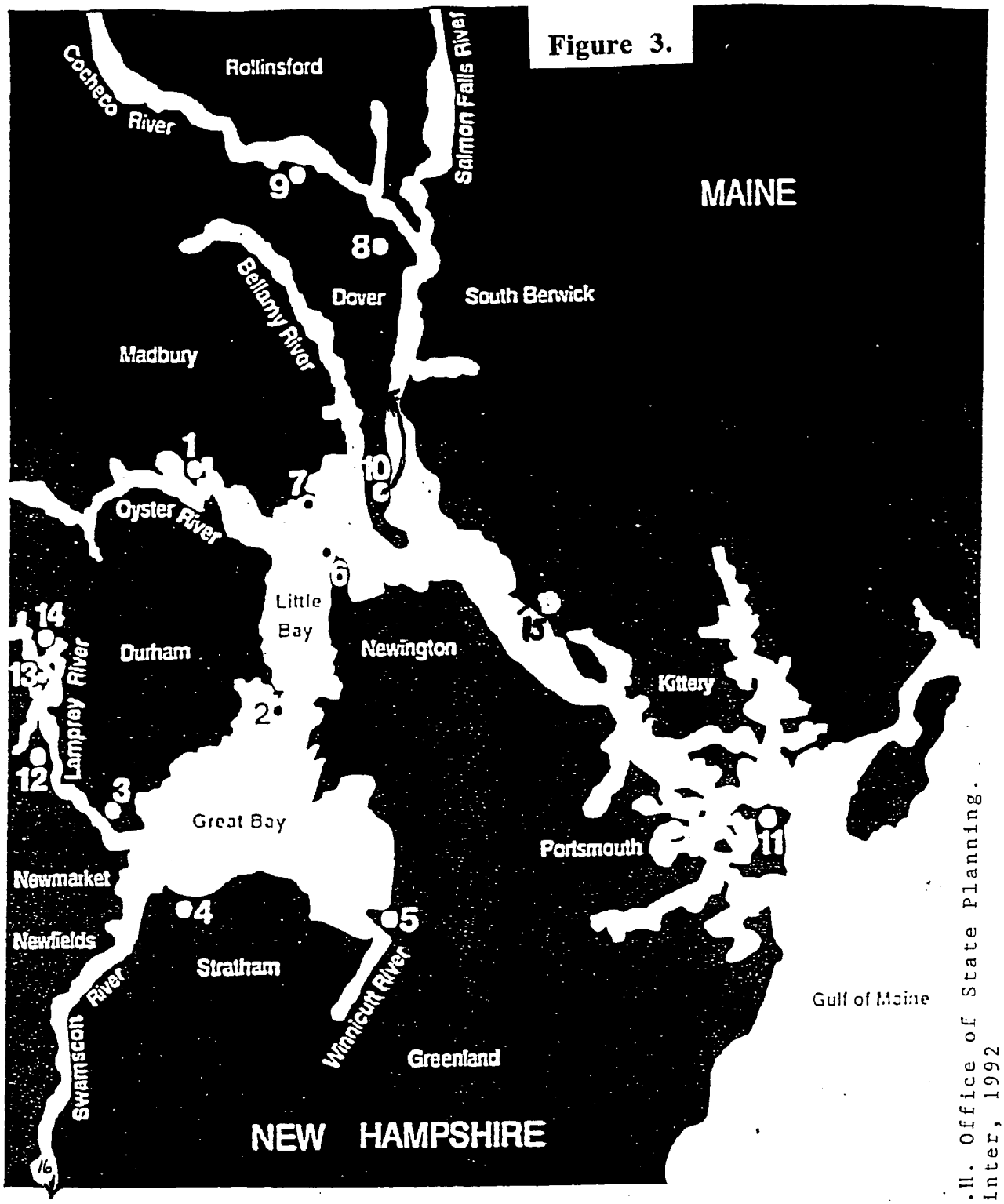
- calibrated hydrometers
- 500 ml graduated cylinders
- waste bucket
- calibrated armored thermometers
- salinity standards (Samples A & B)
- paper towels

pH STATION

- calibrated pH meters
- paper cups *
- pH standards (Samples A & B)
- paper towels
- pH 7 buffer (yellow)
- tap water
- waste container

DISSOLVED OXYGEN STATION

- several fixed samples (A & B) in BOD's
- beakers
- burets
- stirring rods
- tap water
- paper towels
- scissors
- sulfamic acid pillows
- sodium thiosulfate solution
- starch solution
- white paper (for background)
- waste container
- 100 ml graduated cylinder



Map provided by N.H. Office of State Planning. From Tidelines, Winter, 1992

GREAT BAY WATCH MONITORING SITES

1. Peninsula, Oyster River
2. Jackson Estuarine Laboratory
3. Lamprey River
4. Depot Road (GBNERR)
5. Portsmouth Country Club
6. Fox Point
7. Cedar Point
8. Inactive 1992
9. Cocheco River
10. Piscataqua River
11. Coastal Marine Laboratory
12. Newmarket Water Treatment Plant
13. Newmarket Docks
14. Lamprey River above the dam
15. Dead Duck Inn
16. Exeter Town Docks

Appendix 1.

Quality Assurance / Quality Control Meeting Results

September 15, 1993

May 4, 1994

April 20 + 23, 1994

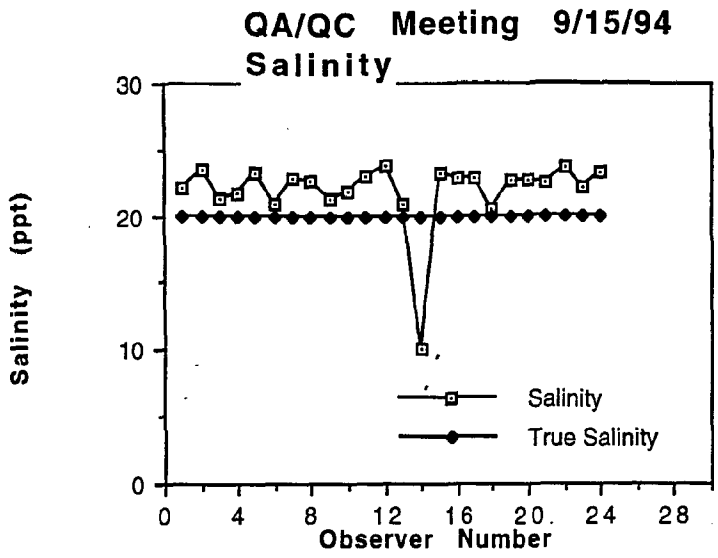
Data and Graphs

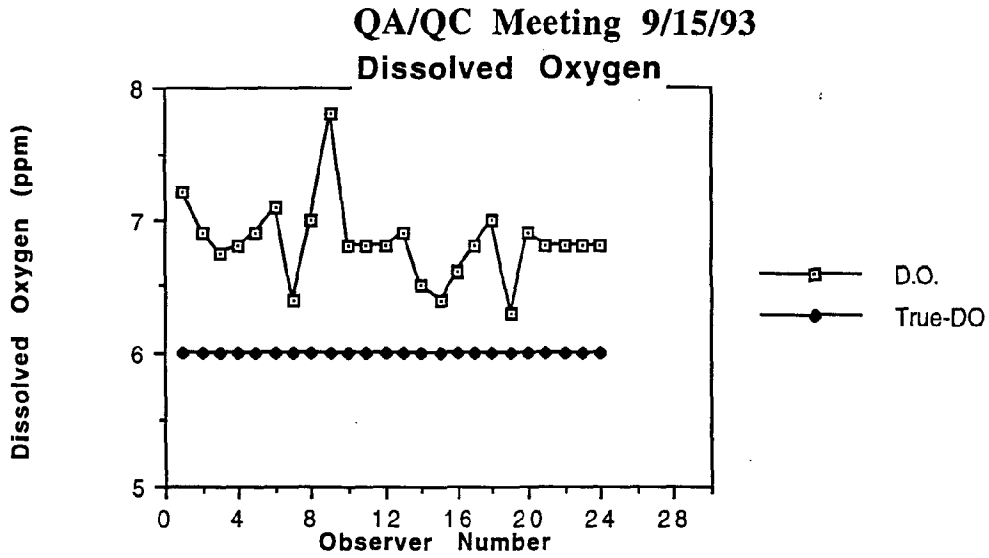
Results of QAQC Meeting 9/15/93

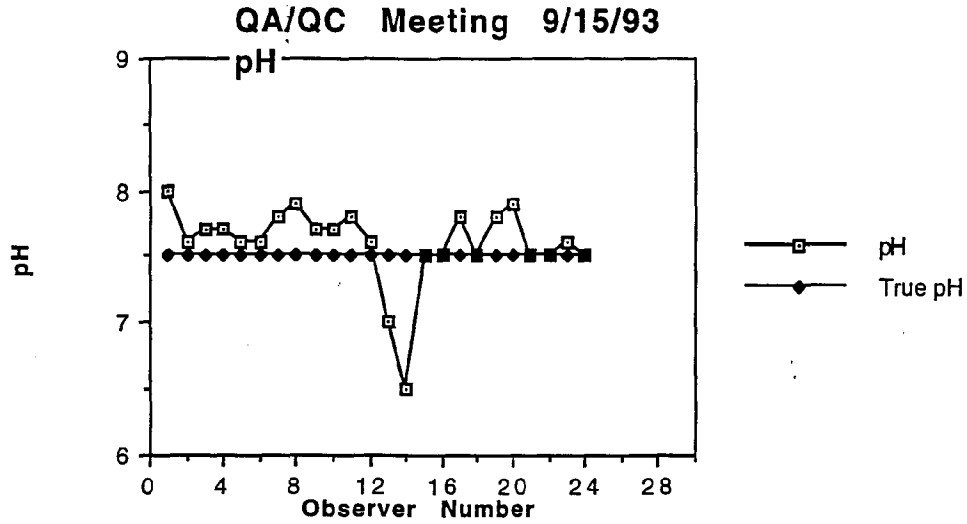
GBW FORMAL	QA/QC SESSIC	15-Sep-93										
OBS.	L. Sizemore	S. McCarthy	E. Nash	S. Jones	E. Lourie	B. Penhale	J. Munson	B. Porter	D. Chamberlan	B. Baird	J. Porter	J&J Jette
OBS. NUMBER	1	2	3	4	5	6	7	8	9	10	11	12
D.O.	7.2	6.9	6.75	6.8	6.9	7.1	6.4	7	7.8	6.8	6.8	6.8
pH	8	7.6	7.7	7.7	7.6	7.6	7.8	7.9	7.7	7.7	7.8	7.6
water temp	20	25	22.6	13.5	24	17.5	25	20	15	22	17	24
salinity	22	23.5	21.3	21.7	23.3	21	22.9	22.6	21.3	21.8	23.1	23.9

												MEAN
P. Mullin	A. Briggs	J. Gardner	D. Bassett	P. Warren	D. Waltz	J. Tugel	S. Sargent	N. Neal	L. Parsons	M. Swisher	B. McGrew	
13	14	15	16	17	18	19	20	21	22	23	24	
6.9	6.5	6.4	6.6	6.8	7	6.3	6.9	6.8	6.8	6.8	6.8	6.83
7	6.5	7.5	7.5	7.8	7.5	7.8	7.9	7.5	7.5	7.6	7.5	7.60
23	20	20.5	23	25	24.5	12.5	12.5	22	23.5	15	24	20.46
20.9	10	23.3	22.9	22.9	20.6	22.7	22.7	22.5	23.7	22	23.3	21.91

STD	MAX	MIN	TRUE VALUE
0.30	7.80	6.30	6.00
0.31	8.00	6.50	7.50
4.19	25.00	12.50	
2.70	23.90	10.00	20.00


QA/QC Meeting 9/15/94
Salinity
Salinity (ppt)
30
20
10
0
0
4
8
12
16
20
24
28
Observer Number
Salinity
True Salinity


QA/QC Meeting 9/15/93
Dissolved Oxygen
Dissolved Oxygen (ppm)
8
7
6
5
0
4
8
12
16
20
24
28
Observer Number
D.O.
True-DO

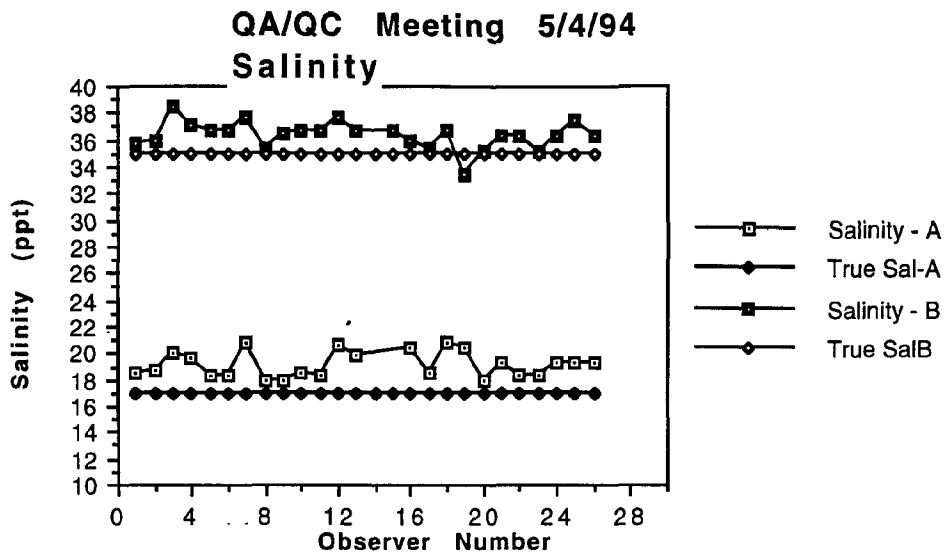

QA/QC Meeting 9/15/93
pH
pH
9
8
7
6
0
4
8
12
16
20
24
28
Observer Number
pH
True pH

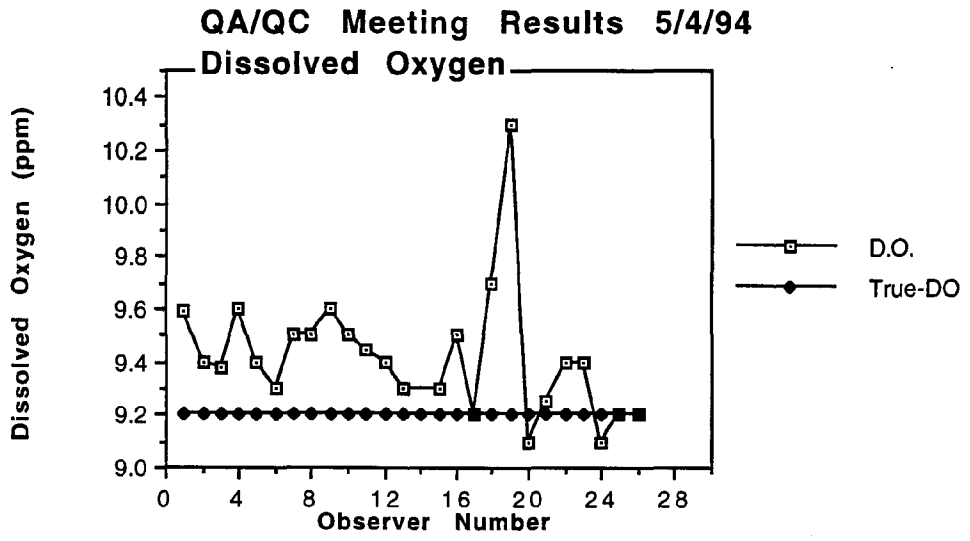
Results of QAQC Meeting 5/4/94

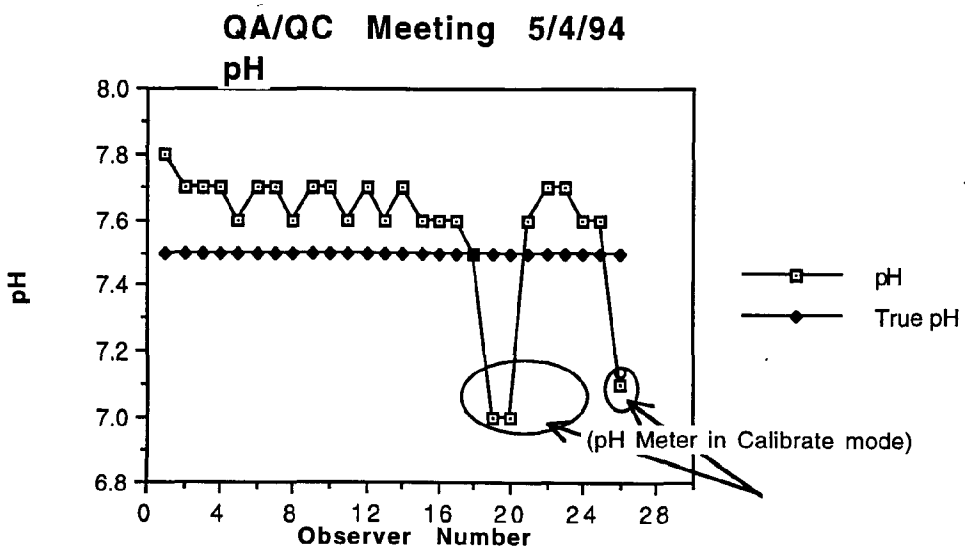
GBW FORMAL	QA/QC SESSIO	4-May-94										
OBS.	B. McGrew	L. Parsons	B. Hopkins	L. Sizemore	J. Gardner	D. Chamberlar	K. Francis	W. Kram	A. Pratt	R. Allard	J. Tugel	S. McCarthy
OBS. NUMBER	1	2	3	4	5	6	7	8	9	10	11	12
D.O.	9.59	9.4	9.38	9.6	9.4	9.3	9.5	9.5	9.6	9.5	9.45	9.4
pH	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.6	7.7
Water Temp1	22	23	23	21	21	22	21	20	21	21	21	20
water temp 2	22	23	23	22	21	21	20	21	21	21	21	20
Salinity A1	18.6	18.8			18.3	18.4		17.9	18	18.5	18.3	
A2	35.8	36			36.7	36.7		35.4	36.5	36.7	36.7	
B1			20	19.6			20.9					20.6
B2			38.5	37.1			37.7					37.7

B. Baird	D. Lilly	J. Porter	T. Kiers	D. Bassett	S. Jones	A. Briggs	E. Lourie	P. Warren	B. Hill	P. Mullin	R. Jurgens	N. Neal
13	14	15	16	17	18	19	20	21	22	23	24	25
9.3		9.3	9.5	9.2	9.7	10.3	9.1	9.25	9.4	9.4	9.1	9.20
7.6	7.7	7.6	7.6	7.6	7.5	7	7	7.6	7.7	7.7	7.6	7.60
22			20	20	21	19	20	20	21	21	20	20.00
21		21	19	19	21	19	20	20	20	21	20	20.00
				18.6			17.9		18.3	18.3		
		36.7		35.4			35.1		36.4	35.2		
19.9			20.5		20.9	20.4		19.3			19.3	19.3
36.7			35.9		36.7	33.4		36.4			36.4	37.5

	MEAN	STD	MAX	MIN	TRUE VALUE
C. Mattlack					
26					
9.20	9.42	0.24	10.30	9.10	9.20
7.10	7.58	0.21	7.80	7.00	7.50
20.00	20.83	1.01	23.00	19.00	
20.00	20.68	1.07	23.00	19.00	
19.30	18.40	0.38	19.30	17.90	17.00
36.4	36.12	0.62	36.70	35.10	35
	20.06	0.63	20.90	19.30	17
	36.73	1.33	38.50	33.40	35


QA/QC Meeting 5/4/94
Salinity
Salinity (ppt)
Observer Number
Salinity - A
True Sal-A
Salinity - B
True SalB

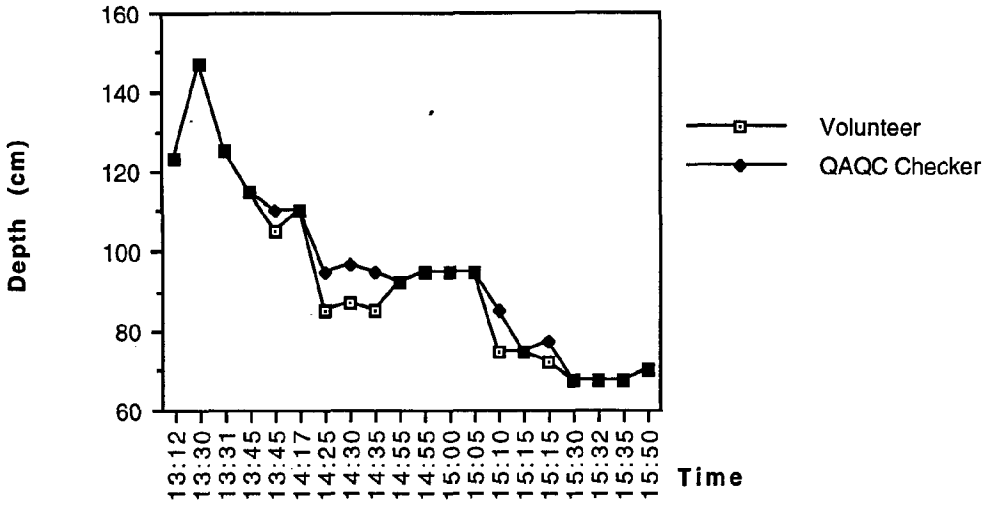

QA/QC Meeting Results 5/4/94
Dissolved Oxygen
Dissolved Oxygen (ppm)
Observer Number
D.O.
True-DO


QA/QC Meeting 5/4/94
pH
pH
Observer Number
pH
True pH
(pH Meter in Calibrate mode)

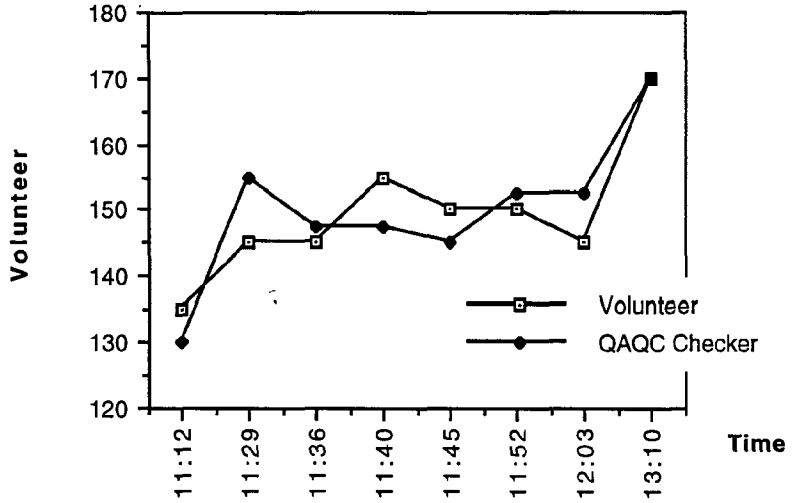
Secchi Disk QAQC

	Time 4/20	Volunteer	QAQC Checker	Time 4/23	Volunteer	QAQC Checker
1	13:12	123.0	123.0	11:12	135.0	130.0
2	13:30	147.0	147.0	11:29	145.0	155.0
3	13:31	125.0	125.0	11:36	145.0	147.5
4	13:45	115.0	115.0	11:40	155.0	147.5
5	13:45	105.0	110.0	11:45	150.0	145.0
6	14:17	110.0	110.0	11:52	150.0	152.5
7	14:25	85.0	95.0	12:03	145.0	152.5
8	14:30	87.0	97.0	13:10	170.0	170.0
9	14:35	85.0	95.0			
10	14:55	92.5	92.5			
11	14:55	95.0	95.0			
12	15:00	95.0	95.0			
13	15:05	95.0	95.0			
14	15:10	75.0	85.0			
15	15:15	75.0	75.0			
16	15:15	72.5	77.5			
17	15:30	68.0	68.0			
18	15:32	67.5	67.5			
19	15:35	67.5	67.5			
20	15:50	70.0	70.0			

Turbidity Depth Readings from QAQC Meeting 4/20/94



Turbidity Measurements from QAQC Meeting 4/23/94



Appendix 2.

Fourth Quarter Report

The Great Bay Watch

April 1 - June 30, 1994

Great Bay Watch Estuarine Monitoring Program
Interim Report (IV)
April 1 - June 30, 1994

Submitted by
B. Sharon Meeker and Ann Reid
Sea Grant Extension, University of New Hampshire
June 30, 1994

Following is a report of work tasks completed to date:

Monthly Meetings: We have continued our monthly meetings for Great Bay Watchers:

April 6 - Dr. Larry Ward, Jackson Estuarine Laboratory spoke to the group on suspended solids, a new sampling parameter that the Watch is undertaking this year with Dr. Ward's help. He also reported on current information concerning the pollution findings at the Portsmouth Naval Shipyard.

May 4 - Quality Assurance/ Quality Control Meeting plus Roger Rivers, Rivers Camera Shop lecturing on the upcoming annular eclipse and showing Watchers how to use correct viewing equipment and procedures.

June 1 - Stephanie DAgostino, NH Department of Environmental Services' Pollution Prevention Program, spoke on prevention of point and non-point pollution in water bodies such as the Great Bay Estuary. She advocated going directly to the companies, agencies and individuals who are creating the pollution.

Technical Advisory Committee Meeting, 4:30, Thursday, June 9.

Computer specialist and Great Bay Watcher David Early described a new data-base program that runs on Advantage that he is designing for possible use by the Watch. Mr. Robert Michelson who is creating both a 30-minute and a 12-minute video program on non-point pollution in the Great Bay estuary (financed by the Great Bay Hydrologic Unit which is administered by UNH Cooperative Extension). The shorter tape is designed for use by educators.

Quality Assurance/Quality Control Activities

Calibration of pH meters, hydrometers, thermometers was done by Amy Lindsay of the UNH Chemistry Department on April 14th. Instruments were within our guidelines. Records are kept in the Great Bay Watch office. Secchi discs were checked against standard meter sticks for quality control of turbidity measurements. Great Bay Watchers participated in a QA/QC "check-out" session at Jackson Estuarine Laboratory on April 20th and 23rd. Individuals were checked by quality control officers. On May 4 and May 15 additional QA/QC check-outs were conducted for correct sampling techniques for salnity, pH, temperature and dissolved oxygen. The results of all these sessions can be found in the QA/QC report.

Presentations, Displays, etc.

April 11-14: 4th Annual Volunteer Water Quality Monitoring

Conference in Portland, Oregon at which both the wall-sized drawing of the Gulf of Maine Watershed by Susan Lamie and the Great Bay Watch display were presented. We have sent 15 QA/QC draft plans to 15 participants at that conference upon request.

April 14 and 18: UNH students from a Department of Natural Resources course in community development presented the Great Bay Watch program to the Durham Conservation Commission and the Newmarket Planning Board, respectively.

June 2 and 4: The Great Bay Watch display plus demonstrations were presented to local teachers and Gulf of Maine Marine Educators Association members at the Great Bay Estuarine Research Reserve at Sandy Point, Stratham, NH.

June 8: Dana Kimball of Ecoventures included the Great Bay Watch Display as a part of his coastal resources booth at Market Square Day in Portsmouth, NH.

June 18: Great Bay Watch display and demonstrations were a part of Celebrate Odiorne Day at Odiorne State Park, Rye, NH.

June 28: Watchers showed sampling techniques to Elderhostel participants in the Marine Docents' week-long program aboard the University's research vessel, The Gulf Challenger. The program is entitled "The New Hampshire Coast: A Micro-cosm of New England Shores."

Sampling Dates for the 1994 Season (See attached map which includes the newest site (#16)). All sites were sampled at the low and high tidal level.

April 26 (except for site #3 where the dock was too slippery for safety, and site #8)

May 10 (all 16 stations)

May 25

June 10

June 23.

Data Correction

All the data for 1993 has been corrected according to the newest salinity charts. Hydrometers and thermometer calibration has been completed.

Data for 4/6, 5/10, 5/25, 6/10, 6/23 for most sites has been charted.

Please see the example of the new data sheet which shows possible correction spaces, attached to this report.

Ongoing Activities

1. Reid is continuing to meet with the Maine/New Hampshire Volunteer Water Quality Monitoring Fair committee. At this point the committee is considering the March 1995 conference to be an intensive one-day for monitoring coordinators on data management/ quality assurance, fund raising, etc. A Gulf of Maine-wide Cconference is being considered for the spring of 1996.

2. Reid is a member of the Piscataqua Region Marine Debris Council and the committee is working on educational signs to be placed at boat lauches in July.

3. Reid and Meeker are consulting with Robert Michelson on the non-point pollution videos he is preparing about the Great Bay Estuary.

4. Reid is working with Chris Nash on duplicate sampling during consideration of re-opening some of the shellfish beds in Great Bay.

5. Reid and Meeker are a part of the Great Bay Environmental Network being set up by Steve Wallace, NH Office of State Planning

6. Meeker is working with Great Bay Watch teachers, Extension personnel and a professor (Drew Christie) from the Philosophy Department on plans for an interdisplinary unit to use with high school students.

7. Reid, Meeker, and Carlene Carey (Marine Docent) are coordinating two elderhostel theme weeks which feature coastal resources and issues. One week is focused on Great Bay and the other is aimed more at the seacoast.

8. We are in the final phases of producing a short training video on coliform analysis procedures, with the assistance of a small grant from the Great Bay Hydrologic Unit (Cooperative Extension).

Appendix 3.

Great Bay Watch 1993 Season

note: data is presented in both tabular and graphic forms

GREAT BAY WATCH FIELD DATA
1993

SITE NAME Penninsula SITE 1

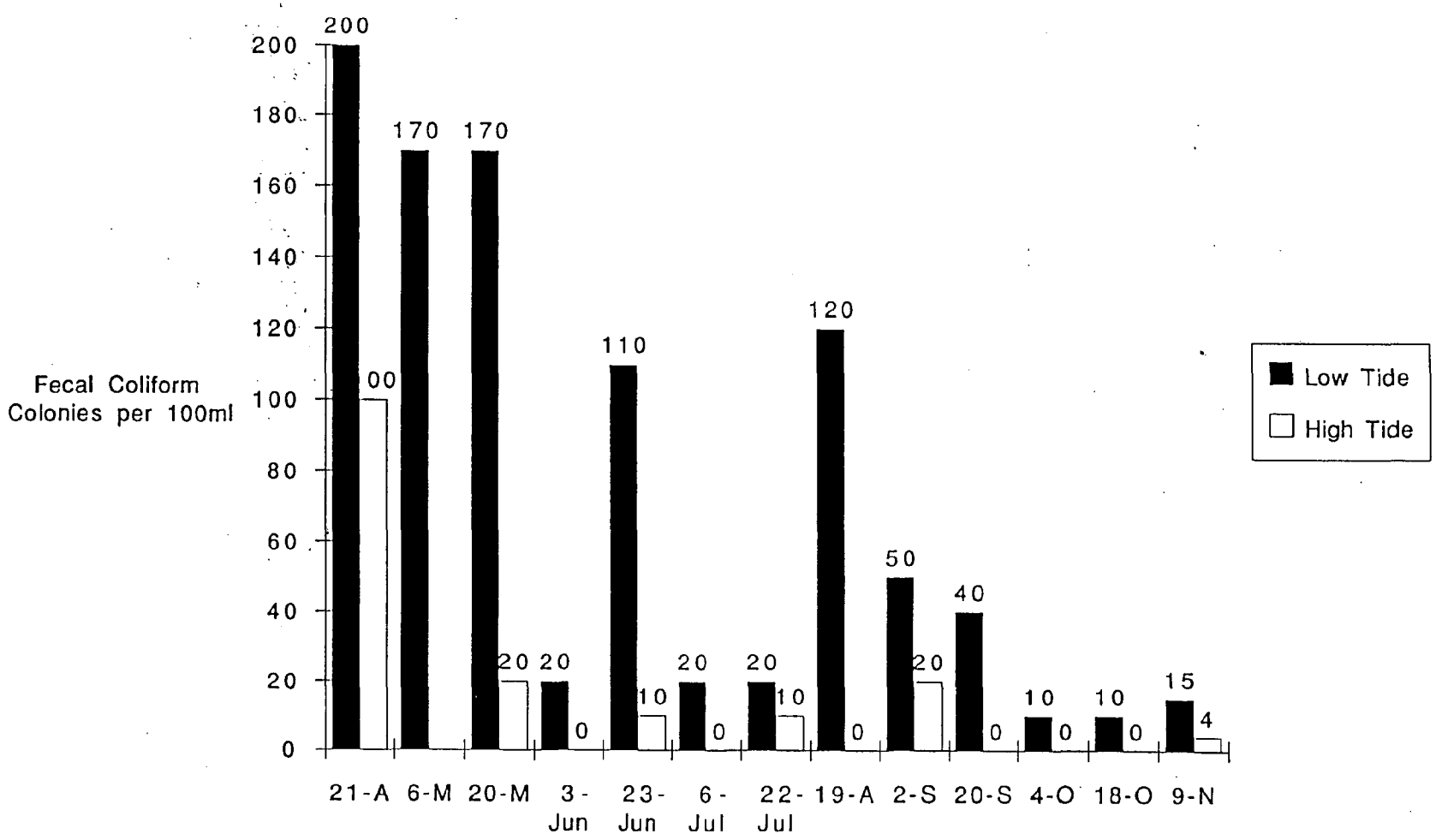
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SATH %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H	DEPTH L	ATEMP-H 0c	ATEMP-L 0c
4.21	14.0		11.90	9.10	10.30	3.50	122.9		8.10	7.20	80.00	40.00	380.00	170.00	19.00	15.00
5.06	18.00	16.50	8.50	6.70	19.00	12.20	100.3	73.7	7.50	7.00	95.00	52.50	370.00	133.00	27.00	18.00
5.20	14.00	13.50	7.60	6.40	22.30	14.00	84.3	66.8	7.40	7.20	90.00	87.50	365.00	168.00	15.00	15.00
6.03	15.50	14.00	8.30	7.20	27.70	22.00	98.2	79.7	7.70	7.50	95.00	65.00	375.00	125.00	23.00	15.00
6.23	18.00	20.00	7.90	6.36	28.20	25.80	98.50	81.70	7.90	7.60	110.00	73.00	365.00	150.00	26.00	20.50
7.06	22.50	23.00	8.00	5.60	29.80	27.50	109.50	76.30	7.90	7.50	155.00	102.50	365.00	146.00	33.00	25.20
7.22	18.00	20.50	7.50	5.50	31.20	28.90	95.30	72.20	7.80	7.30	138.00	97.50	370.00	135.00	24.50	25.00
8.03	23.00	23.00	7.80	5.10	31.50	27.10	108.90	69.30	7.70	7.20	158.00	123.00	345.00	140.00	30.00	23.00
8.19	23.00	23.00	7.05	4.70	31.20	28.00	98.90	64.20	7.30	7.30	190.00	110.00	383.00	153.00	22.50	19.00
9.02	22.50	22.00	7.30	4.50	31.10	31.00	100.70	61.50	7.80	7.40	230.00	122.00	350.00	155.00	25.90	19.00
9.20	15.50	16.00	7.77	6.70	32.90	29.00	95.40	80.80	7.80	7.70	230.00	118.00	385.00	130.00	15.00	14.00
10.04	16.50	14.00	8.46	6.50	30.90	28.80	104.70	75.10	7.70	7.40	230.00	105.00	363.00	165.00	24.00	15.00
10.18	12.00	12.00	8.00	6.69	31.10	28.10	90.10	73.90	7.90	7.10	305.00	100.00	405.00	165.00	21.50	16.50
11.09	6.00	6.50	9.52	10.25	28.50	22.30	91.80	96.60	7.90	7.90	315.00	130.00	340.00	130.00	0.50	11.00
MAX	23.00	23.00	11.90	10.25	32.90	31.00	122.90	96.60	8.10	7.90	315.00	130.00	405.00	170.00	33.00	25.20
MIN	6.00	6.50	7.05	4.50	10.30	3.50	84.30	61.50	7.30	7.00	80.00	40.00	340.00	125.00	0.50	11.00
AVERAGE	17.04	17.23	8.26	6.52	27.55	23.44	99.96	74.75	7.74	7.38	172.93	94.71	368.64	147.50	21.92	17.94

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21 H	EO BC EG LP	birds	pt cloud	waves
4.21 L	BH EC NW DT	crew boats	overcast	ripple
5.06 h	BC GC CR LP	boating	clear	ripple
5.06 L	BH EC DT	construction	overcast	ripple
5.20 H	LP BC EO		overcast	ripple
5.20 L	BH NW	crew boats	overcast	calm
6.03 H	EG BC LP		clear	ripple
6.03 L	EO CR BH	crew boats	pt cloud	ripple
6.23H	LP NW	boats	clear	calm
6.23L	EO BH		clear	ripple
7.06H	NW LP	hot	clear	ripple
7.06L	EO BH		clear	ripple
7.22H	EC LP		overcast	ripple
7.22L	EC PPC LP	rain before	clear	ripple
8.03H	LP KP		pt cloudy	ripple
8.03L	DT LP	swimmer	clear	calm
8.19H	EO BH EFG			ripple
8.19L	NW DT BH	buggy	overcast	ripple
9.02H	DT BH		clear	waves
9.02L	LP	BOATING	CLEAR	CALM
9.20H	NW DT BH	BOATING,BIRD	CLEAR	RIPPLES
9.20L	LP	BLUE HERON	CLEAR	RIPPLES
10.04H	EO DT BH	WINDY	CLEAR	WHITECAPS
10.04L	GC CR LP	WINDY	PT. SUNNY	RIPPLES
10.18H	DT CR BH	gulls	clear	ripples
10.18L	EF EC LP			
11.09H	EC NW LP	boats	clear	calm
11.09L	EF BH	gulls and boats	overcast	ripple

Site 1 - Penninsula										
Name	Date	Tide	Dilution	Time	Plate Count	CFU/100ml	Act. Time In	Actual time out	Comments	
Wojick	21-Apr	L	10ml	7:45	NA	NA	19:05	17:25	Filter fell upsidedown	
Wojick	21-Apr	L	1ml	7:45	2	*200	19:05	17:25	very smallcolonies	
Olech	21-Apr	H	10ml	13:43	0	0	19:05	17:25		
Olech	21-Apr	H	1ml	13:43	1	*100	19:05	17:25		
Curry	6-May	L	10ml	8:30	17	*170	18:00	16:12		
		L	1ml							
Curry	6-May	H	10ml	13:40	NA	NA	18:00	16:12	filter fell	
		H	1ml							
Wojick	20-May	L	10ml	7:52	17	*170	17:00	16:00		
Wojick	20-May	L	1ml	7:52	2	200	17:00	16:00		
Parson	20-May	H	10ml	13:00	2	*20	17:00	16:00		
Parson	20-May	H	1ml	13:00	0	0	17:00	16:00		
Richard	3-Jun	L	10ml		2	*20	14:55	15:30		
Friend	3-Jun	H	10ml	12:55	0	*0	14:55	15:30		
Olech	23-Jun	L	10ml	10:15	11	*110	18:10	17:30		
Olech	23-Jun	L	1ml	10:15	1	100	18:10	17:30		
Wojick	23-Jun	H	10ml	16:16	1	*10	18:10	17:30		
Wojick	23-Jun	H	1ml	16:16	0	0	18:10	17:30		
Olech	6-Jul	L	10ml	9:30	2	*20	18:09	16:10		
Olech	6-Jul	L	1ml	9:30	0	0	18:09	16:10		
Wojick	6-Jul	H	10ml	15:38	0	*0	18:09	16:10		
Wojick	6-Jul	H	1ml	15:38	0	0	18:09	16:10		
Curry	22-Jul	L	10ml	10:00	2	*20	19:45	18:00		
Curry	22-Jul	L	1ml	10:00	0	0	19:45	18:00		
Curry	22-Jul	H	10ml	15:57	1	*10	19:45	18:00	very small colonies	
Curry	22-Jul	H	1ml	15:57	0	0	19:45	18:00		
Wojick	19-Aug	L	10ml	8:30	12	*120	16:45	14:55	7 lg/5 tiny	
Wojick	19-Aug	L	1ml	8:30	2	200	16:45	14:55		
Olech	19-Aug	H	10ml	14:50	0	*0	16:45	14:55		
Olech	19-Aug	H	1ml	14:50	0	0	16:45	14:55		
Parson	2-Sep	L	10ml	8:50	5	*50	17:45	18:30		
Parson	2-Sep	L	1ml	8:50	0	0	17:45	18:30		
Turcotte	2-Sep	H	10ml	15:10	2	*20	17:45	18:30	tiny colonies	
Turcotte	2-Sep	H	1ml	15:10	0	0	17:45	18:30		
Parsons	20-Sep	L	10ml	10:30	4	*40	18:00	19:00		
Parsons	20-Sep	L	1ml	10:30	0	0	18:00	19:00		
Wojick	20-Sep	H	10ml	16:40	0	*0	18:00	19:00		
Wojick	20-Sep	H	1ml	16:40	0	0	18:00	19:00		
Curry	4-Oct	L	10ml	10:00	1	*10	17:30	17:33		
Curry	4-Oct	L	1ml	10:00	0	0	17:30	17:33		
	4-Oct	H	10ml		0	*0	17:30	17:33		
	4-Oct	H	1ml		NA	NA	17:30	17:33	pad fell	
Friend	18-Oct	L	10ml	9:47	1	*10	17:25	17:00		
Friend	18-Oct	L	1ml	9:47	0	0	17:25	17:00		
Richmond	18-Oct	H	10ml	15:42	0	*0	17:25	17:00		
Richmond	18-Oct	H	1ml	15:42	0	0	17:25	17:00		
Gray	9-Nov	L	100ml	14:16	15	*15	19:25	17:25	1 yellow	
Gray	9-Nov	L	10ml	14:16	1	10	19:25	17:25		
Curry	9-Nov	H	100ml	8:16	4	*4	19:25	17:25		
Curry	9-Nov	H	10ml	8:16	0	0	19:25	17:25		

*denotes value used in graph construction

Site #1 Penninsula 1993



2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME JACKSON LAB SITE 2

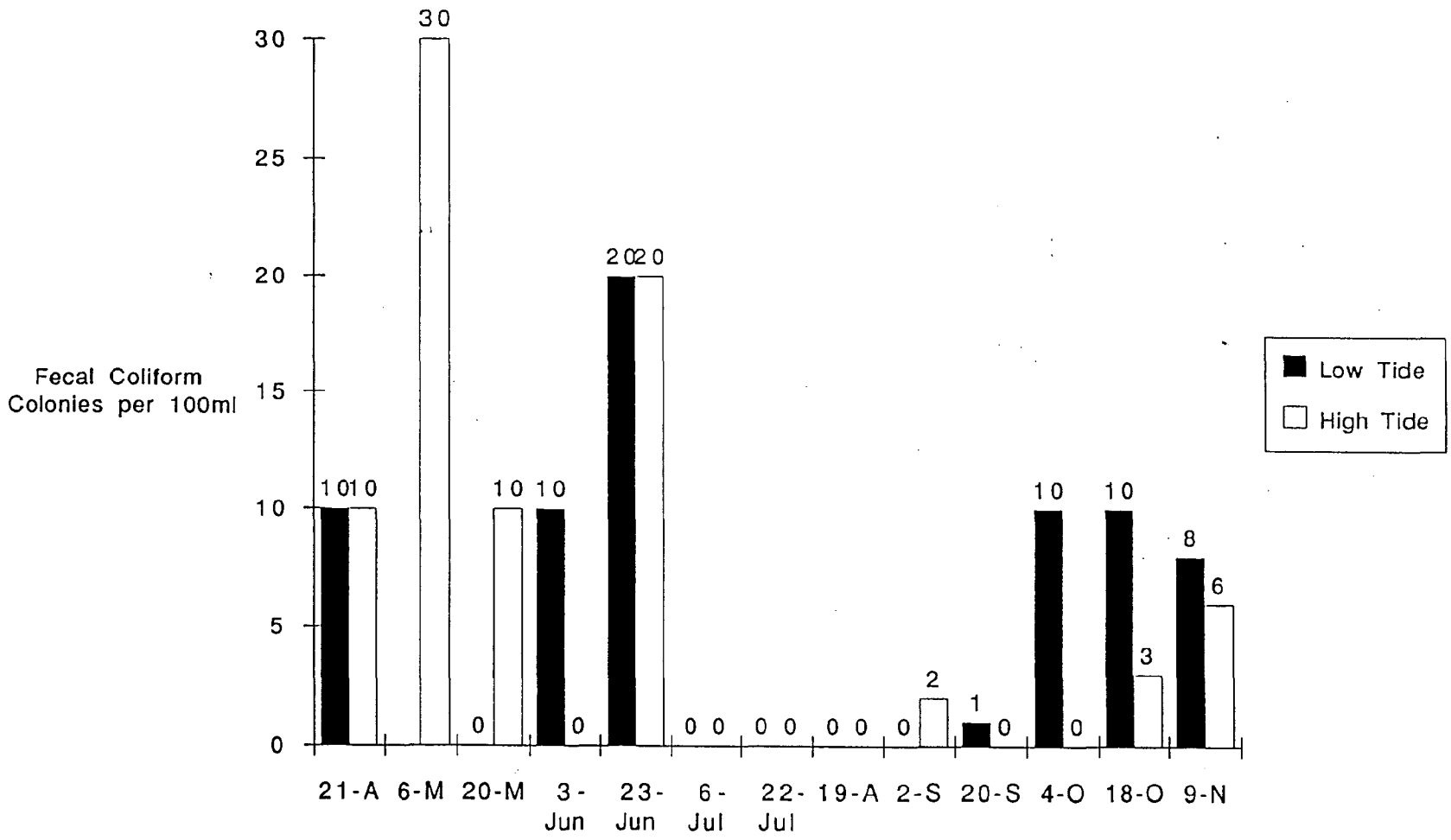
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SATH %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
4.21	11.50	10.00	11.20	10.60	10.90	7.30	109.9	98.4		7.10	75.00	65.00	450.00	250.00	20.00	18.00
5.06	13.50	14.50	11.20	11.70	20.20	17.00	121.4	127.0	7.80	7.20	90.00	85.00	460.00	225.00	25.00	36.00
5.20	13.50	13.50	8.00	7.50	23.30	23.30	88.4	82.9	7.50	6.70	110.00	90.00	460.00	245.00	18.00	12.00
6.03	12.50	13.50	8.30	7.80	27.50	24.90	59.4	87.0	7.50	7.40	115.00	55.00	440.00	205.00	25.00	13.00
6.23	17.50	18.00	7.50	7.40	28.90	27.20	93.00	91.70	7.60		100.00	55.00	540.00	210.00	30.00	20.00
7.06	20.50	21.00	8.00	7.20	31.20	29.90	106.50	96.00	7.60	7.80	177.50	135.00	440.00	240.00	31.00	26.00
7.22	18.50	20.50	8.00	6.80	31.20	30.30	102.60	90.00	7.80	7.70	155.00	117.00	470.00	230.00	25.00	22.00
8.03	21.00	21.00	7.85	6.85	33.10	30.70	107.40	92.4	7.90	7.70	130.00	140.00	430.00	250.00	30.00	25.00
8.19	20.00	21.00	7.00	5.90	31.60	32.40	92.60	79.90	7.70	7.70	170.00	135.00	470.00	220.00	29.00	24.00
9.02	22.50	21.50	8.20	6.00	31.90	32.50	113.70	82.00	8.00	7.90	290.00	160.00	440.00	240.00	26.00	20.00
9.20	14.50	14.50	8.00	7.10	31.40	31.40	95.00	84.30	7.80	7.70	250.00	200.00	465.00	240.00	15.00	15.00
10.04	14.50	13.50	8.20	7.90	30.10	30.10	96.60	91.10	7.90	7.80	260.00	140.00	455.00	260.00	22.00	16.00
10.18	10.00	10.00	8.80	8.20	30.90	30.90	94.80		7.90	7.80	230.00	250.00	490.00	250.00	20.00	17.00
11.09			9.30	10.45			89.00	100.8	7.90	7.90	460.00	230.00	460.00	230.00	5.00	10.50
MAX	22.50	21.50	11.20	11.70	33.10	32.50	121.40	127.00	8.00	7.90	460.00	250.00	540.00	260.00	31.00	36.00
MIN	10.00	10.00	7.00	5.90	10.90	7.30	59.40	79.90	7.50	6.70	75.00	55.00	430.00	205.00	5.00	10.50
AVERAGE	16.15	16.35	8.54	7.96	27.86	26.76	97.88	92.58	7.76	7.57	186.61	132.64	462.14	235.36	22.93	19.61

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21 H	BP NP MS		pt cloud	waves
4.21 L	MS BP		overcast	ripple
5.06 H	MS	fishing	pt cloud	ripple
5.06 L	BP NP MS		overcast	ripple
5.20 H	MS BP	boating	overcast	waves
5.20 L	BP MS	heron	overcast	calm
6.03 H	BP NP MS	boating	pt cloud	ripple
6.03 L	BP NP MS	boating	clear	calm
6.23H	NP BP	boating fishing		waves
6.23L	NP BP	fishing	clear	whitecaps
7.06H	ML BP	fishing	clear	ripple
7.06L	ML BP		clear	ripple
7.22H	NP ML	boating buggy	overcast	ripple
7.22L	ML NP	rain before	clear	ripple
8.03H	BP	JEL thermomete	clear	ripple
8.03L	BP	JEL thermomete	clear	ripple
8.19H	BP MS	boats	clear	ripple
8.19L	BP MS	bug, JEL boat	overcast	calm
9.02H	BP MS		clear	waves
9.02L	BP MS	lesser,grester ye	clear	calm
9.20H	BP MS	couple boats	clear	ripple
9.20L	BP MS		pt. cloudy	white caps
10.04H	BP MS	docks rolling	pt cloudy	white caps
10.04L	BP MS	bumpy dock	clear	waves
10.18H	BP MS	fishing	clear	waves
10.18L	BP MS	boating, geese	clear	waves
11.09H	BP MS	boating	pt cloudy	calm
11.09L	BP MS	JEL boats	pt cloudy	calm

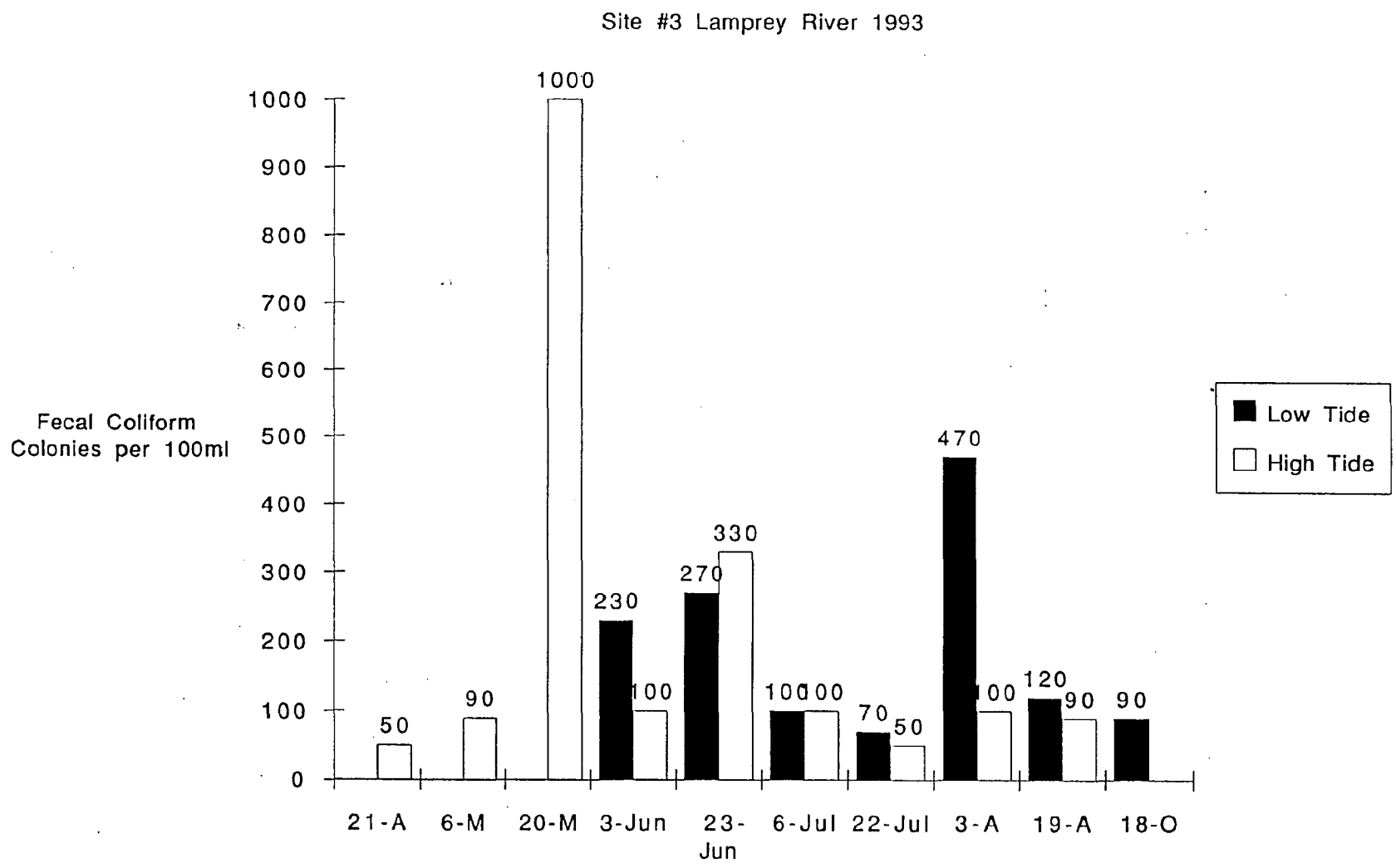
Site 2 - JEL									
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time In	Act. Time Ou	Comments
Swisher	21-Apr	L	10ml	8:00	1	*10	18:12	16:20	
Swisher	21-Apr	L	1ml	8:00	0	0	18:12	16:20	
Swisher	21-Apr	H	10ml	16:00	1	*10	18:12	16:20	
Swisher	21-Apr	H	1ml	16:00	0	0	18:12	16:20	
Swisher	6-May	L	10ml	7:40	NA	NA	18:00	16:12	filter fell
		L	1ml						
Swisher	6-May	H	10ml	13:50	3	*30	18:00	16:12	
		H	1ml						
Penhale	20-May	L	10ml	7:15	0	*0	18:30	17:30	
Penhale	20-May	L	1ml	7:15	0	0	18:30	17:30	
Swisher	20-May	H	10ml	13:20	1	*10	18:30	17:30	
Swisher	20-May	H	1ml	13:20	0	0	18:30	17:30	
Swisher	3-Jun	L	10ml	7:35	1	*10	14:55	15:30	
Swisher	3-Jun	H	10ml	13:00	0	*0	14:55	15:30	
Penhale	23-Jun	L	10ml	10:15	2	*20	18:40	17:30	
Penhale	23-Jun	L	1ml	10:15	0	0	18:40	17:30	
Pearlman	23-Jun	H	10ml	14:15	2	*20	18:40	17:30	2 yellow colo
Pearlman	23-Jun	H	1ml	14:15	0	0	18:40	17:30	
Penhale	6-Jul	H	10ml	15:45	0	*0	18:30	17:30	
Penhale	6-Jul	H	1ml	15:45	0	0	18:30	17:30	
Lorenz	22-Jul	L	10ml	11:00	0	*0	19:15	18:00	
Lorenz	22-Jul	L	1ml	11:00	0	0	19:15	18:00	
Lorenz	22-Jul	H	10ml	16:40	0	*0	19:15	18:00	
Lorenz	22-Jul	H	1ml	16:40	0	0	19:15	18:00	
Swisher	19-Aug	L	10ml	8:45	0	*0	17:20	17:55	
Swisher	19-Aug	L	1ml	8:45	0	0	17:20	17:55	
Swisher	19-Aug	H	10ml	15:00	0	*0	17:20	17:55	
Swisher	19-Aug	H	1ml	15:00	0	0	17:20	17:55	
Penhale	2-Sep	L	100ml	8:30	NA	NA	19:06	18:45	filter pad fel
Penhale	2-Sep	L	10ml	8:30	0	*0	19:06	18:45	
Penhale	2-Sep	H	100ml	15:30	2	*2	19:06	18:45	
Penhale	2-Sep	H	10ml	15:30	0	0	19:06	18:45	
Swisher	20-Sep	L	100ml	11:15	1	*1	20:20	19:30	1 yellow
Swisher	20-Sep	L	10ml	11:15	0	0	20:20	19:30	
Swisher	20-Sep	H	100ml	17:00	0	*0	20:20	19:30	
Swisher	20-Sep	H	10ml	17:00	0	0	20:20	19:30	
Swisher	4-Oct	L	100ml	9:30	0	0	18:15	18:52	
Swisher	4-Oct	L	10ml	9:30	1	*10	18:15	18:52	
Penhale	4-Oct	H	100ml	15:32	0	*0	18:15	18:52	
Penhale	4-Oct	H	10ml	15:32					
Swisher	18-Oct	L	100ml	9:30	10	*10	18:15	18:00	
Swisher	18-Oct	L	10ml	9:30	1	10	18:15	18:00	
Swisher	18-Oct	H	100ml	15:15	3	*3	18:15	18:00	
Swisher	18-Oct	H	10ml	15:15	0	0	18:15	18:00	
Swisher	9-Nov	L	100ml	14:15	8	*8	17:15	17:10	
Swisher	9-Nov	L	10ml	14:15	0	0	17:15	17:10	
Penhale	9-Nov	H	100ml	8:20	6	*6	17:15	17:10	1 yellow colo
Penhale	9-Nov	H	10ml	8:20	0	0	17:15	17:10	1 yellow colo

*denotes value used in graph construction

Site #2 JEL 1993



2/4/94


Site #3 Lamprey River 1993
Fecal Coliform Colonies per 100ml
1000
900
800
700
600
500
400
300
200
100
0
50
90
1000
230
100
270
330
100
100
70
50
470
100
120
90
90
21-A
6-M
20-M
3-Jun
23-Jun
6-Jul
22-Jul
3-A
19-A
18-O
Low Tide
High Tide

2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME DEPOT ROAD SITE 4

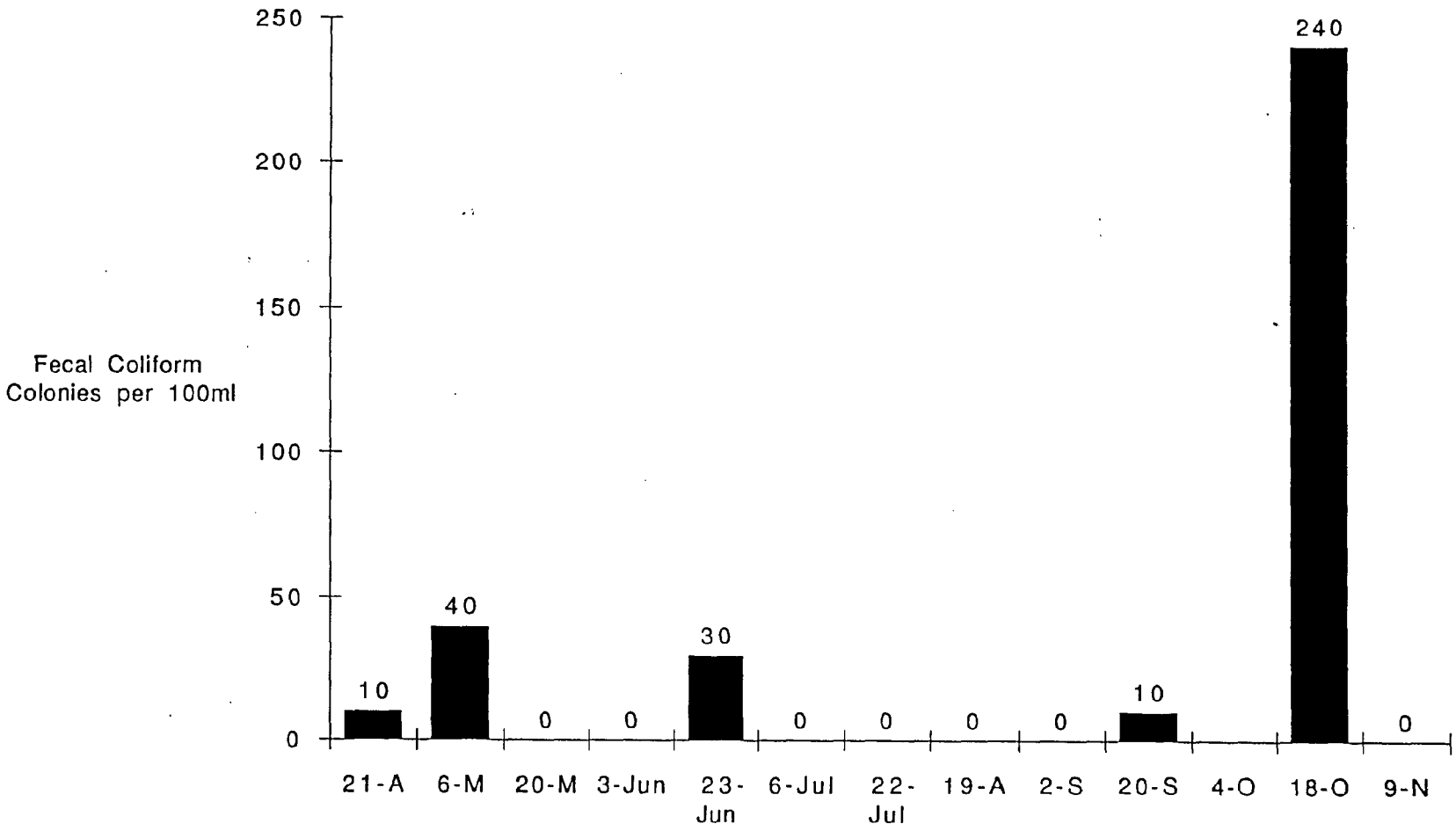
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT %	SAT %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H	DEPTH L	ATEMP-H 0c	ATEMP-L 0c
4.21	11.5	11.5	11.7	11.3	7.7	4.4	112.6		8.2	7.8	70.0		70.0		29.0	11.0
5.06	19.0		9.2		11.5		106.0		7.7		40.0		40.0		24.0	
5.20	14.0		8.1		20.5		88.9		7.7		85.0		85.0		13.0	
6.03	20.0		8.6		23.3		108.2		7.9		55.0		55.0		25.0	
6.23	21.0		7.7		1.2		87.3		8.0		30.0		60.0		28.0	
7.06	26.0				28.1				8.1		55.0		55.0		35.0	
7.22	23.0		7.8		29.4		107.5		8.0		70.0		70.0		27.0	
8.03	26.0		9.8		28.9		141.9		8.1		75.0		75.0		33.0	
8.19	24.0		8.4		28.5		117.2		7.8		60.0		60.0		24.0	
9.02	24.0		7.9		31.7		112.3		7.9		60.0		60.0		24.5	
9.20	17.5		9.2		30.1		115.0		8.1		80.0		80.0		14.0	
10.04	17.5		9.8		29.2		121.8		8.0		60.0		60.0		24.0	
10.18	16.0		10.1		27.5		120.6		8.0		40.0		40.0		12.0	
11.09	8.0		10.1		23.1		98.7		7.9		35.0		35.0		4.0	
MAX	26.0	11.5	11.7	11.3	31.7	4.4	141.9		8.2	7.8	85.0		85.0		35.0	11.0
MIN	8.0	11.5	7.7	11.3	1.2	4.4	87.3		7.7	7.8	30.0		35.0		4.0	11.0
AVERAGE	19.1	11.5	9.1	11.3	22.9	4.4	110.6		8.0	7.8	58.2		60.4		22.6	11.0

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21 H	LS PW		pt cloud	ripple
4.21 L	LS PW	construction	overcast	ripple
5.06 H	LS PM		clear	waves
5.20 H	PM PW	fox	overcast	ripple
6.03 H	LS AR	horseshoe crat	pt cloud	ripple
6.23H	LS		clear	whitecaps
7.06H	JJ JJ LS	Hot, biting flies	HHH	ripple
7.22H	LS PW	water grey	cloudy	waves
8.03H	LS PW	sailboat	clear	ripple
8.19	PW	QAQC sampler	overcast	ripple
9.02	LS KF	sailboats	clear	ripple
9.20	LS PF KF		pt cloudy	calm
10.04	AT LS PW PF			
10.18	LS PW	higher water th	clear	whitecaps
11.09	LS AT KF	geese flying	clear	calm

Site 4 - Depot Road										
Name	Date	Tide	DIlution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OU	Comments	
Warren	21-Apr	L	10ml	9:45	1	10	17:39	16:15	some tiny blue specs	
Warren	21-Apr	L	1ml	9:45	0	0	17:39	16:15		
Warren	21-Apr	H	10ml	15:25	1	*10	17:39	16:15		
Warren	21-Apr	H	1ml	15:25	0	0	17:39	16:15		
Sizemore	6-May	H	10ml	16:00	4	*40	18:40	16:45	1 yellow	
Warren	20-May	H	10ml	14:55	0	*0	19:00			
Warren	20-May	H	1ml	14:55	0	0	19:00			
Sizemore	3-Jun	H	10ml	14:00	0	*0	16:30	15:30		
Sizemore	23-Jun	H	10ml	17:50	3	*30	21:10	20:30	water in dish	
Sizemore	23-Jun	H	1ml	17:50	1	100	21:10	20:30	heavy sediments	
Jette	6-Jul	H	10ml	17:00	0	*0	18:30	17:30		
Jette	6-Jul	H	1ml	17:00	0	0	18:30	17:30		
Sizemore	2-Jul	H	10ml	17:25	0	*0	20:00	18:00		
Sizemore	22-Jul	H	1ml	17:25	0	0	20:00	18:00		
Warren	19-Aug	H	10ml	16:15	0	*0	18:55	18:15		
Warren	19-Aug	H	1ml	16:15	0	0	18:55	18:15		
Sizemore	2-Sep	H	10ml	16:10	0	*0	18:10	18:30		
Sizemore	2-Sep	H	1ml	16:10	0	0	18:10	18:30		
Sizemore	20-Sep	H	10ml	18:15	1	*10	19:45	19:30		
Sizemore	20-Sep	H	1ml	18:15	0	0	19:45	19:30		
Sizemore	4-Oct	H	100ml	17:10	TNTC	TNTC	19:30	18:52		
Sizemore	18-Oct	H	10ml	16:30	24	*240	19:55	18:00		
Sizemore	18-Oct	H	1ml	16:30	5	500	19:55	18:00		
Sizemore	9-Nov	H	10ml	9:15	0	*0	18:35	17:15		
Sizemore	9-Nov	H	1ml	9:15	0	0	18:35	17:15		

*Denotes valued used for graph construction

Site #4 Depot Road High Tide 1993



2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME PORTSMOUTH COUNTRY CLUB SITE 5

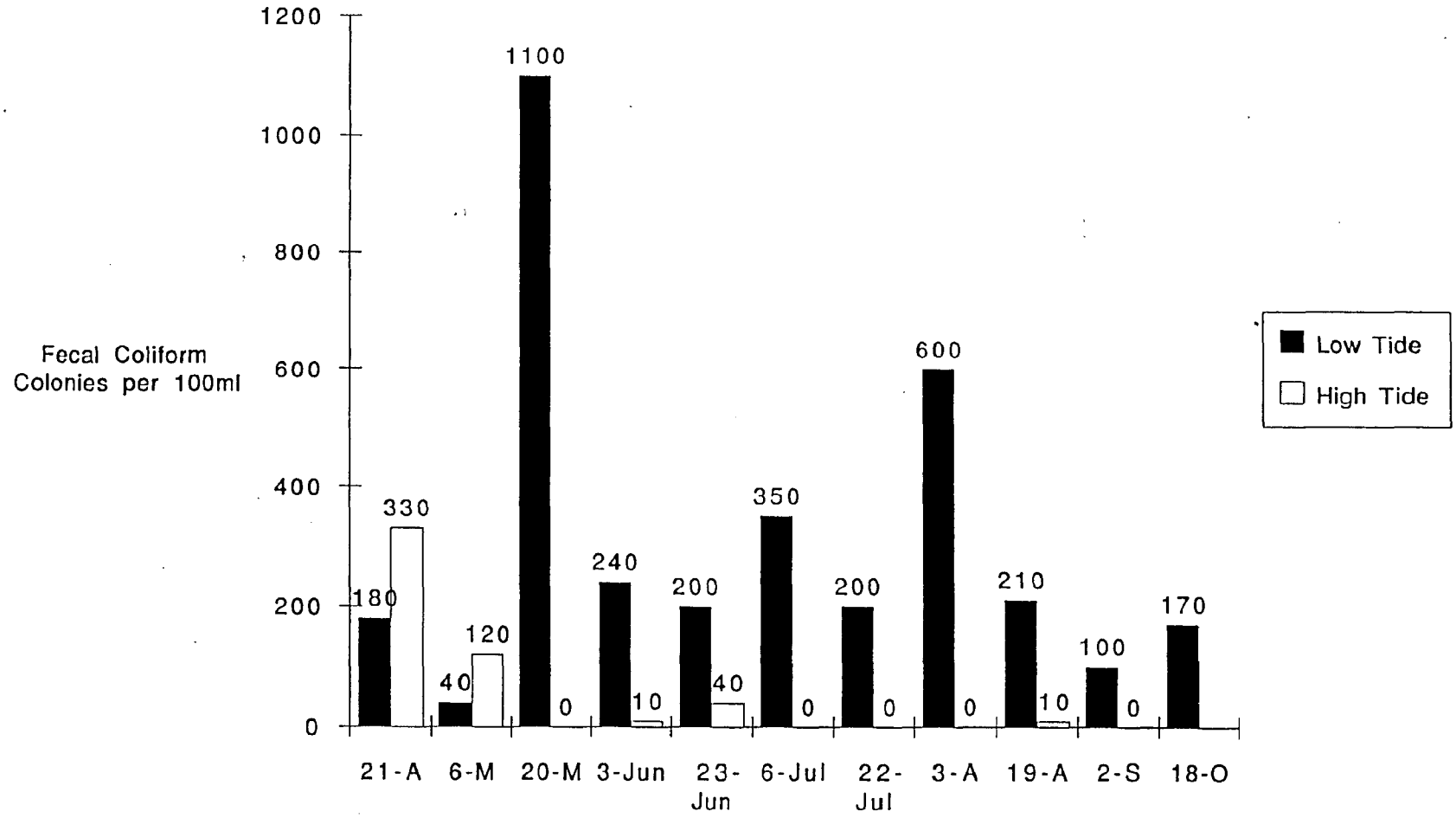
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SATH %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
4.21	15.5	13.5	11.2	8.8	4.4	1.1	115.5	85.4	8.2	7.3	57.5		100.0		20.0	15.0
5.06	18.5	17.0	7.9	7.6	15.5	1.8	92.2	79.8	7.5	7.4	47.5	40.0	70.0	40.0	29.0	19.0
5.20	15.5	13.5	7.9	7.3	18.6	3.9	88.4	71.9	7.4	7.2	62.5	35.0	110.0	35.0	13.0	11.5
6.03	17.5	14.0	7.8	6.6	23.2	10.3	93.4	68.2	7.6	7.4	27.5	30.0	125.0	30.0	22.0	14.0
6.23	21.5	19.5	6.9	6.2	26.8	15.6	91.1	73.8	7.6	7.3	27.5	30.0	120.0	30.0	24.0	20.0
7.06	28.0	24.5	7.6	7.2	15.7	19.8	105.7	96.3	7.7	7.4	102.5	35.0	115.0	35.0	34.0	24.0
7.22	22.5	21.5	7.0	5.5	32.3	24.3	97.3	71.5	7.7	7.3	55.0	45.0	75.0	45.0	25.0	22.0
8.03	27.5	23.5	8.8	7.8	28.8	18.0	130.6	101.5	7.8	7.3	110.0	45.0	120.0	45.0	31.0	24.0
8.19	23.0	21.0	6.8	4.2	30.1	23.8	94.1	54.0	7.7	7.2	135.0	35.0	135.0	35.0	24.5	19.5
9.02	24.0	22.0	8.2	4.3	31.5	24.1	116.5	56.4	7.8	7.2	110.0	45.0	110.0	45.0	23.5	20.0
9.20	16.5	15.0	9.2	6.8	24.1	19.6	108.6	75.8	7.9	7.5	87.5	45.0	145.0	45.0	15.0	18.0
10.04	16.0	12.5	9.5	7.9	28.0	12.9	113.8	80.2	7.9	7.4	110.0	50.0	110.0	50.0	22.0	17.0
10.18	14.0	11.5	8.5	7.4	28.5	13.9	98.1	73.9	7.8	7.5	27.5	45.0		45.0	18.0	16.0
11.09	3.0	5.0	10.1	10.5	22.0	5.7	86.7	85.5	7.7	7.4	85.0	35.0	85.0	35.0	1.0	10.0
MAX	28.0	24.5	11.2	10.5	32.3	24.3	130.6	101.5	8.2	7.5	135.0	50.0	145.0	50.0	34.0	24.0
MIN	3.0	5.0	6.8	4.2	4.4	1.1	86.7	54.0	7.4	7.2	27.5	30.0	70.0	30.0	1.0	10.0
AVERAGE	18.8	16.7	8.4	7.0	23.5	13.9	102.3	76.7	7.7	7.3	74.6	39.6	109.2	39.6	21.6	17.9

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21 H	BB HJ SM	course workers	pt cloud	waves
4.21 L	BB HJ SM	course workers	overcast	ripple
5.06 H	HJ SM BB		clear	waves
5.06 L	HJ SM BB AR	golfers	overcast	ripple
5.20 H	HJ BB DC	golfers	overcast	ripple
5.20 L	BB DC	golfers	overcast	calm
6.03 H	HJ SM DC BB	golfers	pt cloud	waves
6.03 L	HJ SM DC BB	cormorants	clear	ripple
6.23H	SM BB	golfers	clear	waves
6.23L	SM BB DC	golfers	clear	waves
7.06H	SM BB DC	golfers	clear	ripple
7.06L	SM BB DC	golfers	clear	ripple
7.22H	BB DC SM	birds	overcast	ripple
7.22L	BB DC	birds	clear	ripple
8.03H	BB DC SM	rain day before	pt cloudy	ripple
8.19H	SM DC BB	flock of killdeer	cloudy	calm
8.19L	SM DC	rain day before	foggy	calm
9.02H	BB SM DC	blue heron and	few clouds	ripple
9.02L	BB SM DC	birds and golfer	pt cloudy	calm
9.20H	BB SM DC	golf	pt cloudy	calm
9.20L	BB SM	golf, prob w sal	pt cloudy	ripple
10.04H	BB SM DC	birds	clear	ripple
10.04L	BB SM DC	great blue hero	pt cloudy	ripple
10.18H	BB DC SM	golfers	pt cloudy	ripple
10.18L	BB DC	golf	pt cloudy	ripple
11.09H	SM DC	debris on water	clear	calm
11.09L	SM DC BB	golf	overcast	calm

Site 5 -PPC										
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OU	Comments	
	21-Apr	L	10ml	7:40	18	*180				
	21-Apr	L	1ml							
	21-Apr	H	10ml	14:00	33	*330			1 large/32 tiny	
	21-Apr	H	1ml							
	6-May	L	10ml		4	*40				
	6-May	L	1ml		2	200				
	6-May	H	10ml		12	*120			8 yellow	
	6-May	H	1ml		2	200			6 yellow	
	20-May	L	10ml	7:45	68	680				
	20-May	L	1ml	7:45	11	*1100				
	20-May	H	10ml	13:37	NA (1)	NA (10)			some water leaked in?	
	20-May	H	1ml	13:37	0	*0				
Baird	3-Jun	L	10ml	7:16	24	*240	15:00	13:40	5 yellow	
Baird	3-Jun	H	10ml	13:11	1	*10	15:00	13:40	1 yellow	
Baird	23-Jun	L	10ml	10:45	NA (42)	NA (420)	19:40	18:40	not valid water leaked into	
Baird	23-Jun	L	1ml	10:45	2	*200	19:40	18:40		
Baird	23-Jun	H	10ml	16:40	4	*40	19:40	18:40		
Baird	23-Jun	H	1ml	16:40	0	0	19:40	18:40		
Baird	6-Jul	L	10ml	10:10	35	*350	17:45	16:10		
Baird	6-Jul	L	1ml	10:10	1	100	17:45	16:10		
Baird	6-Jul	H	10ml	16:10	0	*0	17:20	15:50		
Baird	6-Jul	H	1ml	16:10	0	0	17:20	15:50		
Baird	22-Jul	L	10ml	10:23	20	*200	17:30	16:00	1 yellow	
Baird	22-Jul	H	10ml	16:15	0	*0	17:30	16:30		
Baird	3-Aug	L	10ml	9:10	83	830	17:05	16:00	3 yellow	
Baird	3-Aug	L	1ml	9:10	6	*600	17:05	16:00		
Baird	3-Aug	H	10ml	15:00	0	*0	17:05	16:15		
Baird	3-Aug	H	1ml	15:00	0	0	17:05	16:15		
McCarth	19-Aug	L	10ml		21	*210	17:15	16:14		
McCarth	19-Aug	L	1ml		1	100	17:15	16:14		
Chambe	19-Aug	H	10ml		1	*10	17:56	16:16		
Chambe	19-Aug	H	1ml		0	0	17:59	16:16		
Baird	2-Sep	L	10ml		10	*100	16:30	14:00	2 yellow	
Baird	2-Sep	L	1ml		5	500	16:30	14:00		
Baird	2-Sep	H	10ml		0	*0	16:30	14:00		
Baird	2-Sep	H	1ml		0	0	16:30	14:00		
Baird	18-Oct	L	10ml	10:05	17	*170	17:29	16:49		
Baird	18-Oct	L	1ml	10:15	4	400	17:29	16:49		
Baird	18-Oct	H	10ml	14:00	NA (1)	NA (10)	10:04	9:42	filtered 10/19	
Baird	18-Oct	H	1ml	14:00	NA (0)	NA (0)	10:12	9:43	filtered 10/19	
Chambe	9-Nov	L	10ml	14:58	NA	NA			SAMPLES	
Chambe	9-Nov	L	1ml	14:58	NA	NA			WERE	
Chambe	9-Nov	H	10ml	8:26	NA	NA			FILLED WITH	
Chambe	9-Nov	H	1ml	8:26	NA	NA			WATER!	

*Denotes value used for graph construction

Site #5 Portsmouth Country Club 1993



2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME: FOX POINT SITE 6

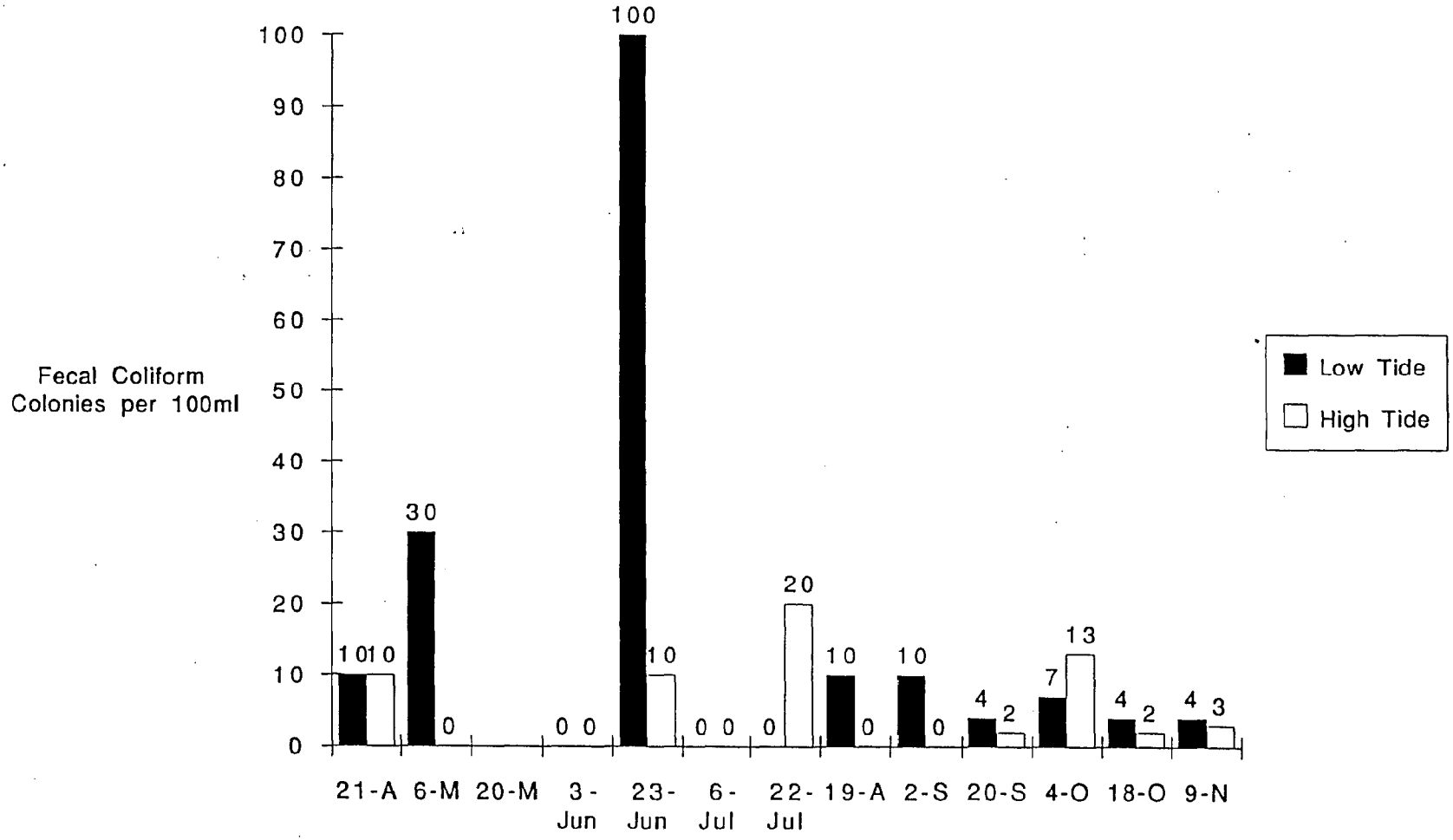
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SATH %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H	DEPTH L	ATEMP-H oC	ATEMP-L oC
4.21	8.5	9.5	10.9	11.0	16.3	9.7	103.2	102.4	7.7	7.5	142.5	80.0	300.0	110.0	20.0	13.0
5.06	10.5	13.0	9.2	8.8	24.5	18.1	96.0	93.2	7.7	7.6	200.0	85.0	310.0	85.0	25.0	18.0
5.20	11.0	13.0	9.3	8.2	26.7	23.2	99.5	89.6	7.6	7.5	205.0	125.0	275.0	125.0	14.0	11.0
6.03	11.0	12.5	9.1	8.4	29.4	25.8	99.1	92.3	7.7	7.5	207.0	100.0	310.0	100.0	24.0	10.0
6.23	13.0	17.0	5.5	7.4	29.8	27.7	62.7	90.2	7.9	7.6	200.0	80.0	285.0	80.0	21.0	18.0
7.06	16.0	19.0	8.5	7.8	30.9	28.5	103.7	99.3	7.3	7.6	275.0	110.0	275.0	110.0	29.0	28.0
7.22	14.0	18.0	8.4	7.1	31.4	29.7	98.8	89.4	7.7	7.8	303.0	110.0	320.0	110.0	22.0	22.0
8.03	18.0	19.5	7.9	7.8	31.0	30.5	100.3	101.5	7.2	7.7	260.0	90.0	260.0	90.0	31.0	23.5
8.19	17.5	21.0	8.0	7.0	30.9	31.1	100.5	94.0	7.8	7.5	177.5	115.0	265.0	115.0	23.0	18.0
9.02	16.5	19.5	8.0	6.6	30.9	31.6	98.6	86.5	7.6	7.6	355.0	145.0	355.0	145.0	26.0	19.0
9.20	12.0	14.5	8.0	7.3	32.4	31.4	90.8	86.7	7.8	7.8	335.0	130.0	350.0	130.0	14.0	13.0
10.04	12.0	14.0	7.8	8.2	32.2	30.1	87.2	95.6	7.3	7.1	340.0	145.0	340.0	145.0	20.0	19.0
10.18	9.5	10.0	8.4	8.2	30.5	29.2	88.4	87.3		7.1	315.0	125.0	375.0	125.0	15.0	16.0
11.09	7.0	7.0	9.0	9.6	28.8	27.3	88.4	94.2	7.7	7.6	295.0	115.0	295.0	115.0	5.0	10.0
MAX	18.0	21.0	10.9	11.0	32.4	31.6	103.7	102.4	7.9	7.8	355.0	145.0	375.0	145.0	31.0	28.0
MIN	7.0	7.0	5.5	6.6	16.3	9.7	62.7	86.5	7.2	7.1	142.5	80.0	260.0	80.0	5.0	10.0
AVERAGE	12.6	14.8	8.4	8.1	29.0	26.7	94.1	93.0	7.6	7.5	257.9	111.1	308.2	113.2	20.6	17.0

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	JP BP CC	boating	ptcloud	waves
4.21L	JP BP CC BT	boating	overcsat	calm
;5.06H	JP BP BH	dock in	clear	ripple
5.06L	JP BP	debris	overcast	calm
5.20H	JP BH	boats,terns	overcast	ripple
5.20L	JP BH	lobstering terns	overcast	calm
6.03H	JP BP BH	terns fishing	clear	waves
6.03L	JP BP BH	terns kingfisher	clear	calm
6.23H	NB CC ND BH		clear	whitecaps
6.23L	BH		clear	whitecaps
7.06H	JP BP	fishing	hazy	calm
7.06L	JP BP	fishing	hazy	calm
7.22H	BH JP BP	terns fishing	overcast	ripple
7.22L	BH JP BP	terns,duck	clear	ripple
8.03H	JP BP	fishing	pt cloudy	
8.03L	JP BP	new dock	haze	calm
8.19H	BH JP BP	ducks	clear	calm
8.19L	BH JP BP	meter skips	haze	calm
9.02H	BH JP	meter dead		
9.02L	BP JP BH		clear	calm
9.20H	JB BP	boating, bait fis	pt cloudy	ripple
9.20L	JB PB	strong wind	pt cloudy	white caps
10.04H	JB BP	boating	pt cloudy	white caps
10.04L	JB BP BH	coastal cleanup	clear	ripple
10.18H	JB BP	lobstering	clear	whitecaps
10.18L	JB BP BH	windy	clear	ripple
11.09H	JP	lobstering	clear	calm
11.09L	JP	boating/ducks	pt cloudy	calm

Site 6- Fox Point										
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OUT	Comments	
Porter	21-Apr	L	10ml	7:40	1	*10	21:00	19:05		
Porter	21-Apr	L	1ml	7:40	1	100	21:00	19:05		
Porter	21-Apr	H	10ml	13:48	1	*10	21:00	19:05		
Porter	21-Apr	H	1ml	13:48	0	0	21:00	19:05		
Porter	6-May	L	10ml	7:45	3	*30	18:55	16:55		
		L	1ml							
Porter	6-May	H	10ml	13:57	0	*0	18:55	16:55		
		H	1ml							
	20-May	L	10ml							
	20-May	L	1ml							
Hill/Porter	20-May	H	10ml	13:17	NA	NA	19:00			
Hill/Porter	20-May	H	1ml	13:17	NA	NA	19:00			
Hill	3-Jun	L	10ml		0	*0	15:35	15:30		
Hill	3-Jun	H	10ml	12:50	0	*0	15:35	15:30		
Hill	23-Jun	L	10ml	10:03	0	0	19:10	17:30		
Hill	23-Jun	L	1ml	10:03	1	*100	19:10	17:30		
Hill	23-Jun	H	10ml	16:20	1	*10	19:10	17:30		
Hill	23-Jun	H	1ml	16:20	0	0	19:10	17:30		
Porter	6-Jul	L	10ml	9:30	0	*0	19:30	17:30		
Porter	6-Jul	L	1ml	9:30	NA	NA	19:30	17:30	PAD FELL DOWN	
Porter	6-Jul	H	10ml	15:46	0	*0	19:30	17:30		
Porter	6-Jul	H	1ml	15:46	0	0	19:30	17:30		
Hill	22-Jul	L	10ml	9:43	0	*0	18:30	18:00		
Hill	22-Jul	L	1ml	9:43	0	0	18:30	18:00		
Hill	22-Jul	H	10ml	16:30	2	*20	18:30	18:00		
Hill	22-Jul	H	1ml	16:30	0	0	18:30	18:00		
Hill	19-Aug	L	10ml		1	*10	16:25	14:55		
Hill	19-Aug	L	1ml		0	0	16:25	14:55		
Hill	19-Aug	H	10ml	14:50	0	*0	16:25	14:55		
Hill	19-Aug	H	1ml	14:50	0	0	16:25	14:55		
Hill	2-Sep	L	10ml		1	*10		18:30		
Hill	2-Sep	L	1ml		0	0		18:30		
Hill	2-Sep	H	10ml		0	*0		18:30	1 blue-green	
Hill	2-Sep	H	1ml		0	0		18:30		
Porter	20-Sep	L	100ml	10:39	4	*4	18:40	19:00		
Porter	20-Sep	L	10ml	10:39	1	10	18:40	19:00		
Porter	20-Sep	H	100ml	16:56	2	*2	18:40	19:00		
Porter	20-Sep	H	10ml	16:56	0	0	18:40	19:00		
Hill	4-Oct	L	100ml	9:37	7	*7	19:15	17:33		
Porter	4-Oct	H	100ml	15:47	13	*13	19:15	17:33		
Hill	18-Oct	L	100ml	9:23	4	*4	19:00	18:00	1 yellow	
Hill	18-Oct	L	10ml	9:23	0	0	19:00	18:00		
Porter	18-Oct	H	100ml	15:39	2	*2	19:00	18:00		
Porter	18-Oct	H	10ml	15:39	0	0	19:00	18:00	2 yellow	
	9-Nov	L	100ml	14:10	4	*4	17:40	17:07	1 yellow colony	
	9-Nov	L	10ml	14:10	0	0	17:40	17:07		
Porter	9-Nov	H	100ml	9:03	3	*3	17:40	17:07	2 yellow colonies	
Porter	9-Nov	H	10ml	9:03	0	0	17:40	17:07		

 *Denotes values used for graph construction

Site #6 Fox Point 1993



2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME: CEDAR POINT SITE 7

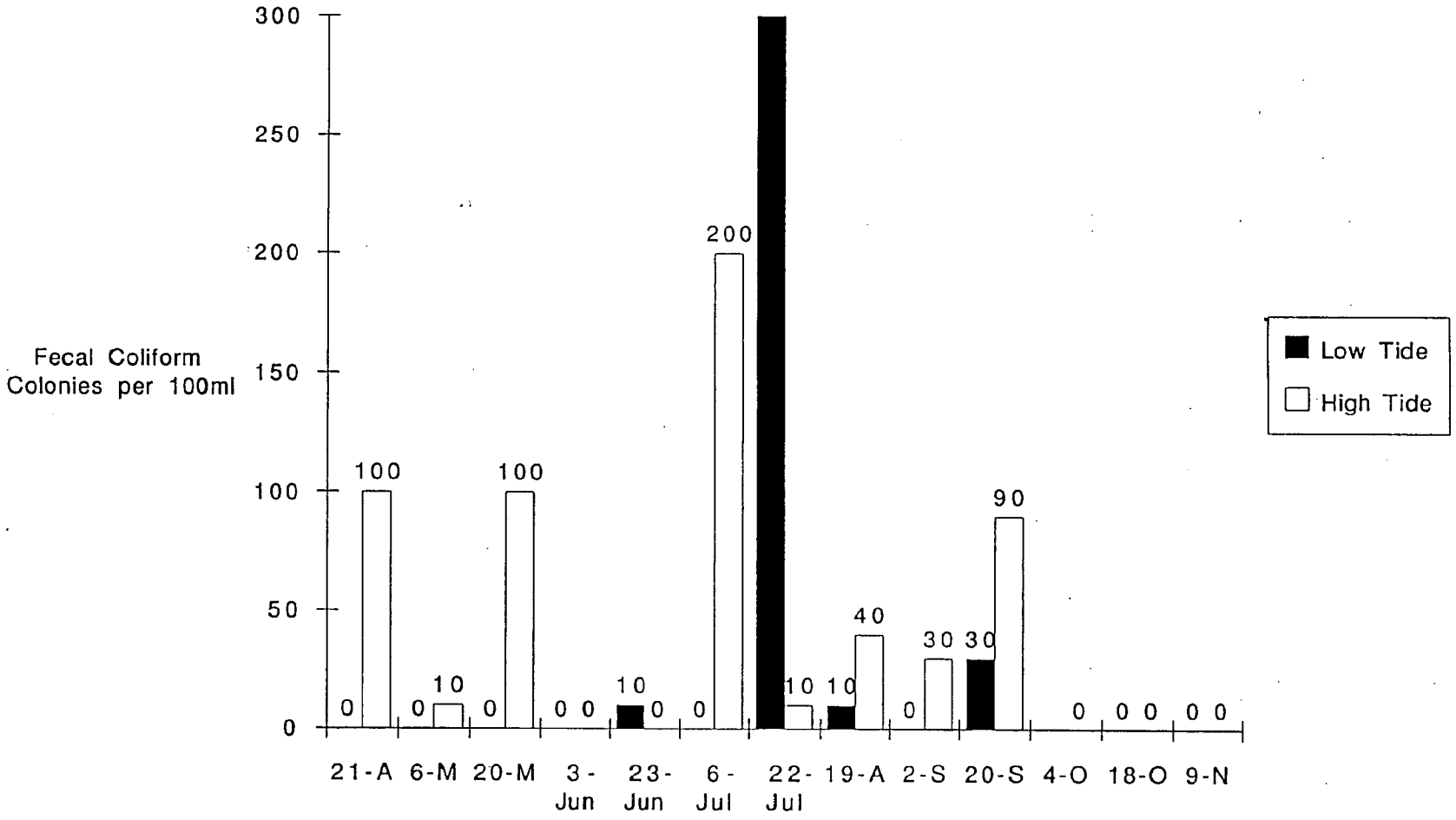
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SATH %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTHH cm	DEPTHL cm	ATEMP-H oC	ATEMP-L oC
4.21	9.5	9.0	10.9	10.7	13.9	9.7	104.0	98.4	7.4	7.2	155.0	30.0	210.0	30.0	23.0	19.0
5.06	11.0	13.5	9.2	8.0	23.6	17.0	96.5	85.0	7.4	7.2	232.5	75.0	295.0	75.0	26.5	18.0
5.20	13.5	13.5	8.4	8.0	26.2	23.6	94.5	88.5	7.4	7.6	200.0	117.0	630.0	520.0	20.0	12.0
6.03	13.5	12.5	9.4	8.2	30.1	27.2	108.5	90.9	7.6	7.6	115.0	105.0		455.0	29.0	9.5
6.23	16.0	17.5	8.2	7.3	29.5	28.2	99.1	90.2	7.5	7.5	285.0	115.0	630.0	565.0	26.5	20.5
7.06	18.0	19.5	8.1	7.5	30.3	30.3	102.4	97.5	7.1	7.3	330.0	72.5	630.0	435.0	35.0	26.0
7.22	16.5	18.5	8.7	6.8	30.9	29.9	107.2	86.5	7.8	7.6	260.0	135.0	650.0	540.0	24.0	22.0
8.03	19.5	19.5	7.6	7.2	30.7	30.1	99.0	93.5	6.5	7.9	407.0	212.5	630.0	475.0	32.0	24.5
8.19	19.0	20.0	7.0	6.9	30.5	30.6	90.3	90.7	7.6	7.6	350.0	180.0	630.0	495.0	29.0	21.0
9.02	18.0	21.0	7.3	6.8	31.5	33.1	92.9	92.5	7.3	7.4	435.0	227.0	640.0	465.0	22.0	23.0
9.20	12.0	15.0		7.4	31.1	31.4		88.8	7.1	7.2	462.0	290.0	640.0	525.0	18.0	11.0
10.04	14.0	14.0	7.4	7.3	31.6	31.4	87.1	85.8	7.7	7.5	440.0	220.0	640.0	395.0	22.0	15.0
10.18	11.0	10.5	8.7	8.7	30.7	29.2	95.6	93.6	6.7	7.0	420.0	327.5	640.0	640.0	20.0	14.0
11.09	6.5	7.0	8.6	9.6	29.8	26.2	84.9	93.5	6.3	5.6	570.0	362.5	640.0	470.0	0.0	11.0
MAX	19.5	21.0	10.9	10.7	31.6	33.1	108.5	98.4	7.8	7.9	570.0	362.5	650.0	640.0	35.0	26.0
MIN	6.5	7.0	7.0	6.8	13.9	9.7	84.9	85.0	6.3	5.6	115.0	30.0	210.0	30.0	0.0	9.5
AVERAGE	14.1	15.1	8.4	7.9	28.6	27.0	97.1	91.1	7.2	7.3	333.0	176.4	577.3	434.6	23.4	17.6

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	IL AR	quiet	ptcloud	whitecaps
4.21L	IL MR	planes	overcast	ripple
5.06H	EL DL	mallards boatin	clear	ripple
5.06L	EL MR	gulls	overcast	ripple
5.20H	MR EL MB	debris	overcast	waves
5.20L	EL MR MB	mallards	overcast	calm
6.03H	MR MB	fishing	clear	ripple
6.03L	EL MR	geese	ptcloud	ripple
6.23H	EL MR	boating	clear	ripple
6.23L	MR EL MB	gulls geese	clear	ripple
7.03H	EL MB		clear	ripple
7.03L	MR MB AB	ducks	clear	calm
7.22H	IL AB	windy	overcast	ripple
7.22L	AB MB	rain day before	clear	ripple
8.03H	IL MB AB	geese,mallards	clear	ripple
8.03L	IL MB	ducks,geese	haze	calm
8.19H	MR	fish	clear	calm
8.19L	MB BB MR	mallards,geese	fog,cloudy	
9.02H	EL MR	meter,line trout	pt cloudy	waves
9.02L	AB BB	birds,	clear	calm
9.20H	IL DL	cormorants	pt cloudy	ripple
9.20L	IL MR	50 different birc	pt cloudy	ripple
10.04H	IL AB	sailing, geese	few clouds	white caps!
10.04L	DL BB	DO heated up	pt cloudy	white caps
10.18H	AB MB	flock of ducks	clear	waves
10.18L	AB MB BB	fishing	pt cloudy	ripple
11.09H	BB AB	none	clear	calm
11.09L	BB AB MR	none	overcast	ripple

Site 7 - Cedar Point									
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OUT	Comments
Lourie	21-Apr	L	10ml	7:26	0	*0	20:00	18:00	
Lourie	21-Apr	L	1ml	7:26	NA	NA	20:00	18:00	Filter fell ont
Lourie	21-Apr	H	10ml	13:43	NA	NA	20:00	18:00	Filter fell on
Lourie	21-Apr	H	1ml	13:43	1	*100	20:00	18:00	
Lourie	6-May	L	10ml	7:31	0	*0	18:55	16:55	
		L	1ml						
Lourie	6-May	H	10ml	13:52	1	*10	18:55	16:55	
		H	1ml						
Lourie	20-May	L	10ml	6:55	0	*0	18:00	16:00	
Lourie	20-May	L	1ml	6:55	0	0	18:00	16:00	
Lourie	20-May	H	10ml	13:10	0	0	18:00	16:00	
Lourie	20-May	H	1ml	13:10	1	*100	18:00	16:00	
Lourie	3-Jun	L	10ml	6:26	0	*0	15:35	15:30	
Rivers	3-Jun	H	10ml	12:46	0	*0	15:35	15:30	
Rivers	23-Jun	L	10ml	9:53	1	*10	22:25	20:30	
Rivers	23-Jun	L	1ml	9:53	NA	NA	22:25	20:30	pad fell, ruine
Rivers	23-Jun	H	10m l	16:10	0	*0	22:25	20:30	
Rivers	23-Jun	H	1ml	16:10	0	0	22:25	20:30	
Briggs	6-Jul	L	10ml	9:15	0	*0	17:16	16:10	
Briggs	6-Jul	L	1ml	9:15	0	0	17:16	16:10	
Lourie	6-Jul	H	10m l	15:41	20	*200	17:16	16:10	1 blue/yellow
Lourie	6-Jul	H	1ml	15:41	5	500	17:16	16:10	
Briggs	22-Jul	L	10ml	9:33	118	1180	18:50	18:00	
Briggs	22-Jul	L	1ml	9:33	25	*2500	18:50	18:00	
Briggs	22-Jul	H	10m l	15:54	1	*10	18:50	18:00	
Briggs	22-Jul	H	1ml	15:54	0	0	18:50	18:00	
Briggs	19-Aug	L	10ml	8:20	1	*10	18:10	18:05	
Briggs	19-Aug	L	1ml	8:20	0	0	18:10	18:05	
Briggs	19-Aug	H	10m l	14:40	4	*40	18:10	18:05	
Briggs	19-Aug	H	1ml	14:40	0	0	18:10	18:05	
Briggs	2-Sep	L	10ml	8:24	0	*0		18:30	
Briggs	2-Sep	L	1ml	8:24	0	0		18:30	
Lourie	2-Sep	H	10m l	14:39	3	*30		18:30	
Lourie	2-Sep	H	1ml	14:39	0	0		18:30	
Lourie	20-Sep	L	10ml	10:29	3	*30	21:00	21:30	
Lourie	20-Sep	L	1ml	10:29	0	0	21:00	21:30	
Lourie	20-Sep	H	10m l	16:51	9	*90	21:00	21:30	
Lourie	20-Sep	H	1ml	16:51	2	200	21:00	21:30	
Lourie	4-Oct	H	10ml	15:42	0	*0	20:30	18:52	
Briggs	18-Oct	L	10ml	9:13	0	*0	19:20	18:00	
Briggs	18-Oct	L	1ml	9:13	0	0	19:20	18:00	
Briggs	18-Oct	H	10m l	15:25	0	*0	19:20	18:00	
Briggs	18-Oct	H	1ml	15:25	0	0	19:20	18:00	
	9-Nov	L	10ml	14:08	0	*0	18:00	17:10	
	9-Nov	L	1ml	14:08	0	0	18:00	17:10	
	9-Nov	H	10m l	8:01	0	*0	18:00	17:10	1 yellow colo
	9-Nov	H	1ml	8:01	0	0	18:00	17:10	

*Denotes values used for graph construction

Site #7 - Cedar Point 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME: COCHECO SITE 9

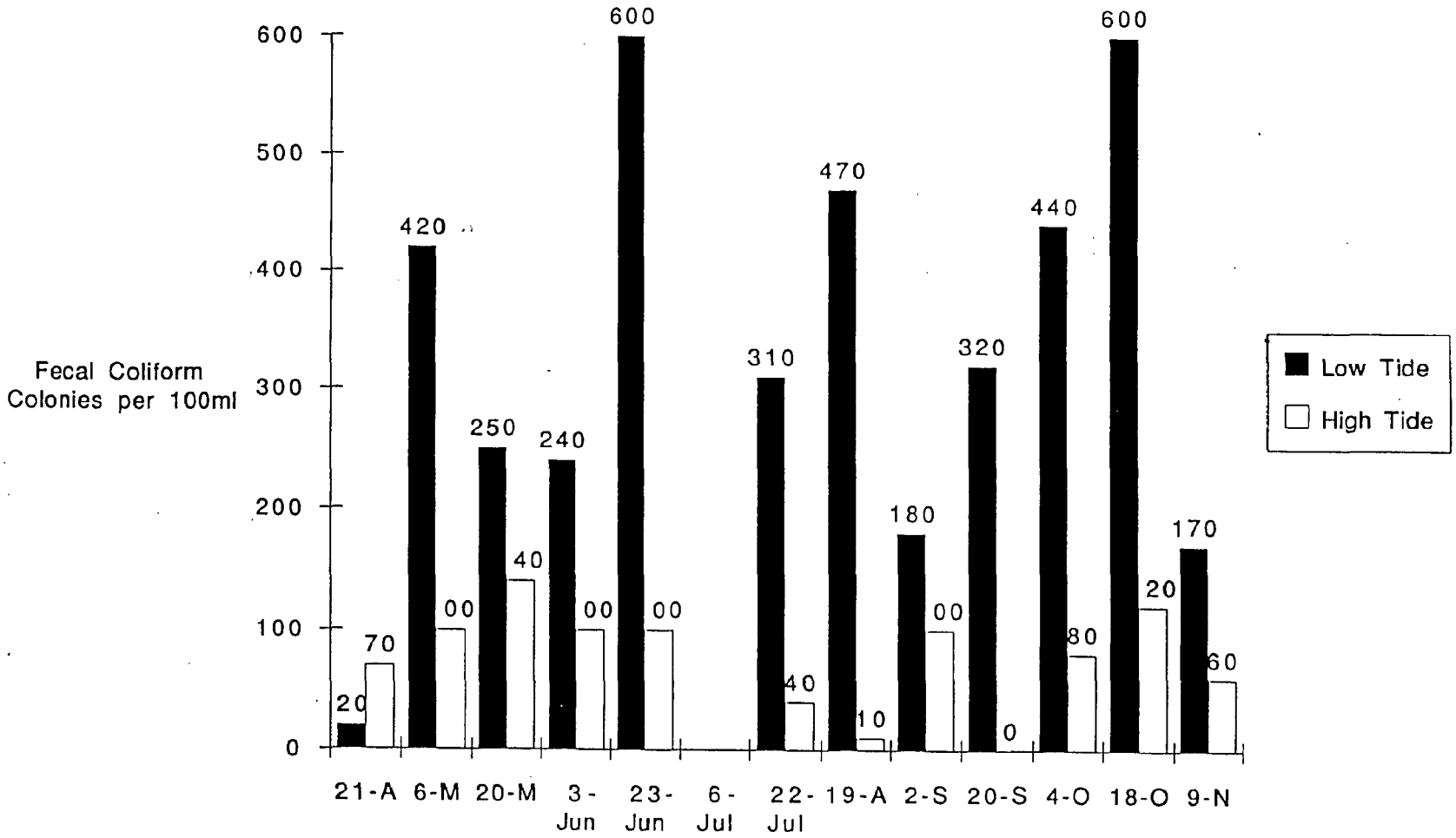
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SAT L %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H oC	ATEMP-L oC
4.21	11.5	10.0	10.2	10.1	0.0	0.0	94.4	89.4	7.2	7.1	115.0	17.0	180.0	17.0	19.0	16.0
5.06	17.0	17.0	8.5	8.9	2.9	0.0	89.7	92.4	7.0	7.1	100.0	24.0	250.0	24.0	22.0	17.0
5.20	15.0	15.0	7.6	7.8	9.9	4.7	80.0	82.0	6.9	7.0	118.0	20.0	400.0	20.0	13.0	11.0
6.04	17.0	15.0	8.0	8.1	10.8	5.9	88.1	83.4	7.0	6.9	150.0	20.0	200.0	20.0	20.0	10.0
6.23	20.5	21.0	7.9	6.5	18.3	14.0	97.4	79.0	7.3	7.0	110.0	bsv	175.0	bsv	21.0	19.0
7.06	26.5	24.0	8.2	7.5	20.4	12.8	114.0	78.6	7.6	7.6	130.0	bsv	400.0	bsv	32.0	30.0
7.23	22.0	22.0	7.2	6.8	24.9	18.5	94.9	86.3	7.6	7.1	135.0	bsv	425.0	30.0	23.0	20.0
8.03	26.0	23.0	9.5	7.3	21.1	12.4	131.5	91.2	7.7	7.3	175.0	bsv	400.0		28.0	22.0
8.19	24.0	22.0		5.3	21.7	15.4		66.1	7.5	7.1	180.0	bsv	465.0	na	22.0	18.0
9.02	22.0	22.0	8.8	5.6	25.2	20.0	116.2	71.7	7.5	7.4	195.0	40.0		40.0	22.0	19.5
9.20	16.0	15.5	9.6	7.0	24.5	17.0	112.5	77.6	7.8	7.3	140.0	bsv	440.0		15.0	12.0
10.04	15.0	12.5	9.9	8.5	15.4	8.4	107.6	84.0	7.6	7.1	120.0	bsv	365.0		20.5	13.0
10.18	11.5	9.5	8.7		13.3	4.3	86.6		7.3	7.0	170.0	bsv	460.0		17.0	14.0
11.09	2.0	6.0	11.0	11.1	5.0	3.8	83.6	91.7	7.5	6.9	215.0	bsv	390.0		-4.0	7.0
MAX	26.5	24.0	11.0	11.1	25.2	20.0	131.5	92.4	7.8	7.6	215.0	40.0	465.0	40.0	32.0	30.0
MIN	2.0	6.0	7.2	5.3	0.0	0.0	80.0	66.1	6.9	6.9	100.0		175.0		-4.0	7.0
AVERAGE	17.6	16.8	8.9	7.7	15.2	9.8	99.7	82.6	7.4	7.1	146.6	8.6	350.0	16.8	19.3	16.3

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	JM BK	geese	ptcloud	ripple
4.21L	NN JM	quiet	ptcloud	calm
5.06H	JM BK		ptcloud	ripple
5.06L	NN JM	quiet	overcast	calm
5.20H	JM BK	boating	overcast	ripple
5.20L	NN JM	quiet	overcast	calm
6.04H	JM	boating	ptcloud	ripple
6.04L	NN JM		clear	calm
6.23H	JM BK		clear	ripple
6.23L	JM BK	boating	clear	waves
7.06H	JM BK	fishing	clear	ripple
7.06L	JM	loon	clear	ripple
7.23H	NN JM	boating	pt cloudy	ripple
7.23L	NN JM	cormorant	clear	ripple
8.03H	BK JM	osprey	pt cloudy	ripple
8.03L	NN JM	herons	pt cloudy	ripple
8.19H	NN JM	howling	pt cloudy	calm
8.19L	NN JM	fish jumping	overcast/foggy	calm
9.02H	CC BK	boat	clear	ripple
9.02L	NN	birds and boats	clear	calm
9.20H	NN JM	heron, boating	pt cloudy	ripple
9.20L	JM	frost and birds	clear	ripple
10.04H	NN BK	breezy	pt cloudy	ripple
10.04L	JM	green glob plant	pt cloudy	calm
10.18H	JM BK	folliage tour boa	clear	ripple
10.18L	JM	birds, mild temp	pt cloudy	ripple
11.09H	JM IL	ice	clear	calm
11.09L	JM IL	ducks	pt cloudy	calm

Site 9 - Cocheco River									
Name	Date	Tide	Dilution	Time	Plate Count	CFU/100ml	Act. Time IN	Act. Time OUT	Comments
Neal	21-Apr	L	10ml	6:45	2	*20	21:15	19:30	2 yellow colo
Neal	21-Apr	L	1ml	6:45	2	200	21:15	19:30	
Munson	21-Apr	H	10ml	NA	7	*70	21:15	19:30	
Munson	21-Apr	H	1ml	NA	0	0	21:15	19:30	
Neal	6-May	L	10ml	7:00	42	*420	19:20	17:25	1 yellow
		L	1ml						
Munson	6-May	H	10ml	13:00	10	*100	19:20	17:25	1 yellow
		H	1ml						
Neal	20-May	L	10ml	6:30	25	*250	16:30	16:00	4 yellow
Neal	20-May	L	1ml	6:30	7	700	16:30	16:00	
Munson	20-May	H	10ml	12:40	14	*140	16:30	16:00	
Munson	20-May	H	1ml	12:40	0	0	16:30	16:00	
Neal	3-Jun	L	10ml	6:00	24	*240	16:00	15:30	1 yellow
Munson	3-Jun	H	10ml	12:00	1	*100	16:00	15:30	
Munson	23-Jun	L	10ml	10:00	NA (30)	NA (300)	20:00	18:40	Pad fell down
Munson	23-Jun	L	1ml	10:00	6	*600	20:00	18:40	
Munson	23-Jun	H	10ml	NA	10	*100	20:00	18:40	
Munson	23-Jun	H	1ml	NA	1	100	20:00	18:40	
Munson	6-Jul	L	10ml	8:50	NA (5)	NA (50)	16:52	16:10	NON_STERILE
Munson	6-Jul	L	1ml	8:50	NA (4)	NA (400)	16:52	16:10	NON_STERILE
Munson	6-Jul	H	10ml	15:00	NA (2)	NA (20)	16:52	16:10	NON_STERILE
Munson	6-Jul	H	1ml	15:00	NA (0)	NA (0)	16:52	16:10	NON_STERILE
Neal	22-Jul	L	10ml	9:00	31	*310	18:00	18:00	
Neal	22-Jul	L	1ml	9:00	3	300	18:00	18:00	
Neal	22-Jul	H	10ml	15:00	4	*40	18:00	18:00	mold!
Neal	22-Jul	H	1ml	15:00	0	0	18:00	18:00	
Neal	19-Aug	L	10ml	8:00	47	*470	18:55	18:20	
Neal	19-Aug	L	1ml	8:00	3	300	18:55	18:20	
Neal	19-Aug	H	10ml	14:00	1	*10	18:55	18:20	
Neal	19-Aug	H	1ml	14:00	0	0	18:55	18:20	
Neal	2-Sep	L	10ml	7:50	18	*180	16:12	18:30	10 green/yell
Neal	2-Sep	L	1ml	7:50	1	100	16:12	18:30	
	2-Sep	H	10ml	14:05	0	0	16:12	18:30	115 yellow
	2-Sep	H	1ml	14:05	1	*100	16:12	18:30	10 yellow
Munson	20-Sep	L	10ml	9:58	32	*320	19:15	19:00	
Munson	20-Sep	L	1ml	9:58	2	200	19:15	19:00	
Neal	20-Sep	H	10ml	16:00	NA (3)	NA (30)	19:15	19:00	pad fell
Neal	20-Sep	H	1ml	16:00	0	*0	19:15	19:00	
Munson	4-Oct	L	10ml	9:00	44	*440	19:15	17:33	
Neal	4-Oct	H	10ml	15:30	8	*80	19:15	17:33	
Munson	18-Oct	L	10ml	8:45	60	*600	17:50	17:00	
Munson	18-Oct	L	1ml	8:45	8	800	17:50	17:00	
Kram	18-Oct	H	10ml	14:45	12	*120	17:50	17:00	
Kram	18-Oct	H	1ml	14:45	1	100	17:50	17:00	
Munson	9-Nov	L	10ml	13:38	17	*170	18:22	17:05	1 yellow colo
Munson	9-Nov	L	1ml	13:38	0	0	18:22	17:05	
Munson	9-Nov	H	10ml	7:30	6	*60	18:22	17:05	
Munson	9-Nov	H	1ml	7:30	NA	NA	18:22	17:05	Pad fell

 *Denotes values used for graph construction

Site #9 - Cocheco River 1993



2/4/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME PISCATAQUA SITE 10

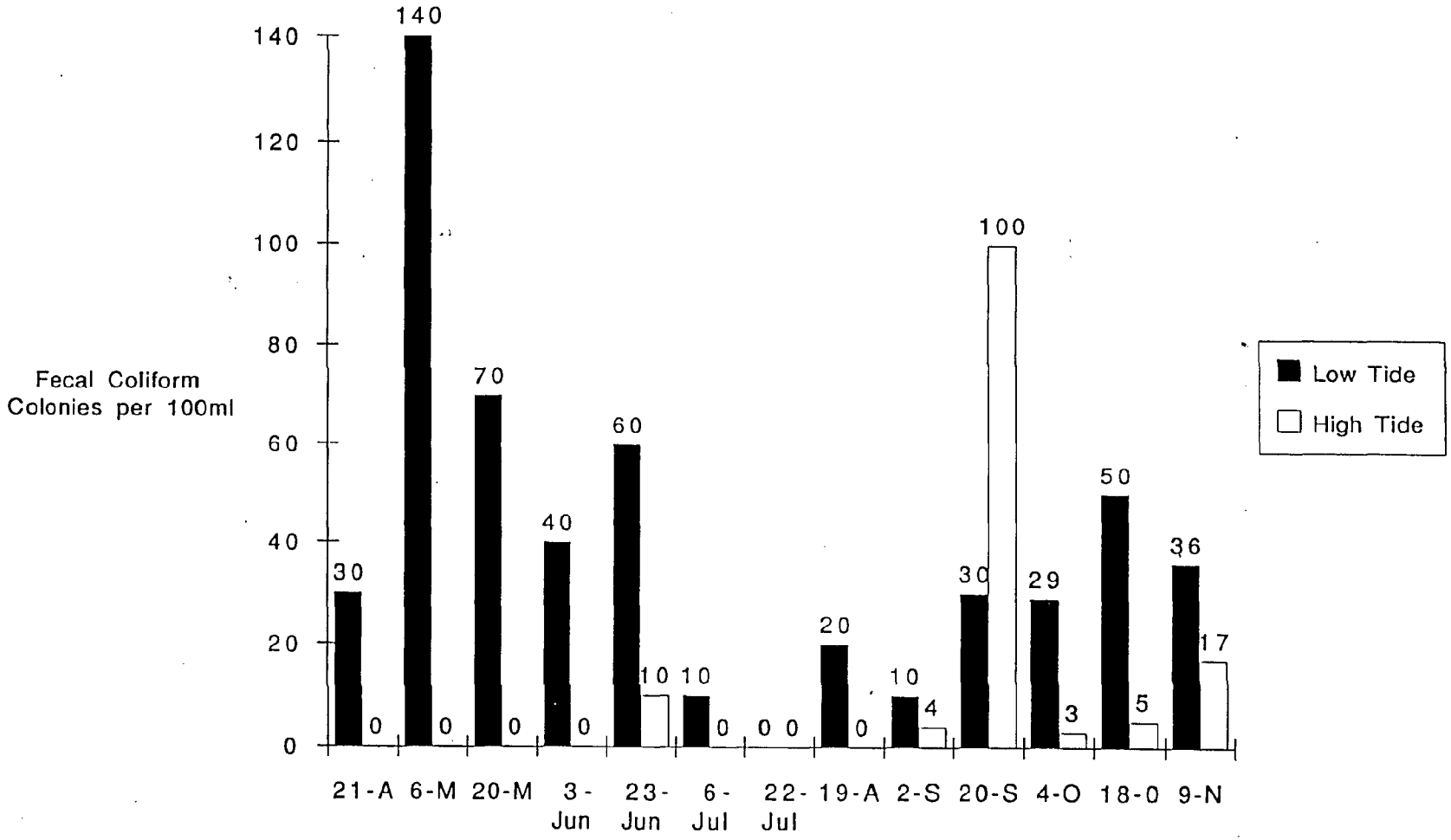
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
4.21	11.5	10.0	11.1	10.2	6.0	0.3	105.8	91.0	7.6	7.1	110.0		235.0		19.5	12.5
5.06	15.5	15.5	8.6	8.0	18.3	6.3	96.1	83.4	7.0	10.0	250.0		250.0		25.0	17.0
5.20	13.0	13.5	8.0	7.1	22.7	14.7	87.1	74.4	7.8	7.4	60.0		225.0	25.0	14.0	11.0
6.03	15.5	14.0	8.3	7.7	24.8	14.7	96.5	81.6	8.0	7.6	160.0		230.0		22.0	9.0
6.23	18.0	19.0	7.7	6.7	26.6	20.5	95.1	81.3	7.9	7.7	90.0	90.0	315.0	90.0	23.5	19.0
7.06	20.0	21.5	8.1	6.6	29.2	23.9	105.6	85.7	8.0	7.6	215.0	90.0	315.0	90.0	33.0	27.0
722	18.5	21.0	7.9	7.0	28.4	26.1	99.6	91.2	7.9	7.6	220.0	75.0	335.0	75.0	24.5	21.0
8.03	21.0	22.0	8.1	7.4	29.3	23.7	107.6	96.8	7.6	7.4	280.0	95.0	310.0	95.0	29.0	22.0
8.19	21.0	21.5	7.6	6.0	30.4	24.8	101.6	76.3	7.6	7.5	270.0	80.0	345.0	80.0	23.0	18.0
9.02	20.5	20.0	7.9	6.7	29.9	26.9	104.4	86.1	7.6	7.7	310.0	110.0	310.0	110.0	21.5	16.0
9.20	15.0	15.0	7.9	7.6	29.7	25.6	93.7	87.9	7.6	7.6	315.0	95.0	340.0	95.0	14.5	14.0
10.04	15.0	14.5	8.7	8.5	28.7	21.7	102.6	94.9	7.5	7.4	320.0	135.0	320.0	135.0	21.5	16.5
10.18	11.0	10.0	8.3	7.6	30.8	18.3	91.3	75.4	7.6	7.1	345.0	105.0	345.0	105.0	17.0	15.5
11.09	7.0	6.5	9.8	9.1	24.1	14.2	94.2	81.0	8.0	7.4	295.0	110.0	295.0	110.0	18.0	9.0
MAX	21.0	22.0	11.1	10.2	30.8	26.9	107.6	96.8	8.0	10.0	345.0	135.0	345.0	135.0	33.0	27.0
MIIN	7.0	6.5	7.6	6.0	6.0	0.3	87.1	74.4	7.0	7.1	60.0	75.0	225.0	25.0	14.0	9.0
AVERAGE	15.9	16.0	8.4	7.6	25.6	18.7	98.7	84.9	7.7	7.7	231.4	98.5	297.9	91.8	21.9	16.3

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	MS KM BM	6cormorants	windy pt cloud	waves
4.21L	HB BM KM	no secci	pt cloud	calm
5.06H	RW KK BM	no dock	pt cloud	ripple
5.06L	MS KK BM	ph meter trouble	pt cloud	ripple
5.20H	BM MC KM	cormorant	overcast	waves
5.20L	JD JD BM	no dock	overcast	calm
6.03H	MC KM BM	no dock	pt cloud	calm
6.03L	JC SC	pile driver	clear	calm
6.23H	KM HB BM	boating	clear	waves
6.23L	BM	burette trouble	clear	waves
7.06H	BM	boating,birds	clear	ripple
7.06L	BM	dock in	clear	calm
7.22H	BM WM	boats,birds	overcast	calm
722L	BM WM	turbid problems	clear	calm
8.03H	BM	boating,fishing	pt cloud	calm
8.03L	BM	fish,birds	cloudy	calm
8.19H	BM	boats	pt cloudy	calm
8.19L	BM	birds	foggy/haze	ripple
9.02H	BM	gulls, boat	clear	white caps
9.02L	BM	birds(26)	clear	ripple
9.20H	BM	boats	pt cloudy	calm
9.20L	JC JD SB	birds	clear	ripple
10.04H	KK BM	great blue heron	pt cloudy	ripple
10.04L	JD JC	lots o' birds	clear	ripple
10.18H	KK MS	boating	clear	ripple
10.18L	SC KK	boating	pt cloudy	ripple
11.09H	CM MC BM	a boat	clear	calm
11.09L	JM MC BM	boating	pt cloudy	calm

Site 10 - DUBE										
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OUT	Comments	
McGrew	21-Apr	L	10ml	6:40	3	*30	20:40	18:50	1 yellow colony	
McGrew	21-Apr	L	1ml	6:40	0	0	20:40	18:50		
McGrew	21-Apr	H	10ml	13:00	0	*0	20:40	18:50		
McGrew	21-Apr	H	1ml	13:00	0	0	20:40	18:50		
McGrew	6-May	L	10ml	7:10	14	*140	19:20	17:25		
		L	1ml							
Wilson	6-May	H	10ml	12:48	0	*0	19:40	17:45		
		H	1ml							
McGrew	20-May	L	10ml	6:40	7	*70	17:20	16:00		
McGrew	20-May	L	1ml	6:40	0	0	17:20	16:00		
McGrew	20-May	H	10ml	12:39	0	*0	17:20	16:00		
McGrew	20-May	H	1ml	12:39	0	0	17:20	16:00		
McGrew	3-Jun	L	10ml	6:05	4	*40	16:40	15:30	2 blue-green	
McGrew	3-Jun	H	10ml	12:14	0	*0	16:40	15:30		
McGrew	23-Jun	L	10ml	9:29	6	*60	20:30	18:40	10 yellow/blue	
McGrew	23-Jun	L	1ml	9:29	0	0	20:30	18:40		
McGrew	23-Jun	H	10ml	15:45	1	*10	20:30	18:40		
McGrew	23-Jun	H	1ml	15:45	0	0	20:30	18:40		
McGrew	6-Jul	L	10ml	9:15	1	*10				
McGrew	6-Jul	L	1ml	9:15	0	0				
McGrew	6-Jul	H	10ml	15:25	0	*0				
McGrew	6-Jul	H	1ml	15:25	0	0				
McGrew	22-Jul	L	10ml	9:18	0	*0	16:30	18:00		
McGrew	22-Jul	L	1ml	9:18	0	0	16:30	18:00		
McGrew	22-Jul	H	10ml	15:18	0	*0	16:30	18:00		
McGrew	22-Jul	H	1ml	15:18	0	0	16:30	18:00		
McGrew	19-Aug	L	10ml	8:15	2	*20	15:40	14:45		
McGrew	19-Aug	L	1ml	8:15	0	0	15:40	14:45		
McGrew	19-Aug	H	10ml	14:05	0	*0	15:40	14:45		
McGrew	19-Aug	H	1ml	14:05	0	0	15:40	14:45		
McGrew	2-Sep	L	10ml	7:28	0	0	18:35	18:45		
McGrew	2-Sep	L	100ml	7:28	10	*10	18:35	18:45		
McGrew	2-Sep	H	10ml	14:30	0	0	18:35	18:45		
McGrew	2-Sep	H	100ml	14:30	4	*4	18:35	18:45		
Jason &	20-Sep	L	10ml	10:15	3	*30	20:40	21:30	tons of YELLOW	
Jason &	20-Sep	L	1ml	10:15	0	0	20:40	21:30	6 yellow	
McGrew	20-Sep	H	10ml	16:00	0	0	20:40	21:30		
McGrew	20-Sep	H	1ml	16:00	1	*100	20:40	21:30		
	4-Oct	L	100ml		29	*29	20:10	18:52		
McGrew	4-Oct	H	100ml		3	*3	20:10	18:52		
O'Keefe	18-Oct	L	10ml	8:10	5	*50	19:38	18:00		
O'Keefe	18-Oct	L	100ml	8:10	TNTC	TNTC	19:38	18:00		
McGrew	18-Oct	H	10ml	14:45	0	0	19:38	18:00		
McGrew	18-Oct	H	100ml	14:45	5	*5	19:38	18:00		
McGrew	9-Nov	L	100ml	14:30	36	*36	18:40	17:20		
McGrew	9-Nov	L	10ml	14:30	NA	NA	18:40	17:20	PAD FELL	
McGrew	9-Nov	H	100ml	7:15	17	*17	18:40	17:20		
McGrew	9-Nov	H	10ml	7:15	NA	NA	18:40	17:20	PAD FELL	

*Denotes values used in graph construction

Site #10 - Piscataqua River 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME COASTAL MARINE LAB Site 11

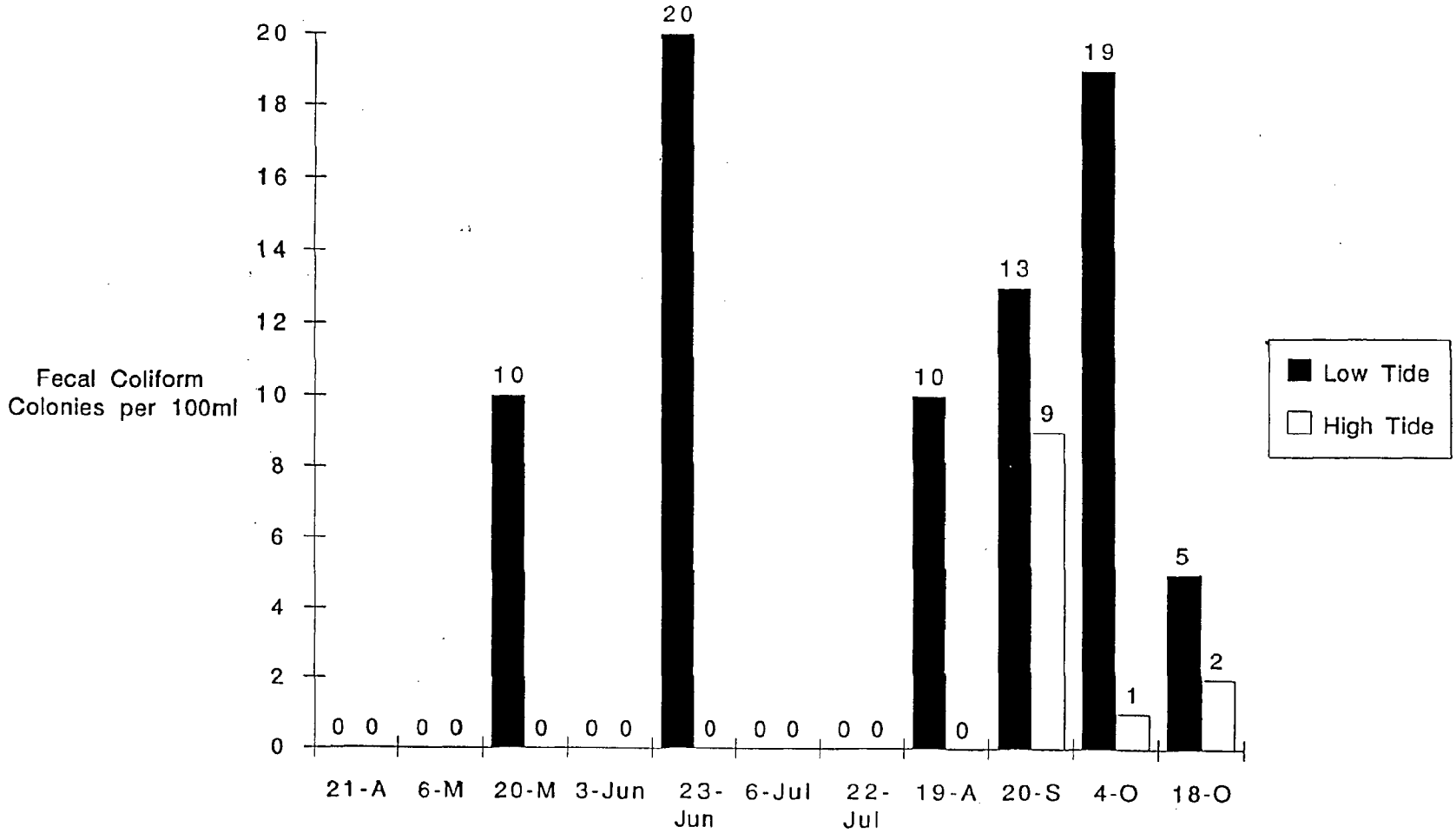
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
4.21	6.5	5.5	10.7	9.8	19.3		98.4		7.3	7.4	315.0	230.0	490.0	230.0	12.5	9.0
5.06	11.0	9.0	7.5	9.9	22.7	23.3	78.2	99.1	7.3	7.3	280.0	180.0	520.0	180.0	22.0	13.5
5.20	9.5	9.0	9.1	8.5	27.2	25.8	94.5	86.5	7.4	7.5	365.0	640.0	485.0	640.0	13.5	10.0
6.03	10.0	9.5	6.2	4.7		28.5	65.2	49.2	7.1	7.4	270.0	600.0	510.0	600.0	16.0	10.0
6.23	14.5	12.5	6.7	6.5	28.3	29.1	78.0	73.0	7.1	7.4	335.0	200.0	510.0	200.0	24.0	11.0
7.06	15.5	15.5	7.8	6.0	28.8	30.1	93.0	72.1	6.8	7.2	410.0	210.0	500.0	210.0	24.5	18.5
7.22	16.5	14.5	5.1	7.1	30.4	30.9	62.6	84.1	7.1	7.4	410.0	185.0	535.0	185.0	26.0	17.0
8.03	18.0	18.0	8.8	7.9					6.8	7.0	460.0	220.0	500.0	220.0	26.0	18.0
8.19	18.5	17.5	4.7	8.0	32.5	32.2	60.8	101.3	6.8	7.4	450.0	180.0	550.0	180.0	23.0	18.0
9.02	18.5	16.5	7.9	7.9	31.2	29.3	101.3	96.3	6.8	7.9	430.0	235.0	500.0	235.0	20.0	15.0
9.20	12.0	10.0	8.4	8.2	32.7	31.8	95.6	88.8	7.2	7.2	535.0	210.0	535.0	210.0	12.0	8.0
10.04	12.0	12.0	8.1	8.0	32.0	32.2	91.7	90.7	7.1	7.1	385.0	235.0	505.0	235.0	24.0	14.0
10.18	9.5	9.0			31.6	32.9										
11.09	7.0	8.0	9.1	8.9	31.0	30.1	91.6	91.1	7.1	6.9	420.0	285.0	535.0	285.0	6.0	15.0
MAX	18.5	18.0	10.7	9.9	32.7	32.9	101.3	101.3	7.4	7.9	535.0	640.0	550.0	640.0	26.0	18.5
MIN	6.5	5.5	4.7	4.7	19.3	23.3	60.8	49.2	6.8	6.9	270.0	180.0	485.0	180.0	6.0	8.0
AVERAGE	12.8	11.9	7.7	7.8	29.0	29.7	84.2	84.7	7.1	7.3	389.6	277.7	513.5	277.7	19.2	13.6

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	JG	boats at dock	pt cloudy	ripple
4.21L	JG	work barge	pt cloudy	calm
5.06H	JG	State Planning	pt cloudy	ripple
5.06L	JG	patrol boat	showers	calm
5.20H	JG	barge	overcast	ripple
5.20L	JG	boat at dock	overcast	ripple
6.03H	JG	boating	pt cloudy	ripple
6.03L	JG	divers	clear	ripple
6.23H	JG	windy	clear	waves
6.23L	JG	barge	clear	waves
7.06H	JG	DO reading?	clear	ripple
7.06L	JG	DO reading?	clear	ripple
7.22H	JG	boats	pt cloudy	waves
7.22L	JG	muddy coliform?	clear	ripple
8.03H	JJ JJ	boats	clear,fog	calm
8.03L	JJ JJ	lobstering	clear	calm
8.19H	JG	sec BOD done	pt cloudy	ripple
8.19L	JG	boating	foggy	calm
9.20H	JJ JJ	dock repairs/boa	clear	calm
9.20L	JJ JJ	tanker docking	clear	calm
10.04H	JJ JJ	dock repair	clear	white caps
10.04L	JJ JJ	noisy backgroun	clear	ripple
11.09H	CC	boating	clear	calm
11.09L	CC	boating	overcast	ripple

Site 11 - CML										
Name	Date	Tide	Dilution	Time	Plate Count	CFU/100ml	Act. Time IN	Act. Time OUT	Comments	
Gardner	21-Apr	L	10ml	6:25	0	*0	19:40	17:40		
Gardner	21-Apr	L	1ml	6:25	0	0	19:40	17:40		
Gardner	21-Apr	H	10ml	12:20	0	*0	19:40	17:40	1 yellow colony	
Gardner	21-Apr	H	1ml	12:20	0	0	19:40	17:40	air bubbles present	
Gardner	6-May	L	10ml	6:40	0	*0	19:40	17:45		
		L	1ml							
Gardner	6-May	H	10ml	12:40	0	*0	19:40	17:45		
		H	1ml							
Gardner	20-May	L	10ml	5:40	1	*10	16:00	16:00		
Gardner	20-May	L	1ml	5:40	0	0	16:00	16:00		
Gardner	20-May	H	10ml	11:35	0	*0	16:00	16:00		
Gardner	20-May	H	1ml	11:35	0	0	16:00	16:00		
Gardner	3-Jun	L	10ml	5:45	0	*0	16:00	15:30		
Gardner	3-Jun	H	10ml	11:20	0	*0	16:00	15:30		
Gardner	23-Jun	L	10ml	8:35	2	*20	21:00	20:30		
Gardner	23-Jun	L	1ml	8:35	0	0	21:00	20:30		
Gardner	23-Jun	H	10ml	15:00	0	*0	21:00	20:30		
Gardner	23-Jun	H	1ml	15:00	0	0	21:00	20:30		
Gardner	6-Jul	L	10ml	8:30	0	*0	16:25	16:10		
Gardner	6-Jul	L	1ml	8:30	0	0	16:25	16:10		
Gardner	6-Jul	H	10ml	14:30	0	*0	16:25	16:10		
Gardner	6-Jul	H	1ml	14:30	0	0	16:25	16:10		
Gardner	22-Jul	L	10ml	8:30	0	*0	17:30	18:00		
Gardner	22-Jul	L	1ml	8:30	0	0	17:30	18:00		
Gardner	22-Jul	H	10ml	15:00	0	*0	17:30	18:00		
Gardner	22-Jul	H	1ml	15:00	0	0	17:30	18:00		
Gardner	19-Aug	L	10ml	7:25	1	*10	15:55	14:50		
Gardner	19-Aug	L	1ml	7:25	0	0	15:55	14:50		
Gardner	19-Aug	H	10ml	13:40	0	*0	15:55	14:50		
Gardner	19-Aug	H	1ml	13:40	0	0	15:55	14:50		
Jette	20-Sep	L	100ml		13	*13	17:37	19:00		
Jette	20-Sep	L	10ml		0	0	17:37	19:00		
Jette	20-Sep	H	100ml		9	*9	17:37	19:00		
Jette	20-Sep	H	10ml		1	10	17:37	19:00		
Jette	4-Oct	L	100ml		19	*19	16:27	17:33		
Jette	4-Oct	L	10ml		5	50	16:27	17:33		
Jette	4-Oct	H	100ml		1	*1	16:27	17:33		
Jette	4-Oct	H	10ml		0	0	16:27	17:33		
Gardner	18-Oct	L	100ml	7:55	5	*5	17:00	17:00	3 yellow	
Gardner	18-Oct	L	10ml	7:55	0	0	17:00	17:00		
Gardner	18-Oct	H	100ml	14:05	2	*2	17:00	17:00		
Gardner	18-Oct	H	10ml	14:05	0	0	17:00	17:00		

*Denotes values used for graph construction

Site #11 - Coastal Marine Lab 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME LAMPRY RIVER NHS site 12

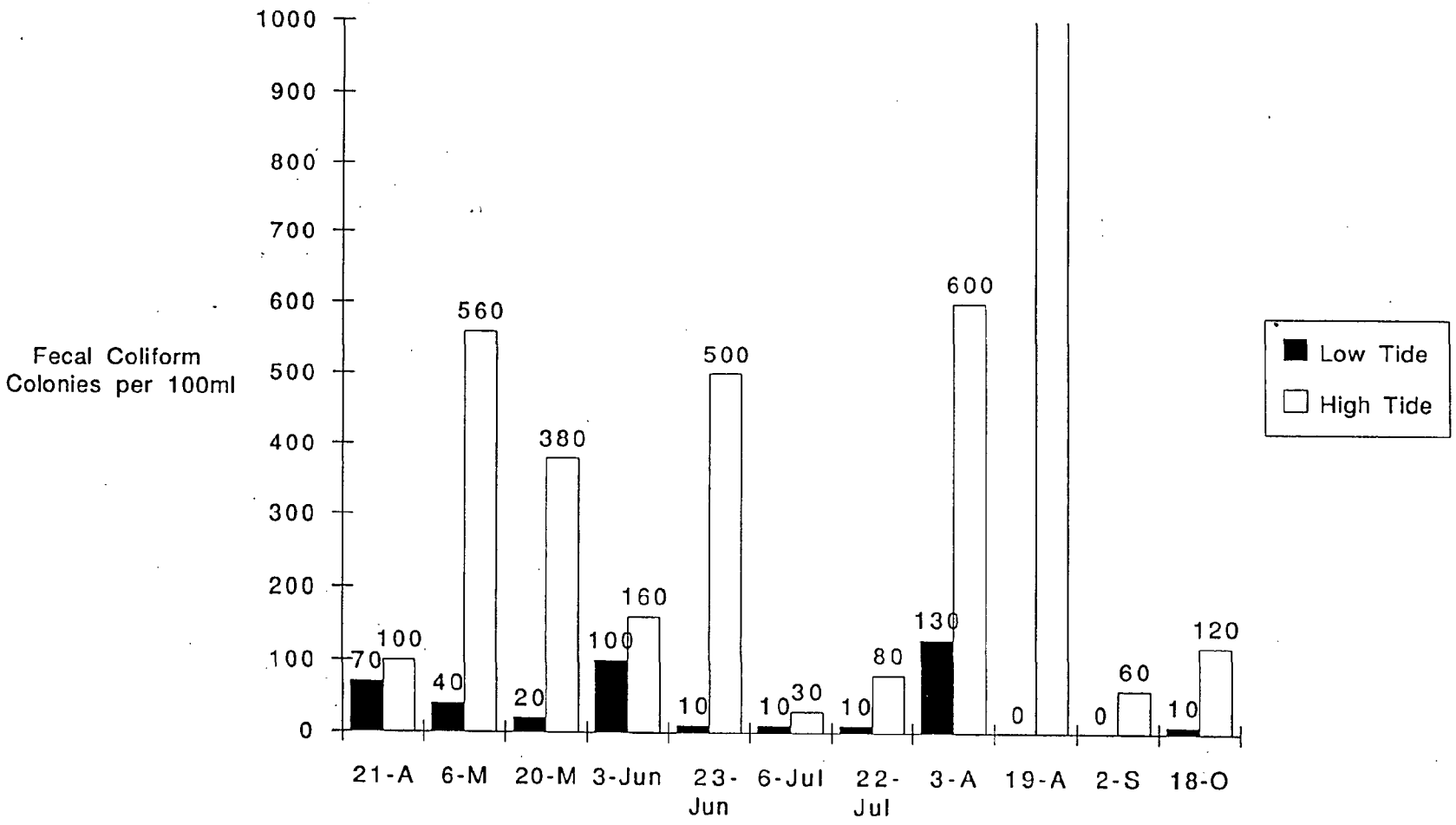
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
4.21	12.0	12.0	11.0	7.6	2.7	2.4	104.1	71.8	7.1	7.3	22.0	20.0	22.0	20.0	31.0	18.0
5.06	19.0	14.5	9.1	6.4	3.7	3.1	100.5	64.1	7.3	7.3	40.0		40.0		32.0	21.0
5.20	17.0	17.0	9.1	5.6	3.2	3.5	96.2	59.3	7.1		75.0	30.0	75.0	30.0	18.0	16.0
6.03	19.0	16.5	7.5	6.6	5.1	1.8	83.4	68.5	6.8	6.8					21.0	20.0
6.23	21.5	20.0	9.2	5.1	7.0	1.4	108.6	56.7	6.8	6.6					27.0	30.0
7.06	25.0	26.0	10.9	7.9	17.8	16.0	145.5	106.3	7.4	7.3					36.0	30.0
7.22	23.0	23.0	8.1	7.9	23	17.7	107.5	101.7	7.3	7.3					24.0	30.0
8.03	26.0	25.0	10.4	8.3	16.1	18.5	140.0	111.3	7.0	7.2					32.0	28.0
8.19	23.5	22.0	6.8	4.7	8.8	1.8	84.1	54.5	7.3	7.1					33.0	20.0
9.02	24.5	23.0	6.4	5.1	22.5	0.9	87.0	60.0	7.0	6.9	BSV				39.5	30.5
9.20	16.5	17.0	7.5	6.4	20.2	25.4	86.5	76.9	7.4	7.1	bsv	bsv	bsv	bsv	18.5	18.0
10.04	15.0	17.0	9.2	7.9	1.3	3.4	92.3	83.6	7.1	7.2	90.0	20.0	90.0	20.0	22.0	22.0
10.18	16.0	15.5	10.0	6.8	5.4	4.4	104.8	70.1	7.1	7.3	90.0	30.0	350.0	30.0	21.0	19.5
11.09	8.5	13.0	9.4	4.5	1.9	0.3	81.6	43.0	7.4	7.0		bsv		bsv	17.0	11.0
MAX	26.0	26.0	11.0	8.3	23.0	25.4	145.5	111.3	7.4	7.3	90.0	30.0	350.0	30.0	39.5	30.5
MIN	8.5	12.0	6.4	4.5	1.3	0.3	81.6	43.0	6.8	6.6	0.0	0.0	0.0	0.0	17.0	11.0
AVERAGE	19.0	18.7	8.9	6.5	9.9	7.2	101.6	73.4	7.2	7.1	45.3	16.7	96.2	16.7	26.6	22.4

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	CB RC KW	dead animals	pt cloudy	ripple
4.21L	CB RD KB	dead raccoon	pt cloudy	ripple
5.06H	KB CB KW	dead animal	pt cloudy	calm
5.06L	AS CB RM	humid	overcast	calm
5.20H	AS SC	boating fishing	pt cloudy	ripple
5.20L	CB RC	bids nesting	overcast	ripple
6.03H	RC KB	ducks	clear	calm
6.03L	AS SC RC	foam	clear	ripple
6.23H	KB FB	boating	humid	ripple
6.23L	KB	buggy muddy	hhh	ripple
7.06H	RC CS		hhh	ripple
7.06L	CS RC	boating	hhh	calm
7.22H	RC RN	rain yesterday	overcast	ripple
7.22L	KB RM	boats	pt cloudy	calm
8.03H	KB CS	foam	clear	
8.03L	RC	hhh	clear	
8.19H	HP JF	DUCKS, BOATS	CLEAR	RIPPLE
8.19L	JF SC	QUIET	OVERCAST	CALM
9.2H	JN KF JF	BIRDS	CLEAR	RIPPLE
9.2L	SC HP AR	FOAM IN OUTF	CLEAR	CALM
9.20H	KB AF	crickets, birds	pt cloudy	ripple
9.20L	KB JN	muddy	pt cloudy	ripply waves
10.04H	AR JJ	transformer out	clear	ripple
10.04L	BC AR	windy		calm
10.18H	KB CS	pollin	pt cloudy	ripple
10.18L	RC KB CB	plane	pt cloudy	
11.09H	SC RC MF	boating	clear	ripple
11.09L	KF SC HP	ducks/gulls	pt cloudy	calm

Site 12 - STP - River									
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OUT	Comments
	21-Apr	L	10ml	8:30	7	*70			
	21-Apr	L	1ml						
	21-Apr	H	10ml	15:55	10	*100			
	21-Apr	H	1ml						
	6-May	L	1ml	8:35	1	100			
	6-May	L	10ml	8:35	4	*40			
	6-May	L	100ml	8:35					
	6-May	H	100ml	14:50	90	90			
	6-May	H	10ml	14:50	56	*560			
	6-May	H	1ml	14:50	20	2000			
	20-May	L	10ml	7:45	2	*20			51 blue/yello
	20-May	L	1ml	7:45	1	100			80 yellowl
River	20-May	H	10ml	13:48	38	*380			4 yellow
River	20-May	H	1ml	13:48	3	300			21 yellow
Clark-R	3-Jun	L	10ml	8:30	10	*100	15:00	13:40	
Clark-R	3-Jun	H	10ml	14:00	16	*160	15:00	13:40	3 yellowish c
Beers	23-Jun	L	10ml	11:00	1	*10	12:20	16:00	1 yellow
Beers	23-Jun	L	1ml	11:00	0	0	12:20	16:00	
Beers	23-Jun	H	10ml	16:45	50	*500	4:50	4:00	
Beers	23-Jun	H	1ml	16:45	5	500	4:50	4:00	
Clark	6-Jul	L	10ml	12:10	1	*10	16:30	15:30	
Clark	6-Jul	L	1ml	12:10	0	0	16:30	15:30	
Clark	6-Jul	H	10ml	16:10	3	*30	17:20	15:50	
Clark	6-Jul	H	1ml	16:10	0	0	17:20	15:50	
Beers	22-Jul	L	10ml	11:45	1	*10	13:15	15:40	
Beers	22-Jul	L	1ml	11:45	0	0	13:15	15:40	
Miller	22-Jul	H	10ml	16:24	8	*80	17:30	16:15	
Miller	22-Jul	H	1ml	16:24	0	0	17:30	16:15	
Clark	3-Aug	L	10ml	11:00	13	*130	11:45	12:40	
Clark	3-Aug	L	1ml	11:00	1	100	11:45	12:40	
	3-Aug	H	10ml	15:31	87	870	17:05	16:10	
	3-Aug	H	1ml	15:31	6	*600	17:05	16:10	
Fab	19-Aug	L	10ml	10:00	0	*0	17:50	16:08	
Fab	19-Aug	L	1ml	10:00	0	0	17:50	16:08	
Prescot	19-Aug	H	10ml		135	1350	17:50	16:08	
Prescot	19-Aug	H	1ml		23	*2300	17:50	16:08	
Prescot	2-Sep	L	10ml	9:37	0	*0	15:30	14:00	
Prescot	2-Sep	L	1ml	9:37	0	0	15:30	14:00	
Fab	2-Sep	H	10ml	14:22	6	*60	15:30	14:00	
Fab	2-Sep	H	1ml	14:22	2	200	15:30	14:00	
Beers	18-Oct	L	10ml	11:10	1	*10	16:19	16:36	
Beers	18-Oct	L	1ml	11:10	1	100	16:19	16:36	
Beers	18-Oct	H	10ml	15:25	12	*120	17:05	16:41	
Beers	18-Oct	H	1ml	15:25	2	200	17:05	16:41	
Site 12 - Outflow									
Outflow	20-May	H	10ml	13:48	TNTC	TNTC			1 yellow
Outflow	20-May	H	1ml	13:48	25	2500			1 yellow
Clark-O	3-Jun	L	10ml	8:40	0	0	15:00	13:40	2yellow
Clark-O	3-Jun	H	10ml	14:30	0	0	15:00	13:40	
Outflow	23-Jun	L	10ml		1	10	12:20	16:00	
Outflow	23-Jun	L	1ml		3	300	12:20	16:00	
Outflow	23-Jun	H	10ml		0	0	4:50	4:00	
Outflow	23-Jun	H	1ml		0	0	4:50	4:00	
Outflow	22-Jul	L	10ml	11:45	0	0	13:15	15:40	very concentr
outflow	22-Jul	L	1ml	11:45	0	0	13:15	15:40	TNTC yellow
out	3-Aug	L	10ml	11:00	0	0	11:45	12:40	a few tiny blu
out	3-Aug	L	1ml	11:00	0	0	11:45	12:40	
out	3-Aug	H	10ml	15:31	0	0	17:05	16:10	
out	3-Aug	H	1ml	15:31	0	0	17:05	16:10	
out	19-Aug	L	10ml	10:00	0	0	17:50	16:08	
out	19-Aug	L	1ml	10:00	0	0	17:50	16:08	
out	2-Sep	L	10ml	9:37	1	10	15:30	14:00	
out	2-Sep	L	1ml	9:37	0	0	15:30	14:00	
out	2-Sep	H	10ml	14:22	1	10	15:30	14:00	
out	2-Sep	H	1ml	14:22	0	0	15:30	14:00	

*denotes Values used for graph construction

Site #12 - Sewage Treatment Plant 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME Lamprey Docks SITE NO: 13

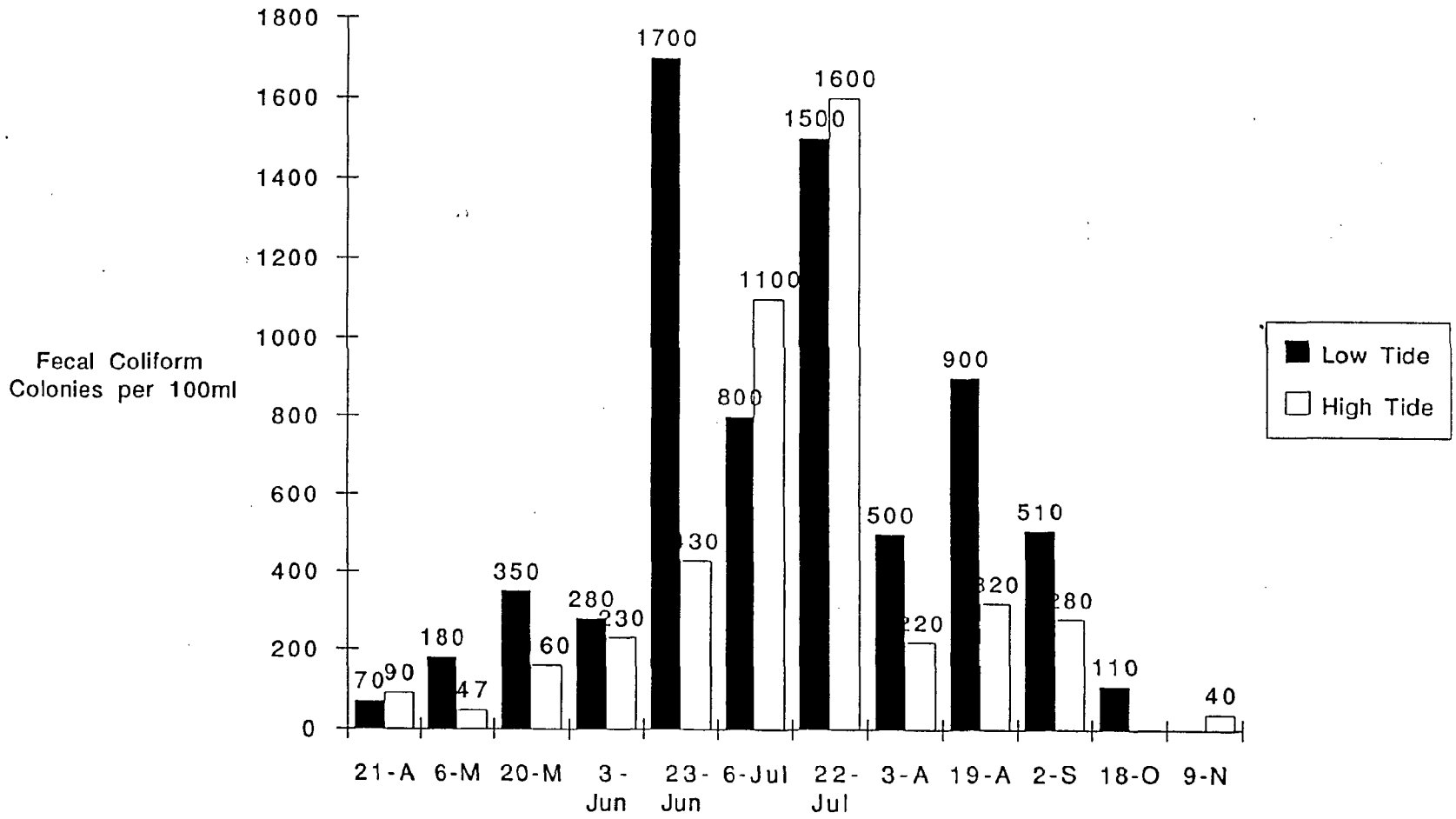
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
.21	12.0	13.0	10.8	11.1	2.8	1.0	101.8	106.4	32.0	32.0	195.0	190.0	370.0	190.0	39.5	32.0
5.06		18.0	8.2	8.9	3.4	2.4		95.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.20	15.5	16.5	7.8	8.9	1.8	1.9	80.3	92.5	8.9	3.6	100.5	93.1	248.9	108.0	21.3	19.6
6.03	17.5	16.0	9.1	8.8	2.2	0.8	96.7	89.9	7.1	7.1	120.0	105.0	310.0	115.0	28.0	21.0
6.23	23.5	25.0	7.4	8.5	4.7	8.2	89.6	107.7	6.9	7.3	80.0	40.0	330.0	60.0	26.0	30.0
7.06	26.0	25.5	7.4	7.5	3.2	5.7	93.1	94.7	7.4	7.3	80.0	100.0	310.0	170.0	35.0	30.0
7.22	22.0	22.5	7.5	8.9	4.5	9.9	88.2	108.7	7.5	7.1	120.0	120.0	320.0	170.0	27.0	28.0
8.03	26.0	25.0	8.1	8.9	5.4	5.1	103.0	111.0	7.1	7.6	90.0	130.0	315.0	160.0	32.0	27.0
8.19	24.0	22.0	7.3	6.6	7.4	8.4	90.5	79.2	7.4	7.3	120.0	95.0	370.0	95.0	27.5	27.0
9.02	25.0	23.5	7.0	7.4	8.8	14.2	89.0	94.3	7.3	7.5	180.0	180.0	320.0	180.0	39.5	28.5
9.20	16.0	18.0	8.1	8.1	13.8	9.9	89.0	90.7	7.0	7.3	60.0	120.0	355.0	120.0	15.0	17.0
10.04	14.0	15.0	9.8	9.6	2.7	1.3	97.0	96.3	7.2	7.3	195.0	190.0	320.0	190.0	21.0	22.0
10.18	14.0	11.5	10.8	9.9	1.1	3.9	105.9	93.3	7.3	7.3	130.0	110.0	370.0	180.0	19.0	20.0
11.09	6.0	6.0	12.0	12.5	1.9	3.2	98.0	102.9	7.0	6.8	130.0	bsv	130.0	bsv	10.0	16.0
MAX	26.0	25.5	12.0	12.5	13.8	14.2	105.9	111.0	32.0	32.0	195.0	190.0	370.0	190.0	39.5	32.0
MIN	6.0	6.0	7.0	6.6	1.1	0.8	80.3	79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVERAGE	18.6	18.4	8.7	9.0	4.6	5.4	94.0	97.4	8.6	8.3	114.3	105.2	290.6	124.1	24.3	22.7

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	CB SC	people	pt cloudy	
4.21L	RC KW KB CB	NO DOCKS IN	overcast	ripple
5.06H	KB KW AS	ducks,geese	clear, pt cloud	calm
5.06L	KB CB	birds	overcast	calm
5.20H	RC AS	fish, birds,boats	overcast	ripple
5.20L	SC RC CB	swans cormorar	overcast	ripple
6.03H	CB RC	geese	clear	ripple
6.03L	CB SC RC AS	oil sheen, brown h2o		
6.23H	JF KD AS	boating	clear	ripple
6.23L	CS AS	cranes swans	clear	ripple
7.06H	RC CS	boats	clear	ripple
7.06L	CS RC	boating	clear	ripple
7.22H	KB CS	brown green h2c	overcast	ripple
7.22L	CS	busy	pt cloudy	ripple
8.03H	RC CS	boating		calm
8.03L	RC RM	boating	clear	
8.19H	JF RC	16 boats	clear	calm
8.19L	KB AS	midges	overcast	calm
9.02H	CS HP	swans,	clear	ripple
9.02L	RM HP CS	DES split	clear	calm
9.20H	MS JN RM	boating	pt cloudy	calm
9.20L	KB JN	geese	pt cloudy	ripple
10.04H	JJ AR	ducks		
10.04L	AR BC	cormorants	clear	ripple
10.18H	KB CS	pollen, boats	clear	calm
10.18L	KE JN AR CB	Birds!	pt cloudy	waves
11.09H	SC RC MF	ducks/geese	clear	calm
11.09L	JF HP KF	docks removed		calm

Site 13 -Town Docks									
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OUT	Comments
	21-Apr	L	10ml	8:50	7	*70			
	21-Apr	L	1ml						
	21-Apr	H	10ml	15:45	9	*90			
	21-Apr	H	1ml						
	6-May	L	100ml	8:30	107	107			3 yellow
	6-May	L	10ml	8:30	18	*180			11 yellow
	6-May	L	1ml	8:30	0	0			2 small yello
	6-May	H	100ml	13:30	47	*47			
	6-May	H	10ml	13:30	18	180			
	6-May	H	1ml	13:30	7	700			
	20-May	L	10ml	8:13	35	*350			
	20-May	L	1ml	8:13	8	800			
	20-May	H	10ml	14:40	16	*160			yellow coloni
	20-May	H	1ml	14:40	1	100			yellow coloni
Carmichael	3-Jun	L	10ml	8:06	28	*280	15:00	13:40	long line not
Bentley	3-Jun	H	10ml	14:20	23	*230	15:00	13:40	1 yellow
Angela	23-Jun	L	10ml	12:00	105	1050	12:20	16:00	4 yellow
	23-Jun	L	1ml	12:00	17	*1700	12:20	16:00	
	23-Jun	H	10ml		43	*430	16:50	16:00	
	23-Jun	H	1ml		7	700	16:50	16:00	
Clark	6-Jul	L	10ml	11:50	126	1260	16:30	15:30	
Clark	6-Jul	L	1ml	11:50	8	*800	16:30	15:30	
Clark	6-Jul	H	10ml		98	980	17:20	15:50	
Clark	6-Jul	H	1ml		11	*1100	17:20	15:50	
Sivdak	22-Jul	L	10ml	12:15	242	2420	13:15	15:45	
Sivdak	22-Jul	L	1ml	12:15	15	*1500	13:15	15:40	
Beers	22-Jul	H	10ml	16:15	215	2150	17:30	16:25	9 yellow
Beers	22-Jul	H	1ml	16:15	16	*1600	17:30	16:14	
Clark	3-Aug	L	10ml	10:21	113	1130	11:45	12:40	2 yellow
Clark	3-Aug	L	1ml	10:21	5	*500	11:45	12:40	
	3-Aug	H	10ml	16:02	22	*220	17:05	16:15	
	3-Aug	H	1ml	16:02	2	200	17:05	16:10	
Reid	19-Aug	L	10ml	9:30	64	640	17:23	16:05	
Reid	19-Aug	L	1ml	9:30	9	*900	17:50	16:12	
Fab	19-Aug	H	10ml		32	*320	17:01	16:17	
Fab	19-Aug	H	1ml		6	600	17:51	16:17	
Miller	2-Sep	L	10ml	10:22	51	*510	15:50	14:00	
Miller	2-Sep	L	1ml	10:22	6	600	15:50	14:00	
Prescott	2-Sep	H	10ml	14:00	28	*280	15:50	14:00	
Prescott	2-Sep	H	1ml	14:00	4	400	15:50	14:00	
Filion	18-Oct	L	10ml	11:50	11	*110	16:19	16:36	
Filion	18-Oct	L	1ml	11:50	1	100	16:19	16:36	
Beers	18-Oct	H	10ml	15:35	NA (2)	NA (20)	9:40	9:37	filtered 10/1
Beers	18-Oct	H	1ml	15:35	NA (2)	NA (200)	9:40	9:37	filtered 10/1
		L	10ml		TNTC	TNTC	16:05	14:15	TNTC
		L	1ml		TNTC	TNTC	16:05	14:15	TNTC
Prescott	9-Nov	H	10ml	14:30	4	*40	16:05	14:15	
Prescott	9-Nov	H	1ml	14:30	1	100	16:05	14:15	

*Denotes values used for graph construction

Site #13 - Docks 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME FOWLER . SITE 14

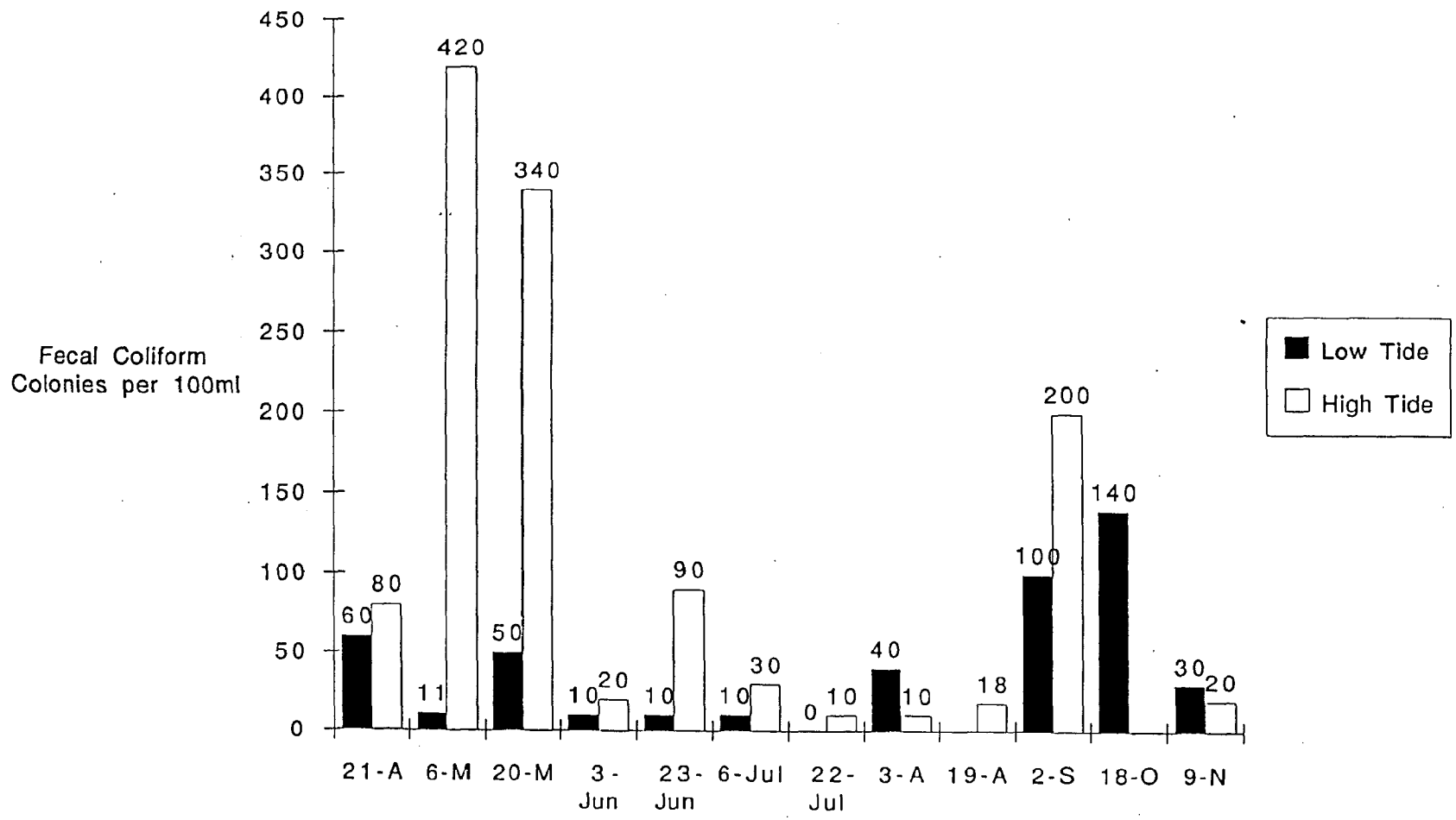
DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
21	13.0	14.0	10.1	10.6	0.3	1.0	96.5	103.9	7.1	7.5	200.0	210.0	280.0	370.0	31.0	20.0
5.06	18.0	18.0	10.1	9.5	2.3	3.4	108.5	102.6	6.9	7.0	190.0	165.0	370.0	380.0	22.0	25.0
5.20	17.0	15.5	8.0	8.5	1.9	3.1	84.0	87.0	7.6	7.5	120.0	205.0	310.0	325.0	18.0	15.0
6.03	18.5	15.5	8.6	8.8	2.1	2.1	93.2	89.6	7.2	7.5	155.0	185.0	300.0	300.0	21.0	17.0
6.23	22.5	21.5	8.5	7.1	2.2	3.2	99.7	82.1	7.2	7.5	17.0	140.0	290.0	350.0	25.0	30.0
7.06	25.0	25.0	8.9	7.2	1.8	2.7	109.1	88.7	7.3	7.3	170.0	180.0	240.0	330.0	36.0	30.0
7.22	23.5	25.0	7.5	7.8	2.1	1.0	89.6	95.3	7.3	7.2	150.0	150.0	320.0	360.0	27.0	23.0
8.03	27.0	24.5	8.1	7.0	3.2	2.7	103.7	85.4	7.2	7.4	170.0	190.0	290.0	280.0	32.0	34.0
8.19	24.5	21.0	6.9	6.1	2.3	1.3	84.0	69.2	6.9	6.9	230.0	330.0	350.0	405.0	27.5	20.0
9.02	25.5	22.5	7.5	7.4	1.3	0.6	92.6	86.1	7.7	7.2	225.0	210.0	285.0	290.0	31.0	25.5
9.20	15.0	19.0	8.2	7.2	0.3	0.9	81.8	78.3	7.1	7.3	180.0	220.0	250.0	310.0	16.5	16.0
10.04	14.5	13.5	9.4	8.8	0.0	0.3	92.6	85.0	7.1	7.1	230.0	220.0	335.0	320.0	20.0	21.0
10.18	15.0	11.0	10.1	10.7	1.3	1.3	101.3	98.2	6.9	7.2	90.0	120.0	350.0	320.0	21.0	18.5
11.09	9.5	6.5	12.8	12.0	0.5	0.5	112.9	98.4	7.1	7.0	210.0	190.0	300.0	350.0	9.0	13.0
MAX	27.0	25.0	12.8	12.0	3.2	3.4	112.9	103.9	7.7	7.5	230.0	330.0	370.0	405.0	36.0	34.0
MIN	9.5	6.5	6.9	6.1	0.0	0.3	81.8	69.2	6.9	6.9	17.0	120.0	240.0	280.0	9.0	13.0
AVERAGE	19.2	18.0	8.9	8.5	1.5	1.7	96.4	89.3	7.2	7.3	166.9	193.9	305.0	335.0	24.1	22.0

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21H	CB CB		clear	calm
4.21L	AS RC		pt cloudy	calm
5.06H	SC RC CB	quiet	clear	ripple
5.06L	RC CB	flies	pt cloudy	calm
5.20H	RC KW AS	boating	overcast	calm
5.20L	RC	birds	overcast	ripple
6.03H	RC SC		pt cloudy	calm
6.03L	SC RC CB AS	feces on dock	clear	calm
6.23H	HP AS	swimming	clear	calm
6.23L	JF HP	fish,ducks	clear	ripple
7.06H	RC CS	hhh	clear	calm
7.06L	CS RC	hhh	clear	calm
7.22H	RC	debris in h2o	pt cloudy	ripple
7.22L	CS	busy	pt cloudy	ripple
8.06H	CS AS	hot	pt cloudy	ripple
8.06L	AS	busy	clear	calm
8.16H	JF HP		clear	ripple
8.16L	HP KB	DES split	hazy	ripple
9.02H	CS JF		clear	ripple
9.02L	SC HP	DES split	clear	oily
9.20H	KB JN HP RM	fish jumping	cloudy	calm
9.20L	KB JN RC	pollen	pt cloudy	ripple
10.04H	BC MA MA	heron	pt cloudy	ripple
10.04L	AR BC	ducks	clear	ripple
10.18H	KB CS	quiet	clear	ripple
10.18L	AR KR RM JN	none	clear	ripple
11.09H	CB RC	none	clear	calm
11.09L	KF SC HP	ducks	pt cloudy	calm

Site 14 - Fowler's Dock									
Name	Date	Tide	Dilution	Time	Plate Coun	CFU/100ml	Act. Time IN	Act. Time OU	Comments
	21-Apr	L	10ml	9:50	6	*60			
	21-Apr	L	1ml						
	21-Apr	H	10ml	14:30	8	*80			
	21-Apr	H	1ml						
	6-May	L	100ml		11	*11			35 yellow
	6-May	L	10ml		4	40			
	6-May	L	1ml		0	0			
	6-May	H	100ml	14:16	100	100			
	6-May	H	10ml	14:16	42	*420			
	6-May	H	1ml	14:16	5	500			
	20-May	L	10ml	8:30	5	*50			
	20-May	L	1ml	8:30	0	0			
	20-May	H	10ml	13:52	34	*340			many yellow
	20-May	H	1ml	13:52	TNTC	TNTC			tiny blue/yel
Carmichae	3-Jun	L	10ml	7:41	1	*10	15:00	13:40	
Clark	3-Jun	H	10ml	13:20	2	*20	15:00	13:40	1 yellow
Fab	23-Jun	L	10ml	11:00	1	*10	12:20	16:00	
Fab	23-Jun	L	1ml	11:00	0	0	12:20	16:00	
	23-Jun	H	10ml	16:50	9	*90	16:50	16:00	
	23-Jun	H	1ml	16:50	3	300	16:50	16:00	
Clark	6-Jul	L	10ml	11:30	1	*10	16:30	15:30	
Clark	6-Jul	L	1ml	11:30	0	0	16:30	15:30	
Clark	6-Jul	H	10ml	15:35	3	*30	17:20	15:50	
Clark	6-Jul	H	1ml	15:35	0	0	17:20	15:50	
Stilwell	22-Jul	L	10ml	11:50	0	*0	13:15	15:47	
Stilwell	22-Jul	L	1ml	11:50	0	0	13:15	15:47	
Sivdak	22-Jul	H	10ml	16:15	1	*10	17:30	16:30	
Sivdak	22-Jul	H	1ml	16:15	1	100	17:30	16:25	1yellow
Serwetz	3-Aug	L	10ml	10:20	4	*40	11:45	12:45	1 yellow
Serwetz	3-Aug	L	1ml	10:20	1	100	11:45	12:45	
	3-Aug	H	10ml	15:40	1	*10	17:05	16:15	
	3-Aug	H	1ml	15:40	0	0	17:05	16:15	
Fab	19-Aug	H	100ml		18	*18	17:59	16:20	
Carmichae	2-Sep	L	10ml	10:52	10	*100	15:50	14:00	
Carmichae	2-Sep	L	1ml	10:52	2	200	15:50	14:00	
Fab	2-Sep	H	10ml	15:10	20	*200	15:50	14:00	
Fab	2-Sep	H	1ml	15:10	0	0	15:50	14:00	
Miller	18-Oct	L	10ml	12:13	14	*140	17:05	16:41	1 yellow
Miller	18-Oct	L	1ml	12:13	2	200	17:05	16:41	
Beers	18-Oct	H	10ml	15:45	NA (4)	NA (40)	9:51	9:40	filtered 10/1
Beers	18-Oct	H	1ml	15:45	NA (0)	NA (0)	9:51	9:40	filtered 10/1
	9-Nov	L	10ml		3	*30	16:05	14:15	
	9-Nov	L	1ml		0	0	16:05	14:15	
Clark	9-Nov	H	10ml		2	*20	16:05	14:15	
Clark	9-Nov	H	1ml		0	0	16:05	14:15	

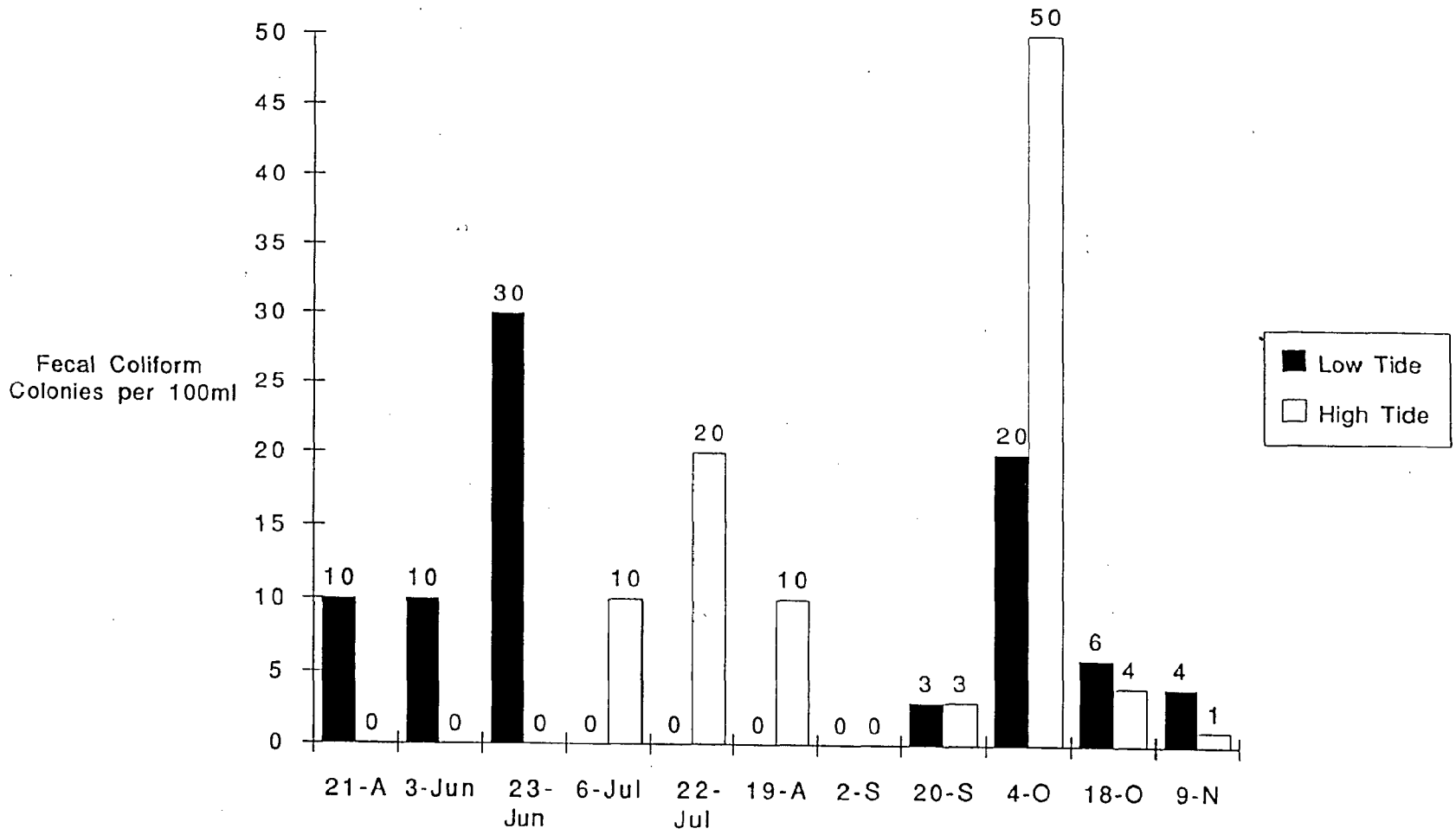
 *Denotes values used for graph construction

Site #14 Fowler's Dam 1993



2/7/94

Site #15 Dead Duck Inn 1993



2/7/94

GREAT BAY WATCH FIELD DATA
1993

SITE NAME: Dead Duck Inn Site 15

DATE	WTEMP-H oC	WTEMP-L oC	DO-H ppm	DO-L ppm	SAL-H ppt	SAL-L ppt	SAT H %	SATL %	pH-H	pH-L	LP-H cm	LP-L cm	DEPTH H cm	DEPTH L cm	ATEMP-H 0c	ATEMP-L 0c
21	6.0	8.5	10.4	11.0	27.5	13.5	99.9	102.3	7.9	7.7	415.0	115.0	617.0	420.0	16.0	14.0
.06	10.0	12.0	10.8	9.1	28.8	7.9	114.7	88.7	7.7	7.4	370.0	120.0	660.0	350.0	24.0	18.0
5.20	9.0	12.0	9.6	9.2	30.7	25.8	101.0	100.0	7.7	7.6	320.0	145.0	610.0	450.0	20.0	11.5
6.03	9.0	12.5	9.6	9.1	29.8	26.8	100.3	100.6	7.6	8.0	365.0	135.0	720.0	375.0	20.0	10.0
6.23	12.5	16.5	9.3	8.1	31.1	29.5	105.8	98.9	7.6	7.8	395.0	160.0	720.0	375.0	25.0	17.0
7.06	16.0	16.5	9.0	8.9	31.8	33.5	110.4	111.5	7.9		445.0	175.0	510.0	380.0	28.0	27.0
7.22	14.0	17.5	9.4	8.0	31.9	30.1	110.9	100.0	7.1	8.2	265.0	195.0	657.0	375.0	23.0	19.0
8.03	17.0	18.5	8.1		30.6	32.3	100.6		9.5	7.8	435.0	340.0	600.0	390.0	32.0	22.0
8.19	17.0	18.0	8.3	7.9	32.3	29.7	104.2	99.4	8.0	7.9	475.0	210.0	600.0	390.0	21.0	20.0
9.02	15.5	16.0	3.7	3.3	31.1	32.3	44.7	40.6	7.9	7.8	460.0	315.0	615.0	420.0	23.5	16.0
9.20	12.5	13.5	8.4	8.0	32.7	30.1	96.6	92.3	8.0	7.9	460.0	320.0	635.0	405.0	16.0	12.0
10.04	13.0	13.0	7.9	8.5	31.9	31.4	91.3	97.9	7.8	8.0	540.0	370.0	640.0	430.0	20.0	15.0
10.18	10.0	11.0	8.4	8.9	32.7	30.9	91.6	97.9	7.9	7.7	415.0	280.0	670.0	415.0	16.0	14.0
11.09	7.5	8.0	8.2	8.7	31.4	29.4	83.8	88.7	7.7	7.8	610.0	390.0	610.0	390.0	2.0	13.0
MAX	17.0	18.5	10.8	11.0	32.7	33.5	114.7	111.5	9.5	8.2	610.0	390.0	720.0	450.0	32.0	27.0
MIN	6.0	8.0	3.7	3.3	27.5	7.9	44.7	40.6	7.1	7.4	265.0	115.0	510.0	350.0	2.0	10.0
AVERAGE	12.1	13.8	8.6	8.4	31.0	27.4	96.8	93.8	7.9	7.8	426.4	233.6	633.1	397.5	20.5	16.3

DATE	DATA TAKER	COMMENT	WEATHER	H2O
4.21.93H	TEAM 4		pt cloudy	waves
4.21.93L	jt,students	oil	pt cloudy	ripple
5.06.93H	MV DV BS SS	1 do test	pt cloudy	ripple
5.06.93H	JF AS SM	light shower	overcast	ripple
5.20.93H	JF SH		pt cloudy	ripple
5.20.93L	JH JU	foam oil	pt cloudy	calm
6.03.93H	JH MH SS	big ship	pt cloudy	ripple
6.03.93L	MH HF DH	birds	clear	calm
6.20.93H	JT	big boats	clear	whitecaps
6.20.93L	LB AS	boats	clear	whitecaps
7.06.93H	HF JG EB	boats	clear	ripple
7.06.93L	MV JS BS EB	no ph	clear	ripple
7.22.93H	JT KS MV	boating	overcast	ripple
7.22.93L	CT SM		clear	calm
8.03.93H	MH BS	ph meter	pt cloudy	ripple
8.03.93L	MV SS JH	no DO	overcast	calm
8.19.93H	JH TE	h2o current	pt cloudy	ripple
8.19.93L	DH RR HF	fish, boats	overcast	ripple
9.02H	HF	boating	clear	waves
9.02L	HF	boating	clear	calm
9.20H	JT JS MV	Boating	clear	ripple
9.20L	CT JS JT	boating	clear	calm
10.04H	JF MM	boating	clear	whitecaps
10.04L	JH TF	birds	pt cloudy	waves
10.18H	KS AS	boating	clear	ripple
10.18L	JS JC	boating	pt cloudy	waves
11.09H	JT BA	none	clear	ripple
11.09L	JG DH RR	none	pt cloudy	ripple

Site 15									
Name	Date	Tide	Dilution	Time	Plate Count	CFU/100ml	Act. Time IN	Act. Time OUT	Comments
NA	21-Apr	L	10ml	6:35	1	*10	20:20	18:50	
NA	21-Apr	L	1ml	6:35	0	0	20:20	18:50	
NA	21-Apr	H	10ml	12:54	0	*0	20:20	18:50	
NA	21-Apr	H	1ml	12:54	0	0	20:20	18:50	
-101	6-May	L	10ml	7:30	6	60	19:55	17:55	1 yellow
-101	6-May	L	1ml	6:45	3	300	19:55	17:55	
	6-May	H	10ml						
	6-May	H	1ml						
	20-May	L	10ml						
	20-May	L	1ml						
	20-May	H	10ml						
	20-May	H	1ml						
Tugel- DDI	3-Jun	L	10ml	6:00	1	*10	16:30	15:30	
Sargent- DDI	3-Jun	H	10ml	12:10	0	*0	16:30	15:30	
Tugel	23-Jun	L	10ml	9:30	3	*30	22:00	20:30	
Tugel	23-Jun	L	1ml	9:30	0	0	22:00	20:30	
Tugel	23-Jun	H	10ml	15:45	0	*0	22:00	20:30	
Tugel	23-Jun	H	1ml	15:45	0	0	22:00	20:30	
Vozzella	6-Jul	L	10ml	8:45	0	*0	18:55	17:30	
Vozzella	6-Jul	L	1ml	8:45	0	0	18:55	17:30	
Getchall	6-Jul	H	10ml	15:00	1	*10	18:55	17:30	
Getchall	6-Jul	H	1ml	15:00	0	0	18:55	17:30	
Tugel	22-Jul	L	10ml	9:20	0	*0	19:30	18:00	
Tugel	22-Jul	L	1ml	9:20	0	0	19:30	18:00	
Tugel	22-Jul	H	10ml	15:30	2	*20	19:30	18:00	
Tugel	22-Jul	H	1ml	15:30	0	0	19:30	18:00	
Tugel	19-Aug	L	10ml	7:55	0	*0	17:43	18:00	
Tugel	19-Aug	L	1ml	7:55	0	0	17:43	18:00	
Tugel	19-Aug	H	10ml	15:05	1	*10	17:43	18:00	
Tugel	19-Aug	H	1ml	15:05	0	0	17:43	18:00	
	2-Sep	L	10ml	7:15	0	*0	19:35	18:45	
	2-Sep	L	1ml	7:15	0	0	19:35	18:45	
	2-Sep	H	10ml	13:45	0	*0	19:35	18:45	
	2-Sep	H	1ml	13:45	0	0	19:35	18:45	
	20-Sep	L	100ml	10:15	3	*3	18:25	19:00	
	20-Sep	L	10ml	10:15	1	10	18:25	19:00	
	20-Sep	H	100ml	16:20	3	*3	18:25	19:00	
	20-Sep	H	10ml	16:20	0	0	18:25	19:00	
Hagan	4-Oct	L	10ml		2	*20	16:57	17:33	
Hagan	4-Oct	L	1ml		0	0	16:57	17:33	
	4-Oct	H	10ml	15:00	5	*50	16:57	17:33	
	4-Oct	H	1ml	15:00	1	100	16:57	17:33	
	18-Oct	L	100ml	9:00	6	*6	16:40	17:00	
	18-Oct	L	10ml	9:00	0	0	16:40	17:00	
	18-Oct	H	100ml	15:10	4	*4	16:40	17:00	
	18-Oct	H	10ml	15:10	0	0	16:40	17:00	
	9-Nov	L	100ml	13:20	4	*4	19:10	17:15	1 yellow col.
	9-Nov	L	10ml	13:20	0	0	19:10	17:15	
	9-Nov	H	100ml	7:30	1	*1	19:10	17:15	
	9-Nov	H	10ml	7:30	0	0	19:10	17:15	

*Denotes values used for graph construction

Appendix 4.

Great Bay Watch 1994 Season

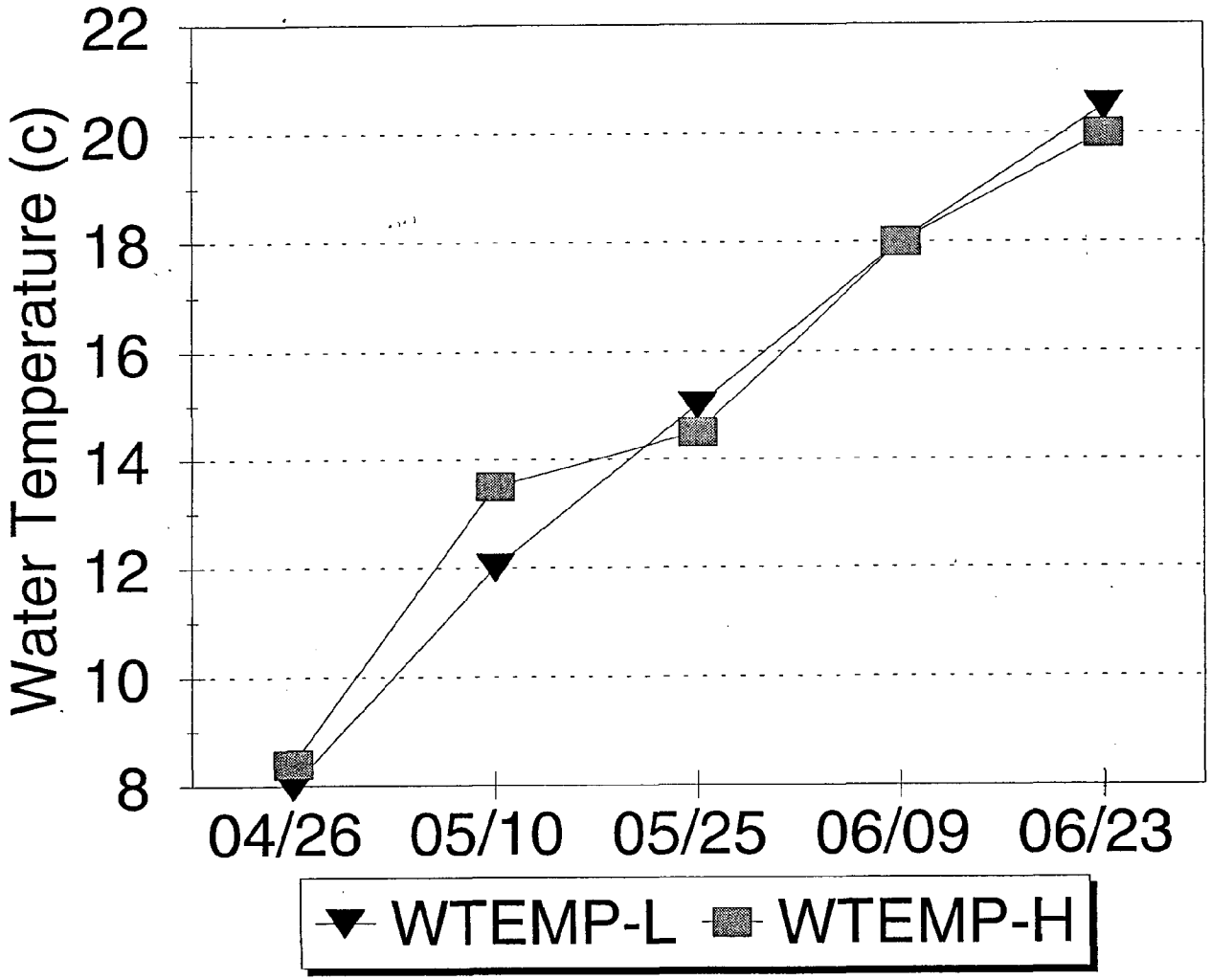
note: data is presented in tabular form
and selected sites are present in graphs.

Site 1 - Penninsula

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L	DEPTH-H	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L min	TIME-H min
04/26	EC GC LP TS	EC GC LP KF	8.00	8.40	9.40	10.90	13.10	20.00			7.1	8.0	45.0	112.5	120.0	355.0	5.0	7.5	RIPPLE	RIPPLE	SHOWERS	OVERCAST	BOATING	NONE	305.0	160.0
05/10	NW JL LP	JL BH	12.00	13.50	8.20	9.22	8.50	16.70			7.4	7.8	72.5	137.5	165.0	355.0	14.0	16.5	RIPPLE	RIPPLE	OVERCAST	CLEAR	BOATING	CONSTRUCTION	165.0	140.0
05/25	LP EO TT BC	EC TS DJ JL	15.00	14.50	7.10	8.80	13.90	7.55			7.2	7.6	140.0	127.5	300.0	375.0	12.0	14.5	ripple	CALM	showers	SHOWERS	none	CONSTRUCTION	200.0	170.0
06/09	LP CR JL	DT EF BH	18.00	18.00	6.10	7.83	9.20	25.90			7.4	7.8	102.0	130.0	110.0	325.0	18.0	26.0	ripple	RIPPLE	clear	CLEAR	boats	WINDY	120.0	150.0
06/23	BH DH JL EC	DJ LP	20.50	20.00	6.50	7.70	26.10	29.60			7.5	7.8	96.5	150.0	120.0	255.0	19.5	26.5	RIPPLE	RIPPLE	CLEAR	PT CLOUDY	2 SKULLS	KAYAK	120.0	220.0

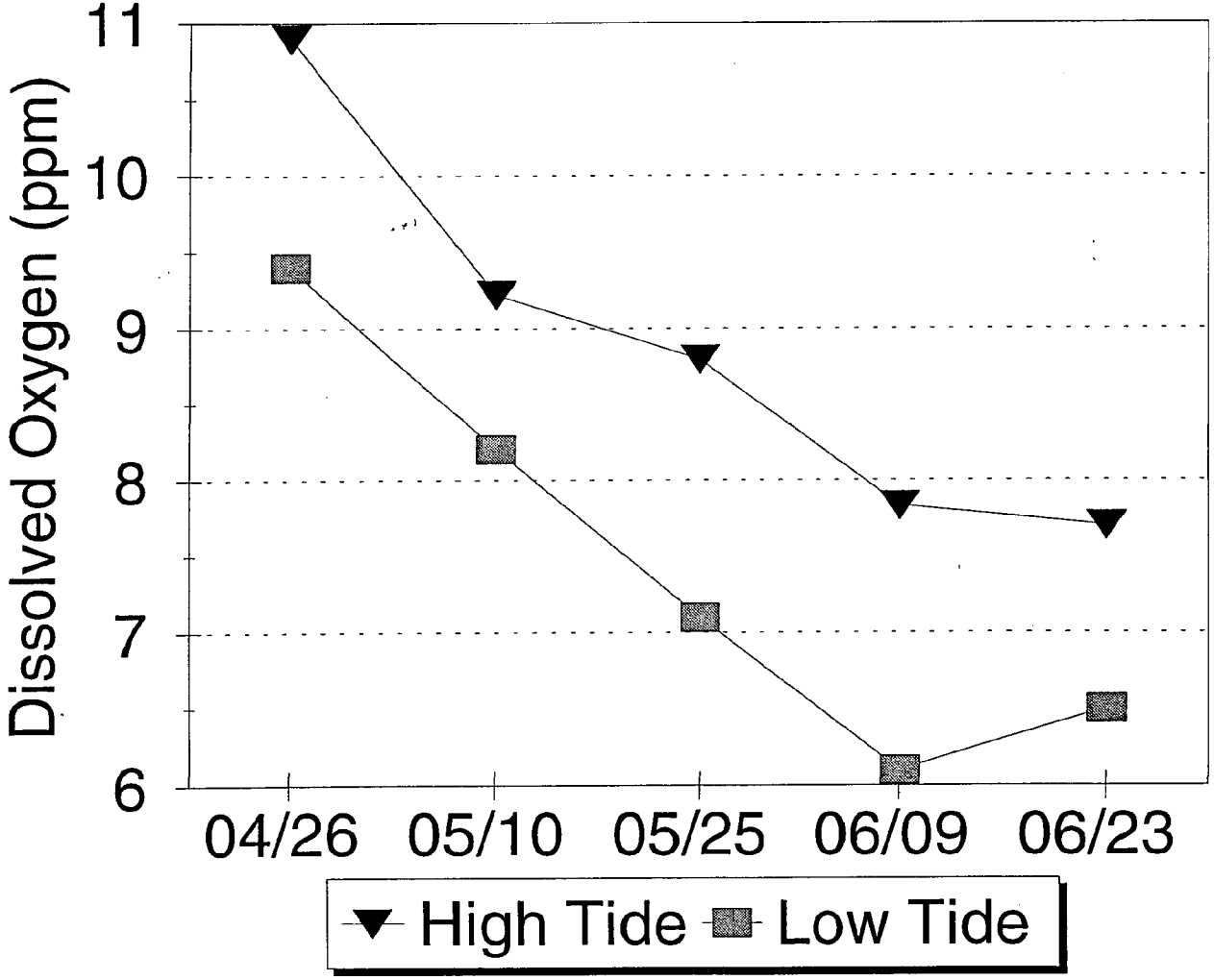
Great Bay Watch 1994

Site 1 - Pennisula

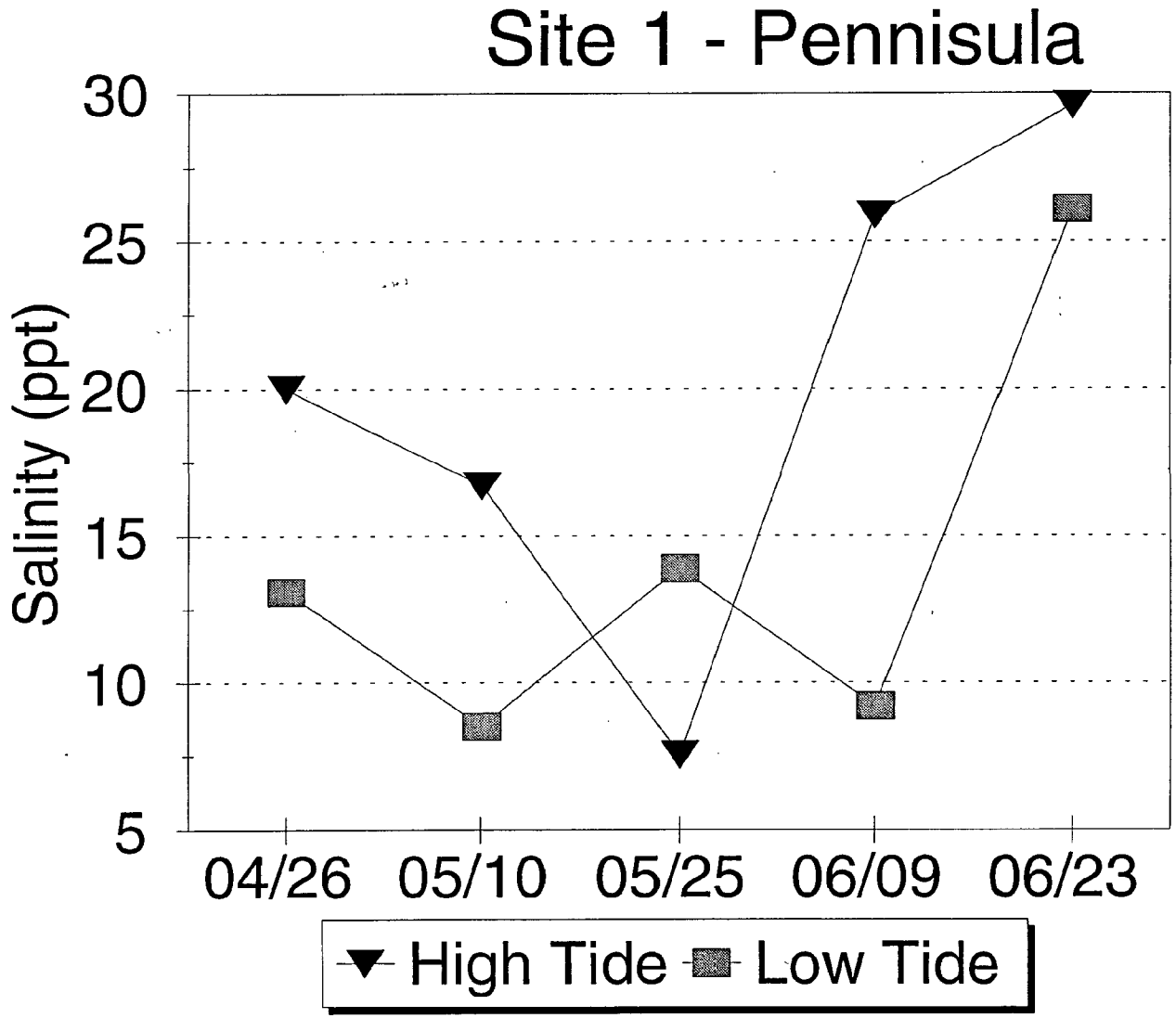


Great Bay Watch 1994

Site 1 - Pennisula

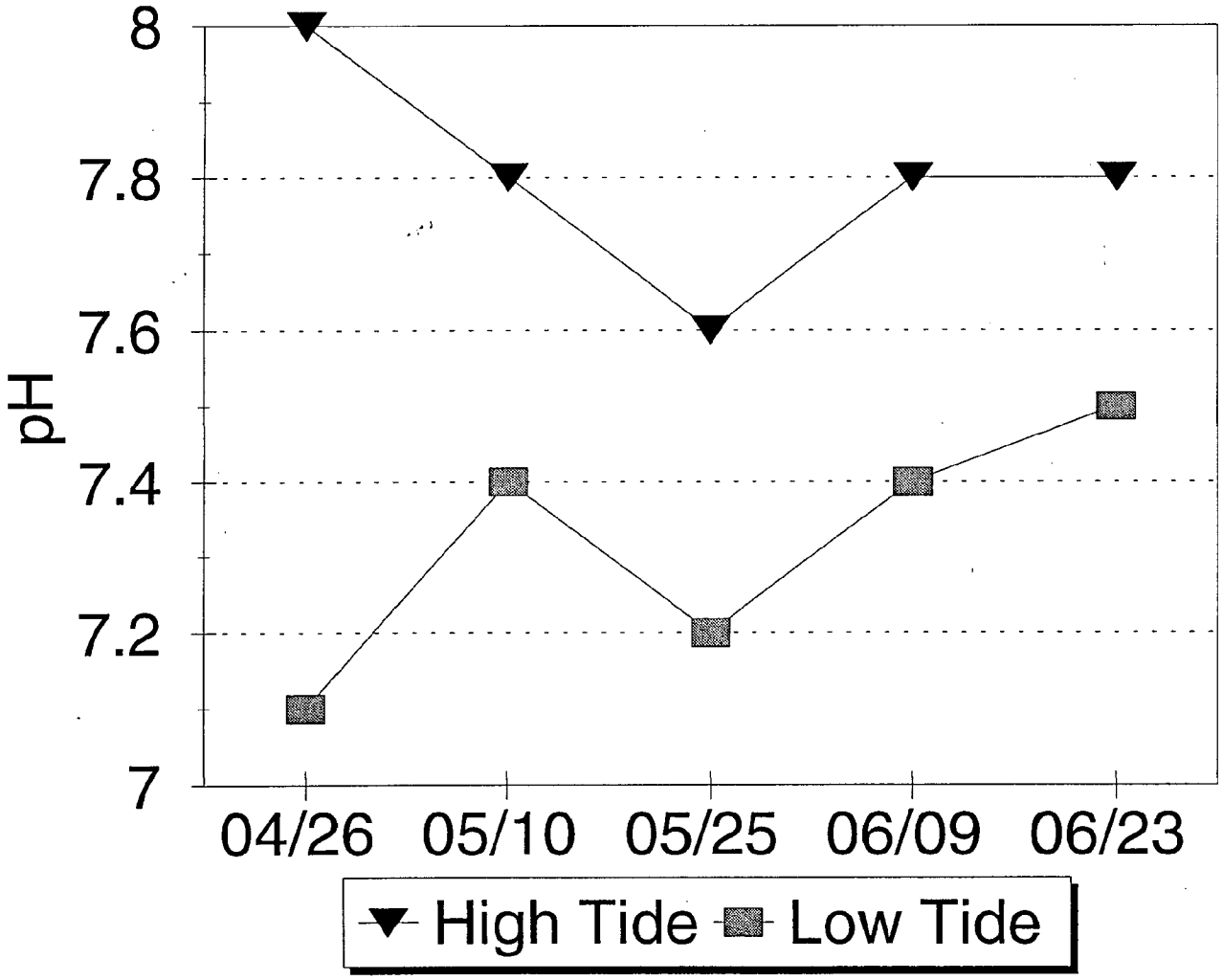


Great Bay Watch 1994



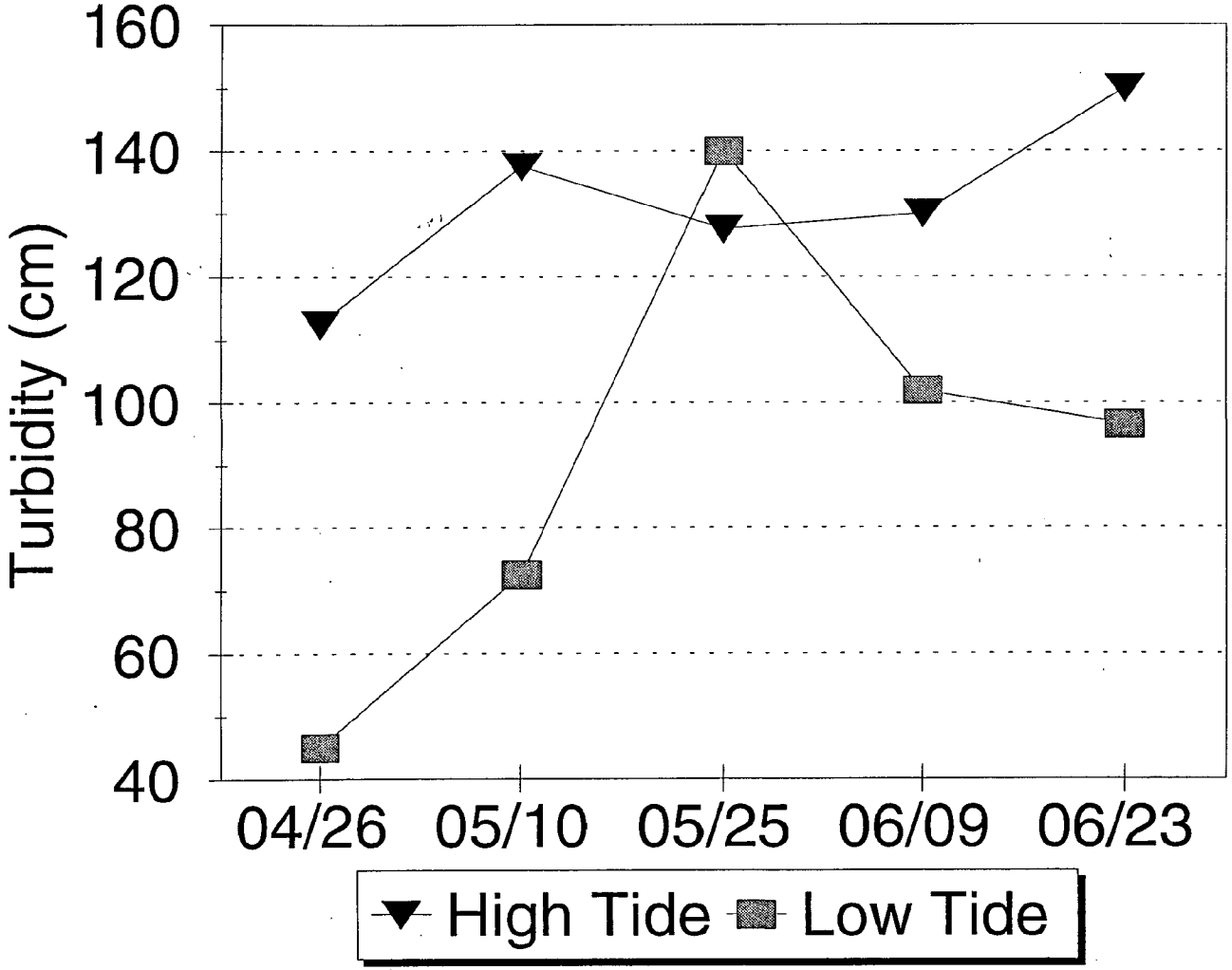
Great Bay Watch 1994

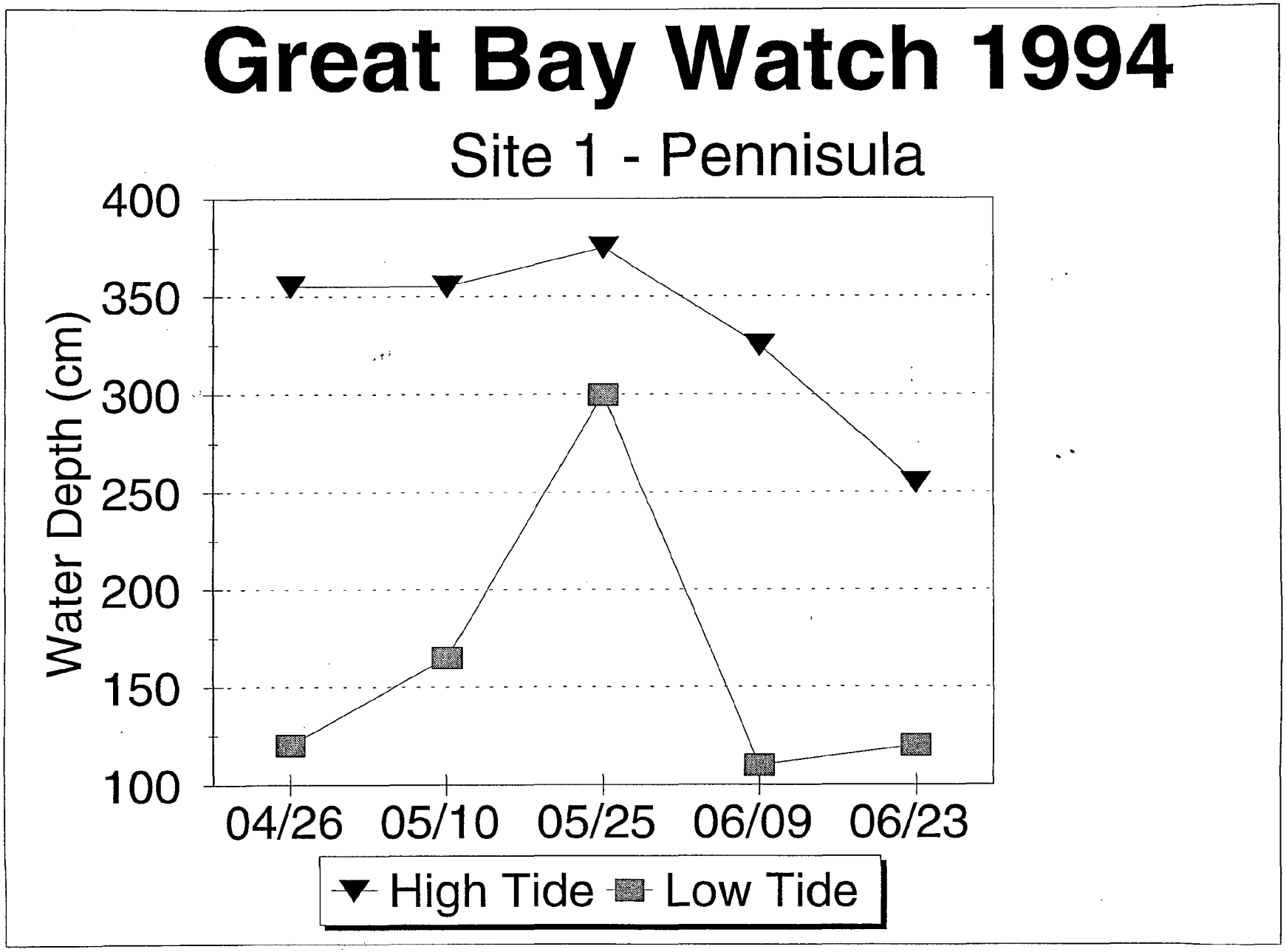
Site 1 - Pennisula



Great Bay Watch 1994

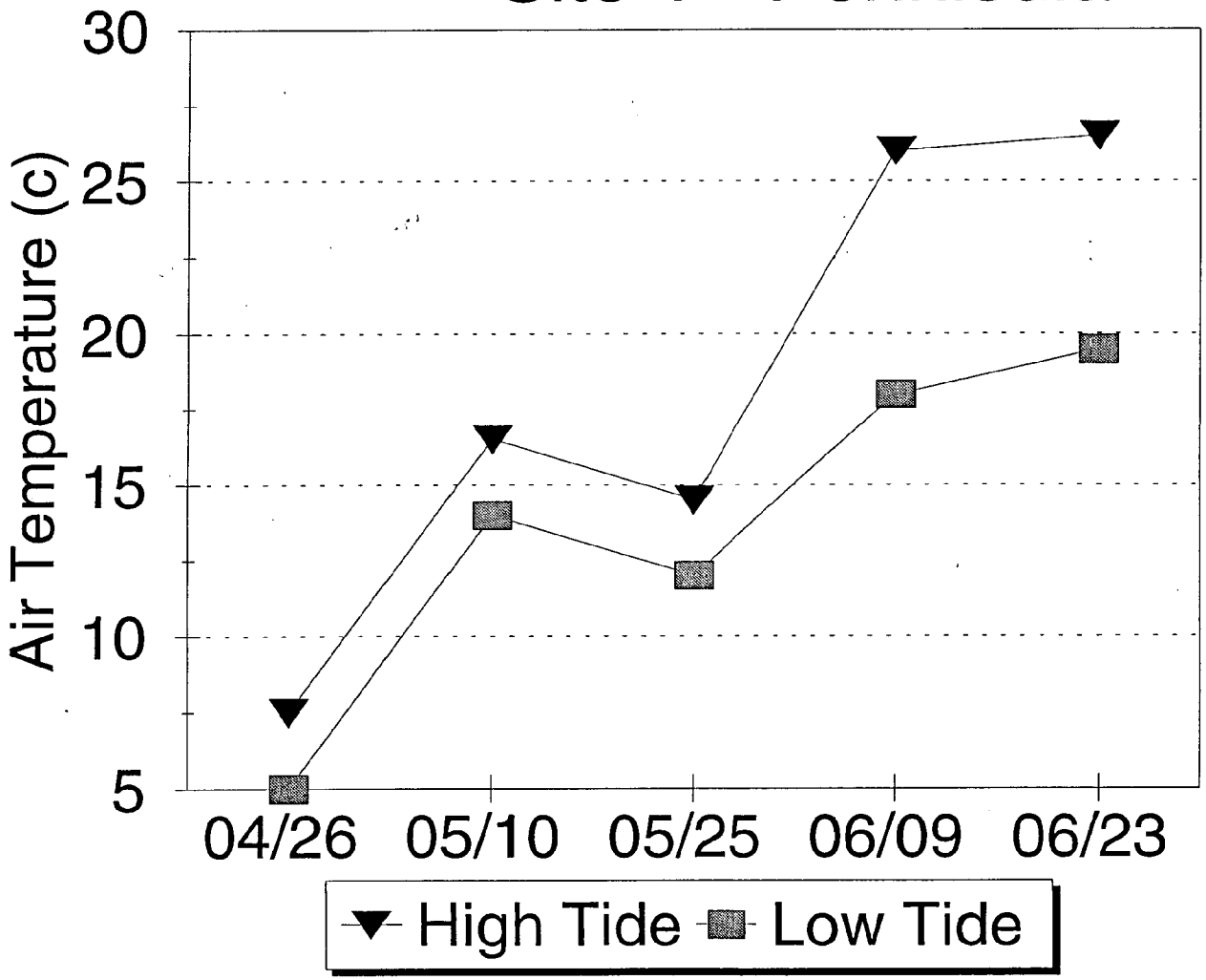
Site 1 - Pennisula




Great Bay Watch 1994
Site 1 - Pennisula
Water Depth (cm)
400
350
300
250
200
150
100
04/26
05/10
05/25
06/09
06/23
High Tide
Low Tide

Great Bay Watch 1994

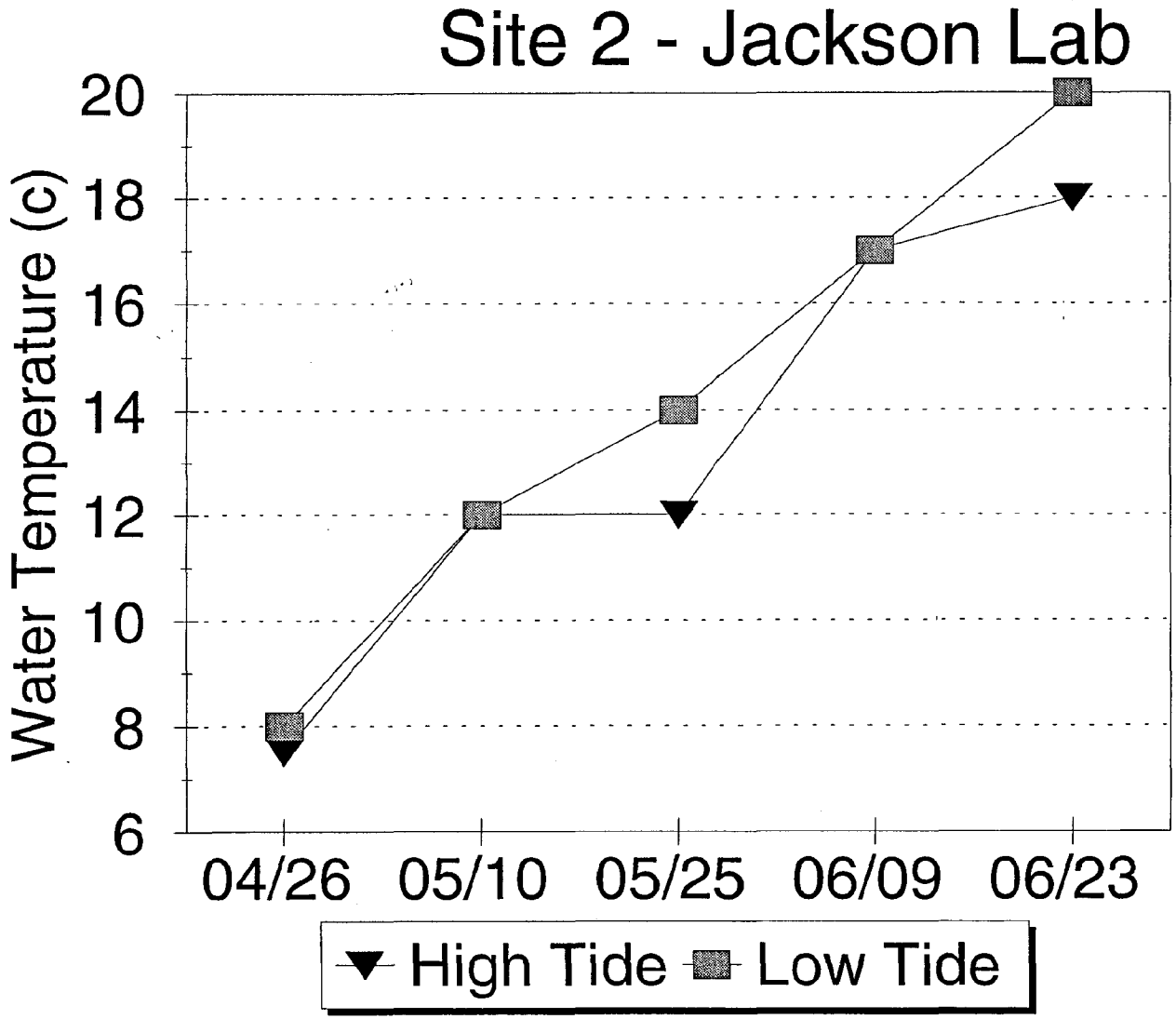
Site 1 - Pennisula



Site 2 - JEL

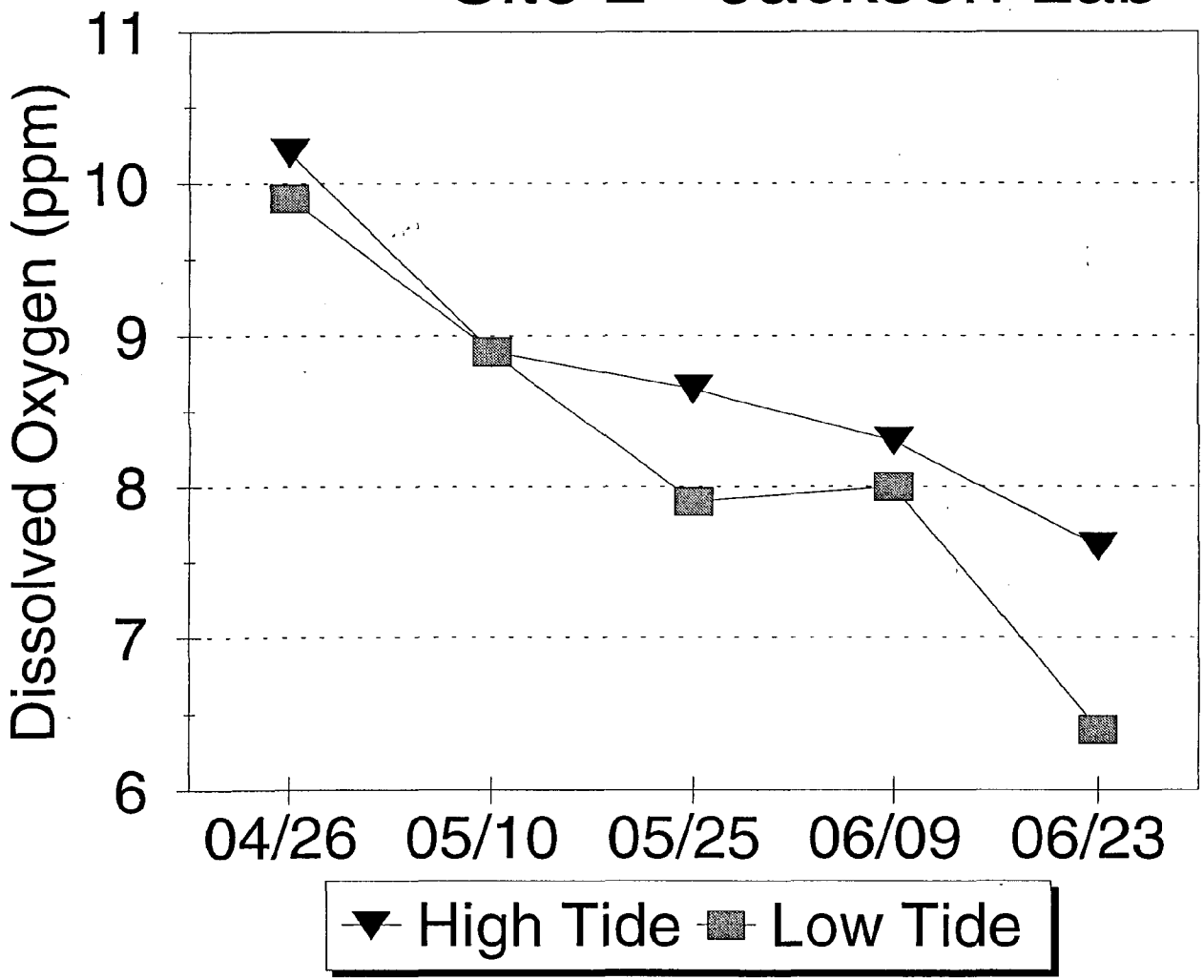
DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L min	TIME-H min
04/26	JP BP	JP BP	8.0	7.5	9.9	10.2	18.4	22.2			7.6	7.8	105.0	130.0	210.0	250.0	2.0	13.0	RIPPLE	RIPPLE	SHOWERS	OVERCAST	NONE	GULF CHALLI	210.0	180.0
05/10	JP BP	JP BP	12.0	12.0	8.9	8.9	17.8	19.0			7.8	7.8	123.0	163.0	230.0	230.0		18.0	CALM	CALM	OVERCAST	CLEAR	NONE	ECLIPSE	185.0	190.0
05/25	JP BP MS	BP MS	14.0	12.0	7.9	8.7	19.3	21.7			7.7	7.6	104.5	137.0	225.0	465.0	12.0	15.0	CALM	WAVES	SHOWERS	SHOWERS	NONE	NONE	205.0	185.0
06/09	BP	BP JP	17.0	17.0	8.0	8.3	24.0	25.6			7.6	7.6	130.0	168.0	225.0	420.0	19.0	24.0	CALM	RIPPLE	CLEAR	CLEAR	BOATS	BOATS	250.0	250.0
06/23	BP MS	JP MS	20.0	18.0	6.4	7.6	29.5	30.2			7.6	7.8	127.0	165.0	215.0	445.0	21.0	29.0	CALM	RIPPLE	CLEAR	PT CLOUDY	FISHING	BOATING	160.0	185.0

Great Bay Watch 1994



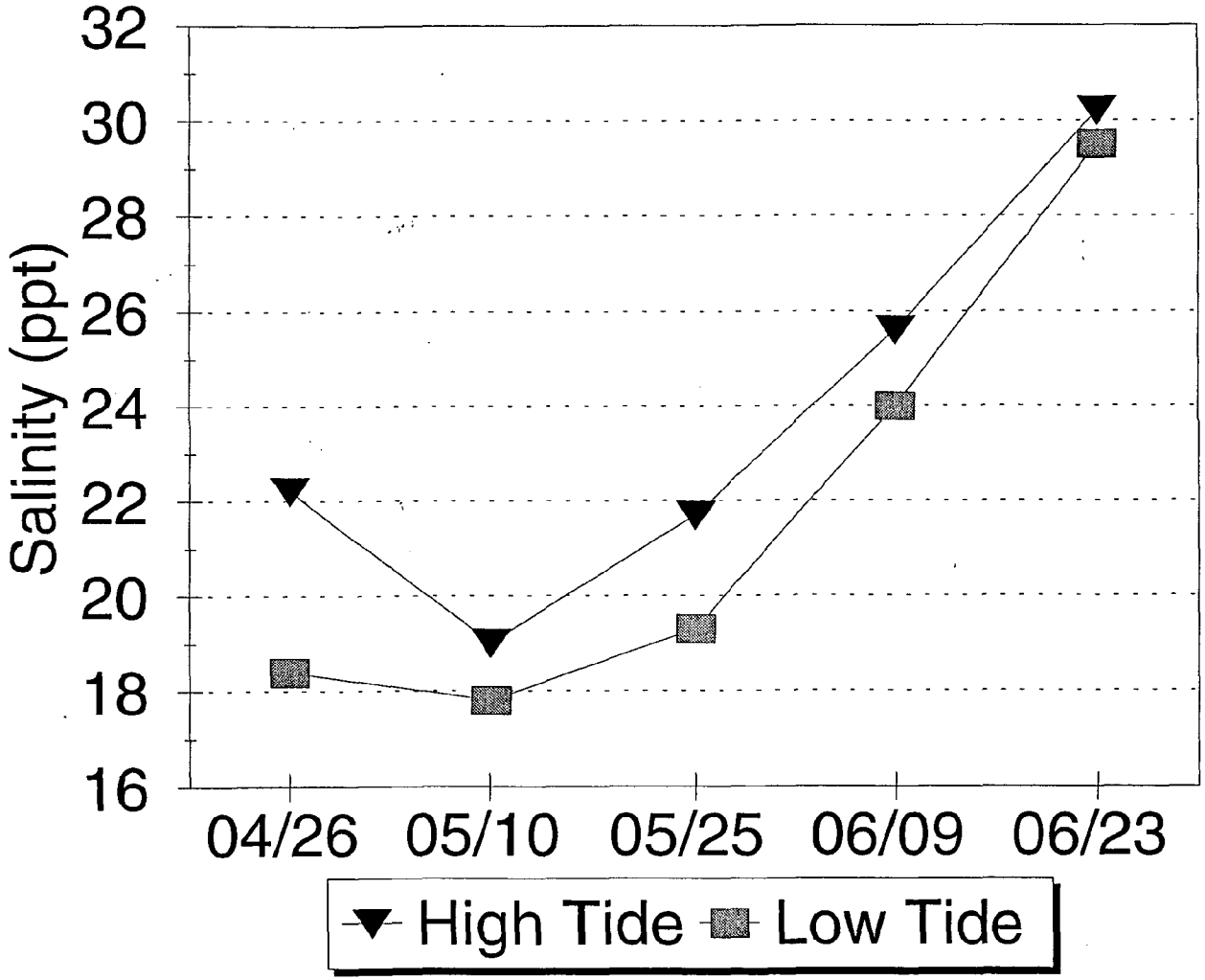
Great Bay Watch 1994

Site 2 - Jackson Lab



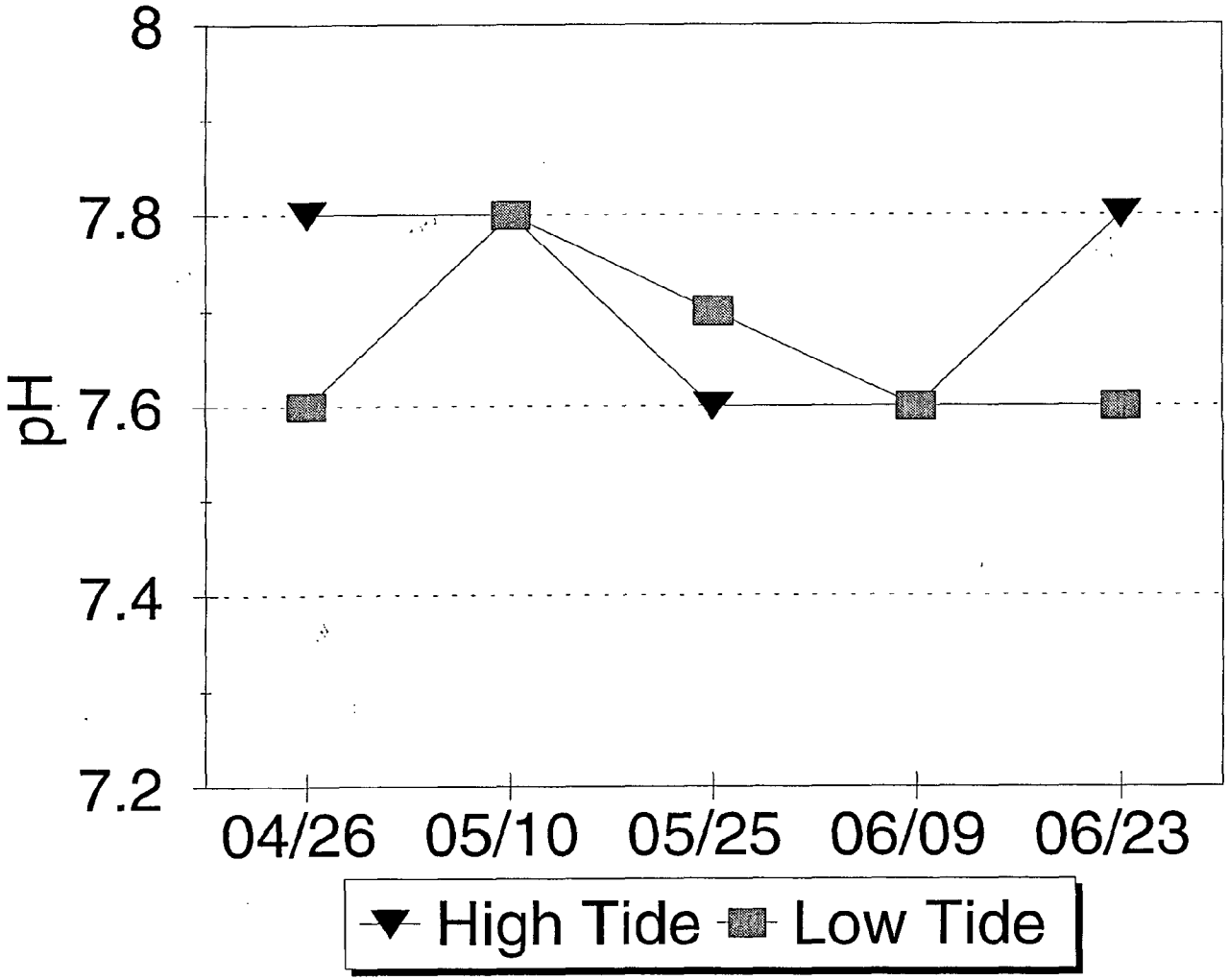
Great Bay Watch 1994

Site 2 - Jackson Lab

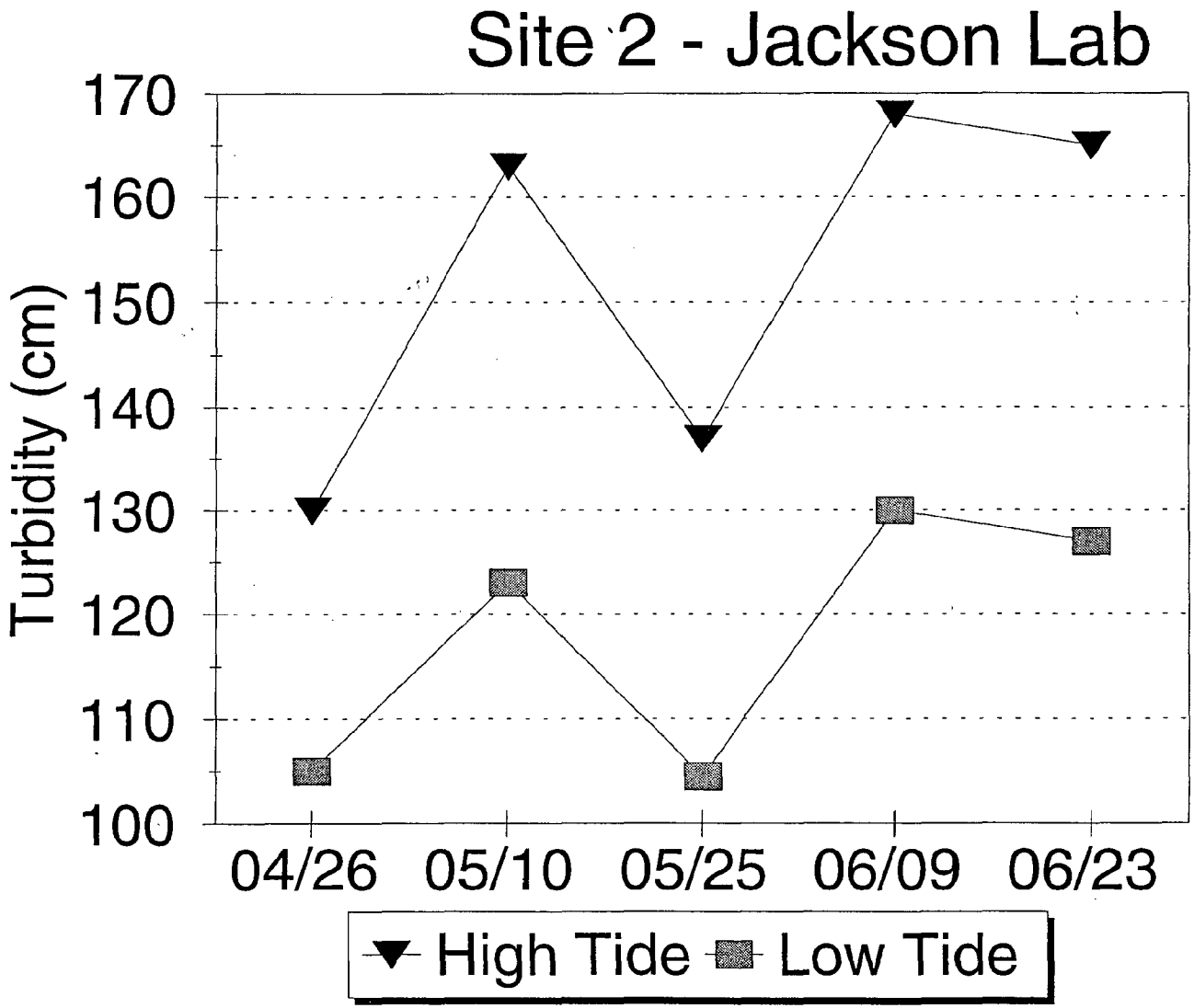


Great Bay Watch 1994

Site 2 - Jackson Lab

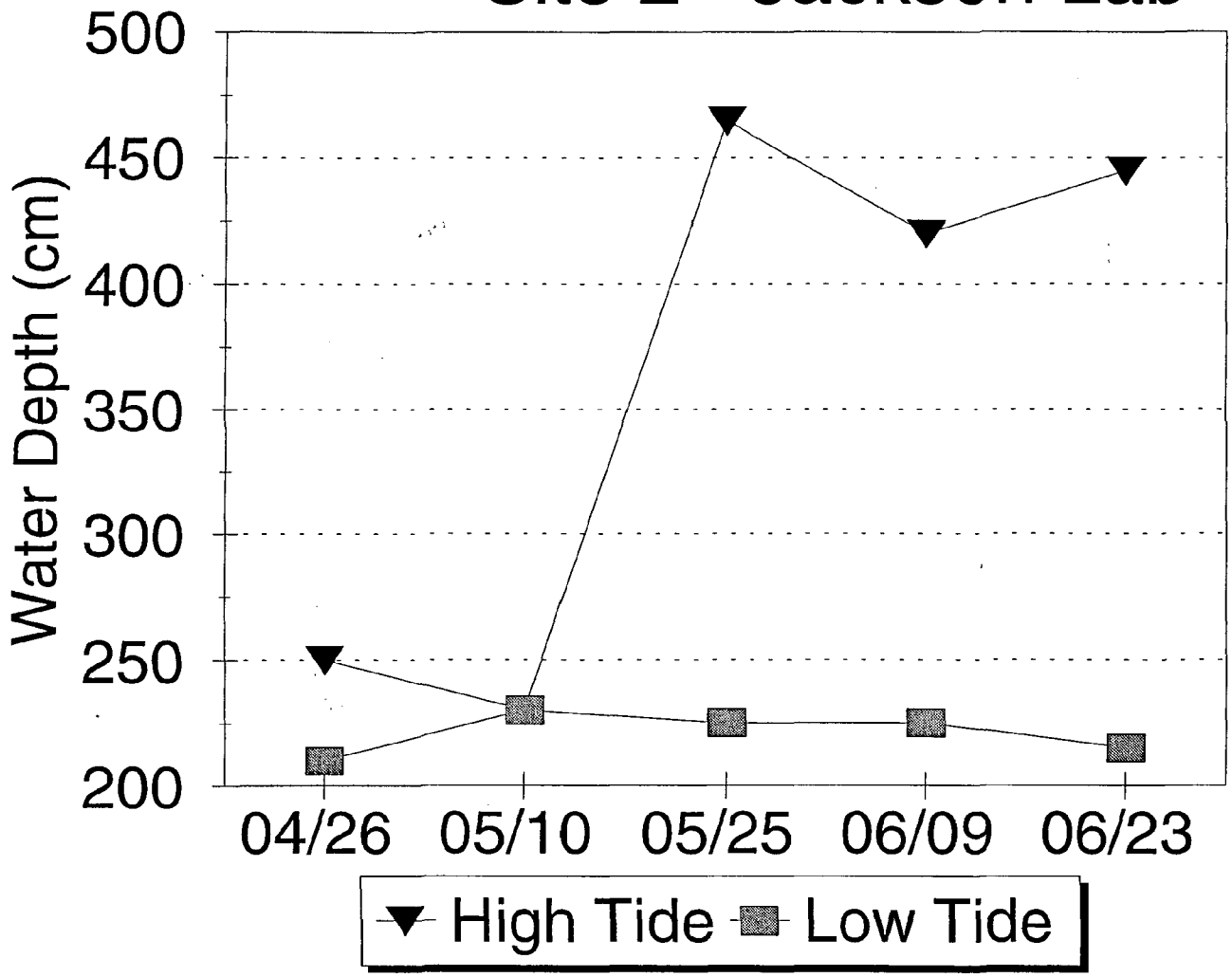


Great Bay Watch 1994



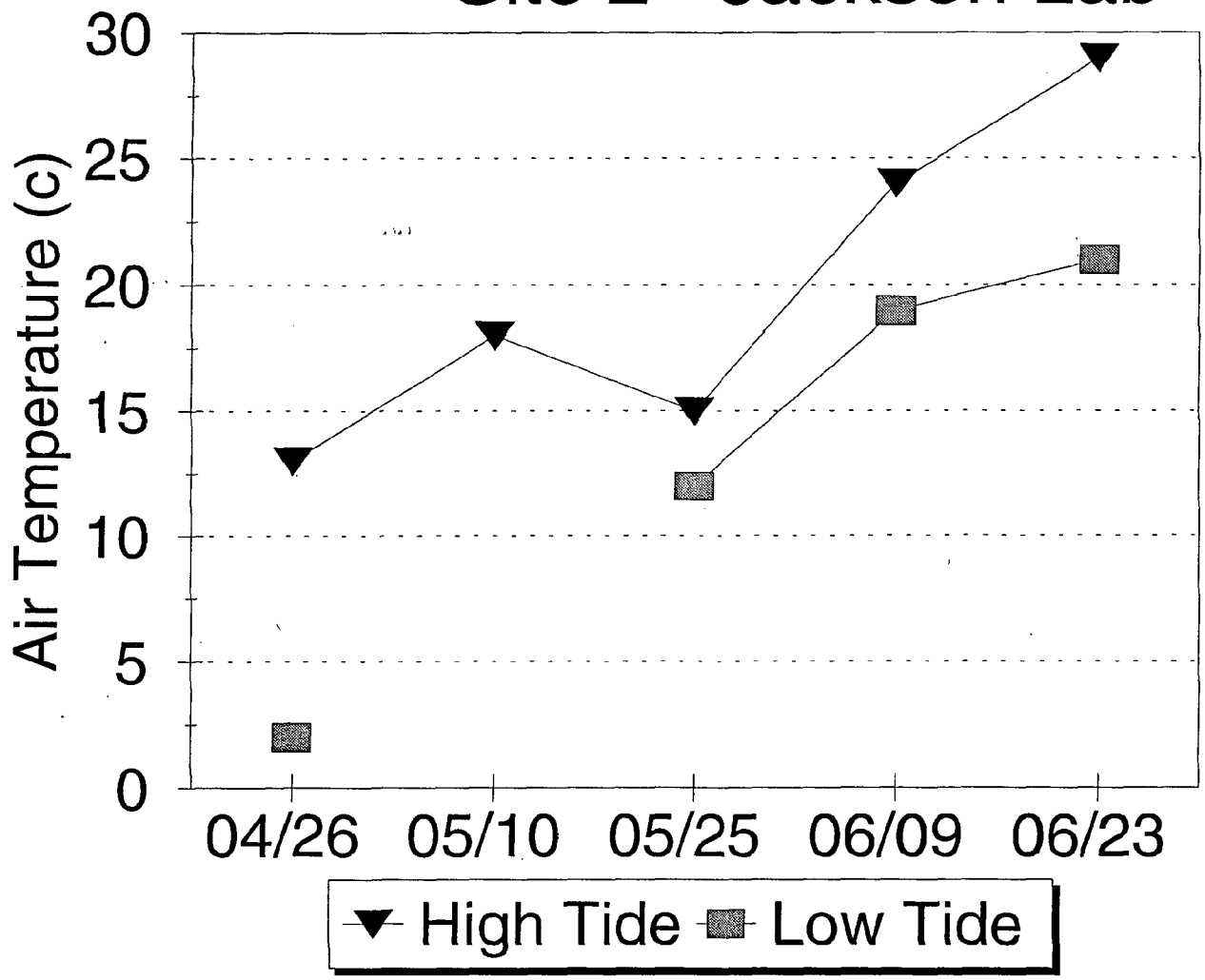
Great Bay Watch 1994

Site 2 - Jackson Lab



Great Bay Watch 1994

Site 2 - Jackson Lab



Site 3 - Lamprey River

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H CM	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
05/10	DB MA	DB MA		14.5		10.8		3.7				7.3						19.0					NO DOCK!	NO DOCK!		
05/25	DB MA	DB MA	16.5	17.5	4.6	8.7					7.1	7.0	75.0	110.0	140.0	185.0	12.0	16.0				DOWNPOUR				
06/09	DB MA	DB MA	19.0	23.0	7.0	7.9		8.3			7.4	7.4	87.0	97.5	110.0	215.0	18.0	24.0	RIPPLE	RIPPLE	PT CLOUDY	PT CLOUDY			45.00	60.00
06/22	DB MA	DB MA	21.5	25.0	6.1	7.2					7.5	7.1	77.5	67.5	105.0	225.0	23.0	28.5	CALM	RIPPLE	CLEAR	CLEAR			45.00	60.00

Site 4 - Depot Rd

DATE	SAMPLER-I	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-I	ACTIVITIES-H	TIME-L	TIME-H
05/25		LS KF AT PW		16.0		9.4		18.3				7.6		70.0		70.0		15.0		RIPPLE		SHOWERS		BIRDS		510.00
05/10		LS KF AT PW		16.0		9.9		11.9				7.8		40.0		40.0		20.0		WAVES		PT CLOUDY		ECLIPSE		500.00
04/26		LS KF PM		9.0		11.2		19.6				7.9		55.0		55.0		8.0		RIPPLE		OVERCAST		STRAW ON SURFACE		360.00
06/09		KF AT		22.0		9.5		24.3				7.0		25.0		25.0		29.0		WHITECAPS		CLEAR		HORESHOE CRABS		180.00
06/23		LS KF PM AT		23.0		8.1		28.6				8.1		50.0		50.0		27.0		WHITECAPS		PT CLOUDY				315.00

Site 5 - Portsmouth Country Club

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L	WTEMP-H	DO-L	DO-H	SAL-L	SAL-H	CON-L	CON-H	pH-L	pH-H	LP-L	LP-H	DEPTH-L	DEPTH-H	ATEMP-L	ATEMP-H	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES	TIME-L	TIME-H
			Oc	oC	ppm	ppm	ppt	ppt	%	%			cm	cm	cm	cm	0c	0c								
05/25	BB DC SM	BB DC SM	15.0	15.5	6.5	7.8	4.9	17.0			7.3	7.5		82.5		135.0	11.0	15.0	CALM	CALM	OVERCAST	DOWNPOUR	GOLF	BIRDS	160.00	275.00
05/10	BB DC SM	BB DC SM	14.0	16.0	8.3	8.8	1.0	10.6			7.3	7.6		27.5		110.0	14.0	18.0	CALM	RIPPLE	PT CLOUDY	CLEAR	GOLF	ECLIPSE	175.00	280.00
04/26	BB DC SM	BB DC SM	8.0	8.0	9.0	10.4	1.6	17.0			7.3	8.0		72.5		115.0	5.0	7.0	RIPPLE	RIPPLE	SHOWERS	OVERCAST	NONE	GOLF	210.00	335.00

Site 6 - Fox Pt

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
05/10	BH BT	BH BT	12.0	6.0	9.1	10.5	17.5	27.2			7.9	8.0	135.0	147.0	135.0	230.0	13.0	7.0	RIPPLE	RIPPLE	OVERCAST	OVERCAST	BIRDS	BOAT	60.00	70.00
04/26	BH BT	BH BT	8.0	11.0	10.4	9.5	22.1	21.6			7.9	7.8	95.0	255.0	95.0	310.0	5.0	17.0	RIPPLE	RIPPLE	SHOWERS	CLEAR	NONE	ECLIPSE	75.00	45.00
06/23	BH BT	BH BT	19.0		8.5	7.7	28.2	30.0			7.9	7.8	105.0	285.0	105.0	335.0	20.0	25.0	RIPPLE	RIPPLE	CLEAR	CLEAR	BIRDS	BIRDS	30.00	45

Site 7 - Cedar Pt

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L	WTEMP-H	DO-L	DO-H	SAL-L	SAL-H	CON-L	CON-H	pH	pH	LP-L	LP-H	DEPTH-L	DEPTH-H	ATEMP-L	ATEMP-H	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
			oC	oC	ppm	ppm	ppt	ppt	%	%			cm	cm	cm	cm	0c	0c								
06/09	EL BB	IL BB	16.0	16.0	7.9	7.8	23.5	26.1			7.8	7.8	90.0	175.0	90.0	175.0	16.0	30.0	RIPPLE	WAVES	CLEAR	CLEAR	LOBSTERING	LOBSTERBO/	90.00	165.00
05/25	BB AB	IL AB BB	13.0	12.0	7.9		20.3	25.5			6.9	7.8		232.5		310.0	11.0	16.0	RIPPLE	CALM	OVERCAST	SHOWERS	NONE	DUCKS	100.00	195.00
05/10	IL BB	IL BB	12.0	12.0	9.1	9.1	17.5	17.5			7.8	7.8	80.0	218.5	80.0	275.0	13.0	17.0	RIPPLE	RIPPLE	OVERCAST	PT CLOUDY	BIRDS	ECLIPSE	60.00	
04/26	MR AB BB	MR BB AB	7.0	6.0	9.1	9.9	20.6	25.7			8.3	7.8	22.0	195.0	22.0	245.0	41.0	4.0	RIPPLE		SHOWERS	OVERCAST	NONE		71.00	76.00
06/23	IL AB BB	IL AB BB	18.0	16.0	7.1	7.9	27.9	28.4			7.6	7.8	70.0	290.0	70.0	290.0	20.0	30.0	CALM	RIPPLE	CLEAR	PT CLOUDY	NEW RAMP!	BOATS	165.00	180

Site 9 - Cocheco River

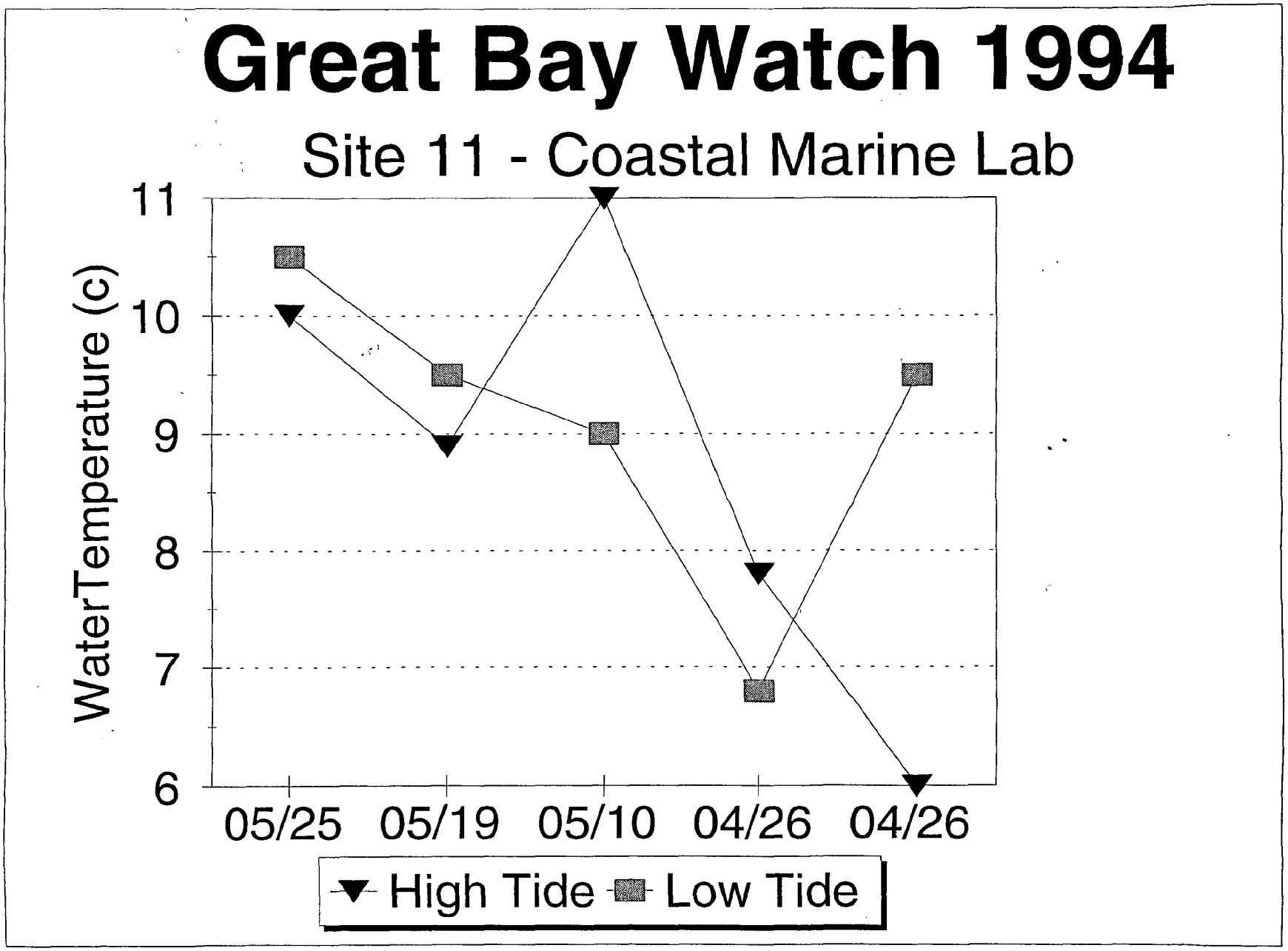
DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H	DEPTH-L	DEPTH-H	ATEMP-L 0c	ATEMP-H	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
06/09	NN	RJ NN	17.0	20.0	7.3		6.7	14.5			7.3	7.5	30.0	145.0	30.0	310.0	16.0	23.0	CALM	RIPPLE	CLEAR	CLEAR	NONE	BOATING	180.00	60.00
05/25	AR JJ JJ	RJ BK	16.0	15.0	8.2	8.0	2.4	5.0			6.9	7.3	10.0	110.0	10.0	600.0	12.0	13.0	RIPPLE	RIPPLE	SHOWERS	PT CLOUDY	NONE	BOAT	100.00	120.00
05/10	BK JM	BK RJ	11.5	12.0	10.1	9.5	0.0	2.8				7.1		120.0		550.0	12.0	16.0		RIPPLE	CLOUDY	CLEAR	DEER	NONE	60.00	225.00
04/26	NN	NN RJ	9.0	9.0	10.2	10.1	1.6	5.4			7.3	7.3	30.0	13.0	30.0	430.0	5.0	6.0	CALM		SHOWERS		NONE		90.00	
06/23	JM	RJ CC JM	21.0	22.0	5.8	6.6	11.7	20.9			7.1	7.2		95.0			16.0	24.0	CALM	RIPPLE	CLEAR	CLEAR		BOATING		90

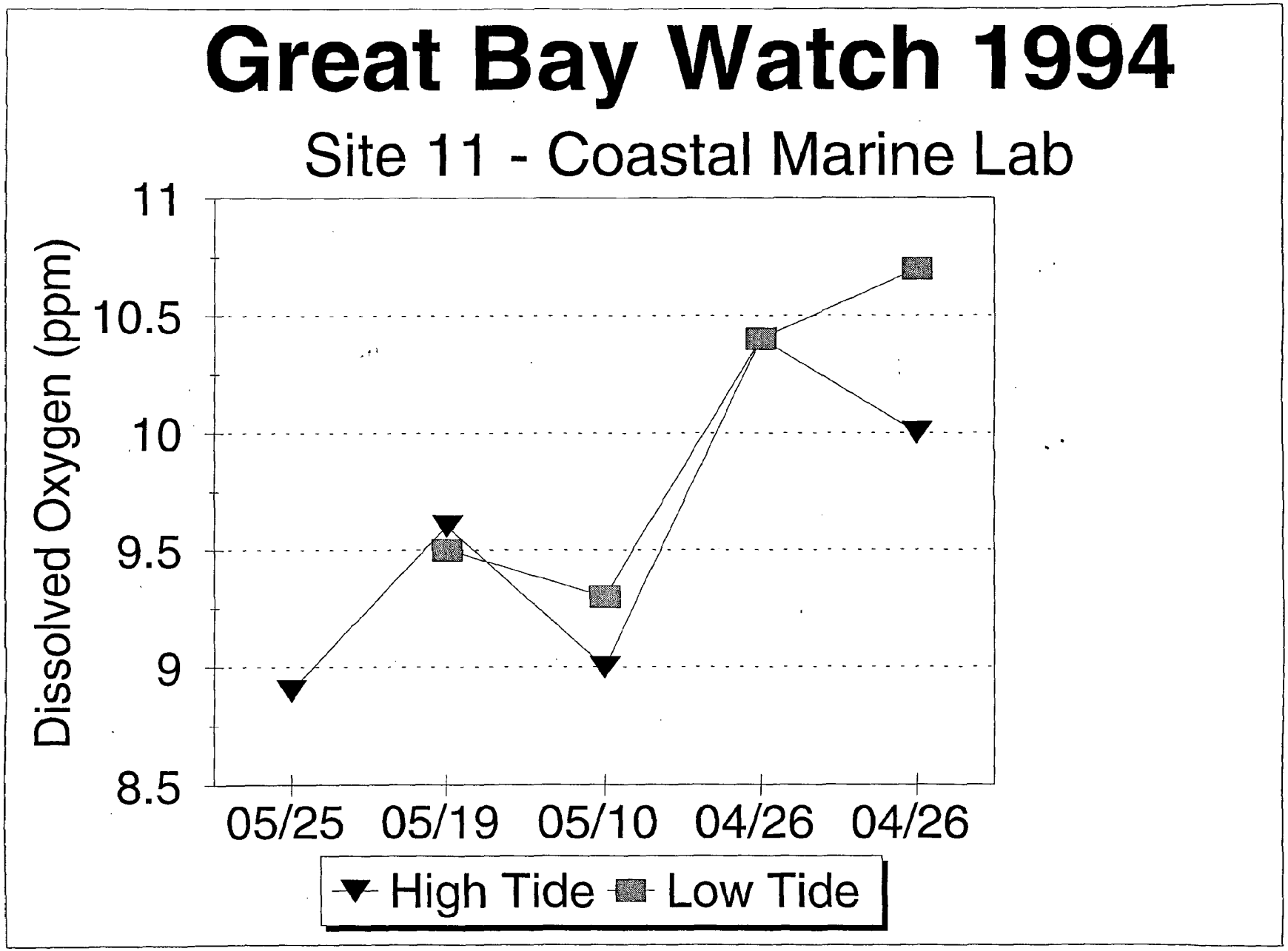
Site 10 - Piscataqua River

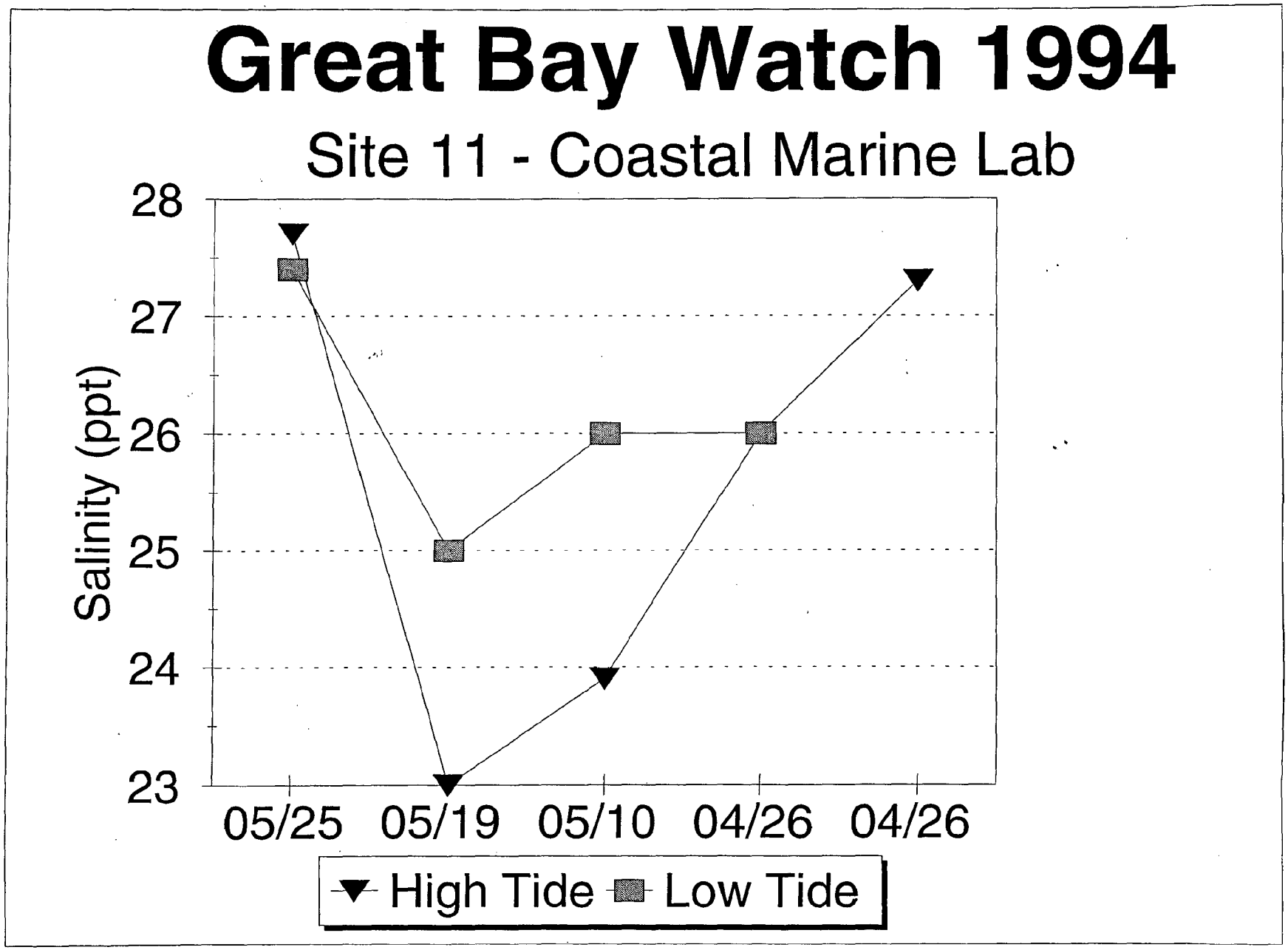
DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L min	TIME-H min
04/26	JC MM JM	JC KC MM JM	7.5	7.0	9.8	10.4	10.6	20.8			7.3	7.9	30.0	140.0	30.0	235.0	4.5	7.0	RIPPLE	RIPPLE	SHOWERS	OVERCAST	NONE	NONE	225.00	225.00
05/10	JC KK BM	BM SC JC BS	13.0	15.0	9.5	9.5	4.7	7.6			7.3	7.5	35.0	157.0	35.0	200.0	12.0	20.0	CALM		OVERCAST		BIRDS		200.00	300
05/25	BM	SC KM	15.0	14.0	8.4	8.4	10.0	21.7			7.5	7.9	90.0	142.5	90.0	340.0	11.0	15.9	CALM	RIPPLE	SHOWERS	OVERCAST	DOCK IS IN	BOATING	90.00	140.00
06/09	BM KM MM	BM MS	16.7	17.5	7.6	8.2	18.5	22.9			7.6	7.8	90.0	213.0	90.0	285.0	14.1	27.0	CALM	CALM	CLEAR	CLEAR	GULLS, BOA	BOATING	210.00	18.00

Site 11- CML

DATE	SAMPLER-L	SAMPLER-H	WTEMP oC	WTEMP oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH_H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L min	TIME-H min
05/25	JF AP	JJ JG	10.5	10.0		8.9	27.4	27.7			8.1	8.1	185.0	510.0	185.0	540.0	11.0	19.0	CALM	CALM	SHOWERS	OVERCAST	OIL SLICK	BOATING	45.00	60.00
05/19	KC SW CN	KC CN	9.5	8.9	9.5	9.6	25.0	23.0			8.1	7.8	315.0	390.0	315.0	565.0	13.0	9.0	RIPPLE	WAVES	OVERCAST	OVERCAST	TOURISTS	NONE		20.00
05/10	JG AP	DW	9.0	11.0	9.3	9.0	26.0	23.9			8.1	7.9	215.0	250.0	215.0	530.0	13.5	11.0	RIPPLE	RIPPLE	PT CLOUDY	PT CLOUDY	FISHING	OUTFLOW C	80.00	95.00
04/26	CN	CN	6.8	7.8	10.4	10.4	26.0	26.0			7.7	8.0	230.0	385.0	230.0	590.0	6.0	7.0		RIPPLE		SHOWERS				
04/26	DW AP	DW	9.5	6.0	10.7	10.0		27.3			8.0	8.0	220.0	335.0	220.0	565.0	9.5	8.0	RIPPLE		DOWNPOUR	SHOWERS	NONE	OUTFLOW C	84.00	108.00
03/21	CN	CN	4.0	4.0	11.9	12.3	26.0	22.0			6.0		330.0	420.0	330.0	480.0	6.0	5.0	RIPPLE	RIPPLE	CLEAR		NONE		20.00	

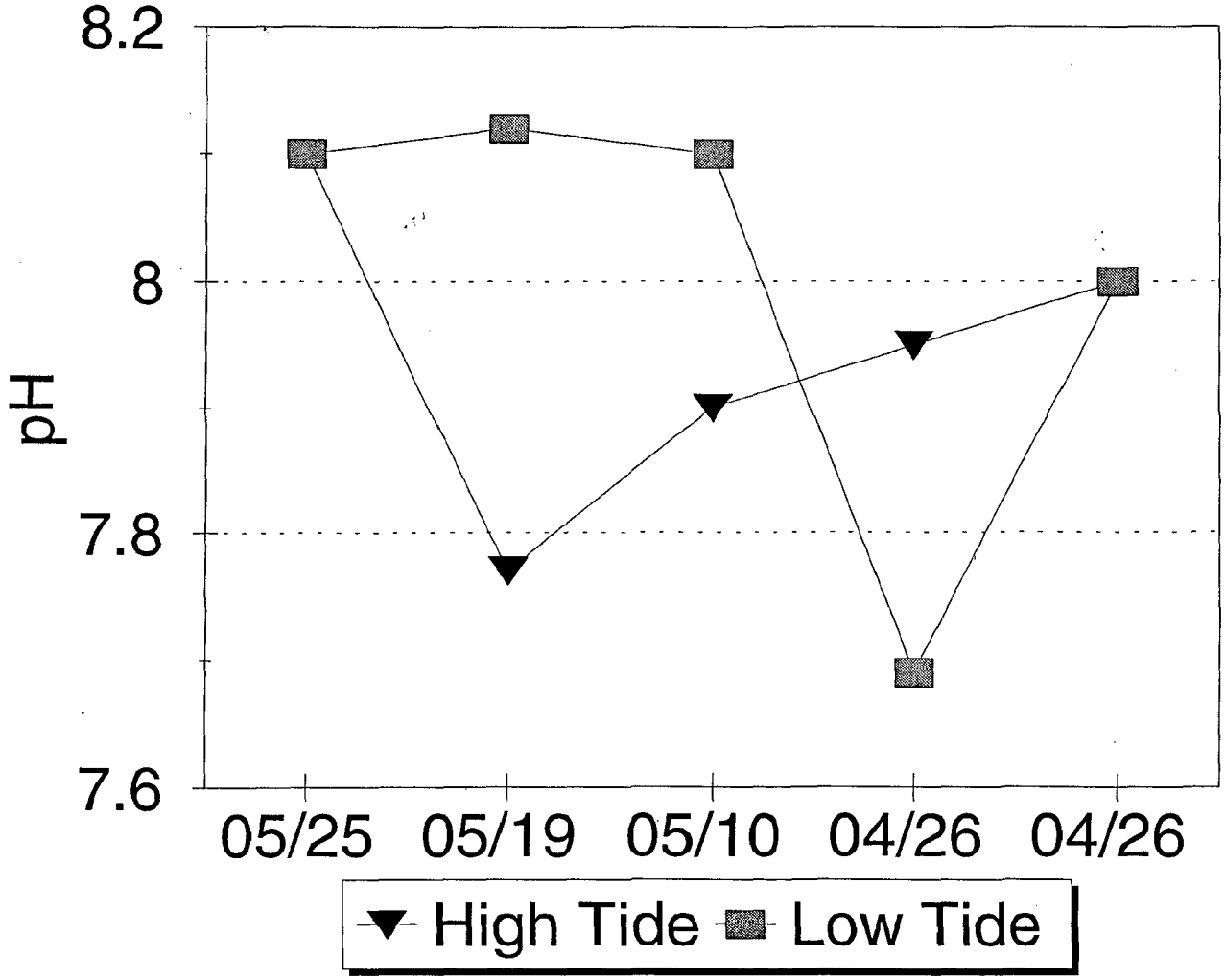

Great Bay Watch 1994
Site 11 - Coastal Marine Lab
WaterTemperature (c)
11
10
9
8
7
6
05/25
05/19
05/10
04/26
04/26
High Tide
Low Tide


Great Bay Watch 1994
Site 11 - Coastal Marine Lab
Dissolved Oxygen (ppm)
11
10.5
10
9.5
9
8.5
05/25
05/19
05/10
04/26
04/26
High Tide
Low Tide


Great Bay Watch 1994
Site 11 - Coastal Marine Lab
Salinity (ppt)
28
27
26
25
24
23
05/25
05/19
05/10
04/26
04/26
High Tide
Low Tide

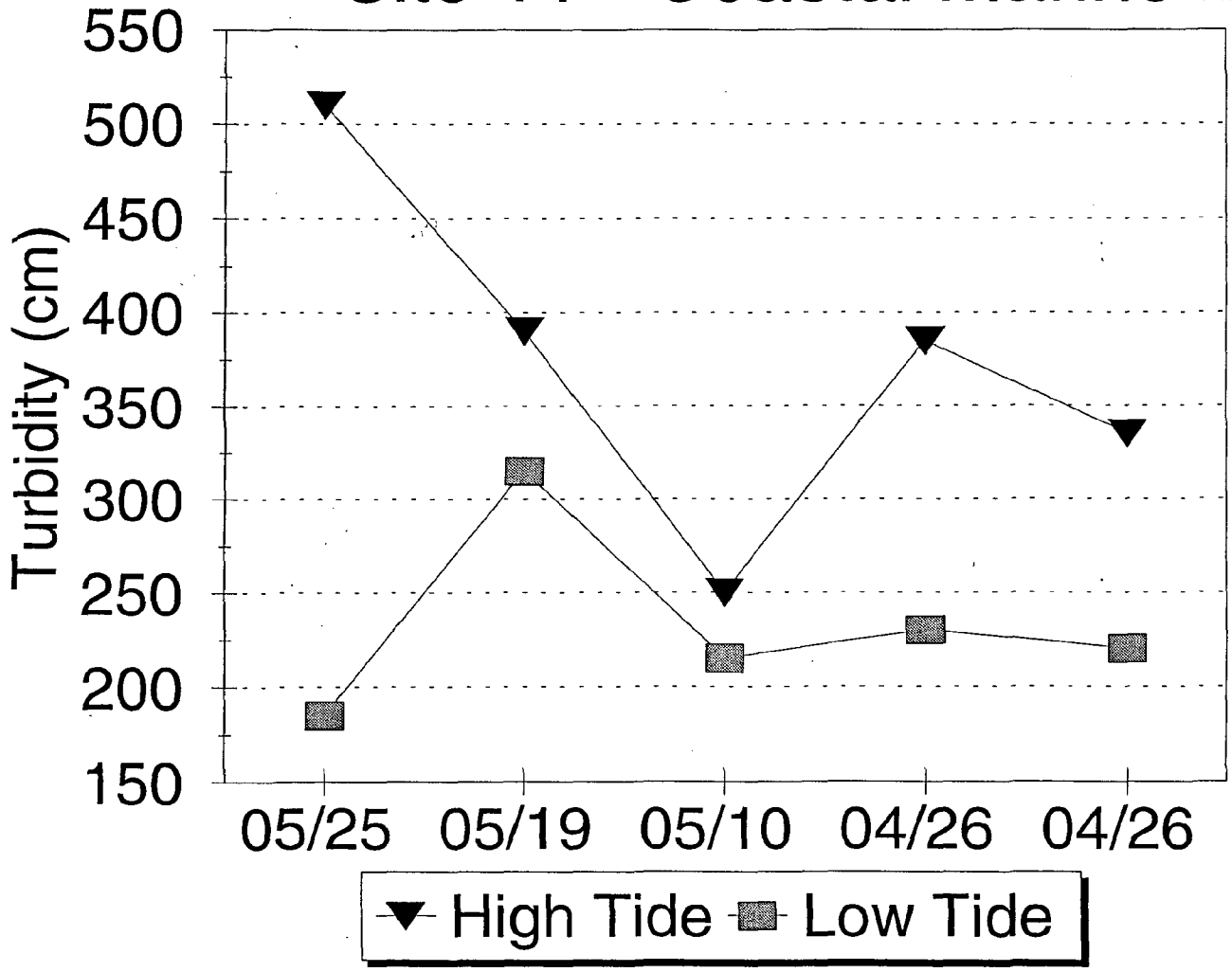
Great Bay Watch 1994

Site 11 - Coastal Marine Lab



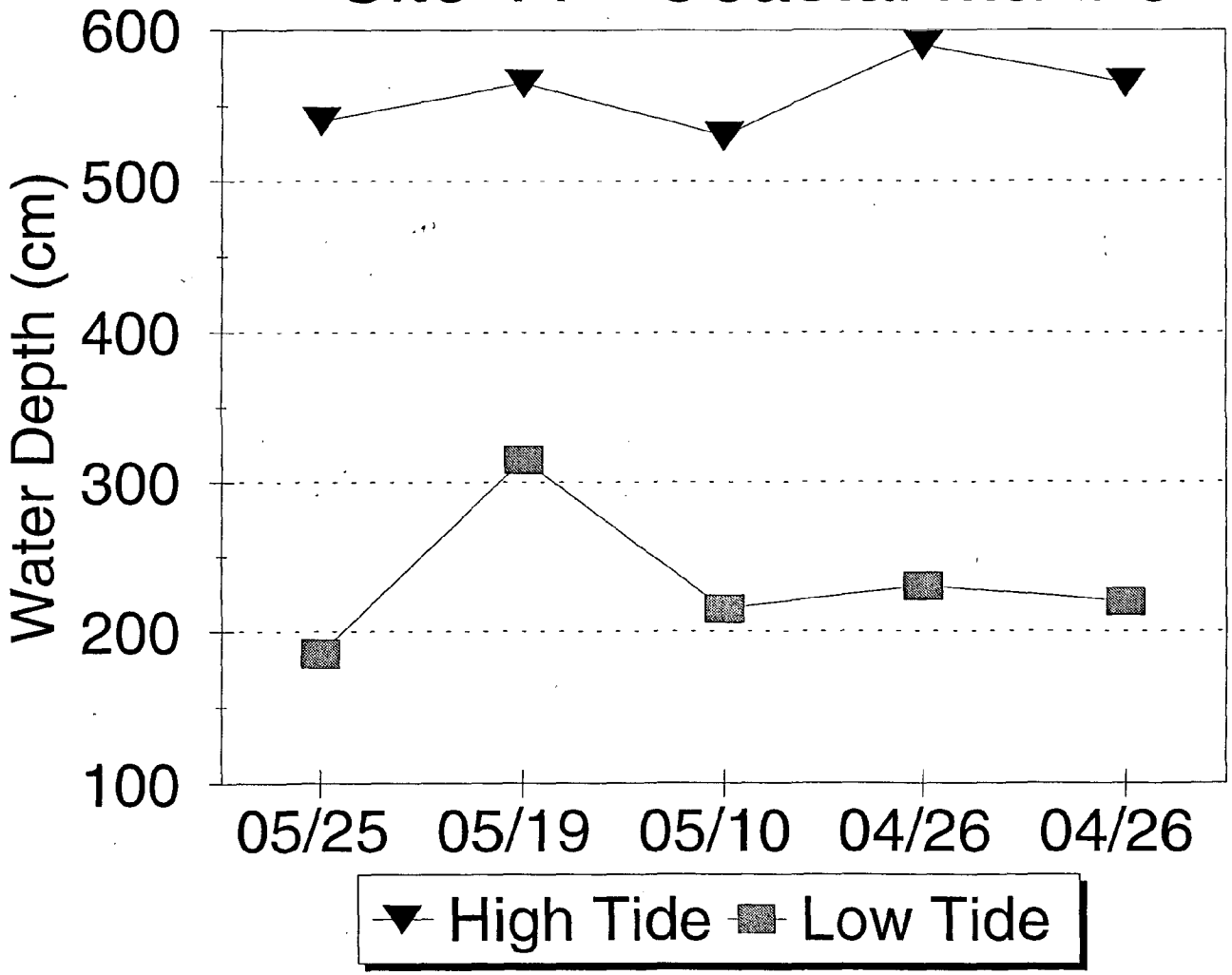
Great Bay Watch 1994

Site 11 - Coastal Marine Lab



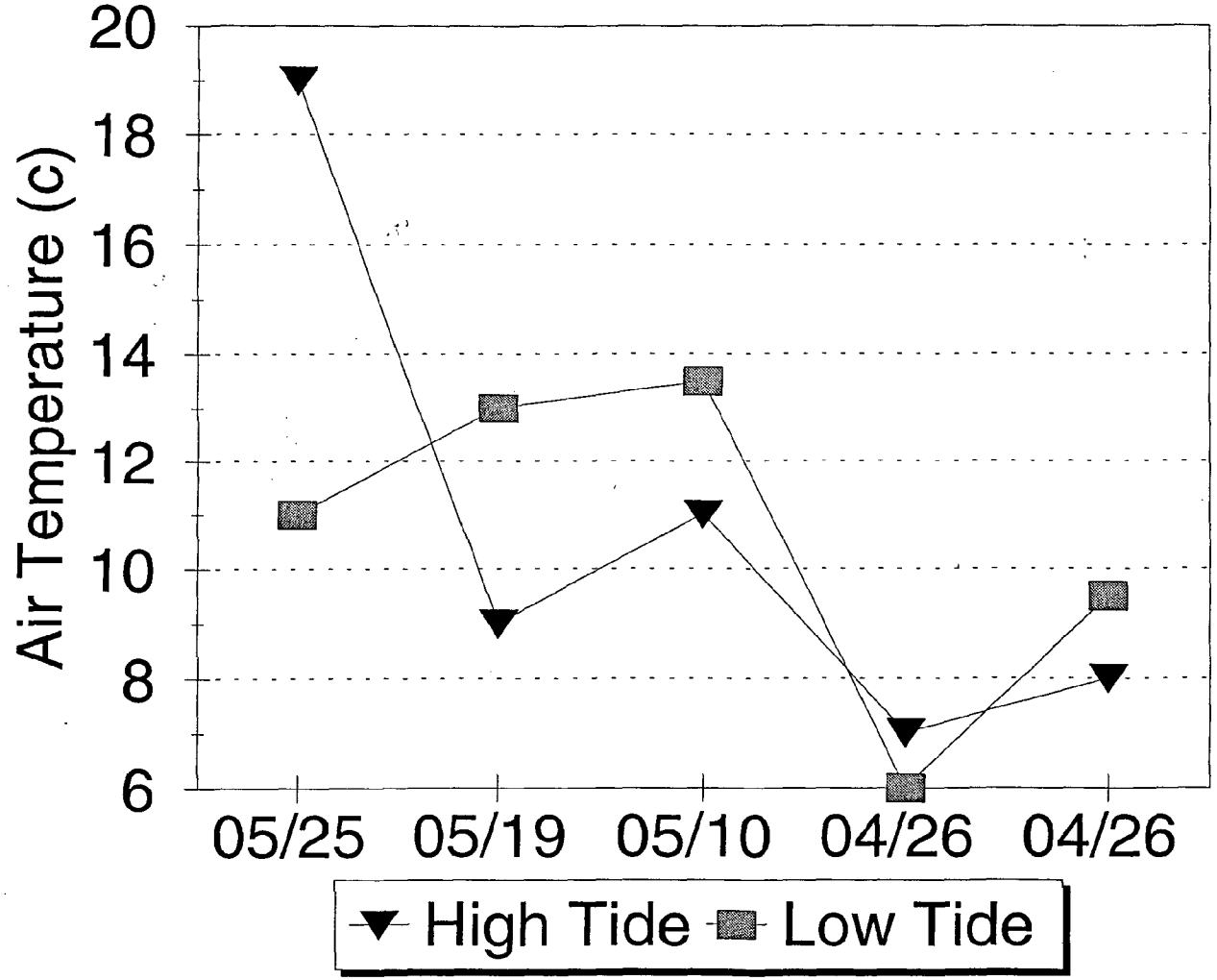
Great Bay Watch 1994

Site 11 - Coastal Marine Lab



Great Bay Watch 1994

Site 11 - Coastal Marine Lab



Site 12 - Sewage Treatment Plant

DATE	SAMPLER-L	SAMPLER-H	WTEMP oc	WTEMP oC	DO-L PPM	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L min	TIME-H min
05/25	KF RC DC S	KF RC HP DF	15.0	10.0	8.2	8.7	1.2	0.6			6.8	6.9	6.0	6.0	6.0	6.0	13.0	11.0	CALM	RIPPLE	SHOWERS	DOWNPOUR		BIRDS		
05/10	DC KF HP A	HP AF JF	14.0	15.0	5.6	10.5	0.5	0.2			6.9	7.3	0.0		0.0		21.0	20.0	RIPPLE	RIPPLE	OVERCAST	CLEAR	NONE	FOAM	160.00	330.00
04/26	DC KF RC	RM RC PK KF	11.5	11.0	5.1	10.6	0.7	0.3			7.4	7.0					10.0	8.0	RIPPLE	RIPPLE	OVERCAST	OVERCAST	BIRDS	BIRDS	150.00	45.00

Site 13 - Town Docks

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L	LP-H cm	DEPTH-L	DEPTH-H	ATEMP-L	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
05/25	DF AF SD	PC AF HP SD	17.5	17.5	9.6	9.0	1.6				7.3	6.9	105.0	75.0	105.0	355.0	13.0	16.0	RIPPLE	CALM	SHOWERS	DOWNPOUF	BIRDS	NONE		
05/10	SS AF	SS MT SC	12.5	14.5	10.5	9.7	1.2	0.0			7.0	7.1		155.0		320.0	15.0	20.0	RIPPLE	RIPPLE	PT CLOUDY	CLEAR	SWANS	FOAM/SWAN:	60.00	110.00
04/26	RM PC SD	SD KB JN DC	11.0	11.0	11.4	10.8	0.8	0.0			7.4	6.9	112.0	287.5	112.0	350.0	10.5	10.0	RIPPLE	RIPPLE	OVERCAST	OVERCAST	BIRDS	BIRDS	55.00	330.00

Site 14 - Fowler's Dam

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
05/25	AF DF HP S PC HP DF HF		18.0	18.0	8.2	8.2	0.3	0.0			7.3	6.9	240.0	170.0	355.0	340.0	13.0	16.0	RIPPLE	RIPPLE	SHOWERS	SHOWERS	NONE		120.00	
05/10	AF SS SD	HP AF	13.0	16.0	8.9	9.3	0.0	0.0			7.1	6.9		150.0		175.0	16.0	19.5	RIPPLE	RIPPLE	PT CLOUDY	PT CLOUDY		FISHING	105.00	110.00
04/26	JN PC SD	SD DC KB	10.0	10.5	9.4	3.3	0.8	0.7			7.5	6.9	290.0	265.0	360.0	505.0	8.0	10.0	RIPPLE	CALM	OVERCAST	OVERCAST		BIRDS		38.00

Site 15 - Dead Duck Inn

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0C	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES-L	ACTIVITIES-H	TIME-L	TIME-H
06/09	JS MH JG	MV SS SH	14.0	12.5	7.9	9.7	26.5	30.4			7.5	7.5	230.0	402.5	400.0	730.0	18.0	25.0	RIPPLE	RIPPLE	CLEAR	CLEAR	BOATING	BOAT FISHING	90.00	40.00
05/25	KS MM AL JT	MV KS PT	12.5	10.5	10.2	11.5	24.3	26.8			7.5	7.7	173.0	435.0	390.0	665.0	11.0	17.0	RIPPLE		SHOWERS	SHOWERS	BOATING	BOATS	300.00	150.00
05/10	MV BH LR JT	DH RR JT	11.5	9.0	9.3	9.9	19.0	24.7			7.8	7.7	117.0	370.0	410.0	600.0	14.0	15.0	CALM	RIPPLE	OVERCAST	PT CLOUDY	NONE	BOATING	240.00	120.00
04/26	JH SH JT	MH JT MR. M	7.0	7.0	10.6	10.5	22.2	30.8			7.5	6.9	195.0	385.0	390.0	545.0	6.0	9.0	CALM	RIPPLE	SHOWERS	OVERCAST	NONE	BOATING	150.00	150.00
06/23	BA JT	DH MH RR JT	16.0	13.5	7.7	9.1	29.2	30.8			7.7	7.8	205.0	510.0	380.0	620.0	15.0	23.0	CALM	WAVES	CLEAR	PT CLOUDY	OIL SLICK	BOATING	180.00	630

Site 16 - Exeter

DATE	SAMPLER-L	SAMPLER-H	WTEMP-L oC	WTEMP-H oC	DO-L ppm	DO-H ppm	SAL-L ppt	SAL-H ppt	CON-L %	CON-H %	pH-L	pH-H	LP-L cm	LP-H cm	DEPTH-L cm	DEPTH-H cm	ATEMP-L 0c	ATEMP-H 0c	WATER-L	WATER-H	WEATHER-L	WEATHER-H	ACTIVITIES	ACTIVITIES-H	TIME-L min	TIME-H min
04/26	CM		10.0		10.6		1.6				8.0		87.0		87.0		6.0		RIPPLE		SHOWERS		BIRDS		600.00	
06/09		BW		23.0		9.2		1.6				7.4		105.0		270.0		28.0		RIPPLE		CLEAR		CANOES		100
06/23	BW	BW	23.5	25.5	8.6	13.1	2.9	5.1			7.5	8.5	30.0	37.5	60.0	300.0	22.0	29.5	RIPPLE	RIPPLE	CLEAR	OVERCAST	GULLS	NONE	60.00	100

NOAA COASTAL SERVICES CENTER LIBRARY
3 6668 14103 4860