



6-2003

## NH Department of Environmental Services Shellfish Program Activities, January 2002 – June 2003

Chris Nash

*NH Department of Environmental Services, Shellfish Program*

Follow this and additional works at: <https://scholars.unh.edu/prep>



Part of the [Marine Biology Commons](#)

---

### Recommended Citation

Nash, Chris, "NH Department of Environmental Services Shellfish Program Activities, January 2002 – June 2003" (2003). *PREP Reports & Publications*. 320.  
<https://scholars.unh.edu/prep/320>

This Report is brought to you for free and open access by the Institute for the Study of Earth, Oceans, and Space (EOS) at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in PREP Reports & Publications by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact [Scholarly.Communication@unh.edu](mailto:Scholarly.Communication@unh.edu).

**NH DEPARTMENT OF  
ENVIRONMENTAL SERVICES  
SHELLFISH PROGRAM ACTIVITIES,  
JANUARY 2002 – JUNE 2003**

A Final Report to

The New Hampshire Estuaries Project

Submitted by

Chris Nash

NH Department of Environmental Services, Shellfish Program  
360 Corporate Drive, Suite 2  
Pease Tradeport  
Portsmouth, NH 03801

June 2003

This report was funded in part by a grant from the New Hampshire Estuaries Project, as authorized by the U.S. Environmental Protection Agency pursuant to Section 320 of the Clean Water Act.



**TABLE OF CONTENTS**

Executive Summary ..... 1  
Introduction..... 2  
Project Goals and Objectives ..... 2  
Activities and Results..... 4  
    Shellfish Program Administration ..... 4  
        Office and Staffing..... 4  
        Annual Report..... 4  
        FDA Program Reviews ..... 4  
        Program Documentation..... 5  
        Quality Assurance Programs..... 5  
    Shellfish Program Sanitary Surveys ..... 7  
        Property Documentation and Pollution Source Surveys..... 7  
        Shoreline Survey and Pollution Source Follow-up Sampling ..... 8  
        Miscellaneous Pollution Source Evaluation Studies..... 9  
        Bellamy River and Piscataqua River Rainfall Studies..... 10  
        Hampton Dry Weather Sampling..... 12  
        Great Bay Estuary Tidal Study ..... 13  
        Overall Sanitary Survey Schedule ..... 13  
    Shellfish Program Water Quality Monitoring..... 16  
        Ambient Sampling ..... 16  
        Post Rainfall Sampling ..... 22  
        Closed Status Sampling ..... 24  
    Shellfish Toxin/Biotoxin Monitoring ..... 25  
        Paralytic Shellfish Poisoning Monitoring..... 25  
        Clam Toxin Monitoring ..... 25  
    Citizen Involvement in the NHDES Shellfish Program ..... 25  
    Field Evaluation Of Wet Weather Bacterial Loading In Hampton/Seabrook Harbor .. 26  
Conclusions and Recommendations ..... 27

Appendices

## **List of Figures**

- Figure 1: Great Bay, Little Bay, and Bellamy River Monitoring Stations
- Figure 2: Upper Piscataqua River Monitoring Stations
- Figure 3: Lower Piscataqua River and Little Harbor/Back Channel Monitoring Stations
- Figure 4: Atlantic Coast/Rye Harbor Monitoring Stations
- Figure 5: Hampton/Seabrook Harbor Monitoring Stations

## **List of Tables**

- Table 1: Summary of Properties and Pollution Sources for Selected Growing Areas
- Table 2: Pollution Source Sampling Summary by Growing Area
- Table 3: Summary of June 2003 Marina Basin Sampling
- Table 4: Wastewater Treatment Effluent Sampling Data
- Table 5: Rainfall Study Data, 2002-03.
- Table 6: 2002 Great Bay Estuary Tidal Study Fecal Coliform (per 100ml) Data
- Table 7: Status of Coastal New Hampshire Sanitary Surveys
- Table 8: Summary of 2002 Ambient Water Sampling
- Table 9: Summary of 2003 Ambient Water Sampling (through June 2003)
- Table 10: 2002 Post Rainfall Water Sampling Results, Hampton/Seabrook
- Table 11: 2003 Post Rainfall Shellfish Tissue Bacteria Levels (FC MPN/100g tissue)
- Table 12: 2003 Closed Status Shellfish Tissue Bacteria Levels (FC MPN/100g tissue)

## **Executive Summary**

This report summarizes the activities of the NHDES Shellfish Program for the period of January 2002 to June 2003. The NHDES Shellfish Program conducts a number of activities to minimize the health risks associated with consuming shellfish, and to continue to comply with National Shellfish Sanitation Program guidelines. Basic program functions included program administration, routine water quality monitoring (more than 700 samples collected at over 70 sites in 2002), “red tide” monitoring at two sites (49 weekly samples in 2002), pollution source identification and evaluation (233 properties inspected, and 106 new potential pollution sources identified in 2002), and a number of other studies and sampling programs. A particularly useful sampling program has been the initiation of post-rainfall water and shellfish tissue sampling in conditionally approved areas. This program improved management decisions and increased harvesting opportunities in Hampton/Seabrook Harbor by eight days (13 percent) in 2002. Sanitary surveys were completed for the Taylor River, Hampton Falls River, and Oyster River during the project period, resulting in opening of almost 350 acres of previously –closed growing waters. Surveys are well underway in Great Bay, Little Bay, Hampton/Seabrook Harbor, and the Bellamy River, while surveys have been initiated in other areas such as the Cocheco River, Salmon Falls River, and the Upper Piscataqua River.

## **Introduction**

The New Hampshire Department of Environmental Services (NHDES), under the authority granted by RSA 143:21 and 143:21-a, is responsible for classifying shellfish growing waters in the State of New Hampshire. The purpose of conducting shellfish water classifications is to determine if growing waters are safe for human consumption of molluscan shellfish. NHDES uses a set of guidelines and standards known as the National Shellfish Sanitation Program (NSSP) for classifying shellfish growing waters. These guidelines were collaboratively developed by state agencies, the commercial shellfish industry, and the federal government in order to provide uniform regulatory standards for the commercial shellfish industry. The NSSP is used by NHDES to classify all growing waters, whether used for commercial or recreational harvesting, because these standards provide a reliable methodology to protect public health. Furthermore, RSA 485-A:8 (V) states that “Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration.”

This report presents program activities and data generated from January 2002 to June 2003, focusing on projects completed with NH Estuaries Project grant funding.

## **Project Goals and Objectives**

The NHDES Shellfish Program, in partnership with the NH Estuaries Project, is pursuing a goal of completing sanitary surveys of all shellfish growing waters by the end of 2005. Sanitary survey reports will help describe water quality status and trends in shellfish growing areas, outline future activities to improve water quality, and ultimately expand harvesting opportunities. Specific objectives for 2002-03 activities were to:

- Evaluate the sanitary quality of the state's shellfish waters.
- Augment current efforts to monitor for the presence of Paralytic Shellfish Poisoning in the state's shellfish resources.
- Augment current efforts to monitor for the presence of selected toxins in the state's shellfish resources.
- Support specific activities associated with sanitary surveys including shoreline surveys for pollution sources, ambient water quality monitoring, and a variety of studies to evaluate relevant hydrographic and meteorologic factors.
- Provide opportunities for citizen involvement in the state Shellfish Program.

These objectives support implementation of the following NH Estuaries Project Management Plan “Action Plans:”

- SHL1: Implement National Shellfish Sanitation Program guidance to develop an FDA-certified shellfish program.

- SHL-2: Identify sources of and reduce or eliminate contaminants in the NH estuaries watersheds.
- SHL4: Enhance funding to maintain a comprehensive shellfish program.
- SHL5: Regularly collect and monitor water quality to identify sources and reduce or eliminate contaminants.
- SHL6: Periodically collect and monitor shellfish tissue samples as appropriate for toxins and biotoxins.
- SHL13: Update materials and improve distribution of shellfish-related information.
- SHL14: Provide for direct citizen involvement in NH shellfish management decisions.
- WQ5: Conduct shoreline surveys for pollution sources

The activities supported by NHEP funding include a portion of a basic program administration, monitoring of shellfish growing areas for bacteria and paralytic shellfish poisoning, and the development of sanitary surveys for selected growing areas.

## **Activities and Results**

### Shellfish Program Administration

#### Office and Staffing

General program administration includes a number of activities, such as maintenance of a program office at the DES Field Office on the Pease International Tradeport, upkeep of coastal vessels for sampling activities, and others. The most significant development during the project period was the departure of the program specialist, who took another job in the department in the summer of 2002. This significantly delayed completion of a number of projects, and necessitated a revision to the sanitary survey schedule. Because the program was short-staffed during a critical sampling time, the Shellfish Program secured additional field help through temporary arrangements with DES personnel, through minor reallocation of effort from Great Bay Coast Watch volunteers, and by developing an agreement with NHF&G to expand the assistance they provide to the program. Following revision to the specialist's supplemental job description, the program filled the position in November 2002.

#### Annual Report

Staff have drafted the 2002 Annual Report, which summarizes all program activities, presents data from the program's numerous monitoring activities, and provides official updates to all shellfish growing area classifications. The final report is scheduled for release in late June 2003.

#### FDA Program Reviews

After certifying the DES shellfish program in February 2002, the U.S. Food and Drug Administration must periodically review the DES program to ensure compliance with all relevant aspects of the National Shellfish Sanitation Program. The first such review occurred in September 2002, when FDA conducted a site visit and program review, focusing on DES policies and procedures regarding control and management of contamination from marinas. FDA's first "Program Element Evaluation Report" for the NHDES program, issued in October 2002, found the NHDES program to be in compliance with the NSSP. The report made several recommendations to strengthen the program, which NHDES began implementing in the fall of 2002.

The second FDA review of the NHDES program involved an examination of all aspects of the program. Staff met with FDA over the course of two days in May 2003 to perform site visits, file reviews, and other activities to help FDA evaluate the program. A report is expected from FDA sometime in the summer of 2003.



### Program Documentation

Staff completed the annual review and revision to the three program Quality Assurance Project Plans (QAPPs) in the spring of 2003. Content and implementation of these documents are described in the next section.

Following the program's first FDA evaluation, program staff have been revising the program's document on growing area policies and procedures to include greater detail on how certain aspects of the program are implemented. Revision to this document will be an ongoing task.

In order to fully comply with the NSSP, it was necessary to develop a series of Memoranda of Agreement that define NSSP implementation responsibilities among the NH Department of Environmental Services, the NH Department of Health and Human Services, and the NH Fish and Game Department. These MOAs were largely completed in late 2001, and were written to expire on 6/30/03 so that they would be updated with changes to the NSSP, which typically occur every two years. Personnel in each department were reminded during the spring of 2003 that the expiration date was approaching, and were asked to review and comment on possible changes for the next version of the MOAs. Revision to these documents is currently ongoing, and expected to be completed during the summer of 2003.

### Quality Assurance Programs

A new element to the NHDES Shellfish Program in 2002 was the development and implementation of Quality Assurance Project Plans (QAPPs) for bacterial monitoring, Paralytic Shellfish Poison monitoring, and sanitary surveys. Each of these plans describes data collection methods, monitoring objectives, training needs, data review, documentation, management, and report, and other issues relative to the collection of environmental data. Ultimately, each QAPP outlines data collection such that the quality of the data generated by the monitoring program is of known quality, thus enabling potential data users to determine the degree to which the data suits their own needs.

Three QAPPs were developed by Shellfish Program staff and approved by EPA in 2002. The Water Quality Monitoring QAPP was approved on 5/28/02, the Paralytic Shellfish Poisoning Monitoring QAPP was approved on 6/3/02, and the Sanitary Survey QAPP was approved on 8/6/02. Implementation of a QAPP requires completion of tasks outlined in the document, and is an ongoing process. This section of the Annual Report is utilized to report on how each task in the three Shellfish Program QAPPs were addressed in 2002:

The Water Quality Monitoring QAPP stipulates:

- Annual Coordination meeting with key personnel: meeting was held on 2/22/02.

- Training in monitoring procedures, to be held at annual meeting key personnel: procedures were reviewed at the annual meeting, but the most meaningful training (reviews of monitoring procedures) was done on an ongoing basis during sampling runs
- Maintenance of a list of trained personnel: list was maintained at the DES Pease field office.
- Sampling of all conditionally approved areas to occur at least 6 times per year: this was accomplished, as noted in Appendix 2.
- Calibration of equipment (thermometers): all thermometers were calibrated in January 2002. Identification tags with the calibration date were affixed to each thermometer.
- Preparation of quarterly reports: quarterly reports were submitted to the NH Estuaries Project, per conditions of an interagency agreement, on 4/22/02, 6/27/02, 9/27/02, and 12/30/02.

The Paralytic Shellfish Poisoning Monitoring QAPP stipulates:

- Weekly emails to appropriate lab and field staff to ensure coordination: this was done for the period of April through October.
- Monitoring of laboratory precision and establishment of new “CF” values as needed: Jayne Finnigan of the DHHS Public Health Laboratory confirmed that the laboratory maintained acceptable precision throughout the sampling period, with no new CF values needed.
- Documentation of the number of samples collected: 32 Hampton samples, 16 Star Island samples, and one Little Harbor sample.
- Reporting of all PSP Closures: none required in 2002.

The Sanitary Survey QAPP stipulates:

- Annual Coordination meeting with key personnel: meeting was held on 2/22/02.
- Training in monitoring procedures, to be held at annual meeting key personnel: procedures were reviewed at the annual meeting, but the most meaningful training (reviews of monitoring procedures) was done on an ongoing basis during sampling runs.
- Documentation of training sessions held with volunteers: shoreline survey training for volunteers was held on 4/15/02. Additional training sessions for volunteers for related projects (pollution source sampling, flow measurement) were held on 6/18/02 and 6/25/02.
- Document growing areas for which sanitary surveys are under development: Hampton Falls River, Taylor River, Oyster River, Great Bay, Little Bay, Bellamy River, and Hampton/Seabrook Harbor.
- Calibration of equipment (thermometers): all thermometers were calibrated in January 2002. Identification tags with the calibration date were affixed to each thermometer. YSI meter was calibrated with each use, per manufacturer instructions.

- Verify that tidal and stratification data are of acceptable quality: All data was reviewed on the day after collection. For tidal studies, water temperature data was collected for five percent of the data collected, and all were within the +/- 1°C target. For stratification studies, duplicate water temperature and salinity profiles were constructed for five percent of all profiles constructed, and all were within the target values of +/- 1°C for water temperature, and +/-0.5 ppt for salinity.

## Shellfish Program Sanitary Surveys

### Property Documentation and Pollution Source Surveys

Property documentation for the Upper Piscataqua, Cocheco, and Salmon Falls began in the winter of 2002, and marked the first step toward developing sanitary surveys for these growing areas. Field inspection of all properties began in June 2002, and sampling of all identified potential pollution sources was conducted in July 2002. Potential pollution sources identified during the property inspections included 25 on the Upper Piscataqua River, nine on the Salmon Falls River, and 58 on the Cocheco River (note that 31 of the Cocheco sources are located in a small stretch of river in downtown Dover, in an area that is currently the focus of active dry weather investigations by the DES Watershed Assistance section. Wet weather sampling is scheduled for the fall of 2003, with source evaluations to be conducted after that).

A fourth sanitary survey, targeted on the tidal portion of the Oyster River, was begun in spring 2002. This project was spurred by interest in using the lower section of the Oyster River for aquaculture (in fact, a UNH demonstration project on oyster culture had begun at the site in the late 1990s). All properties from the tidal dam to the tidal mouth were surveyed in the summer of 2002, with wet and dry weather sampling of 14 potential pollution sources completed in the summer and fall of 2002. DES staff met with the US FDA to discuss safety zone delineation in July 2002, and subsequently completed an evaluation of the WWTF operations (on which assumptions for the safety zone delineation will be based). A dye study of the WWTF, the results of which were used to delineate the safety zone, was conducted in November 2002 in cooperation with the WWTF and the EPA/Chelmsford lab. A report on the dye study was issued in March 2003, and a final sanitary survey report for the Oyster River was issued in April 2003. This report also implemented changes to the classification of Little Bay, including the opening of over 200 acres of previously-closed waters.

A summary of the properties and potential pollution sources for these four growing areas is presented in Table 1.

Table 1: Summary of Properties and Pollution Sources for Selected Growing Areas

<b>WATERBODY ABBREVIATION</b>	<b>WATERBODY NAME</b>	<b># OF PROPERTIES INSPECTED</b>	<b># OF POTENTIAL SOURCES IDENTIFIED</b>
UPR	Upper Piscataqua River	104	25
CCH	Cochecho River	70	58
LFR	Salmon Falls River	40	9
OYS	Oyster River	19	14

Anticipating the need to effectively manage the enormous amount of information generated by shoreline surveys, program staff have been working with DES database developers to create an Oracle database to manage shoreline survey data since 2000. The database, designed to be compatible with a larger water quality database in DES and with EPA's STORET database, manages information on shoreline properties, pollution sources, sampling locations, sampling data, flow measurements, and other information. A significant amount of office and field work went into reviewing, revising, and reformatting existing shoreline survey data for import into the new database during the project period. This "data overhaul" was finally completed in late winter 2003, and the database was put online in spring of 2003. The database currently includes information on 1584 properties, 785 potential/actual pollution sources, and 2170 water samples. This tool will allow for effective tracking of information related to pollution source status and required follow-up. The database has also been used by NHEP staff to track the number of pollution sources found by the program, as well as to generate a list of tidal shoreline property owners that might benefit from various NHEP outreach programs.

*Shoreline Survey and Pollution Source Follow-up Sampling*

Some of the activities under these work elements were originally intended to fund laboratory services (pollution source bacterial analyses) at the UNH Jackson Estuarine Laboratory. Some shoreline samples collected in the summer of 2002 were sent to JEL for analyses; however, all subsequent samples were sent to the DES lab in Concord because EPA approval of the Shellfish Program QAPPs in August 2002 stipulated that the UNH/JEL laboratory not be used until an approved lab QA plan was in place. JEL has since developed this plan, which was approved by EPA in 2003. However, DES, JEL, and NHEP mutually agreed that funds for this task would be best used for other projects. An agreement on fund reprogramming toward projects related to Microbial Source Tracking projects was developed, and work on those projects is presented in separate reports to the NHEP.

A breakdown of source sampling by growing area for the January 2002 – June 2003 time period is presented in Table 2, while a complete listing of data is given in Appendix 1.

Table 2: Pollution Source Sampling Summary by Growing Area (through mid-June 2003)

Waterbody	Number of Samples
Atlantic Coast	18
Bellamy River	46
Cochecho River	21
Great Bay	64
Hampton- Seabrook	2
Lamprey River	0
Little Harbor, Back Channel	3
Lower Little Bay	29
Lower Piscataqua River	4
Oyster River	18
Portsmouth Harbor	0
Rye Harbor	0
Salmon Falls River	11
Squamscott River	3
Upper Little Bay	48
Upper Piscataqua River	24
Winnicut River	4

Miscellaneous Pollution Source Evaluation Studies

In 2002-2003, this activity focused on generating data for the evaluation of specific types of pollution sources, namely marinas, mooring fields, and wastewater treatment facilities. In the summer of 2002, 19 marinas and mooring fields were inspected for a variety of attributes related to the potential to generate pollution. Some of these facilities have a sufficiently large number of boats (and associated risk of sewage contamination) to warrant seasonal closures for adjacent growing waters. To further define and quantify the degree to which boat sewage contamination may be an issue in coastal New Hampshire, additional sampling of selected marina basins was begun in the summer of 2003. Three of the larger marinas, primarily populated by boats with “heads,” were selected for this sampling program. Sampling at multiple sites within each basin is timed to occur on days of the week, and times of the day, when the effects of potential boat discharges are most likely to be observed.

Table 3: Summary of June 2003 Marina Basin Sampling

Source	Observed FC/100ml Range (3 samples)
Hampton River Marina	10 - 90
Wentworth Marina	<10 – 110
Great Bay Marina	5 - 10

Another pollution source evaluation program, ongoing since 2000, involves collection and analysis of wastewater treatment facility influent (raw sewage) and effluent (partially treated). These data are important for tailoring the delineation of

outfall “safety zones” to each plants’ capacities, operations histories, and other factors. Data collected in 2002-03 are presented in Table 4.

Table 4: Wastewater Treatment Effluent Sampling Data

Source	StationID	Date	FC/100ml
Portsmouth WWTF (prechlor effluent)	LPRPS001	Jan 21, 2003	1,100,000
Portsmouth WWTF (prechlor effluent)	LPRPS001	Mar 25, 2003	3,500,000
Portsmouth WWTF (prechlor effluent)	LPRPS001	Jun 9, 2003	1,700,000
Portsmouth WWTF (raw influent)	LPRPS004	Jan 21, 2003	5,400,000
Portsmouth WWTF (raw influent)	LPRPS004	Mar 25, 2003	2,400,000
Portsmouth WWTF (raw influent)	LPRPS004	Jun 9, 2003	9,200,000
Exeter WWTF (prechlor effluent)	SQMPS001	Jan 21, 2003	24,000
Exeter WWTF (prechlor effluent)	SQMPS001	Mar 25, 2003	2,400
Exeter WWTF (prechlor effluent)	SQMPS001	Jun 9, 2003	220
Newfields WWTF (prechlor effluent)	SQMPS004	Mar 25, 2003	1,700
Newfields WWTF (prechlor effluent)	SQMPS004	Jun 9, 2003	130
Dover WWTF (preUV effluent)	UPRPS024	Jan 21, 2003	10
Dover WWTF (preUV effluent)	UPRPS024	Mar 25, 2003	18
Dover WWTF (preUV effluent)	UPRPS024	Jun 9, 2003	330
Dover WWTF (raw influent)	UPRPS025	Jan 21, 2003	49,000
Dover WWTF (raw influent)	UPRPS025	Mar 25, 2003	3,500,000
Dover WWTF (raw influent)	UPRPS025	Jun 9, 2003	31,000

#### Bellamy River and Piscataqua River Rainfall Studies

Sanitary survey activities in 2001, as well as historical water quality data, suggest that an eventual opening of the Bellamy River for harvesting will likely require a rainfall condition. Rainfall studies on the Bellamy River, designed to generate information necessary for rainfall closure criterion development (e.g., type of storm that degrades water quality, number of days required to flush high bacteria levels from the river), were initiated in 2002. Study design stipulated consecutive day sampling following selected rainfall events, that sampling be initiated for discrete storms (preceded by at least three days of dry weather, and followed by at least three days of no rainfall). All sampling was done near the time of mid-ebb tide to minimize any FC variability related to tide stage, and to avoid hazardous low water conditions at some sites.

Sampling was initiated following seven storms in 2002 , and one in 2003 (Table 5). On three occasions (4/8, 9/29, 11/14, and 11/20), sampling was initiated just before or just after an appropriate storm, but was discontinued because of additional rain that occurred after the initial rainfall event. The locations of stations listed in Table 5 are illustrated in Figures 1 and 2, in the “Shellfish Program Water Quality Monitoring” section of this report.

Table 5: Rainfall Study Data, 2002-03.

Date	Station	Waterbody	Time	FC/100ml	Salinity (ppt)	Previous Rainfall (in)
3/4/2002	GB2	Bellamy	7:55	=17	26	0.91
3/5/2002	GB2	Bellamy	8:19	=4	27	0.91
3/4/2002	GB33	Bellamy	7:48	=130	23	0.91
3/5/2002	GB33	Bellamy	8:09	=6.8	26	0.91
3/4/2002	GB34	Bellamy	7:50	=31	22	0.91
3/5/2002	GB34	Bellamy	8:15	=4.5	25	0.91
4/8/2002	GB33	Bellamy	14:45	=2	16	0.01
4/8/2002	GB34	Bellamy	14:50	<2	20	0.01
4/8/2002	GB2	Bellamy	14:55	=1.8	22	0.01
4/16/2002	GB2	Bellamy	7:30	=11	24	0.56
4/17/2002	GB2	Bellamy	8:08	=13	22	0.56
4/18/2002	GB2	Bellamy	9:16	=4	23	0.56
4/16/2002	GB33	Bellamy	7:23	=33	19	0.56
4/17/2002	GB33	Bellamy	8:00	=2	21	0.56
4/18/2002	GB33	Bellamy	9:10	=14	20	0.56
4/16/2002	GB34	Bellamy	7:27	=46	21	0.56
4/17/2002	GB34	Bellamy	8:03	=11	21	0.56
4/18/2002	GB34	Bellamy	9:13	=27	19	0.56
9/16/2002	GB2	Bellamy	12:55	=7.2	31.9	0.79
9/17/2002	GB2	Bellamy	14:09	<2	32.2	0.79
9/18/2002	GB2	Bellamy	14:46	=4	34	0.79
9/16/2002	GB20	Upp. Pisc.	13:16	=20	30	0.79
9/17/2002	GB20	Upp. Pisc.	13:44	=4.5	30.2	0.79
9/18/2002	GB20	Upp. Pisc.	15:35	=4.5	30	0.79
9/16/2002	GB33	Bellamy	12:49	=39	30.6	0.79
9/17/2002	GB33	Bellamy	14:02	=6.8	31.5	0.79
9/18/2002	GB33	Bellamy	14:41	=7.8	32	0.79
9/16/2002	GB34	Bellamy	12:52	=7.8	31.5	0.79
9/17/2002	GB34	Bellamy	14:05	<2	31.9	0.79
9/18/2002	GB34	Bellamy	14:43	=4	33	0.79
9/16/2002	GB50	Oyster	13:01	=2	32.1	0.79
9/17/2002	GB50	Oyster	14:16	<2	32.2	0.79
9/18/2002	GB50	Oyster	14:32	<2	33	0.79
9/16/2002	GBA10	Upp. Pisc.	13:10	=13	31.4	0.79
9/17/2002	GBA10	Upp. Pisc.	13:49	=2	32.1	0.79
9/18/2002	GBA10	Upp. Pisc.	15:40	<2	32	0.79
9/16/2002	GBA11.5	Upp. Pisc.	13:08	=4.5	31.9	0.79
9/17/2002	GBA11.5	Upp. Pisc.	13:53	=4	31.6	0.79
9/18/2002	GBA11.5	Upp. Pisc.	15:42	<2	33	0.79
9/29/2002	GB50	Oyster	10:38	=2	31.9	0.92
9/29/2002	GB51	Oyster	10:32	=4.5	31.4	0.92

Date	Station	Waterbody	Time	FC/100ml	Salinity (ppt)	Previous Rainfall (in)
11/14/2002	GB2	Bellamy	12:45	=23	28	1.19
11/14/2002	GB33	Bellamy	12:36	=33	25	1.19
11/14/2002	GB34	Bellamy	12:50	=79	27	1.19
11/14/2002	GB50	Oyster	13:07	=11	28	1.19
11/14/2002	GB51	Oyster	13:04	=49	24	1.19
11/20/2002	GB2	Bellamy	16:09	=23	25.5	1.53
11/20/2002	GB50	Oyster	15:49	=17	24.9	1.53
11/20/2002	GB34	Bellamy	16:05	=33	24.2	1.53
11/20/2002	GB51	Oyster	15:44	=16	23.3	1.53
11/20/2002	GB33	Bellamy	15:59	=33	23.8	1.53
6/3/2003	GB33	Bellamy	7:07	=79	19	0.69
6/4/2003	GB33	Bellamy	7:55	=49	16.7	0.69
6/3/2003	GB34	Bellamy	7:10	=33	20	0.69
6/4/2003	GB34	Bellamy	8:00	=22	15.8	0.69
6/3/2003	GB2	Bellamy	7:12	=13	20	0.69
6/4/2003	GB2	Bellamy	8:03	=4.5	19.5	0.69
6/3/2003	GBA11.5	Upp. Pisc.	8:38	=130	13	0.69
6/4/2003	GBA11.5	Upp. Pisc.	8:07	=13	14.9	0.69
6/3/2003	GBA10	Upp. Pisc.	8:35	=79	10	0.69
6/4/2003	GBA10	Upp. Pisc.	8:09	=31	10.6	0.69
6/3/2003	GB20	Upp. Pisc.	8:31	=79	7	0.69
6/4/2003	GB20	Upp. Pisc.	8:14	=41	7.9	0.69

Although these studies are not yet complete, results thus far suggest that a rainfall closure criterion for the Bellamy will likely be in the 0.50-1.00 inch range, with a flushing time period of at least two days. An Upper Piscataqua River rainfall closure criterion would likely be similar.

#### Hampton Dry Weather Sampling

Because intermittently high bacteria counts, unrelated to rainfall events, have been observed in Hampton/Seabrook with some regularity, shellfish harvesting is not allowed in this growing area until November. Because recreational harvesters are interested in clamming during early autumn, an intensive autumn dry weather sampling program was conducted in the harbor in 2000-01. Results to date indicate that the source(s) were likely located near the harbor (as opposed to farther upstream in the watershed), and preliminary results of DNA ribotyping suggest a mix of human and animal sources. Sampling of the harbor during autumn dry weather conditions, designed to further isolate the potential sources, was continued in 2002. All five sites sampled on 9/9/02 showed elevated fecal coliform levels, ranging from 22 to 130 FC/100ml. Nearly all 16 sites sampled on 9/11/02 showed elevated levels, with bacteria ranging from 11 to 240 FC/100ml. Additional sampling in the fall of 2002 was precluded by wet weather, but more sampling is planned for 2003.



Great Bay Estuary Tidal Study

NSSP guidelines stipulate that ambient water quality monitoring be targeted to a particular tide stage to which higher bacterial levels can be attributed. In 2001, tidal studies were initiated in Great Bay, Little Bay, the Upper Piscataqua River, and the Bellamy River. Study design called for approximately hourly sampling over the course of an ebbing tide, starting near the time of slack high tide. Sampling was to occur on three separate days following an extended period of dry weather, and on another three days following significant rainfall. Three dry weather days and one wet weather day were sampled in the summer/fall of 2001. Two additional wet weather days were sampled in the fall of 2002, thus completing the study (Table 6).

Table 6: 2002 Great Bay Estuary Tidal Study Fecal Coliform (per 100ml) Data (data listed in order of collection, with the first sample being a high tide sample)

DATE	RAIN	GB19	GB2	GB20	GB34	GB5	GB7A
9/17/2002	0.79	=2	=2	=4.5	<2	=4.5	<2
		=2	=2	<2	=2	<2	<2
		=4.5	<2	=4.5	<2	<2	=2
		=2	=4	=7.8	=4.5	<2	<2
		=1.8	=6.8	=11	---	<2	<2
9/29/2002	0.92	<2	=4.5	=4	<2	<2	=1.8
		=4.5	=4.5	=3.6	=6.1	<2	=4.5
		=1.8	=4.5	<2	=4.5	<2	=2
		=2	=4.5	=4.5	=4.5	=2	<2
		<2	=5	=7.8	---	<2	<2

Results show little in the way of differences in bacterial concentrations among various tide stages, suggesting that ambient sampling ought not be targeted to a particular tide stage in these growing areas.

Overall Sanitary Survey Schedule

NHDES has a goal of surveying all shellfish growing areas by the end of 2005. The following gives an overview of progress toward that goal, and the status of each project that is currently underway:

- Bellamy River: Sanitary survey begun in 2001. Shoreline survey is complete. Of the 70 sources sampled, 14 have been selected for further evaluation based on bacteria and flow data. However, in early January 2003 there were multiple sewage overflows occurred for several hours before the City of Dover even knew of the problems; thus, there were significant delays in the amount of time it took for the city to notify DES, and for DES to implement a closure. Because a similar

situation occurred in the spring of 2001, DES needs to evaluate whether the City's capabilities to detect such events can occur a manner that is timely enough to allow for (conditional) shellfish harvesting on the Bellamy River. DES Shellfish Program staff will discuss these concerns with Dover staff in 2003, and will then decide how to proceed with the Bellamy River sanitary survey.

- Hampton/Seabrook: Sanitary survey begun in 2000. Expanded rainfall testing in 2000-02 led to the revision of the rainfall closure criterion in early 2003 (increased to 0.25" for all harvesting months). Shoreline survey is complete, but under constant revision. Source impact evaluations through the TMDL project were completed in the fall of 2002. Shellfish meat/water testing, critical to revising the rainfall closure criterion, began winter 2003. Additional source evaluations and limited shoreline walks (Mill Creek) planned for summer 2003.
- Other Hampton/Seabrook Tributaries: future efforts to focus on Mill Creek and the Blackwater River. Previous studies document chronically high bacteria in Mill Creek. Bracketed sampling and a shoreline survey scheduled for summer 2003. Blackwater River sources surveyed in 2001-02; augmented ambient monitoring begun in spring 2003, scheduled to continue through 2004.
- Great Bay: Sanitary survey begun in 2001. Shoreline survey is nearly complete. Of the 87 sources sampled, 40 have been selected for further evaluation based on bacteria and flow data. This evaluation is scheduled to begin 2003. Some dye study work on the Exeter WWTF and the Newfields WWTF has been completed. A dye study for the Newmarket WWTF is tentatively scheduled for fall 2003.
- Little Bay: Sanitary survey begun in 2001. Shoreline survey is complete. Of the 69 sources sampled, 18 have been selected for further evaluation based on bacteria and flow data. This evaluation is scheduled to begin in 2003. Classification of all of Little Bay was revised as part of the Oyster River dye study. Further revisions may be forthcoming per the results of the shoreline survey pollution source evaluations.
- Upper Piscataqua River: Sanitary survey begun in 2002. Shoreline survey is partially complete. Two dry weather sampling runs are done, but two wet weather runs are still needed. Wet weather sampling is scheduled for 2003, source evaluation in summer/fall of 2003. A dye study of the Dover WWTF is needed to delineate safety zone around the outfall, and a joint study with the State of Maine was tentatively scheduled for summer 2003; however, the City informed DES that several of the outfall ports are blocked, and work to correct the problem will not be done until fall 2003 at the earliest. FDA and DES agree that the dye study should be delayed until this work is complete.
- Cocheco River: Sanitary survey begun in 2002. Shoreline survey is partially complete. Two dry weather sampling runs are complete, but two wet weather runs are still needed. Anticipate completion of wet weather sampling in spring/summer of 2003, source evaluation in summer/fall of 2003. Anticipate completion of the final report by September 2004.
- Salmon Falls River: Sanitary survey begun in 2002. Shoreline survey is partially complete. Two dry weather sampling runs are complete, but two wet weather runs are still needed. Anticipate completion of wet weather sampling in

spring/summer of 2003, source evaluation in summer/fall of 2003. Anticipate completion of the final report by September 2004.

Table 7: Status of Coastal New Hampshire Sanitary Surveys

Waterbody	Property Documentation	Source Surveys	Source Sampling		Source Evaluation	Comments	Final Report
			Dry	Wet			
Atlantic Coast	DONE	DONE	DONE	DONE	DONE	Triennial review scheduled for 2003.	Dec 2000
Bellamy River	DONE	DONE	DONE	DONE		Source evaluation to begin summer 2003.	
Cochecho River	DONE	DONE	DONE			Wet weather sampling to begin fall 2003	
Great Bay	DONE	DONE	DONE	DONE		Source evaluation to begin summer 2003.	
Hampton-Seabrook	DONE	DONE	DONE	DONE		Selected shore walks, studies, etc. ongoing.	
Hampton Falls, Taylor Rivers	DONE	DONE	DONE	DONE	DONE	Triennial review scheduled for 2005.	Apr 2002
Hampton/Seabrook Tribs.	PARTIALLY DONE					Increased sampling on Blackwater River initiated; Mill Creek investigations to begin summer 2003	
Lamprey River						WWTF dye study planned for 2003; area likely to be in WWTF safety zone.	
Little Harbor, Back Channel	DONE	DONE	DONE	DONE	DONE	Triennial review scheduled for 2004.	Dec 2001
Lower Little Bay	DONE	DONE	DONE	DONE		Source evaluation to begin summer 2003.	
Lower Piscataqua River						Not scheduled; area likely to be in WWTF safety zone.	
Oyster River	DONE	DONE	DONE	DONE	DONE	Triennial review scheduled for 2006.	Apr 2003
Portsmouth Harbor						Not scheduled; area likely to be in WWTF safety zone.	
Rye Harbor						Not scheduled.	
Salmon Falls River	DONE	DONE	DONE			Wet weather sampling to begin fall 2003	
Squamscott River						Analysis of dye study data underway; area likely to be in WWTF safety zone.	
Upper Little Bay	DONE	DONE	DONE	DONE		Source evaluation to begin summer 2003.	
Upper Piscataqua River	DONE	DONE	DONE			Wet weather sampling to begin fall 2003.	
Winnicut River						Not scheduled, although some source sampling completed.	

## Shellfish Program Water Quality Monitoring

### Ambient Sampling

Ambient water sampling for fecal coliform bacteria is a core function of the program. It largely consists of prescheduled “systematic random” sampling, conducted to comply with NSSP requirements for annually evaluating the classification of each growing area. This program was completed on schedule in all areas in 2002, with 1,089 samples collected during 86 sampling runs. 2002 ambient data are summarized in Table 8, and listed in Appendix 2. Sampling stations are depicted in Figures 1-5.

Table 8: Summary of 2002 Ambient Water Sampling

Area	Routine Sampling		Post Rainfall Sampling		Closure Condition Sampling		Other Sampling*	
	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples
Hampton Harbor	12	182	8	109	0	0	4	70
Great Bay Estuary	15	251	0	0	5	72	13	99
Little Harbor	10	117	0	0	0	0	0	0
Atlantic Coast	19	189	0	0	0	0	0	0
TOTAL	56	739	8	109	5	72	17	169

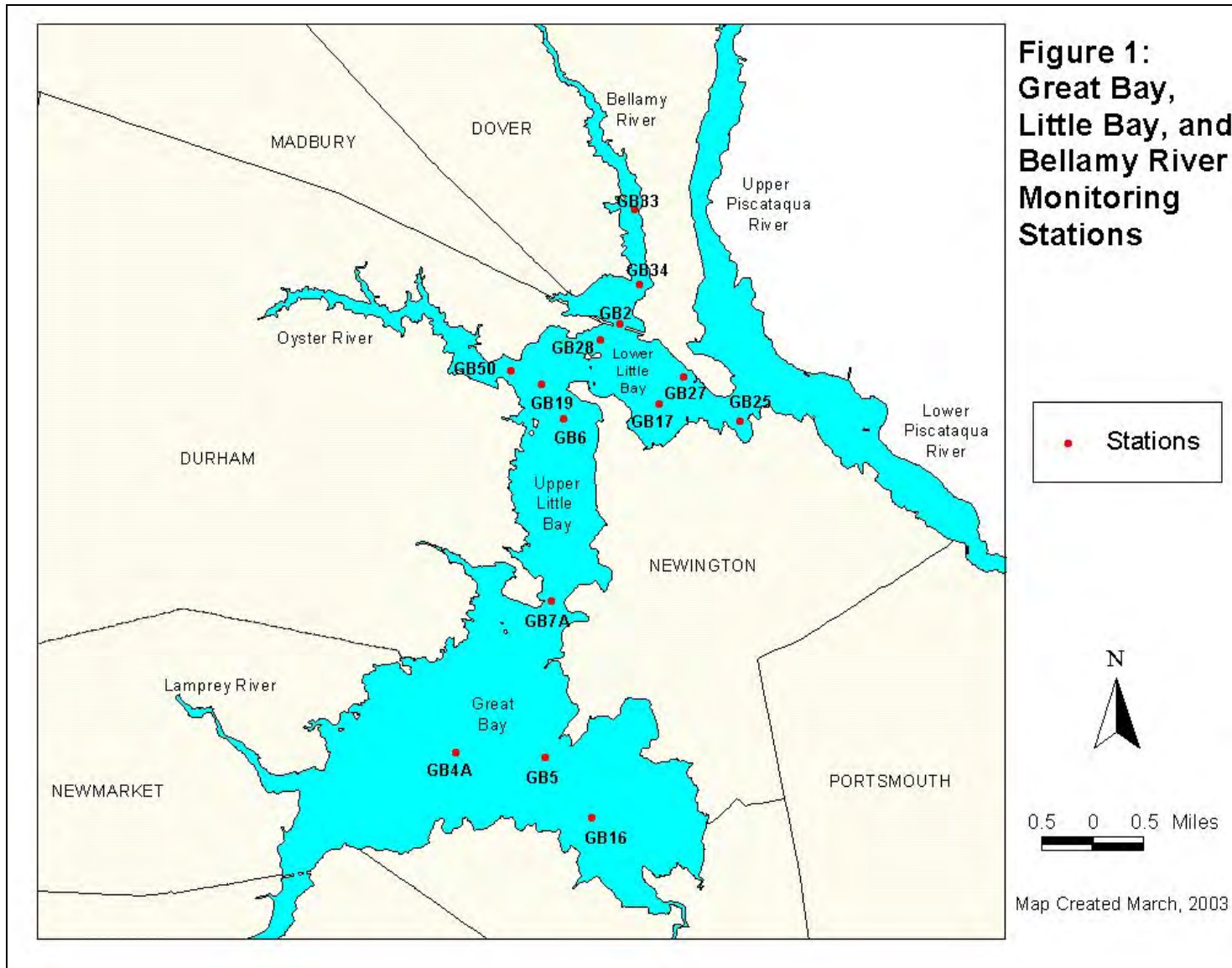
\*includes sampling associated with rainfall and tidal studies, TMDL projects, and others

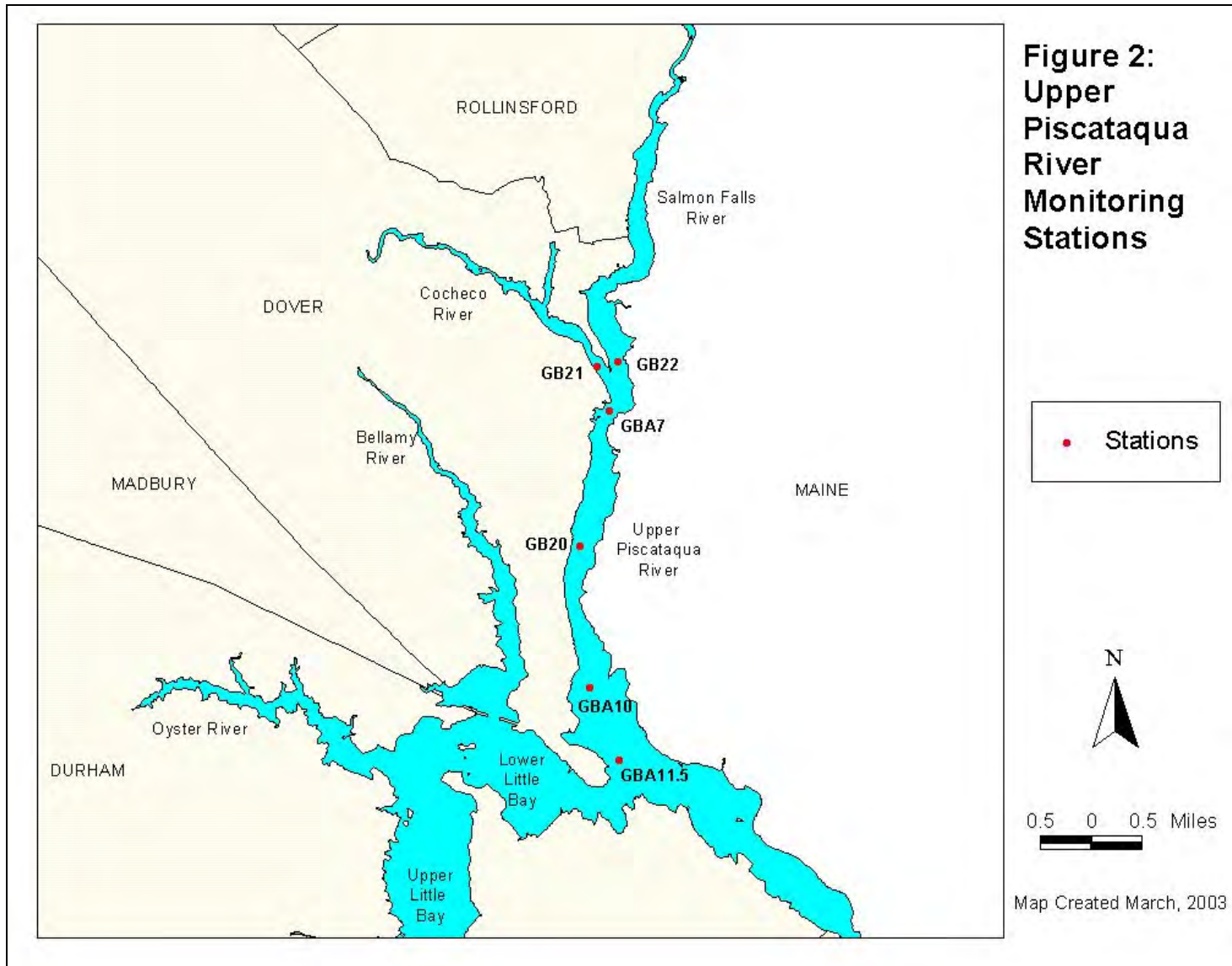
The 2003 ambient program was delayed due to extensive ice cover in most areas, but the program has largely been brought back on schedule. The wet spring of 2003 required a great deal of post rainfall sampling, as well as an unusual number of emergency closures (sewage overflows and/or CSO events in Dover, Portsmouth, Exeter, Hampton, and Durham required closure) in the first half of 2003. Water data are summarized in Table 9, and listed in Appendix 3.

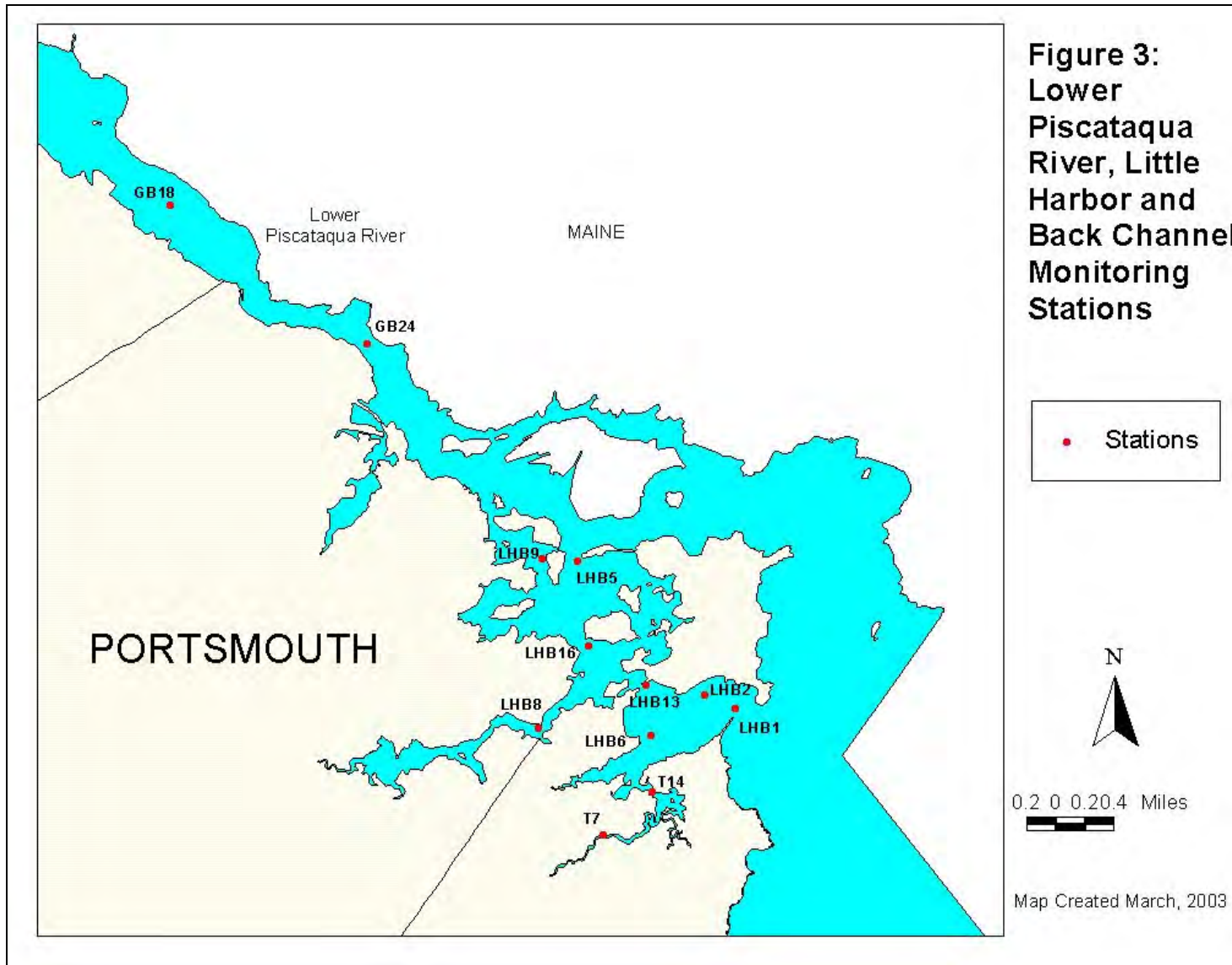
Table 9: Summary of 2003 Ambient Water Sampling (through June 2003)

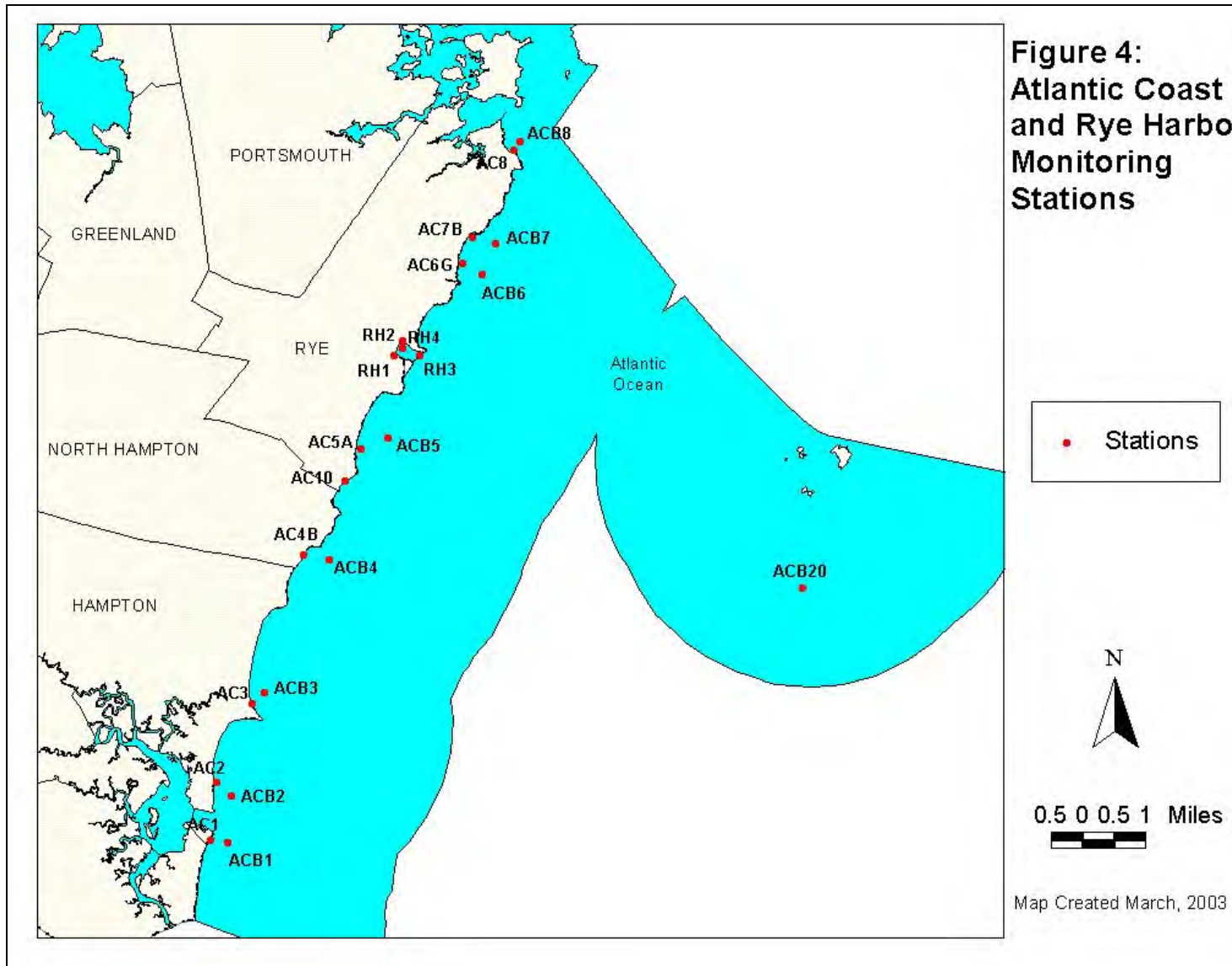
Area	Routine Sampling		Post Rainfall Sampling		Closure Condition Sampling		Other Sampling*	
	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples
Hampton Harbor	6	104	15	53	2	6	6	12
Great Bay Estuary	4	88	0	0	8	43	1	6
Little Harbor	3	36	6	14	2	4	0	0
Atlantic Coast	8	79	0	0	0	0	0	0
TOTAL	21	307	21	67	12	53	7	18

\*includes sampling associated with rainfall and tidal studies, TMDL projects, and others

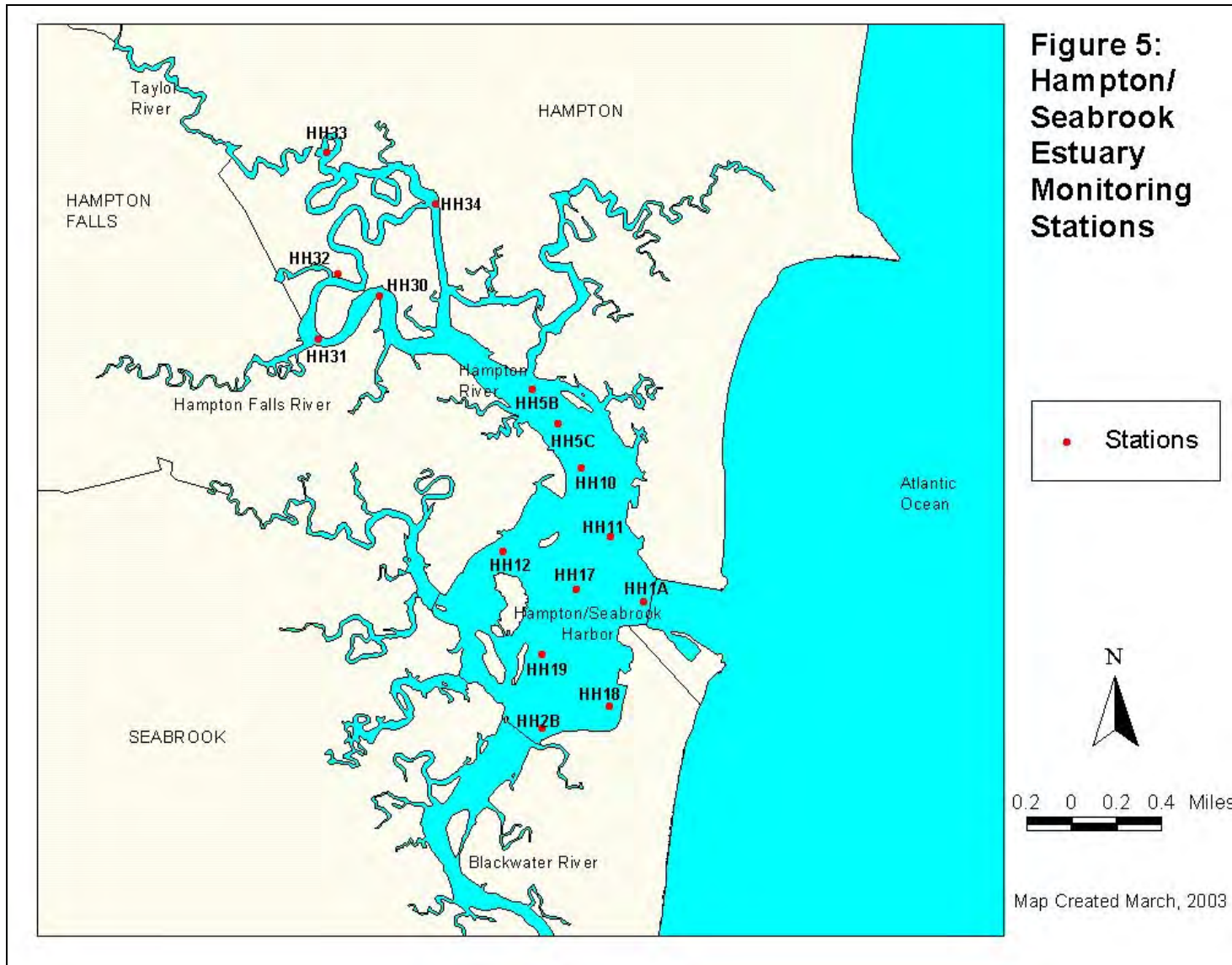












Post Rainfall Sampling

Post rainfall sampling is conducted following selected rainfall events in “conditionally approved” areas, to document the nature of water quality impacts, and to generate data to drive decisions on opening/closing growing areas. In 2002, this type of sampling was conducted only in Hampton/Seabrook.

The ranges of fecal coliform samples observed for all 2002 post rainfall sampling runs are presented in Table 10. Each of the eight sampling runs was initiated because of a rainfall event that exceeded the closure criterion for the growing area. Four of the sampling days showed sufficiently low FC concentrations to warrant opening the area for harvest. This represents eight additional days that would have otherwise been closed to harvesting (28 percent of the total 29 days open for harvesting in 2002, or 13 percent of the 61 days in the January-May and November-December open season in Hampton/Seabrook).

Table 10: 2002 Post Rainfall Water Sampling Results, Hampton/Seabrook

Previous Rain	Date	Min FC per100ml	Max FC per100ml	Status for Harvest
0.47	2/12/2002	2	7.8	Open for harvest
0.45	4/17/2002	2	23	Open for harvest
2.03	5/15/2002	49	1600	Closed for harvest
2.03	5/16/2002	17	240	Closed for harvest
0.13	5/28/2002	2	23	Open for harvest
1.00	11/13/2002	22	240	Closed for harvest
1.83	11/19/2002	13	49	Closed for harvest
0.22	11/26/2002	2	17	Open for harvest

Whereas post rainfall sampling in 2002 focused on collection and analysis of water, the 2003 program was altered (to comply with NSSP guidelines) to focus on concentrations of bacteria in shellfish tissue, coupled with water sampling. The majority of post rainfall sampling in 2003 took place in Hampton/Seabrook, although samples were collected in Little Harbor as well. All post rainfall tissue sampling results are presented in Table 11, while corresponding water results are listed in Appendix 3.

Table 11: 2003 Post Rainfall Shellfish Tissue Bacteria Levels (FC MPN/100g tissue)

Station	Waterbody	Date	Species	FC100g	Comments
HHMG1	Hampton/Seabrook	1/8/2003	softshell clam	=230	dup=490
HHCI1	Hampton/Seabrook	1/8/2003	softshell clam	=230	dup=310
HHCI1	Hampton/Seabrook	2/24/2003	softshell clam	=78	
HHMG1	Hampton/Seabrook	2/24/2003	softshell clam	=78	dup=230
HHCI1	Hampton/Seabrook	3/10/2003	softshell clam	=220	
HHMG1	Hampton/Seabrook	3/10/2003	softshell clam	=130	dup<20
HHMG2	Hampton/Seabrook	3/10/2003	softshell clam		
HHCI1	Hampton/Seabrook	3/20/2003	softshell clam	<20	Rainfall Study

Station	Waterbody	Date	Species	FC100g	Comments
HHMG1	Hampton/Seabrook	3/20/2003	softshell clam	<20	Rainfall Study
HHMG1	Hampton/Seabrook	3/22/2003	softshell clam	=45	Rainfall Study
HHCI1	Hampton/Seabrook	3/22/2003	softshell clam	=78	Rainfall Study
HHMG1	Hampton/Seabrook	3/24/2003	softshell clam	=110	Rainfall Study
HHCI1	Hampton/Seabrook	3/24/2003	softshell clam	=230	Rainfall Study
HHCI1	Hampton/Seabrook	3/26/2003	softshell clam	=78	Rainfall Study
HHMG1	Hampton/Seabrook	3/26/2003	softshell clam	=130	Rainfall Study
HHMG1	Hampton/Seabrook	4/1/2003	softshell clam	=230	
HHCI1	Hampton/Seabrook	4/1/2003	softshell clam	=230	
HHCI1	Hampton/Seabrook	4/13/2003	softshell clam	=490	Rainfall Study
HHMG1	Hampton/Seabrook	4/13/2003	softshell clam	=140	Rainfall Study
HHCI1	Hampton/Seabrook	4/16/2003	softshell clam	=1300	Rainfall Study
HHMG1	Hampton/Seabrook	4/16/2003	softshell clam	=220	Rainfall Study
LHOP1	Little Harbor	4/17/2003	softshell clam	=490	
HHCI1	Hampton/Seabrook	4/21/2003	softshell clam	=790	
HHCI2	Hampton/Seabrook	4/21/2003	softshell clam	=1300	
HHMG1	Hampton/Seabrook	4/21/2003	softshell clam	=490	dup=170
HHCI1	Hampton/Seabrook	4/23/2003	softshell clam	=2500	
HHMG1	Hampton/Seabrook	4/23/2003	softshell clam	=220	
LHCP1	Little Harbor	4/23/2003	softshell clam	=240	
LHOP1	Little Harbor	4/23/2003	softshell clam	=230	
HHMG1	Hampton/Seabrook	4/25/2003	softshell clam	<20	
HHCI1	Hampton/Seabrook	4/25/2003	softshell clam	=210	
HHMG1	Hampton/Seabrook	4/28/2003	softshell clam	=78	
HHCI1	Hampton/Seabrook	4/28/2003	softshell clam	=20	
LHOP1	Little Harbor	4/29/2003	softshell clam	=45	
LHNC1	Little Harbor	4/29/2003	softshell clam	=310	
HHMG1	Hampton/Seabrook	4/30/2003	softshell clam	=130	
HHCI1	Hampton/Seabrook	4/30/2003	softshell clam	=1300	
HHMG1	Hampton/Seabrook	5/2/2003	softshell clam	=1300	
HHCI1	Hampton/Seabrook	5/2/2003	softshell clam	=490	
HHMG1	Hampton/Seabrook	5/5/2003	softshell clam	=490	
HHCI1	Hampton/Seabrook	5/5/2003	softshell clam	=1100	
HHBR1	Hampton/Seabrook	5/5/2003	softshell clam	=330	
HHBR1	Hampton/Seabrook	5/5/2003	blue mussel	=1100	
HHBR1	Hampton/Seabrook	5/7/2003	softshell clam	=490	
HHBR1	Hampton/Seabrook	5/7/2003	blue mussel	=490	
HHCI1	Hampton/Seabrook	5/7/2003	softshell clam	=700	
HHMG1	Hampton/Seabrook	5/7/2003	softshell clam	=1400	
HHMG1	Hampton/Seabrook	5/13/2003	softshell clam	=130	stdplate=5400
HHCI1	Hampton/Seabrook	5/13/2003	softshell clam	=1700	stdplate<3000
HHCI3	Hampton/Seabrook	5/13/2003	softshell clam	=230	stdplate<3000
HHMG1	Hampton/Seabrook	5/19/2003	softshell clam	=68	stdplate<3000
HHCI3	Hampton/Seabrook	5/19/2003	softshell clam	=330	stdplate<3000
HHCI1	Hampton/Seabrook	5/19/2003	softshell clam	=330	stdplate<3000
LHNC1	Little Harbor	5/19/2003	softshell clam	=18	stdplate<3000
HHMG1	Hampton/Seabrook	5/27/2003	softshell clam	=3500	stdplate=8700
HHCI3	Hampton/Seabrook	5/27/2003	softshell clam	=230	stdplate<3000

Closed Status Sampling

Closed status sampling is initiated after harvesting closures such as those implemented following wastewater treatment plant upsets. Data is used to drive decisions on when a reopening of the growing area is appropriate.

In 2002, closure condition water sampling (Appendix 2) was conducted in portions of the Great Bay Estuary on 5/16, 5/17, and 5/19 following a heavy rainfall and CSO release in Exeter. Similar sampling runs were conducted on 6/10/02 and 6/20/02 following reports of sewage releases in the City of Portsmouth and from the Pease WWTF, respectively. Discharge volumes were relatively low, but sampling was initiated to confirm that the discharges would be sufficiently diluted before reaching any approved growing waters. Results confirmed that no closures were needed following those events.

The 2003 program included not only water sampling (Appendix 3), but also shellfish tissue sampling (Table 12). An unusually high number of significant sewage discharge events occurred in the winter/spring of 2003, including:

- 1/13 and 1/22 pump station overflows in Dover
- 2/4 discharge of improperly disinfected sewage, Hampton WWTF
- 3/21 and 3/26 combined sewer overflow events in Exete
- 3/23, 4/1 discharges of improperly treated effluent, Portsmouth WWTF
- 4/15 Durham sewer line break.

Closures were implemented following all of these events, and reopenings were based on the data shown in Table 12. Note that ice cover in January precluded tissue sampling.

Table 12: 2003 Closed Status Shellfish Tissue Bacteria Levels (FC MPN/100g tissue)

Station	Waterbody	Date	Species	FCper100g	Comments
HHMG1	Hampton/Seabrook	2/5/2003	softshell clam	=330	dup=1300
HHCI1	Hampton/Seabrook	2/5/2003	softshell clam		
HHCI1	Hampton/Seabrook	2/10/2003	softshell clam	=45	
HHMG1	Hampton/Seabrook	2/10/2003	softshell clam	=20	dup<20
HHHR1	Hampton/Seabrook	2/10/2003	Blue mussel	=78	
LHCP1	Little Harbor	4/1/2003	softshell clam	=330	
LHTF1	Little Harbor	4/7/2003	softshell clam	=230	
LHCP1	Little Harbor	4/7/2003	softshell clam	=1700	
LBFP1	Little Bay	4/2/2003	softshell clam	=1600	
LBFP1	Little Bay	4/2/2003	razor clam	=490	
GBSP1	Great Bay	4/2/2003	softshell clam	=220	
LBFP1	Little Bay	4/7/2003	softshell clam	=330	
GBSP1	Great Bay	4/7/2003	softshell clam	=330	
LBFP1	Little Bay	4/10/2003	softshell clam	=460	
GBSP1	Great Bay	4/10/2003	softshell clam	=220	
LBFP1	Little Bay	4/21/2003	softshell clam	=78	
LBOY1	Oyster River	4/21/2003	Amer. oyster	<20	stdplate<3000

## Shellfish Toxin/Biotoxin Monitoring

### *Paralytic Shellfish Poisoning Monitoring*

The waters of the Gulf of Maine are prone to “blooms” of phytoplankton that can produce potent neurotoxins, and filter-feeding shellfish can accumulate concentrations of these toxins such that the shellfish themselves become a public health threat to consumers. For this reason, the NHDES maintains a biotoxin monitoring program, focused on Paralytic Shellfish Poisoning (PSP). The 2002 monitoring program included weekly sampling of blue mussels from Hampton/Seabrook Harbor for the period of April through October, as well as May through September sampling at Star Island, Isles of Shoals. A total of 49 samples were collected. Nearly all samples had a toxin level of <44 micrograms toxin/100 grams edible tissue, well below the 80-microgram/100 gram level that requires closure of areas to harvesting. The Star Island sample from 5/29/02 showed a slightly elevated PSP level (46.2 micrograms toxin/100 grams edible tissue), but subsequent samples from that and other sites showed levels below 44 micrograms per 100grams tissue. No PSP closures of New Hampshire waters were instituted in 2002.

The 2003 monitoring season has seen much more activity. After a series of low (<44) PSP levels to start the PSP monitoring season, an increase in toxicity was observed throughout the area. The first sample to exceed the 80 microgram limit was a 6/3/03 sample from Star Island. A closure to the offshore aquaculture site was immediately instituted. Samples from numerous locations the following week showed elevated levels of toxin. Although no inshore sampling stations exceeded the 80 microgram threshold, the elevated toxin levels, coupled with high and rising toxin levels in southern Maine waters, prompted NHDES to implement a closure of all Atlantic coast growing waters on 6/13/03. A continuation of the elevated, and in some cases rising, toxin levels was observed at all sites during the week of 6/16/03, as well as during the week of 6/23/03.

### *Clam Toxin Monitoring*

Samples were collected in the fall of 2001 and preserved for laboratory analyses in 2003. Sample collection was timed to occur with the annual GulfWatch program in New Hampshire. Difficulties with the contractual laboratory have delayed receipt of and invoice and the results. Data are expected at some point in 2003.

## Citizen Involvement in the NHDES Shellfish Program

The primary conduit of citizen involvement in the NHDES Shellfish Program is through the NHEP Shellfish Team. The following meetings were held during the project period:

- February 22, 2002. The meeting focused on providing input on funding activities for 2002 and 2003.

- May 29, 2002. The meeting largely revolved around discussion of shellfish restoration/enhancement projects, and the potential new staff person (housed possibly within NHF&G) to help foster more active shellfish resource management initiatives.
- March 6, 2003. The meeting focused on general discussion of the types of shellfish research/restoration projects that should be supported with NHEP funds in 2003 and 2004.
- June 2, 2003. The meeting was used to develop details for an RFP on shellfish research/restoration projects in 2003-2004.

In addition to NHEP Shellfish Team meetings, the DES Shellfish Program engages the public through a number of outreach initiatives. The most significant of these is the development and maintenance of the program website, which not only gives information relevant to recreational harvesting (maps, FAQs, tide charts, information on openings/closings), but also provides access to a number of shellfish-related reports. Among the reports made available in PDF format are the 2001 DES Shellfish Program Annual Report, the NHEP Shellfish Indicators report, and an NHEP-funded report on juvenile clam mortality in Hampton/Seabrook Harbor. Other outreach initiatives during the project period included participation in the Aquaculture Education and Research Center's "Clam Digging for Dummies" workshops in the spring of 2003, and the preparation of a fact sheet on "red tide in coastal New Hampshire" in June 2003.

#### Field Evaluation Of Wet Weather Bacterial Loading In Hampton/Seabrook Harbor

With NHEP support, NHDES conducted two rounds of wet weather sampling of selected Hampton/Seabrook stormdrains, tributaries, and harbor stations for bacteria and flow in order to calculate bacteria loads. This information was needed to prioritize pollution sources as part of a Total Maximum Daily Load (TMDL) study of bacteria in Hampton/Seabrook Harbor. A complete report of this project was submitted to the NHEP on 1/14/03, but the major findings are summarized here.

The sampling involved bacteria and flow measurements on 17 stormdrains, and bacterial measurements at seven tributaries 10 harbor stations. These sites were sampled prior to, during, and after a July 23, 2002 short, intense rainstorm that dropped 0.33 inches of precipitation over 4 hours. A second round of sampling was conducted for a classic "nor'easter" on October 16, 2002, with soaking rain and high winds lasting over 12 hours. A total of 1.39 inches of rain fell during the second storm.

Results show that for the overall loading from the stormdrains included in the study, four of the stormwater pipes account for 88-93 percent of the total stormdrain fecal coliform load to the harbor. In coordination with Seabrook and Hampton town officials, follow-up investigations are underway on these sites.

These results were incorporated into a bacterial Total Maximum Daily Load (TMDL) study for Hampton/Seabrook Harbor. The report was presented to local

officials in the spring of 2003. A draft of the overall TMDL report is currently posted for public comment. The comment period will extend to August 2003,

### **Conclusions and Recommendations**

The NHDES Program should continue with basic program implementation, including routine monitoring of waters for bacteria and PSP levels. Future work in the summer of 2003 and beyond should focus not only on continuing these tasks, but also on continuing to identify and evaluate impacts of pollution sources to tidal water. Doing so will ensure that the program remains in compliance with National Shellfish Sanitation Program guidelines. Rainfall studies and post rainfall sampling of waters and tissues is a valuable part of the program, not only for establishing realistic rainfall closure criteria, but also for improving management decisions and harvesting opportunities by ensuring that closures are not implemented when post rainfall bacteria levels are low. A number of sanitary surveys are now underway, and studies to finish these projects should be pursued to move the program, and the NHEP, in the direction of accomplishing the goal of surveying all areas by 2005.

**Appendix 1**  
**Pollution Source Fecal Coliform Data, January 2002 to mid-June 2003**

STATIONID	SAMPDATE	FC/100ml	LAB
ACPS005	Aug 12, 2002	=17	DES
ACPS005	Jul 9, 2002	=240	DES
ACPS005	Nov 19, 2002	=170	DES
ACPS005	Oct 21, 2002	=11	DES
ACPS007	Aug 12, 2002	=79	DES
ACPS007	Jul 9, 2002	=350	DES
ACPS007	Nov 19, 2002	=4.5	DES
ACPS007	Oct 21, 2002	=2	DES
ACPS010	Aug 12, 2002	=130	DES
ACPS010	Jul 9, 2002	=350	DES
ACPS010	Oct 21, 2002	=79	DES
ACPS011	Aug 12, 2002	=110	DES
ACPS011	Jul 9, 2002	=540	DES
ACPS011	Oct 21, 2002	=2	DES
ACPS012	Aug 12, 2002	=210	DES
ACPS012	Jul 9, 2002	=450	DES
ACPS012	Nov 19, 2002	=130	DES
ACPS012	Oct 21, 2002	=1.8	DES
BLMPS001	Jun 12, 2002	<100	DES
BLMPS003	Jun 12, 2002	=1100	DES
BLMPS005	Jun 12, 2002	=100	DES
BLMPS010	Jun 12, 2002	=1600	DES
BLMPS011	Jun 12, 2002	<100	DES
BLMPS014	Jun 12, 2002	=100	DES
BLMPS015	Jun 12, 2002	<100	DES
BLMPS016	Jun 12, 2002	=165	JEL
BLMPS017	Jun 12, 2002	=227.5	JEL
BLMPS019	Jun 12, 2002	=40	JEL
BLMPS020	Jun 12, 2002	=240	JEL
BLMPS021	Jun 12, 2002	<100	DES
BLMPS024	Jun 12, 2002	<100	DES
BLMPS025	Jun 12, 2002	=400	DES
BLMPS027	Jun 12, 2002	<100	DES
BLMPS030	Jun 12, 2002	<50	DES
BLMPS031	Jun 12, 2002	<100	DES
BLMPS032	Jun 12, 2002	=400	DES
BLMPS034	Jun 12, 2002	>8000	JEL
BLMPS036	Jun 12, 2002	=960	JEL
BLMPS037	Jun 12, 2002	=130	JEL
BLMPS038	Jun 12, 2002	=12.5	JEL
BLMPS039	Jun 12, 2002	<100	DES
BLMPS040	Jun 12, 2002	=200	DES
BLMPS041	Jun 12, 2002	=400	DES
BLMPS043	Jun 12, 2002	<100	DES
BLMPS045	Jun 12, 2002	<100	DES
BLMPS052	Jun 12, 2002	=260	JEL
BLMPS053	Jun 12, 2002	=405	JEL
BLMPS054	Jun 12, 2002	=7.5	JEL
BLMPS055	Jun 12, 2002	=220	JEL
BLMPS056	Jun 12, 2002	>1000	JEL
BLMPS057	Jun 12, 2002	=440	JEL
BLMPS058	Jun 12, 2002	=67.5	JEL
BLMPS059	Jun 12, 2002	<100	DES
BLMPS060	Jun 12, 2002	<100	DES
BLMPS061	Jun 12, 2002	=1500	DES
BLMPS062	Jun 12, 2002	=2580	JEL
BLMPS063	Jun 12, 2002	=160	JEL
BLMPS064	Jun 12, 2002	=600	JEL
BLMPS065	Jun 12, 2002	=1575	JEL
BLMPS066	Jun 12, 2002	=140	JEL
BLMPS067	Jun 12, 2002	=97.5	JEL
BLMPS068	Jun 12, 2002	=660	JEL
BLMPS069	Jun 12, 2002	=300	JEL



BLMPS070	Jun 12, 2002	=540	JEL
CCHPS007	Jul 23, 2002	<100	DES
CCHPS007	Jul 30, 2002	=200	DES
CCHPS008	Jul 23, 2002	=700	DES
CCHPS008	Jul 30, 2002	=300	DES
CCHPS013	Jul 23, 2002	<100	DES
CCHPS013	Jul 30, 2002	<100	DES
CCHPS045	Jul 23, 2002	=800	DES
CCHPS045	Jul 30, 2002	=600	DES
CCHPS047	Jul 23, 2002	=100	DES
CCHPS047	Jul 30, 2002	<100	DES
CCHPS049	Jul 23, 2002	<100	DES
CCHPS049	Jul 30, 2002	<100	DES
CCHPS051	Jul 23, 2002	<100	DES
CCHPS051	Jul 30, 2002	<100	DES
CCHPS053	Jul 23, 2002	<100	DES
CCHPS053	Jul 30, 2002	=100	DES
CCHPS054	Jul 23, 2002	<100	DES
CCHPS054	Jul 30, 2002	<100	DES
CCHPS056	Jul 23, 2002	=400	DES
CCHPS057	Jul 23, 2002	<100	DES
CCHPS057	Jul 30, 2002	<50	DES
GBPS001	May 14, 2002	=1400	DES
GBPS002	May 14, 2002	=600	DES
GBPS004	May 14, 2002	=100	DES
GBPS005	May 14, 2002	=800	DES
GBPS006	May 14, 2002	=100	DES
GBPS007	May 14, 2002	=500	DES
GBPS008	May 14, 2002	<100	DES
GBPS009	May 14, 2002	<100	DES
GBPS011	May 14, 2002	=200	DES
GBPS012	May 14, 2002	<100	DES
GBPS013	May 14, 2002	=900	DES
GBPS014	May 14, 2002	=50	DES
GBPS015	May 14, 2002	<100	DES
GBPS021	May 14, 2002	=600	DES
GBPS023	May 14, 2002	=500	DES
GBPS024	May 14, 2002	<100	DES
GBPS025	May 14, 2002	=500	DES
GBPS027	May 14, 2002	=3700	DES
GBPS028	May 14, 2002	<100	DES
GBPS030	May 14, 2002	<100	DES
GBPS031	May 14, 2002	=900	DES
GBPS032	May 14, 2002	=200	DES
GBPS034	May 14, 2002	<100	DES
GBPS035	May 14, 2002	=400	DES
GBPS036	May 14, 2002	=100	DES
GBPS038	May 14, 2002	=100	DES
GBPS039	May 14, 2002	<100	DES
GBPS041	May 14, 2002	=1600	DES
GBPS042	May 14, 2002	<100	DES
GBPS043	May 14, 2002	=500	DES
GBPS044	May 14, 2002	=300	DES
GBPS045	May 14, 2002	=200	DES
GBPS046	May 14, 2002	=100	DES
GBPS047	May 14, 2002	=500	DES
GBPS048	May 14, 2002	=100	DES
GBPS049	May 14, 2002	=900	DES
GBPS050	May 14, 2002	=400	DES
GBPS052	May 14, 2002	<100	DES
GBPS053	May 14, 2002	<50	DES
GBPS054	May 14, 2002	=2000	DES
GBPS055	May 14, 2002	<100	DES
GBPS057	May 14, 2002	=1500	DES
GBPS058	May 14, 2002	=4900	DES
GBPS059	May 14, 2002	=700	DES
GBPS060	May 14, 2002	=2700	DES
GBPS061	May 14, 2002	=100	DES
GBPS062	May 14, 2002	=200	DES
GBPS063	May 14, 2002	=2000	DES

GBPS064	May 14, 2002	=1600	DES
GBPS065	May 14, 2002	=600	DES
GBPS066	May 14, 2002	=800	DES
GBPS068	May 14, 2002	<100	DES
GBPS069	May 14, 2002	<100	DES
GBPS071	May 14, 2002	=1500	DES
GBPS075	May 14, 2002	=500	DES
GBPS076	May 14, 2002	=400	DES
GBPS079	May 14, 2002	>20000	DES
GBPS081	May 14, 2002	=100	DES
GBPS082	May 14, 2002	=600	DES
GBPS083	May 14, 2002	=600	DES
GBPS084	May 14, 2002	<100	DES
GBPS085	May 14, 2002	<50	DES
GBPS086	May 14, 2002	=600	DES
GBPS087	May 14, 2002	=500	DES
HHPS248	Jun 9, 2003	=10	DES
HHPS249	Jun 9, 2003	=20	DES
LHPS141	Jun 9, 2003	=90	DES
LHPS147	Jun 9, 2003	=110	DES
LHPS148	Jun 9, 2003	=50	DES
LLBPS002	May 13, 2002	=1870	DES
LLBPS003	May 13, 2002	<10	DES
LLBPS006	May 13, 2002	<10	DES
LLBPS007	May 13, 2002	<10	DES
LLBPS008	May 13, 2002	=950	DES
LLBPS009	May 13, 2002	=40	DES
LLBPS013	May 13, 2002	=10	DES
LLBPS014	May 13, 2002	=720	DES
LLBPS014	May 13, 2002	=920	DES
LLBPS015	May 13, 2002	=10	DES
LLBPS018	May 13, 2002	<10	DES
LLBPS019	May 13, 2002	=20	DES
LLBPS020	May 13, 2002	=1530	DES
LLBPS021	May 13, 2002	>1800	DES
LLBPS025	May 13, 2002	=140	DES
LLBPS026	May 13, 2002	<10	DES
LLBPS029	May 13, 2002	=10	DES
LLBPS030	May 13, 2002	=30	DES
LLBPS032	May 13, 2002	<10	DES
LLBPS034	May 13, 2002	=200	DES
LLBPS035	May 13, 2002	<5	DES
LLBPS036	May 13, 2002	=60	DES
LLBPS037	May 13, 2002	=280	DES
LLBPS038	May 13, 2002	=60	DES
LLBPS039	May 13, 2002	>2000	DES
LLBPS040	May 13, 2002	=850	DES
LLBPS041	May 13, 2002	=130	DES
LLBPS043	Jun 9, 2003	<10	DES
LLBPS045	Jun 9, 2003	=5	DES
LPRPS001	Jan 21, 2003	=1100000	DES
LPRPS001	Mar 25, 2003	=3500000	DES
LPRPS004	Jan 21, 2003	=5400000	DES
LPRPS004	Mar 25, 2003	=2400000	DES
OYSPS001	Jul 1, 2002=412	JEL	
OYSPS001	Sep 16, 2002	=50	DES
OYSPS001	Sep 4, 2002	>20000	DES
OYSPS002	Jul 1, 2002=220	JEL	
OYSPS002	Sep 16, 2002	=460	DES
OYSPS002	Sep 4, 2002	=290	DES
OYSPS003	Jul 1, 2002=38	JEL	
OYSPS003	Sep 16, 2002	=30	DES
OYSPS003	Sep 4, 2002	=40	DES
OYSPS004	Jul 1, 2002=66	JEL	
OYSPS004	Sep 16, 2002	<10	DES
OYSPS004	Sep 4, 2002	=0	DES
OYSPS006	Sep 4, 2002	>2000	DES
OYSPS008	Jul 1, 2002=0	JEL	
OYSPS009	Jul 1, 2002=126	JEL	
OYSPS010	Jul 1, 2002=158	JEL	

OYSPS010	Sep 16, 2002	<10	DES
OYSPS010	Sep 4, 2002	=290	DES
SFRPS001	Jul 22, 2002	<100	DES
SFRPS001	Jul 29, 2002	<50	DES
SFRPS002	Jul 22, 2002	<100	DES
SFRPS002	Jul 29, 2002	=300	DES
SFRPS003	Jul 22, 2002	=100	DES
SFRPS003	Jul 29, 2002	=200	DES
SFRPS004	Jul 22, 2002	=100	DES
SFRPS004	Jul 29, 2002	<100	DES
SFRPS005	Jul 10, 2002	=26	JEL
SFRPS007	Jul 22, 2002	<100	DES
SFRPS007	Jul 29, 2002	<50	DES
SQMPS001	Jan 21, 2003	=24000	DES
SQMPS001	Mar 25, 2003	=2400	DES
SQMPS004	Mar 25, 2003	=1700	DES
UPRPS001	Jul 22, 2002	<100	DES
UPRPS004	Jul 29, 2002	=300	DES
UPRPS005	Jul 22, 2002	<100	DES
UPRPS007	Jul 22, 2002	<50	DES
UPRPS007	Jul 29, 2002	<100	DES
UPRPS011	Jul 22, 2002	<100	DES
UPRPS011	Jul 29, 2002	<100	DES
UPRPS013	Jul 22, 2002	<50	DES
UPRPS013	Jul 29, 2002	<100	DES
UPRPS014	Jul 22, 2002	<100	DES
UPRPS014	Jul 29, 2002	<100	DES
UPRPS016	Jul 22, 2002	<100	DES
UPRPS019	Jul 22, 2002	=200	DES
UPRPS019	Jul 29, 2002	=100	DES
UPRPS021	Jul 22, 2002	<100	DES
UPRPS021	Jul 29, 2002	=100	DES
UPRPS022	Jul 22, 2002	<100	DES
UPRPS022	Jul 29, 2002	<100	DES
UPRPS023	Jul 22, 2002	<50	DES
UPRPS023	Jul 29, 2002	<100	DES
UPRPS024	Jan 21, 2003	=10	DES
UPRPS024	Mar 25, 2003	=18	DES
UPRPS025	Jan 21, 2003	=49000	DES
UPRPS025	Mar 25, 2003	=3500000	DES
WINPS001	May 14, 2002	=1400	DES
WINPS002	May 14, 2002	=500	DES
WINPS003	May 14, 2002	=300	DES
WINPS004	May 14, 2002	=1100	DES

## Appendix 2 2002 Ambient Fecal Coliform Data

STATION	DATE	FC	PH	SALIN	PROJTYPE
HH11	1/24/2002	4	7.79	34	ROUTINE
HH32	1/24/2002	4	7.73	30	ROUTINE
HH1A	1/24/2002	4.5	7.86	34	ROUTINE
HH18	1/24/2002	2	7.86	34	ROUTINE
HH2B	1/24/2002	4.5	7.82	33	ROUTINE
HH19	1/24/2002	2	7.85	34	ROUTINE
HH12	1/24/2002	2	7.82	33	ROUTINE
HH10	1/24/2002	2	7.78	33	ROUTINE
HH5C	1/24/2002	4.5	7.77	33	ROUTINE
HH5B	1/24/2002	7.8	7.81	32	ROUTINE
HH34	1/24/2002	2	7.81	31	ROUTINE
HH33	1/24/2002	4.5	7.76	28	ROUTINE
HH30	1/24/2002	13	7.80	32	ROUTINE
HH31	1/24/2002	2	7.72	30	ROUTINE
HH17	1/24/2002	2	7.85	34	ROUTINE
HH19	2/12/2002	2	7.82	33	POST RAINFALL
HH17	2/12/2002	2	7.87	34	POST RAINFALL
HH1A	2/12/2002	4.5	7.82	33	POST RAINFALL
HH2B	2/12/2002	2	7.81	33	POST RAINFALL
HH11	2/12/2002	2	7.86	34	POST RAINFALL
HH5B	2/12/2002	7.8	7.81	33	POST RAINFALL
HH10	2/12/2002	2	7.79	33	POST RAINFALL
HH5C	2/12/2002	2	7.86	33	POST RAINFALL
HH12	2/12/2002	2	7.86	34	POST RAINFALL
HH18	2/12/2002	2	7.84	34	POST RAINFALL
HH5B	2/26/2002	4.5	7.93	34	ROUTINE
HH1A	2/26/2002	2	7.92	34	ROUTINE
HH18	2/26/2002	2	7.84	34	ROUTINE
HH2B	2/26/2002	2	7.86	34	ROUTINE
HH19	2/26/2002	4.5	7.91	35	ROUTINE
HH17	2/26/2002	4	7.9	34	ROUTINE
HH12	2/26/2002	1.8	7.88	34	ROUTINE
HH11	2/26/2002	4.5	7.87	34	ROUTINE
HH5C	2/26/2002	2	7.87	34	ROUTINE
HH34	2/26/2002	2	7.93	34	ROUTINE
HH33	2/26/2002	4.5	7.81	32	ROUTINE
HH30	2/26/2002	2	7.89	34	ROUTINE
HH31	2/26/2002	1.8	7.95	34	ROUTINE
HH32	2/26/2002	13	7.83	34	ROUTINE
HH10	2/26/2002	4	7.86	34	ROUTINE
HH17	3/6/2002	2	7.88	34	ROUTINE
HH2B	3/6/2002	2	7.80	33	ROUTINE
HH18	3/6/2002	2	7.79	33	ROUTINE
HH19	3/6/2002	2	7.80	32	ROUTINE
HH11	3/6/2002	1.8	7.86	34	ROUTINE
HH10	3/6/2002	2	7.82	32	ROUTINE
HH5B	3/6/2002	2	7.75	31	ROUTINE
HH5C	3/6/2002	2	7.73	31	ROUTINE
HH12	3/6/2002	2	7.83	34	ROUTINE
HH1A	3/6/2002	2	7.87	34	ROUTINE
HH12	4/17/2002	33	7.76	32	POST RAINFALL
HH1A	4/17/2002	11	7.90	32	POST RAINFALL
HH18	4/17/2002	2	7.87	32	POST RAINFALL
HH2B	4/17/2002	4.5	7.81	32	POST RAINFALL
HH17	4/17/2002	7.8	7.88	32	POST RAINFALL
HH11	4/17/2002	23	7.84	32	POST RAINFALL
HH10	4/17/2002	6.8	7.81	31	POST RAINFALL
HH5C	4/17/2002	7.8	7.85	30	POST RAINFALL
HH5B	4/17/2002	4.5	7.74	30	POST RAINFALL
HH19	4/17/2002	4.5	7.88	32	POST RAINFALL
HH12	4/18/2002	23	7.84	32	ROUTINE
HH10	4/18/2002	4.5	7.92	32	ROUTINE
HH18	4/18/2002	7.8	7.88	32	ROUTINE
HH2B	4/18/2002	11	7.79	32	ROUTINE
HH17	4/18/2002	4	7.9	32	ROUTINE

HH1A	4/18/2002	2	7.88	32	ROUTINE
HH11	4/18/2002	23	7.9	32	ROUTINE
HH5B	4/18/2002	7.8	7.8	31	ROUTINE
HH34	4/18/2002	4.5	7.66	28	ROUTINE
HH33	4/18/2002	33	7.55	23	ROUTINE
HH30	4/18/2002	7.8	7.76	29	ROUTINE
HH31	4/18/2002	27	7.67	22	ROUTINE
HH32	4/18/2002	7.8	7.61	28	ROUTINE
HH19	4/18/2002	4	7.82	31	ROUTINE
HH5C	4/18/2002	2	7.85	31	ROUTINE
HH5C	5/6/2002	2	7.80	30	ROUTINE
HH1A	5/6/2002	2	7.79	31	ROUTINE
HH18	5/6/2002	2	7.81	30	ROUTINE
HH2B	5/6/2002	1.8	7.77	30	ROUTINE
HH19	5/6/2002	2	7.81	30	ROUTINE
HH17	5/6/2002	2	7.77	31	ROUTINE
HH12	5/6/2002	2	7.67	30	ROUTINE
HH10	5/6/2002	2	7.80	30	ROUTINE
HH5B	5/6/2002	2	7.82	30	ROUTINE
HH34	5/6/2002	2	7.68	26	ROUTINE
HH33	5/6/2002	13	7.71	21	ROUTINE
HH30	5/6/2002	2	7.73	27	ROUTINE
HH31	5/6/2002	2	7.64	22	ROUTINE
HH32	5/6/2002	2	7.54	26	ROUTINE
HH11	5/6/2002	2	7.83	30	ROUTINE
HH1A	5/8/2002	2	7.90	33	ROUTINE
HH18	5/8/2002	2	7.92	32	ROUTINE
HH11	5/8/2002	7.8	7.89	33	ROUTINE
HH2B	5/8/2002	2	7.90	33	ROUTINE
HH19	5/8/2002	2	7.85	33	ROUTINE
HH17	5/8/2002	4.5	7.75	33	ROUTINE
HH12	5/8/2002	2	7.83	33	ROUTINE
HH5C	5/8/2002	2	7.88	33	ROUTINE
HH5B	5/8/2002	2	7.87	33	ROUTINE
HH34	5/8/2002	4	7.79	32	ROUTINE
HH33	5/8/2002	2	7.74	27	ROUTINE
HH30	5/8/2002	13	7.78	32	ROUTINE
HH32	5/8/2002	2	7.82	29	ROUTINE
HH31	5/8/2002	4.5	7.82	28	ROUTINE
HH10	5/8/2002	2	7.86	33	ROUTINE
HH5C	5/15/2002	240	7.46	20	POST RAINFALL
HH18	5/15/2002	94	7.64	26	POST RAINFALL
HH2B	5/15/2002	110	7.65	25	POST RAINFALL
HH19	5/15/2002	130	7.69	22	POST RAINFALL
HH17	5/15/2002	49	7.63	26	POST RAINFALL
HH12	5/15/2002	79	7.60	26	POST RAINFALL
HH10	5/15/2002	79	7.56	22	POST RAINFALL
HH1A	5/15/2002	49	7.67	28	POST RAINFALL
HH5B	5/15/2002	350	7.42	18	POST RAINFALL
HH34	5/15/2002	350	7.35	12	POST RAINFALL
HH33	5/15/2002	1600	7.50	8	POST RAINFALL
HH30	5/15/2002	350	7.29	15	POST RAINFALL
HH31	5/15/2002	920	7.36	6	POST RAINFALL
HH32	5/15/2002	240	7.0	18	POST RAINFALL
HH11	5/15/2002	110	7.59	22	POST RAINFALL
HH11	5/16/2002	46	7.64	26	POST RAINFALL
HH1A	5/16/2002	17	7.72	29	POST RAINFALL
HH18	5/16/2002	49	7.69	27	POST RAINFALL
HH2B	5/16/2002	49	7.67	26	POST RAINFALL
HH19	5/16/2002	49	7.68	26	POST RAINFALL
HH17	5/16/2002	49	7.73	28	POST RAINFALL
HH12	5/16/2002	79	7.66	27	POST RAINFALL
HH32	5/16/2002	130	7.44	18	POST RAINFALL
HH5C	5/16/2002	170	7.67	25	POST RAINFALL
HH5B	5/16/2002	79	7.68	24	POST RAINFALL
HH34	5/16/2002	170	7.50	17	POST RAINFALL
HH33	5/16/2002	240	6.91	10	POST RAINFALL
HH30	5/16/2002	79	7.52	20	POST RAINFALL
HH10	5/16/2002	70	7.61	26	POST RAINFALL
HH31	5/16/2002	79	6.78	6	POST RAINFALL

HH12	5/28/2002	2	7.87	32	POST RAINFALL
HH17	5/28/2002	2	7.87	32	POST RAINFALL
HH1A	5/28/2002	4.5	7.83	32	POST RAINFALL
HH19	5/28/2002	2	7.87	32	POST RAINFALL
HH30	5/28/2002	4.5	7.74	31	POST RAINFALL
HH18	5/28/2002	7.8	7.82	32	POST RAINFALL
HH11	5/28/2002	4.5	7.88	32	POST RAINFALL
HH2B	5/28/2002	4.5	7.79	32	POST RAINFALL
HH5C	5/28/2002	2	7.83	32	POST RAINFALL
HH5B	5/28/2002	2	7.84	32	POST RAINFALL
HH33	5/28/2002	13	7.61	28	POST RAINFALL
HH31	5/28/2002	4.5	7.67	30	POST RAINFALL
HH32	5/28/2002	23	7.49	30	POST RAINFALL
HH34	5/28/2002	7.8	7.72	30	POST RAINFALL
HH10	5/28/2002	4.5	7.86	32	POST RAINFALL
HH17	6/17/2002	350	7.80	31	ROUTINE
HH1A	6/17/2002	33	7.75	31	ROUTINE
HH18	6/17/2002	350	7.72	31	ROUTINE
HH19	6/17/2002	70	7.75	30	ROUTINE
HH12	6/17/2002	11	7.76	32	ROUTINE
HH11	6/17/2002	23	7.73	30	ROUTINE
HH10	6/17/2002	33	7.67	30	ROUTINE
HH5B	6/17/2002	23	7.66	30	ROUTINE
HH34	6/17/2002	33	7.54	26	ROUTINE
HH33	6/17/2002	33	7.46	20	ROUTINE
HH30	6/17/2002	23	7.58	28	ROUTINE
HH31	6/17/2002	49	7.21	19	ROUTINE
HH32	6/17/2002	46	7.4	24	ROUTINE
HH5C	6/17/2002	22	7.70	30	ROUTINE
HH2B	6/17/2002	170	7.69	30	ROUTINE
HH1A	7/23/2002	10		31.9	TMDL
HH15	7/23/2002	10		31.2	TMDL
HH15	7/23/2002	10		31.7	TMDL
HH5B	7/23/2002	10		31.8	TMDL
HH5C/DUP	7/23/2002	10		32	TMDL
HH5C	7/23/2002	5		31.9	TMDL
HH10	7/23/2002	10		31.8	TMDL
HH11	7/23/2002	10		31.8	TMDL
HH17	7/23/2002	10		32.2	TMDL
HH19	7/23/2002	10		31.9	TMDL
HH18	7/23/2002	10		32.1	TMDL
HH12	7/23/2002	10		32.3	TMDL
HH35	7/23/2002	10	32		TMDL
HH10	7/23/2002	10		31.3	TMDL
HH2B	7/23/2002	10	32		TMDL
HH5B	7/23/2002	10		31.1	TMDL
HH5C	7/23/2002	10		31.2	TMDL
HH1A	7/23/2002	10		31.9	TMDL
HH18	7/23/2002	10		31.7	TMDL
HH2B/DUP	7/23/2002	20		31.6	TMDL
HH2B	7/23/2002	10		31.7	TMDL
HH19	7/23/2002	20	31.5		TMDL
HH17	7/23/2002	10		31.8	TMDL
HH35	7/23/2002	40		31.1	TMDL
HH12	7/23/2002	30		31.3	TMDL
HH11	7/23/2002	10		31.8	TMDL
HH5C	7/23/2002	10		31.6	TMDL
HH15	7/23/2002	20		31.2	TMDL
HH35	7/23/2002	20	31		TMDL
HH12	7/23/2002	10		31.3	TMDL
HH17/DUP	7/23/2002	10		31.5	TMDL
HH17	7/23/2002	10	31.5		TMDL
HH19	7/23/2002	10		31.3	TMDL
HH2B	7/23/2002	10		31.7	TMDL
HH18	7/23/2002	5		31.8	TMDL
HH1A	7/23/2002	40		31.8	TMDL
HH11	7/23/2002	10		31.6	TMDL
HH5B	7/23/2002	10		30.6	TMDL
HH10	7/23/2002	10		31.7	TMDL
HH11	9/9/2002	23			AUTUMN DRY

HH1A	9/9/2002	33			AUTUMN DRY
HH10	9/9/2002	79			AUTUMN DRY
HH5C	9/9/2002	22			AUTUMN DRY
HH10A	9/9/2002	130			AUTUMN DRY
HH17	9/11/2002	49	7.79	34	ROUTINE
HH10A	9/11/2002	33	7.77	34	ROUTINE
HH35	9/11/2002	33	7.75	34	ROUTINE
HH1A	9/11/2002	110	7.78	34	ROUTINE
HH18	9/11/2002	12	7.80	34	ROUTINE
HH19	9/11/2002	79	7.75	34	ROUTINE
HH12	9/11/2002	240	7.79	34	ROUTINE
HH11	9/11/2002	49	7.81	34	ROUTINE
HH32	9/11/2002	46	7.60	33	ROUTINE
HH5C	9/11/2002	13	7.78	34	ROUTINE
HH5B	9/11/2002	130	7.73	34	ROUTINE
HH34	9/11/2002	70	7.69	34	ROUTINE
HH33	9/11/2002	11	7.62	34	ROUTINE
HH30	9/11/2002	240	7.75	34	ROUTINE
HH31	9/11/2002	46	7.68	34	ROUTINE
HH10	9/11/2002	79	7.80	34	ROUTINE
HH2B	9/11/2002	7.8	7.81	34	ROUTINE
HH17	10/1/2002	2	7.90	34	ROUTINE
HH19	10/1/2002	110	7.87	34	ROUTINE
HH2B	10/1/2002	11	7.82	34	ROUTINE
HH18	10/1/2002	4	7.80	34	ROUTINE
HH1A	10/1/2002	4.5	7.86	34	ROUTINE
HH35	10/1/2002	240	7.82	34	ROUTINE
HH11	10/1/2002	4.5	7.85	34	ROUTINE
HH31	10/1/2002	7.8	7.74	33	ROUTINE
HH12	10/1/2002	13	7.83	34	ROUTINE
HH10	10/1/2002	2	7.73	34	ROUTINE
HH5C	10/1/2002	4.5	7.72	34	ROUTINE
HH5B	10/1/2002	13	7.73	33	ROUTINE
HH34	10/1/2002	4.5	7.84	33	ROUTINE
HH32	10/1/2002	4.5	7.67	32	ROUTINE
HH30	10/1/2002	12	7.75	33	ROUTINE
HH33	10/1/2002	7.8	7.67	32	ROUTINE
HH10A	10/1/2002	7.8	7.82	34	ROUTINE
HH17	10/16/2002		40	32.8	TMDL
HH5B	10/16/2002		10	32.9	TMDL
HH5C/DUP	10/16/2002		10	32.9	TMDL
HH5C	10/16/2002		10	32.9	TMDL
HH10	10/16/2002		10	32.8	TMDL
HH11	10/16/2002		10	32.9	TMDL
HH35	10/16/2002		10	32.8	TMDL
HH15	10/16/2002		10	32.9	TMDL
HH19	10/16/2002		10	32.8	TMDL
HH2B	10/16/2002		30	32.8	TMDL
HH18	10/16/2002		10	32.9	TMDL
HH1A	10/16/2002		10	32.5	TMDL
HH12	10/16/2002		10	32.8	TMDL
HH2B	10/17/2002		10	31	TMDL
HH15	10/17/2002		40	30.1	TMDL
HH15/DUP	10/17/2002		20	30	TMDL
HH35	10/17/2002		20	29.9	TMDL
HH1A	10/17/2002		10	32	TMDL
HH18	10/17/2002		30	31.2	TMDL
HH19	10/17/2002		80	31.4	TMDL
HH17	10/17/2002		30	31.7	TMDL
HH12	10/17/2002		10	31.1	TMDL
HH11	10/17/2002		10	31.5	TMDL
HH10	10/17/2002		10	31.1	TMDL
HH5B	10/17/2002		10	30	TMDL
HH5C	10/17/2002		30	30.8	TMDL
HH32	11/12/2002		33	7.39	ROUTINE
HH12	11/12/2002		110	7.77	ROUTINE
HH1A	11/12/2002		110	7.80	ROUTINE
HH35	11/12/2002		79	7.70	ROUTINE
HH18	11/12/2002		46	7.82	ROUTINE
HH2B	11/12/2002		130	7.75	ROUTINE

HH19	11/12/2002	70	7.80	34	ROUTINE
HH17	11/12/2002	49	7.79	34	ROUTINE
HH30	11/12/2002	23	7.67	33	ROUTINE
HH11	11/12/2002	13	7.74	35	ROUTINE
HH31	11/12/2002	22	7.51	31	ROUTINE
HH33	11/12/2002	110	7.62	30	ROUTINE
HH34	11/12/2002	46	7.61	31	ROUTINE
HH5B	11/12/2002	33	7.70	34	ROUTINE
HH5C	11/12/2002	49	7.59	34	ROUTINE
HH10	11/12/2002	13	7.70	34	ROUTINE
HH1A	11/13/2002	33	7.82	33	POST RAINFALL
HH11	11/13/2002	49	7.82	33	POST RAINFALL
HH18	11/13/2002	170	7.81	33	POST RAINFALL
HH2B	11/13/2002	49	7.79	32	POST RAINFALL
HH19	11/13/2002	79	7.81	32	POST RAINFALL
HH17	11/13/2002	240	7.83	33	POST RAINFALL
HH12	11/13/2002	79	7.82	33	POST RAINFALL
HH35	11/13/2002	70	7.78	32	POST RAINFALL
HH31	11/13/2002	79	7.63	29	POST RAINFALL
HH5C	11/13/2002	49	7.77	33	POST RAINFALL
HH5B	11/13/2002	23	7.75	33	POST RAINFALL
HH34	11/13/2002	130	7.64	30	POST RAINFALL
HH33	11/13/2002	49	7.56	25	POST RAINFALL
HH30	11/13/2002	22	7.64	31	POST RAINFALL
HH32	11/13/2002	49	7.60	29	POST RAINFALL
HH10	11/13/2002	79	7.79	33	POST RAINFALL
HH17	11/19/2002	23	7.80	31	POST RAINFALL
HH19	11/19/2002	13	7.74	29	POST RAINFALL
HH2B	11/19/2002	49	7.70	28	POST RAINFALL
HH18	11/19/2002	49	7.72	30	POST RAINFALL
HH12	11/19/2002	13	7.76	31	POST RAINFALL
HH35	11/19/2002	49	7.76	29	POST RAINFALL
HH5C	11/19/2002	33	7.70	29	POST RAINFALL
HH1A	11/19/2002	33	7.80	32	POST RAINFALL
HH32	11/19/2002	33	7.34	20	POST RAINFALL
HH10	11/19/2002	13	7.65	30	POST RAINFALL
HH5B	11/19/2002	13	7.70	29	POST RAINFALL
HH34	11/19/2002	33	7.57	20	POST RAINFALL
HH33	11/19/2002	49	7.40	12	POST RAINFALL
HH30	11/19/2002	49	7.51	22	POST RAINFALL
HH31	11/19/2002	49	7.39	13	POST RAINFALL
HH11	11/19/2002	17	7.79	30	POST RAINFALL
HH17	11/26/2002	4.5	7.87	33	POST RAINFALL
HH1A	11/26/2002	4.5	7.82	34	POST RAINFALL
HH5B	11/26/2002	4.5	7.66	30	POST RAINFALL
HH18	11/26/2002	17	7.81	33	POST RAINFALL
HH19	11/26/2002	13	7.83	32	POST RAINFALL
HH2B	11/26/2002	17	7.77	31	POST RAINFALL
HH12	11/26/2002	17	7.78	32	POST RAINFALL
HH11	11/26/2002	2	7.64	34	POST RAINFALL
HH5C	11/26/2002	13	7.76	30	POST RAINFALL
HH30	11/26/2002	4	7.48	27	POST RAINFALL
HH10	11/26/2002	13	7.80	32	POST RAINFALL
HH35	11/26/2002	4.5	7.74	31	POST RAINFALL
HH1A	12/10/2002	2		32.1	ROUTINE
HH35	12/10/2002	1.9		32.1	ROUTINE
HH31	12/10/2002	23	30.5		ROUTINE
HH18	12/10/2002	1.8		32.3	ROUTINE
HH2B	12/10/2002	4.5		32.3	ROUTINE
HH19	12/10/2002	1.8		32.5	ROUTINE
HH17	12/10/2002	2		32.9	ROUTINE
HH32	12/10/2002	17		29.7	ROUTINE
HH11	12/10/2002	2		33.3	ROUTINE
HH10	12/10/2002	2		33.3	ROUTINE
HH5C	12/10/2002	2		32.9	ROUTINE
HH5B	12/10/2002	7.8		32.4	ROUTINE
HH34	12/10/2002	2	31		ROUTINE
HH33	12/10/2002	4		29.1	ROUTINE
HH30	12/10/2002	17	31.5		ROUTINE
HH12	12/10/2002	4	32.5		ROUTINE



HH12	12/19/2002	2	7.72	34	ROUTINE
HH17	12/19/2002	4	7.79	34	ROUTINE
HH19	12/19/2002	2	7.75	34	ROUTINE
HH2B	12/19/2002	2	7.69	34	ROUTINE
HH11	12/19/2002	6.8	7.75	34	ROUTINE
HH1A	12/19/2002	11	7.68	34	ROUTINE
HH30	12/19/2002	4.5	7.65	34	ROUTINE
HH18	12/19/2002	6.8	7.68	34	ROUTINE
HH10	12/19/2002	6.8	7.76	34	ROUTINE
HH5C	12/19/2002	11	7.69	34	ROUTINE
HH5B	12/19/2002	2	7.70	34	ROUTINE
HH33	12/19/2002	49	7.59	25	ROUTINE
HH31	12/19/2002	17	7.54	30	ROUTINE
HH32	12/19/2002	49	7.51	31	ROUTINE
HH35	12/19/2002	2	7.73	34	ROUTINE
HH34	12/19/2002	4.5	7.74	34	ROUTINE

STATIONDATE	FC	SALIN	PH	PROJTYPE	
GBA7	2/25/2002	4.5	21	7.70	ROUTINE
GB50	2/25/2002	14	30	7.95	ROUTINE
GB19	2/25/2002	22	32	7.90	ROUTINE
GB28	2/25/2002	17	31	7.91	ROUTINE
GB2	2/25/2002	79	30	7.90	ROUTINE
GB17	2/25/2002	23	32	7.88	ROUTINE
GB27	2/25/2002	22	30	7.88	ROUTINE
GB25	2/25/2002	33	32	7.87	ROUTINE
GB21	2/25/2002	23	22	7.85	ROUTINE
GB20	2/25/2002	9.3	25	7.85	ROUTINE
GBA10	2/25/2002	6.8	25	7.86	ROUTINE
GB7A	2/25/2002	7.8	29	7.95	ROUTINE
GB33	2/25/2002	6.8	28	7.80	ROUTINE
GB34	2/25/2002	11	30	7.90	ROUTINE
GB22	2/25/2002	7.8	20	7.82	ROUTINE
GB6	2/25/2002	31	30	7.92	ROUTINE
GBA11.5	2/25/2002	33	32	7.86	ROUTINE
GB4A	2/25/2002	4	29	7.95	ROUTINE
GB5	2/25/2002	14	29	7.93	ROUTINE
GB16	2/25/2002	4.5	29	7.92	ROUTINE
GB18	2/25/2002	23	33	7.87	ROUTINE
GB24	2/25/2002	4	34	7.81	ROUTINE
GB2	3/4/2002	17	26	7.76	RAINFALL STUDY
GB33	3/4/2002	130	23	7.49	RAINFALL STUDY
GB34	3/4/2002	31	22	7.67	RAINFALL STUDY
GB2	3/5/2002	4	27	7.81	RAINFALL STUDY
GB51	3/5/2002	4.5	26	7.83	ROUTINE
GB50	3/5/2002	6.8	27	7.80	ROUTINE
GB33	3/5/2002	6.8	26	7.53	RAINFALL STUDY
GB34	3/5/2002	4.5	25	7.85	RAINFALL STUDY
GB22	3/20/2002	7.8	12	7.42	ROUTINE
GB5	3/20/2002	4	24	7.77	ROUTINE
GB4A	3/20/2002	49	18	7.76	ROUTINE
GB7A	3/20/2002	79	25	7.85	ROUTINE
GB6	3/20/2002	17	26	7.69	ROUTINE
GB50	3/20/2002	17	26	7.80	ROUTINE
GB19	3/20/2002	7.8	27	7.78	ROUTINE
GB28	3/20/2002	4.5	28	7.78	ROUTINE
GB2	3/20/2002	49	27	7.80	ROUTINE
GB17	3/20/2002	13	28	7.85	ROUTINE
GB25	3/20/2002	13	28	7.76	ROUTINE
GB16	3/20/2002	4.5	24	7.80	ROUTINE
GB21	3/20/2002	33	8	7.30	ROUTINE
GBA7	3/20/2002	13	12	7.39	ROUTINE
GBA10	3/20/2002	4	20	7.66	ROUTINE
GB18	3/20/2002	13	28	7.84	ROUTINE
GB24	3/20/2002	13	30	7.83	ROUTINE
GB34	3/20/2002	49	25	7.82	ROUTINE
GB33	3/20/2002	79	25	7.84	ROUTINE
GB51	3/20/2002	7.8	25	7.79	ROUTINE
GB20	3/20/2002	7.8	15	7.53	ROUTINE
GB27	3/20/2002	27	28	7.76	ROUTINE

GBA11.5	3/20/2002	2	23	7.75	ROUTINE
GB27	4/2/2002	2	25	7.62	ROUTINE
GB16	4/2/2002	2	22	7.73	ROUTINE
GB5	4/2/2002	2	22	7.73	ROUTINE
GB4A	4/2/2002	2	22	7.70	ROUTINE
GB7A	4/2/2002	2	22	7.76	ROUTINE
GB6	4/2/2002	2	24	7.78	ROUTINE
GB50	4/2/2002	2	22	7.72	ROUTINE
GB19	4/2/2002	2	25	7.73	ROUTINE
GB28	4/2/2002	2	24	7.76	ROUTINE
GB17	4/2/2002	2	27	7.73	ROUTINE
GB25	4/2/2002	6.8	25	7.57	ROUTINE
GB18	4/2/2002	2	32	7.63	ROUTINE
GB51	4/2/2002	2	22	7.62	ROUTINE
GB33	4/2/2002	2	20	7.70	ROUTINE
GB2	4/2/2002	2	23	7.79	ROUTINE
GB24	4/2/2002	2	32	7.80	ROUTINE
GB22	4/2/2002	13	4	6.86	ROUTINE
GBA11.5	4/2/2002	13	21	7.61	ROUTINE
GBA10	4/2/2002	2	17	7.45	ROUTINE
GB20	4/2/2002	17	7	7.23	ROUTINE
GBA7	4/2/2002	13	6	7.07	ROUTINE
GB21	4/2/2002	33	3	7.00	ROUTINE
GB34	4/2/2002	4	22	7.63	ROUTINE
GB33	4/8/2002	2	16	7.66	RAINFALL STUDY
GB34	4/8/2002	2	20	7.71	RAINFALL STUDY
GB2	4/8/2002	1.8	22	7.81	RAINFALL STUDY
GB34	4/11/2002	2	22	7.9	ROUTINE
GB2	4/11/2002	2	24	7.91	ROUTINE
GB51	4/11/2002	2	22	7.94	ROUTINE
GB33	4/11/2002	2	20	7.91	ROUTINE
GBA10	4/11/2002	2	22	7.86	ROUTINE
GB50	4/11/2002	2	22	7.95	ROUTINE
GB20	4/11/2002	22	16	7.64	ROUTINE
GBA11.5	4/11/2002	2	21	7.88	ROUTINE
GB33	4/16/2002	33	19	7.53	RAINFALL STUDY
GB34	4/16/2002	46	21	7.76	RAINFALL STUDY
GB2	4/16/2002	11	24	7.75	RAINFALL STUDY
GB51	4/17/2002	7.8	20	7.80	ROUTINE
GB33	4/17/2002	2	21	7.50	RAINFALL STUDY
GB34	4/17/2002	11	21	7.67	RAINFALL STUDY
GB2	4/17/2002	13	22	7.76	RAINFALL STUDY
GB50	4/17/2002	4.5	23	7.81	ROUTINE
GB2	4/18/2002	4	23	7.87	RAINFALL STUDY
GB33	4/18/2002	14	20	7.73	RAINFALL STUDY
GB34	4/18/2002	27	19	7.75	RAINFALL STUDY
GB17	5/6/2002	2	26	7.46	ROUTINE
GB24	5/6/2002	13	30	7.64	ROUTINE
GB4A	5/6/2002	2	20	7.54	ROUTINE
GB5	5/6/2002	2	20	7.49	ROUTINE
GB7A	5/6/2002	2	22	7.59	ROUTINE
GB16	5/6/2002	2	21	7.54	ROUTINE
GB6	5/6/2002	4.5	23	7.61	ROUTINE
GB50	5/6/2002	2	22	7.53	ROUTINE
GB51	5/6/2002	2	20	7.56	ROUTINE
GB19	5/6/2002	2	24	7.56	ROUTINE
GB28	5/6/2002	2	24	7.56	ROUTINE
GB25	5/6/2002	4.5	25	7.59	ROUTINE
GB22	5/6/2002	23	8	7.21	ROUTINE
GB21	5/6/2002	33	9	7.26	ROUTINE
GBA7	5/6/2002	23	10	7.21	ROUTINE
GB20	5/6/2002	13	10	7.28	ROUTINE
GBA10	5/6/2002	23	15	7.42	ROUTINE
GB18	5/6/2002	2	30	7.50	ROUTINE
GB34	5/6/2002	2	20	7.48	ROUTINE
GB33	5/6/2002	2	20	7.43	ROUTINE
GB2	5/6/2002	2	24	7.58	ROUTINE
GBA11.5	5/6/2002	2	18	7.55	ROUTINE
GB27	5/6/2002	2	25	7.62	ROUTINE
GB4A	5/15/2002	130	18	7.57	EMERGENCY CLOSURE

GB28	5/15/2002	33			EMERGENCY CLOSURE
GB17	5/15/2002	33	22	7.44	EMERGENCY CLOSURE
GB25	5/15/2002	33	22	6.99	EMERGENCY CLOSURE
GB7A	5/15/2002	130	20	7.62	EMERGENCY CLOSURE
GB6	5/15/2002	33	21	7.59	EMERGENCY CLOSURE
GB50	5/15/2002	540			EMERGENCY CLOSURE
GB51	5/15/2002	540			EMERGENCY CLOSURE
GBA7	5/15/2002	1600			EMERGENCY CLOSURE
GB33	5/15/2002	350			EMERGENCY CLOSURE
GB34	5/15/2002	350			EMERGENCY CLOSURE
GBA11.5	5/15/2002	350			EMERGENCY CLOSURE
GBA10	5/15/2002	540			EMERGENCY CLOSURE
GB20	5/15/2002	350			EMERGENCY CLOSURE
GB19	5/15/2002	70	22	7.55	EMERGENCY CLOSURE
GB27	5/15/2002	46	20	7.29	EMERGENCY CLOSURE
GB2	5/15/2002	170			EMERGENCY CLOSURE
GB19	5/16/2002	49			EMERGENCY CLOSURE
GB51	5/16/2002	49			EMERGENCY CLOSURE
GB50	5/16/2002	33			EMERGENCY CLOSURE
GB6	5/16/2002	49			EMERGENCY CLOSURE
GB7A	5/16/2002	79			EMERGENCY CLOSURE
GB4A	5/16/2002	110			EMERGENCY CLOSURE
GB16	5/16/2002	79			EMERGENCY CLOSURE
GB28	5/16/2002	79			EMERGENCY CLOSURE
GBA10	5/16/2002	130			EMERGENCY CLOSURE
GB5	5/16/2002	540			EMERGENCY CLOSURE
GB34	5/16/2002	70			EMERGENCY CLOSURE
GB17	5/16/2002	75			EMERGENCY CLOSURE
GB27	5/16/2002	27			EMERGENCY CLOSURE
GB25	5/16/2002	79			EMERGENCY CLOSURE
GB20	5/16/2002	64			EMERGENCY CLOSURE
GBA11.5	5/16/2002	140			EMERGENCY CLOSURE
GB2	5/16/2002	79			EMERGENCY CLOSURE
GBA7	5/16/2002	110			EMERGENCY CLOSURE
GB33	5/16/2002	49			EMERGENCY CLOSURE
GB2	5/19/2002	87			EMERGENCY CLOSURE
GB28	5/19/2002	11			EMERGENCY CLOSURE
GB19	5/19/2002	23	18	7.44	EMERGENCY CLOSURE
GB51	5/19/2002	49			EMERGENCY CLOSURE
GB50	5/19/2002	31			EMERGENCY CLOSURE
GB5	5/19/2002	7.8	16	7.49	EMERGENCY CLOSURE
GB6	5/19/2002	7.8	16	7.48	EMERGENCY CLOSURE
GB17	5/19/2002	33	19	7.50	EMERGENCY CLOSURE
GB7A	5/19/2002	17	15	7.52	EMERGENCY CLOSURE
GB33	5/19/2002	79			EMERGENCY CLOSURE
GB4A	5/19/2002	11	14	7.46	EMERGENCY CLOSURE
GB34	5/19/2002	22			EMERGENCY CLOSURE
GBA11.5	5/19/2002	170			EMERGENCY CLOSURE
GBA10	5/19/2002	170			EMERGENCY CLOSURE
GB20	5/19/2002	350			EMERGENCY CLOSURE
GBA7	5/19/2002	110			EMERGENCY CLOSURE
GB25	5/19/2002	23	20	7.46	EMERGENCY CLOSURE
GB27	5/19/2002	11	19	7.44	EMERGENCY CLOSURE
GB25	6/10/2002	4	27		EMERGENCY CLOSURE
GB27	6/10/2002	2	26		EMERGENCY CLOSURE
GB6	6/10/2002	2	24		EMERGENCY CLOSURE
GB50	6/10/2002	2	24		EMERGENCY CLOSURE
GB51	6/10/2002	4.5	23		EMERGENCY CLOSURE
GB19	6/10/2002	2	25		EMERGENCY CLOSURE
GB2	6/10/2002	2	24		EMERGENCY CLOSURE
GB20	6/10/2002	23	17		EMERGENCY CLOSURE
GBA10	6/10/2002	33	21		EMERGENCY CLOSURE
GBA11.5	6/10/2002	7.8	22		EMERGENCY CLOSURE
GB18	6/10/2002	2	31		EMERGENCY CLOSURE
GB24	6/10/2002	2	32		EMERGENCY CLOSURE
GB34	6/10/2002	4.5	21		EMERGENCY CLOSURE
GB17	6/10/2002	4.5	28		EMERGENCY CLOSURE
GB7A	6/19/2002	7.8	22	7.60	ROUTINE
GB17	6/19/2002	4.5	27	7.69	ROUTINE
GB2	6/19/2002	4	23	7.73	ROUTINE

GBA11.5	6/19/2002	33	20	7.69	ROUTINE
GB28	6/19/2002	4	24	7.69	ROUTINE
GB18	6/19/2002	4.5	30	7.78	ROUTINE
GB19	6/19/2002	2	24	7.68	ROUTINE
GB51	6/19/2002	4.5	22	7.67	ROUTINE
GB6	6/19/2002	4.5	24	7.69	ROUTINE
GB24	6/19/2002	2	30	7.82	ROUTINE
GB27	6/19/2002	2	24	7.64	ROUTINE
GB50	6/19/2002	2	23	7.62	ROUTINE
GB22	6/19/2002	49	8	7.30	ROUTINE
GB21	6/19/2002	130	6	7.39	ROUTINE
GBA7	6/19/2002	70	8	7.44	ROUTINE
GBA10	6/19/2002	33	15	7.61	ROUTINE
GB34	6/19/2002	6.8	22	7.67	ROUTINE
GB33	6/19/2002	33	20	7.64	ROUTINE
GB16	6/19/2002	4	22	7.71	ROUTINE
GB5	6/19/2002	4.5	22	7.68	ROUTINE
GB4A	6/19/2002	2	21	7.64	ROUTINE
GB20	6/19/2002	33	14	7.48	ROUTINE
GB25	6/19/2002	4.5	26	7.46	ROUTINE
GB24	6/20/2002	4.5	30	7.80	EMERGENCY CLOSURE
GBA11.5	6/20/2002	33	22	7.83	EMERGENCY CLOSURE
GB13	6/20/2002	4.5	30	7.85	EMERGENCY CLOSURE
GB18	6/20/2002	2	28	7.75	EMERGENCY CLOSURE
GB16	7/16/2002	2	29	7.72	ROUTINE
GB2	7/16/2002	2	30	7.86	ROUTINE
GB5	7/16/2002	2	29	7.72	ROUTINE
GB4A	7/16/2002	2	29	7.74	ROUTINE
GB7A	7/16/2002	2	30	7.76	ROUTINE
GB6	7/16/2002	2	30	7.73	ROUTINE
GB50	7/16/2002	2	30	7.61	ROUTINE
GB51	7/16/2002	2	30	7.81	ROUTINE
GB19	7/16/2002	2	30	7.86	ROUTINE
GB28	7/16/2002	4.5	31	7.88	ROUTINE
GBA10	7/16/2002	2	29	7.72	ROUTINE
GB34	7/16/2002	2	30	7.74	ROUTINE
GB17	7/16/2002	4.5	31	7.86	ROUTINE
GB33	7/16/2002	7.8	30	7.54	ROUTINE
GB24	7/16/2002	2	32	7.78	ROUTINE
GB18	7/16/2002	4.5	32	7.80	ROUTINE
GBA11.5	7/16/2002	2	30	7.64	ROUTINE
GBA7	7/16/2002	33	23	7.56	ROUTINE
GB21	7/16/2002	79	22	7.63	ROUTINE
GB22	7/16/2002	11	22	7.57	ROUTINE
GB25	7/16/2002	2	32	7.78	ROUTINE
GB27	7/16/2002	2	31	7.81	ROUTINE
GB20	7/16/2002	2	26	7.68	ROUTINE
GB33	7/17/2002	4.5	21.6		ROUTINE
GB34	7/17/2002	7.8	28.9		ROUTINE
GB2	7/17/2002	4.5	29.3		ROUTINE
GB50	7/17/2002	2	29.1		ROUTINE
GB51	7/17/2002	2	28.8		ROUTINE
GB50	9/16/2002	2	32.1		RAINFALL STUDY
GBA11.5	9/16/2002	4.5	31.9		RAINFALL STUDY
GB20	9/16/2002	20	30		RAINFALL STUDY
GB2	9/16/2002	7.2	31.9		RAINFALL STUDY
GB34	9/16/2002	7.8	31.5		RAINFALL STUDY
GB33	9/16/2002	39	30.6		RAINFALL STUDY
GBA10	9/16/2002	13	31.4		RAINFALL STUDY
GB7A	9/17/2002	2	32.1	7.95	TIDAL STUDY
GB2	9/17/2002	4	32.1		TIDAL STUDY
GB34	9/17/2002	4.5	31.6		TIDAL STUDY
GB19	9/17/2002	2	32.1	7.76	TIDAL STUDY
GB7A	9/17/2002	2	32.2	7.97	TIDAL STUDY
GB5	9/17/2002	2	32.2	8.03	TIDAL STUDY
GB20	9/17/2002	11	28.7		TIDAL STUDY
GB2	9/17/2002	6.8	31.9		TIDAL STUDY
GB19	9/17/2002	1.8	32.3	7.82	TIDAL STUDY
GB7A	9/17/2002	2	32.2	7.88	TIDAL STUDY
GB5	9/17/2002	2	32.2	8.06	TIDAL STUDY

GB33	9/17/2002	6.8	31.5		RAINFALL STUDY
GB50	9/17/2002	2	32.2		RAINFALL STUDY
GBA10	9/17/2002	2	32.1		RAINFALL STUDY
GB20	9/17/2002	7.8	29.1		TIDAL STUDY
GB34	9/17/2002				TIDAL STUDY
GB7A	9/17/2002	2	32.3	7.86	TIDAL STUDY
GB20	9/17/2002	4.5	31.7		TIDAL STUDY
GB2	9/17/2002	2	32.3		TIDAL STUDY
GB20	9/17/2002	4.5	30.2		TIDAL STUDY
GB19	9/17/2002	2	32.3	7.74	TIDAL STUDY
GB5	9/17/2002	2	32.1	7.93	TIDAL STUDY
GB5	9/17/2002	4.5	32.3	7.86	TIDAL STUDY
GB20	9/17/2002	2	31.8		TIDAL STUDY
GB2	9/17/2002	2	32.2		TIDAL STUDY
GB19	9/17/2002	2	32.2	7.75	TIDAL STUDY
GBA11.5	9/17/2002	4	31.6		RAINFALL STUDY
GB5	9/17/2002	2	32.2	7.89	TIDAL STUDY
GB2	9/17/2002	2	32.2		TIDAL STUDY
GB34	9/17/2002	2	31.9		TIDAL STUDY
GB19	9/17/2002	4.5	32.1	7.81	TIDAL STUDY
GB7A	9/17/2002	2	32.2	7.94	TIDAL STUDY
GB34	9/17/2002	2	32.1		TIDAL STUDY
GB34	9/17/2002	2	32.3		TIDAL STUDY
GB16	9/18/2002	2	33	7.92	ROUTINE
GB2	9/18/2002	4	34	7.90	ROUTINE
GB28	9/18/2002	2	34	7.84	ROUTINE
GB19	9/18/2002	2	34	7.88	ROUTINE
GB51	9/18/2002	4.5	34	7.85	ROUTINE
GB50	9/18/2002	2	33	7.92	ROUTINE
GB6	9/18/2002	4.5	33	7.92	ROUTINE
GB7A	9/18/2002	2	33	7.90	ROUTINE
GB5	9/18/2002	2	34	7.93	ROUTINE
GB17	9/18/2002	2	34	7.84	ROUTINE
GB4A	9/18/2002	2	33	7.89	ROUTINE
GB18	9/18/2002	1.8	34	7.77	ROUTINE
GB27	9/18/2002	2	34	7.89	ROUTINE
GB33	9/18/2002	7.8	32	7.81	ROUTINE
GB34	9/18/2002	4	33	7.82	ROUTINE
GB24	9/18/2002	4.5	34	7.77	ROUTINE
GBA11.5	9/18/2002	2	33	7.80	ROUTINE
GBA10	9/18/2002	2	32	7.94	ROUTINE
GB20	9/18/2002	4.5	30	7.97	ROUTINE
GBA7	9/18/2002	7.8	29	7.98	ROUTINE
GB21	9/18/2002	26	27	7.98	ROUTINE
GB22	9/18/2002	4.5	28	7.99	ROUTINE
GB25	9/18/2002	4.5	34	7.82	ROUTINE
GB7A	9/29/2002	2	31.8	7.89	TIDAL STUDY
GB5	9/29/2002	2	31.4	7.82	TIDAL STUDY
GB20	9/29/2002	4.5	25.7		TIDAL STUDY
GB50	9/29/2002	2	31.9	7.83	RAINFALL STUDY
GB51	9/29/2002	4.5	31.4	7.78	RAINFALL STUDY
GB5	9/29/2002	2	31.8	7.87	TIDAL STUDY
GB7A	9/29/2002	2	31.9	7.88	TIDAL STUDY
GB19	9/29/2002	2	31.9	7.81	TIDAL STUDY
GB34	9/29/2002				TIDAL STUDY
GB2	9/29/2002	5	31.2		TIDAL STUDY
GB5	9/29/2002	2	31.3	7.88	TIDAL STUDY
GB7A	9/29/2002	4.5	31.9	7.82	TIDAL STUDY
GB19	9/29/2002	2	32	7.81	TIDAL STUDY
GB34	9/29/2002	4.5	30.9		TIDAL STUDY
GB20	9/29/2002	7.8	25.8		TIDAL STUDY
GB2	9/29/2002	4.5	32		TIDAL STUDY
GB2	9/29/2002	4.5	31.8		TIDAL STUDY
GB20	9/29/2002	4	29.2		TIDAL STUDY
GB2	9/29/2002	4.5	32.1		TIDAL STUDY
GB34	9/29/2002	2	31.8		TIDAL STUDY
GB19	9/29/2002	2	32.3	7.68	TIDAL STUDY
GB7A	9/29/2002	1.8	31.8	7.79	TIDAL STUDY
GB20	9/29/2002	2	27.5		TIDAL STUDY
GB20	9/29/2002	3.6	28.9		TIDAL STUDY

GB7A	9/29/2002	2	31.9	7.79	TIDAL STUDY
GB34	9/29/2002	6.1	31.7		TIDAL STUDY
GB19	9/29/2002	4.5	32.2	7.79	TIDAL STUDY
GB5	9/29/2002	2	31.9	7.84	TIDAL STUDY
GB2	9/29/2002	4.5	31.8		TIDAL STUDY
GB34	9/29/2002	4.5	31.3		TIDAL STUDY
GB19	9/29/2002	1.8	32	7.80	TIDAL STUDY
GB5	9/29/2002	2	31.9	7.86	TIDAL STUDY
GB18	10/14/2002	23	34	7.72	ROUTINE
GB5	10/14/2002	6.8	34	7.81	ROUTINE
GB34	10/14/2002	17	33	7.67	ROUTINE
GB33	10/14/2002	4.5	33	7.6	ROUTINE
GB16	10/14/2002	2	34	7.80	ROUTINE
GB4A	10/14/2002	2	34	7.77	ROUTINE
GB7A	10/14/2002	2	34	7.82	ROUTINE
GB6	10/14/2002	7.8	34	7.82	ROUTINE
GB50	10/14/2002	4.5	34	7.76	ROUTINE
GB51	10/14/2002	11	34	7.70	ROUTINE
GB19	10/14/2002	6.8	34	7.61	ROUTINE
GB28	10/14/2002	7.8	34	7.79	ROUTINE
GB17	10/14/2002	23	34	7.81	ROUTINE
GB27	10/14/2002	79	34	7.68	ROUTINE
GB25	10/14/2002	17	33	7.80	ROUTINE
GB22	10/14/2002	7.8	30	7.72	ROUTINE
GB21	10/14/2002	23	30	7.75	ROUTINE
GBA7	10/14/2002	14	30	7.73	ROUTINE
GB20	10/14/2002	6.8	32	7.74	ROUTINE
GB24	10/14/2002	49	34	7.72	ROUTINE
GBA10	10/14/2002	11	33	7.76	ROUTINE
GBA11.5	10/14/2002	23	33	7.77	ROUTINE
GB2	10/14/2002	4.5	34	7.80	ROUTINE
GB2	10/23/2002	4	32	7.62	ROUTINE
GB50	10/23/2002	7.8	31	7.61	ROUTINE
GB51	10/23/2002	4.5	31	7.46	ROUTINE
GB34	10/23/2002	4	31	7.68	ROUTINE
GB33	10/23/2002	2	31	7.65	ROUTINE
GB50	11/14/2002	11	28	7.69	RAINFALL STUDY
GB2	11/14/2002	23	28	7.72	RAINFALL STUDY
GB34	11/14/2002	79	27	7.71	RAINFALL STUDY
GB33	11/14/2002	33	25	7.65	RAINFALL STUDY
GB16	11/14/2002	33	29	7.72	ROUTINE
GB5	11/14/2002	23	30	7.72	ROUTINE
GB4A	11/14/2002	13	29	7.69	ROUTINE
GB7A	11/14/2002	23	29	7.73	ROUTINE
GB6	11/14/2002	17	30	7.73	ROUTINE
GB50	11/14/2002	23	30	7.77	ROUTINE
GB28	11/14/2002	17	31	7.73	ROUTINE
GB19	11/14/2002	130	29	7.72	ROUTINE
GB51	11/14/2002	49	24	7.71	RAINFALL STUDY
GB20	11/14/2002	240	22	7.45	ROUTINE
GB2	11/14/2002	49	31	7.73	ROUTINE
GB51	11/14/2002	17	30	7.71	ROUTINE
GB34	11/14/2002	110	29	7.62	ROUTINE
GB24	11/14/2002	23	33	7.62	ROUTINE
GB18	11/14/2002	49	33	7.73	ROUTINE
GBA10	11/14/2002	49	22	7.64	ROUTINE
GB33	11/14/2002	130	29	7.44	ROUTINE
GBA7	11/14/2002	110	18	7.45	ROUTINE
GB21	11/14/2002	49	18	7.48	ROUTINE
GB22	11/14/2002	79	17	7.50	ROUTINE
GB25	11/14/2002	33	31	7.65	ROUTINE
GB27	11/14/2002	79	30	7.68	ROUTINE
GB17	11/14/2002	33	31	7.73	ROUTINE
GBA11.5	11/14/2002	23	32	7.73	ROUTINE
GB2	11/20/2002	23	25.5		RAINFALL STUDY
GB50	11/20/2002	17	24.9		RAINFALL STUDY
GB34	11/20/2002	33	24.2		RAINFALL STUDY
GB51	11/20/2002	16	23.3		RAINFALL STUDY
GB33	11/20/2002	33	23.8		RAINFALL STUDY
GB19	12/2/2002	33	28	7.66	ROUTINE

GB16	12/2/2002	33	24	7.66	ROUTINE
GB5	12/2/2002	33	24	7.66	ROUTINE
GB20	12/2/2002	70	26	7.68	ROUTINE
GB4A	12/2/2002	46	24	7.64	ROUTINE
GB7A	12/2/2002	33	24	7.66	ROUTINE
GB6	12/2/2002	26	27	7.71	ROUTINE
GB50	12/2/2002	33	26	7.65	ROUTINE
GB51	12/2/2002	49	25	7.62	ROUTINE
GB28	12/2/2002	33	28	7.71	ROUTINE
GB2	12/2/2002	31	27	7.71	ROUTINE
GB17	12/2/2002	13	29	7.69	ROUTINE
GB27	12/2/2002	49	27	7.66	ROUTINE
GB25	12/2/2002	33	28	7.66	ROUTINE
GB22	12/2/2002	13	20	7.62	ROUTINE
GBA7	12/2/2002	79	21	7.61	ROUTINE
GBA10	12/2/2002	23	28	7.69	ROUTINE
GBA11.5	12/2/2002	13	30	7.73	ROUTINE
GB18	12/2/2002	2	32	7.74	ROUTINE
GB24	12/2/2002	2	33	7.81	ROUTINE
GB34	12/2/2002	22	26	7.69	ROUTINE
GB33	12/2/2002	49	24	7.68	ROUTINE
GB21	12/2/2002	23	22	7.62	ROUTINE
DATE	STATION	FC	SALIN	PH	PROJTYPE
1/22/2002	LHB5	4	33	7.82	ROUTINE
1/22/2002	LHB13	2	33	7.65	ROUTINE
1/22/2002	T14	33	22	7.63	ROUTINE
1/22/2002	LHB9	2	34	7.79	ROUTINE
1/22/2002	LHB16	2	33	7.81	ROUTINE
1/22/2002	LHB8	2	33	7.79	ROUTINE
1/22/2002	LHB1	2	33	7.77	ROUTINE
1/22/2002	LHB2	9.2	34	7.73	ROUTINE
1/22/2002	T6	11	32	7.77	ROUTINE
1/22/2002	LHB6	4.5	31	7.74	ROUTINE
1/22/2002	T13	2	33	7.74	ROUTINE
1/22/2002	T7	46	2	7.27	ROUTINE
2/6/2002	LHB6	1.8	32	7.78	ROUTINE
2/6/2002	LHB16	2	33	7.67	ROUTINE
2/6/2002	T14	4.5	31	7.74	ROUTINE
2/6/2002	T7	17	3	7.10	ROUTINE
2/6/2002	LHB9	7.8	34	7.78	ROUTINE
2/6/2002	LHB5	1.8	33	7.82	ROUTINE
2/6/2002	LHB8	2	33	7.77	ROUTINE
2/6/2002	LHB1	7.8	33	7.77	ROUTINE
2/6/2002	T6	2	33	7.70	ROUTINE
2/6/2002	T13	4	33	7.78	ROUTINE
2/6/2002	LHB13	4	32	7.74	ROUTINE
2/6/2002	LHB2	2	34	7.78	ROUTINE
3/11/2002	LHB8	2	33	7.79	ROUTINE
3/11/2002	LHB1	2	34	7.80	ROUTINE
3/11/2002	T14	11	31	7.78	ROUTINE
3/11/2002	T7	33	2	7.55	ROUTINE
3/11/2002	LHB9	6.8	32	7.82	ROUTINE
3/11/2002	LHB5	4	34	7.73	ROUTINE
3/11/2002	LHB13	2	33	7.83	ROUTINE
3/11/2002	LHB2	4	33	7.83	ROUTINE
3/11/2002	T6	2	34	7.8	ROUTINE
3/11/2002	LHB6	2	34	7.85	ROUTINE
3/11/2002	T13	1.8	32	7.72	ROUTINE
3/11/2002	LHB16	2	33	7.79	ROUTINE
4/8/2002	LHB5	2	28	7.70	ROUTINE
4/8/2002	T14	7.8	30	7.76	ROUTINE
4/8/2002	LHB9	2	30	7.85	ROUTINE
4/8/2002	LHB16	4.5	32	7.92	ROUTINE
4/8/2002	LHB8	7.8	31	7.89	ROUTINE
4/8/2002	LHB2	4.5	30	7.86	ROUTINE
4/8/2002	T6	4	31	7.83	ROUTINE
4/8/2002	LHB6	2	32	7.9	ROUTINE
4/8/2002	T13	13	31	7.83	ROUTINE
4/8/2002	LHB13	2	32	7.7	ROUTINE

4/8/2002	LHB1	4.5	32	7.78	ROUTINE
4/8/2002	T7	94	17	7.68	ROUTINE
5/13/2002	T13	79	30	7.75	ROUTINE
5/13/2002	T7	79	6	7.37	ROUTINE
5/13/2002	LHB9	21	31	7.78	ROUTINE
5/13/2002	LHB5	7.8	27	7.72	ROUTINE
5/13/2002	LHB16	6.1	28	7.78	ROUTINE
5/13/2002	LHB8	6.8	30	7.78	ROUTINE
5/13/2002	LHB1	4.5	30	7.83	ROUTINE
5/13/2002	LHB2	7.8	30	7.75	ROUTINE
5/13/2002	LHB6	17	30	7.76	ROUTINE
5/13/2002	LHB13	4.5	30	7.75	ROUTINE
5/13/2002	T14	130	21	7.50	ROUTINE
5/13/2002	T6	6.8	30	7.76	ROUTINE
7/24/2002	LHB5	11	32	7.86	ROUTINE
7/24/2002	LHB13	7.8	32	7.85	ROUTINE
7/24/2002	T14	240	31	7.73	ROUTINE
7/24/2002	LHB9	33	33	7.90	ROUTINE
7/24/2002	LHB16	9.3	32	7.86	ROUTINE
7/24/2002	LHB8	13	33	7.93	ROUTINE
7/24/2002	LHB1	6.8	33	7.89	ROUTINE
7/24/2002	LHB2	7.8	33	7.89	ROUTINE
7/24/2002	T6	7.8	32	7.92	ROUTINE
7/24/2002	LHB6	7.8	32	7.85	ROUTINE
7/24/2002	T13	79	32	7.81	ROUTINE
7/24/2002	T7	63	32	7.80	ROUTINE
9/23/2002	LHB6	49	32	7.88	ROUTINE
9/23/2002	LHB16	350	33	7.74	ROUTINE
9/23/2002	T14	1600	27	7.65	ROUTINE
9/23/2002	T7	540	27	7.58	ROUTINE
9/23/2002	LHB9	540	33	7.69	ROUTINE
9/23/2002	LHB5	350	34	7.76	ROUTINE
9/23/2002	LHB8	110	32	7.83	ROUTINE
9/23/2002	LHB1	33	33	7.86	ROUTINE
9/23/2002	T6	49	32	7.87	ROUTINE
9/23/2002	T13	130	33	7.80	ROUTINE
9/23/2002	LHB13	130	33	7.82	ROUTINE
9/23/2002	LHB2	130	32	7.82	ROUTINE
10/9/2002	LHB8	13	34	7.73	ROUTINE
10/9/2002	LHB1	7.8	34	7.74	ROUTINE
10/9/2002	T14	17	34	7.68	ROUTINE
10/9/2002	T7	130	33	7.54	ROUTINE
10/9/2002	LHB9	49	34	7.77	ROUTINE
10/9/2002	LHB5	11	34	7.77	ROUTINE
10/9/2002	LHB2	4.5	34	7.71	ROUTINE
10/9/2002	T6	33	34	7.63	ROUTINE
10/9/2002	LHB6	33	33	7.63	ROUTINE
10/9/2002	T13	13	33	7.72	ROUTINE
10/9/2002	LHB13	23	33	7.69	ROUTINE
10/9/2002	LHB16	22	34	7.74	ROUTINE
11/5/2002	LHB5	920	32	7.74	ROUTINE
11/5/2002	T14	49	22	7.26	ROUTINE
11/5/2002	LHB9	170	33	7.72	ROUTINE
11/5/2002	LHB16	49	33	7.72	ROUTINE
11/5/2002	LHB8	130	33	7.71	ROUTINE
11/5/2002	LHB2	33	33	7.76	ROUTINE
11/5/2002	T6	110	33	7.68	ROUTINE
11/5/2002	LHB6	14	33	7.68	ROUTINE
11/5/2002	T13	49	33	7.66	ROUTINE
11/5/2002	LHB13	49	33	7.38	ROUTINE
11/5/2002	LHB1	170	33	7.75	ROUTINE
11/5/2002	T7	170	4	7.24	ROUTINE
12/11/2002	T13	4	32	7.74	ROUTINE
12/11/2002	T7	33	3	6.88	ROUTINE
12/11/2002	LHB9	17	33	7.77	ROUTINE
12/11/2002	LHB5				ROUTINE
12/11/2002	LHB16	7.8	32	7.77	ROUTINE
12/11/2002	LHB8	13	33	7.74	ROUTINE
12/11/2002	LHB1				ROUTINE
12/11/2002	LHB2	4.5	33	7.73	ROUTINE



12/11/2002	LHB6				ROUTINE
12/11/2002	LHB13	11	32	7.76	ROUTINE
12/11/2002	T14	49	28	7.48	ROUTINE
12/11/2002	T6	2	32	7.71	ROUTINE

STATION	DATE	FC	SALIN	PH	PROJTYPE
AC7B	1/28/2002	2	34	7.76	ROUTINE
AC1	1/28/2002	17	34	7.68	ROUTINE
RH4	1/28/2002	130	32	7.79	ROUTINE
RH3	1/28/2002	2	34	7.77	ROUTINE
RH2	1/28/2002	49	29	7.44	ROUTINE
AC8	1/28/2002	2	34	7.92	ROUTINE
AC6G	1/28/2002	2	34	7.73	ROUTINE
AC5A	1/28/2002	13	33	7.75	ROUTINE
AC10	1/28/2002	7.8	34	7.83	ROUTINE
AC4B	1/28/2002	350	33	7.82	ROUTINE
AC3	1/28/2002	2	34	7.85	ROUTINE
AC2	1/28/2002	7.8	34	7.75	ROUTINE
RH1	1/28/2002	4.5	25	7.61	ROUTINE
AC6G	2/11/2002	2	34	7.82	ROUTINE
AC10	2/11/2002	6.8	34	7.76	ROUTINE
AC7B	2/11/2002	2	34	7.78	ROUTINE
AC5A	2/11/2002	2	34	7.80	ROUTINE
AC3	2/11/2002	22	34	7.75	ROUTINE
AC1	2/11/2002	26	34	7.65	ROUTINE
AC2	2/11/2002	11	34	7.76	ROUTINE
AC8	2/11/2002	4.5	31	7.67	ROUTINE
AC4B	2/11/2002	79	34	7.76	ROUTINE
AC6G	3/25/2002	2	34	7.81	ROUTINE
RH4	3/25/2002	4.5	33	7.83	ROUTINE
RH3	3/25/2002	2	34	7.87	ROUTINE
RH2	3/25/2002	2	34	7.89	ROUTINE
RH1	3/25/2002	3.6	34	7.80	ROUTINE
AC7B	3/25/2002	2	32	7.86	ROUTINE
AC5A	3/25/2002	1.8	34	7.81	ROUTINE
AC10	3/25/2002	2	34	7.73	ROUTINE
AC4B	3/25/2002	31	34	7.81	ROUTINE
AC3	3/25/2002	7.8	34	7.81	ROUTINE
AC2	3/25/2002	33	34	7.81	ROUTINE
AC1	3/25/2002	2	34	7.72	ROUTINE
AC8	3/25/2002	1.8	34	7.74	ROUTINE
AC7B	4/22/2002	350	32	8.04	ROUTINE
RH3	4/22/2002	2	32	7.96	ROUTINE
RH4	4/22/2002	4	32	7.98	ROUTINE
RH2	4/22/2002	13	32	8.02	ROUTINE
RH1	4/22/2002	4	32	7.98	ROUTINE
AC8	4/22/2002	13	32	7.98	ROUTINE
AC5A	4/22/2002	4.5	32	8.00	ROUTINE
AC10	4/22/2002	2	32	8.02	ROUTINE
AC4B	4/22/2002	4	32	8.00	ROUTINE
AC3	4/22/2002	2	33	7.90	ROUTINE
AC6G	4/22/2002	17	32	7.97	ROUTINE
AC2	4/22/2002	4.5	32	7.86	ROUTINE
AC1	4/22/2002	2	32	7.88	ROUTINE
ACB20	5/8/2002	2	33	7.84	ROUTINE
ACB3	5/20/2002	2	32	7.91	ROUTINE
ACB20	5/20/2002	2	33	7.9	ROUTINE
ACB8	5/20/2002	2	32	7.87	ROUTINE
ACB7	5/20/2002	2	32	7.86	ROUTINE
ACB6	5/20/2002	7.8	32	7.86	ROUTINE
ACB4	5/20/2002	2	30	7.85	ROUTINE
ACB2	5/20/2002	2	30	7.88	ROUTINE
ACB1	5/20/2002	2	32	7.87	ROUTINE
ACB5	5/20/2002	4	32	7.78	ROUTINE
AC6G	5/21/2002	2	32	7.93	ROUTINE
AC8	5/21/2002	2	30	8.04	ROUTINE
RH3	5/21/2002	1.8	32	7.93	ROUTINE
RH1	5/21/2002	7.8	29	7.91	ROUTINE
RH4	5/21/2002	2	31	7.93	ROUTINE
AC7B	5/21/2002	2	32	7.94	ROUTINE

AC10	5/21/2002	2	32	7.89	ROUTINE
AC4B	5/21/2002	2	32	7.89	ROUTINE
AC3	5/21/2002	4.5	32	7.89	ROUTINE
AC2	5/21/2002	2	32	7.78	ROUTINE
AC1	5/21/2002	63	32	7.79	ROUTINE
RH2	5/21/2002	4	31	7.89	ROUTINE
AC5A	5/21/2002	1.8	33	7.89	ROUTINE
AC7B	6/6/2002	11	33	7.85	ROUTINE
RH4	6/6/2002	34	32	7.75	ROUTINE
RH3	6/6/2002	70	32	7.76	ROUTINE
RH2	6/6/2002	49	33	7.79	ROUTINE
AC8	6/6/2002	4.5	31	7.74	ROUTINE
AC6G	6/6/2002	7.8	33	7.83	ROUTINE
AC10	6/6/2002	7.8	33	7.81	ROUTINE
AC4B	6/6/2002	2	33	7.83	ROUTINE
AC3	6/6/2002	2	33	7.78	ROUTINE
AC2	6/6/2002	4.5	33	7.82	ROUTINE
AC1	6/6/2002	2	33	7.71	ROUTINE
AC5A	6/6/2002	2	33	7.80	ROUTINE
RH1	6/6/2002	49	32	7.81	ROUTINE
ACB1	6/25/2002	33	32	7.51	ROUTINE
ACB20	6/25/2002	2	32	7.88	ROUTINE
ACB8	6/25/2002	4.5	30	7.78	ROUTINE
ACB7	6/25/2002	2	32	7.82	ROUTINE
ACB6	6/25/2002	2	32	7.84	ROUTINE
ACB5	6/25/2002	2	32	7.89	ROUTINE
ACB4	6/25/2002	1.8	32	7.86	ROUTINE
ACB2	6/25/2002	2	32	7.74	ROUTINE
ACB3	6/25/2002	2	33	7.87	ROUTINE
AC3	7/9/2002	13	33	7.91	ROUTINE
AC1	7/9/2002	49	33	7.74	ROUTINE
AC4B	7/9/2002	6.8	33	7.95	ROUTINE
AC10	7/9/2002	14	33	7.91	ROUTINE
AC5A	7/9/2002	7.8	33	8.02	ROUTINE
AC6G	7/9/2002	79	33	7.97	ROUTINE
AC7B	7/9/2002	6.8	33	7.94	ROUTINE
AC8	7/9/2002	11	31	7.72	ROUTINE
AC2	7/9/2002	4.5	33	7.86	ROUTINE
ACB3	8/5/2002	2	33	7.96	ROUTINE
ACB8	8/5/2002	2	33	7.95	ROUTINE
ACB7	8/5/2002	7.8	33	7.99	ROUTINE
ACB6	8/5/2002	2	33	7.99	ROUTINE
ACB4	8/5/2002	2	33	7.96	ROUTINE
ACB2	8/5/2002	2	33	7.95	ROUTINE
ACB1	8/5/2002	2	33	7.80	ROUTINE
ACB5	8/5/2002	2	33	7.95	ROUTINE
AC7B	8/12/2002	7.8	33	7.92	ROUTINE
AC6G	8/12/2002	17	33	7.88	ROUTINE
RH4	8/12/2002	240	33	7.71	ROUTINE
RH3	8/12/2002	7.8	34	7.79	ROUTINE
RH2	8/12/2002	350	34	7.5	ROUTINE
RH1	8/12/2002	220	33	7.56	ROUTINE
AC5A	8/12/2002	130	33	7.88	ROUTINE
AC10	8/12/2002	2	33	7.98	ROUTINE
AC4B	8/12/2002	79	33	7.89	ROUTINE
AC3	8/12/2002	2	33	7.96	ROUTINE
AC2	8/12/2002	2	33	7.90	ROUTINE
AC1	8/12/2002	11	32	7.72	ROUTINE
AC8	8/12/2002	23	33	8.10	ROUTINE
AC5A	9/3/2002	46	33	7.84	ROUTINE
AC3	9/3/2002	70	33	7.81	ROUTINE
RH3	9/3/2002	40	33	7.75	ROUTINE
RH4	9/3/2002	13	34	7.61	ROUTINE
RH2	9/3/2002	22	33	7.71	ROUTINE
RH1	9/3/2002	540	33	7.75	ROUTINE
AC8	9/3/2002	17	33	7.84	ROUTINE
AC6G	9/3/2002	4.5	33	7.81	ROUTINE
AC10	9/3/2002	27	33	7.64	ROUTINE
AC4B	9/3/2002	27	33	7.80	ROUTINE
AC2	9/3/2002	49	32	7.83	ROUTINE

AC1	9/3/2002	11	33	7.81	ROUTINE
AC7B	9/3/2002	4.5	33	7.85	ROUTINE
ACB5	9/9/2002	2	34	7.91	ROUTINE
ACB8	9/9/2002	4.5	34	7.89	ROUTINE
ACB20	9/9/2002	2	34	8.00	ROUTINE
ACB6	9/9/2002	4.5	34	7.98	ROUTINE
ACB3	9/9/2002	2	32	7.95	ROUTINE
ACB2	9/9/2002	2	34	7.95	ROUTINE
ACB1	9/9/2002	2	33	7.92	ROUTINE
ACB4	9/9/2002	17	32	7.96	ROUTINE
ACB7	9/9/2002	4.5	34	7.97	ROUTINE
AC5A	10/21/2002	2	34	7.78	ROUTINE
RH4	10/21/2002	3.7	33	7.73	ROUTINE
RH3	10/21/2002	2	34	7.76	ROUTINE
RH2	10/21/2002	6.8	33	7.70	ROUTINE
RH1	10/21/2002	13	33	7.71	ROUTINE
AC8	10/21/2002	4.5	33	7.79	ROUTINE
AC6G	10/21/2002	2	33	7.77	ROUTINE
AC10	10/21/2002	2	34	7.76	ROUTINE
AC4B	10/21/2002	2	34	7.80	ROUTINE
AC3	10/21/2002	2	33	7.77	ROUTINE
AC2	10/21/2002	49	33	7.75	ROUTINE
AC1	10/21/2002	14	33	7.67	ROUTINE
AC7B	10/21/2002	4.5	33	7.83	ROUTINE
ACB5	10/25/2002	2	34	7.83	ROUTINE
ACB6	10/25/2002	2	34	7.85	ROUTINE
ACB7	10/25/2002	2	34	7.84	ROUTINE
ACB20	10/25/2002	2	34	7.90	ROUTINE
ACB3	10/25/2002	2	34	7.83	ROUTINE
ACB2	10/25/2002	2	34	7.84	ROUTINE
ACB1	10/25/2002	2	34	7.69	ROUTINE
ACB8	10/25/2002	2	34	7.82	ROUTINE
ACB4	10/25/2002	2	33	7.82	ROUTINE
ACB20	11/15/2002	2	33	7.76	ROUTINE
AC6G	11/19/2002	4.5	34	7.83	ROUTINE
RH4	11/19/2002	49	33	7.81	ROUTINE
RH3	11/19/2002	130	32	7.77	ROUTINE
RH2	11/19/2002	23	33	7.82	ROUTINE
RH1	11/19/2002	170	32	7.81	ROUTINE
AC7B	11/19/2002	7.8	34	7.87	ROUTINE
AC5A	11/19/2002	17	34	7.84	ROUTINE
AC10	11/19/2002	17	34	7.82	ROUTINE
AC4B	11/19/2002	22	33	7.84	ROUTINE
AC3	11/19/2002	22	34	7.83	ROUTINE
AC2	11/19/2002	13	34	7.80	ROUTINE
AC1	11/19/2002	11	34	7.84	ROUTINE
AC8	11/19/2002	33	32	7.81	ROUTINE
ACB1	12/18/2002	4.5	34	7.50	ROUTINE
ACB8	12/18/2002	4	33	7.58	ROUTINE
ACB7	12/18/2002	2	33	7.64	ROUTINE
ACB6	12/18/2002	2	32	7.68	ROUTINE
ACB5	12/18/2002	2	33	7.69	ROUTINE
ACB4	12/18/2002	2	33	7.62	ROUTINE
ACB3	12/18/2002	17	33	7.57	ROUTINE
ACB2	12/18/2002	4.5	33	7.64	ROUTINE

**Appendix 3**  
**2003 Ambient Fecal Coliform Data (through June 2003)**

STATION	DATE	FC	PH	SALIN	PROJTYPE
HHMG1	1/8/2003	13	7.61	32	FDA POST RAINFALL
HHCI1	1/8/2003	6.8	7.56	32	FDA POST RAINFALL
HHCI2	1/8/2003	23	7.56	32	FDA POST RAINFALL
HHMG2	1/8/2003	13	7.52	32	FDA POST RAINFALL
HHMG1	2/5/2003	33	7.59	30	EMERGENCY CLOSURE
HHMG2	2/5/2003	70	7.57	30	EMERGENCY CLOSURE
HHCI1	2/5/2003				
HHCI1	2/10/2003	4	7.66	33	EMERGENCY CLOSURE
HHHR1	2/10/2003	2	7.65	30	EMERGENCY CLOSURE
HHMG1	2/10/2003	2	7.56	32	EMERGENCY CLOSURE
HHMG2	2/10/2003	2	7.65	32	EMERGENCY CLOSURE
HHCI1	2/24/2003	22	7.51	27	FDA POST RAINFALL
HHMG1	2/24/2003	4.5	7.56	25	FDA POST RAINFALL
HHMG2	2/24/2003	4.5	7.55	25	FDA POST RAINFALL
HHMG2	3/10/2003	7.8	7.64	28	FDA POST RAINFALL
HHMG1	3/10/2003	2	7.57	28	FDA POST RAINFALL
HHCI1	3/10/2003	14	7.13	29	FDA POST RAINFALL
HH10	3/17/2003	2	7.65	34	ROUTINE
HH18	3/17/2003	2	7.68	34	ROUTINE
HH2B	3/17/2003	2	7.77	34	ROUTINE
HH19	3/17/2003	2	7.80	32	ROUTINE
HH17	3/17/2003	2	7.83	34	ROUTINE
HH35	3/17/2003	7.8	7.79	34	ROUTINE
HH32	3/17/2003	2	7.46	32	ROUTINE
HH11	3/17/2003	1.8	7.78	32	ROUTINE
HH5C	3/17/2003	2	7.66	34	ROUTINE
HH5B	3/17/2003	2	7.67	34	ROUTINE
HH33	3/17/2003	2	7.52	28	ROUTINE
HH30	3/17/2003	2	7.70	32	ROUTINE
HH31	3/17/2003	2	7.69	32	ROUTINE
HH1A	3/17/2003	2	7.75	34	ROUTINE
HH12	3/17/2003	2	7.72	34	ROUTINE
HH34	3/17/2003	2	7.68	34	ROUTINE
HHCI1	3/20/2003	2	7.71	32	BASELINE TISSUE
HHMG1	3/20/2003	2	7.69	32	BASELINE TISSUE
HHMG1	3/22/2003	4.5	7.50	31	RAINFALL STUDY
HHCI1	3/22/2003	33	7.48	30	RAINFALL STUDY
HHMG1	3/24/2003	11	7.44	28	RAINFALL STUDY
HHCI1	3/24/2003	23	7.51	29	RAINFALL STUDY
HHMG1	3/26/2003	2	7.34	28	RAINFALL STUDY
HHCI1	3/26/2003	13	7.13	28	RAINFALL STUDY
HH11	3/28/2003	4.5	7.87	30	ROUTINE
HH30	3/28/2003	4	7.72	25	ROUTINE
HH19	3/28/2003	2	7.90	30	ROUTINE
HH17	3/28/2003	2	7.90	30	ROUTINE
HH35	3/28/2003	2	7.89	30	ROUTINE
HH12	3/28/2003	2	7.89	30	ROUTINE
HH2B	3/28/2003	2	7.90	30	ROUTINE
HH10	3/28/2003	2	7.88	30	ROUTINE
HH5C	3/28/2003	2	7.87	30	ROUTINE
HH5B	3/28/2003	2	7.84	30	ROUTINE
HH18	3/28/2003	1.8	7.90	30	ROUTINE
HH33	3/28/2003	2	7.77	22	ROUTINE
HH31	3/28/2003	4	7.61	17	ROUTINE
HH34	3/28/2003	4.5	7.70	18	ROUTINE
HH32	3/28/2003	2	7.60	20	ROUTINE
HH1A	3/28/2003	4.5	7.91	31	ROUTINE
HHMG1	4/1/2003	23	7.73	24	FDA POST RAINFALL
HHCI1	4/1/2003	11	7.69	26	FDA POST RAINFALL
HH10	4/9/2003	2	7.78	28	ROUTINE
HH2B	4/9/2003	2	7.77	26	ROUTINE
HH19	4/9/2003	4.5	7.82	28	ROUTINE
HH17	4/9/2003	2	7.79	29	ROUTINE
HH35	4/9/2003	2	7.73	27	ROUTINE
HH11	4/9/2003	4.5	7.78	28	ROUTINE

HH5C	4/9/2003	4.5	7.74	27	ROUTINE
HH5B	4/9/2003	7.8	7.69	26	ROUTINE
HH18	4/9/2003	2	7.69	28	ROUTINE
HH36	4/9/2003	13	7.67	22	ROUTINE
HH33	4/9/2003	13	7.41	11	ROUTINE
HH37	4/9/2003	2	7.57	19	ROUTINE
HH30	4/9/2003	4.5	7.41	20	ROUTINE
HH12	4/9/2003	1.8	7.73	29	ROUTINE
HH31	4/9/2003	2	7.27	14	ROUTINE
HH32	4/9/2003	2	7.30	21	ROUTINE
HH1A	4/9/2003	7.8	7.79	29	ROUTINE
HH34	4/9/2003	4.5	7.56	20	ROUTINE
HHC11	4/13/2003	2	7.47	23	RAINFALL STUDY
HHMG1	4/13/2003	6.8	7.54	20	RAINFALL STUDY
HH35	4/15/2003	2	7.82	32	ROUTINE
HH31	4/15/2003	2	7.43	27	ROUTINE
HH18	4/15/2003	2	7.78	32	ROUTINE
HH37	4/15/2003	7.8	7.67	21	ROUTINE
HH36	4/15/2003	11	7.81	25	ROUTINE
HH2B	4/15/2003	7.8	7.87	30	ROUTINE
HH19	4/15/2003	4.5	7.83	32	ROUTINE
HH17	4/15/2003	2	7.87	32	ROUTINE
HH1A	4/15/2003	2	7.87	32	ROUTINE
HH32	4/15/2003	23	7.45	26	ROUTINE
HH11	4/15/2003	7.8	7.86	32	ROUTINE
HH10	4/15/2003	2	7.87	32	ROUTINE
HH5C	4/15/2003	4.5	7.84	33	ROUTINE
HH5B	4/15/2003	2	7.73	32	ROUTINE
HH34	4/15/2003	22	7.77	30	ROUTINE
HH30	4/15/2003	2	7.73	31	ROUTINE
HH12	4/15/2003	2	7.82	33	ROUTINE
HH33	4/15/2003	13	7.61	19	ROUTINE
HHC11	4/16/2003	13	7.76	27	RAINFALL STUDY
HHMG1	4/16/2003	22	7.80	27	RAINFALL STUDY
HHMG1	4/21/2003	13	7.76	31	FDA POST RAINFALL
HHC11	4/21/2003	23	7.75	30	FDA POST RAINFALL
HHC11	4/23/2003	33	7.58	30	FDA POST RAINFALL
HHMG1	4/23/2003	2	7.60	30	FDA POST RAINFALL
HHC11	4/25/2003	2	7.93	30	FDA POST RAINFALL
HHMG1	4/25/2003	2	7.93	32	FDA POST RAINFALL
HHC11	4/28/2003	7.8	7.74	30	FDA POST RAINFALL
HHMG1	4/28/2003	2	7.64	30	FDA POST RAINFALL
HHMG1	4/30/2003	13	7.71	28	FDA POST RAINFALL
HHC11	4/30/2003	13	7.66	27	FDA POST RAINFALL
HHC11	5/2/2003	13	7.47	28	FDA POST RAINFALL
HHMG1	5/2/2003	13	7.70	29	FDA POST RAINFALL
HHMG1	5/5/2003	6.8	7.56	30	FDA POST RAINFALL
HHC11	5/5/2003	2	7.67	30	FDA POST RAINFALL
HHBR1	5/5/2003	2	7.53	30	FDA POST RAINFALL
HHC11	5/7/2003	7.8	7.67	30	FDA POST RAINFALL
HHBR1	5/7/2003	6.8	7.56	30	FDA POST RAINFALL
HHMG1	5/7/2003	23	7.74	30	FDA POST RAINFALL
HH33	5/12/2003	13	7.73	30	ROUTINE
HH12	5/12/2003	2	7.89	32	ROUTINE
HH18	5/12/2003	2	7.91	32	ROUTINE
HH37	5/12/2003	33	7.94	32	ROUTINE
HH36	5/12/2003	7.8	7.94	32	ROUTINE
HH2B	5/12/2003	2	7.94	32	ROUTINE
HH19	5/12/2003	2	7.92	32	ROUTINE
HH17	5/12/2003	2	7.91	32	ROUTINE
HH35	5/12/2003	4.5	7.89	31	ROUTINE
HH11	5/12/2003	2	7.94	32	ROUTINE
HH10	5/12/2003	2	7.90	32	ROUTINE
HH5C	5/12/2003	2	7.85	32	ROUTINE
HH34	5/12/2003	7.8	7.86	32	ROUTINE
HH1A	5/12/2003	2	7.92	32	ROUTINE
HH30	5/12/2003	2	7.85	31	ROUTINE
HH31	5/12/2003	13	7.64	29	ROUTINE
HH32	5/12/2003	13	7.32	29	ROUTINE
HH5B	5/12/2003	2	7.86	32	ROUTINE

HH5C	5/13/2003	13	7.66	28	FDA POST RAINFALL
HHMG1	5/13/2003	23	7.78	30	FDA POST RAINFALL
HH5B	5/13/2003	7.8	7.60	28	FDA POST RAINFALL
HHCI1	5/13/2003	33	7.72	30	FDA POST RAINFALL
HH1A	5/13/2003	33	7.78	30	FDA POST RAINFALL
HH18	5/13/2003	49	7.67	30	FDA POST RAINFALL
HH2B	5/13/2003	13	7.74	29	FDA POST RAINFALL
HH17	5/13/2003	23	7.72	30	FDA POST RAINFALL
HH35	5/13/2003	33	7.59	26	FDA POST RAINFALL
HH12	5/13/2003	49	7.64	29	FDA POST RAINFALL
HH11	5/13/2003	7.8	7.74	29	FDA POST RAINFALL
HH19	5/13/2003	33	7.78	29	FDA POST RAINFALL
HH10	5/13/2003	17	7.72	28	FDA POST RAINFALL
HHCI1	5/19/2003	17	7.55	30	FDA POST RAINFALL
HHMG1	5/19/2003	13	7.59	30	FDA POST RAINFALL
HH35	5/23/2003	49	7.90	31	OPEN STATUS
HH17	5/23/2003	23	7.91	32	OPEN STATUS
HH19	5/23/2003	130	7.88	32	OPEN STATUS
HH1A	5/23/2003	11	7.97	32	OPEN STATUS
HH2B	5/23/2003	70	7.94	32	OPEN STATUS
HH37	5/23/2003	46	7.78	31	OPEN STATUS
HH12	5/23/2003	17	7.91	29	OPEN STATUS
HH31	5/23/2003	23	7.54	29	OPEN STATUS
HH36	5/23/2003	130	7.89	31	OPEN STATUS
HH11	5/23/2003	2	7.95	32	OPEN STATUS
HH10	5/23/2003	4	7.93	32	OPEN STATUS
HH5C	5/23/2003	33	7.88	32	OPEN STATUS
HH5B	5/23/2003	17	7.84	31	OPEN STATUS
HH34	5/23/2003	2	7.72	30	OPEN STATUS
HH30	5/23/2003	7.8	7.81	31	OPEN STATUS
HH18	5/23/2003	6.8	7.84	32	OPEN STATUS
HH32	5/23/2003	13	7.44	29	OPEN STATUS
HH33	5/23/2003	23	7.64	30	OPEN STATUS
HH12	5/27/2003	110	7.55	22	FDA POST RAINFALL
HH17	5/27/2003	540	7.58	21	FDA POST RAINFALL
HH19	5/27/2003	170	7.62	20	FDA POST RAINFALL
HH18	5/27/2003	350	7.64	23	FDA POST RAINFALL
HH1A	5/27/2003	49	7.74	21	FDA POST RAINFALL
HHMG1	5/27/2003	140	7.79	22	FDA POST RAINFALL
HHCI1	5/27/2003	130	7.76	23	FDA POST RAINFALL
HH10	5/27/2003	220	7.49	20	FDA POST RAINFALL

STATION	DATE	FC	SALIN	PH	PROJTYPE
Cedar Point	1/13/2003	920	27	7.81	EMERGENCY CLOSURE
Little Bay Boat Club	1/13/2003	22	27	7.77	EMERGENCY CLOSURE
Fox Point	1/13/2003	13	26	7.72	EMERGENCY CLOSURE
Great Bay Marine	1/13/2003	23	27	7.75	EMERGENCY CLOSURE
Adams Point	1/13/2003	23	15	7.60	EMERGENCY CLOSURE
Adams Point	1/22/2003	2	27	7.75	EMERGENCY CLOSURE
Cedar Point	1/22/2003	4.5	27	7.72	EMERGENCY CLOSURE
Little Bay Boat Club	1/22/2003	2	28	7.69	EMERGENCY CLOSURE
Fox Point	1/22/2003	14	28	7.71	EMERGENCY CLOSURE
Great Bay Marine	1/22/2003	46	29	7.72	EMERGENCY CLOSURE
Chapman's Landing	3/26/2003	13	1	7.25	EMERGENCY CLOSURE
Great Bay Marine	3/26/2003	23	18	7.45	EMERGENCY CLOSURE
Cedar Point2	3/26/2003	23	16	7.25	EMERGENCY CLOSURE
Adams Point	3/26/2003	23	14	7.24	EMERGENCY CLOSURE
Sandy Point	3/26/2003	2	12	7.00	EMERGENCY CLOSURE
Fox Point	3/26/2003	23	18	7.16	EMERGENCY CLOSURE
GB6	4/2/2003	7.8	12	7.29	EMERGENCY CLOSURE
GB17	4/2/2003	11	10	7.00	EMERGENCY CLOSURE
GBSP1	4/2/2003	79	7	7.14	EMERGENCY CLOSURE
LBF1	4/2/2003	17	8	7.18	EMERGENCY CLOSURE
GB16	4/2/2003	17	8	7.26	EMERGENCY CLOSURE
GB5	4/2/2003	49	10	7.24	EMERGENCY CLOSURE
GB7A	4/2/2003	33	10	7.18	EMERGENCY CLOSURE
GB50	4/2/2003	11	10	7.33	EMERGENCY CLOSURE
GB19	4/2/2003	7.8	10	7.17	EMERGENCY CLOSURE
GB2	4/2/2003	6.8	10	7.18	EMERGENCY CLOSURE
GB27	4/2/2003	4.5	9	6.84	EMERGENCY CLOSURE

GB25	4/2/2003	4.5	3	6.21	EMERGENCY CLOSURE
GB28	4/2/2003	17	10	7.22	EMERGENCY CLOSURE
LBFP1	4/7/2003	13	12	7.64	EMERGENCY CLOSURE
Chapman's landing	4/7/2003	79	2	7.68	EMERGENCY CLOSURE
LBFP1	4/10/2003	2	13	7.86	EMERGENCY CLOSURE
GBSP1	4/10/2003	7.8	10	7.54	EMERGENCY CLOSURE
GB19	4/16/2003	13	15	7.80	EMERGENCY CLOSURE
GB25	4/16/2003	4	24	7.56	EMERGENCY CLOSURE
GB51	4/16/2003	2	16	7.76	EMERGENCY CLOSURE
GB6	4/16/2003	4.5	18	7.80	EMERGENCY CLOSURE
GB50	4/16/2003	2	20	7.77	EMERGENCY CLOSURE
GB2	4/16/2003	2	17	7.76	EMERGENCY CLOSURE
GB27	4/16/2003	2	24	7.69	EMERGENCY CLOSURE
GB28	4/16/2003	2	23	7.78	EMERGENCY CLOSURE
GB17	4/16/2003	1.8	26	7.73	EMERGENCY CLOSURE
LBFP1	4/21/2003	4.5	21	7.97	EMERGENCY CLOSURE
LBOY1	4/21/2003				EMERGENCY CLOSURE
GB4A	4/25/2003	2	22	8.04	ROUTINE
GB34	4/25/2003	2	22	8.02	ROUTINE
GB33	4/25/2003	2	21	7.97	ROUTINE
GB28	4/25/2003	2	24	7.99	ROUTINE
GB19	4/25/2003	6.8	23	8.00	ROUTINE
GB50	4/25/2003	4.5	22	8.01	ROUTINE
GB7A	4/25/2003	4.5	22	8.05	ROUTINE
GB25	4/25/2003	49	27	7.97	ROUTINE
GB5	4/25/2003	2	21	8.04	ROUTINE
GB16	4/25/2003	2	21	8.04	ROUTINE
GB6	4/25/2003	2	23	8.01	ROUTINE
GB2	4/25/2003	2	23	8.04	ROUTINE
GB27	4/25/2003	2	24	8.01	ROUTINE
GB22	4/25/2003	4.5	12	7.67	ROUTINE
GB21	4/25/2003	33	8	7.74	ROUTINE
GBA7	4/25/2003	2	12	7.83	ROUTINE
GB20	4/25/2003	11	15	7.90	ROUTINE
GBA10	4/25/2003	2	20	7.99	ROUTINE
GBA11.5	4/25/2003	4	25	8.00	ROUTINE
GB18	4/25/2003	4.5	30	7.91	ROUTINE
GB24	4/25/2003	2	31	7.92	ROUTINE
GB17	4/25/2003	7.8	25	8.00	ROUTINE
GB20	4/28/2003	110	7	7.30	ROUTINE
GBA11.5	4/28/2003	17	20	7.74	ROUTINE
GBA7	4/28/2003	23	4	7.18	ROUTINE
GB7A	4/28/2003	11	20	7.72	ROUTINE
GBA10	4/28/2003	49	7	7.59	ROUTINE
GB18	4/28/2003	22	24	7.83	ROUTINE
GB24	4/28/2003	17	25	7.78	ROUTINE
GB16	4/28/2003	17	18	6.58	ROUTINE
GB4A	4/28/2003	11	20	7.68	ROUTINE
GB6	4/28/2003	23	21	7.71	ROUTINE
GB50	4/28/2003	7.8	20	7.66	ROUTINE
GB19	4/28/2003	2	21	7.66	ROUTINE
GB22	4/28/2003	33	3	6.97	ROUTINE
GB33	4/28/2003	130	18	7.42	ROUTINE
GB34	4/28/2003	22	20	7.48	ROUTINE
GB2	4/28/2003	7.8	20	7.55	ROUTINE
GB17	4/28/2003	7.8	20	7.23	ROUTINE
GB27	4/28/2003	2	21	7.77	ROUTINE
GB25	4/28/2003	11	20	7.36	ROUTINE
GB28	4/28/2003	11	22	7.47	ROUTINE
GB5	4/28/2003	7.8	19	7.69	ROUTINE
GB21	4/28/2003	49	2	7.24	ROUTINE
GB34	5/27/2003	79	24	7.59	ROUTINE
GB33	5/27/2003	170	22	7.54	ROUTINE
GB19	5/27/2003	22	25	7.62	ROUTINE
GB6	5/27/2003	33	24	7.61	ROUTINE
GB7A	5/27/2003	2	24	7.60	ROUTINE
GB4A	5/27/2003	11	23	7.60	ROUTINE
GB16	5/27/2003	240	20	7.58	ROUTINE
GB2	5/27/2003	33	23	7.54	ROUTINE
GB28	5/27/2003	33	25	7.56	ROUTINE

GB5	5/27/2003	27	22	7.54	ROUTINE
GB18	5/27/2003	130	28	7.64	ROUTINE
GB50	5/27/2003	130	24	7.60	ROUTINE
GB17	5/27/2003	33	25	7.61	ROUTINE
GB24	5/27/2003	350	29	7.19	ROUTINE
GBA11.5	5/27/2003	70	25	7.65	ROUTINE
GBA10	5/27/2003	350	17	7.50	ROUTINE
GB20	5/27/2003	170	16	7.33	ROUTINE
GB21	5/27/2003	540	10	7.13	ROUTINE
GB27	5/27/2003	23	25	7.36	ROUTINE
GB22	5/27/2003	350	12	7.16	ROUTINE
GB25	5/27/2003	33	26	7.46	ROUTINE
GBA7	5/27/2003	220	12	7.25	ROUTINE
GB7A	6/3/2003	33	17	7.57	ROUTINE
GB33	6/3/2003	79	19	7.03	ROUTINE
GB28	6/3/2003	17	21	7.55	ROUTINE
GB19	6/3/2003	11	20	7.56	ROUTINE
GB5	6/3/2003	23	17	7.56	ROUTINE
GB6	6/3/2003	17	20	7.58	ROUTINE
GB4A	6/3/2003	79	16	7.56	ROUTINE
GB34	6/3/2003	33	20	7.59	ROUTINE
GB22	6/3/2003	110	5	7.08	ROUTINE
GB16	6/3/2003	49	14	7.68	ROUTINE
GB50	6/3/2003	11	20	7.59	ROUTINE
GBA11.5	6/3/2003	130	13	7.67	ROUTINE
GB27	6/3/2003	7.8	22	7.54	ROUTINE
GB18	6/3/2003	23	22	7.72	ROUTINE
GB2	6/3/2003	13	20	7.52	ROUTINE
GBA10	6/3/2003	79	10	7.48	ROUTINE
GB20	6/3/2003	79	7	7.39	ROUTINE
GBA7	6/3/2003	130	6	7.21	ROUTINE
GB21	6/3/2003	130	5	7.15	ROUTINE
GB25	6/3/2003	23	22	7.18	ROUTINE
GB17	6/3/2003	17	22	7.53	ROUTINE
GB24	6/3/2003	33	23	7.42	ROUTINE
GB20	6/4/2003	41	7.9		RAINFALL STUDY
GB33	6/4/2003	49	16.7		RAINFALL STUDY
GB34	6/4/2003	22	15.8		RAINFALL STUDY
GB2	6/4/2003	4.5	19.5		RAINFALL STUDY
GBA11.5	6/4/2003	13	14.9		RAINFALL STUDY
GBA10	6/4/2003	31	10.6		RAINFALL STUDY
DATE	STATION	FC	SALIN	PH	PROJTYPE
1/13/2003	Golf Course	Turnout	13	33	7.74 FDA POST RAINFALL
1/13/2003	Wentworth Marina	Fuel Dock		49	33 7.75 FDA POST RAINFALL
1/22/2003	Wentworth Marina	Fuel Dock		4.5	32 7.73 FDA POST RAINFALL
1/22/2003	Golf Course	Turnout	4.5	32	7.75 FDA POST RAINFALL
3/18/2003	T6	2	33	7.84	ROUTINE
3/18/2003	LHB1	1.8	34	7.82	ROUTINE
3/18/2003	LHB6	4.5	32	7.81	ROUTINE
3/18/2003	LHB13	4.5	34	7.81	ROUTINE
3/18/2003	T13	2	34	7.81	ROUTINE
3/18/2003	LHB16	2	33	7.81	ROUTINE
3/18/2003	LHB5	2	32	7.83	ROUTINE
3/18/2003	T7	12	1	6.01	ROUTINE
3/18/2003	LHB9	4.5	31	7.78	ROUTINE
3/18/2003	LHB2	4	33	7.84	ROUTINE
3/18/2003	T14	4.5	31	7.58	ROUTINE
3/18/2003	LHB8	7.8	32	7.84	ROUTINE
4/1/2003	LHCP1	13	21	7.60	EMERGENCY CLOSURE
4/1/2003	LHTF1	4	22	7.70	EMERGENCY CLOSURE
4/7/2003	LHTF1	23	25	7.37	EMERGENCY CLOSURE
4/7/2003	LHCP1	22	26	7.72	EMERGENCY CLOSURE
4/17/2003	T14	49	13	7.34	FDA POST RAINFALL
4/17/2003	T13	33	28	7.77	FDA POST RAINFALL
4/21/2003	LHB16	2	29	7.89	ROUTINE
4/21/2003	T7	26	5	7.40	ROUTINE
4/21/2003	T14	13	23	7.43	ROUTINE
4/21/2003	LHB9	7.8	31	7.5	ROUTINE
4/21/2003	LHB8	2	29	7.86	ROUTINE



4/21/2003	T13	1.8	31	7.94	ROUTINE
4/21/2003	LHB13	4.5	30	7.58	ROUTINE
4/21/2003	T6	11	31	7.75	ROUTINE
4/21/2003	LHB6	2	30	7.82	ROUTINE
4/21/2003	LHB2	4	32	7.83	ROUTINE
4/21/2003	LHB1	4	31	7.86	ROUTINE
4/21/2003	LHB5	4.5	29	7.85	ROUTINE
4/23/2003	LHCP1	17	29	7.78	FDA POST RAINFALL
4/23/2003	T14	13	22	7.45	FDA POST RAINFALL
4/23/2003	LHB13	21	30	7.80	FDA POST RAINFALL
4/23/2003	LHB6	23	30	7.76	FDA POST RAINFALL
4/23/2003	LHB1	33	30	7.87	FDA POST RAINFALL
4/29/2003	T14	33	20	7.63	FDA POST RAINFALL
4/29/2003	LHNC1	2	28	7.72	FDA POST RAINFALL
5/19/2003	LHNC1	2	30	7.68	FDA POST RAINFALL
5/21/2003	LHB1	2	32	7.83	ROUTINE
5/21/2003	T7	110	7	6.74	ROUTINE
5/21/2003	T14	110	27	7.37	ROUTINE
5/21/2003	LHB9	7.8	27	7.63	ROUTINE
5/21/2003	LHB5	2	28	7.78	ROUTINE
5/21/2003	LHB16	2	29	7.70	ROUTINE
5/21/2003	LHB8	11	30	7.81	ROUTINE
5/21/2003	T13	2	32	7.83	ROUTINE
5/21/2003	LHB13	4.5	30	7.84	ROUTINE
5/21/2003	T6	2	30	7.84	ROUTINE
5/21/2003	LHB6	2	31	7.83	ROUTINE
5/21/2003	LHB2	4.5	32	7.81	ROUTINE

STATION	DATE	FC	SALIN	PH	PROJTYPE
AC3	2/12/2003	1600	34	7.73	ROUTINE
AC4B	2/12/2003	14	34	7.64	ROUTINE
AC10	2/12/2003	2	34	7.70	ROUTINE
AC5A	2/12/2003	2	34	7.71	ROUTINE
AC6G	2/12/2003	13	34	7.78	ROUTINE
AC7B	2/12/2003	4	34	7.76	ROUTINE
AC8	2/12/2003	94	34	7.69	ROUTINE
AC4C	2/12/2003	7.8	35	7.73	ROUTINE
AC2	2/12/2003	2	34	7.54	ROUTINE
AC8	3/12/2003	170	34	7.80	ROUTINE
RH4	3/12/2003	17	30	7.74	ROUTINE
RH3	3/12/2003	4.5	30	7.70	ROUTINE
RH1	3/12/2003	2	26	7.61	ROUTINE
AC7B	3/12/2003	1.8	34	7.75	ROUTINE
AC6G	3/12/2003	4	33	7.73	ROUTINE
AC10	3/12/2003	2	34	7.74	ROUTINE
AC4C	3/12/2003	2	32	7.76	ROUTINE
AC4B	3/12/2003	4.5	34	7.74	ROUTINE
AC3	3/12/2003	49	32	7.73	ROUTINE
AC2	3/12/2003	4	32	7.74	ROUTINE
AC1A	3/12/2003	4.5	32	7.55	ROUTINE
AC5A	3/12/2003	7.8	32	7.79	ROUTINE
RH2	3/12/2003	13	28	7.58	ROUTINE
AC4B	4/1/2003	1.8			ROUTINE
RH4	4/1/2003	2			ROUTINE
RH3	4/1/2003	4			ROUTINE
RH2	4/1/2003	7.8			ROUTINE
RH1	4/1/2003	9.3			ROUTINE
AC8	4/1/2003	4.5			ROUTINE
AC7B	4/1/2003	2			ROUTINE
AC6G	4/1/2003	2			ROUTINE
AC5A	4/1/2003	2			ROUTINE
AC4C	4/1/2003	2			ROUTINE
AC3	4/1/2003	4.5			ROUTINE
AC2	4/1/2003	2			ROUTINE
AC1A	4/1/2003	1.8			ROUTINE
AC10	4/1/2003	2			ROUTINE
AC4B	5/6/2003	7.8			ROUTINE
AC1A	5/6/2003	9			ROUTINE
AC2	5/6/2003	7.8			ROUTINE
AC4C	5/6/2003	4.5			ROUTINE

AC10	5/6/2003	2		ROUTINE
AC5A	5/6/2003	6.8		ROUTINE
AC6G	5/6/2003	1.8		ROUTINE
AC7B	5/6/2003	2		ROUTINE
AC8	5/6/2003	2		ROUTINE
AC3	5/6/2003	2		ROUTINE
ACB4	5/15/2003	2	28.1	ROUTINE
ACB20	5/15/2003	2	30.1	ROUTINE
ACB8	5/15/2003	2	26.3	ROUTINE
ACB7	5/15/2003	2	29	ROUTINE
ACB5	5/15/2003	2	29	ROUTINE
ACB3	5/15/2003	2	29.3	ROUTINE
ACB2	5/15/2003	2	29.4	ROUTINE
ACB1A	5/15/2003	2	29.4	ROUTINE
ACB6	5/15/2003	2	27.1	ROUTINE
ACB20	5/28/2003	2	31	ROUTINE
AC7B	6/16/2003	4.5	33	ROUTINE
AC2	6/16/2003	11	32	ROUTINE
RH3	6/16/2003	6.8	34	ROUTINE
RH2	6/16/2003	240	29	ROUTINE
RH4	6/16/2003	260	34	ROUTINE
RH1	6/16/2003	540	22	ROUTINE
AC8	6/16/2003	33	31	ROUTINE
AC6G	6/16/2003	4.5	34	ROUTINE
AC5A	6/16/2003	540	33	ROUTINE
AC10	6/16/2003	23	33	ROUTINE
AC4C	6/16/2003	79	33	ROUTINE
AC3	6/16/2003	79	33	ROUTINE
AC1A	6/16/2003	27	34	ROUTINE
AC4B	6/16/2003	170	30	ROUTINE
ACB1	6/18/2003	2	30.9	ROUTINE
ACB8	6/18/2003	2	30.2	ROUTINE
ACB7	6/18/2003	2	30.6	ROUTINE
ACB6	6/18/2003	2	30.7	ROUTINE
ACB5	6/18/2003	2	30.7	ROUTINE
ACB4	6/18/2003	2	30.8	ROUTINE
ACB3	6/18/2003	2	30.5	ROUTINE
ACB2	6/18/2003	1	30.8	ROUTINE

7.93