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NH Department of Environmental Services Shellfish Program Activities, January 2006 – December 2006

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NH DEPARTMENT OF ENVIRONMENTAL SERVICES SHELLFISH PROGRAM ACTIVITES, JANUARY 2006 – DECEMBER 2006

A Final Report to

The New Hampshire Estuaries Project

Submitted by

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Executive Summary

This report summarizes the activities of the NH Department of Environmental Services (NHDES) Shellfish Program for the period of January 2006 to December 2006, emphasizing those tasks for which NHDES received direct funding from the NH Estuaries Project. 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. These include water sampling on a prescheduled/randomized basis, as well as a pollution source identification and evaluation program. These sampling programs are supplemented by other activities aimed at improving the management of conditionally-approved harvesting areas. Augmented sampling in conditionally approved areas after rainfall events and/or sewage treatment plant upsets provides information to improve management decisions and, in some cases, increase harvesting opportunities. A study to compare results from two different bacterial analysis methods (the traditional fecal coliform Most Probable Number, or MPN, test, and a newer fecal coliform membrane filtration test using mTEC agar) was initiated in 2004 and continued through 2006. The results of the study will help DES determine how classification of growing areas might change if the less-expensive mTEC test is chosen to replace the traditional MPN method. Sanitary surveys were completed for the Hampton/Seabrook Estuary, as well as for the Piscataqua River (North) growing area, which encompasses the tidal portions of the Cocheco River, Salmon Falls River, and Upper Piscataqua River. Future work will focus on maintaining the classifications established by sanitary surveys conducted since 2000. The remaining 13 percent of unclassified estuarine waters will be periodically evaluated to determine if/when sanitary surveys should be conducted.

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 meet standards 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 2006 to December 2006, 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 nearly all shellfish growing waters by the end of 2006. Sanitary survey reports will 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 2006 activities were to:

- Evaluate the sanitary quality of the state's shellfish waters.
- 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.

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.
- SHL5: Regularly collect and monitor water quality to identify sources and reduce or eliminate contaminants.

- WQ5: Conduct shoreline surveys for pollution sources

The activities supported by NHEP funding are largely related to laboratory analytical costs associated with the sampling activities of the program. The NHDES Laboratory performs bacteria tests on water samples, and these are the focus of this report. NHEP funding is also directed to the NH DHHS laboratory for bacteria analyses on water and shellfish tissue samples, and for Paralytic Shellfish Poison testing of shellfish tissue samples. A report on DHHS activities and laboratory analyses is provided separately by that agency.

Activities and Results

Shellfish Program Sanitary Surveys

Pollution Source Surveys

In support of sanitary survey development, a wide range of activities to identify, document, sample, and evaluate pollution sources in and near shellfish growing waters were undertaken in 2006. Targeted inspections and sampling of previously-identified sources was emphasized to complete sanitary surveys for selected growing areas (Hampton/Seabrook Harbor and Piscataqua River North) or to collect data needed for annual/triennial sanitary survey reviews (Atlantic Coast, Little Harbor/Back Channel, and Oyster River). Table 1 gives an overview of the types of shoreline sampling activities and level of effort undertaken in 2006. All sampling results are presented in Appendix 1.

Table 1: Overview of Pollution Source Sampling and Evaluation Activities

Waterbody/Area	# Sampling Runs	# Sites Investigated	Comments
Atlantic Coast	2	24	Dry and wet weather monitoring
Great Bay	3	3	Dry and wet weather monitoring, source impact evaluation sampling
Hampton/Seabrook Harbor	4	76	Dry and wet weather monitoring
Little Harbor/Back Channel	1	5	Dry weather monitoring
Lower Piscataqua River	4	5	Dry and wet weather monitoring, source impact evaluation sampling
Kittery WWTF	10	27	Source impact evaluation sampling
Oyster River	1	11	Dry weather monitoring
Piscataqua River North	1	11	Dry weather monitoring
Upper Little Bay	3	3	Dry and wet weather monitoring, source impact evaluation sampling

The Great Bay and Little Bay shoreline survey (December 2004 and July 2005, respectively) established new areas closed for harvesting (Crommet Creek and Branson Creek). Monitoring at these areas was continued in 2006 in the hopes of compiling adequate data to justify the reclassification of these areas in the future. Sampling in

Hampton/Seabrook Harbor was conducted to evaluate the degree to which sources might affect the water quality in the harbor, which helped delineate new classification boundaries for the Hampton/Seabrook Harbor sanitary survey. Sampling was also conducted at the Kittery, Maine Wastewater Treatment Plant to provide updated information on effluent bacteria concentrations. This information will be used in a 2007 study of the fate and transport of Kittery wastewater effluent in the Piscataqua River.

Overall Sanitary Survey Schedule

NHDES has a goal of surveying most shellfish growing areas by the end of 2006. The following gives an overview of progress toward that goal, and the status of each project that is currently underway:

- Hampton/Seabrook and Associated Tributaries: Sanitary survey begun in 2000. Updated shoreline survey completed in 2005. Final draft sanitary survey issued December 2006. Conditional Area Management Plan to be finalized early 2007.
- Upper Piscataqua River, Cocheco River, Salmon Falls River: Sanitary survey published September 2006.

The status of all sanitary surveys in coastal New Hampshire is presented in Table 2.

Table 2: 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 conducted in 2003.	Dec 2000
Bellamy River	DONE	DONE	DONE	DONE	DONE	Report done.	October 2005
Cocheco River	DONE	DONE	DONE	DONE	DONE	Merged with Salmon Falls, Upper Piscataqua surveys.	September 2006
Great Bay	DONE	DONE	DONE	DONE	DONE	Report done.	December 2004
Hampton-Seabrook, and Tributaries	DONE	DONE	DONE	DONE	DONE	Sanitary survey complete. Amendments to area management plan to be finalized in 2007	December 2006
Hampton Falls, Taylor Rivers	DONE	DONE	DONE	DONE	DONE	Triennial review incorporated into the 12/06 sanitary survey of Hampton-Seabrook. This waterbody will now be managed as part of Hampton -Seabrook,	April 2002
Lamprey River						Included in the Great Bay Sanitary Survey	December 2004
Little Harbor, Back Channel	DONE	DONE	DONE	DONE	DONE	Triennial review conducted in 2004	Dec 2001

			Source Sampling				
Lower Little Bay	DONE	DONE	DONE	DONE	DONE	Report done.	July 2005
Lower Piscataqua River						Not scheduled; area likely to be in WWTF safety zone, awaiting new Portsmouth NPDES permit. Work on Kittery WWTF safety zone ongoing.	
Oyster River	DONE	DONE	DONE	DONE	DONE	Triennial review scheduled for 2006.	April 2003
Portsmouth Harbor						Not scheduled; area likely to be in WWTF safety zone, awaiting new Portsmouth NPDES permit	
Rye Harbor						Not scheduled.	
Salmon Falls River	DONE	DONE	DONE	DONE	DONE	Merged with Cocheco, Upper Piscataqua surveys.	September 2006
Squamscott River						Included in the Great Bay Sanitary Survey	December 2004
Upper Little Bay	DONE	DONE	DONE	DONE	DONE	Report done.	July 2005
Upper Piscataqua River	DONE	DONE	DONE	DONE	DONE	Merged with Cocheco, Salmon Falls surveys.	September 2006
Winnicut River	DONE	DONE	DONE	DONE	DONE	Included in the Great Bay Sanitary Survey	December 2004

In consultation with the NHEP Shellfish Team, NHDES has decided to delay sanitary surveys in three areas. Rye Harbor has relatively little shellfish resource abundance and numerous water quality/public health risks affecting the growing area. DES will continue to emphasize pollution source identification and remediation as appropriate, and may consider a sanitary survey at a future time. The Lower Piscataqua River and Portsmouth Harbor will remain unclassified until the future of the Portsmouth WWTF is determined (the plant was recently required to upgrade to secondary treatment, and the city is currently negotiating with EPA on how best to accommodate this new requirement). The plant could expand in its current location, alter its outfall, or relocate to another area. Once a course of action is determined, a sanitary survey can be planned. In the meantime, NHDES will work with the State of Maine to examine how Kittery WWTF effluent might impact shellfish harvesting opportunities in the river.

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 routine "systematic random" sampling, conducted to comply with NSSP requirements for annually evaluating the classification of each growing area. Other components of the sampling program include sampling after rainfall events, sampling after areas have been closed due to sewage releases or severe weather events, or other programs. In all, the 2006 program included collection of 1,329 water samples over the course of 154 sampling runs. Approximately 27 percent (365) of these water samples were analyzed by the NHDES Laboratory under the contract with the NH Estuaries Project (summarized in Table 3, and listed in Appendix 2). Sampling stations are depicted in Figures 1-5.

Table 3: Summary of 2006 Ambient Water Samples Analyzed by NHDES Laboratory

Area	Routine Sampling		Post Rainfall Sampling		Closure Condition Sampling		Other Sampling*	
	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples	# Runs	#Samples
Atlantic Coast	14	147	0	0	3	27	0	0
Great Bay Estuary	5	121	0	0	1	13	0	0
Hampton Harbor	0	0	0	0	0	0	1	6
Little Harbor	0	0	0	0	0	0	5	51
TOTAL	19	268	0	0	4	40	6	57

*includes sampling associated with rainfall studies, mTEC trials, baseline tissue sampling, and others

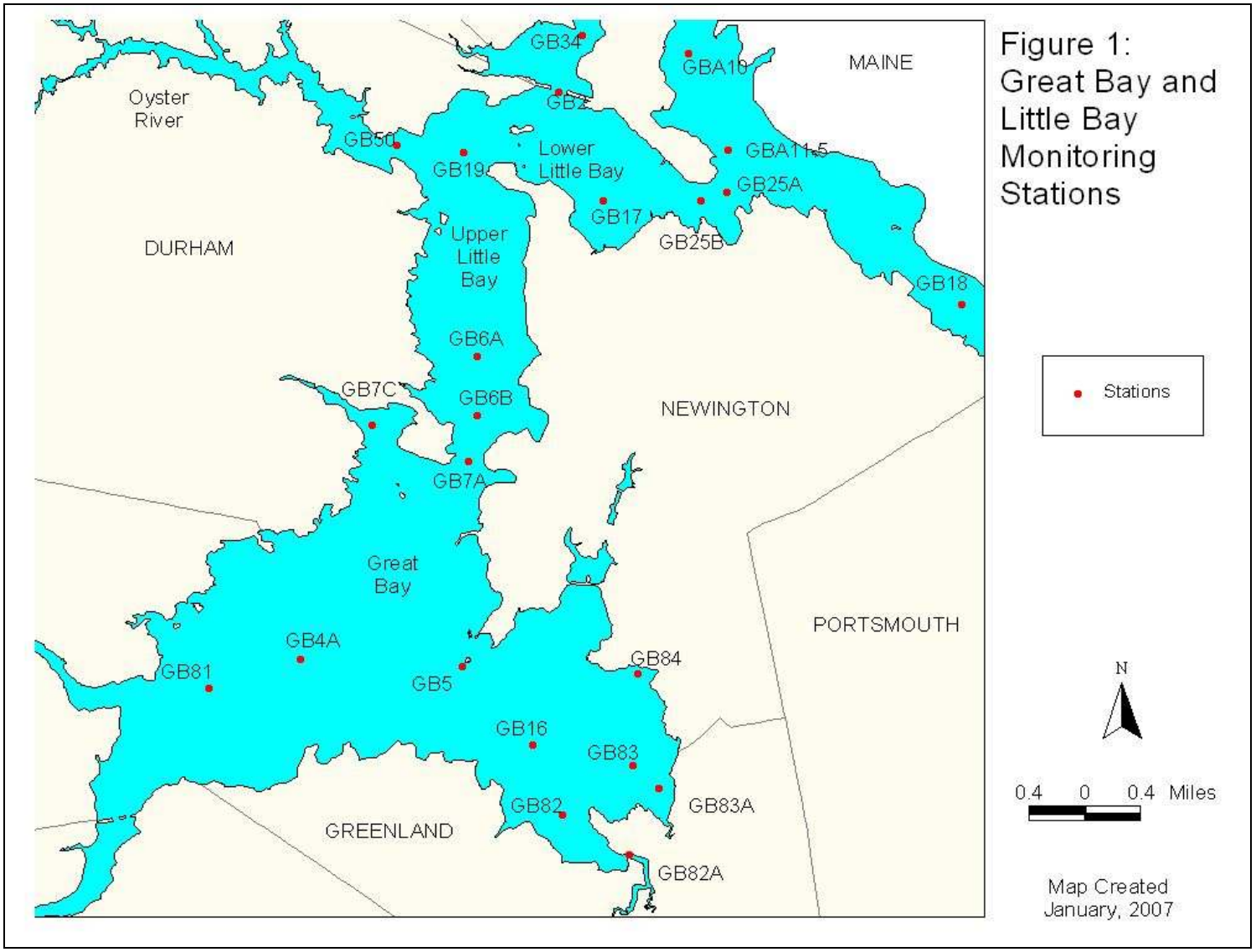


Figure 1:
Great Bay and
Little Bay
Monitoring
Stations
Oyster
River
DURHAM
MAINE
NEWINGTON
PORTSMOUTH
GREENLAND
Upper
Little
Bay
Lower
Little Bay
Great
Bay
GB34
GB2
GBA10
GB50
GB19
GBA11-5
GB25A
GB17
GB25B
GB18
GB6A
GB7C
GB6B
GB7A
GB4A
GB81
GB5
GB84
GB16
GB83
GB82
GB83A
GB82A
Stations
N
0.4 0 0.4 Miles
Map Created
January, 2007

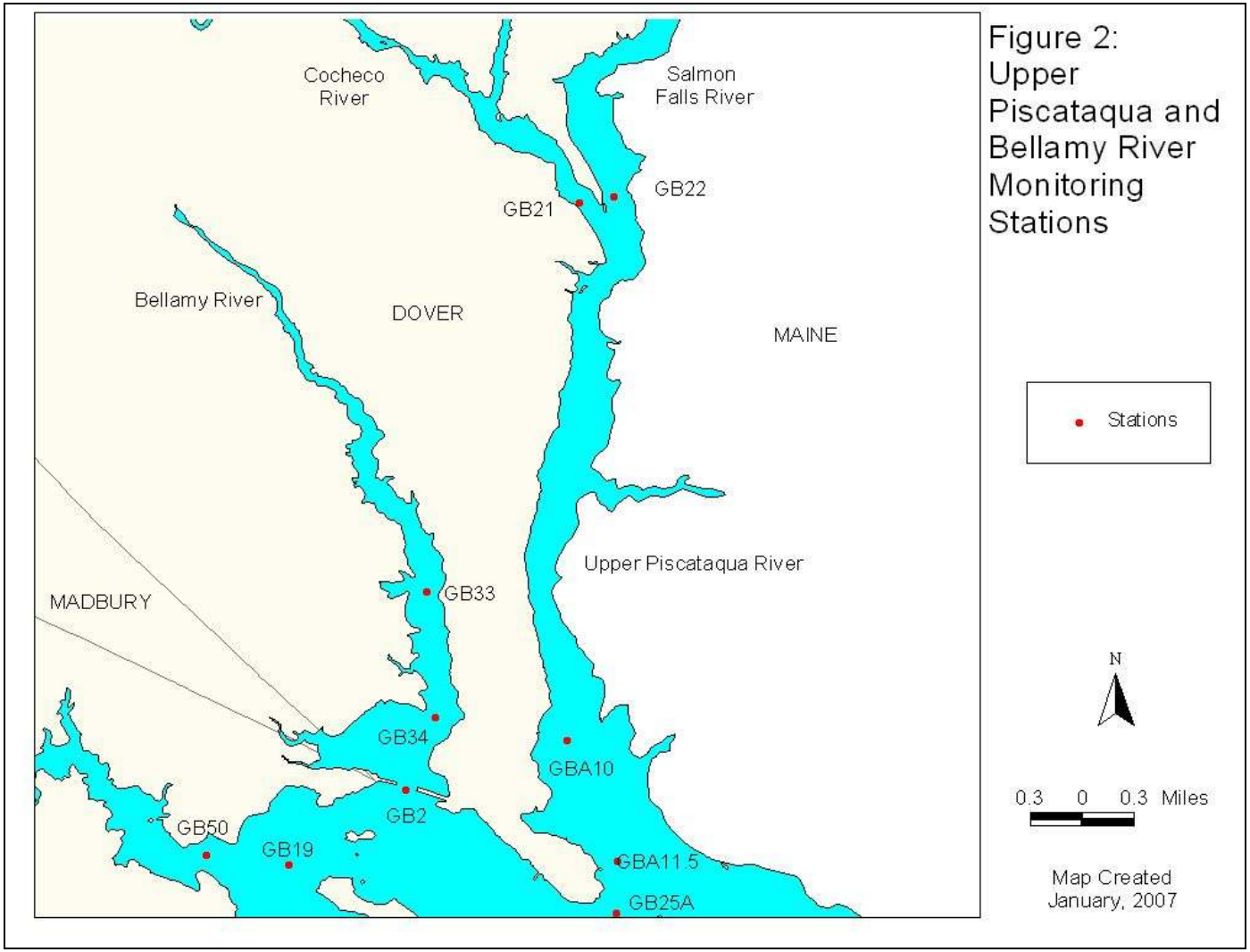


Figure 2: Upper Piscataqua and Bellamy River Monitoring Stations

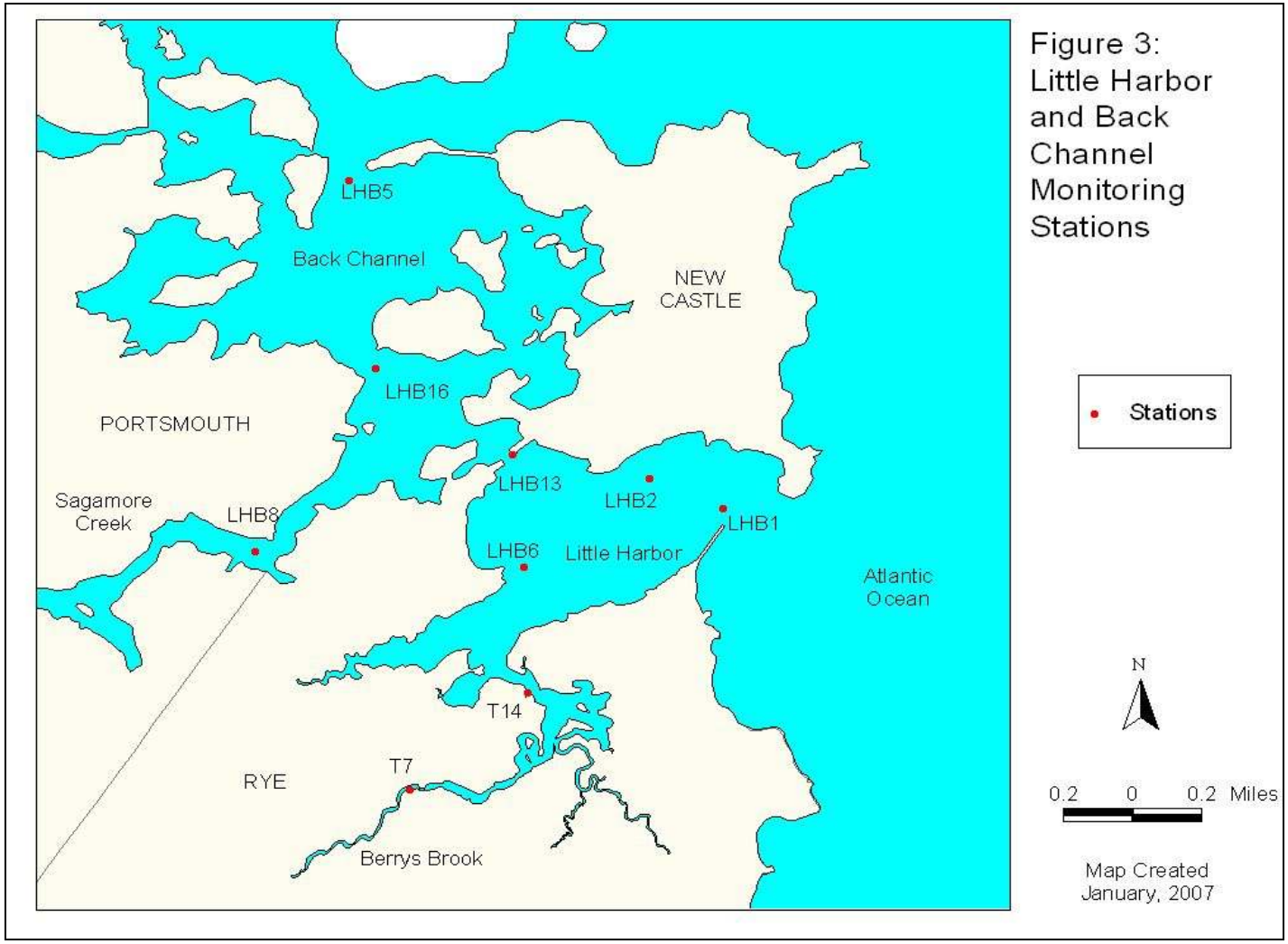


Figure 3: Little Harbor and Back Channel Monitoring Stations

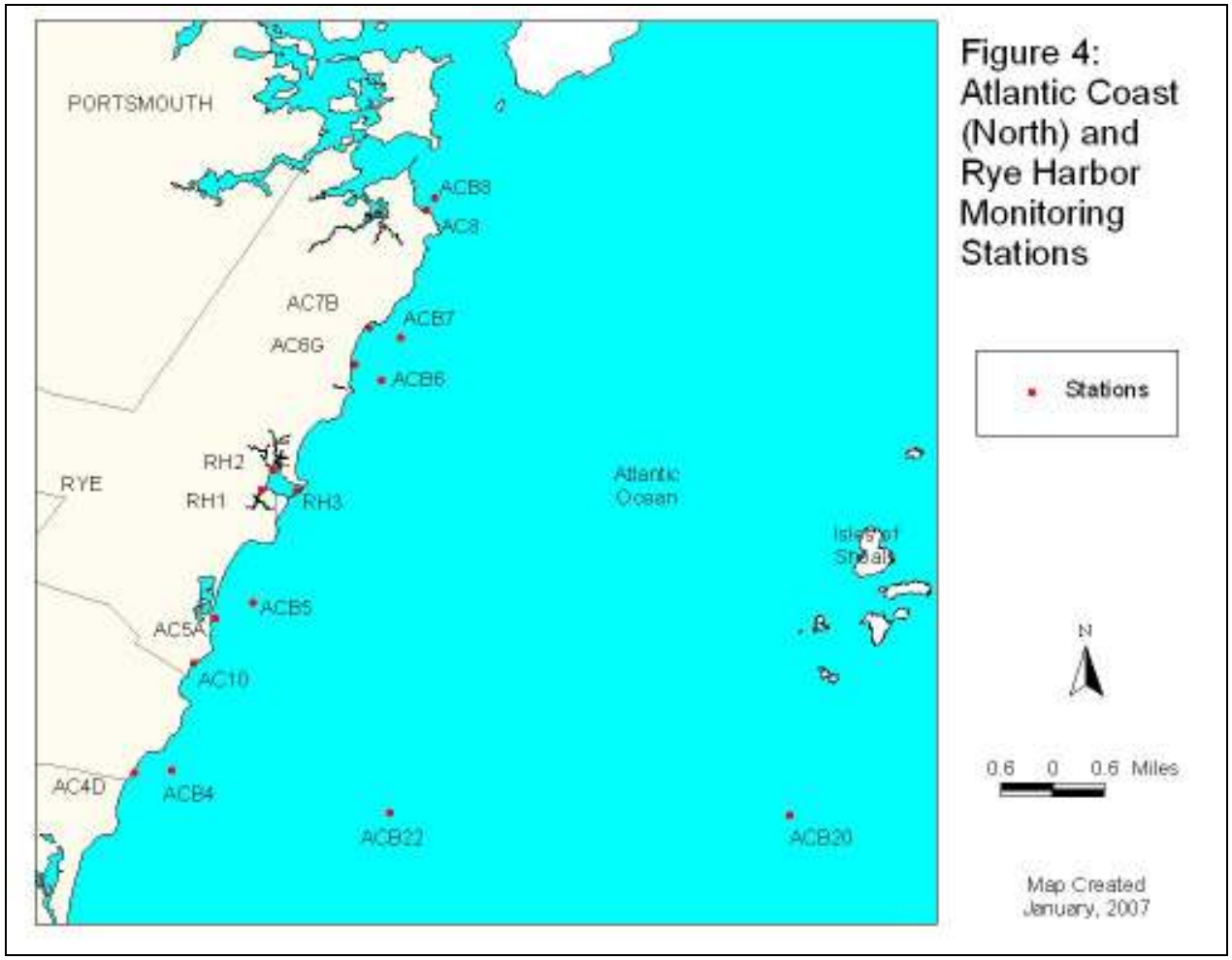
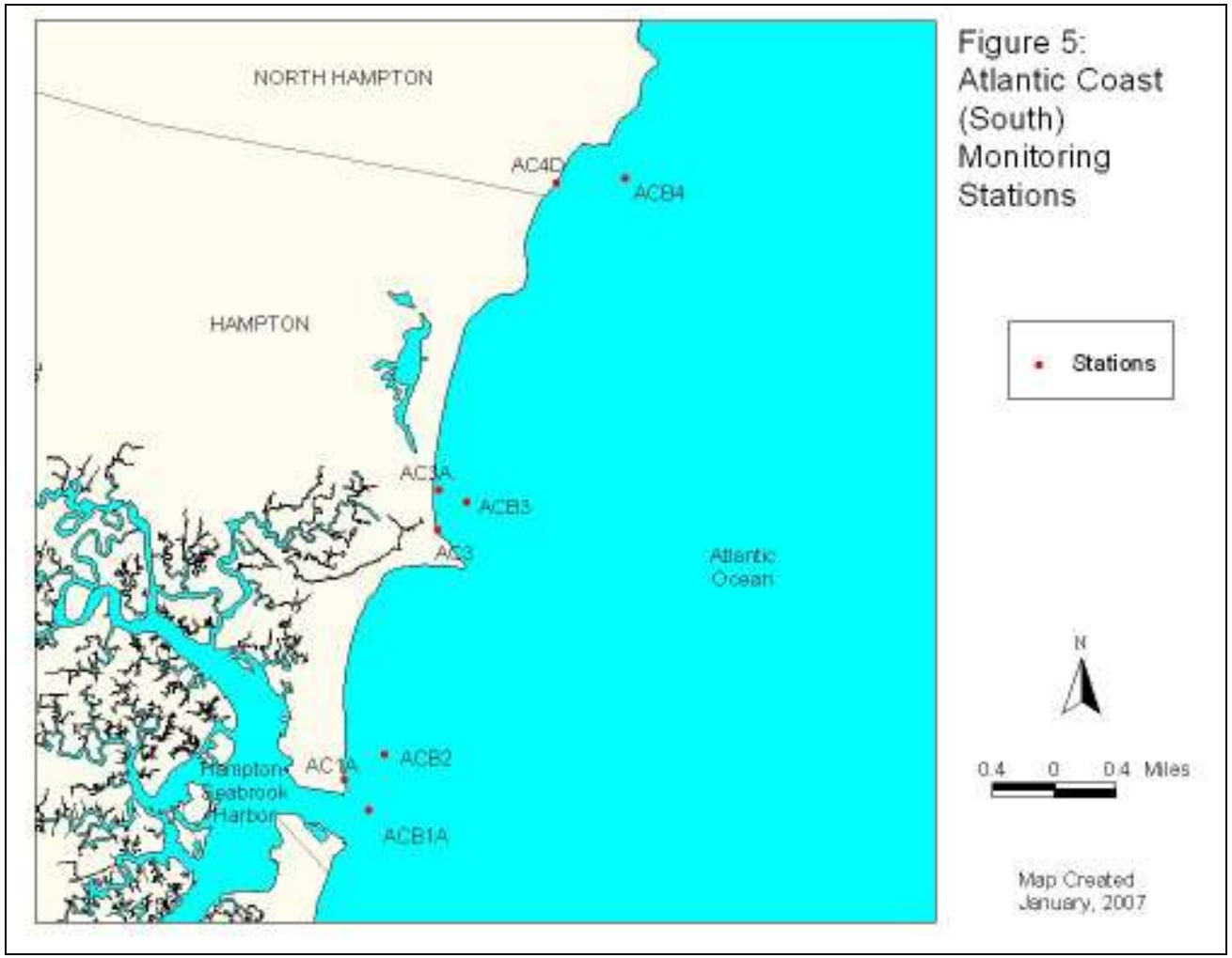
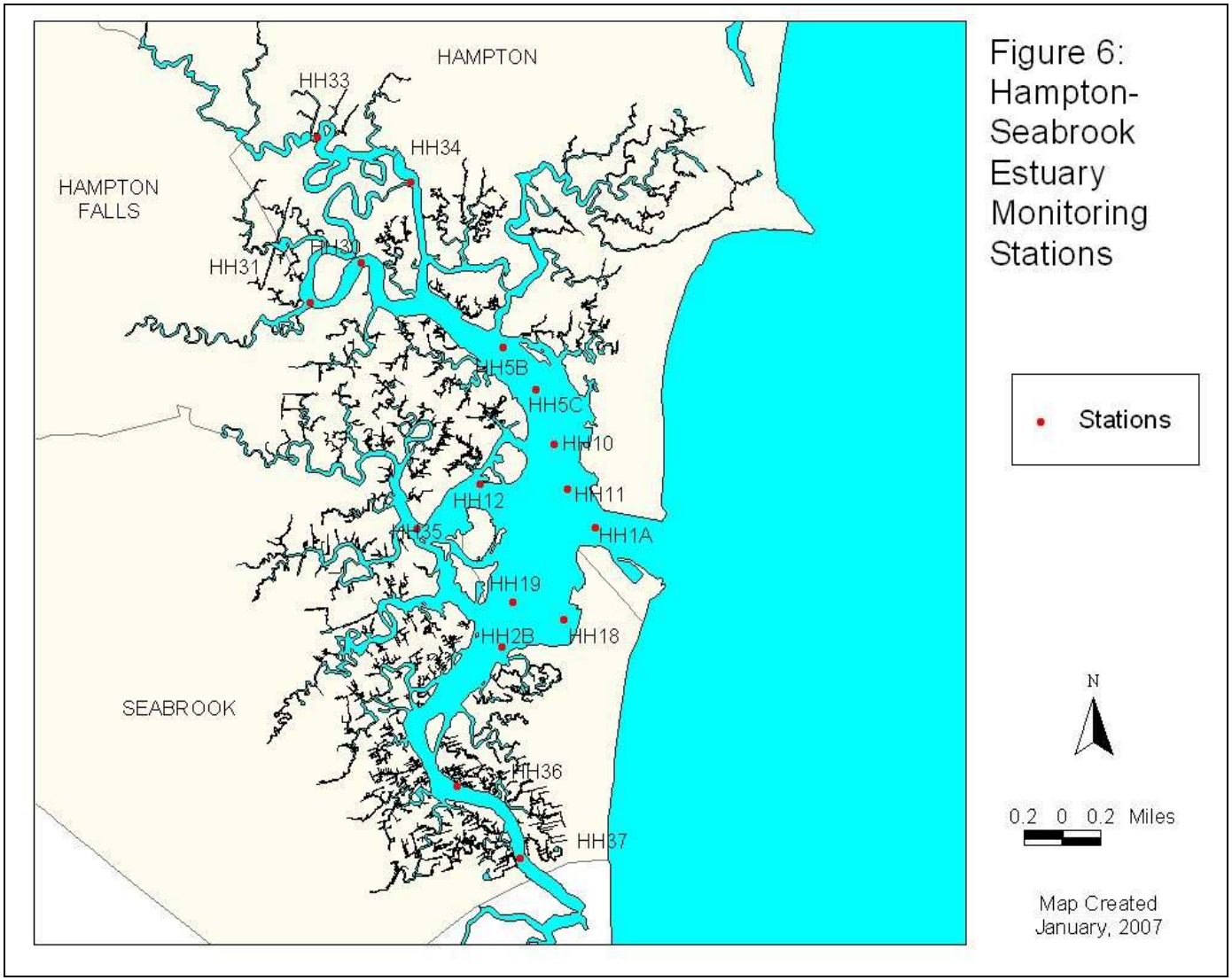


Figure 4: Atlantic Coast (North) and Rye Harbor Monitoring Stations


NORTH HAMPTON
AC4D
ACB4
HAMPTON
AC3A
ACB3
AC3
Atlantic Ocean
Hampton Seabrook Harbor
AC1A
ACB2
ACB1A
Figure 5: Atlantic Coast (South) Monitoring Stations
Stations
N
0.4 0 0.4 Miles
Map Created January, 2007


HAMPTON
HH33
HH34
HAMPTON FALLS
HH31
HH5B
HH5C
HH10
HH11
HH12
HH35
HH1A
HH19
HH2B
HH18
SEABROOK
HH36
HH37
Figure 6: Hampton-Seabrook Estuary Monitoring Stations
Stations
N
0.2 0 0.2 Miles
Map Created January, 2007

Comparative Trials for Bacterial Analyses

The NSSP has traditionally required that the "most probable number" (MPN) method for bacteria testing be done for water samples used to evaluate growing area water quality. However, the NSSP now allows for an alternative mTEC agar "membrane filtration" method, a quicker, less expensive test. Before adopting the new test, DES is running multi-year comparative testing at selected sites to see how the results from each method might change the classification of a growing area. It is possible that one test would generate data supportive of allowing harvesting, while the other method may lead to a decision to close an area.

Three sites from the three different growing areas were chosen for these comparative trials. During regularly scheduled systematic sampling runs, an extra sample was collected from each site and delivered to the DES laboratory in Concord. The MPN and the mTEC tests were then run on water drawn from the same sample bottle. Results for the 2006 data are shown in Table 4.

Table 4: MPN versus mTEC Comparisons (all results are FC/100ml)

	GB16		GB4A		GB5	
DATE	MPN	mTEC	MPN	mTEC	MPN	mTEC
4/19/2006	=4.5	=0	=4.5	=6	=2	=1
5/3/2006	=540	=440	=9.3	=5	=1.8	=3
5/23/2006	=31	=21	=7.8	=15	=4.5	=7
6/12/2006	=79	=70	=23	=38	=33	=33
7/12/2006	=730	=290	=79	=115	=140	=124
8/2/2006	=2	=1	=7.8	=3	<2	=2
9/26/2006	=17	=7	=4.5	=13	=23	=6
10/16/2006	=130	=44	=170	=155	=170	=63
11/15/2006	=110	=163	=130	=123	=1600	=540
12/5/2006	=23	=22	=70	=12	=33	=25
	HH10		HH12		HH19	
DATE	MPN	mTEC	MPN	mTEC	MPN	mTEC
4/24/2006	=2	=0	<2	=0	=11	=12
5/24/2006	<3	=0	=11	=0	=2	=0
6/5/2006	=9.3	=12	=49	=46	=24	=10
9/11/2006	=13	=11	=70	=63	=11	=17
10/4/2006	<2	=1	<2	=1	=4.5	=2
11/1/2006	=4.5	=3	=6.8	=4	=7.8	=4
12/11/2006	<2	=2	=17	=14	=4.5	=7
	LHB1		LHB13		LHB6	
DATE	MPN	mTEC	MPN	mTEC	MPN	mTEC
4/3/2006	=4.5	=7	=4.5	=0	=21	=14
5/18/2006	=350	=160	=240	=260	=540	=103
6/20/2006	=11	=9	=17	=8	=2	=11
9/5/2006	=4	=4	=4	=14	=7.8	=8
11/6/2006	<2	=4	=1	=0	=4.5	=4

Preliminary analysis indicates that the different methods would not lead to similar conclusions for a particular growing area. A more rigorous statistical evaluation of the data will be conducted in 2007, but it appears that DES will not be replacing the MPN method with the mTEC method.

Conclusions and Recommendations

The NHDES Program should continue with basic program implementation, including routine monitoring of waters for bacteria and PSP levels. Rainfall studies and pre/post rainfall sampling of waters and shellfish 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. Work for 2007 will focus on maintaining classifications, conducting field work necessary for FDA-required annual reports and triennial updates, and on doing pollution source investigations as needed. Great Bay and Little Harbor/Back Channel will receive emphasis in 2007, as triennial reviews of these surveys are due in early 2008. Pollution-source conditions in Rye Harbor and in Portsmouth Harbor will be monitored to determine when it would be appropriate to initiate sanitary surveys of these areas.

Appendix 1
2006 Pollution Source Sampling (Fecal Coliform) Data

All sampling was done in accordance with EPA-approved Quality Assurance Project Plans. Documentation of laboratory QA checks is on file with the analytical laboratories.

Station ID	Project	Date	FC	Units
ACPS001	Dry Weather Sampling	08/16/2006	100	CTS/100ML
ACPS002	Dry Weather Sampling	08/16/2006	60	CTS/100ML
ACPS003	Dry Weather Sampling	08/16/2006	70	CTS/100ML
ACPS005	Dry Weather Sampling	08/16/2006	50	CTS/100ML
ACPS005	Wet Weather Sampling	08/21/2006	530	CTS/100ML
ACPS006	Dry Weather Sampling	08/16/2006	200	CTS/100ML
ACPS006	Wet Weather Sampling	08/21/2006	150	CTS/100ML
ACPS007	Dry Weather Sampling	08/16/2006	10	CTS/100ML
ACPS007	Wet Weather Sampling	08/21/2006	100	CTS/100ML
ACPS008	Dry Weather Sampling	08/16/2006	No Sample Collected	CTS/100ML
ACPS010	Dry Weather Sampling	08/16/2006	150	CTS/100ML
ACPS010	Wet Weather Sampling	08/21/2006	10	CTS/100ML
ACPS011	Dry Weather Sampling	08/16/2006	30	CTS/100ML
ACPS011	Wet Weather Sampling	08/21/2006	20	CTS/100ML
ACPS012	Dry Weather Sampling	08/16/2006	110	CTS/100ML
ACPS012	Wet Weather Sampling	08/21/2006	1740	CTS/100ML
ACPS013	Dry Weather Sampling	08/16/2006	<5	CTS/100ML
ACPS020	Dry Weather Sampling	08/16/2006	No Sample Collected	CTS/100ML
ACPS021	Dry Weather Sampling	08/16/2006	No Sample Collected	CTS/100ML
ACPS026	Dry Weather Sampling	08/16/2006	No Sample Collected	CTS/100ML
ACPS028	Dry Weather Sampling	08/16/2006	80	CTS/100ML
ACPS031	Dry Weather Sampling	08/16/2006	No Sample Collected	CTS/100ML
ACPS034	Dry Weather Sampling	08/16/2006	20	CTS/100ML
ACPS048	Dry Weather Sampling	08/16/2006	<10	CTS/100ML
GBPS014	Wet Weather Sampling	08/21/2006	540	MPN/100ML
GBPS014	Dry Weather Sampling	09/19/2006	17	MPN/100ML
GBPS014	Dry Weather Sampling	10/25/2006	13	MPN/100ML
HHPS001	Dry Weather Sampling	06/19/2006	120	CTS/100ML
HHPS001	Wet Weather Sampling	10/12/2006	480	CTS/100ML
HHPS020	Dry Weather Sampling	06/20/2006	20	CTS/100ML

Station ID	Project	Date	FC	Units
HHPS021	Dry Weather Sampling	06/20/2006	10	CTS/100ML
HHPS037	Dry Weather Sampling	06/20/2006	20	CTS/100ML
HHPS037	Wet Weather Sampling	10/12/2006	40	CTS/100ML
HHPS058	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS058	Wet Weather Sampling	08/29/2006	No Sample Collected	CTS/100ML
HHPS061	Wet Weather Sampling	08/29/2006	460	CTS/100ML
HHPS061	Wet Weather Sampling	10/12/2006	850	CTS/100ML
HHPS062	Wet Weather Sampling	08/29/2006	>260	CTS/100ML
HHPS062	Wet Weather Sampling	10/12/2006	670	CTS/100ML
HHPS066	Wet Weather Sampling	08/29/2006	2110	CTS/100ML
HHPS066	Wet Weather Sampling	10/12/2006	200	CTS/100ML
HHPS067	Wet Weather Sampling	08/29/2006	No Sample Collected	CTS/100ML
HHPS068	Wet Weather Sampling	08/29/2006	1280	CTS/100ML
HHPS068	Wet Weather Sampling	10/12/2006	>2000	CTS/100ML
HHPS069	Wet Weather Sampling	08/29/2006	1690	CTS/100ML
HHPS069	Wet Weather Sampling	10/12/2006	1450	CTS/100ML
HHPS135	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS136	Dry Weather Sampling	06/20/2006	40	CTS/100ML
HHPS139	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS139	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS140	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS140	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS141	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS141	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS142	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS142	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS143	Dry Weather Sampling	06/19/2006	No Sample Collected	CTS/100ML
HHPS143	Dry Weather Sampling	06/20/2006	No Sample Collected	CTS/100ML
HHPS206	Dry Weather Sampling	06/20/2006	40	CTS/100ML
HHPS207	Dry Weather Sampling	06/20/2006	20	CTS/100ML
HHPS208	Dry Weather Sampling	06/20/2006	30	CTS/100ML
HHPS209	Dry Weather Sampling	06/20/2006	30	CTS/100ML

Station ID	Project	Date	FC	Units
HHPS210	Dry Weather Sampling	06/20/2006	20	CTS/100ML
HHPS214	Dry Weather Sampling	06/20/2006	10	CTS/100ML
HHPS215	Dry Weather Sampling	06/20/2006	40	CTS/100ML
HHPS215	Wet Weather Sampling	10/12/2006	150	CTS/100ML
HHPS216	Dry Weather Sampling	06/19/2006	50	CTS/100ML
HHPS216	Dry Weather Sampling	06/20/2006	10	CTS/100ML
HHPS216	Wet Weather Sampling	10/12/2006	430	CTS/100ML
HHPS217	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS217	Wet Weather Sampling	10/12/2006	470	CTS/100ML
HHPS218	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS220	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS221	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS221	Wet Weather Sampling	10/12/2006	110	CTS/100ML
HHPS222	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS223	Dry Weather Sampling	06/19/2006	20	CTS/100ML
HHPS223	Wet Weather Sampling	08/29/2006	50	CTS/100ML
HHPS223	Wet Weather Sampling	10/12/2006	280	CTS/100ML
HHPS223	Wet Weather Sampling	10/12/2006	930	CTS/100ML
HHPS224	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS225	Dry Weather Sampling	06/19/2006	5	CTS/100ML
HHPS226	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS226	Wet Weather Sampling	10/12/2006	>290	CTS/100ML
HHPS228	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS228	Wet Weather Sampling	10/12/2006	110	CTS/100ML
HHPS229	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS229	Wet Weather Sampling	10/12/2006	60	CTS/100ML
HHPS230	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS230	Wet Weather Sampling	10/12/2006	20	CTS/100ML
HHPS231	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS232	Dry Weather Sampling	06/19/2006	30	CTS/100ML
HHPS233	Dry Weather Sampling	06/19/2006	40	CTS/100ML
HHPS234	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS235	Dry Weather Sampling	06/19/2006	<10	CTS/100ML
HHPS236	Dry Weather Sampling	06/19/2006	20	CTS/100ML
HHPS237	Dry Weather Sampling	06/19/2006	20	CTS/100ML
HHPS238	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS239	Dry Weather Sampling	06/19/2006	10	CTS/100ML
HHPS240	Dry Weather Sampling	06/19/2006	50	CTS/100ML

Station ID	Project	Date	FC	Units
HHPS240	Wet Weather Sampling	10/12/2006	>2000	CTS/100ML
HHPS241	Dry Weather Sampling	06/19/2006	40	CTS/100ML
HHPS242	Dry Weather Sampling	06/19/2006	40	CTS/100ML
LHPS121	Dry Weather Sampling	07/25/2006	240	CTS/100ML
LHPS122	Dry Weather Sampling	07/25/2006	310	CTS/100ML
LHPS123	Dry Weather Sampling	07/25/2006	60	CTS/100ML
LHPS124	Dry Weather Sampling	07/25/2006	<10	CTS/100ML
LHPS132	Dry Weather Sampling	07/25/2006	<10	CTS/100ML
LPRPS003	Wet Weather Sampling	8/21/2006	200	MPN/100ML
LPRPS003	Dry Weather Sampling	9/13/2006	33	MPN/100ML
LPRPS003	Dry Weather Sampling	9/13/2006	70	MPN/100ML
LPRPS003	Dry Weather Sampling	9/19/2006	13	MPN/100ML
LPRPS003	Dry Weather Sampling	10/25/2006	27	MPN/100ML
LPRPS008	WWTF Sampling	3/28/2006	>160000	MPN/100ML
LPRPS008	WWTF Sampling	4/5/2006	9200000	MPN/100ML
LPRPS008	WWTF Sampling	4/26/2006	3500000	MPN/100ML
LPRPS008	WWTF Sampling	5/22/2006	5400000	MPN/100ML
LPRPS008	WWTF Sampling	6/26/2006	9200000	MPN/100ML
LPRPS008	WWTF Sampling	7/24/2006	>16000000	MPN/100ML
LPRPS008	WWTF Sampling	8/21/2006	16000000	MPN/100ML
LPRPS008	WWTF Sampling	9/19/2006	9200000	MPN/100ML
LPRPS008	WWTF Sampling	10/25/2006	16000000	MPN/100ML
LPRPS009	WWTF Sampling	3/28/2006	>160000	MPN/100ML
LPRPS009	WWTF Sampling	4/5/2006	1300000	MPN/100ML
LPRPS009	WWTF Sampling	4/26/2006	46000	MPN/100ML
LPRPS009	WWTF Sampling	5/22/2006	54000	MPN/100ML
LPRPS009	WWTF Sampling	6/26/2006	68000	MPN/100ML
LPRPS009	WWTF Sampling	7/24/2006	33000	MPN/100ML
LPRPS009	WWTF Sampling	8/21/2006	3500	MPN/100ML
LPRPS009	WWTF Sampling	9/19/2006	79000	MPN/100ML
LPRPS009	WWTF Sampling	10/25/2006	23000	MPN/100ML
LPRPS010	WWTF Sampling	3/28/2006	54000	MPN/100ML
LPRPS010	WWTF Sampling	3/28/2006	24000	MPN/100ML
LPRPS010	WWTF Sampling	4/26/2006	3300	MPN/100ML
OYSPS001	Dry Weather Sampling	07/25/2006	60	CTS/100ML
OYSPS002	Dry Weather Sampling	07/25/2006	110	CTS/100ML
OYSPS003	Dry Weather Sampling	07/25/2006	20	CTS/100ML
OYSPS004	Dry Weather Sampling	07/25/2006	40	CTS/100ML

Station ID	Project	Date	FC	Units
OYSPS005	Dry Weather Sampling	07/25/2006	No Sample Collected	CTS/100ML
OYSPS006	Dry Weather Sampling	07/25/2006	No Sample Collected	CTS/100ML
OYSPS007	Dry Weather Sampling	07/25/2006	No Sample Collected	CTS/100ML
OYSPS008	Dry Weather Sampling	07/25/2006	10	CTS/100ML
OYSPS009	Dry Weather Sampling	07/25/2006	10	CTS/100ML
OYSPS010	Dry Weather Sampling	07/25/2006	10	CTS/100ML
OYSPS014	Dry Weather Sampling	07/25/2006	50	CTS/100ML
ULBPS025	Wet Weather Sampling	08/21/2006	350	MPN/100ML
ULBPS025	Dry Weather Sampling	09/19/2006	46	MPN/100ML
ULBPS025	Dry Weather Sampling	10/25/2006	110	MPN/100ML

Station ID	Project	Date	Enterococcus	Units
LPRPS008	WWTF Sampling	4/26/2006	> 195000	CTS/100ML
LPRPS008	WWTF Sampling	6/26/2006	> 200000	CTS/100ML
LPRPS008	WWTF Sampling	7/24/2006	234000	CTS/100ML
LPRPS008	WWTF Sampling	8/21/2006	> 200000	CTS/100ML
LPRPS008	WWTF Sampling	9/19/2006	> 200000	CTS/100ML
LPRPS008	WWTF Sampling	10/25/2006	1200000	CTS/100ML
LPRPS009	WWTF Sampling	4/26/2006	4500	CTS/100ML
LPRPS009	WWTF Sampling	6/26/2006	5800	CTS/100ML
LPRPS009	WWTF Sampling	7/24/2006	3100	CTS/100ML
LPRPS009	WWTF Sampling	8/21/2006	210	CTS/100ML
LPRPS009	WWTF Sampling	9/19/2006	7500	CTS/100ML
LPRPS009	WWTF Sampling	10/25/2006	2900	CTS/100ML
LPRPS010	WWTF Sampling	4/26/2006	290	CTS/100ML
GB13	WWTF Sampling	4/26/2006	<10	CTS/100ML
GB13A	WWTF Sampling	4/26/2006	<10	CTS/100ML
GB90	WWTF Sampling	4/26/2006	<10	CTS/100ML
GB91	WWTF Sampling	4/26/2006	<10	CTS/100ML
GB92	WWTF Sampling	4/26/2006	<10	CTS/100ML
GB93	WWTF Sampling	4/26/2006	<10	CTS/100ML

Appendix 2
2006 Ambient Water Fecal Coliform Data

Data analysis by DES Laboratory. Salinities measured by DES Shellfish Program staff.

All sampling was done in accordance with EPA-approved Quality Assurance Project Plans. Documentation of laboratory QA checks is on file with the analytical laboratories.

PROJECT TYPE	DATE	SITE	TIME	TEMP (deg C)	FCMPN per100ml	SALINITY (ppt)
EMERGENCY CLOSURE	5/23/2006	GB16	7:58	13	=31	3
EMERGENCY CLOSURE	5/23/2006	GB17	8:27	11.5	=6.8	7
EMERGENCY CLOSURE	5/23/2006	GB19	8:16	11.5	=7.8	12
EMERGENCY CLOSURE	5/23/2006	GB2	8:20	12	=7.8	9
EMERGENCY CLOSURE	5/23/2006	GB25A	8:35	10	=6.8	18
EMERGENCY CLOSURE	5/23/2006	GB25B	8:30	10	=2	20
EMERGENCY CLOSURE	5/23/2006	GB34	8:22	12	=7.8	8
EMERGENCY CLOSURE	5/23/2006	GB4A	7:50	12	=7.8	5
EMERGENCY CLOSURE	5/23/2006	GB5	7:55	12.5	=4.5	6
EMERGENCY CLOSURE	5/23/2006	GB50	8:13	12	=13	8
EMERGENCY CLOSURE	5/23/2006	GB6A	8:08	12.5	=6.1	6
EMERGENCY CLOSURE	5/23/2006	GB6B	8:06	12	=6.1	8
EMERGENCY CLOSURE	5/23/2006	GB7A	8:04	12.5	=1.8	6
EMERGENCY CLOSURE	5/31/2006	AC10	13:13	14.5	<2	31
EMERGENCY CLOSURE	5/31/2006	AC1A	13:56	14.5	=2	30
EMERGENCY CLOSURE	5/31/2006	AC3	13:39	15	<2	29
EMERGENCY CLOSURE	5/31/2006	AC3A	13:34	15	<2	31
EMERGENCY CLOSURE	5/31/2006	AC4D	13:24	15	=1.8	27
EMERGENCY CLOSURE	5/31/2006	AC5A	13:09	14.5	<2	30
EMERGENCY CLOSURE	5/31/2006	AC6G	12:57	15	<2	31
EMERGENCY CLOSURE	5/31/2006	AC7B	12:51	14.5	<2	31
EMERGENCY CLOSURE	5/31/2006	AC8	12:39	15	=6.8	28
EMERGENCY CLOSURE	6/12/2006	AC10	9:37	14.5	=2	29.9
EMERGENCY CLOSURE	6/12/2006	AC1A	7:10	12.5	=2	30.8
EMERGENCY CLOSURE	6/12/2006	AC3	7:25	13	<2	30.7
EMERGENCY CLOSURE	6/12/2006	AC3A	7:32	13	=2	30.6
EMERGENCY CLOSURE	6/12/2006	AC4D	9:44	13	<2	30.8
EMERGENCY CLOSURE	6/12/2006	AC5A	9:27	13	=33	29.7
EMERGENCY CLOSURE	6/12/2006	AC6G	9:17	13	=4	29.9
EMERGENCY CLOSURE	6/12/2006	AC7B	9:11	13	=4.5	29.9
EMERGENCY CLOSURE	6/12/2006	AC8	9:01	14.5	=12	21.9
EMERGENCY CLOSURE	8/28/2006	AC10	8:08	15	=4.5	31
EMERGENCY CLOSURE	8/28/2006	AC1A	9:25	15	=9	32
EMERGENCY CLOSURE	8/28/2006	AC3	8:37	15	<2	32
EMERGENCY CLOSURE	8/28/2006	AC3A	8:33	15	=4	32
EMERGENCY CLOSURE	8/28/2006	AC4D	8:17	15	=9.3	31
EMERGENCY CLOSURE	8/28/2006	AC5A	8:00	15	<2	32
EMERGENCY CLOSURE	8/28/2006	AC6G	7:48	15	=23	31
EMERGENCY CLOSURE	8/28/2006	AC7B	7:39	15	=2	31
EMERGENCY CLOSURE	8/28/2006	AC8	7:28	14.5	=7.8	32
OPEN STATUS	9/27/2006	ACB1A	10:29	13	<2	33
OPEN STATUS	9/27/2006	ACB2	10:33	13	<2	33
OPEN STATUS	9/27/2006	ACB20	10:06	14.5	<2	33
OPEN STATUS	9/27/2006	ACB22	10:55	14	<2	33
OPEN STATUS	9/27/2006	ACB3	10:40	13	<2	34
OPEN STATUS	9/27/2006	ACB4	10:47	13.5	<2	34
OPEN STATUS	9/27/2006	ACB5	11:02	14	<2	33
OPEN STATUS	9/27/2006	ACB6	11:10	13.5	=1.8	34
OPEN STATUS	9/27/2006	ACB7	11:13	13.5	<2	33

OPEN STATUS	9/27/2006	ACB8	9:28	12	=1.8	33
SHELLWET	10/12/2006	HH10	10:27	16	=90	
SHELLWET	10/12/2006	HH11	10:25	16	=110	
SHELLWET	10/12/2006	HH19	10:09	15	=110	
SHELLWET	10/12/2006	HH1A	10:24	15	=80	
SHELLWET	10/12/2006	HH2B	10:10	15	=50	
SHELLWET	10/12/2006	HH5C	10:28	16	=50	
SYS RANDOM	4/6/2006	ACB1A	9:48	4	<2	33
SYS RANDOM	4/6/2006	ACB2	9:53	4	<2	33
SYS RANDOM	4/6/2006	ACB20	8:42	5	<2	33
SYS RANDOM	4/6/2006	ACB22	9:15	4	<2	33
SYS RANDOM	4/6/2006	ACB3	9:37	4	<2	32
SYS RANDOM	4/6/2006	ACB4	9:25	4	=4.5	30
SYS RANDOM	4/6/2006	ACB5	10:20	4	=2	33
SYS RANDOM	4/6/2006	ACB6	10:37	4.5	<2	33
SYS RANDOM	4/6/2006	ACB7	10:44	4.5	<2	33
SYS RANDOM	4/6/2006	ACB8	10:54	5	<2	32
SYS RANDOM	4/11/2006	AC10	7:51	5	=2	32
SYS RANDOM	4/11/2006	AC1A	8:41	5	=6.8	32
SYS RANDOM	4/11/2006	AC3	8:11	5	<2	32
SYS RANDOM	4/11/2006	AC3A	8:08	5	<2	32
SYS RANDOM	4/11/2006	AC4D	8:02	5	<2	31
SYS RANDOM	4/11/2006	AC5A	7:46	5	=2	32
SYS RANDOM	4/11/2006	AC6G	7:35	5	<2	31
SYS RANDOM	4/11/2006	AC7B	7:27	5	<2	32
SYS RANDOM	4/11/2006	AC8	7:17	5	=13	30
SYS RANDOM	5/8/2006	ACB1A	8:37	10	<2	32
SYS RANDOM	5/8/2006	ACB2	8:35	10	<2	31
SYS RANDOM	5/8/2006	ACB20	8:00	10	<2	32
SYS RANDOM	5/8/2006	ACB22	8:15	10	<2	32
SYS RANDOM	5/8/2006	ACB3	8:30	10	<2	32
SYS RANDOM	5/8/2006	ACB4	8:24	10	<2	32
SYS RANDOM	5/8/2006	ACB5	8:55	10	<2	31
SYS RANDOM	5/8/2006	ACB6	9:00	10	=1.8	31
SYS RANDOM	5/8/2006	ACB7	9:03	10	<2	30
SYS RANDOM	5/8/2006	ACB8	7:30	10	=2	28
SYS RANDOM	5/10/2006	AC10	9:42	9.5	=9.3	30
SYS RANDOM	5/10/2006	AC1A	10:09	9	=33	31
SYS RANDOM	5/10/2006	AC3	9:58	9.5	=33	31
SYS RANDOM	5/10/2006	AC3A	9:55	9.5	=22	31
SYS RANDOM	5/10/2006	AC4D	9:48	9	=22	31
SYS RANDOM	5/10/2006	AC5A	9:37	9.5	=6.8	29
SYS RANDOM	5/10/2006	AC6G	9:18	9	<2	31
SYS RANDOM	5/10/2006	AC7B	9:13	9	=2	31
SYS RANDOM	5/10/2006	AC8	9:00	9	=11	30
SYS RANDOM	5/10/2006	RH1	9:31	9.5	=170	26
SYS RANDOM	5/10/2006	RH2	9:28	10	=41	30
SYS RANDOM	5/10/2006	RH3	9:25	9.5	=17	31
SYS RANDOM	6/6/2006	ACB1A	10:15	15	<2	28
SYS RANDOM	6/6/2006	ACB2	10:20	15	<2	29
SYS RANDOM	6/6/2006	ACB20	9:44	13	<2	29
SYS RANDOM	6/6/2006	ACB22	10:38	15	=2	27
SYS RANDOM	6/6/2006	ACB3	10:25	15	<2	27
SYS RANDOM	6/6/2006	ACB4	10:30	15	<2	27
SYS RANDOM	6/6/2006	ACB5	10:46	15	=9.2	24
SYS RANDOM	6/6/2006	ACB6	9:00	13	=4.5	26
SYS RANDOM	6/6/2006	ACB7	9:04	13.5	=4	27
SYS RANDOM	6/6/2006	ACB8	9:13	14	=7.8	25
SYS RANDOM	7/17/2006	ACB1A	10:31	18	<2	32
SYS RANDOM	7/17/2006	ACB2	10:35	18	<2	32
SYS RANDOM	7/17/2006	ACB20	9:58	17	<2	32
SYS RANDOM	7/17/2006	ACB22	10:55	18	<2	32

SYS RANDOM	7/17/2006	ACB3	10:40	18	<2	32
SYS RANDOM	7/17/2006	ACB4	10:49	20	=17	30
SYS RANDOM	7/17/2006	ACB5	11:01	18	<2	32
SYS RANDOM	7/17/2006	ACB6	11:11	18	<2	30
SYS RANDOM	7/17/2006	ACB7	11:15	18.5	=6.8	30
SYS RANDOM	7/17/2006	ACB8	11:23	15	=4.5	30
SYS RANDOM	7/19/2006	AC10	10:06	16.5	<2	30
SYS RANDOM	7/19/2006	AC1A	10:48	16	=4.5	32
SYS RANDOM	7/19/2006	AC3	10:30	16	<2	31
SYS RANDOM	7/19/2006	AC3A	10:25	16	=4.5	32
SYS RANDOM	7/19/2006	AC4D	10:17	16.5	=4.5	29
SYS RANDOM	7/19/2006	AC5A	10:01	17	=4.5	30
SYS RANDOM	7/19/2006	AC6G	9:39	16	=2	30
SYS RANDOM	7/19/2006	AC7B	9:33	16.5	=2	29
SYS RANDOM	7/19/2006	AC8	9:25	16	=23	29
SYS RANDOM	7/19/2006	RH1	9:53	18.5	=30	30
SYS RANDOM	7/19/2006	RH2	9:50	18	=17	31
SYS RANDOM	7/19/2006	RH3	9:47	18	=4.5	31
SYS RANDOM	8/2/2006	GB16	7:49	24	=2	21
SYS RANDOM	8/2/2006	GB17	8:55	20	<2	25
SYS RANDOM	8/2/2006	GB18	9:40	19	=7.8	26
SYS RANDOM	8/2/2006	GB19	8:33	22	=6.8	26
SYS RANDOM	8/2/2006	GB2	8:37	23	=1.8	26
SYS RANDOM	8/2/2006	GB21	9:24	30	=46	7
SYS RANDOM	8/2/2006	GB22	9:27	26	=79	7
SYS RANDOM	8/2/2006	GB25A	9:09	18	=2	27
SYS RANDOM	8/2/2006	GB25B	9:07	20	=2	26
SYS RANDOM	8/2/2006	GB33	8:45	25	=23	21
SYS RANDOM	8/2/2006	GB34	8:42	24	=9.3	24
SYS RANDOM	8/2/2006	GB4A	8:10	24	=7.8	21
SYS RANDOM	8/2/2006	GB5	7:45	24	<2	22
SYS RANDOM	8/2/2006	GB50	8:31	23	=13	24
SYS RANDOM	8/2/2006	GB6A	8:27	22	<2	24
SYS RANDOM	8/2/2006	GB6B	8:25	24	<2	23
SYS RANDOM	8/2/2006	GB7A	8:23	24	<2	23
SYS RANDOM	8/2/2006	GB7C	8:18	26	=33	21
SYS RANDOM	8/2/2006	GB81	8:12	24	=13	21
SYS RANDOM	8/2/2006	GB82	7:53	25	=13	21
SYS RANDOM	8/2/2006	GB83	7:55	25	<2	21
SYS RANDOM	8/2/2006	GB83A	7:57	25	=4	20
SYS RANDOM	8/2/2006	GB84	8:01	26	=13	20
SYS RANDOM	8/2/2006	GBA10	9:13	22	=17	20
SYS RANDOM	8/2/2006	GBA11.5	9:10	21	=4.5	26
SYS RANDOM	8/8/2006	ACB1A	10:13	15	=2	
SYS RANDOM	8/8/2006	ACB2	10:17	15	=4.5	
SYS RANDOM	8/8/2006	ACB20	9:41	18.5	=2	
SYS RANDOM	8/8/2006	ACB22	10:41	15.5	<2	
SYS RANDOM	8/8/2006	ACB3	10:25	14.5	<2	
SYS RANDOM	8/8/2006	ACB4	10:32	14.5	=6.8	
SYS RANDOM	8/8/2006	ACB5	10:46	15	<2	
SYS RANDOM	8/8/2006	ACB6	10:57	15.5	=4.5	
SYS RANDOM	8/8/2006	ACB7	11:00	16	<2	
SYS RANDOM	8/8/2006		ACB8	9:06	17	=9.3
SYS RANDOM	8/15/2006	AC10	8:10	16	=4.5	
SYS RANDOM	8/15/2006	AC1A	8:47	15.5	=7.8	
SYS RANDOM	8/15/2006	AC3	8:34	15	<2	
SYS RANDOM	8/15/2006	AC3A	8:30	15.5	<2	
SYS RANDOM	8/15/2006	AC4D	8:18	15.5	=4	
SYS RANDOM	8/15/2006	AC5A	8:06	15.5	<2	
SYS RANDOM	8/15/2006	AC6G	7:18	16.5	=2	
SYS RANDOM	8/15/2006	AC7B	7:07	16	<2	
SYS RANDOM	8/15/2006	AC8	7:50	15	=17	

SYS RANDOM	8/15/2006	RH1	7:28	18	=23	
SYS RANDOM	8/15/2006	RH2	7:25	18	=13	
SYS RANDOM	8/15/2006	RH3	7:35	17	=33	
SYS RANDOM	9/20/2006	AC10	8:04	15	=2	32
SYS RANDOM	9/20/2006	AC1A	8:35	15.5	=2	33
SYS RANDOM	9/20/2006	AC3	8:29	15	<2	32
SYS RANDOM	9/20/2006	AC3A	8:21	15	<2	33
SYS RANDOM	9/20/2006	AC4D	8:14	14	=46	32
SYS RANDOM	9/20/2006	AC5A	7:55	14.5	=1	33
SYS RANDOM	9/20/2006	AC6G	7:29	15	=49	33
SYS RANDOM	9/20/2006	AC7B	7:21	15	=17	32
SYS RANDOM	9/20/2006	AC8	7:42	15	=33	32
SYS RANDOM	9/26/2006	GB16	11:19	16.5	=17	28
SYS RANDOM	9/26/2006	GB17	10:08	15.5	=2	31
SYS RANDOM	9/26/2006	GB18	9:30	15	<2	32
SYS RANDOM	9/26/2006	GB19	10:29	16	=2	30
SYS RANDOM	9/26/2006	GB2	10:12	16.5	=4	31
SYS RANDOM	9/26/2006	GB21	9:50	16.5	=110	15
SYS RANDOM	9/26/2006	GB22	9:54	16	=49	16
SYS RANDOM	9/26/2006	GB25A	9:24	15	=2	30
SYS RANDOM	9/26/2006	GB25B	9:22	14.5	=7.8	31
SYS RANDOM	9/26/2006	GB33	10:25	16	=70	26
SYS RANDOM	9/26/2006	GB34	10:20	16	=79	27
SYS RANDOM	9/26/2006	GB4A	11:10	16	=4.5	28
SYS RANDOM	9/26/2006	GB5	11:16	16.5	=23	27
SYS RANDOM	9/26/2006	GB50	10:31	16	=23	28
SYS RANDOM	9/26/2006	GB6A	10:36	16	no data	
SYS RANDOM	9/26/2006	GB6B	10:38	16.5	no data	
SYS RANDOM	9/26/2006	GB7A	10:39	16.5	=4.5	29
SYS RANDOM	9/26/2006	GB7C	11:00	16	=26	29
SYS RANDOM	9/26/2006	GB81	11:12	16.5	=22	27
SYS RANDOM	9/26/2006	GB82	11:23	16	=1.8	28
SYS RANDOM	9/26/2006	GB83	11:27	16.5	=26	27
SYS RANDOM	9/26/2006	GB83A	11:32	16.5	=4.5	27
SYS RANDOM	9/26/2006	GB84	11:38	16.5	=4.5	29
SYS RANDOM	9/26/2006	GBA10	9:41	15.5	=27	25
SYS RANDOM	9/26/2006	GBA11.5	9:38	15.5	=23	27
SYS RANDOM	10/9/2006	AC10	9:25	14	=4.5	32.1
SYS RANDOM	10/9/2006	AC1A	8:53	14	=33	31.6
SYS RANDOM	10/9/2006	AC3	8:59	14	=1.8	31.8
SYS RANDOM	10/9/2006	AC3A	9:08	14	<2	31.7
SYS RANDOM	10/9/2006	AC4D	9:17	13.5	=23	31.6
SYS RANDOM	10/9/2006	AC5A	9:31	13.5	=2	31.9
SYS RANDOM	10/9/2006	AC6G	9:59	14	=7.8	31.6
SYS RANDOM	10/9/2006	AC7B	10:09	13.5	=6.8	31.9
SYS RANDOM	10/9/2006	AC8	10:22	13.5	<2	32.0
SYS RANDOM	10/9/2006	RH1	9:38	12.5	=130	29.8
SYS RANDOM	10/9/2006	RH2	9:44	13	=33	30.1
SYS RANDOM	10/9/2006	RH3	9:48	13	=22	30.5
SYS RANDOM	10/16/2006	GB16	10:24	13	=130	22.4
SYS RANDOM	10/16/2006	GB17	9:23	13	=17	25.8
SYS RANDOM	10/16/2006	GB18	8:50	12.5	=13	29.3
SYS RANDOM	10/16/2006	GB19	9:44	13	=79	24.9
SYS RANDOM	10/16/2006	GB2	9:31	13	=22	24.3
SYS RANDOM	10/16/2006	GB21	9:05	11.5	=240	11.1
SYS RANDOM	10/16/2006	GB22	9:08	11.5	=240	12.5
SYS RANDOM	10/16/2006	GB25A	9:18	13	no data	27.4
SYS RANDOM	10/16/2006	GB25B	9:20	13	no data	25.3
SYS RANDOM	10/16/2006	GB33	9:38	12.5	=33	22.4
SYS RANDOM	10/16/2006	GB34	9:34	12.5	=13	22.9
SYS RANDOM	10/16/2006	GB4A	10:17	12	=170	22.3
SYS RANDOM	10/16/2006	GB5	10:21	12	=170	22.2

SYS RANDOM	10/16/2006	GB50	9:46	12.5	=23	23.6
SYS RANDOM	10/16/2006	GB6A	9:50	13	=23	23.8
SYS RANDOM	10/16/2006	GB6B	9:56	13	=79	23.8
SYS RANDOM	10/16/2006	GB7A	9:58	13	=14	23.5
SYS RANDOM	10/16/2006	GB7C	10:01	12	=130	21.9
SYS RANDOM	10/16/2006	GB81	10:15	11.5	=540	20.3
SYS RANDOM	10/16/2006	GB82	10:26	12	=33	21.3
SYS RANDOM	10/16/2006	GB83	10:28	10	=48	19.6
SYS RANDOM	10/16/2006	GB83A	10:30	10	=49	18.3
SYS RANDOM	10/16/2006	GB84	10:35	12	=110	20.9
SYS RANDOM	10/16/2006	GBA10	8:58	13	=360	23.5
SYS RANDOM	10/16/2006	GBA11.5	8:56	13	=49	27.9
SYS RANDOM	11/7/2006	AC10	9:52	6	=1.8	32
SYS RANDOM	11/7/2006	AC1A	10:16	6	<2	34
SYS RANDOM	11/7/2006	AC3	10:07	6	<2	33
SYS RANDOM	11/7/2006	AC3A	10:04	6	=4.5	33
SYS RANDOM	11/7/2006	AC4D	9:56	6.5	=33	32
SYS RANDOM	11/7/2006	AC5A	9:48	6	<2	31
SYS RANDOM	11/7/2006	AC6G	9:34	6.5	<2	32
SYS RANDOM	11/7/2006	AC7B	9:31	6	<2	31
SYS RANDOM	11/7/2006	AC8	9:24	6	=4.5	28
SYS RANDOM	11/7/2006	RH1	9:46	5.5	=7.8	32
SYS RANDOM	11/7/2006	RH2	9:43	6	=4.5	30
SYS RANDOM	11/7/2006	RH3	9:40	6	=33	31
SYS RANDOM	11/15/2006	GB16	10:09	10.5	=110	7.5
SYS RANDOM	11/15/2006	GB17	9:26	10	=130	16.4
SYS RANDOM	11/15/2006	GB18	8:54	10	=23	25.5
SYS RANDOM	11/15/2006	GB19	9:38	9.5	=31	13.1
SYS RANDOM	11/15/2006	GB2	9:28	10	=240	11.7
SYS RANDOM	11/15/2006	GB21	9:10	9.5	=170	0
SYS RANDOM	11/15/2006	GB22	9:12	9.5	=170	0
SYS RANDOM	11/15/2006	GB25A	9:21	9.5	=240	17.6
SYS RANDOM	11/15/2006	GB25B	9:23	9.5	=33	14.6
SYS RANDOM	11/15/2006	GB33	9:33	10	=350	3.3
SYS RANDOM	11/15/2006	GB34	9:30	10	=220	9.6
SYS RANDOM	11/15/2006	GB4A	10:03	10	=130	7.5
SYS RANDOM	11/15/2006	GB5	10:06	10.5	=1600	8.1
SYS RANDOM	11/15/2006	GB50	9:40	10	=130	10.3
SYS RANDOM	11/15/2006	GB6A	9:45	10	=49	11.9
SYS RANDOM	11/15/2006	GB6B	9:50	10	=79	12
SYS RANDOM	11/15/2006	GB7A	9:52	10	=170	10.9
SYS RANDOM	11/15/2006	GB7C	9:53	10.5	=79	7.8
SYS RANDOM	11/15/2006	GB81	10:01	10.5	=220	0.7
SYS RANDOM	11/15/2006	GB82	10:11	11	=79	1.4
SYS RANDOM	11/15/2006	GB83	10:13	10	=350	8.1
SYS RANDOM	11/15/2006	GB83A	10:15	10.5	=350	5.9
SYS RANDOM	11/15/2006	GB84	10:18	11	=540	5.9
SYS RANDOM	11/15/2006	GBA10	9:04	9.5	=220	13.6
SYS RANDOM	11/15/2006	GBA11.5	8:59	9.5	=920	4
SYS RANDOM	12/4/2006	AC10	7:14	8.5	<2	31.8
SYS RANDOM	12/4/2006	AC1A	6:55	8	=1.8	32.2
SYS RANDOM	12/4/2006	AC3	6:44	8	=17	32.1
SYS RANDOM	12/4/2006	AC3A	7:04	8.5	=7.8	32
SYS RANDOM	12/4/2006	AC4D	6:32	8.5	<2	31.8
SYS RANDOM	12/4/2006	AC5A	6:23	9	<2	32.2
SYS RANDOM	12/4/2006	AC6G	6:11	8.5	=1.8	31.1
SYS RANDOM	12/4/2006	AC7B	7:25	8.5	=2	30.1
SYS RANDOM	12/4/2006	AC8	7:32	6	=4.5	27.5
SYS RANDOM	12/5/2006	GB16	12:16	6	=23	16
SYS RANDOM	12/5/2006	GB17	11:23	8	=17	25.1
SYS RANDOM	12/5/2006	GB18	11:06	8.5	=4.5	29
SYS RANDOM	12/5/2006	GB19	11:43	7	=17	21.7

SYS RANDOM	12/5/2006	GB2	11:25	7	=22	19.3
SYS RANDOM	12/5/2006	GB21	11:15	5.5	=23	18.3
SYS RANDOM	12/5/2006	GB22	11:17	6	=70	18.5
SYS RANDOM	12/5/2006	GB25A	11:02	7	=33	24.8
SYS RANDOM	12/5/2006	GB25B	11:00	8	=6.8	26.7
SYS RANDOM	12/5/2006	GB33	11:31	6	=23	15.9
SYS RANDOM	12/5/2006	GB34	11:29	6.5	=23	18
SYS RANDOM	12/5/2006	GB4A	12:03	6.5	=70	17.1
SYS RANDOM	12/5/2006	GB5	12:08	6	=33	16.6
SYS RANDOM	12/5/2006	GB50	11:45	7	=130	20.1
SYS RANDOM	12/5/2006	GB6A	11:48	6.5	=17	18.3
SYS RANDOM	12/5/2006	GB6B	11:50	6	=49	16.4
SYS RANDOM	12/5/2006	GB7A	11:53	6.5	=17	17.5
SYS RANDOM	12/5/2006	GB7C	11:56	5	=33	13.3
SYS RANDOM	12/5/2006	GB81	12:05	6	=22	16.6
SYS RANDOM	12/5/2006	GB82	12:19	4.5	=70	12.8
SYS RANDOM	12/5/2006	GB83	12:21	3	=49	11.1
SYS RANDOM	12/5/2006	GB83A	12:23	2	=130	9.4
SYS RANDOM	12/5/2006	GB84	12:25	4	=23	12.8
SYS RANDOM	12/5/2006	GBA10	11:11	6.5	=79	18.5
SYS RANDOM	12/5/2006	GBA11.5	11:10	5.5	=33	16.9
TIDAL STUDY	9/12/2006	T14	7:15	14	=350	28
TIDAL STUDY	9/12/2006	T14A	7:18	14	=350	29
TIDAL STUDY	9/12/2006	T7	7:09	11	=350	6
TIDAL STUDY	9/13/2006	T14	6:01	16.5	=70	30.7
TIDAL STUDY	9/13/2006	T14	6:53	16	=46	30.6
TIDAL STUDY	9/13/2006	T14	7:53	16	=350	28.6
TIDAL STUDY	9/13/2006	T14	8:55	16.2	=350	27.2
TIDAL STUDY	9/13/2006	T14	9:53	16	=350	25.6
TIDAL STUDY	9/13/2006	T14A	6:05	16.5	=11	30.4
TIDAL STUDY	9/13/2006	T14A	6:58	16	=79	29.7
TIDAL STUDY	9/13/2006	T14A	7:55	15.8	=140	28.1
TIDAL STUDY	9/13/2006	T14A	8:57	16	=240	26.9
TIDAL STUDY	9/13/2006	T14A	9:54	15.9	=240	25.5
TIDAL STUDY	9/13/2006	T7	5:54	13.4	=1600	9.2
TIDAL STUDY	9/13/2006	T7	6:48	12.6	=540	5.9
TIDAL STUDY	9/13/2006	T7	7:50	12.6	=1600	5.4
TIDAL STUDY	9/13/2006	T7	8:50	13.5	=1600	6.8
TIDAL STUDY	9/13/2006	T7	9:50	14.4	=920	8.0
TIDAL STUDY	9/14/2006	T14	7:18	16.4	=6.1	30.6
TIDAL STUDY	9/14/2006	T14	8:49	16.4	=130	28.6
TIDAL STUDY	9/14/2006	T14	10:13	16.9	=33	27.2
TIDAL STUDY	9/14/2006	T14A	7:20	16.4	=17	30.6
TIDAL STUDY	9/14/2006	T14A	8:52	16.4	=26	28.5
TIDAL STUDY	9/14/2006	T14A	10:16	16.7	=140	27.5
TIDAL STUDY	9/14/2006	T7	7:13	14.3	=540	6.6
TIDAL STUDY	9/14/2006	T7	8:43	15	=540	9.5
TIDAL STUDY	9/14/2006	T7	10:07	15.8	=920	6.0
TIDAL STUDY	9/27/2006	T14	8:36	13	=64	24.5
TIDAL STUDY	9/27/2006	T14	9:25	13.9	=49	24.8
TIDAL STUDY	9/27/2006	T14	10:27	13.3	=170	28.3
TIDAL STUDY	9/27/2006	T14	11:26	13.8	=11	30.7
TIDAL STUDY	9/27/2006	T14A	8:39	13	=49	25.2
TIDAL STUDY	9/27/2006	T14A	9:28	13.2	=22	25.2
TIDAL STUDY	9/27/2006	T14A	10:30	13.3	=17	28.5
TIDAL STUDY	9/27/2006	T14A	11:29	13.6	=4	31
TIDAL STUDY	9/27/2006	T7	8:29	11.5	=79	1.8
TIDAL STUDY	9/27/2006	T7	9:20	12	=33	1.6
TIDAL STUDY	9/27/2006	T7	10:23	13.7	=33	1.1
TIDAL STUDY	9/27/2006	T7	11:22	15.8	=49	1.8
TIDAL STUDY	10/9/2006	T14	7:31	11.6	=540	23.1
TIDAL STUDY	10/9/2006	T14	8:59	12.1	=350	26.1

TIDAL STUDY	10/9/2006	T14	10:28	13.9	=11	30.9
TIDAL STUDY	10/9/2006	T14	11:53	13.8	=4	31.0
TIDAL STUDY	10/9/2006	T14A	7:42	11.3	=240	23.3
TIDAL STUDY	10/9/2006	T14A	9:04	11.9	=110	27.5
TIDAL STUDY	10/9/2006	T14A	10:32	13.1	<2	31.1
TIDAL STUDY	10/9/2006	T14A	11:57	13.5	=2	30.8
TIDAL STUDY	10/9/2006	T7	7:23	8.3	=130	2.9
TIDAL STUDY	10/9/2006	T7	8:53	9.1	=140	2.5
TIDAL STUDY	10/9/2006	T7	10:21	11.5	=170	5.2
TIDAL STUDY	10/9/2006	T7	11:48	13.4	=13	29.5