CLF Conservation Law Foundation
Restore America's Estuaries

# Casco Bay *Return The Tides* Action Plan

Presented by the Conservation Law Foundation to
Casco Bay Estuary Project
March 15, 2000

## I. Executive Summary

During 1999, an extensive survey, inventory, and analysis was performed by the Conservation Law Foundation and a group of volunteers of all the salt marsh crossings that could be identified within the tidal reaches of the Casco Bay watershed. Our objective was to identify habitat sites within the estuary areas of the Bay that might be degraded or in the process of becoming degrading as a result of interference or blocking of natural tidal flows.

From an initial universe of roughly 102 identified crossings, our analysis indicates that tidal flows to at least 12 salt marsh habitat sites are significantly restricted, three of these sites being blocked by dams. Immediate further biological evaluations of these sites are critical to determine whether the restrictions are producing estuary habitat losses, followed by a technical assessment of possible remedial actions. Ten sites have not yet been fully evaluated and an additional twenty-eight need some further preliminary screening to determine whether they are restrictive.

For some of these structure, such as road beds, further engineering evaluations are required to determine whether appropriate stormwater control measures have been implemented along the roadway to prevent freshwater runoff from the roads from flowing in sheets onto the estuary wetlands and encouraging the invasion of invasive freshwater flora by reducing the salinity of the marsh environment.

This action plan recommends to the Casco Bay Estuary Project that a program be developed and adopted by the partners of the Casco Bay Estuary Project to complete this work in Casco Bay. Where appropriate, remedial action should be identified, funding developed, and restoration work initiated to prevent further habitat changes or losses from restrictive tidal crossings in the watershed. These

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This action plan recommends to the Casco Bay Estuary Project that a program be developed and adopted by the partners of the Casco Bay Estuary Project to complete this work in Casco Bay. Where appropriate, remedial action should be identified, funding developed, and restoration work initiated to prevent further habitat changes or losses from restrictive tidal crossings in the watershed. These efforts should be given high priority to take advantage of currently available funding sources.

Additionally, we recommend that both the Maine DEP, the Maine DOT, and local municipalities in the Casco Bay Estuary Project work to develop best engineering practices and performance criteria for new activities in or adjacent to estuary habitats. Such new controls and criteria will insure that any new or replacement tidal estuary crossings in the tidal areas of Casco Bay will be properly engineered to preclude such problems in the future.

## II. Background

Conservation Law Foundation is a regional environmental advocacy organization that has been working to improve coastal and marine resources in New England for more than 25 years. During that time, we have worked in Casco Bay using a variety of methods including taking legal steps to improve treatment in the Portland Water and Sewer District's system and promoting public education on the state of Casco Bay through the preparation and release of *Troubled Waters – A Report on the Environmental Health of Casco Bay*. We have worked with and have strongly supported the efforts of The Friends of Casco Bay, the Maine Audubon Society, and the Casco Bay Estuary Project.

### A. The Casco Bay *Return The Tides* Project Is Part of A National Effort To Restore Estuary Habitats

In 1996, CLF began working with ten coastal non-profit organizations around the country to identify priority coastal problems that were not receiving appropriate levels of attention or response. The universal view of these organizations was that estuary protection strategies alone were not going to be sufficient to safeguard current levels of coastal biodiversity, abundance, and ecological function. These strategies had to be teamed with affirmative efforts to restore as much of the nation's lost or degraded estuary function as was technically and politically feasible. Out of these effort emerged a national coalition organization called Restore America's Estuaries, Inc. ("RAE"). RAE's web site provides further information at "www.estuaries.org". RAE's national goal is to support the restoration of 10,000,000 acres of coastal estuaries by the year 2010.

CLF is responsible for promoting RAE's agenda in the Gulf of Maine and has been working for four years with The Island Institute and the Conservation Council of New Brunswick to that end. In Maine, in addition to several specific estuary restoration projects we are working on, our principal efforts have been focused on developing an inventory of the opportunities for restoration along

Maine's extensive coastline and island network. With support from a number of critical funding sources (see Part V below), we developed the Casco Bay *Return The Tides* Project as the flagship for this state-wide effort. While we consider this effort to be fully complementary to other major programs being undertaken in Maine by the US Fish and Wildlife Service's Gulf of Maine Project and others, the *Return the Tides* project has a slightly different purpose. We are looking to help local people make a difference in their own coastal regions with many of the smaller projects that do not meet federal program priorities for significance relative to fish, wildlife, and game species but that do make a major difference to local conditions and quality of life.

B. The Casco Bay *Return The Tides* Project

The purpose of our work in Casco Bay was to:

1. develop protocols for a volunteer-based marsh training program focusing on the fundamentals of salt marsh ecology, degradation assessment, and identification of restoration potential;
2. identify and assess tidal marsh crossings in Casco Bay with a goal of identifying potential targets for future remedial actions;
3. construct a prototype database and estuary reporting system that could be expanded for our future state-wide effort; and
4. assess the potential of our project as a mechanism for promoting long-term stewardship for marshes and other estuary habitats.

The initial contract with the Maine State Planning Office under the Maine Outdoor Heritage Fund's grant identified three project phases. Phase I was preliminary to the *Return The Tides* volunteer event and consisted of a range of data collection, field surveys, volunteer training, and public education. Phase II was the *Return The Tides* volunteer event and follow up, and Phase III included data analysis from the event, drafting of the *Return The Tides* Resource Book, writing an the Casco Bay Estuary Action Plan, and presentation of the plan to the Casco Bay Estuary Project. A more detailed summary of our work to date is attached as Appendix 1.

## III. Relationship of the Casco Bay *Return The Tides* Project to the Casco Bay Plan

The Casco Bay Plan identifies the strategic importance of maintaining the full range of the Bay's tidal flows to marsh habitats and estuary systems: "[t]o protect the wealth of species that live in Casco Bay, it is necessary to conserve the natural environment that provides their food, cover, travel corridors, and breeding and nursery areas." Casco Bay Plan at 52. The goal of the Habitat Protection element of the Plan is to "[m]inimize adverse environmental impacts to ecological communities from the use and development of land and marine resources." Id.

The Plan also sets forth two objectives within the Habitat Protection element that pertain to losses and degradation associated with improperly engineering tidal habitat crossings and structures: "no net loss of aquatic or island habitats" and "habitats of Casco Bay should be of a quality that does not have an adverse effect on the structure and function of the biological communities." Id.

Human structures, such as roadbeds, improperly sized, designed, or maintained culverts or bridges, or dams prevent the full range of tidal flows from reaching salt marsh vegetation above the structures. Many of the roadways associated with these structures also discharge storm-related freshwater onto marsh habitats in ways that alter the soil chemistry, disrupting the competitive advantage salt-tolerant marsh species require over some of the very aggressive freshwater wetland plants such as common reed, purple loosestrife, and cattails. As a result the natural production of unique goods and services associated with salt marsh plant and animal species is diminished or even lost over time. Accordingly, an action plan to identify and remediate such problem situations is directly related to the Casco Bay Plan's mission and should be given high priority.

## IV. Casco Bay Pilot Project Findings

As the Casco Bay Plan indicates, many of the salt marshes in the tidal reaches of Casco Bay are in excellent condition. At the same time, it is also clear simply from a visual inspection that there are early signs of problems in a number of areas, particularly observations of invasive freshwater and upland plant communities. Some of these species shifts may be in the range of normal ecological change; others, primarily because of their proximity to human disturbances or structures, suggest that the change is a function of human activity. Our focus in this program was primarily on quantifying on a rough scale whether Casco Bay marshes were at risk as a result of tidal flow restrictions. Secondarily, we wanted to ascertain the level of public interest in Casco Bay for learning more about salt marshes and becoming involved in marsh stewardship. Finally, we wanted to assemble a "marsh restoration guidebook" and database that would help people become involved and track their progress over time. The following findings relate to those tasks.

### A. Restricted marsh Inventory

We identified a potential universe of 123 crossings in the nine cities and towns of Casco Bay's lower watershed, based on map reviews and personal interviews. We believe that this universe is generally accurate, although as new crossings are constructed or discovered, the inventory should be expanded. From that initial inventory, we physically inspected most of the sites. This first screening process allowed us to eliminate certain crossings such as the I-295 bridge across the Presumpscot from further investigation. Others could be eliminated because they were not in a tidally influenced segment of the watershed. The remaining

potential sites were evaluated on the basis of a visual inspection of the probability that they were restrictive. Volunteers evaluated twelve study sites by measuring the differences in tidal height on either side of the crossing during a full tidal cycle.

The following table summarizes the current status of this assessment work.

| | |
|---|---|
| Total Universe Of Potential Crossings Identified In Nine Towns | 123 |
| Crossings Eliminated By Visual Inspection (non-tidal, non-restrictive, or no marsh) | 48 |
| Crossings Not Evaluated Due To Inability To Gain Access | 7 |
| Sites Evaluated By Volunteers For Tide Height Variances | 12 |
| Known Sites Remaining To Have Tide Height Variances Measured | 12 |
| Sites Remaining To Be Initially Assessed (including sites that need permission for access) | 20 |
| Former Estuary Tide Lands Lost Due To Dams Or Other Restoration Possibilities | 10 |
| Sites Requiring Further Impact Assessment Due To Restricted Flows (non-dam) | 11 |

The sites that were identified for further investigative work through the volunteer tide flow measurement project, visual inspection, or by virtue of being a dam are:

1. Flow Restricted By Measurement (data sheets attached as Appendix 2)—
    - Baxter Boulevard, stream NE of Cheverus High School
    - Baxter Boulevard, Fall Brook
    - Baxter Boulevard, stream N from Back Cove
    - N. Division Railroad Track, Portland, Capisic Brook
    - Prince Point Road, Yarmouth, stream off Broad Cove
    - Coombs Road, Brunswick, stream off Buttermilk Cove
    - Long Reach Lane, Harpswell, Doughty Cove
    - Route 126, Phippsburg, east branch of Cape Small Harbor

2. Former Estuaries Restricted Visually Or By Dams
    - Dam east of Gun Point Road, Harpswell, channel north from voce east of Gun Point: "Dave's Pond"

- Harpswell, dam on pond north of Bethel Point
- Bath Road, West Bath, New Meadows River
- Route 126 just south of Flat Point Road, Phippsburg, west branch of stream north from east branch Cape Small Harbor
- Bank created by dredge spoil deposits on the north bank of the Royal River just east of I-295

B. Public Interest In Salt marsh Stewardship

We were pleased by the public response to the workshops, training events, and volunteer activities we promoted. We spoke to approximately 60 people during the pilot project. People were uniformly enthusiastic on the topics of salt marsh education and stewardship, marsh restoration, and adding marsh restoration and protection to the active agendas of water quality monitoring groups and local land trusts. We have also been working with Michele Dionne of the Wells National Estuarine Research Reserve and Rob Bryan of the Maine Audubon Society to develop some additional assessment activities that volunteers could undertake on their own or in conjunction with scientists to do more advanced marsh health assessment.

C. Development of protocols and data base

We have developed a Microsoft Access-based data base, forms for data entry sheets, and various data-base reports that are available to help the Casco Bay Estuary Project continue to track this effort over time. A copy of the Summary Report of the database is included as Appendix 3.

We have also compiled various resource materials and prepared a resource book for people interested in undertaking marsh assessment and restoration activities in Casco Bay. This resource book may be useful also for school educators who would like to develop more active estuary programs within their coastal school districts. The Return the Tides Resource Book is heading into production this month and we hope to be able to make copies available to the partners in the Casco Bay Project by the end of April.

## V. Proposed Action Plan

1. Include activities relating to the identification and elimination of restrictive tidal crossings to the implementation program of the Casco Bay Estuary Project.

2. Recruit and task wetlands professionals and volunteers from the Casco Bay Estuary Plan Partners to evaluate the restricted crossings identified in the *Return The Tides Report* for indications of salt marsh habitat degradation or change.

3. Identify sites for restoration action based on an impact priority system and identify funding and regulatory requirements.

4. Work with Casco Bay Estuary Project Partners and federal agencies to eliminate tidal restrictions and identify further remedial actions at restricted systems, and to establish monitoring programs for restoration sites.

5. Establish a dialogue and action agenda with Maine DEP, Maine DOT, and local municipal officials to prevent further permitting and construction of improperly engineered tidal crossings through best engineering practices, subdivision ordinance changes, improved wetlands permitting, and regularly scheduled culvert maintenance.

6. Develop and implement a media coverage strategy for all restoration activities undertaken in the watershed to promote greater public understanding and support for Casco Bay's wonderful salt marsh inventory.

7. Support efforts by non-governmental organizations in the watershed to develop education and assessment training programs for volunteers and their membership and communities. Consider an "Adopt An Estuary" program that local schools could administer.

8. Work with other estuary organizations, the Maine Congressional delegation, and Maine state legislators to increase available federal and state funding and technical resources available for estuary restoration projects in Casco Bay.

9. Develop specific recommendations for inclusion in the next Casco Bay Plan that deal with estuary habitat restoration, including:

- Add school programs and funding that supports estuary health assessment and restoration activity to Public Education Actions #1 and #2.

- Include information and pictures of degraded marshes and healthy marshes in the kits developed as part of Public Education Action #5.

- Supplement Technical Assistance Action #7 to identify specific local, state, federal, non-profit organizations, and individuals that are capable of providing competent technical assistance to work on estuary habitat restoration projects and provide access to these people through the Internet.

- Implement best engineering practices and routine inspection/maintenance programs for all tidal crossings designed to insure non-interference with tidal flushing activity through Maine DEP, Maine DOT, and local government agencies. Include specific information about the impacts of poorly engineered structures, inadequate maintenance, and fresh water runoff to Technical Assistance Action #4. Responsibility for development of these standards and

criteria should be added to the roles to be played by local, state, and federal governments in Chapter 6 of the Plan.

- Add salt marsh assessment and restoration to the stewardship roles that volunteer groups can play in Chapter 6 of the Plan and implement these activities through projects such as Public Education Action #9 as well as parallel efforts that other Casco Bay resource groups and land trusts could be encouraged to develop.

- Add "restoration" to the activities eligible for funding under Planning and Assessment Action #8.

- Adopt a short-term and a long-term acreage restoration goal for Casco Bay estuaries and incorporate the goal into Chapter 8.

## V. People and Organizations Associated With The Casco Bay *Return The Tides* Project

The Casco Bay *Return The Tides* Project was truly a community effort. Funding for the project was provided by the Maine Community Foundation, the Maine Outdoor Heritage Fund, the Stephen and Tabitha King Foundation, and The Pew Charitable Trusts. Great credit is due to Rob Bryan of the Maine Audubon Society, Michele Dionne of the Wells National Estuary Research Reserve, and to the following volunteers stewards who did much of the legwork:

Samantha Barrett, Portland
Deborah Cowperthwaite, Harpswell
Art Dodge Harpswell
George Hyde, Cumberland
Lisa MacVane, Gorham
Peter Milholland, South Portland
Ann Perry, Brunswick
Paul Porensky, Falmouth
Lin Maria Riotto, Bath
Bob Waddle, Harpswell
Tracy Webber, Portland
Jim Burke, Harpswell
Stephanie Cox, Falmouth
Reen Gavin, Brunswick
John Mackinnon, Yarmouth
Meaghan Murphy, Portland
Diane Nicholls, Portland
John Porensky, Falmouth
Walter Phillips, Harpswell
Laura Vitale, Freeport
Stella Walsh-Wainer, Yarmouth

## VI. Conclusion

Casco Bay is a national treasure and is in the good hands of the strong partners who have united behind protecting and enhancing the Bay's future through the implementation of the Casco Bay Plan. We believe that restoration of lost or degraded salt marshes should remain one of the highest priorities of the Casco Bay Project, side-by-side in importance with protection of the currently healthy salt marsh acreage in the tidal areas of the watershed. We trust that this *Return*

*the Tides Action Plan* provides valuable guidance to the Casco Bay Estuary Project to the execution of these strategic restoration and protection functions. We commend the plan to your for your consideration and incorporation into your implementation priorities.

## Appendix 1

The following is a brief report on the details of our project activities in Casco Bay.

Phase I: We developed and completed Phase I data sheets on all crossings identified in the Casco Bay area based on extensive review of topographic maps, wetlands databases, personal communications, and visual inspection. We also marked these locations on a master map. A database for information storage and retrieval was developed. A spreadsheet of the database as well as the assessments that were conducted on particular sites is attached. This database is being provided to federal and state resource agencies that are undertaking to develop a regional estuary database.

Through further fieldwork and visual inspections, the universe of potential crossings for Phase II tidal curve analyses was reduced from the original 123 to 12 potential study sites based on geographical location of our volunteers and the logistics of the event. We developed and wrote the first draft of the estuary restoration training manual, titled "*Return The Tides* Resource Handbook," and made presentations of the program in Harpswell, and in Portland to volunteer coordinators. We held at the Maine Audubon Society an extended training session for our Phase II volunteers which was both an estuary education program as well as specific training for the *Return The Tides* event. A field trip to a local estuary was included in the workshop. We trained three volunteer coordinators in the Harpswell area as well as in the metropolitan Portland area.

Our presentations on the program were made to approximately 60 people at all locations and included an educational slide presentation and estuary discussion. We also distributed estuary educational materials to people in attendance. From those attending the sessions, we recruited 37 volunteers (of which we, later, formally trained 16) to conduct the Phase II assessments. Further training materials on estuary assessment and evaluation were provided to the volunteers.

Phase II: A successful *Return The Tides* event was held on July 31st and tidal flow data was collected for most of the Phase II sites over a twelve hour tidal cycle. From our volunteer group of 37, we trained 16 volunteers for the Phase II exercise, and 16 volunteers conducted the measurements and observations. Project staff conducted field visits to all sites before the event, and to selected sites after the event to verify information. The data was collected by the volunteers and was later analyzed as part of Phase III. From this experience, we were able to confirm that volunteers can be effectively use to collect reliable data on the degree of tidal restriction at crossings and can be a valuable component to the long term success of local estuary protection and restoration efforts.

Phase III: The Phase III tasks are essentially completed at this point. We have analyzed Phase II data results, developed a database for recording and

maintaining the information, and a spreadsheet for analyzing the results. We have finalized data entry into the spreadsheet. The Estuary Action Plan has been developed as part of our *Return The Tides* Resource Handbook. The draft of these materials is undergoing peer review and publication is scheduled for the spring of 2000.

## *Legend - Return the Tides Phase II Summary*

**City/Town**

| | |
|---|---|
| CEL | Cape Elizabeth |
| SPO | South Portland |
| POR | Portland |
| LIS | Long Island |
| FAL | Falmouth |
| CUM | Cumberland |
| YAR | Yarmouth |
| FPT | Freeport |
| BRK | Brunswick |
| HWL | Harpswell |
| WBA | West Bath |
| PHI | Phippsburg |

**Waterbody/Stream Name**

| | |
|---|---|
| FR | Fore River |
| BC | Back Cove |
| PR | Presumpscot River |
| FS | Falmouth/Cumberland Foreside |
| RR | Royal/Cousins River |
| HR | Harraseeket River |
| MA | Maquoit Bay |
| ME | Merepoint Bay |
| MI | Middle Bay |
| HS | Harpswell Sound |
| QB | Quahog Bay |
| NM | New Meadows River |
| SP | Small Point Harbor |
| CB | Casco Bay |

**Crossing Type**

| | |
|---|---|
| 1 | Bridge |
| 2 | Culvert |
| 3 | Other |

**Flow Restriction Rating (U/D)**

| | |
|---|---|
| 1 | Unrestricted/No Pooling |
| 2 | Flow Detained/Slight Erosion |
| 3 | Minor Pooling/ Erosion Present |
| 4 | Significant Pooling/Significant Erosion |
| 5 | Major Pooling/Major Erosion Present |

**Channel to Culvert Rating (U/D)**

| | |
|---|---|
| 1 | River Width< Opening Width |
| 2 | River Width = Opening Width |
| 3 | River Width 1.1 to 2.0x Opening Width |
| 4 | River Width 2.1 to 5.0x Opening Width |
| 5 | River Width 5.1x + Opening Width |

**Flood Potential**

| | |
|---|---|
| 1 | Low |
| 2 | Medium |
| 3 | High |

**Phase Status**

| | |
|---|---|
| 0 | Not Done Yet |
| C | Complete |
| N | Not Required |
| C II | Phase II Done |

**Phase Status Comment**

| | |
|---|---|
| NT | Not Tidal |
| NM | No Marsh |
| NA | Needs Access Permission |
| OTHER | OTHER |
| NR | Not Considered Restricted |
| R II | Recommend Phase II Work [1] |
| R III | Recommend Phase III Work [2] |

**Number**

Number represents the number assigned to crossing within each city/town.

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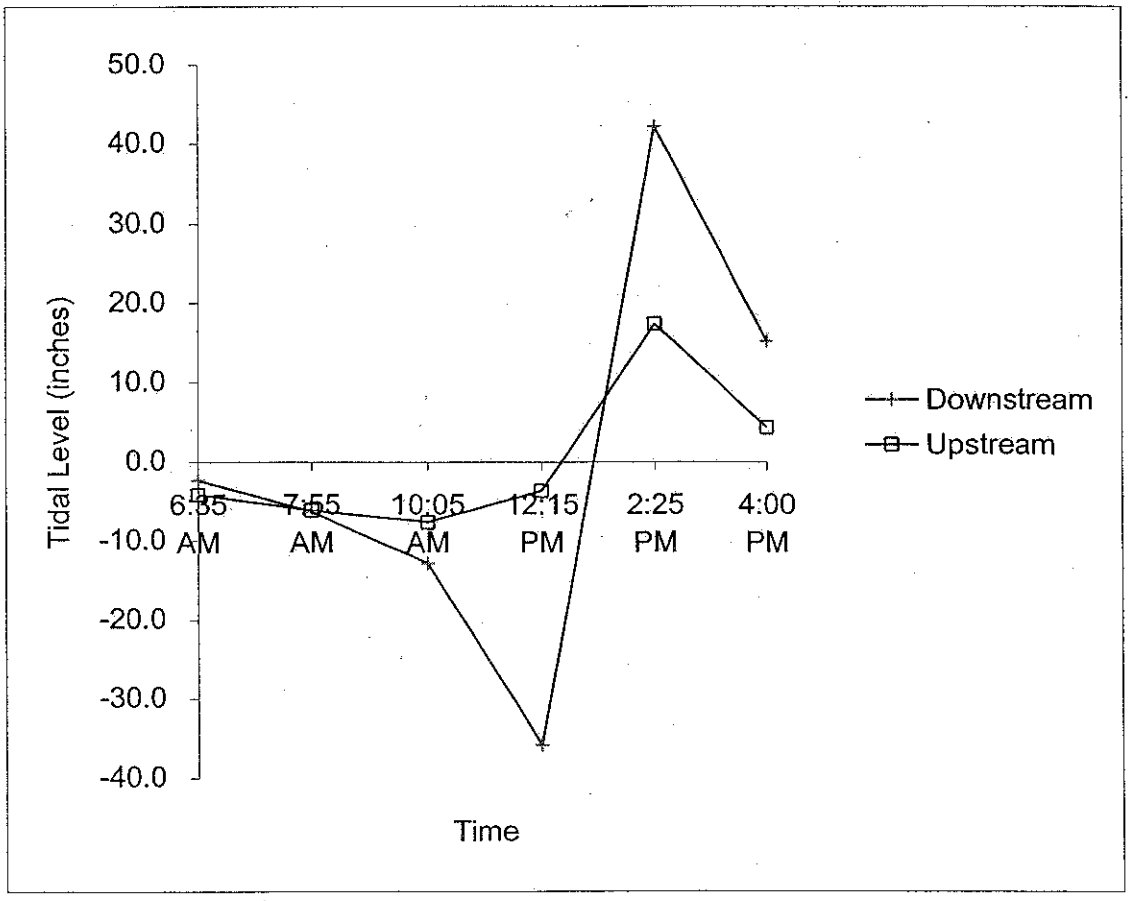
[1] Measure tidal curves

[2] Further detailed study of impacts on salt marsh from restriction; restoration potential, benefits and feasibility.

**Town:** Portland
**Date:** 7/31/99
**Map Reference Number:** PBC6
**Location:** Stream off Back Cove
**Data Collected by:** Barrett/Nichols

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 6:35 AM | 60.5 | 36 | | -4.2 | 1.8 |
| 7:55 AM | 62.5 | 38 | | -6.2 | -0.2 |
| 10:05 AM | 64.0 | 43 | | -7.7 | -5.2 |
| 12:15 PM | 60.0 | 70 | | -3.7 | -32.2 |
| 2:25 PM | 39.0 | 13 | | 17.3 | 24.8 |
| 4:00 PM | 52.0 | 27 | | 4.3 | 10.8 |
| Tidal Range = | 25 | 57 | | | |
| Up/Down Ratio = | 44% | | | | |

**Comments:**



Barrett / NICHOLLS

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

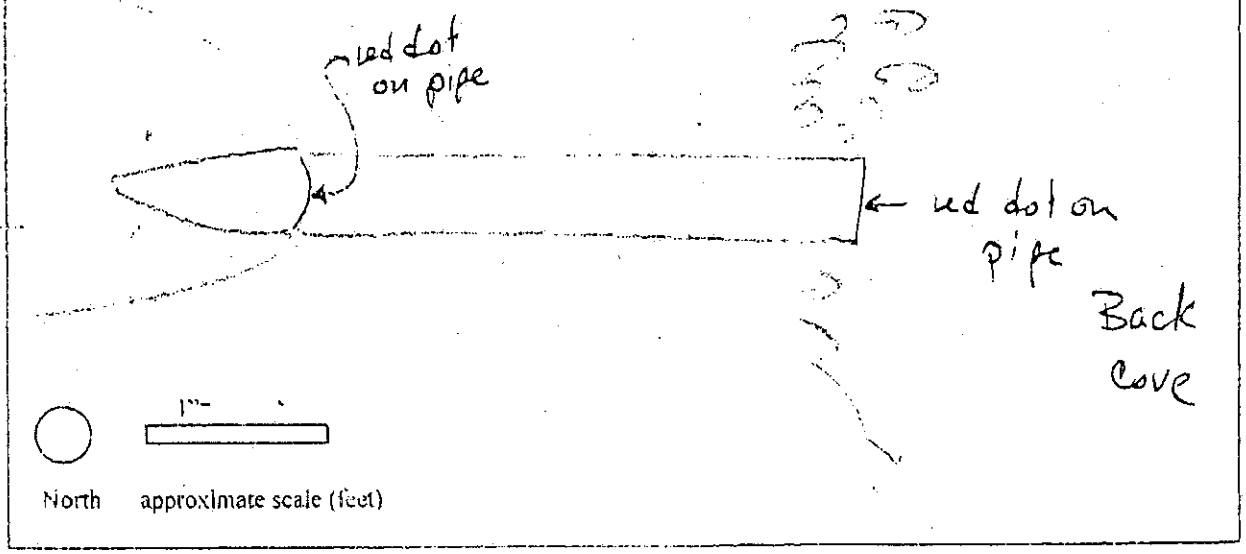
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location (copy from Phase I data sheet) | | | |
|---|---|---|---|
| Map Reference Number | P/BC/6 | Unique number: | |
| Town | PORTLAND | | |
| Water Body/Stream Name | STREAM OFF BACK COVE Westerly of 3 | | |
| Street | BAXTER BLVD | | |
| Landmark/Location Description | Portland Water DIST PUMP STA / CHEVERUS HIGH | | |

| Field visit information | |
|---|---|
| Date/time/volunteer name(s) | Barrett / NICHOLLS 7/31/99 |
| Weather (circle applicable terms) | (Sunny) Partly Cloudy Overcast Rain |
| Tide (from tide table) 7/31 | High 156 PM Low: 0742 AM / 754 PM |

| Water Levels: Measure approx every 2 hours | | | | |
|---|---|---|---|---|
| Time (Hours: Minutes) | Height Upstream (Inches) | | Height Downstream (Inches) | |
| 06:35 | 5' 0 1/2" | 60.5 | 3' | 36.0 |
| 07:55 | 5' 2 1/2" | 62.5 | 3' 2" | 38.0 |
| 10:05 | 5' 4" | 64.0 | 3' 7" | 43.0 |
| 12:15 | 5' | 60.0 | 2' 10" | 70.0 |
| 2:25 | 3' 3" | 39.0 | 1' 1" | 13.0 |
| 4:00 | 4' 4" | 52.0 | 2' 3" | 27.0 |

Sketch of Reference Points in Relation to Stream

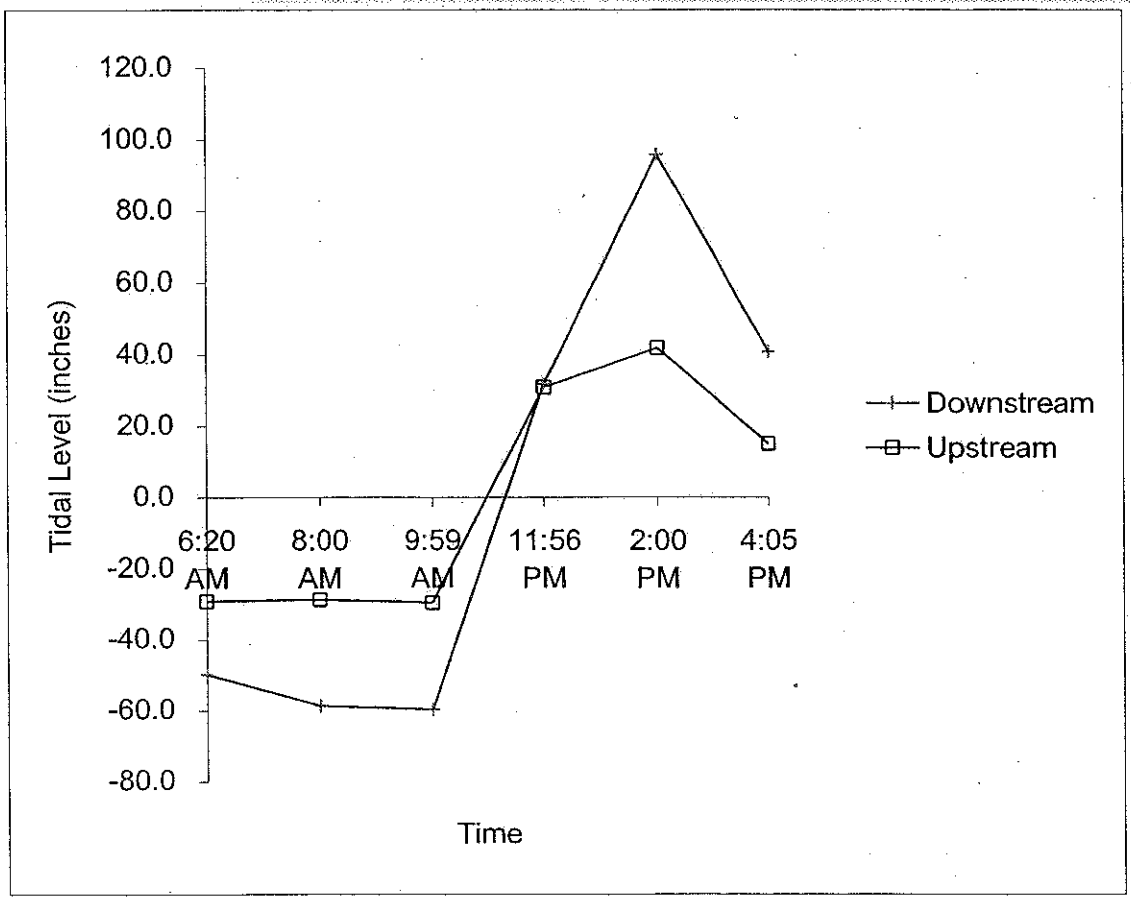



**General Notes (continue on back):**

**Town:** Portland
**Date:** 7/31/99
**Map Reference Number:** PBC7
**Location:** Fall Brook
**Data Collected by:** Barrett/Nichols

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 6:20 AM | 197.0 | 180.5 | | -29.2 | -20.6 |
| 8:00 AM | 196.5 | 190 | | -28.7 | -30.1 |
| 9:59 AM | 197.5 | 190 | | -29.7 | -30.1 |
| 11:56 PM | 137.0 | 159 | | 30.8 | 0.9 |
| 2:00 PM | 126.0 | 106 | | 41.8 | 53.9 |
| 4:05 PM | 153.0 | 134 | | 14.8 | 25.9 |
| Tidal Range = | 71.5 | 84 | | | |
| Up/Down Ratio = | 85% | | | | |

**Comments:**



Barrett/ Nicholl

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

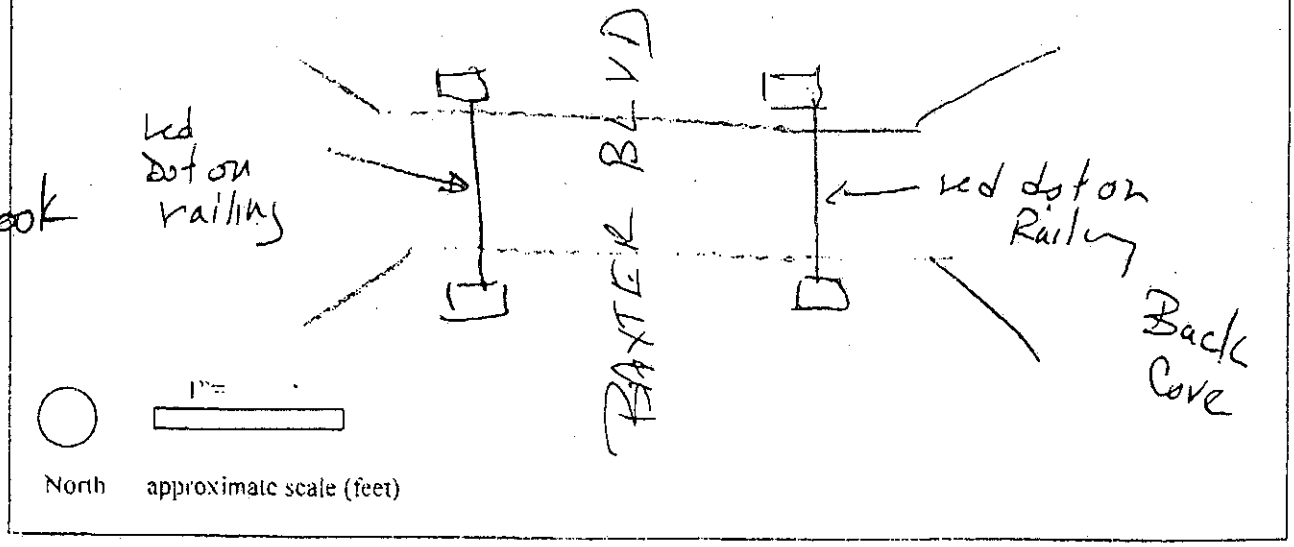
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | P BC 7 | Unique number: | |
| Town | PORTLAND | | |
| Water Body/Stream Name | FALL BROOK | | |
| Street | BAXTER BLVD | | |
| Landmark/Location Description | MIDDLE STREAM of 3 ON NW side of BACK COVE | | |

| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | Barrett/NICHOLLS 7/31/99 |
| Weather (circle applicable terms) | (Sunny) Partly Cloudy Overcast Rain |
| Tide (from tide table) 7/31 | High 156 PM Low: 0742 AM / 754 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2 hours: Height Upstream (Inches) | | Height Downstream (Inches) | |
|---|---|---|---|---|
| 06:30 | 16' 5" | 197" | 15' 0.5" | 180.5 |
| 08:00 | 16' 4.5" | 196.5 | 15' 10" | 190.0 |
| 10:30 | 16' 5.5" | 197.5 | 15' 10" | 190.0 |
| 11:56 | 11' 5" | 137 | 13' 3.0" | 159.0 |
| 2:00 | 10' 6" | 126 | 8' 10" | 106.0 |
| 4:05 | 12' 9" | 153 | 11' 2" | 134.0 |

Sketch of Reference Points in Relation to Si

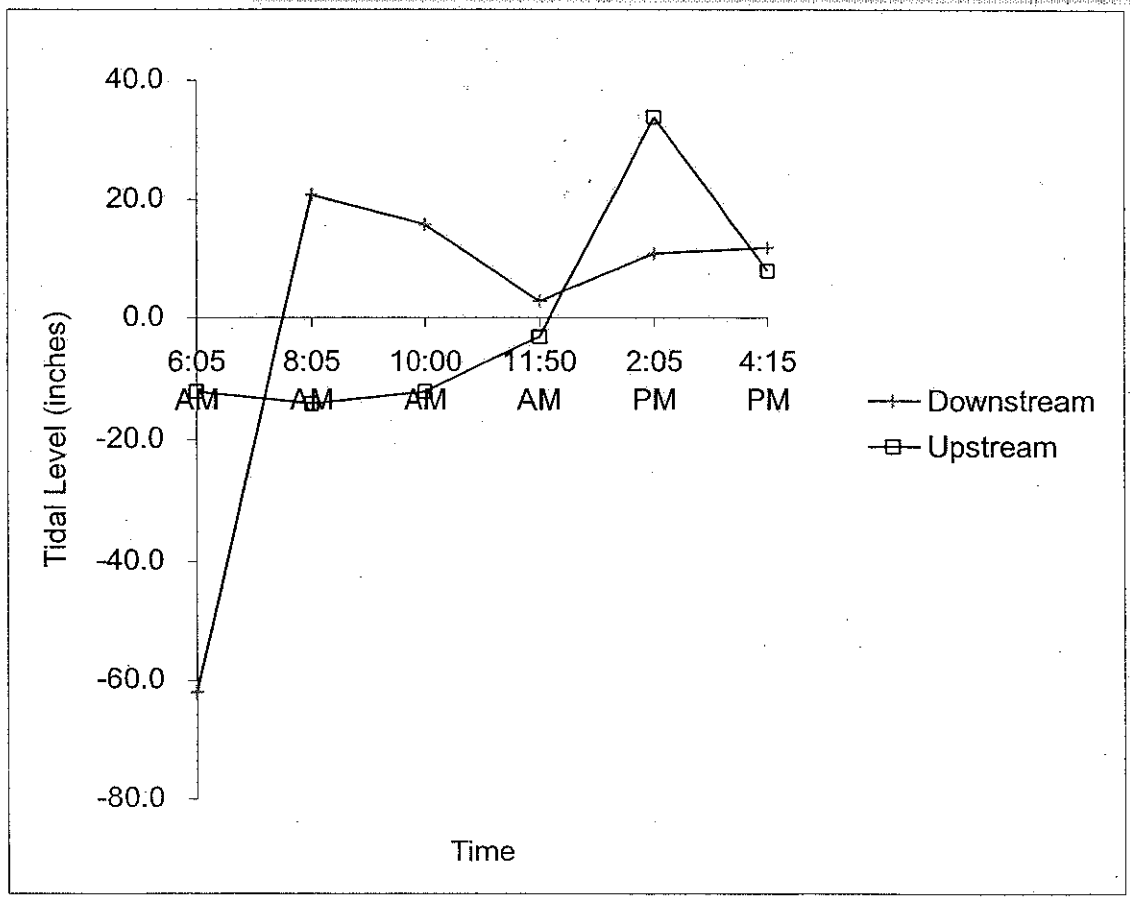



**General Notes (continue on back):**

**Town:** Portland
**Date:** 7/31/99
**Map Reference Number:** PBC8
**Location:** Stream of Baxter Blvd. To Payson Park
**Data Collected by:** Burrett/Nicholls

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 6:05 AM | 67.0 | 96.75 | | -12.2 | -49.8 |
| 8:05 AM | 69.0 | 12 | | -14.2 | 35.0 |
| 10:00 AM | 67.0 | 19 | | -12.2 | 28.0 |
| 11:50 AM | 58.0 | 41 | | -3.2 | 6.0 |
| 2:05 PM | 21.0 | 70 | | 33.8 | -23.0 |
| 4:15 PM | 47.0 | 43 | | 7.8 | 4.0 |
| Tidal Range = | 48 | 84.75 | | | |
| Up/Down Ratio = | 57% | | | | |

**Comments:**



Barrett / Nicholls

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

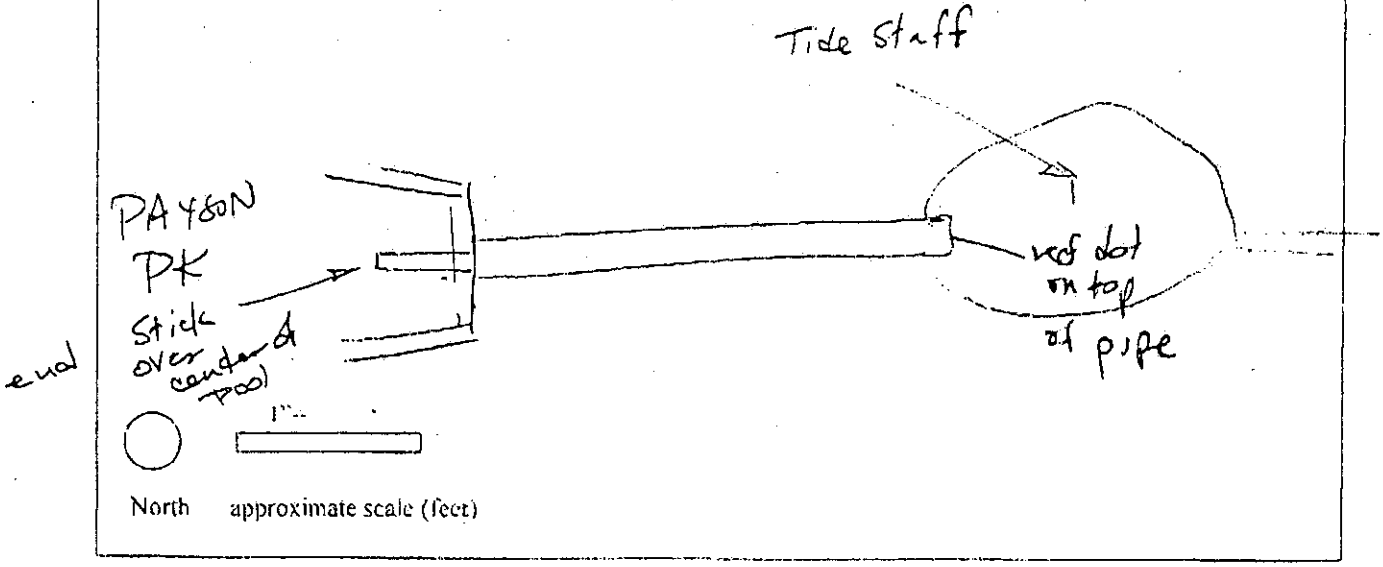
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location (copy from Phase I data sheet) | | | |
|---|---|---|---|
| Map Reference Number | P1 BC 8 | Unique number: | |
| Town | PORTLAND | | |
| Water Body/Stream Name | STREAM OFF BACK COVE INTO PAYSON PARK | | |
| Street | BAXTER BLVD | | |
| Landmark/Location Description | PAYSON PARK | | |

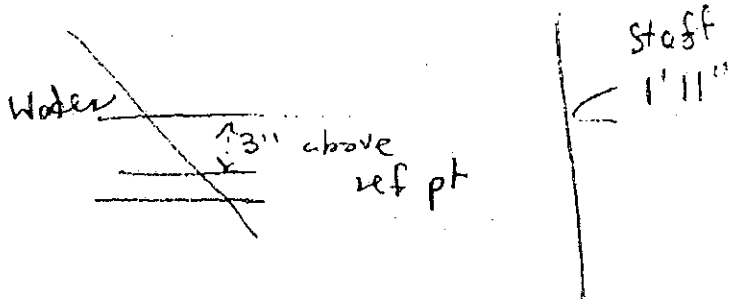
| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | Barrett / NICHOLLS 7/31/99 |
| Weather (circle applicable terms) | (Sunny) Partly Cloudy Overcast Rain |
| Tide (from tide table) 7/31 | High 156 PM Low: 0742 AM / 754 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx. every 2 hours: Height Up-stream (Inches) | | Height Downstream (Inches) | | |
|---|---|---|---|---|---|
| 10:05 | 5' 7" | 67 | 8 3/4" | ref point | 96.75 |
| 12:00 | 5' 9" | 69 | 1' | | 12.0 |
| 00:00 | 5' 7" | 67" | 1' 7" | | 19.0 |
| 1:53 | 4' 10" | 58" | 3' 5" (Ghost pipe) | staff | 41" |
| 2:05 | 1' 8" | 21" | 5' 10" | | 70" |
| 4:15 | 3' 11" | 47" | 3' 7" | | 43" |

**Sketch of Reference Points in Relation to Site**



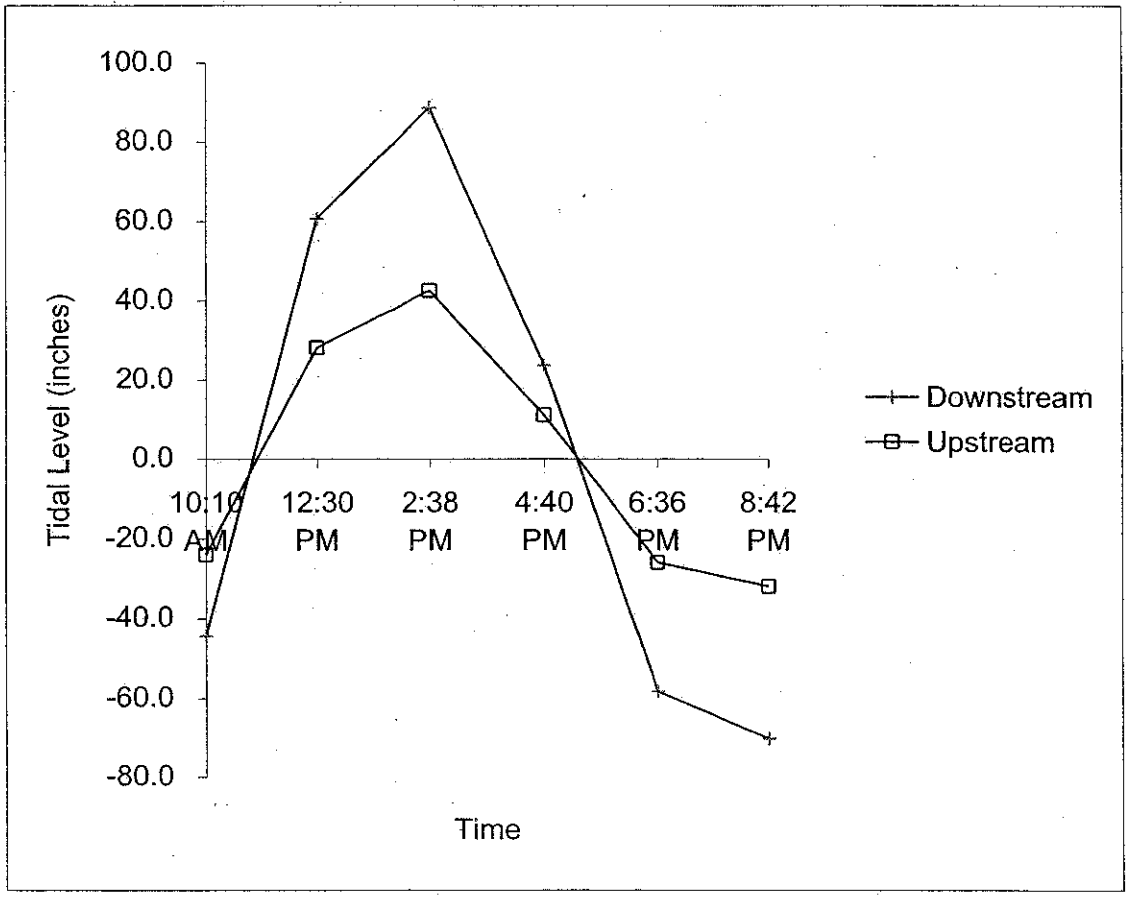

**General Notes (continue on back):**



| | |
|---|---|
| **Town:** | Portland |
| **Date:** | 7/31/99 |
| **Map Reference Number:** | PFR15 |
| **Location:** | Capisic Brook |
| **Data Collected by:** | Barrett/Nichols |

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| **Time** | **Upstream** | **Downstream** | | **Upstream** | **Downstream** |
| | **(in)** | **(in)** | | **(in)** | **(in)** |
| 10:10 AM | 78.0 | 74 | | -23.9 | -20.4 |
| 12:30 PM | 26.0 | 21 | | 28.1 | 32.6 |
| 2:38 PM | 11.5 | 7.5 | | 42.6 | 46.1 |
| 4:40 PM | 43.0 | 41 | | 11.1 | 12.6 |
| 6:36 PM | 80.0 | 86 | | -25.9 | -32.4 |
| 8:42 PM | 86.0 | 92 | | -31.9 | -38.4 |
| **Tidal Range =** | 74.5 | 84.5 | | | |
| **Up/Down Ratio =** | 88% | | | | |

**Comments:**



# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

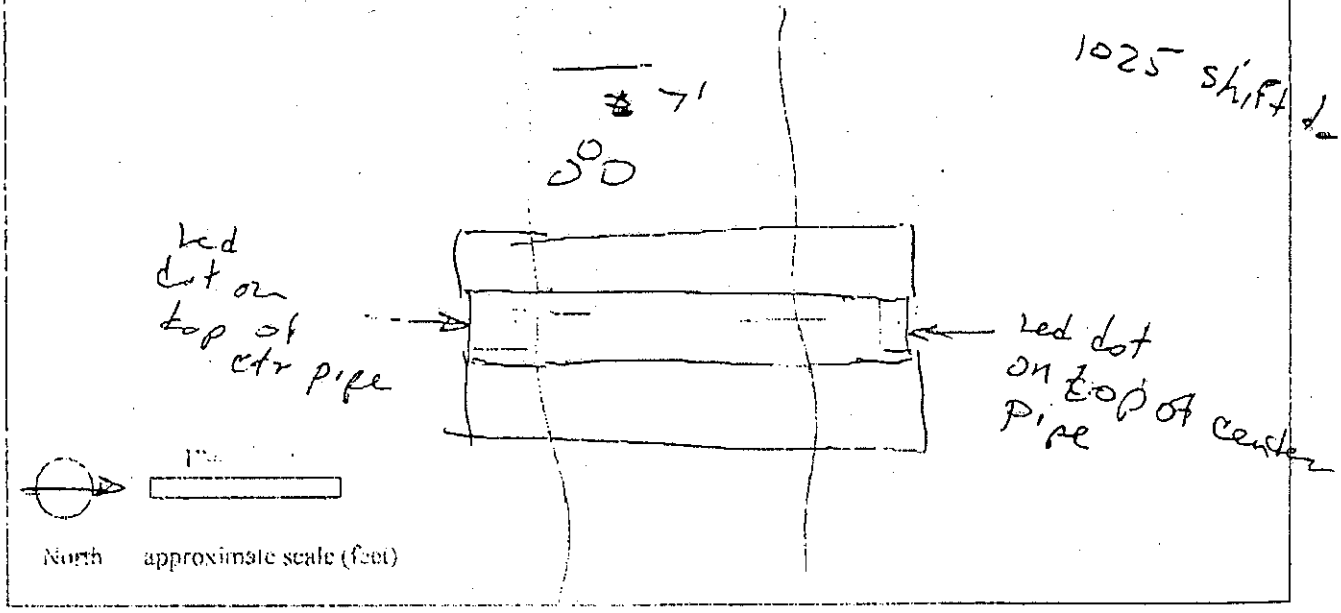
| Location (copy from Phase I data sheet) | | | |
|---|---|---|---|
| Map Reference Number | D/FR/B | Unique number: | |
| Town | PORTLAND | | |
| Water Body/Stream Name | CAPISIC BROOK | | |
| Street | — No Div 1212 truck | | |
| Landmark/Location Description | MAS FORE RIVER SANCTUARY | | |

| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | |
| Weather (circle applicable terms) | Sunny Partly Cloudy Overcast Rain |
| Tide (from tide table) | High 1356 Low: |

| Water Levels: Time (Hours: Minutes) | Measure approx. level & height Upstream (Inches) | | Measure approx. level & height Downstream (Inches) | | |
|---|---|---|---|---|---|
| ~~0842~~ | ~~6'7"~~ | | ~~2'8~~ | | E |
| 1040 | 6'6" | 78" | 6'2" | 74" | E |
| 1230 | 2'2" | 26" | 1'9 | 21" | E |
| 1438 | 11½" | 11.5" | 7½" | 7.5" | E |
| 1640 | 3'7" | 43.0" | 3'5" | 41 | |
| 1836 | 6'8" | 80.0" | 7'2" | 86" | |
| 2042 | 7'2" | 86" | 7'8 | 92" | E |

14T?

Sketch of Reference Points in Relation to Stream

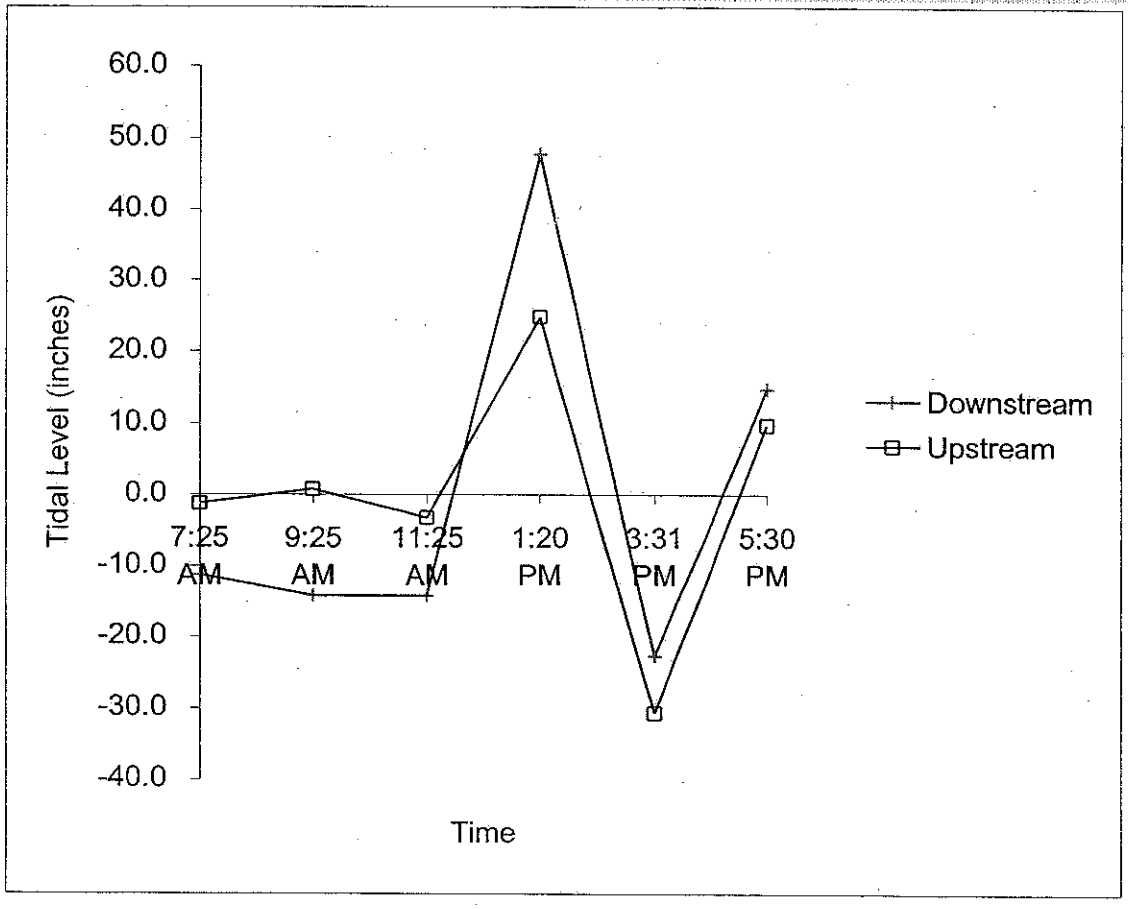



General Notes (continue on back):

**Town:** Brunswick
**Date:** 7/31/99
**Map Reference Number:** BRHS17
**Location:** Stream at Head of Buttermilk Cove
**Data Collected by:** Gavin/Webber

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 7:25 AM | 50.0 | 47 | | -1.3 | -10.0 |
| 9:25 AM | 48.0 | 52 | | 0.8 | -15.0 |
| 11:25 AM | 52.0 | 48 | | -3.3 | -11.0 |
| 1:20 PM | 24.0 | 14 | | 24.8 | 23.0 |
| 3:31 PM | 79.5 | 29 | | -30.8 | 8.0 |
| 5:30 PM | 39.0 | 32 | | 9.8 | 5.0 |
| Tidal Range = | 55.5 | 38 | | | |
| Up/Down Ratio = | 146% | | | | |

**Comments:**



GAVIN/WEBBER

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | BR/HS/17 | Unique number: | |
| Town | BRUNSWICK | | |
| Water Body/Stream Name | STREAM AT HEAD OF BUTTERMILK COVE | | |
| Street | ROAD WEST OF RT 24 to OLD GURNET RD | | |
| Landmark/Location Description | JUST N OF X12 on topo map | | |

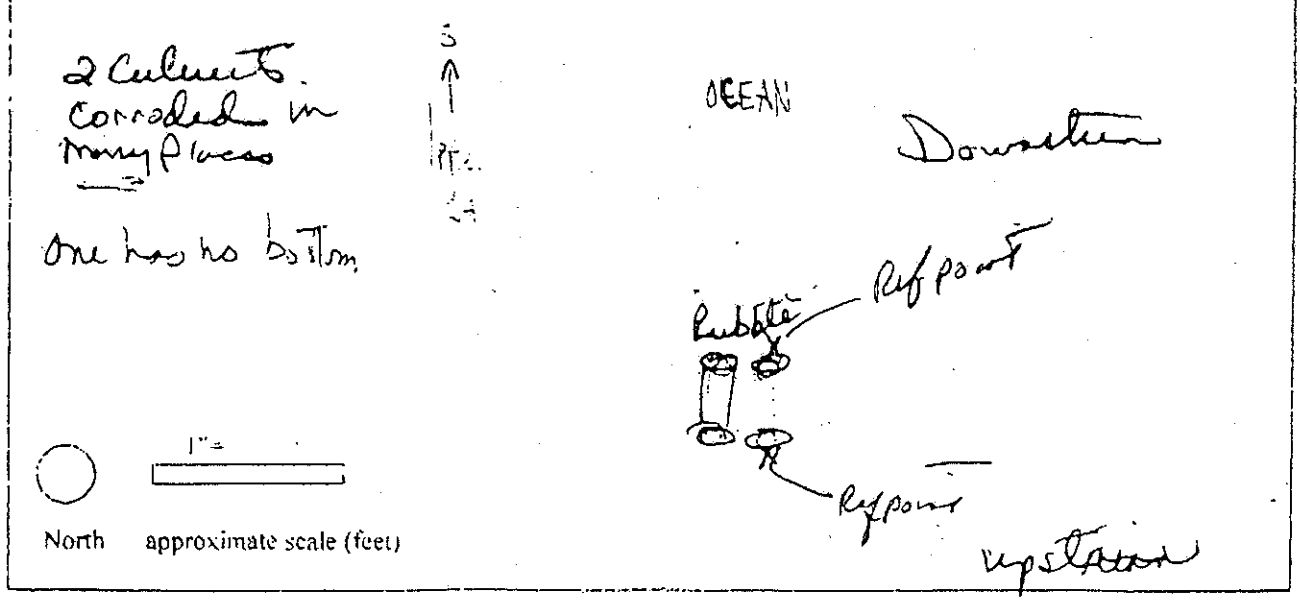
| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | 8/1/99 TRACY WEBBER + REEN GAVIN |
| Weather (circle applicable terms) | (pm) Sunny Partly Cloudy (Overcast) Rain |
| Tide (from tide table) 8/1 | High 237 PM Low: 0822 AM / 840 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2 hours: Height Upstream (Inches) | Height Downstream (Inches) |
|---|---|---|
| 7:25 A | 4' 2" 50.0 | 3' 11" 47.0 |
| 9:25 A | 4' 48.0 | 4' 4" 52.0 |
| 11:25 A | 4' 4" 52.0 | 4' 48.0 |
| 1:20 P | 2' 24.0 | 1' 2" 14.0 Pooling + Scour |
| 3:31 | 6.75" 79.5 | 2' 5 15/16" ABOVE CULVERT - POOL |
| 5:30 | 3' 3" 39.0 | 2' 8" 32.0 |

Ref Point

Log at

## Sketch of Reference Points in Relation to Site

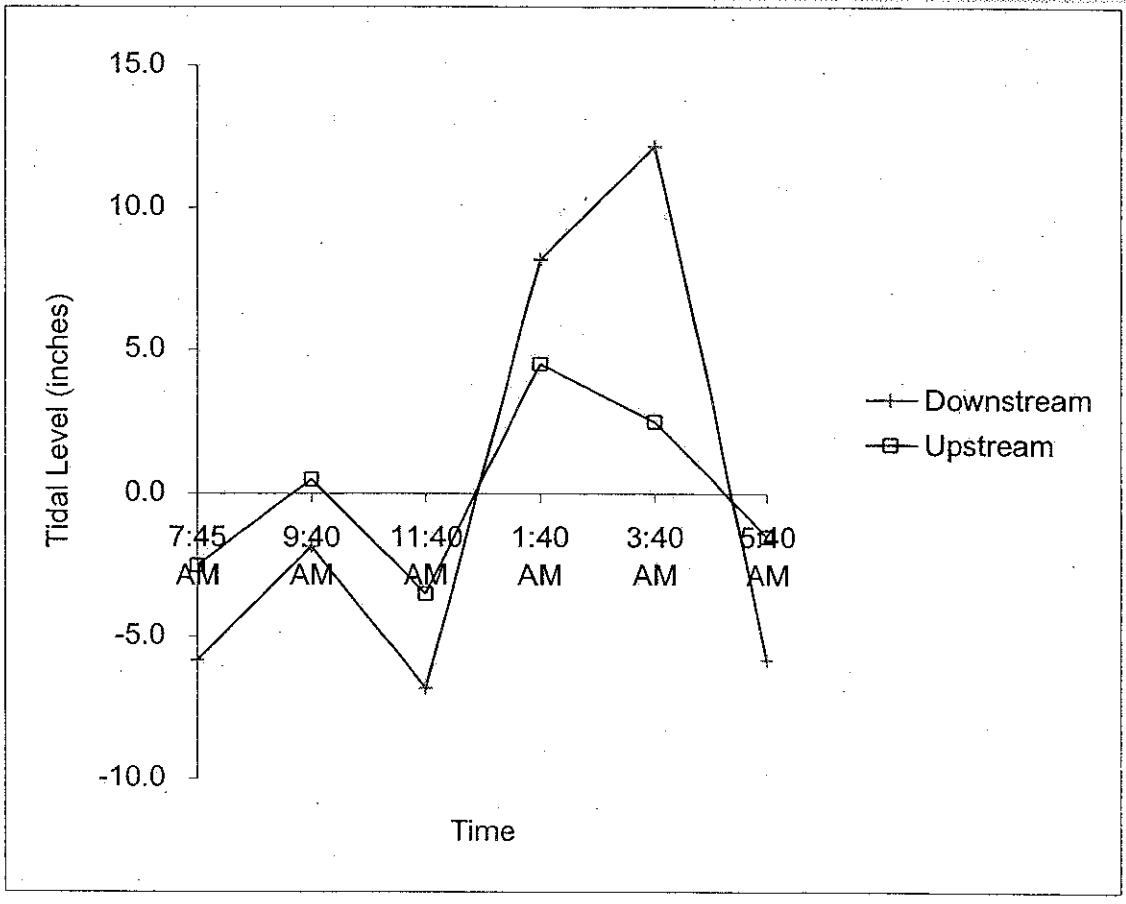



**General Notes (continue on back):**

**Town:** West Bath
**Date:** 7/31/99
**Map Reference Number:** WBNM1
**Location:** New Meadows River
**Data Collected by:** Riotto

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 7:45 AM | 215.0 | 219 | | -2.5 | -3.3 |
| 9:40 AM | 212.0 | 218 | | 0.5 | -2.3 |
| 11:40 AM | 216.0 | 219 | | -3.5 | -3.3 |
| 1:40 AM | 208.0 | 212 | | 4.5 | 3.7 |
| 3:40 AM | 210.0 | 206 | | 2.5 | 9.7 |
| 5:40 AM | 214.0 | 220 | | -1.5 | -4.3 |
| Tidal Range = | 8 | 14 | | | |
| Up/Down Ratio = | 57% | | | | |

**Comments:**



RIOTTO

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

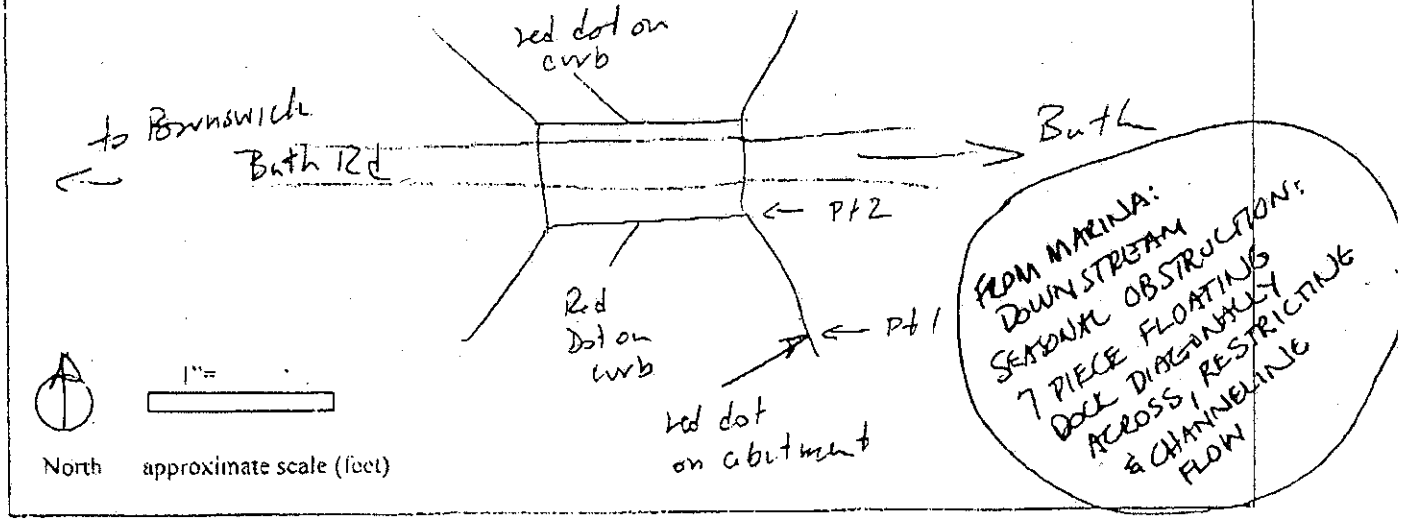
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | WB/NM 1 | Unique number: | |
| Town | WEST BATH | | |
| Water Body/Stream Name | NEW MEADOWS R | | |
| Street | BATH RD | | |
| Landmark/Location Description | NEW MEADOWS INN | | |

| Field visit Information | | |
|---|---|---|
| Date/time/volunteer name(s) | 31 JULY 1999 LIN MARIA RIOTTO | |
| Weather (circle applicable terms) | Sunny (Partly Cloudy) Overcast Rain | |
| Tide (from tide table) 7/31 | High 156 PM | Low: 0742 AM / 759 PM |
| 8/1 | 237 PM | 0822 AM / 840 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2½ hours: Height Upstream (Inches) | | Height Downstream (Inches) | |
|---|---|---|---|---|
| 7:45 AM | 17'11" | 215.0 | 18'3" | 219.0 |
| 9:40 AM | 17'8" | 212.0 | 18'2" | 218.0 |
| 11:40 AM | 18'0" | 216.0 | 18'3" | 219.0 |
| 1:40 PM | 17'4" | 208.0 | 17'8" | 212.0 |
| 3:40 PM | 17'6" | 210.0 | 17'2" | 206.0 |
| 5:40 PM | 17'10" | 214.0 | 18'4" | 220.0 |
| 7:40 PM | 18'2" | 218.0 | 18'3" | 219.0 |

**Sketch of Reference Points in Relation to Site**



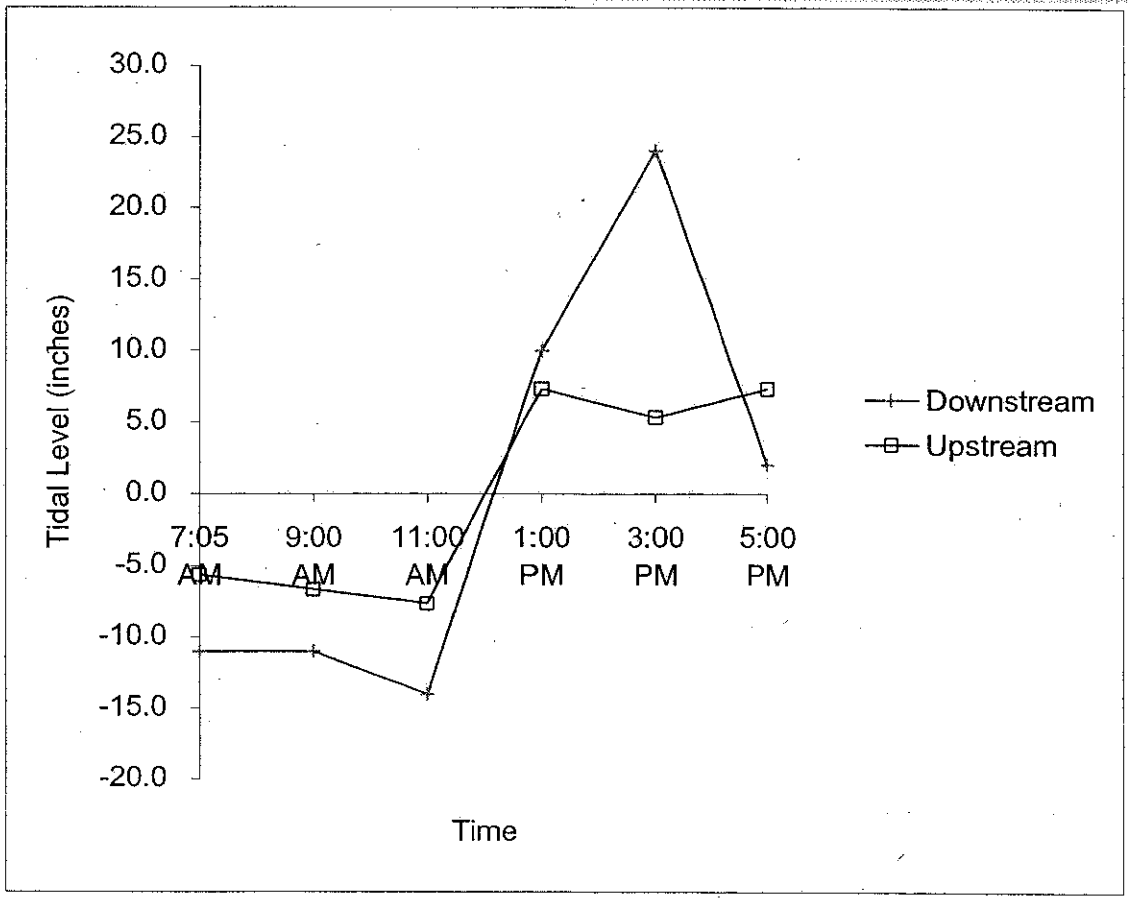

**General Notes (continue on back):**

Lin - I marked 3 dots as the water drops about 6" from wide part of abutment to center of crossing (between pt 1 & pt 2
I'm not sure the pt 1 has water under it - I think water if so wd be good to

**Town:** Phippsburg
**Date:** 7/31/99
**Map Reference Number:** PHSP4
**Location:** Cape Small Harbor Eastern Arm
**Data Collected by:** Riotto

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 7:05 AM | 45.0 | 59 | | -5.7 | -5.3 |
| 9:00 AM | 46.0 | 58 | | -6.7 | -4.3 |
| 11:00 AM | 47.0 | 60 | | -7.7 | -6.3 |
| 1:00 PM | 32.0 | 51 | | 7.3 | 2.7 |
| 3:00 PM | 34.0 | 35 | | 5.3 | 18.7 |
| 5:00 PM | 32.0 | 59 | | 7.3 | -5.3 |
| Tidal Range = | 15 | 25 | | | |
| Up/Down Ratio = | 60% | | | | |

**Comments:**



RIOTT

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

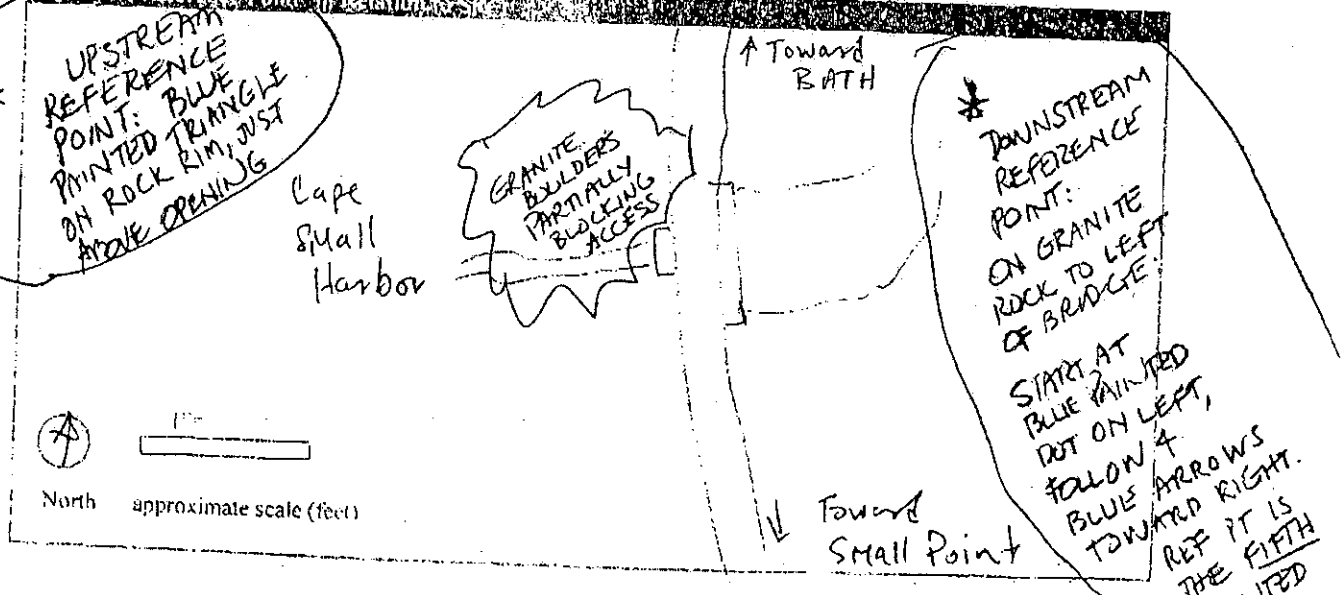
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | PH/SP/4 | Unique number: | |
| Town | PHIPPSBURG | | |
| Water Body/Stream Name | CAPE SMALL HARBOR EASTERN ARM | | |
| Street | RT 216 / SMALL POINT ROAD | | |
| Landmark/Location Description | JUST North of "BM X 32" on Topo Map | | |
| | 1st Crossing South of Alliquippa Road | | |

| Field visit Information | | | | | |
|---|---|---|---|---|---|
| Date/time/volunteer name(s) | 31 JULY 1999 LIN MARIA RIOTT | | | | |
| Weather (circle applicable terms) | Sunny | (Partly Cloud) | Overcast | Rain | |
| Tide (from tide table) | High | 156 PM | Low: | 0742 AM / 754 PM | |

| Water Levels | | | | |
|---|---|---|---|---|
| Time (Hours: Minutes) | Measure upstream Height Upstream (Inches) | | Measure downstream Height Downstream (Inches) | |
| 7:05 AM | 3'9" | 45.0 | 4'11" | 59.0 |
| 9:00 AM | 3'10" | 46.0 | 4'10" | 58.0 |
| 11:00 AM | 3'11" | 47.0 | 5'0" | 60.0 |
| 1:00 PM | 2'8" | 32.0 | 4'3" | 51.0 |
| 3:00 PM | 2'10" | 34.0 | 2'11" | 35.0 |
| 5:00 PM | 2'8" | 32.0 | 4'11" | 59.0 |
| 7:00 PM | 2'11" | 35.0 | 5'0" | 60.0 |

Sketch of Reference Point and Relative Site




**General Notes** (continue on back):

You will need To select + Mark reference points on each side of culvert (Nail Polish etc) Please describe in detail on data sheet

MACVANE
WALSH/WAINER

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

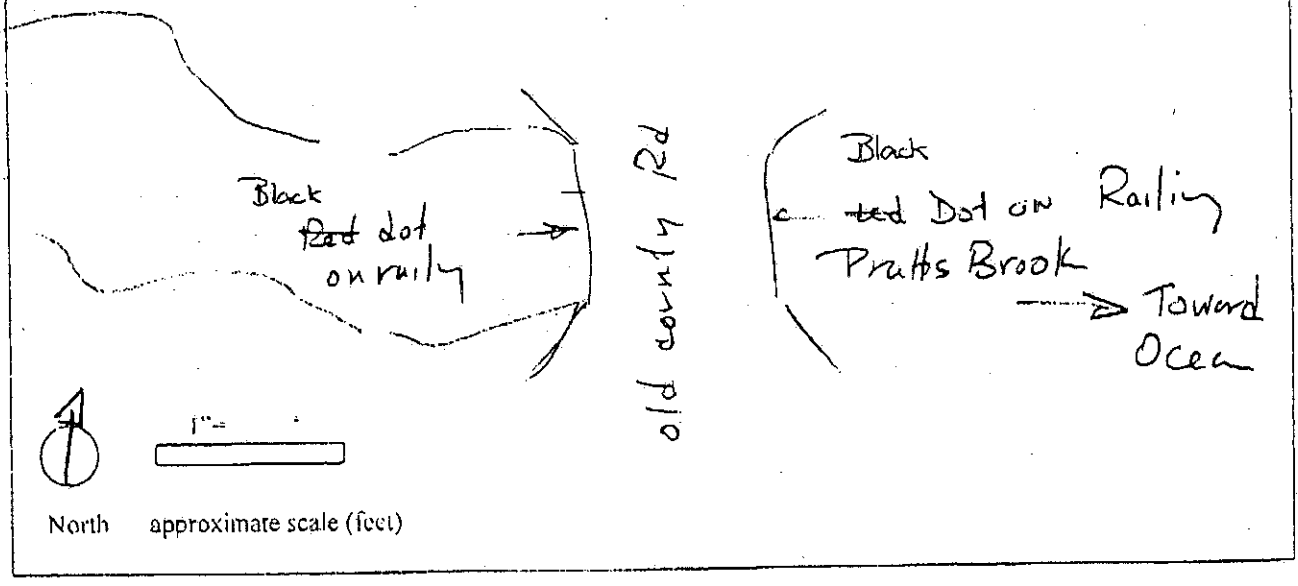
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | 41 RR 5 | Unique number: | |
| Town | YARMOUTH | | |
| Water Body/Stream Name | PRATTS BROOK | | |
| Street | OLD COUNTY RT | | |
| Landmark/Location Description | JUST SW of SODOM | | |

| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | |
| Weather (circle applicable terms) | Sunny Partly Cloudy Overcast Rain |
| Tide (from tide table) | High 156 PM Low: 0742 AM / 754 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2 hours Height Upstream (Inches) | Height Downstream (Inches) |
|---|---|---|
| 07:12 | 26'5" 317" | 26'4" 316" |
| 09:00 | 26'6" | 26'6" |
| 10:55 | 26'7" | 26'7" |
| 1:05 | 22'4 3/4" | 22'6.5" |
| 3:00 | ~~20'8"~~ 20'8" | 20'6½" |
| 5:16 | 23'6½" | 23'5" |

**Sketch of Reference Points in Relation to Site:**




**General Notes (continue on back):**

MAEVANE

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

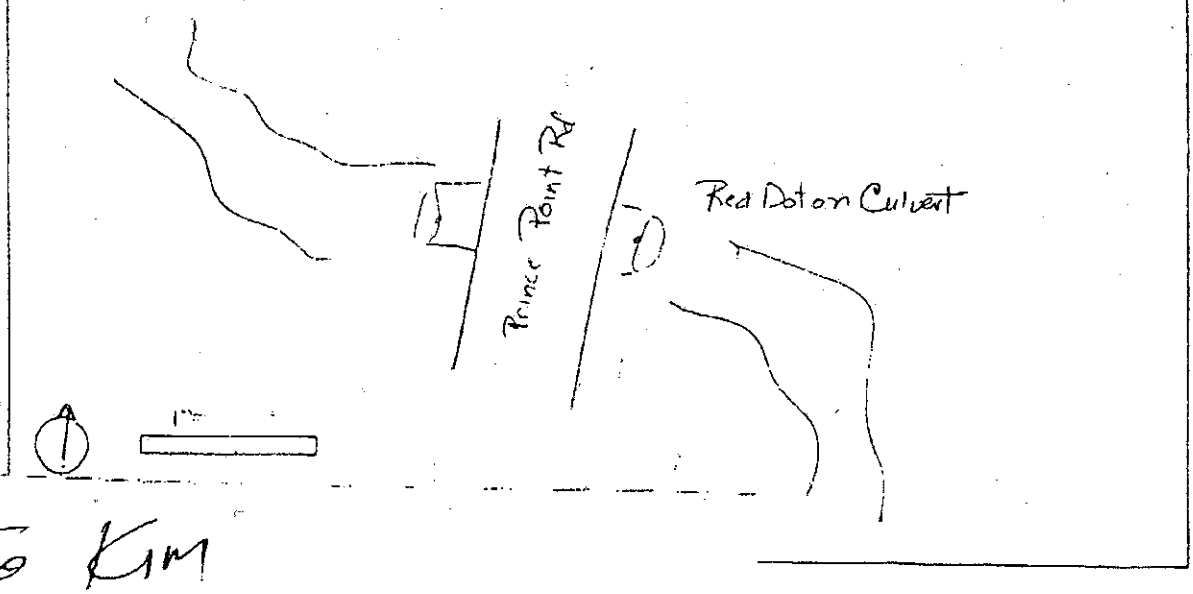
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | 4 \| FS \| 2 | Unique number: | |
| Town | YARMOUTH | | |
| Water Body/Stream Name | STREAM OFF BROAD COVE | | |
| Street | PRINCE POINT RD | | |
| Landmark/Location Description | BETWEEN MORTON RT + POWER LINES | | |

| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | |
| Weather (circle applicable terms) | Sunny Partly Cloudy Overcast Rain |
| Tide (from tide table) 8\|5 | High 156 PM Low: 0742 AM \| 754 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2 hours. Height Upstream (Inches) | Height Downstream (Inches) |
|---|---|---|
| 06:50 | 2'9" 33" | 2'9.5" 33.5" |
| 9:10 | 3'10" 46" | 3'11" 47" |
| 11:10 | 3'9½" 45.5" | 3'10" 46" |
| 1:20 PM | 2'8½" 32.5 | 0'9¼" |
| 3:17-3:25 | 1'6½" | = 0.1" - water is exactly 1" above red dot. |
| 5:00 | 3'6" 42 | 2'1¾" 21.25" |

Sketch of Reference Points in Relation to Site

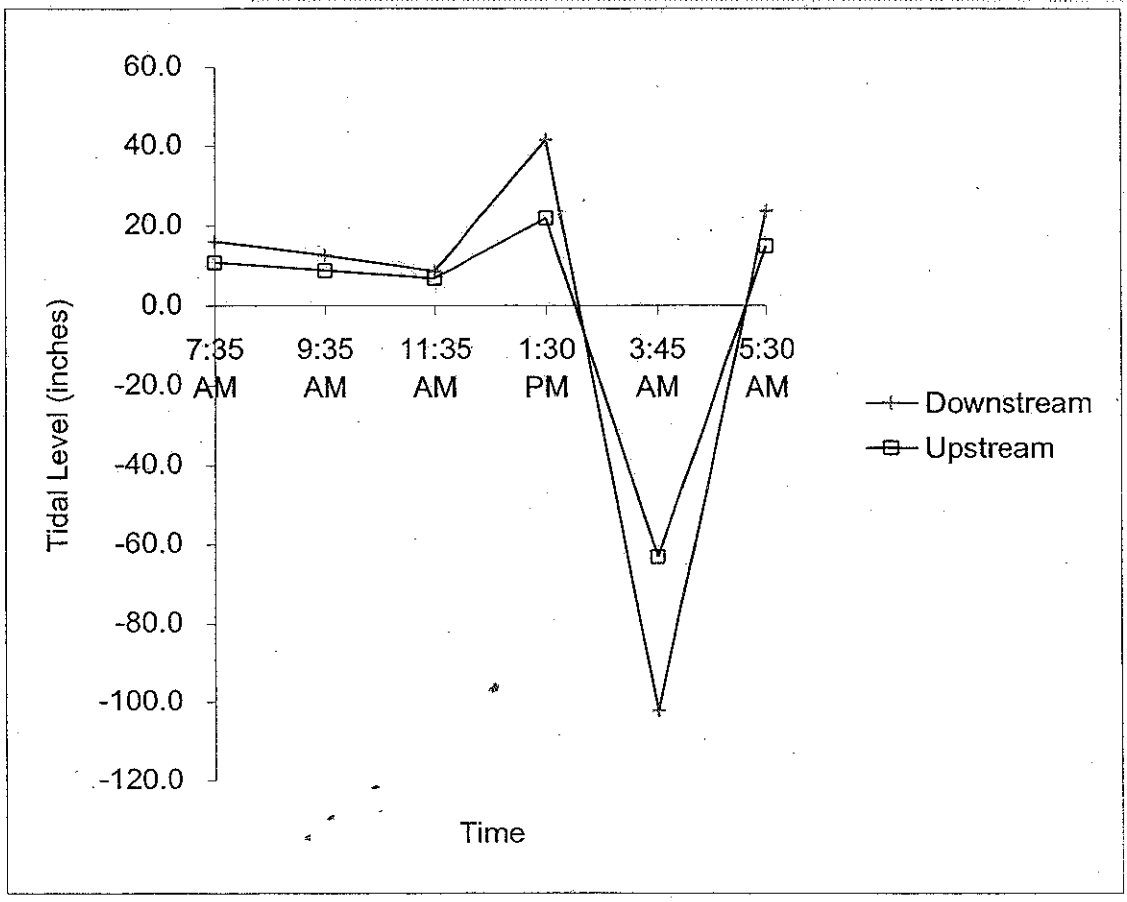



To Kim
From Erwo
Tidal Curve
Data Sheets

**Town:** Harpswell
**Date:** 7/31/99
**Map Reference Number:** HHS3
**Location:** Doughty Cove
**Data Collected by:** Gavin/Webber

| | Raw Data | | | Change | |
|---|---|---|---|---|---|
| Time | Upstream | Downstream | | Upstream | Downstream |
| | (in) | (in) | | (in) | (in) |
| 7:35 AM | 27.0 | 27.5 | | 10.8 | 5.3 |
| 9:35 AM | 29.0 | 29 | | 8.8 | 3.8 |
| 11:35 AM | 31.0 | 31 | | 6.8 | 1.8 |
| 1:30 PM | 16.0 | 13 | | 21.8 | 19.8 |
| 3:45 AM | 101.0 | 72 | | -63.2 | -39.3 |
| 5:30 AM | 23.0 | 24 | | 14.8 | 8.8 |
| Tidal Range = | 85 | 59 | | | |
| Up/Down Ratio = | 144% | | | | |

**Comments:**



GAVIN/WEBBER

# RETURN THE TIDES PROJECT: Tidal Crossing Data Sheet- Phase II

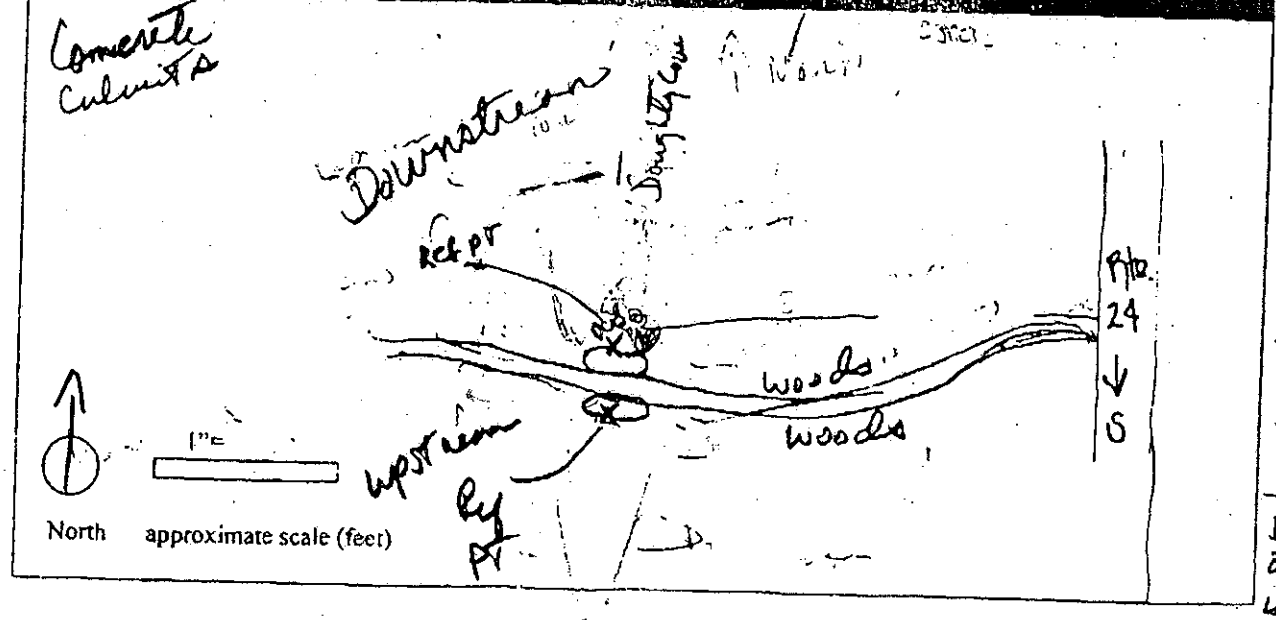
REFER TO INSTRUCTION SHEET FOR DETAILED INSTRUCTIONS

| Location | (copy from Phase I data sheet) | | |
|---|---|---|---|
| Map Reference Number | H/HS3 | Unique number: | |
| Town | HARPSWELL | | |
| Water Body/Stream Name | DOUGHTY COVE | | |
| Street | LONG REACH LANE | | |
| Landmark/Location Description | JUST W OF GRAVEL PITS ON Topo Map 5/10 mile in @ Austin Gavin LoT | | |

| Field visit Information | |
|---|---|
| Date/time/volunteer name(s) | 8/1/99 TRACY WEBBER + KEEN GAVIN |
| Weather (circle applicable terms) | AM Sunny Partly Cloudy Overcast Rain |
| Tide (from tide table) 8/1 | High 237 PM Low: 0822 AM / 840 PM |

| Water Levels: Time (Hours: Minutes) | Measure approx every 2 hours Height Upstream (inches) | | Height Downstream (inches) | |
|---|---|---|---|---|
| 735 AM | 2'3¾ | 27" | 2'3¾ | 27.5 |
| 935 AM | 2'5" | 29" | 2'5" | 29" |
| 135 A | 2'7" | 31" | 2'7" | 31" |
| 130 P | 1'4" | 16" | 1'1" | 13" |
| 345 P | 8'5" | 101 | 6" | 72.0" |
| 5:30 | 1'11" | 23" | 2.0' | Rapid flow 24.0 |

Sketch of Reference Points in Relation to Site




Culvert
Side View of Culvert
Rubble
Rapid Flow → scour → bed immediately after culvert 6' to 2' for 3' then up

**General Notes (continue on back):**

Concrete Culvert on downstream side is well above level of water. Exiting $H_2O$ falls several feet over rocks. More accurate measurements could have been recorded if reference point was located 60' out.

* Downstream side is North as this cove has no exit to the South. This a beautiful marsh on a 22 acre site managed by Baxter State Park

# Return the Tides - Phase II Report

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| SPO/FR /1 | Cottage Road | Mill Creek | / | Portland West /SE | 1 | 1 | 2 | 2 | 2 | 2 | C | R II |
| SPO/FR /2 | Broadway | Anthoine Creek | / | Portland West /SE | 1 | 2 | 1 | 2 | 4 | 2 | C | R II |
| SPO/FR /3 | Public walkway | STR S fm Fore R; just E of Turner I. | / | Portland West /SE | 2 | 3 | 2 | 3 | 3 | 1 | C | R II |
| SPO/FR /4 | Petroleum Causeway | Barberry Creek | / | Portland West /SE | 2 | – | 3 | 4 | 3 | – | 0 | NA |
| SPO/FR /5 | W. edge of Forest City Cemetery | Stream south from Fore River | / | Portland West /SE | 3 | – | – | – | – | – | N | NM |
| SPO/FR /6 | West of Main Street (Rolling Mills TML) | Stream south of Fore River | / | Portland West /SE | 2 | – | – | – | – | – | N | NM |
| SPO/FR /7 | West of Western Avenue, Dam | Clark Pond | / | Portland West /SW | 3 | – | – | – | – | – | N | NT |
| SPO/FR /8 | I-295 | Long Cr. | / | Portland West /SE | 3 | – | – | – | – | – | N | NT |
| SPO/FR /9 | public walkway | Tributary of Mill Creek | / | Portland West /SE | 2 | 3 | 1 | 1 | 1 | 2 | C | R II |
| SPO/FR /10 | South Portland Public Walkway | Mill Creek | / | Portland West /SE | 2 | | | | | | C | NR |
| SPO/FR /11 | Kelly Street | Anthoine Creek | / | Portland West /SE | 2 | – | – | – | – | – | N | NT |
| SPO/FR /12 | Kelsey Street | Anthoine Creek | / | Portland West /SE | 2 | – | – | – | – | – | N | NT |
| SPO/FR /13 | Public Walkway | Anthoine Creek | / | Portland West /SE | 1 | 1 | 1 | 1 | 1 | 1 | C | NR |
| POR/FR /1 | Westbrook Street, Dam | Stroudwater | / | Portland West /SE | 3 | – | – | – | – | – | N | NT |
| POR/FR /2 | Congress Street | Fore River | / | Portland West /SE | 1 | 1 | 1 | 3 | 3 | 2 | C | R II |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| POR/FR /3 | RR track | Capisic Brook | / | Portland West /SE | 2 | 4 | 5 | 4 | 4 | 1 | C II | R III |
| POR/FR /4 | North of N. Division RR track | Stream W from Capisic Brook | / | Portland West /SW | 3 | – | – | – | – | – | N | NR |
| POR/FR /5 | N. Division RR | Tributary Fore R. | / | Portland West /SE | 2 | – | 2 | – | 1 | 1 | N | NT |
| POR/BC /6 | Baxter Blvd. | Stream NE of Cheverus HS | / | Portland West /SE | 2 | 4 | 3 | 4 | 2 | 1 | C II | R III |
| POR/BC /7 | Baxter Blvd. | Fall Brook | / | Portland West /SE | 2 | 1 | 2 | 1 | 1 | 1 | C II | R III |
| POR/FR /7 | C&O Canal, Dam | Tributary Fore R. | / | Portland West /SE | 3 | 1 | 1 | 4 | 4 | 1 | N | NR |
| POR/BC /8 | Baxter Blvd. | Stream N from Back Cove/Payson Park | / | Portland West /SE | 2 | 2 | 3 | 2 | 2 | 1 | C II | R III |
| POR/PR /9 | I-295 | Marsh W of Presumpscot River, S of 2 | / | Portland West /NE | 2 | 3 | 3 | 3 | 4 | 3 | C | R II |
| POR/PR /10 | I-295 | Stream off Presumpscot River | / | Portland West /NE | 2 | – | – | – | – | – | N | NM |
| POR/ /11 | I-295 | Trib.of Presumpscot R., N of 2 | / | Portland West /NE | 2 | 5 | 2 | 2 | 2 | 2 | C | R II |
| POR/CB /12 | Seashore Ave. | Elm Tree Cr., Peaks I. | / | Portland East /SE | 2 | | | | | | N | NT |
| POR/CB /13 | Seashore Ave. | Pond near Bath Steele | / | Portland East /SW | 3 | | | | | | 0 | |
| POR/CB /14 | Cushing I. | | / | Portland East /SW | | | | | | | 0 | |
| POR/FR /15 | N. Division RR | Capisic Brook | / | Portland West /SW | 2 | 3 | 3 | 1 | 3 | 1 | C II | R III |
| ~~POR/FR /16~~ | ~~N. Division RR~~ | ~~Capisic Br.~~ | / | Portland West /SE | 2 | 2 | 2 | 1 | 2 | 1 | C | NR |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| POR/CB /16 | Seashore Avenue | Stream on SE side of Peaks Island | / | Portland East /SE | | | | | | | N | |
| POR/CB /[illegible] | Little Diamond I. | "Ice Pond", Dam | / | Portland East /SW | 3 | | | | | | 0 | |
| FAL /PR /1 | I-295 | Stream NE from Presumpscot River | / | Portland West /NE | — | — | — | — | — | — | N | NM |
| FAL /PR /2 | Lunt Road | Skittery Gusset Creek | / | Portland East /NW | 1 | — | — | — | — | — | N | NT |
| FAL /PR /6 | I-295/Rt. 88 | Stream W from Presumpscot R./Mill Cr. | / | Portland West /NE | 2 | — | — | — | — | — | N | NM |
| YAR /RR /2 | Prince Point Rd | Stream Off Broad Cove | / | Yarmouth /SE | 2 | 2 | | | | 2 | C II | R III |
| YAR /RR /3 | Road to Yarmouth Wastwater Treatment Plant | Trib. From Royal River | / | Yarmouth /SE | 2 | — | — | — | — | — | N | NT |
| YAR /RR /4 | Yarmouth Town Landing/Dredge Spoil | Stream N from Royal River | / | Yarmouth /SE | 3 | — | — | — | — | — | C | OTHER |
| YAR /RR /5 | Old County | Pratts Brook | / | Yarmouth /NE | 1 | | | | | 1 | C II | NR |
| YAR /RR /6 | Granite | Pratts Brook | / | Yarmouth /NE | 3 | | | | | 1 | C | R III |
| FPT /HR /1 | South Freeport Road | Stream north from Spar Cove | / | Freeport /NW | | — | — | — | — | — | N | NT |
| FPT /HR /3 | Torrey Range Road signed as Bartol Island Road | Stream N from Porter Landing | / | Freeport /NW | | — | — | — | — | — | N | NT |
| FPT /HR /4 | Bow Street | Mill Stream | / | Freeport /NW | 2 | 3 | 3 | 2 | 4 | | C | NR |
| FPT /HR /5 | Bow Street | Frost Gully Brook | / | Freeport /NW | 2 | 3 | 3 | 2 | 4 | | C | NR |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| FPT /CB /6 | Burnett Road | Little River | / | Freeport | /NW | 1 | | | | | | 0 | |
| FPT /RR /8 | Old County | Cousins | / | Yarmouth | /NE | 2 | 2 | 2 | 2 | 2 | 3 | C | NR |
| FPT /RR /9 | Webster | Harvey Brook | / | Yarmouth | /NE | 2 | 2 | 2 | 3 | 3 | 3 | C | NR |
| FPT /RR /11 | Old County | Trib. W from Cousins River | / | Yarmouth | /NE | 2 | — | — | — | — | — | N | NT |
| FPT /HR /13 | South Freeport Road | Stream W from S end of CV S of Porter Landing | / | Freeport | /NW | 2 | 1 | 2 | 2 | | 1 | C | NR |
| BRK /NM /5 | Bath Road | Stream N from Thomas Bay | / | Brunswick | /SE | — | — | — | — | — | — | N | NT |
| BRK /NM /6 | Railroad | Stream N from Thomas Bay | / | Brunswick | /SE | — | — | — | — | — | — | N | NT |
| BRK /NM /8 | Bath Road, Dam | Trib. Of N. Meadows River | / | Bath | /SW | 3 | 5 | 5 | 5 | 5 | 2 | C | OTHER |
| BRK /NM /9 | | Stream W from N. Meadows River | / | Bath | /SW | | | | | | | 0 | |
| BRK /MA /11 | Maquoit | Stream E of Wharton Point | / | Orrs Island | /NW | 2 | | | | | | 0 | |
| BRK /MA /12 | Rossmore Road | Stream off Maquoit Bay | / | Orrs Island | /NW | 2 | | | | | | 0 | |
| BRK /ME /13 | Johnson Driveway | Miller Creek | / | Orrs Island | /NW | | | | | | | 0 | NA |
| BRK /MI /14 | Street South from Dyer Corner | Stream off Middle Bay CV W | / | Orrs Island | /NW | | | | | | | 0 | |
| BRK /MI /15 | Route 123 | Stream at head of Middle Bay | / | Orrs Island | /NW | 2 | — | — | — | — | — | N | NT |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| BRK /MI /16 | Route 123 | Middle Bay | / | Orrs Island | /NW | 2 | — | — | — | — | — | N | NT |
| BRK /HS /17 | Coombs | Stream off Buttermilk Cove | / | Orrs Island | /NE | 2 | | | | | | C II | R III |
| BRK /HS /18 | Road East from Dyer Corner | Stream W from Mare Brook | / | Brunswick | /NW | | | | | | | N | NA |
| BRK /HS /19 | Prince Pt. Rd | Buttermilk Cove | / | Orrs Island | /NE | 1 | 4 | 4 | 4 | 4 | | C | R II |
| BRK /MA /20 | Flying Pt. Rd | Bunganuc Stream | / | Freeport | /NE | 1 | — | — | — | — | — | N | NT |
| HWL/QB /1 | Tondreaus Point Road | Stream E & N from Orrs Cove | / | Orrs Island | /NE | 2 | — | — | — | — | — | C | NT |
| HWL/QB /1 | Tondreau Point Road | Stream N from Orr's Cove | / | Orrs Island | /NE | 2 | — | — | — | — | — | N | NT |
| HWL/HS /2 | Doughty Cove Road | Doughty Cove | / | Orrs Island | /NE | 2 | — | — | — | — | — | N | NT |
| HWL/HS /3 | Long Reach Lane | Doughty Cove | / | Orrs Island | /NE | 2 | 2 | 3 | 5 | 5 | 1 | C II | R III |
| HWL/HS /8 | Dam at Route 24 | Stream S from Reed Cove "Wilton Pond" | / | Orrs Island | /SW | 3 | — | — | — | — | — | N | NT |
| HWL/CB /9 | Dam E of Gun Pt. Rd | Channel N from Cove E of Gun Point "Dave's Pond" | / | Orrs Island | /SW | 3 | | | | | | C | R II |
| HWL/NM /10 | Laurel Cove Road | Stream S from Laurel Cove | / | Orrs Island | /NE | 2 | | | | | | C | NT |
| HWL/NM /11 | Wallace Shore Road | New Meadows River | / | Orrs Island | /NE | 1 | | | | | | 0 | NA |
| HWL/QB /12 | Bethel Pt. Rd. | Mill Cove | / | Orrs Island | /NE | 2 | | | | | | 0 | |
| HWL/QB /13 | Bethel Pt. Rd. | N from Hen Cove | / | Orrs Island | /SE | 2 | 1 | | 3 | | | C | NR |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| HWL/QB /14 | Dam | Pond N of Bethel Point | / | Orrs Island /SE | 3 | | | | | | C | OTHER |
| HWL/NM /15 | Cundy Pt. Rd. | New Meadows River | / | Orrs Island /SE | 3 | | | | | | 0 | |
| HWL/HS /16 | High Head Road | Stream N from Hill Cove | / | Orrs Island /NW | 2 | 2 | 1 | 2 | 3 | | C | R II |
| HWL/HS /17 | Mountain Rd. | Strawberry Creek | / | Orrs Island /NW | 2 | 2 | 3 | 5 | 5 | | C | R II |
| HWL/HS /19 | Abner Pt. Rd. | Marsh on S side of "Lowell's Cove on Bailey Island | / | Bailey Island /NW | | | | | | | 0 | |
| HWL/CB /20 | "new road" from east side of Ash Pt. Cove | Stream N from E side of Ash Point Cove | / | South Harpsw /NE | | | | | | | 0 | |
| HWL/NM /21 | Shore Rd. | N BR of Stream W from New Meadows River; N of 2 | / | Orrs Island /NE | 2 | — | — | — | — | — | N | NT |
| HWL/QB /22 | Wallace Shore Rd. | Stream NE from Quahog Bay | / | Orrs Island /NE | | — | — | — | — | — | N | NT |
| HWL/QB /23 | Bethel Rd. | | / | Orrs Island /NE | | — | — | — | — | — | N | NT |
| HWL/QB / | Cundys Harbor Road | Stream E & N from Quahog Bay | / | Orrs Island /NE | — | — | — | — | — | — | N | NT |
| HWL/HS /25 | Prince Pt. Rd. | Pond NE of Prince Point | / | Orrs Island /NE | | | | | | | 0 | NA |
| WBA/NM /1 | Bath Rd. | New Meadows River | / | Bath /SW | 1 | | | | | | C | R III |
| WBA/NM /2 | Maine Central RR | New Meadows | / | Bath /SW | 1 | | | | | | 0 | OTHER |
| WBA/NM /3 | Route 1 | New Meadows River | / | Bath /SW | 1 | — | — | — | — | — | 0 | OTHER |

| Map Ref. No. | Street | Watershed | Lat/ Long | Topo Quad/ Quadrant | | Crossing Type | Flow Restriction Rating | | Channel to Culvert Rating | | Flood Potential | Phase Status | Phase Status Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Upstream | Downstream | Upstream | Downstream | | | |
| WBA/NM /4 | Old Brunswick Rd., Lake | New Meadows River | / | Bath | /SW | 1 | — | — | — | — | — | C | OTHER |
| WBA/NM /6 | Hill Rd. | Mill Cove | / | Bath | /SW | 1 | — | — | — | — | — | N | NT |
| WBA/NM /7 | Berry's Road | Pond E from Mill Cove | / | Bath | /SW | 2 | — | — | — | — | — | N | NT |
| WBA/NM /8 | Rd. from Berry's Rd. to WJTO Twr. | Stream N from Pond East from Mill Cove | / | Bath | /SW | 1 | — | — | — | — | — | N | NT |
| PHI /SP /1 | Flat Rock Rd. | Stream N from E arm of Small Point Harbor | / | Small Point | /NW | | | | | | | 0 | NA |
| PHI /SP /2 | Alliquippa Rd. | STR running S to Mid brch Cape Small Hbr | / | Small Point | /NW | 2 | 2 | 2 | 2 | 2 | 1 | C | R II |
| PHI /SP /4 | Rt. 128 | E branch of Cape Small Harbor | / | Small Point | /NW | 2 | 2 | 4 | 5 | 5 | 2 | C II | R III |
| PHI /SP /5 | Rd. to Hermit Island | | / | Small Point | /NW | 3 | — | — | — | — | — | N | NM |
| PHI /SP /10 | | Wa Tuh Pond | / | Small Point | /NW | 3 | — | — | — | — | — | N | NT |
| PHI /SP /13 | Morse Mt. Rd. | Stream N from E Br. Cape Small Harbor | / | Small Point | /NW | 3 | — | — | — | — | — | N | NM |
| PHI /SP /14 | RT 126 just South of Flat Pt. Rd., Dam | W br of Stream N from E Br Cape Small Hbr | / | Small Point | /NW | 3 | 5 | 5 | 5 | 5 | 1 | C | OTHER |
| PHI /NM /17 | | Stream E of Burnt Coat Island | / | Phippsburg | /SW | | | | | | | 0 | NA |

## *Legend - Return the Tides Phase II Summary*

**City/Town**

| | |
|---|---|
| CEL | Cape Elizabeth |
| SPO | South Portland |
| POR | Portland |
| LIS | Long Island |
| FAL | Falmouth |
| CUM | Cumberland |
| YAR | Yarmouth |
| FPT | Freeport |
| BRK | Brunswick |
| HWL | Harpswell |
| WBA | West Bath |
| PHI | Phippsburg |

**Waterbody/Stream Name**

| | |
|---|---|
| FR | Fore River |
| BC | Back Cove |
| PR | Presumpscot River |
| FS | Falmouth/Cumberland Foreside |
| RR | Royal/Cousins River |
| HR | Harraseeket River |
| MA | Maquoit Bay |
| ME | Merepoint Bay |
| MI | Middle Bay |
| HS | Harpswell Sound |
| QB | Quahog Bay |
| NM | New Meadows River |
| SP | Small Point Harbor |
| CB | Casco Bay |

**Crossing Type**

| | |
|---|---|
| 1 | Bridge |
| 2 | Culvert |
| 3 | Other |

**Flow Restriction Rating (U/D)**

| | |
|---|---|
| 1 | Unrestricted/No Pooling |
| 2 | Flow Detained/Slight Erosion |
| 3 | Minor Pooling/ Erosion Present |
| 4 | Significant Pooling/Significant Erosion |
| 5 | Major Pooling/Major Erosion Present |

**Channel to Culvert Rating (U/D)**

| | |
|---|---|
| 1 | River Width< Opening Width |
| 2 | River Width = Opening Width |
| 3 | River Width 1.1 to 2.0x Opening Width |
| 4 | River Width 2.1 to 5.0x Opening Width |
| 5 | River Width 5.1x + Opening Width |

**Flood Potential**

| | |
|---|---|
| 1 | Low |
| 2 | Medium |
| 3 | High |

**Phase Status**

| | |
|---|---|
| 0 | Not Done Yet |
| C | Complete |
| N | Not Required |
| C II | Phase II Done |

**Phase Status Comment**

| | |
|---|---|
| NT | Not Tidal |
| NM | No Marsh |
| NA | Needs Access Permission |
| OTHER | OTHER |
| NR | Not Considered Restricted |
| R II | Recommend Phase II Work [1] |
| R III | Recommend Phase III Work [2] |

**Number**

Number represents the number assigned to crossing within each city/town.

---

[1] Measure tidal curves

[2] Further detailed study of impacts on salt marsh from restriction; restoration potential, benefits and feasibility.

# Appendix F

## CASCO BAY TIDAL MARSH CROSSING LISTING

Listing compiled from inspection of USGS topo maps- from Portland HeadLight to Small Point roughly from south and west to north and east. List includes all crossings of streams below first contour. Info supplemented from DeLorme atlas, nautical chart and Champion Map

M=mapped, D=Data Sheet,*=to be examined, II=Phase II data/ map ref number/ road name/ watercourse or nearest bay /remark
V=Void- deleted from Data Base

**CASCO BAY DRAINAGE**
**PORTLAND WEST QUAD**

SOUTH PORTLAND

| | | | | |
|---|---|---|---|---|
| Pt1 | MD1 | SP/FR 1 | Cottage Rd/Mill Creek | |
| Pt1 | MD | SP/FR/9 | S. Portland walkway (s edge of Mill Creek Park)/ Tributary of Mill Creek – marsh | |
| Pt1 | MD | SP/FR/10 | S. Portland walkway (s edge of Mill Creek Park)/ Mill Creek – marsh | |
| Pt | MD 2 | SP/FR 2 | Broadway/Anthoine Creek | |
| Pt1 | MD | SP/FR 3 | Public walkway at Henry St. (just e of Turner I) pond above | |
| Pt1 | MD | SP/FR 4 | Northeast Petroleum Terminal Causeway/Barberry Creek | Private |
| | V | SP/FR 5 | West edge of Mobil Terminal next to Forest City Cemetery- no marsh | |
| | M * | SP/FR 6 | Mobil (rolling Mills) -Calvary Cemetery | no marsh |
| — | V | SP/FR 7 | Clark Pond Dam VOID-DAM | |
| | V | SP/FR 8 | Long Creek w Branch? - Gravel pits VOID-NO CROSSING | |
| Pt1 | MD | SP/FR 12 | Kelsey St/Anthoine Creek | above tide? |
| 11 Pt1 | MD | SP/FR 11 | Kelley St/Anthoine Creek | above tide? |

**PORTLAND**

| | | | |
|---|---|---|---|
| | V | P/FR 1 | Stroudwater Dam VOID-DAM |
| pt 1 | M * | P/FR 2 | Fore River-Congress St. Bridge |
| pt 2 | MDII | P/FR 3 | N Division RR/Capisic Brook |
| pt 1 | MD | P/FR 15 | N Division RR/Fore River Marsh, Capisic Brook, West of Maine Channel hi Marsh |
| | V | P/FR 4 | Creek trib to & w of Capisic along RR fill VOID – NO CROSSING channel 11 to RR |
| pt 1 | M * | P/FR 5 | N Div RR/Trib Fore R w of Thompson's pt- (off end of Powsland Street) |
| pt 2 | MDII | P/BC 6 | Baxter Blvd./Cheverus HS |
| pt 2 | MDII | P/BC 7 | Baxter Blvd./Fall Brook |
| pt 2 | MDII | P/BC 8 | Baxter Blvd./ Payson Park |
| pt 1 | MD | P/PR 9 | I-295/marsh- N Deering –southern of 2 |
| pt 1 | MD | P/PR 11 | I-295/marsh- N Deering –northern of 2 water access only? |
| pt 1 | M * | P/PR 10 | Casco Ironworks site water access only - No marsh above? |

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**PORTLAND E QUAD**

FALMOUTH

| | | | |
|---|---|---|---|
| | M * | ~~F/PR~~ FA P/PR12 | I-295 ~~just north~~ at of Falmouth Line |
| | M | ~~F~~F/PR 1 | I- 295/trib of Presumpscot |
| P+1 | MD | F/PR 2 | Lunt Rd/Scitterygusset |
| | M * | F/FS 3 | Pond @ Portland CC/dam?? WATER ACCESS ONLY (Private) |
| P+1 | M * | F/FS 4 | RT 88/Mill Creek Falmouth msa |
| | M * | F/FS 5 | US RT 1/ Mill Creek |

LONG ISLAND

| | | |
|---|---|---|
| M * | LI/CB 1 | Fern Ave./ Fowler Beach E end |
| M * | LI/CB 2 | Fowler Beach W end |
| M * | LI/CB 3 | Harbor Grace/Fern Ave |

PORTLAND

| | | |
|---|---|---|
| V | P/CB 12 | Peaks I: Seashore Ave./stream nr Elm Tree Cove- ice pond VOID-ABOVE TIDE |
| M * | P/CB 12 | Great Diamond I./ ice pond at Diamond Cove |
| M * | P/CB 14 | Cushing I Diane Nolan?? |

**YARMOUTH QUAD:**

YARMOUTH

| | | | |
|---|---|---|---|
| | V | Y/RR 1 | VOID |
| P+2 | M *II | Y/RR 2 | Prince Point Rd/ stream off Broad Cove nmsa |
| P+1 | MD | Y/RR 3 | Treatment plant Rd/tributary of Royal River |
| 38 16 | M * | Y/RR 4 | Town Landing Rd/Trib of Royal R? |

| | | | |
|---|---|---|---|
| pt 2 | M *II | Y/RR 5 | Old County Rd/Pratts Brook |
| pt 1 | M * | Y/RR 6 | Granite St – I-295 /Pratts Brook restricted channel? |

FREEPORT

| | | | |
|---|---|---|---|
| pt 1 | MD | F/RR 11 | Old County Rd/Cousins R Trib running N (stream between Pratts & Harvey Brooks) |
| pt 1 | MD | F/RR 8 | Old County Rd/Cousins R |
| pt 1 | MD | F/RR 9 | Webster Rd/ Harvey Brook |

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| | | | |
|---|---|---|---|
| pt 1 | MD | F/RR 10 | Me Central RR e of Webster Rd/ Merrill Brook |

**FREEPORT QUAD**

| | | | |
|---|---|---|---|
| | M * | F/HR 1 | S Freeport Rd/trib off Spar Cove |
| P+1 | M * | F/HR 2 | S Freeport Rd/Porter Landing Pond drain |
| | M * | F/HR 12 | Old Dam/stream running N from Porter Landing water access only? |
| P+1 | M * | F/HR 3 | Torrey Range Rd/ trib off Porter ldg |
| P+1 | M * | F/HR 4 | Bow St./Frost Gully Brook (AKA Pump house Brook) repl Oct 99 |
| P+1 | M * | F/HR 5 | Bow St./Mill stream repl Oct 98 |
| P+2 | MD | F/CB 6 | Burnett Rd/ Little R |

BRUNSWICK

| | | | |
|---|---|---|---|
| | V | BR/MA 7 | Flying Pt Rd/Bunganuc Stream VOID- ABOVE TIDE |

**SOUTH HARPSWELL QUAD**

no crossings

**ORRS I QUAD**

| | | | |
|---|---|---|---|
| | V | BR 10 | VOID |
| P+1 | MD | BR/MA 11 | Maquoit Rd/ stream e of Wharton Pt NW |
| P+1 | MD | BR/MA 12 | Rossmore Rd/stream at head of Maquoit Bay NW |
| 56 | M * | BR/MI 13 | road bet Merepoint and Simpson Pt /Miller Cr (PRIVATE) NW |

ORRS I QUAD

| | | | |
|---|---|---|---|
| pt 1 | M * | BR/MI 14 | RT 123 S from Dyer's corner/stream of Middle Bay- new pond on topo |
| pt 1 | MD | BR/MI 15 | Harpswell Neck Rd/stream at head of Middle Bay (w of 2) N+ |
| pt 1 | MD | BR/MI 16 | Harpswell Neck Rd/stream at head of Middle Bay (e of 2) dam? Pond |
| pt 1 | MD | BR/HS 19 | Prince Rd /Buttermilk Cove |
| pt 2 | MD II | BR/HS 17 | New Gurnet Rd / stream running N from head of Buttermilk Cove |
| pt 1 | M * | BR/HS 18 | Road running E from Dyer Corner to New Gurnet Rd/ Mare Brook (private-NAS) |

HARPSWELL

| | | | |
|---|---|---|---|
| pt 1 | M * | H/HS 4 | Rt. 123/neck at Skolfield cove to Middle Bay- new pond? above tide! |
| pt 2 | M D | H/HS 16 | Road off Rt. 123 to High Head/stream at head of Mill Cove |
| pt | MD | H/HS 2 | Doughty Cove Rd. W of Rt. 24/ stream e of Misery Hill (private) |
| GPS only | MD II | H/HS 3 | Long Reach Lane W of Rt. 24 to Dyer Cove/Doughty Cove |
| pt 1 | MD | H/QB 1 | rd E of Rt 24 to Tondreau's PT/stream at head of Orr's Cove |
| pt 1 | MD | H/QB 5 | Rt. 24/stream fm Dyer Cove(e shore) DI-NE No crossing - diverted to Doughty Cove |
| ~~pt~~ | MD | H/HS 8 | Rt. 24/pond S of Reed Cove (dam)"Wilson's Pond" not tidal |
| | MD | H/HS 9 | dam on E side of Gun Pt-"Dan's Pond"/Gun Pt Creek (private?) |
| | V | H/ 6 | VOID |
| pt 1 | MD | H/HS 10 | Shore Rd off Cundy's Harbor Rd just N of Cranberryhorn Cem/ stream S off "Laurel Cove" W of N end of Long I. private |
| pt | M | H/NM 21 | Shore Rd off Cundy's Hbr Rd /N Branch of Stream flowing into New Meadows private |
| | M | H/NM 22 | Wallace Shore Rd E off Cundy Hbr Rd /Stream flowing S into Quahog Bay private |
| 75 | M | H/NM 23 | Wallace Shore Rd E,off Cundy Hbr Rd /N Branch of Stream flowing into N Meadows private |

MD H/NM 11 Wallace Shore Rd E off Cundy Hbr Rd Stream flowing into N Meadows private

MD H/~~HS~~ QB 12 Grover Lane off Cundy Hbr Rd E to loop ~~(new, not on Topo)~~/ stream flowing S into Quahog Bay

~~H/QB 2 off Cundy Hbr Rd/ Shore flowing into Quahog Bay~~

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| | | | |
|---|---|---|---|
| Pt 1 | M * | H/HS 17 | Mountain Road/ Strawberry Creek o1 (NW) |
| | M | H/HS 18 | head of Widgeon Cove- new road across marsh? (NW) Private |
| Pt 1 | M | H/QB 24 | Cundy Hbr Rd/stream just TO Quahog Bay from Cove SE of Rich Cove (SW) |
| | MD | H/QB 23 | Bethel Pt rd/stream running s fm Quahog Bay off Tide Mill Cove- big marsh Not tidal |
| Pt 1 | MD | H/QB 13 | Bethel Pt Rd/pond off Hen Cove - |
| Pt | MD | H/QB 14 | dam just w of Bethel; Pt- marsh ( private) |
| | M | H/NM 15 | E Cundy Pt Road- marsh off Sandy Pt Cove |
| | | H/ HS/7 | Henry Creek Way off Mountain Road/Henry's Creek running S from Long Reach- bridge, unrestricted ? (Stream N from end Cove end (NE) |

**BAILEY I QUAD**

| | | | |
|---|---|---|---|
| Pt 1 | | H/HS 19 | Marsh a S end of Lowell's Cove on W side of Bailey I N of Mackerel |
| Pt 1 | | H/CB 20 | new Road/ stream n off Ash Cove |

**BRUNSWICK QUAD**

| | | | |
|---|---|---|---|
| | M * | BR/NM 1 | New Gurnet Rd/Mare Brook (private-NAS) |
| | M * | BR/NM 2 | Road & RR on NAS/ Mare Brook (private-NAS) |
| | V | BR/NM 3 | Board Rd/Head of Woodward Cove –VOID- ABOVE TIDE |
| GDS pt 2 | MD | BR/NM 4 | Adams Rd/head of Thomas Bay |
| | V | BR/NM 5 | Bath Rd/head of Thomas Bay- VOID -ABOVE TIDE |
| | V | BR/NM 6 | RR/head of Thomas Bay VOID -ABOVE TIDE |

**SMALL POINT QUAD**

PHIPPSBURG

| | | | |
|---|---|---|---|
| GPS | MD | PH/SP13 | Route 216/ stream N from eastern arm of Cape Small Harbor, head of marsh no culvert |
| pt 1 | M * | PH/SP 14 | Flat Pt Rd/ W branch of stream N from eastern arm of Cape Small Harbor (private) |
| 1 | M * | PH/SP 1 | Flat Pt Rd/ stream N Small Pt Harbor, Bailey Beach? E of Flat Pt (W of 2) (private) |
| | M * | PH/SP 12 | Flat Pt Rd/stream N from middle arm of Cape Small Harbor (E of 2) (private) |
| pt 1 | M | PH/SP 2 | Alliquippa Rd w of Rt 216 toward Goose Rock/ E branch of stream N fm middle arm of Cape Small Hbr -msa |
| | M * | PH/SP 11 | Alliquippa Rd w of Rt 216 toward Goose Rock/ stream N fm west arm of Cape Small Hbr -msa No culvert?) |
| | V | PH 3 | VOID |
| pt 2 GPS | MD II | PH/SP 4 | RT 216 (Small Pt Rd)/ Eastern arm of Cape Small Hbr msa- |
| | MD | PH/SP 5 | Head beach Rd- beach No crossing, No marsh |
| pt 1 | MD | PH/SP 6 | Rd to lookout tower @ cem/ outlet of Big Pond msa |

**PHIPPSBURG QUAD**

| | | | |
|---|---|---|---|
| pt | MD | PH/NM 8 | Basin Rd/ head of Wah Tuh Pond nmsa (private) |
| 104 | MD | PH/NM 10 | Pine ? Rd at Sebasco Resort/ outlet of Wah Tuh Pond- brackish? fresh (private) |

| | | |
|---|---|---|
| MD | PH/NM 9 | North Creek off Tottman Cove- numerous xing msa – all above tide |

**BATH QUAD**

Brunswick

| | | |
|---|---|---|
| MD | BR/NM 8 | Bath Rd/ Marsh west of New Meadow River running NE- no culvert? |
| M * | BR/NM 9 | Marsh Between Bath Rd & RR tracks ?drain E along S side of RR tracks to New Meadows R. |

West Bath

| | | |
|---|---|---|
| MD II | WB/NM 1 | Bath Rd/New Meadows R at Marina/New Meadows Inn |
| M | WB/NM 2 | RR/ Mew Meadows R |
| M | WB/NM 3 | Rt. 1/ New Meadows R |
| MD | WB/NM 4 | Old Brunswick Rd (topo says "old Bath Rd")/ New Meadows R msa |
| V | WB/NM 5 | VOID |
| MD | WB/NM 6 | Hill Rd/head of Mill Cove W- high |
| MD | WB/NM 7 | Berry's Mill Rd/ Eastern head of Mill Cove- pond – perched brackish |
| MD | WB/NM 8 | Road E off Berry Mill Rd/ to WJTO Radio Tower stream above pond easterly off Dam Cove Creek nmsa |
| MD | WB/NM | Berry Mill Rd/ W of 2 Streams running N off Dam Cove- fresh, no marsh |

| | |
|---|---|
| WB/NM 9 | Berry Mill Rd/Westernmost of 2 streams running N off Dam Cove Creek, fresh, no marsh |

**KENNEBEC DRAINAGE**

Bath

| | |
|---|---|
| Ba/ken/ 1 | /Winnegance Cr |
| PH/Ken | /Cutting Cr |
| Ph/ken/15 | Center Pond |

## Restrictive crossings-phase II

| | | |
|---|---|---|
| B/N | P/BC 6 | Baxter Blvd/Pump Station nr Cheverus Hi |
| B/N | P/BC 7 | Baxter Blvd/Fall Brook |
| B/N | P/BC 8 | Baxter Blvd/Payson Park |
| W-W/MCV | Y/RR 1 | Prince Pt Rd/Stream off Broad Cove |
| W-W/MCV | Y/RR 9 | Granite St/Pratts Brook at I-295 |
| W-W/MCV | Y/RR 5 | Old County Rd/Pratt Brook |
| ? | F/HR 4 | Bow Street/Frost Gully Brook |
| G+W | H/hs 2 | Rd W off Rt 24 nr Misery Hill/ stream south fm Doughty Cove |
| G/W | H/HS 3 | Long reach Lane/Doughty Cove |
| | H/HS/9 | Dan's pond/ dammed ice pond e of Gun Point |
| Riotto | PH/SP 4 | Rt 216/Cape Small Hbr |
| Riotto | WB/NM 1 | Old Bath Rd./New Meadows River |