

2009 New Meadows Community Survey

Summary of Findings

February 4, 2010 Version

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New Meadows Watershed Partnership

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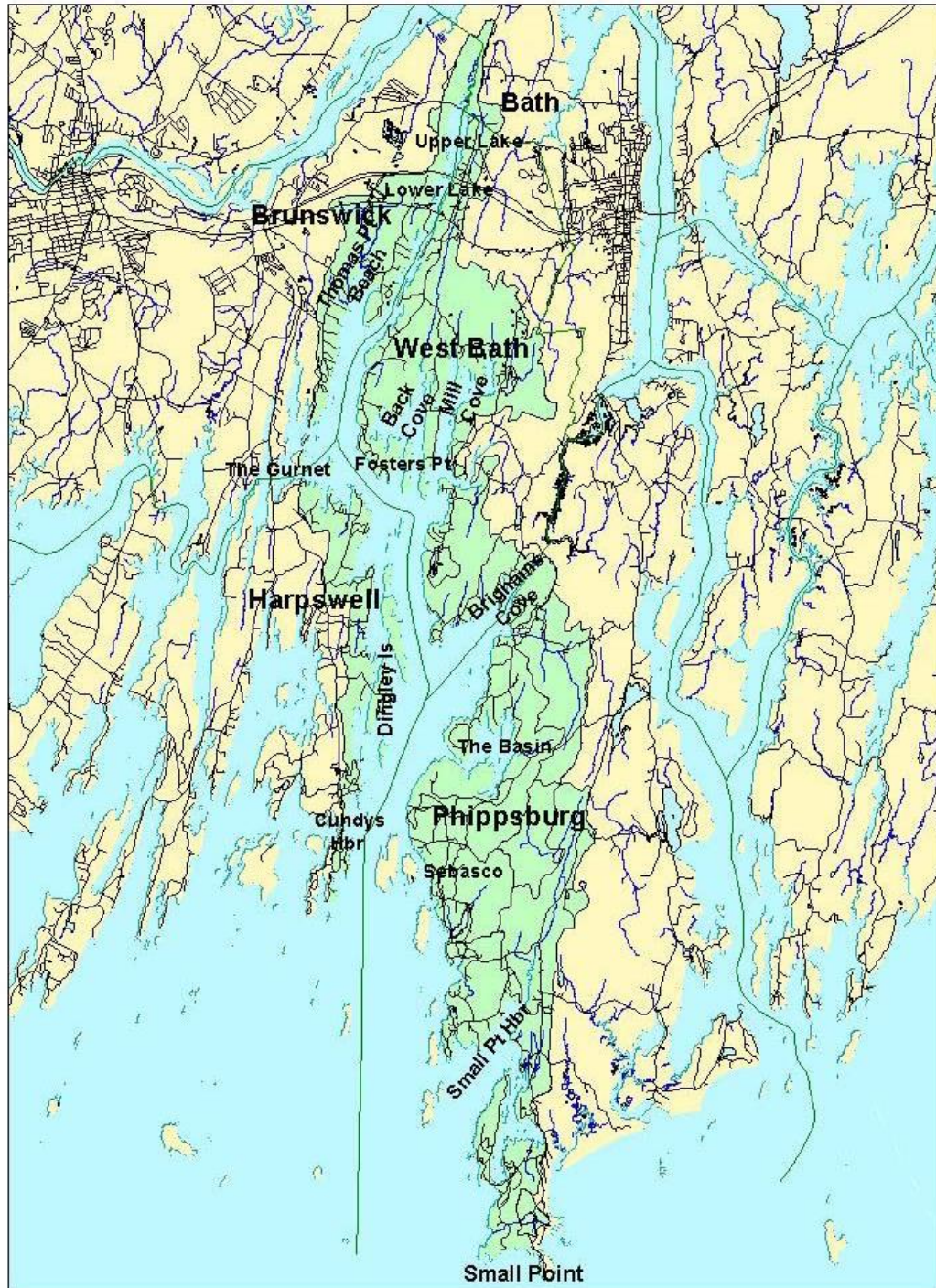
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Map of New Meadows Watershed



The New Meadows Watershed includes parts of Bath, Brunswick, Harpswell, Phippsburg, and West Bath in eastern Casco Bay, Maine. The New Meadows 'River' is technically a coastal embayment without major freshwater sources at its headwaters.

Executive Summary

The upper New Meadows River, which is not a river but instead a long, narrow tidal embayment, shows signs of environmental degradation. Upstream of Howards Point in Brunswick, the upper New Meadows, including the impounded area referred to locally as the 'lake,' is currently listed on the Maine Department of Environmental Protection's 303d list of impaired State water bodies as "impaired for marine life use and support" due to low dissolved oxygen levels caused by partial impoundment. Recent studies have documented the loss of high value intertidal habitat upstream of the Bath/State Road causeway that forms the impoundment, including mudflats, salt marsh, rocky intertidal, and eelgrass.

The New Meadows Watershed Partnership formed in 1999 with a mission to protect, improve and maintain the vitality of the ecological and economic resources of the New Meadows River and its watershed. Since 2004, the work of the NMWP has been directed in part by the *New Meadows River Watershed Action Plan*, which directs the group to, "Assess the feasibility of increasing tidal exchange in the lakes." This survey follows two technical feasibility studies in order to further assess the feasibility of tidal restoration.

The goal of the survey was to gauge stakeholder awareness and sentiment regarding the health and uses of the New Meadows, and assess stakeholder views on how the health and uses would be impacted by tidal restoration. Three tiers of stakeholders were identified as targeted audiences for the survey, including New Meadows 'lake' abutters, business owners, New Meadows River abutters, shellfish harvesters, recreational boaters and fishermen, municipal committees, and the general public.

Survey questions were designed to meet the goals of the survey and tailored to the targeted audiences. The survey project team's strategy and expenditure of effort toward reaching targeted audiences was calibrated according to tier, so that the most effort was put towards surveying Tier I stakeholders such as 'lake' abutters, and proportionately less effort was put toward surveying Tier II and Tier III stakeholders. The project team collected survey data beginning with door to door, phone, and online surveys through Survey Monkey between August and December 2009.

A total of ninety-nine (99) people took the survey. Most respondents resided in Brunswick, West Bath, or Bath – a total of eighty-five (85) out of the 99 responses. Nearly half of the respondents had lived in the area for at least fifteen years. Respondents included twenty-seven (27) people whose property abuts the New Meadows 'lake', twenty-four (24) people whose property abuts the New Meadows River south of Bath/State Road, and fifteen (15) people whose property is set back by one lot from the New Meadows. Overall, slightly more respondents (52%) perceived that water quality in the New Meadows 'lake' is either very good or moderately good, while 48% of respondents perceive water quality to be either very poor or moderately poor. Nine (9) respondents believe that 'lake' water quality is very poor, while eight (8) believe that 'lake' water quality is very good. When asked whether they were aware that the Bath/State Road causeway blocks natural tidal flow in the New Meadows, eighty-four (84) respondents replied that they were, while five (5) said they were not. Seventy-nine (79) respondents agreed that the Bath/State Road causeway has an effect on the water quality and habitat of the New Meadows, while ten (10) disagreed.

Eighty eight (88) people responded to this question of whether they would support increasing tidal flow into the 'lake.' Fifty-one (51) respondents (58%) replied that they would support tidal restoration; nineteen (19) respondents (22%) replied that they would not support tidal restoration; and eighteen (18) respondents (20%) replied that they were unsure. Reasons for supporting tidal restoration generally referenced overall improvements to water quality and ecosystem health, while reasons for opposing tidal restoration tended to be more personal and varied. Most people who said they were unsure referenced a desire for additional information.

Respondents from the three communities which abut the New Meadows 'lake' were generally supportive of tidal restoration, with fifty-three (53) supporters, sixteen (16) opponents, and ten (10) unsure. Support and opposition for returning tidal flow was almost evenly split among direct 'lake' abutters, with eleven (11) supporters, (ten) 10 opponents, and six (6) unsure. Direct 'lake' abutters were more likely than respondents as a whole to perceive water quality as being good. Of the ten New Meadows area businesses targeted at the onset of the project, six surveys were conducted. Three (3) of the six (6) business respondents support tidal restoration, two (2) oppose tidal restoration, and one was unsure. Reasons for business opposition and support were directly related to impacts on individual business models. An aquaculture permit holder cited the likelihood of severe impacts to their business stemming from changing water levels. A total of fifteen (15) shellfish harvesters took the survey. Harvesters supported tidal restoration by a margin of ten (10) to two (2), with three (3) unsure. Among abutters to the New Meadows River downstream of the causeway, eleven (11) were supportive, three (3) were opposed, and seven (7) were unsure.

Respondents raised several questions about the potential for impacts to property values, water levels, downstream impacts from sediment release, and quahogs, and wanted more information about contingency planning, decision making, and costs, in the event that a tidal restoration project were to move forward. Concerns about tidal restoration ranged from impacts to views and use of existing docks, to low water for boating, strong odors, and a sense that the ecosystem has changed and attempts to restore it would do more harm than good. There is also considerable local support for tidal restoration, which is viewed by many as the 'right thing to do' for the fish, wildlife, and people who rely upon the New Meadows. Some respondents were clearly frustrated that the question of whether to open the causeway has not moved forward despite years of discussion and numerous studies.

Following publication of the final report, the NMWP convened a public forum to share survey results with stakeholders and commence a dialogue about next steps. The project team recommends that the NMWP follow up on specific tasks, including: 1) conduct additional analyses to inform education and outreach activities; 2) develop an exhaustive list of questions raised and investigate these to provide clarification and responses as possible; 3) create a 'lessons learned' section to serve as an addendum to this Final Report; and, 4) consider conducting additional analyses of these data to investigate specific questions.

1. Introduction

The upper New Meadows River, which is not a river but instead a long, narrow tidal embayment, shows signs of environmental degradation. The upper New Meadows was defined for this survey as the section of the New Meadows River from Howards Point in Brunswick north, and includes the area to the north (landward) of the Bath/State Road causeway known locally as the New Meadows ‘lake’. (To avoid confusion, ‘lake’ is put in quotes throughout this document to reflect the fact that this water body is technically not a lake but rather an impounded tidal embayment.) The center of the New Meadows River forms the boundary between two counties – Cumberland to the west, and Sagadahoc to the east. The causeway itself therefore lies partially within two towns (Brunswick and West Bath), and two counties, and has different names depending on the direction of travel.

Upstream of Howards Point in Brunswick, the upper New Meadows, including the ‘lake,’ is currently listed on the Maine Department of Environmental Protection (DEP) 303d list of impaired State water bodies as “impaired for marine life use and support” due to low dissolved oxygen levels caused by partial impoundment (DEP 2008). Recent studies have documented the loss of high value intertidal habitat upstream of Bath/State Road, including mudflats, salt marsh, rocky intertidal, and eelgrass. Poor water quality and loss of intertidal habitat is due in large part to the installation of several bridges and causeways across the New Meadows over the past 175 years. These structures severely restrict tidal flow and have created artificial saltwater impoundments.

The New Meadows Watershed Partnership (NMWP; formerly, the New Meadows River Watershed Project) formed in 1999 with a mission to protect, improve and maintain the vitality of the ecological and economic resources of the New Meadows River and its watershed. Since 2004, the work of the NMWP has been directed in part by the *New Meadows River Watershed Action Plan* (2004; revised 2008), which lays out a series of objectives and action items to fulfill the group’s mission.

The New Meadows plan includes a primary objective to explore tidal restriction restoration. Specifically, the 2004 Plan directs the NMWP to, “Assess the feasibility of increasing tidal exchange in the lakes.” Throughout this document, the term ‘tidal restoration’ is used to mean “increasing tidal exchange.” Two previous studies have contributed to our understanding of the feasibility of tidal restoration. These studies were funded with federal habitat restoration grant funds. The first, the *New Meadows Lake Tidal Restoration Feasibility Study* (Woodlot, 2006), was funded by a grant from the Gulf of Maine Partnership for the Marine Environment/National Oceanic Atmospheric Administration. This study reviewed technical alternatives for restoring tidal flow beneath Bath/State Road causeway into the New Meadows ‘lake’. The study produced three final design alternatives, and modeled impacts to tidal range and habitat for each alternative. The second study, the *Model Analysis of Expected Plant Communities Response to Potential Tidal Restoration Conditions* (Woodlot, 2007), used a computer model to predict plant community composition and distribution in the New Meadows ‘lake’ in response to tidal conditions modeled by three design alternatives in the 2006 feasibility study. It serves as a “best educated guess” about what will happen to salt marsh habitat if tidal flow is increased.

These two studies investigated the technical feasibility of a tidal restoration project, and projected the subsequent effect on intertidal habitats. Although both studies generated public interest, including vocal support and opposition for implementation of a tidal restoration project at Bath/State Road,

neither study focused on collecting key stakeholder sentiment about a hypothetical restoration project. In early 2009, in recognition of this gap in understanding the feasibility of a restoration effort, the NMWP made a commitment to engaging local stakeholders who live around or rely upon the New Meadows by surveying them about the current state of the ecosystem and the possibility of restoration. By obtaining direct feedback from residents, businesses, and harvesters who depend on and live around the upper New Meadows, the New Meadows Community Survey is therefore a continuation of the ongoing NMWP focus on assessing the feasibility of increasing tidal exchange in the 'lake'.

2. Methodology

2.1 Design

At the beginning of this project, the NMWP Steering Committee discussed options for developing and implementing a survey of key stakeholders. Several options were considered, including the possibility of hiring a survey consultant to aid in the design and conduct of the survey. Ultimately, a few individuals on the NMWP decided to assume responsibility for developing and conducting the survey themselves in order to take advantage of the opportunities to reach out and establish relationships with key stakeholders and initiate a more direct and personal dialogue about issues and concerns in the New Meadows. This group became a 'project team', which met regularly over the span of nearly a year to advance the survey. These individuals include Pam Gerbi, a Brunswick resident whose property abuts the New Meadows 'lake', and representatives from three active partners on the NMWP Steering Committee: Vanessa Levesque of the Town of Brunswick, Peter Milholland of the Friends of Casco Bay (FOCB), and Matt Craig of the Casco Bay Estuary Partnership (CBEP). At different points, the project team also benefited from the assistance of CBEP graduate assistant, Greg Williams, as well as an FOCB intern Nate Rindlaub.

At the onset of the project, the project team agreed that the goal of the survey was to gauge stakeholder awareness and sentiment regarding the health and uses of the New Meadows, and assess stakeholder views on how the health and uses would be impacted by tidal restoration. The targeted audiences (stakeholders) for this survey were identified based on a general assessment on the degree to which they or their interests had the potential to be directly impacted by a hypothetical project to increase tidal exchange under the Bath/State Road causeway.

Table 1. Stakeholder 'tiers' were outlined prior to creation of the survey.

Tier I	NM 'Lake' Abutters
	NM Marine Businesses
Tier II	NM River Abutters; 1 lot back from 'Lake'
	Shellfish harvesters
	Recreational boaters/fishermen
Tier III	Municipal committees
	General Public
	Non-governmental organizations

The stakeholders were broken into three ‘tiers’ (Table 1), which were subsequently used to design the survey and survey methodology:

- Those in the first tier were viewed as likely to be directly impacted by restoration, and included every New Meadows ‘lake’ property owner (direct ‘lake’ abutters), as well as owners of marine business that currently use or rely on the New Meadows in their business. Direct ‘lake’ abutters are residents that live directly adjacent to the New Meadows ‘lake’, north of the Bath/State Road causeway, including abutters to the north of US. Route 1 and Old Bath Road.
- The second tier was identified as having the *potential* to be directly impacted by restoration, and included shellfish harvesters, recreational boaters & fishermen, abutters who live south (to the seaward) of the Bath/State Road causeway along the New Meadows River, and residents who live one lot back from the New Meadows ‘lake’.
- The third tier was identified as having either an organizational or political interest in restoration, and included non-profit organizations (e.g. New Meadows Lake Association, Friends of Casco Bay, The Nature Conservancy, etc.), town committees, and the general public.

The survey questions were subsequently designed to meet the goals of the survey, as described above, and tailored to reach the targeted audiences. Specific questions related to recreation, business, and shellfish harvesting were developed for these specific stakeholder groups. This approach was reviewed by independent survey design experts on a pro-bono basis, and the questions were tested before the survey design was finalized. Direct input on the survey’s design came from Dr. Christine Feurt of the Wells National Estuarine Research Reserve (WNERR) in Wells, Maine, and Dr. Charlie Cogan of the University of Southern Maine (USM) – Muskie School of Public Service. Additional input was collected from the NMWP Steering Committee and integrated into the final survey design. An example survey is provided as an appendix to this report.

Note: This survey was not designed to be statistically significant, but rather, to address the goals identified at the onset of the design process.

2.2 General strategy

Overall, the project team’s strategy and expenditure of effort toward reaching the targeted audiences was calibrated according to tier, so that the most effort was put towards surveying Tier I stakeholders, and proportionately less effort was put toward surveying Tier II and Tier III stakeholders. The project team went to extensive lengths to directly speak with each stakeholder in Tier I, including each lake abutter (property owner), and each business owner. Significant time went into soliciting responses from Tier II stakeholders as well, with direct interviews to shellfish harvesters where possible, and widespread direct outreach efforts throughout the region in the form of fliers and mail-in surveys. Tier III stakeholders were not as energetically pursued, and generally learned about the survey via email, news media, municipal web sites, or word of mouth.

Specific activities to inform targeted audiences about the survey included:

- Mailing notification postcards to ‘lake’ abutters announcing the upcoming door to door survey, followed by direct contact;
- Phone calls to New Meadows businesses to schedule in person or phone survey interviews;

- Distribution of flyers announcing the survey, including links to the survey online, to reach Tier II stakeholders, including on windshields of vehicles parked at the Old Bath Road boat launch (presumed to be quahoggers), as well as residences, including homes of residents along the River south of Bath/State Road and properties set back one lot from the New Meadows 'lake';
- Attendance at local shellfish committee meetings to solicit survey takers and to distribute surveys among local clammers;
- Posting and distribution of general announcements about the survey to reach interested Tier III stakeholders;
- Paper copies of the survey were created for in-person, face-to-face interviews with Tier I stakeholders, and for direct mailing to Tier II stakeholders upon request; and,
- The survey was also modified and posted on the internet using Survey Monkey, paid for with NMWP funds. Stakeholders were notified of the online survey through flyers left at their homes, through live links posted on Town web sites for Brunswick and West Bath, through direct email from the project team, and through word of mouth.

2.3 Conducting Surveys

Following eight months of planning and preparation, with regular check-ins and oversight of the NMWP Steering Committee, the project team collected survey data through door to door, phone, and online surveys between August and November 2009. Throughout this period, several paper copies of the survey were distributed to homes and individuals throughout the targeted areas, as well as upon request to others interested in taking the survey that did not have Internet access. Phone surveys were conducted on an as needed basis, most commonly with business owners. The online survey option was available from August through the end of December 2009, and continued generating responses until it was no longer active.

Processes for interviewing targeted audiences

Tier I Residents. The project team developed a map and list of all direct 'lake' abutters in Brunswick, West Bath and Bath. Every single house was visited by a pair of surveyors from the project team. One person asked questions and conversed with respondents, and one person recorded responses and took notes. If a resident was not home, a flyer was left at the door or mailbox providing Vanessa's contact information and the web address for the online survey. The project team revisited all homes where a response was not obtained in the first round. If once again, residents were not home, surveyors left a paper version of the survey along with a reminder of the online survey link. All homes had at least two attempts to reach residents.

Tier I Businesses. The project team developed list of primary marine businesses and organizations, which included Sea Spray Kayak, the New Meadows Ice Racing Association, LL Bean (kayak excursions), Dodge Cove Marine Farm, H&H Propeller, Coastal Barge and Mooring, Bath Industrial Sales, New Meadows Marina, Purse Line Bait, New Meadows Cottages, and New Meadows Ledges. The project team divided up businesses so that we each had 2-4 businesses to call and set up in-person or phone interviews.

Tier II Shellfish Harvesters. Vanessa Leveque was responsible for surveying Brunswick shellfish harvesters, and Peter Milholland was responsible for surveying West Bath shellfish harvesters. In

Brunswick, Vanessa went to a Brunswick Marine Resource Committee meeting to discuss the survey project, pass out surveys, and encourage attendees to submit a response. Vanessa also sent the online survey link to Brunswick Committee members. In West Bath, Peter called select harvesters and followed up with them to encourage completion of the survey online. NMWP Steering Committee member Paul Mateosian of the West Bath Marine Resources Committee also distributed the survey in his community. Additional efforts to reach harvesters included an email to the Maine Clammers Association, encouraging them to distribute the link to the online survey to their constituents, as well as distribution of flyers announcing the survey and providing an online link on the windshields of trucks parked at the Old Bath Road boat launch where approximately 10 quahoggers were harvesting one day in late summer. Harvesters proved to be one of the harder groups to get responses from.

Tier II Recreational Users. The project team attempted an 'intercept' style survey one day at the Sawyer boat launch in Brunswick, but it was not successful in generating survey responses. The project team also distributed flyers on car windshields at Sawyer Park, as well as on the counter tops at Johnson's Sporting Goods, and at Kennebec Angler. All survey respondents were asked questions about how they used the river (recreationally and otherwise).

Tier II Residents (those either abutting the New Meadows, downstream of Bath/State Road, or one lot back from 'lake'). The project team distributed flyers announcing the survey and the online link in mailboxes or doors of all residents who fit this category in Brunswick, Bath, and West Bath (down to just past Foster's Point in W. Bath and to Howard's Point in Brunswick).

Tier III. The project team distributed an email providing the online survey link to NMWP Steering Committee members and asked them to forward the link on to interested organizations and members of the general public, including municipal planning boards, governing bodies, and conservation and marine resources committees. A short announcement was in posted in the *Times Record* before door-to-door surveys began. Additional public announcements were made during through community television stations, and a link to the survey was posted on the West Bath and Brunswick websites.

Prior to conducting face to face surveys, the project team received training and guidance from Wells NERR staff on how to conduct a survey and accurately record responses. As part of their preparation for conducting surveys, the project team developed summaries of previous reports and documents related to the health of the New Meadows River watershed and technical tidal restoration feasibility studies. Once completed, these summaries were reviewed as a group to help ensure consistency in the knowledge base of the survey team and provide the ability to answer questions that would arise during the interviews. Additional time was spent walking through practice survey sessions to further promote a consistent approach across the survey team.

Closing the Survey Period

Despite slow but consistent (on the order of 1 new response a week) interest in the online survey right up until the end of December, several months after it had been most intensely advertised, the project team elected to remove the online survey option on 12/30/2009 in order to end the data collection

phase and begin work compiling, summarizing and analyzing the data set. NMWP Steering Committee members felt strongly that the project team should wrap up data collection and deliver the results to target audiences and the local New Meadows communities as soon as possible to help all parties make a direct link between the 2009 survey efforts and the subsequent publication of results.

2.4 Data compilation

The Survey Monkey online survey platform was used to collect all survey responses. Online survey takers' responses were automatically organized and stored by Survey Monkey. For in person surveys, or mailed in surveys where responses were hand written, the project team manually entered all responses into Survey Monkey for ease of data compilation, storage, and analysis. The final survey dataset was downloaded into an Excel spreadsheet once the survey period had closed. The datasets will be saved by project team and NMWP members for archiving and will be available for future analysis, if needed, by the NMWP. All paper surveys will be archived.

3. Results

Between all the different survey methods, including face to face interviews, phone interviews, hand written/mailed in surveys, and online surveys, the survey generated a total of ninety-nine (99) responses. Of these, seven (7)

respondents appeared not to have completed the survey and apparently stopped part way through for reasons which are not entirely known, but which could be attributed to confusion about navigating the online survey. All figures provided below represent the full batch of 99 responses, with no effort to extract the 7 incomplete surveys. The number of responses to each question varies, since some respondents either deliberately chose not to, or were otherwise unable

to, answer some of the questions. Some questions were only asked of self-selected user groups such as shellfish harvesters or businesses, hence the relatively small number of replies to these questions.

In determining what was useful and informative for this report, the project team elected not to report on every question. Certain questions, upon review of responses, were determined to be repetitive or uninformative. In some cases, the project team simply did not have enough time to look at the results of each question, and allocated time to summarizing the data believed to be of most interest to the NMWP, stakeholders, and municipalities alike.

As a reminder, this survey combines quantitative and qualitative design elements, and was not designed to produce statistically significant results. Consequently, the survey provides both readily quantifiable

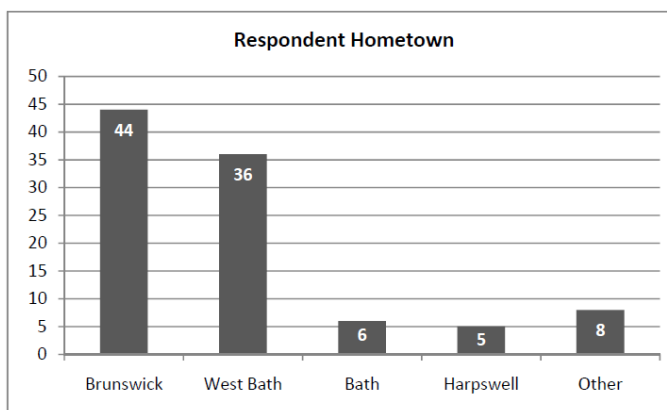


Figure 1. Hometown of survey respondents.

data, which lends itself to simple graphical representation, as well as open ended responses, or qualitative data, which required a more intensive qualitative assessment effort by the project team.

3.1 Summary Overview of All Responses

Among the pool of 99 survey responses, a general overview of the data suggests that the project team was reasonably successful in reaching the audiences (stakeholders) identified at the onset of the survey.

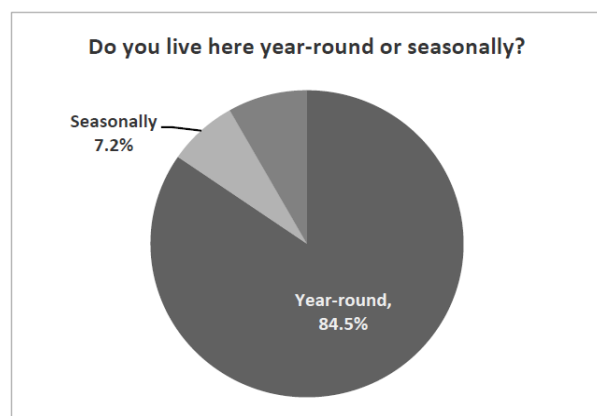


Figure 2. Duration at current residence.

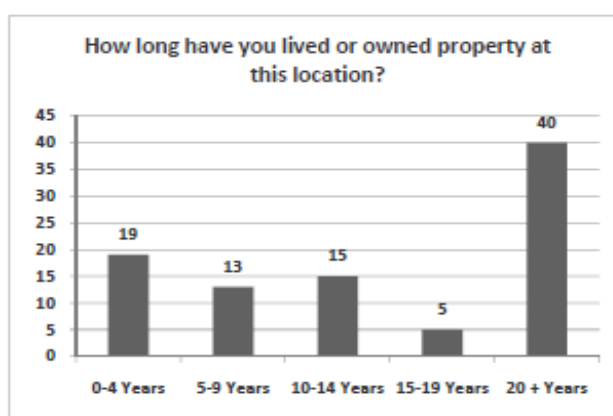


Figure 3. Portion of year at current residence.

Most respondents resided in Brunswick, West Bath, or Bath – a total of 85 out of the 99 responses (Figure 1). The survey generated 44 responses from Brunswick residents, 36 responses from residents of West Bath, and 6 responses from Bath residents. Of the 13 additional responses categorized as ‘other’, 5 were from residents of Harpswell, which contains the southwestern portion of the New Meadows River watershed. Nearly 95% of all respondents stated that they own their home. Almost 85% of respondents live at their current home on a year-round basis, with just over 7% reporting that they live in the area on a seasonal basis (Figure 2).

Responses to the open-ended question, *How long have you lived at your current location?* provided a range of responses reflecting the mix of recent development and long-standing homes in the region. Answers ranged from “less than three months” to “over sixty years”. A majority of respondents (60 total) reported that they had lived at their current location for at least ten years, and nearly half (44) had lived there at least fifteen years. Meanwhile, nineteen (19) had lived at their current location for less than four years (Figure 3).

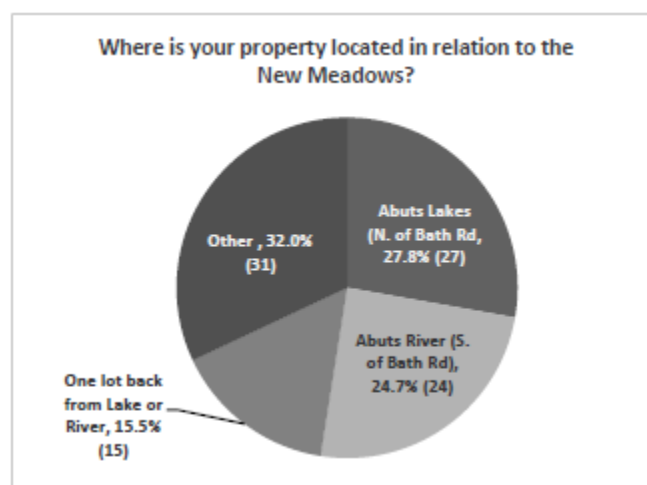


Figure 4. Respondent proximity to New Meadows River or New Meadows Lake.

The survey generated responses from 27 people whose property abuts the impounded section of the New Meadows River north of Bath/State Road, an additional 24 people whose property abuts the New

Meadows south of Bath/State Road, and 15 people whose property is set back by one lot from the New Meadows. Thirty-one (31) respondents lived outside of these targeted areas, although at least 16 of these live within a New Meadows watershed community [i.e., within the communities of Bath, Brunswick, Harpswell, Phippsburg, or West Bath] (Figure 4).

New Meadows Uses

Most respondents or their families enjoyed some sort of direct use of the New Meadows River and the New Meadows 'lake' (Figure 5). A majority of respondents (63%) checked boating as an activity, while 37% had swum in the New Meadows either in the past, or currently. The New Meadows' natural resources serve as a source of food for some people, as several individuals stated that they fish, hunt, or harvest shellfish

in the New Meadows. Cross country skiing, snow shoeing, snowmobiling, ice skating, ice racing (with vehicles), and watching ice racing were given as popular winter activities. The majority of respondents indicated that they enjoy the New Meadows as a scenic resource (61%).

Other uses listed in response to this open-ended question include: Birding, wildlife viewing, photography, horseback riding along the shore, and botanizing.

Use of boating access facilities is concentrated at the largest and most developed boat launch at Sawyer Park. To access the New Meadows for boating, 40 respondents cited Sawyer Road as

their primary launch spot (Figure 6). Twenty-one (21) respondents responded that they put in at Old Bath Road in the upper 'lake', and fourteen (14) respondents kept or launched their boat at the New Meadows Marina located just downstream of the Bath/State Road causeway. Several respondents categorized as "Other" in Figure 6 launched boats directly from their property.

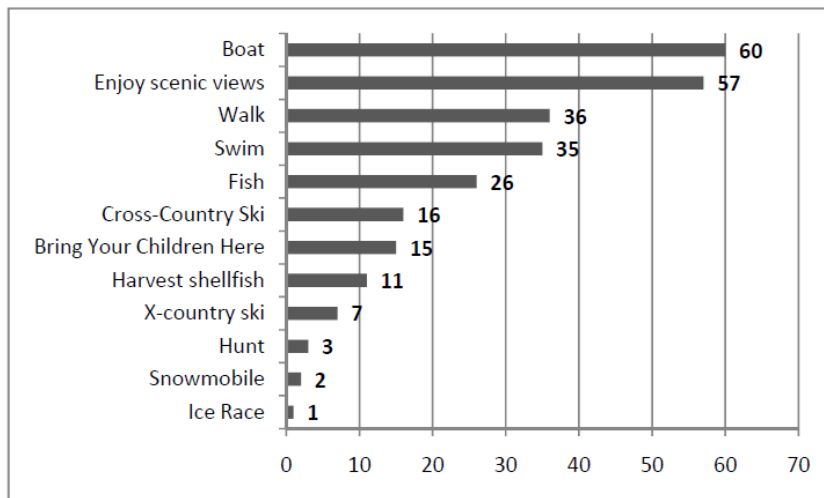


Figure 5. Respondents' uses of the Upper New Meadows River and New Meadows 'lake'.

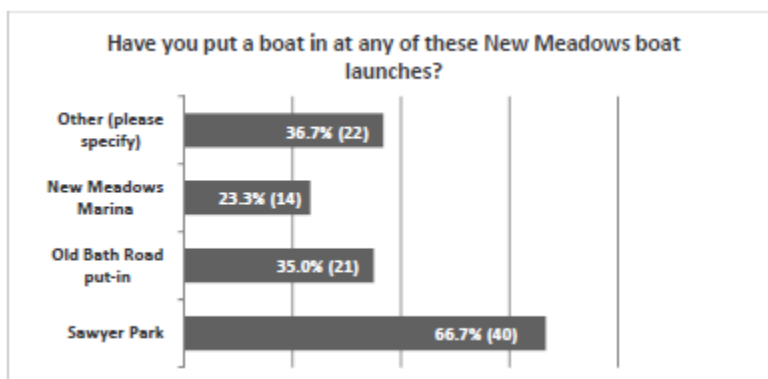


Figure 6. Use of New Meadows boating facilities.

Views on Water Quality and Bath/State Road

The project team wanted to develop a sense of how the New Meadows community regards the current 'state' of the New Meadows' water quality, and to learn more about how community members view the impact that the Bath/State Road causeway has on the upper New Meadows area.

One of the survey questions asks, "We're interested in what you think about the water quality in the Upper New Meadows. Do you think the water quality is very good, moderately good, moderately poor, or very poor?" The response to this question was almost evenly divided. Slightly more

respondents (52%) feel that water quality is either very good or moderately good, while 48% of respondents think that 'lake' water quality is either very poor or moderately poor (Figure 7). Nine (9) respondents believe that 'lake' water quality is very poor, while 8 believe that 'lake' water quality is very good.

When asked whether they were aware that the Bath/State Road causeway blocks natural tidal flow in the upper New Meadows, 84 respondents replied that they were, while 5 said they were not (Figure 8).

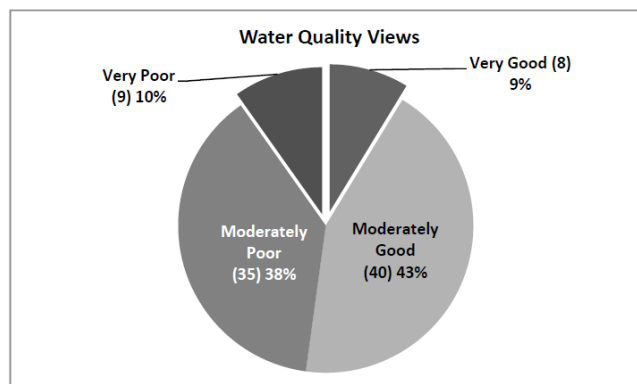


Figure 7. Views on existing water quality in the New Meadows 'lake'.

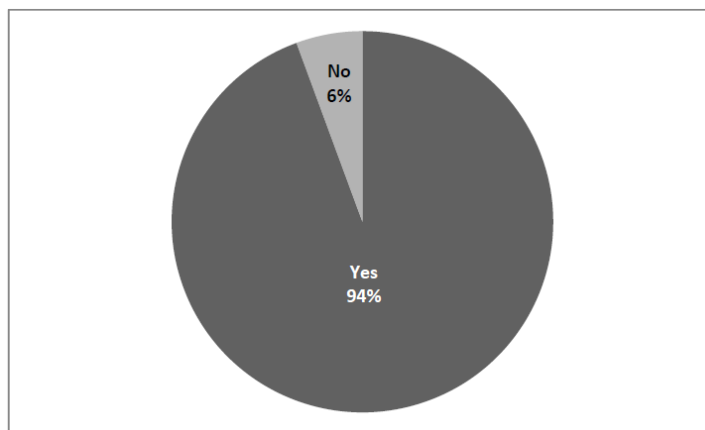


Figure 8. Awareness that Bath/State Road restricts natural tidal flow.

In a subsequent question asking, "Do you agree that the Bath/State Road causeway has an effect on the water quality and habitat of the New Meadows," 79 respondents said yes (Figure 9) while 10 said no.

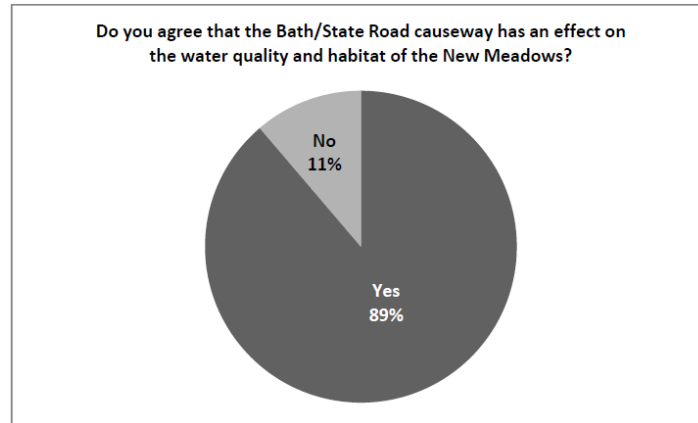


Figure 9. Views on whether Bath/State Road affects water quality and habitat within the New Meadows Lake.

Lastly, respondents were asked about whether they would support returning natural tidal flow to the New Meadows 'lake'. Eighty eight (88) people responded to this question (Figure 10). Fifty-one (51) respondents (58%) replied that they would support tidal restoration; 19 respondents (22%) replied that they would not support tidal restoration; and 18 respondents (20%) replied that they were unsure.

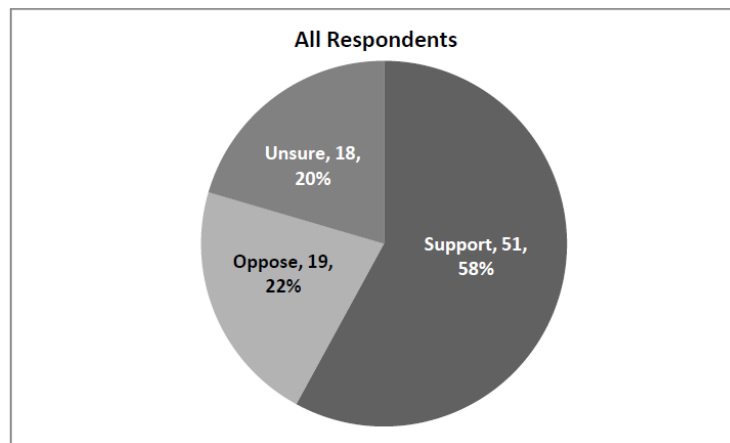


Figure 10. Support/opposition among all respondents to the idea of returning natural tidal flow into the 'lake'.

The following section takes a closer look at specific audiences (stakeholders) and examines how responses to these questions differed across different stakeholder subsets.

3.2 Subset Analysis

Based on previous feedback from New Meadows 'lake' residents about sentiment toward tidal restoration, the survey team anticipated at the onset of this effort that specific stakeholder groups (subsets) may respond differently to the survey questions. To investigate how responses varied across stakeholder groups, the project team was able to break down the results into a limited series of subsets. These were selected based on the expectation that there is and will be continue to be considerable interest among policy makers and stakeholder groups alike about how responses varied across the targeted audiences.

For this section, the project team broke down:

- Direct 'lake' abutters
- Business owners
- Shellfish harvesters
- 'Tier II' stakeholders

Note: New Meadows partner staff resources to conduct post-survey analysis were limited, and the following analysis does not make use of the full breadth of data available. With 99 responses, there is a rich dataset which remains available for further analysis in the future. The NMWP Steering Committee may wish to consider conducting additional analyses to investigate new questions, and to inform future education and outreach activities.

3.2.1 Direct 'Lake' Abutters

Prior to conducting the survey, 46 distinct properties were identified by the project team as abutting the New Meadows 'lake' to the north (landward) of the Bath/State Road causeway in the communities of Brunswick, West Bath, and Bath. Of this group of 46 'lake' abutters, a total of 27 responded to the survey: 12 from West Bath, 14 from Brunswick, and one from Bath (Figure 11). The overwhelming majority of these respondents own their homes (93%) and live there year-round (85%).

Most of these respondents enjoy some direct use of the water; there were 13 who reported boating, 7 who swim, and 1 who fishes.

Direct 'lake' abutters were more likely to view water quality as good than other respondents as a whole (Figure 12). Seventeen (17) 'lake' abutters described water quality as either very good or moderately good, while 10 described it as moderately or very poor. The most commonly noted sign of health was the presence of marine life. The perception of unhealthy signs was more diverse, but six (6) noted strong odors, and four (4) noted jellyfish. Two respondents thought that current water clarity indicated a healthy New Meadows, while another two felt that the lack of water clarity indicated poor health.

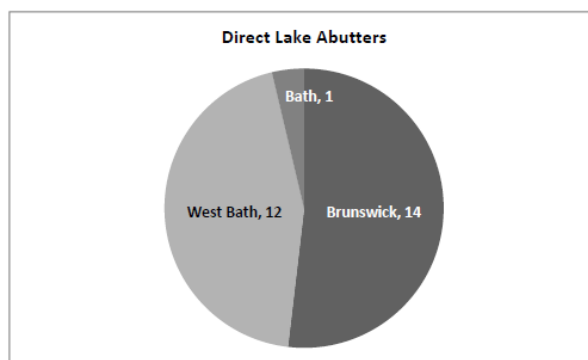


Figure 11. Residence of direct 'lake' abutter respondents.

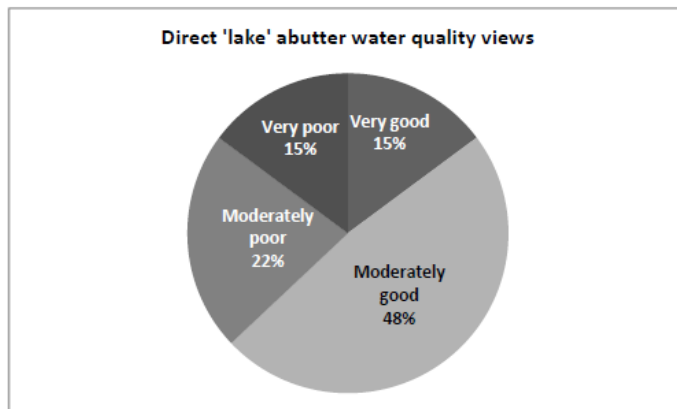


Figure 12. Direct 'lake' abutter views on water quality.

negative impact would be that their docks/put-ins would be useless for part of the day. One respondent mentioned that the local economy would be negatively affected.

Support and opposition for returning tidal flow seems almost evenly split among direct 'lake' abutters, with 11 supporting, 10 opposing, and 6 unsure about tidal restoration (Figure 14). However, a closer review of the comments this respondent group provided about tidal restoration reveals more nuances about their feelings toward tidal restoration, as well as significant polarity between those who are strongly in favor of restoration, and those who are steadfastly opposed.

There was a wide range of questions regarding the return of natural flow; most were about the look of the new 'lake' environment, such as what the water levels would be and how the new opening would look. There were also some questions about environmental effects (both positive and negative), as well as changes in property lines and values, and taxes. Concerns included the influence of non-residents in

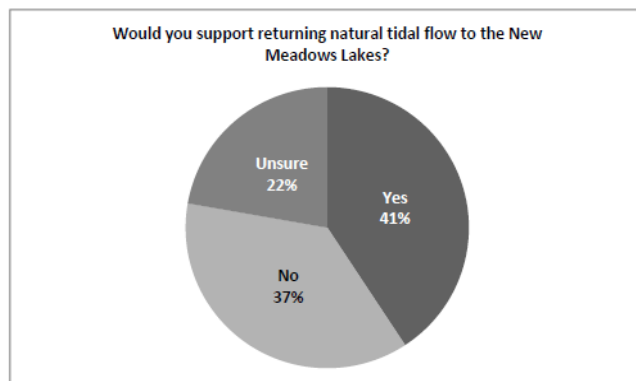


Figure 14. Direct 'lake' abutters views on tidal restoration.

By a margin of 22 to 6, the majority of direct 'lake' abutters agree that the causeway affects water quality and habitat (Figure 13). If the causeway were opened, 7 respondents noted that water levels and mud flat area would change and 6 respondents felt that water quality would improve. One respondent felt there would be no effect on water quality. Nine (9) foresaw no potential effect on their use of the New Meadows;

four (4) foresaw better boating or other usage opportunities; three (3) believe a

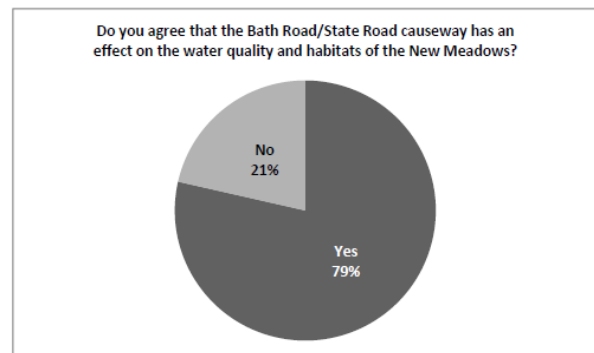


Figure 13. Direct 'lake' abutter views on whether the Bath/State Rd. causeway affects 'lake' water quality and habitat.

making a final decision and how the project might be financed. A few respondents were very clear about the disturbances currently caused by quahoggers and, in the winter, by the ice racers, and felt that natural tidal flow would reduce those problems. A list of specific questions and concerns from all respondents is included in Section 3.3.

3.2.2 Businesses

Of the ten New Meadows area businesses that were targeted for surveys at the onset of the project, six surveys were actually conducted, with three conducted face to face, two conducted online, and one conducted over the phone. The project team was persistent in pursuit of two businesses in particular, an existing marina and an existing aquaculture lease holder, due to the fact that these two businesses, more than any others, had long depended directly on the New Meadows as a fundamental component of their business models. As such, these two businesses had been viewed as ‘Tier I’ stakeholders from the onset, due to the fact that they could be directly impacted by a hypothetical tidal restoration project. Additional business surveys were completed with hospitality businesses, one recreational business, and a seafood sales business. Note: although a few shellfish harvesters identified themselves as business owners, for the sake of simplicity, this section reports only on the stand-alone businesses that were targeted at the onset of the project. Shellfish harvester responses, including both clammers and quahoggers, are broken out separately in Section 3.2.3.

Although the businesses that completed this survey are all unique in their “product”, and would each experience a different type and degree of impact from implementation of a tidal restoration project, the businesses as a whole group share a few things in common: they all are abutters to the New Meadows ‘lake’, all but one has a direct view of the New Meadows from their facilities, and their “product” (all but one) is tied in some way to the health of the ‘lake’ or River.

Two of the business that responded are ‘hospitality oriented,’ meaning that their business is directly related to serving people and showcasing the local environment. The quality of the natural environment plays a big role in the success of their business. Their businesses depend on a healthy ecosystem to attract customers.

Four of the businesses abut the New Meadows ‘lake’ north of the Bath/State Road causeway, and the other two abut the New Meadows River south of Bath/State Road. Two have core business infrastructure located upon on the water itself. Of the six businesses responding, four have been in operation for between thirty one and sixty years. The remaining two businesses have been in operation for over fifteen years.

When asked if their business relied on the New Meadows five out of six businesses said yes. When asked about how the businesses use the New Meadows, a common response was that they boat on it. This also resonated with the majority of responses from all other respondents. One business owner said he used to lobster in the New Meadows but gave it up several years ago. The aquaculture facility provided a more specific response about their use of the New Meadows ‘lake’ as a highly productive oyster nursery, where intermediate phase oysters spend a life stage at the site. Seed hatched elsewhere is transferred to the New Meadows ‘lake,’ in part due to its rich plankton. Once the oysters have grown to one inch, they are transferred up the coast to another facility.

When asked about their opinion of how healthy the upper New Meadows was, responses were mixed. Two respondents said it was in moderately good health, two respondents said it was in moderately poor health, and one said it was in poor health. One responded that the health of the system and water

quality depended on the time of year due to fluctuations in water temperature, dissolved oxygen levels, and nutrient levels.

Business respondents who said the New Meadows was in *moderately good* shape, when asked to give examples of indicators of health, gave responses related to the presence of wildlife such as seals, lobsters, fish, as well as the use of the New Meadows for shellfish harvesting and a prospering aquaculture businesses. One cited, “Tons of ospreys fishing/feeding. Phytoplankton richness both north and south of culvert.”

For those who said it was *moderately poor* or *poor*, the indicators they used as signs of “poor health” were foam, odors, and low dissolved oxygen levels. One observed, ‘at certain times of year...there is a yellow floating, sponge-like organism which occurs in areas with low oxygen.’

All business respondents indicated that they were aware that the Bath/State Road causeway blocked natural tidal flow, and agreed that it had an effect on water quality and habitats. This response was very much in line with the majority of respondents in this survey. When asked how the ‘lake’ would change if tidal flow beneath the causeway was increased, some respondents indicated that the ecosystem would become more like the New Meadows River to the south of the causeway, and suggested that dissolved oxygen levels may increase. One respondent thought the quahog industry would receive a big blow.

When asked, “How would returning natural tidal flow affect the way you use the New Meadows?,” there was some concern expressed by business respondents. One respondent noted that having another culvert may increase flow, but if not engineered correctly, it would continue to create foam, which was a major indicator of poor water quality. One said it would affect our local economy in a negative way but did not elaborate on his comments. Another comment was that tidal restoration might affect water temperatures, but it might also open up new paddling possibilities. Finally, one business owner believed that a tidal restoration project would directly and negatively impact existing aquaculture operations, primarily due to a loss of water depth during low tides, a decrease in water temperature within the ‘lake’, and a possible decline in food availability (phytoplankton) for shellfish products.

When asked if they would support returning natural tidal flow to the New Meadows ‘lake’ three of the six respondents said “yes”, one said he was unsure, and two said “no”. Of those who were supportive of tidal restoration, two cited improved boating access and aesthetics, and one response was conditional based on whether or not it affected a marina. Of those who said no, one business owner citing the fact that the New Meadows ‘lake’ is a unique ecosystem within which to operate, felt that the productivity of existing aquaculture operations would be lost, and suggested that should a tidal restoration project go through, impacted businesses should expect to be compensated for lost business opportunities and return on investments.

3.2.3 Shellfish Harvesters

Shellfish harvesters were identified as a ‘Tier II’ stakeholder group at the time the survey was being developed in early 2009 because at the time, the New Meadows ‘lake’ remained closed to all shellfish harvest by the Maine Department of Marine Resources due to high fecal bacteria levels. There was some belief among members of the NMWP that clambers would be interested in the possibility of exposing ‘new mud’ in the area. In the summer of 2009, during the survey, the ‘lake’ was subsequently

opened by DMR for shellfish harvest. Due to extensive and persistent shellfish bed closures throughout Maine from high rainfall and red tide outbreaks, the opening of the New Meadows 'lake' to shellfish harvest attracted a considerable amount of interest in harvesting quahogs from the 'lake' because it remained free of red tide. Although the project team had not identified quahoggers as a stakeholder group at the time the survey was developed due to the water quality closure of the resource mentioned above, the project team did make subsequent efforts to survey quahoggers once the 'lake' was opened and intensive quahog harvesting began. The responses of any quahoggers that responded to invitations to take the survey, as well as the clammers, are combined within this section.

A total of 15 shellfish harvesters took the survey, with 6 licensed to harvest by the Town of Brunswick, 4 licensed to harvest by the Town of West Bath, and the remaining respondents licensed to harvest by other towns or in other locations, including one holder of a State permit for quahogs (Figure 15). This group of respondents represented both recreational (6) and commercial (7) shellfish harvesters (Figure 16). Half the respondents have been harvesting for greater than 10 years, and the others for less than 10 years (Figure 17).

Harvesters use the New Meadows in the same proportion as other respondents for things like boating, scenic views, etc. The only difference is that they also use the New Meadows for harvesting shellfish.

Shellfish harvesters were equally split between those who think water quality is moderately good and those who think it is moderately poor. None of them think the water quality is very good or very bad.

The most common sign cited in support of a healthy New Meadows was the fact that the clams and quahogs in the area are doing well. Two respondents also believe that the water clarity is good. Compared to other respondents, no harvesters point to observations like the presence of birds or wildlife as an indication that the New Meadows is healthy.

The most common signs cited that the New Meadows is unhealthy were the presence of odors and foam. Other responses included: algae, clam flat closures, and shoreline development.

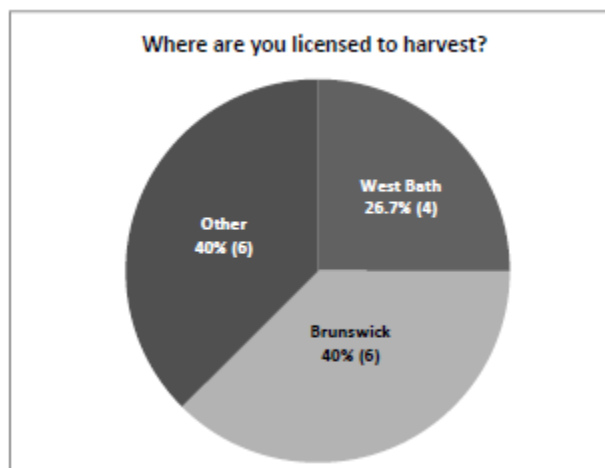


Figure 15. Shellfish harvesters' license location.

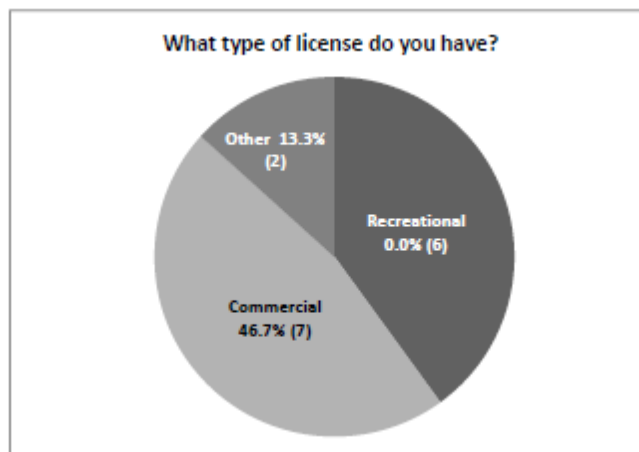
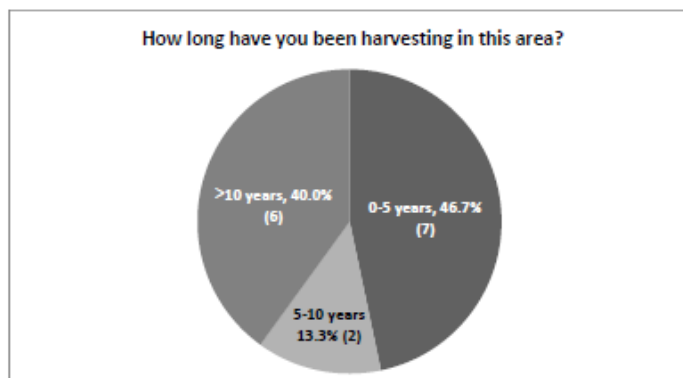


Figure 16. Breakdown of license type among harvester respondents.

There was general agreement among harvesters that tidal flushing is important to the health of the New Meadows. Harvesters were more likely than respondents as a whole to understand that the current situation is not as healthy and natural as it could be, and that tidal restoration would return the system to a more natural state, and that more natural is desirable.



When asked how the New Meadows would change as a result of opening up the Bath/State Road causeway, we received a wide range of responses from the harvesters.

Figure 17. Length of time harvesters had worked the New Meadows area.

The most common response is that the area would be cleaner, healthier and more natural – including improved water quality, improved intertidal habitat, and more fish and wildlife. The next most common response was that there would be an increase in opportunities such as clamming, fishing and recreation in the Upper New Meadows. It was noted that increased tides would also destroy some existing habitat, and one person wasn't sure what the results would be.

More harvesters (compared to other respondents) have an understanding that soft-shelled clams are currently present but are not able to be harvested, and this resource will become available to some degree if tides are restored. No clammers mention that the mud flats will smell, that water views will be destroyed, or that there won't be a 'lake' anymore.

Table 2. Harvester support and opposition toward tidal restoration.

Shellfish harvesters	Those who:		
	Support	Oppose	Aren't Sure
Recreational	3	1	2
Commercial	6	1	0
No license	1	0	1
	10	2	3
In favor of increased mud flat acreage?			
Yes	9	0	0
No	1	2	3
	10	2	3

When asked how increasing tidal flow would affect their use of the New Meadows, shellfish harvesters responded similarly to the rest of the respondent pool as a whole. For example, several people said they'd use the area more often for fishing, clamming, boating or swimming. It would especially help some harvesters to be able to harvest the soft-shelled clams that would be exposed in low-tide. However, several people were not sure how it would impact them personally.

These responses aren't too different than the rest of the respondents – 'allowing more uses' was the most common theme. However, no clammers complained that the tides will not let them canoe/kayak/boat at all times as do some other respondents – one clammer did mention, however, that docks would be out of water in low tide, which was mentioned by a handful of other respondents.

Shellfish harvesters responded that they support tidal restoration by a margin of 10 to 2, with 3 unsure (Figure 18). Harvesters cited improved clamming and improved ecosystem as reasons why they support

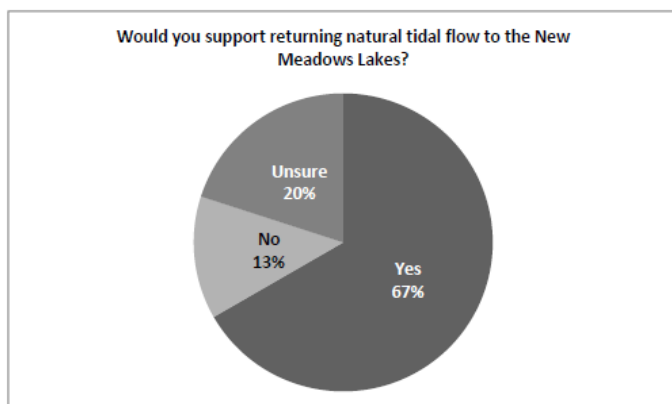


Figure 18. Shellfish harvester respondent views on tidal restoration.

tidal restoration. Among opposed harvesters, the sole reason cited was that restoration would, “destroy the best clam-raking area in Maine.” Considering the consistently cited concern among respondents familiar with the quahogging industry, it is reasonable to say that quahoggers are more likely to view a tidal restoration project as a threat to existing quahogging opportunities than clambers, who could see more mud and potentially harvestable area in the ‘lake’ following a tidal restoration project.

Generally, shellfish harvester respondents as a group want to see a cleaner, more natural system. They also expressed a desire to have soft-shell clam harvests in addition to the quahogs which are currently being harvested.

3.2.4 Other ‘Tier II’ Stakeholders

Besides shellfish harvesters, other ‘Tier II’ stakeholders targeted by this survey included property owners living along the New Meadows River downstream of Bath/State Road, as well as property owners set back from either the ‘lake’ or the River by one lot. Thirty nine people took the survey that fit one these characteristics: 24 whose property abuts the river to the seaward of Bath/State Road, and 15 people whose property is set one lot back from the ‘lake’/river.

Generally, these 2nd tier residents provided similar survey responses. Of the uses listed, they tend to use the New Meadows primarily for boating, and appreciate the resource for its scenic views. Those who abut the river itself also use it for swimming and fishing. A total of 5 shellfish harvesters (4 recreational and 1 commercial) are in this group of 2nd tier residents.

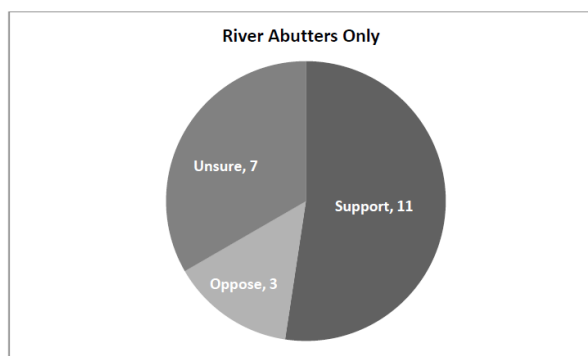


Figure 19. New Meadows River abutter views on tidal restoration, south of causeway.

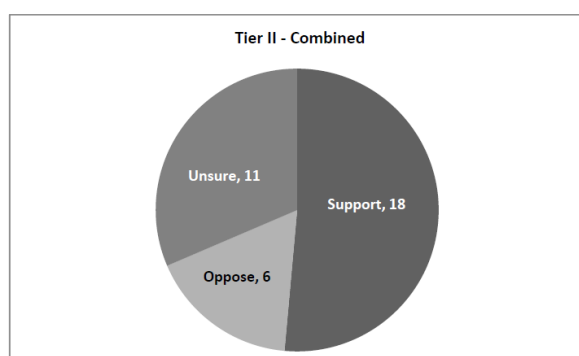


Figure 20. Combined Tier II resident views on tidal restoration.

About half of this group perceives current water quality to be moderately good, while 34% think it is moderately poor. A couple people on either end believe that water quality is very good or very poor.

This group listed the presence of shellfish harvesters, fishermen, and wildlife as signs that the New Meadows is healthy. Some people did not list a sign that the New Meadows is healthy, or say “none.”

For signs that the New Meadows is unhealthy, this group listed the presence of foam and odors. Some mention poor water quality. Those abutting the river to the seaward of the Bath/State Road causeway were much more likely to mention foam and scum as a sign that the resource is unhealthy. Those who live one lot back from the New Meadows mention foam, but not as often, and are more likely to mention trash or old tires. Almost everyone agrees that the causeway affects water quality.

The most common beliefs cited by this group of respondents about how the New Meadows would change if tides are restored were lower tides, improved water quality/health, decreased foam, and more mudflats. The presence of additional mudflat was much more likely to be cited by those who live one lot back, than by those who abut the river.

When asked how tidal restoration would affect their use of the New Meadows, “not at all” was a common answer. A few respondents mention increased kayaking opportunities, or other direct uses such as swimming, boating; some were unsure; and a few mentioned that their dock/boat would be on mud at low tide.

Figure 20 shows that as a whole, this group was somewhat supportive of tidal restoration into the ‘lake’, with 18 supporters, 6 opponents, and 11 replying they were not sure. Among abutters to the New Meadows River downstream of the causeway (Figure 19), 11 were supportive, 3 were opposed, and 7 were unsure.

3.2.5 Tidal Restoration: Proponents and Opponents

One of the primary objectives for conducting this survey was to develop a sense of the sentiment among key stakeholder groups for proceeding with an effort to restore natural tidal flow beneath the Bath/State Road causeway. The NMWP Steering Committee asked us to investigate specific questions to clarify:

- What was the breakdown of support/opposition within stakeholder groups?
- Did any trends emerge about who is opposed to tidal restoration?
- What were the primary reasons why people were opposed?

In Section 3.2.6, common questions and concerns expressed by respondents are summarized.

Table 3 summarizes support and opposition among the stakeholder groups identified prior to the survey.

Table 3. Breakdown of support and opposition among residential stakeholders.

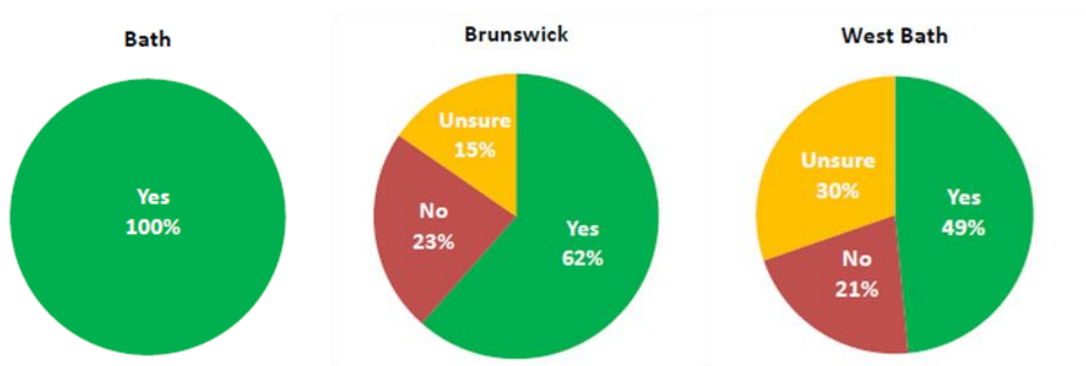
	Those who:		
	Support	Oppose	Aren't Sure
Abutters N of causeway	11	10	6
Abutters S of causeway	11	3	7
One lot back	7	3	4
Outside watershed	11	2	0
Near New Meadows	9	0	0
Harpwell	0	0	1
	49	18	18

The data show that while there is considerable support among New Meadows residents as a whole for tidal restoration (49 out of 85, or 57.6%), many people are not sure how they feel and need additional information. The New Meadows residents most likely to be directly affected by tidal restoration – those living north of Bath/State Road on the ‘lake’ – were nearly evenly split in their support and opposition for tidal restoration (see Figure 14, previously).

Respondents from the three communities which abut the New Meadows ‘lake,’ Bath, Brunswick, and West Bath were generally supportive of tidal restoration, with 53 supporters, 16 opponents, and 10 unsure (Table 4).

Table 4. Support/opposition for tidal restoration by community.

	Yes	No	Unsure
Bath	3	0	0
Brunswick	24	9	6
West Bath	16	7	10



New Meadows residents who live downstream of the Bath/State Road causeway and abut the River were supportive of tidal restoration by a margin of 11 to 3 (Figure 19, previously); however, 7 of this group was unsure, and had questions about how tidal restoration would affect them. Those one lot back from either the ‘lake’ or the River showed a similar trend to the River abutters, with 7 supportive, 3 opposed, and 4 unsure. Among those who lived outside of the watershed, or “near” the New Meadows, there was strong, decisive support, with 20 supportive, 2 opposed, and 0 unsure.

Another breakdown compared the views of the 72 ‘year-round’ respondents with the 5 ‘seasonal’ respondents (Table 5). Since the vast majority of respondents were in fact year round residents, there is a logical similarity between the overall respondent trends and the trends of year-round residents: again, while there is considerable support, nearly as many respondents were opposed (16) as unsure (15) about their views about tidal restoration.

Table 5. Breakdown of support and opposition among year-round vs. seasonal residents.

	Those who:		
	Support	Oppose	Aren't Sure
Year-round residents	41	16	15
Seasonal	4	1	1
Other	5	1	2
	50	18	18

Among the 15 shellfish harvesters who took the survey, there was considerable support (10) for tidal restoration, with 2 opponents and 3 unsure of their views (Table 6). Commercial shellfish harvester respondents were more likely than recreational harvesters to support tidal restoration: of the 7 commercial harvesters who took the survey, 6 were supportive and 1 opposed. Meanwhile, among recreational harvester respondents, 3 were supportive, 1 was opposed, and 2 were unsure.

Table 6. Breakdown of support and opposition among shellfish harvesters by license type.

Shellfish harvesters	Those who:		
	Support	Oppose	Aren't Sure
Recreational	3	1	2
Commercial	6	1	0
No license	1	0	1
	10	2	3

Not surprisingly, when asked whether they were in favor of increase mud flat acreage in the area, shellfish harvesters who replied 'Yes' were supportive of tidal restoration by a margin of 9 to 0 (Table 7). Similarly, those who replied 'No' to this question were opposed to tidal restoration by a margin of 2 to 1, with 3 unsure of their views.

Table 7. Breakdown of support and opposition among shellfish harvesters by preference for 'increased mud'.

Shellfish harvesters			
In favor of increased mud flat acreage?			
Yes	9	0	0
No	1	2	3
	10	2	3

When asked why they were in support of restoration of natural tidal flow, 6 shellfish harvesters cited 'improved clamming', and 7 shellfish harvesters cited 'improved ecosystem' (Table 8). When asked why not, shellfish harvesters replied that tidal restoration would destroy "the best clam raking area in Maine" – a reference to the quahog resource in the 'lake'.

Table 8. Reasons for supporting/opposing tidal restoration among shellfish harvester respondents.

Why?	Improved clamming			6
	Improved ecosystem			7
Why Not?				
	Would destroy best clam-raking area in ME			1
Other				
	Would reduce water access			1
	Need more information			1
	Current state controls the resource			1

Among the 51 total respondents that support restoring natural tidal flow to the ‘lake’, reasons why were varied, but generally referred in one way or another to the desirability of returning the ‘lake’ to its natural state, was perceived to be most beneficial to the entire ecosystem.

Table 9, 10, and 11 list specific reasons, in their own words, why survey respondents support, oppose, or are unsure about tidal restoration.

Table 12 lists how respondents expect that tidal restoration would affect their use of the New Meadows.

Table 9. Reasons provided by all respondents for supporting tidal restoration.

Reasons why respondents support tidal restoration, in their own words:

- The lakes have little value as is except to those who own property along the lake.
- Opening up the causeway will provide opportunity for fisherman, kayakers and a variety of wildlife.
- It is good for the New Meadows in general and particularly good for the lakes.
- Seems to be better for the Lakes area.
- I prefer to see tidal areas in their natural (not restricted) state.
- It's the right thing to do.
- There are multiple benefits for citizens and visitors alike. Many economic benefits for east Brunswick and West Bath. Given future climate change impacts, any opportunities to better prepare our natural systems for adaptation by correcting/restoring poor choices of the past should be acted upon.
- The natural state is preferable to an unnatural state.
- The New Meadows contains critical nursery habitat in its salt marshes and eelgrass beds for numerous commercially valuable fisheries. Restoring the lakes will contribute to local and regional marine-dependent economies as well as the recovery of fisheries in the Gulf of Maine.
- Returning the lakes to a more natural tidal cycle would improve the health of the lakes and consequently pose less risk to waterfront landowners. It could also create alternative uses of the lakes other than those than now exist.
- It is good for the lake to be clean.
- 100% in favor of what mother nature intended.
- To clean it up and flush it out naturally.
- I just believe it should be done because it might clean the quality of life in and around the lakes.
- To return nature to its natural way.
- Returning the natural tidal flow to the lakes seems reasonable if the capabilities exist to do so.
- I love Maine because it's so natural, and this one bay has always been un-natural to me. People changed it when they built that road and bridge.
- It returns the area to its natural state.
- Good for tourism, environment, river usage.
- Increased mud flats.
- I think it would be healthier and more natural.
- The causeway/dam does not belong there.
- The net outcome would be beneficial to fish hatchlings and other wildlife.
- Hopefully you would also build into it getting rid of the foam.
- A more natural system is a more resilient system, supporting a diversity of life and providing a more healthy environment for people.

Table 10. Reasons provided by all respondents for opposing tidal restoration.

Reasons why respondents oppose tidal restoration, in their own words:

- Not sure about recreation impact and odor.
- Could significantly change the environmental pluses which led to home purchase.
- Poor air quality, loss of view, decreased real estate values.
- Not a strong opinion. Just as soon leave it the way it is for aesthetic reasons.
- Views and water frontage was the reason I purchased this house.
- The project would be too costly.
- There is a certain smell to natural mud flats that might be around if the tidal flow was restored.
- It seems to be doing what it always did. The tides seem to be sufficient.
- We like it how it is.
- There is no money to do this. There is plenty of oxygen in the water. The birds are doing fine. Now that it's been done, leave it the way that it is.
- I built here for a lake, not a tidal flat!
- It should be left alone. The presence of quahogs means that the New Meadows is okay/healthy. Worried about odor if it changes to tidal. It functions well now. -
- Many people canoe on the lake now.
- Too late for this now...
- If change causes too low of a tide it would affect docks and boat access at the cottages. In my opinion the affected flats are adequately open at present.

Table 11. Reasons why respondents were unsure about support for tidal restoration.

Reasons why respondents are unsure about tidal restoration, in their own words:

- I would support it if it had no effect on the Marina.
- It depends how much they plan on opening it. We don't want to see too much change.
- I would like to see the water improved in the long run but don't want any rash actions. Cost/ benefit is marginal. There is a lot more that can be done for less.
- No hard and fast answers to questions but still open to learning.
- Property values may plunge, \$\$\$\$\$\$\$\$\$\$, political fallout.
- I am open to reading studies but likes the constant water level and no mudflats.
- I'd like to see a good reason for spending the money for it.
- I need more information.
- I would want to be convinced that it will benefit the river long term.
- I will support it if you make me believe it would be better for me and my family.

Table 12. Respondent expectations for how tidal restoration would affect the way they use the New Meadows.

How would returning natural tidal flow affect the way you use the lake?

- If the lake (totally) empties, my reason for house purchase is greatly diminished. My property allows access for "on the fly" kayaking and I would not want to plan trips around high/low tide especially if house used for short periods of time (vacation/weekends etc.)*
- Not sure how tidal it really is and how much water would be there at low tide.*
- I could more easily kayak in the portion of the river North of state road.*
- Poor air quality, loss of view, decreased real estate values.*
- It wouldn't for me, but I support any measure to restore health and eliminate pollution.*
- Instead of being able to "put in" at my house anytime I want, I would not be able to put in when the tide was so low that there was 20 yards of mud in my way.*
- It really wouldn't except that I like the way it looks, which is better than mudflats. Smell of mudflats doesn't bother us though.*
- Dock would be useless during part of the day.*
- May reduce the use of my float, causing me and other owners to have to extend out further in order to keep "deep water docking" at most all tides.*
- It would affect our local economy in a negative way.*
- I question what my property boundaries would be and how I would build home and associated improvements.*
- I would fish and clam there more often.*
- I would use it more often.*
- I'd be more likely to kayak.*
- I would have to educate my children as to increased currents etc...*
- I would certainly visit this area more for recreational pursuits and I would likely visit local businesses while I am in the area.*
- It would provide enriched boating opportunities, namely through access to the area below the causeway. It might also bring seaweed to the shore, which would be a wonderful addition to our compost.*
- By restoring a more friendly tidal environment this destination would be more interesting to me and the trips I lead there.*
- It will improve accessibility into the Lakes via kayak and other small boats. It will also attract native fish and wildlife species of interest to me and other naturalists.*
- Increased tidal flow would require more planning for boating use and would likely make winter use on frozen surfaces difficult if not impossible, but that is a minimal impact for the improved water quality that would result.*
- More boating and better access to the rest of the river.*
- There would be no ice racing, skating, or snowmobiling. We wouldn't be able to canoe.*
- I may actually use it knowing it is not a stagnant body of water with the possibility of disease.*
- I would most likely move. I've already made it clear - I use the New Meadows Lake as a view, a sense of privacy, and can occasionally canoe the lake. Why ruin a beautiful lake?*
- It likely would be more beautiful and interesting.*
- Commercial harvest of clams quahogs and it might make a decent place to swim and boat.*
- It would allow areas to be hand harvested; there is a soft shell clam resource near the edges of the lakes. I rarely use the lakes because they are so malodorous. If the flow were increased, I'd probably use them more.*
- We would need to be more aware of the tidal conditions for canoeing.*
- I would have some mudflats in front of my house but that's not a big deal to me. If the opening was large enough, it might allow larger boats to access the Lower Lake. Boating here would be more tide-dependent. Higher high tides in the Upper Lake would be a good thing for me.*
- I would fish more, swim more, and boat more.*
- I would fish in the upper New Meadows by Old Bath Road, and probably kayak there often.*
- Increased tidal flow would change the conditions for hand powered boats.*
- Increased mud flats might inhibit boat use.*
- We would adapt to the changes.*
- The tidal flow would be greater, and therefore taken into consideration before using the river for boating.*
- My dock would be out of the water at low tide.*
- We would enjoy it more.*
- I would paddle north of the causeway.*
- It might be more pleasant to swim near Sawyer park. I don't think I'll ever swim in the lakes again - too polluted. It might also make the water near Sawyer Park colder and less appealing to swim in for that reason.*

3.3 Questions and Concerns Regarding the Return of Natural Tidal Flow

Several questions and themes emerged when respondents were asked whether they had questions or concerns regarding the return of natural tidal flow beneath Bath/State Road. Quotes are italicized.

The following QUESTIONS about the return of natural tidal flow emerged from the survey responses:

- Who would pay for a restoration project? How much would it cost?
- What impact would restoration have on the environment and the ecology just downstream of the causeway? Will there be a release of sediments and trash from the 'lake', leading to pollution downstream?
- What is the process for making a decision on whether to proceed?
- What if the response to restoration is different than what was modeled? How can we build a way to adjust the restoration solution based on what outcomes occur? Who would be held accountable?
- Where is the water level going to be? Will the 'lake' be dry at low tide?
- Have you considered how restoration would affect sea level rise?
- Will property lines change if there is a modified high-tide line?
- Who is promoting tidal restriction? Do any of the advocates live on or near the 'lake'?
- Have you looked at whether changes to the tidal range will affect wells?
- How will it affect the Marina and properties close to the highway?
- Would opening up the causeway bring smelt back?
- What is the timetable for a restoration project?

The following CONCERNS about the return of natural tidal flow emerged from the survey responses:

- Property values will fall, and landowners won't be compensated.
- Abutters will not be able to boat from their property at all tides due to the shifting water levels.
- *This has been discussed since the mid-sixties and our town leadership has barely moved forward with any solution.*
- A restoration project will worsen strong odors in the area. *Old timers say the smell was terrible before state road was built.*
- There would be no more ice racing on the 'lake'.
- Existing docks that have standing water beneath them will be out of the water/on the mud for part of the tide and therefore useless for part of the day.
- There will be decreased water access to the 'lake'.
- People from outside the area are going to come in and determine what happens to a resource that has values to the local people who live there.
- Water temperatures in the 'lake' would decline causing a loss of quahog resources. *It would destroy the best clam raking area in Maine.*
- *The culvert's been there so long and that ecosystem has been there so long, that removing it may do more harm than good. Siltation of yanking it out will be devastating for years and years.*
- An already congested area for boating in the Upper New Meadows would get worse.
- If a tidal restoration project is not done correctly, the existing problems with foam would continue or get worse.
- Restoration would affect the local economy in a negative way.

The following suggestions were made by survey respondents:

Design Suggestions/Alternatives:

- Consider using an aerator.
- Consider using a tidal gate to adjust water exchange on a seasonal or as needed basis.

Look at the 'lake' more broadly:

- *Consider opening up Old Bath Road. North of Old Bath Road has become completely swampy.*
- *Open up the restriction under Route 1. When that was put in it had a huge affect on the people who live around the 'lake'.*

3.4 Other Questions and Concerns about the New Meadows River watershed

Beyond the questions related to a tidal restoration project, survey respondents had questions and concerns about the New Meadows broadly which can inform future activities and priorities of the New Meadows Watershed Partnership. The questions and concerns below were loosely grouped according to themes.

Boat Use and Access

- *Would the new causeway be open to boat traffic? More access is positive, but I have concerns about the density of usage. If the marina across the way puts in slips and there are more boats here, it could be too much. Also, there could be an issue with having big boats, small boats, and kayakers all using the same area. Plus Bowdoin rowers. There needs to be a larger plan regarding density of boat expansion in this area on both sides. Use the same process used when creating subdivisions to plan for marinas.*

New Meadows Water Quality

- *What is the effect of aquaculture on water quality?*
- *Policing marine toilet discharge*
- *Contamination from human waste*
 - *Old cottages along its shoreline.*
 - *Sewage discharge from houses along the river that have grandfathered permits*
 - *Old buried outhouses.*
 - *Old and inefficient septic systems.*
- *Limit herbicide and pesticide runoff*
- *Ice racing does damage to the 'lake' and leaves behind trash and debris.*
- *How does what goes on above Old Bath Road affect water quality in lakes'?*
- *The industrial park on New Meadows Rd. is a threat to the watershed.*
- *There are poor development controls in the Towns surrounding the New Meadows as well as poor code enforcement.*

Quahogging

- *Quahoggers are overharvesting the resource.*
- *What is the effect of quahog harvest on water quality?*

4 Final Observations & Next Steps

Through conducting this survey, the NMWP has accomplished the goals and objectives laid out at the onset of the project. As part of the process of investigating the feasibility of restoring tidal exchange in the New Meadows 'lake', the survey serves as an invaluable resource for understanding the views, hopes, concerns, doubts, questions, and desires of the respondents. The data set will also provide useful information about needs and opportunities for future education and outreach toward achieving the goals and objectives set forth in the *New Meadows River Watershed Management Plan*. While the survey cannot predict the views of other stakeholders who did not take the survey, consistency and redundancy of answers suggests that the most widely shared questions and concerns have been captured.

Besides developing a better understanding about views and concerns reported on in this document, all the participants in this effort, including the survey respondents, the New Meadows Watershed Partnership Steering Committee, and the project team, also benefited from establishing a new dialogue about the New Meadows River and the people who value it as a natural resource. The project team sincerely hopes that new and productive relationships will emerge from this effort, and that the survey respondents will embrace our invitation to participate in ongoing efforts to protect and restore this important resource.

The fact that nearly half of the survey respondents have lived in the area for at least 15 years reveals that there is an abundance of local knowledge that everyone can benefit from sharing. This local knowledge is reflected in the survey responses, which often reflect on the state of the New Meadows 20, 30, or 40 years ago. These residents, clambers, and business owners have seen a lot of changes on the New Meadows, some but not all for the better.

Next Steps

On February 4th, 2010, the New Meadows Watershed Partnership Steering Committee will convene a public forum to share the results of the survey and continue a community dialogue about how to use the information we've learned to guide next steps in exploring the possibility of pursuing a project to increase tidal exchange beneath the Bath/State Road causeway.

Beyond that, the project team recommends that the NMWP Steering Committee consider the following as possible next steps:

- Conduct additional analyses of the survey data to inform future education and outreach activities of the NMWP;
- Develop an exhaustive list of questions raised by this survey and provide clarification and responses, to the degree possible;
- Share the results of this survey with the public through dissemination on the NMWP web site, presentations to interested parties both local and regional;
- Create a list of 'lessons learned' while conducting the survey to attach to serve as an addendum to this Final Report; and,
- At some point in the future, the NMWP Steering Committee should consider conducting additional analyses into this dataset to investigate new questions about the data.

5 References

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Appendix A – General Survey