

New Meadows Lake Feasibility Study
Public Comments and Study Team Responses

Memorandum

To: Ed Benedikt, New Meadows Lakes Association

CC: Karen Young, Casco Bay Estuary Partnership
Steve Walker, Town of Brunswick
Michael Chelminski, Woodlot Alternatives, Inc.

From: Matt Craig, Casco Bay Estuary Partnership

Date: November 10, 2005

Re: Study Team response to email comments dated 7/11/05 regarding the New Meadows Lake Tidal Restoration Feasibility Study.

Note: Comments verbatim as received are in *italics*; study team response indented.

To: The Casco Bay Estuary Project (CBEP)
Copy to: S. Walker, Town of Brunswick project comment coordinator
Copy to: Undisclosed listing of affiliates
Subject: The New Meadows River study by CBEP funded by NOAA starting in 2005

Study Team Note: In order to ensure adequate communication with all stakeholders and other interested parties, we request that, in the future, all individuals in the “undisclosed listing of affiliates” who received these comments be identified.

These comments are submitted on behalf of New Meadows Lake residents and users as requested by the Executive Director of CBEP on June 27, 2005 regarding an anticipated study of the upper New Meadows River locally referred to as "The New Meadows Lake". They are based on a canvassing of NML members and associates by E-mail and direct contact as time did not permit a formal meeting prior to the submittal deadline of July 12.

These 6 comments may duplicate testimony at a public information meeting on June 27, since, as of this writing, the proceedings of that meeting have not been broadcast on Community Cable television and the minutes have not been distributed to the attendees or general public.

Study Team Note: A broadcast of the video of the June 27 meeting began airing on July 17. On July 18, 2005, Steve Walker sent an email announcement to all attendees of the June 27 forum as well as all members of the New Meadows River Watershed Project Steering Committee (“Steering Committee”) announcing this. A follow-up e-mail dated 7/26/05 noted that two additional broadcasts would be shown on Thursday, July 28 at 1:00 pm and on Friday, July 29 at 10:30 am. The video was broadcast through August 1. Since the broadcast did not begin showing as early as anticipated, the timeframe for public comments was extended to August 1, 2005.

Detailed notes from the June 27 meeting were also distributed as an attachment to Steve Walker’s July 26 email.

1. The goals and objectives of the study are not clear and there is concern on the part of home owners, recreational users and commercial fishing interests that the potential study outcome counters their economic interests and environmental goals. There is also concern that the study will lead to actions that sidestep the normal political process of review by elected town officials of all or some of the three affected municipalities. Therefore the project requires that all

"stakeholders" have a voice in the formulation, direction and evaluation of the project, which requires an Oversight Board with By-laws.

Study Team Response:

The Study Goal and Objectives Statement was revised in order to clarify the intent of the study based upon the comments received, during and after the first public forum.

The specific goal and objectives of this study are as follows:

Goal: Identify and evaluate the feasibility of technical alternatives to improve water quality and enhance the natural resources of the New Meadows Lake environment. Involve stakeholders and the general public through an open and transparent process.

Objectives (based on known deficiencies):

1. Improve water quality in the New Meadows Lake environment.
 - a. Increase tidal flushing in the Lake.
 - b. Enhance mixing of water within the Lake through the improved tidal circulation.
 - c. Increase dissolved oxygen throughout the water column, particularly in the "Deep Hole" area of the Lake.
 - d. Reduce the occurrence and/or frequency of hypoxic and anoxic conditions in the Lake.
2. Enhance natural resources of the New Meadows Lake environment.
 - a. Increase area and quality of intertidal habitat in the Lake environment.
 - b. Inhibit the growth of *Phragmites australis* in the Lake environment.
 - c. Improve shellfish habitat and opportunities for commercial and recreational shellfishing in the Lake.

The scope of this study is limited to addressing the goal and objectives identified above, and as such will not evaluate social, economic or other impacts as they pertain to the forthcoming technical alternatives.

In a broader sense, this study is being undertaken in response to recommendations articulated by the Steering Committee in the *New Meadows River Watershed Plan*. The *Plan* contains five objectives, each of which provides a series of recommended Actions. The third objective directs the Committee to: "Conduct research and monitoring to better understand the ecological and economic dynamics of the New Meadows River Watershed system, including the effect of tidal barriers." The scope of this feasibility study was developed in response to the specific High Priority Action recommendation to: "Assess the feasibility of increasing tidal exchange in the lakes."

In the context of the *Plan*, this is a preliminary, information-gathering study that will develop a tool to help evaluate the hydrodynamic s of the Lake. As such, this study is the first in a series of steps that would be necessary prior to any on-the-ground implementation of a technical alternative. The need for a separate evaluation of economic, social, and other potential impacts of modifying tidal conditions in the Lake will be considered following this study.

2. The New Meadows Lake residents feel that municipal licensed clam harvesters are adequately represented in this project by the CPEP[sic] and what is missing is the homeowners and other divers[e] interests. "Stakeholder" inclusion and oversight in the process is essential to the success, and we propose a seven-member "Oversight Board", consisting of:

Resident (& member of the NMLA) of the City of Bath

Resident (& member of the NMLA) of the Town of West Bath
Resident (& member of the NMLA) of the Town of Brunswick
Member of the New Meadows Ice Racers Association
Nominee of the Maine Aquaculture Association
Nominee of the CBEP
Staff member of the State Planning Dept

Study Team Response:

As discussed above, the Steering Committee serves to implement the objectives and recommendations from the *New Meadows River Watershed Management Plan*. The Steering Committee is comprised of representatives from the communities of Brunswick, West Bath, and Bath, as well as the New Meadows Lakes Association, Casco Bay Estuary Partnership, and the State Planning Office, among others. CBEP initiated this study on behalf of and as a member of the Steering Committee. The Steering Committee provides oversight to the Study Team, and CBEP provides project management.

In the past, ice racing has been identified as a concern of the NMLA and in response, the Steering Committee attempted to incorporate representation from the New Meadows Ice Racers Association. No official contacts were identified at that time. Aquaculture activity in the Lake is currently limited to a small up-weller lease site that is used seasonally; therefore we feel that representation of the Maine Aquaculture Association isn't warranted especially given the nature of this initial study. All meetings of the Steering Committee are open to the public, and members of the New Meadows Lake Association, and staff of both West Bath and Bath are included on the mailing list and encouraged to attend.

3. As the representative of The New Meadows Lake Association and as a professional engineer with some experience in complex environmental projects, I requests that the project fund a marine biologist [sic] (subject to our approval) as our technical advisor. This advisor shall have access to all data collected on a timely basis and be funded to allow attendance at all CBEP sponsored meetings, to evaluate such data and to report once each month to the NMLA.

Study Team Response:

As noted, the scope of this study is limited to identifying and evaluating the feasibility of technical alternatives to achieve specific objectives. As such, this study will not evaluate biological impacts as they pertain to the forthcoming technical alternatives. An assessment of the potential biological impacts of each technical alternative on the marine ecosystem should be considered as a possible next step prior to implementation.

All reports and data from this study will be available for the public to review and will be posted on the Internet. Three public forums will be held during the course of this study to disseminate information, foster a public dialog, and solicit stakeholder comments on the study and technical alternatives. In addition, all meetings of the Steering Committee are open to the public and NMLA members are encouraged to attend.

*4. The *Phragmites Australis* [sic] issue should be removed from the study objectives. The photographs used to justify its inclusion were misleading, and there is no scientific basis for assuming that it will be affected by proposed changes.*

Study Team Response:

The presence of the invasive plant *Phragmites australis* (Common Reed) is indicative of salt marsh degradation. When left uncontrolled, *Phragmites* can exclude native marsh vegetation and develop into monoculture stands that reduce species diversity and degrade

wildlife habitat. Thus, the study team believes that the presence of *Phragmites* in the New Meadows Lake is a cause for concern.

Tidal restrictions reduce flooding frequency and salinity in intertidal habitat and can create conditions favorable to the invasion of *Phragmites australis* into salt marshes. Salinity is known to be a stressor of *Phragmites*, and research suggests that increased soil salinity slows the spread of *Phragmites*. Accordingly, there is reason to believe that the spread of *Phragmites* could be controlled under some of the technical alternatives developed in this study, since the study will evaluate alternatives with the aim of increasing tidal flushing in the Lake. Increased tidal flushing could result in changes to tidal height, the prevailing salinity regime, and other parameters which affect the health of *Phragmites*.

An in-depth assessment of the response of *Phragmites australis* to the technical alternatives is beyond the scope of this study. However, the potential impact of each technical alternative on *Phragmites* should be a consideration in the selection of an alternative for implementation. Therefore, an assessment of this impact should be considered as a next step prior to selection of an alternative for implementation.

Reference:

Burdick, D.M., R. Buuchsbaum, and E. Holt. 2001. Variation in soil salinity associated with expansion of *Phragmites australis* salt marshes. *Environmental and Experimental Botany* 46: 247-261.

5. *The "Orange Tunicate" LISSOCLINUM AUREUM should be included as a[n] important invasive fauna species. This has been identified by marine biologists as having increasing presence in the area.*

Study Team Response:

The study team recognizes that the spread of invasive marine species such as tunicates is an important ecological issue and notes that orange tunicate is currently present in the Lake. Many such invasives have become ubiquitous in the marine environment and the effects of their presence are currently unclear. However, the investigation of this issue is well beyond the scope of this study.

6. *The study should not be limited to lake outflow criteria at the Bath Road Causeway; the inflow conditions as well as all other flow restrictors should be documented. Of particular interest is the suspected low oxygen levels and the E-coli conditions downriver from the causeway as well as documented E-coli presence near the "head" of the lake. The existence of these conditions in water that flows into the lake is a critical element that should be included in the study.*

Study Team Response:

This study will evaluate means of improving water quality in New Meadows Lake through increased tidal flushing. Of particular concern are the anoxic conditions in the "Deep Hole." By necessity, this evaluation will consider dissolved oxygen levels in water flowing into the Lake from the New Meadows River as described in previous studies. The current study will also evaluate flow restrictions in New Meadows Lake, with emphasis on the State Road and Route 1 causeways. The magnitude of any restriction associated with the presence of the railroad piers in the Lake will also be evaluated. The determination of whether to include any restriction associated with the piers will be made based on standard hydraulic engineering methods. The evaluation of

E-coli is not in the project scope of work, but may be evaluated based on dilution and mixing as part of the study.

Memorandum

To: Richard Clime, Dodge Cove Marine Farm, Inc.

CC: Karen Young, Casco Bay Estuary Partnership
Steve Walker, Town of Brunswick
Stephanie Lindloff, Woodlot Alternatives, Inc.
Michael Chelminski, Woodlot Alternatives, Inc.

From: Matt Craig, Casco Bay Estuary Partnership

Date: November 8, 2005

Re: Study Team response to comments dated July 28, 2005 regarding the New Meadows Lake Tidal Restoration Feasibility Study.

Note: Comments verbatim as received are in *italics*; study team response indented.

Steve Walker
Coordinator of Comments for the Casco Bay Estuary Partnership
28 Federal Street
Brunswick ME 04011

Dear Mr. Walker:

It has come to my attention that the Partnership is asking for public comment on the proposed study of alternatives for improving water quality in New Meadows Lake. My interest in the Lake and its water quality arises from my company's seasonal use of the south western corner of the impoundment as a shellfish nursery using floating upwellers. We currently place 1.2 million juvenile oysters in these upwellers in early May and remove them in July when they are transferred to the Damariscotta River for further growth. What makes the New Meadows Lake a special place for shellfish aquaculture is that like most salt ponds, its seawater temperature rises earlier and more quickly in the spring than other tidal waters and in conjunction it supports an dense bloom of phytoplankton which drives very fast growth. In fact for years we have observed 3-5 fold weekly increases in shellfish volume during the May-July period. So the use of the New Meadows Lake for nursery culture of hatchery produced seed the basis for the success of our entire farmed oyster business. To my knowledge no other oyster farm has matched these nursery growth measurements. So considering that my company has received a 10 year aquaculture lease for use of this site, my concern with the design of the study and its ultimate recommendations is self evident.

Some of my questions are:

1) Which variables of overall water quality are most in need of change? Seasonal dissolved oxygen? Nutrient flux? Excessive stratification? Bacterial densities? Others?

Study Team Response:

The goal and objectives of this study reflect the priorities for addressing degraded water quality and habitat in the New Meadows Lake. The study goal is to identify and evaluate the feasibility of technical alternatives to improve water quality and enhance the natural resources of the New Meadows Lake environment. As such, the study will aim for specific water quality improvements based on known deficiencies. These are reflected in the following objectives, which specifically address water quality priorities:

- d. Increase tidal flushing in the Lake.

- e. Enhance mixing of water within the Lake through the improved tidal circulation.
- f. Increase dissolved oxygen throughout the water column, particularly in the “Deep Hole” area of the Lake.
- g. Reduce the occurrence and/or frequency of hypoxic and anoxic conditions in the Lake.

2) *With an increase in tidal flow through an enlarged breach in the causeway, how are higher daily tidal fluctuations going to affect seawater temperature and salinity as well as the spring phytoplankton densities in the Lake?*

Study Team Response:

Models developed during this study will project each alternative’s effects on physical parameters in the Lake including tidal levels, temperature, and salinity. This study will not evaluate biological impacts of the alternatives, so the question of how spring phytoplankton densities in the Lake would be affected by the technical alternatives is beyond the scope of this study. Potential biological impacts on the marine ecosystem may be evaluated as part of future studies prior to any on-the-ground implementation.

Note: No specific alternatives have been identified as of this date, although enlargement of the breach below the causeway may emerge as a potential alternative.

3) *How much lower would tidal drainage drop water levels?*

Study Team Response:

This study will provide information on changes to tidal exchange, including tidal height and tidal range, for each alternative.

4) *How is the proposed physical oceanographic modeling of Lake seawater before and after proposed changes to the flow regime coupled to biological responses of the Lake’s current fauna and flora or their replacement with other fauna and flora?*

Study Team Response:

As noted, this study will evaluate the effects of technical alternatives on physical parameters within the Lake. The study will not evaluate biological impacts of each alternative. Therefore, questions relating to how the Lake’s current flora and fauna and species composition may be affected in response to each alternative are beyond the scope of the study. Again, an assessment of the potential biological impacts of each technical alternative should be considered as a possible next step prior to implementation.

5) *After almost 70 years of causeway impoundment, is the Lake a niche for any species of fauna or flora rare to the Maine coast?*

Study Team Response:

The question of whether the Lake serves as a niche for flora or fauna that are rare to the Maine coast is beyond the scope of this study. The New Meadows River Steering Committee may want to consider whether to initiate a separate study to investigate this question.

NEW MEADOWS RIVER WATERSHED PROJECT

c/o Planning & Development Department, Town of Brunswick, 28 Federal Street, Brunswick, ME 04011

Ed Benedikt

Jay Chace, Town Planner, Town of Harpswell

Matt Craig, Casco Bay Estuary Project

Robert Cummings, Shellfish Committee, Town of Phippsburg

Mike Doan, Friends of Casco Bay

Lee Doggett, Maine Department of Environmental Protection

Michael Feldman, Brunswick

Cathryn Field, Service Learning Coordinator, Bowdoin College

Diane Gould, U.S. Environmental Protection Agency

Theo Holtwijk, Director of Planning & Development, Town of Brunswick

Todd Janeski, Coastal Program, State Planning Office

Donald Kale, Maine Department of Environmental Protection

Roger McNelly, Marine Resources Committee, Town of West Bath

Peter Milholland, Friends of Casco Bay

Jim Upham, Planning Director, City of Bath

Steve Walker, Natural Resources Planner, Town of Brunswick

Dana Wallace, Marine Resources Commission, Town of Brunswick

Karen Young, Director, Casco Bay Estuary Project

Date: October 24, 2005

To: West Bath Board of Selectmen
David Bourget, Chair
Stephen Gardner
Peter Oceretko
Pam Hile, Town Administrator

From: Theo Holtwijk

Re: Your letter dated July 15, 2005

Thank you for your letter dated July 15, 2005 concerning the recent public forum for the **New Meadows Lake Tidal Restoration Feasibility Study**. We are sorry for the delay in responding to it.

We asked our study team to compile an initial set of responses. These were reviewed in draft form by the New Meadows River Watershed Steering Committee at its August meeting. For the sake of clarity we have repeated each of your concerns in *italics* and have placed our response directly beneath it.

1. *“The scope of the project is quite limited in that it primarily focuses on marine quality issues and does not take into consideration very real and very important economic and environmental impacts. Additional review/oversight of the project by “stakeholders” from the three communities is highly desirable.”*

Study Team Response:

The goal for this study is to identify and evaluate the feasibility of technical alternatives to improve water quality and enhance the natural resources of the New Meadows Lake environment, and to involve stakeholders and the general public through an open and transparent process. The scope of this study is limited to addressing this goal and the objectives identified above. As such, an evaluation of social, economic and environmental impacts is beyond the scope of this study.

This is a preliminary, information-gathering study that will develop a tool to help evaluate the hydrodynamics of the Lake. As such, this study is the first in a series of steps that are necessary prior to on-the-ground implementation of an alternative. A separate evaluation of economic, social, and environmental impacts of modifying tidal flow into the Lake should be considered as next steps following this study.

Stakeholders are encouraged to participate in future public forums as well as upcoming Steering Committee meetings. As discussed earlier, the Steering Committee serves to implement the objectives and

recommendations from the *New Meadows River Watershed Management Plan*, which identified the need for a study to assess the feasibility of increasing tidal exchange in the lakes. The Steering Committee, which meets regularly, provides oversight to the Study Team on this project, and Casco Bay Estuary Project (CBEP) serves as fiscal agent and provides project management.

2. *“Better communications is needed with the affected Towns. We should be periodically updated on the status of the project and forwarded copies of all related reports, minutes, correspondence and similar documentation.”*

Study Team Response:

Additional outreach efforts are being planned to expand forum advertisement and increase stakeholder participation. Additional steps identified so far include:

- 1) mail forum announcements to each house and business around the Lake;
- 2) target members of the New Meadows Lake Association and the New Meadows Ice Racers Association for participation in future study forums;
- 3) post forum announcements at public venues, such as town halls, in each community;
- 4) email study announcements and updates to attendees of the first forum and other interested parties; and
- 5) distribute press releases to local media outlets.

In addition, CBEP will post study documents, including data and reports, on the Internet for review throughout the study’s duration. Furthermore, we will be happy to periodically update the Selectmen in person on an as-needed basis.

Note: E-mail messages will periodically be circulated to notify stakeholders and the general public of new postings. For anyone to receive notices by email, please provide an email address to Matt Craig (mcraig@usm.maine.edu).

3. *“It appears evident from the demographics of those attending the forum that the citizens of West Bath represent a very significant portion of the “stakeholders” in this project. We would therefore request that the next meeting be held this fall in West Bath (we will make either the school or fire hall available). We would ask that this meeting be well publicized, including electronic notification of all individuals for whom you have e-mail contact information. Adequate advanced notice and research on your part to make certain that the meeting does not conflict with any regularly scheduled town/city meetings of the affected localities is vital.”*

Study Team Response:

The Study Team and the Steering Committee have expressed an interest in working cooperatively with the West Bath Board of Selectmen to schedule the second of the three public forums at a venue in West Bath, and to identify a time and date which does not conflict with any regularly scheduled municipal meetings in Bath, Brunswick, or West Bath. The initial project timeline targeted mid-October to hold the second forum. We request that West Bath officials assist our efforts by helping to coordinate video recording the proposed West Bath meeting for later broadcast as we know that people find that a very helpful communication tool. Perhaps Matt Craig can be in touch with Pam Hile on that as we come closer to being ready for such an event.

We anticipate increased participation at the second forum in response to additional outreach and notification efforts. Additional suggestions from you for specific forum notification efforts are always welcome.

We appreciate the opportunity to comment. We believe this is a worthwhile project, have appreciated your support, and will continue to welcome input from every corner. Thank you.