

Section B: PRE-PROPOSAL APPLICATION FORM

Watershed Restoration Grants for Impaired Waters

I. Proposal Title

Mirror Lake Community Watershed Plan

II. Contact Information

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Signature of Applicant:



President, Mirror Lake Protective Association

Date of signature: August 31, 2009

III. Project Summary

In 200 words or less, describe the proposed project including: the general location (municipalities and watershed); water quality impairment(s); causes or sources of water quality impairment(s); proposed management activities, e.g., education, technical assistance; goal(s) of the project; and how success will be verified.

Mirror Lake is a 378 acre lake located within the towns of Wolfeboro and Tuftonboro, Carroll County, New Hampshire. Mirror Lake Watershed is approximately 2,160 acres (Attachment A) with approximately 250 residences of which 105 are lakefront and 71 of these are

"seasonal" (vacation and/or weekend or summer only). Over the past several years, outbreaks of cyanobacteria blooms have been of concern. Sources of excessive nutrients are unknown. The Mirror Lake Protection Association's (MLPA's) overall goal in developing a watershed plan is to identify nutrient sources and reduce phosphorus loading to levels that will eliminate the outbreak of cyanobacteria. We propose to accomplish this goal by understanding the nature and extent of phosphorus loading sources, developing management measures that target sources, and prioritizing management measures that maximize return and are cost-effective. Our evaluation "tools" are review and analysis of water quality data, water quality modeling, and supplemental direct sampling of surface waters. Information and education of watershed residents, collaboration with environmental professionals, and subscribing to comprehensive state guidance, are critical to the success of the project. Success will be determined when phosphorus concentrations in Mirror Lake surface waters are consistently below water quality standards and cyanobacteria blooms are eliminated.

IV. Project Location

- A. Town(s): Tuftonboro and Wolfeboro, NH
Does project involve other states? Yes No
- B. What type of water body does it affect?
River Stream Lake/Pond Estuary Other
- C. Waterbody name: Mirror Lake

V. Problem/Need

- A. *An Impaired Watershed Restoration Grant must address an impaired water on the state 303(d) list. However, applications in other watersheds will be considered if documentation of impairments are provided. See Consolidated Assessment and Listing Methodology ([CALM website](#)) for more information on documentation.*
- B. *Provide a clear statement of the types of nonpoint sources and water quality impairments and threats to be addressed by the project.*

Mirror Lake and Mirror Lake beach are listed in the final 2008 303(d) list as being impaired by cyanobacteria (hepatotoxic) blooms. In addition, Mirror Lake beach is impaired by *Escherichia coli*. Sources are listed as "unknown" and, with the exception of E. coli at the beach, the development of a TMDL study is considered low.

A watershed based plan will be developed that will identify non-point sources of phosphorus (and estimated loadings) to Mirror Lake surface waters and sediments. Direct and indirect watershed sources of phosphorus are likely to include: 1) the tributary entering Mirror Lake at Lang Pond Road and contribution of surface water flow from Abenaki Pond; 2) runoff associated with land uses bordering Abenaki Pond, the tributary, and Mirror Lake watershed and lakefront residential properties; 3) Mirror Lake residential septic system leachate; 4) runoff from Lang Pond Road, Waumbeck Road and State Route 109; and 5) internal phosphorus loading from sediments in deeper areas of Mirror Lake that have acquired elevated concentrations of

phosphorus over time and are subject to low dissolved oxygen during periods of stratification. An important goal of the watershed based plan will be to confirm these sources and to establish a plan for source control (management measures), monitoring recovery, and remediation (if needed) within an adaptive management framework.

VI. Desired Environmental Outcome

Please provide a concise statement of the expected environmental result, outcome, or end-state that this project would likely achieve. Goal-setting and results-planning can help water resource managers develop more deliberate project designs and achieve optimal project outcomes, e.g., turbidity values in the lake remain below 10 NTU during a 1" rainfall event; the impaired river segment is in a state of equilibrium based on stream morphology principles; or, Ambient fecal coliform bacterial levels will be reduced to enable reopening of a closed shellfish harvest area (18 acres).

The MLPA's overall goal is to reduce phosphorus loading to Mirror Lake so that in-lake levels are consistently below state water quality criteria/standards and the outbreak and persistence of cyanobacteria blooms are eliminated.

VII. Watershed Based Plan

Describe how the project will either implement or generate the required elements of a watershed based plan (a-i below). For impaired waters, the plan should address measures intended to meet the quantifiable water quality goal. See [Watershed-based Plans](#) for examples that meet the "a through i" elements.

- a) *Identify pollution causes and sources: An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed-based plan (and to achieve any other watershed goals identified in the watershed-based plan), as discussed in item (b) immediately below. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., X number of storm drains that need retrofits; Y miles of gravel roads that need drainage BMPs; or Z linear miles of eroded streambank needing remediation).*

Following a review of historical data, land-use classification, and field reconnaissance, water quality modeling will be used to quantify source loadings of phosphorus to the watershed from various land activities and identify an overall watershed management strategy. We anticipate that additional data needs may be necessary to populate the model. If additional needs are identified, a site-specific project plan (SSPP) that addresses data quality objectives will be developed that is consistent with NHDES guidance and quality control (QAPP). The following three tasks for supplying information to populate or calibrate water quality models include:

- *Task 1: Review Historical Data.* The MLPA has participated in the University of New Hampshire (UNH) Lakes Lay Monitoring Program (LLMP) since 1991 collecting data on lake water quality (see Attachment B1 for phosphorus levels); the NH Volunteer Lake Assessment Program (VLAP) has been collecting monthly water quality measurements at six sites in the tributary running from Abenaki Pond under Waumbec and Lang Pond Roads into Mirror Lake, since September 2007 (see Attachment B2 for test results and for analysis see http://des.nh.gov/organization/divisions/water/wmb/vlap/annual_reports/2008/index.htm;

and weekly during the fall and spring, and bi-monthly during the summer 2008/9, at six sites in Mirror Lake (see Attachment B3, for Interim Testing Program ((ITP)) results). Review of other historical data will include UNH student testing and other testing by NHDES.

- *Task 2: Land Use Classification.* Aerial photography and Landsat imagery will be used to preliminarily classify land use along the tributary for the purpose of modeling. The National Oceanic and Atmospheric Administration (NOAA) Coastal Change Analysis Program (C-CAP), Lakes Region Planning Commission, and New Hampshire GIS (GRANIT data mapper) are sources of frequently updated aerial photography and natural resource data that will be used to provide an estimate of land use nature and extent in the Mirror Lake watershed.
- *Task 3: Field Surveys.* A field survey will be conducted of the tributary, surrounding wetlands, and other features to provide ground-truth to observations from Landsat imagery. The survey will involve stakeholders, and include kayaking or hiking along reaches of the tributary at established access points, walking boundaries of wetlands, etc. An additional and important component of this survey will be to evaluate the nature and extent of shoreline use bordering Mirror Lake and photo-documenting shoreline conditions. The MLPA will use one or more environmental consultants to develop a program for evaluating site-specific shoreline land use practices. Information will be collected (but not limited to) residential land use/impervious layer cover, bank stability, vegetative cover and riparian width. Guidance for collecting this information will generally follow *New Hampshire Guidelines for Coordinated Lake Management and Shoreline Protection Plans and the New Hampshire Comprehensive Lake Inventory* (NHDES 2009a) and, as needed, EPA's Rapid Bioassessment Protocols (Barbour et.al., 1999.) Information will be recorded on adapted field forms. Information collected from land-sat imagery and field surveys will be used to construct a map of the watershed that illustrates land use types, locations, and size.

Combined, Tasks 2 and 3 will be used to develop a "base map" that identifies the nature and extent of non-point sources in the watershed. Information from Task 1 will be used to focus surveys and ground-truth water quality modeling results.

Phosphorus loading predictions will be performed utilizing a combination of spreadsheet tools including the Reckhow model (New England Lakes Model Version) and the Spreadsheet Tool for Estimating Pollutant Load (STEPL) Model (Version 4.0; November, 2006) prepared for US EPA by Tetra-Tech, Inc ([http://it.tetratech-ffx.com/stepl/models\\$docs.htm](http://it.tetratech-ffx.com/stepl/models$docs.htm)). Annual phosphorus loads will be estimated from empirically-derived phosphorus loading coefficients for different land uses described in Reckhow's model, and Schloss and Connor (2001) compared to Mirror Lake watershed land uses identified on the base map. The Universal Soil Loss Equation (USLE) will be used to estimate sediment loading to the Lake. The STEPL model, an add-on tool for Excel, is a user friendly spreadsheet-driven model that will be used to estimate the average annual loading of phosphorus (and sediment) from runoff volumes and pollutant concentrations attributed to specific land use and management practices within the Mirror Lake watershed. The Vollenweider equation (or appropriate in-lake conversion model) will be used to convert the estimated phosphorus loadings into in-lake phosphorus concentrations. These

concentrations will be compared to historical surface water data to calibrate the accuracy and precision of the model(s).

- b) *Estimate pollution reductions needed: An estimate of the load reductions expected for the management measures described under (c). Estimates should be provided at the same level as in item (a) above (e.g., the total load reduction expected for storm drain retrofits, gravel road BMPs or eroded streambanks). First quantify the pollutant loads for the watershed. Based on these pollutant loads, determine the reductions needed to meet water quality standards (or other goals).*

The Code of Administrative Rules for the protection of surface water quality in the State of New Hampshire indicates that: “*There shall be no new or increased discharge(s) containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds.*” (Env-Wq 1702.15). To reduce or eliminate cyanobacteria blooms in Mirror Lake, and restore the designated uses of swimming and household usages, local researchers have suggested that surface water phosphorus concentrations should target 6-8ug/L (Trowbridge, 2009 *Assessment of Chlorophyll-a and Phosphorus in New Hampshire Lakes for Nutrient Criteria Development*). We understand that at this time, the NHDES is continuing to work on developing the technical basis for total phosphorus and chlorophyll-a “criteria” for lakes and ponds. As this information becomes available, we will incorporate these water quality standards into the development of the watershed plan for Mirror Lake.

The STEPL model and Vollenweider equation [described in Item a)] for estimating source loading of phosphorus and resultant in-lake phosphorus concentrations, respectively, are the same tools that will be used to estimate phosphorus load reduction. The STEPL model provides a Best Management Practice (BMP) worksheet that will be used to simulate improvements to land management practices so that corresponding load reductions in phosphorus to the Lake can be predicted. Iterative outputs from the model will be used to:

1. Evaluate historical trends in phosphorus loadings to the watershed from sources that are currently being actively managed. For example, historical phosphorus loadings from runoff of the bordering Town’s Waste Water Treatment Facility (WWTF) are likely to be lower now (and at the time of modeling than over the past 10 years). The Town has recently designed and is operating a sewage infiltration system. We will use modeling to investigate if recent management measures for this source of runoff have resulted in reduced loadings to the Mirror Lake watershed.
2. Prioritize and address specific BMPs (or management measures) for each of the current non-point sources (including the spray fields at the WWTF mentioned above), so that phosphorus load reductions can be estimated for the Lake [described further in Item c)].

- c) *Actions needed to reduce pollution: A description of the NPS management measures that will need to be implemented to achieve the load reduction or habitat restoration scope estimated under paragraph (b) above (as well as to achieve other watershed goals identified in this watershed-based plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement this plan*



The MLPA will follow a stepwise approach to selecting management practices that is consistent with the *New Hampshire Guidelines for Coordinated Lake Management and Shoreline Protection Plans* and the *New Hampshire Comprehensive Lake Inventory* (NHDES 2009a) and *Guidelines for Developing Watershed Management Plans in New Hampshire* (NHDES 2009b). Overall, the approach is to inventory existing management efforts in the watershed for each non-point source, quantify the effectiveness of existing measures, and identify new management opportunities and critical areas for improvement.

The watershed based plan will address management measures for non-point sources. A map (or table) will be generated that identifies the type of sources in the watershed, the location(s), the existing management measures (if any), the priority for additional management actions or practices, and additional management measures that will be implemented for each source. Combined, this information will help to identify actions that will reduce phosphorus load levels and achieve the water quality goals for current and future watershed use. We assume that following our evaluation of potential sources within the watershed and quantifying loads through modeling, that “candidate” NPS management measures presented in the watershed plan could include:

- Leachate from Lakeside Residential Septic Systems. Following a septic survey and, in cooperation with property owners, possible management measures include: a) repair malfunctioning systems; b) replace antiquated septic systems with inadequate setback; c) establish regular pump out schedules; d) promote low-water use appliances; e) promote low phosphate cleaning products.
- Runoff from Land. Following land use surveys bordering Abenaki Pond, the tributary, and Mirror Lake and, in cooperation with property owners, possible management measures include: a) promote reduced residential fertilizer use; b) control/divert periodic runoff from bordering town’s WWTF spray fields; c) possible alum treatments to Abenaki Pond, d) control/divert storm water flows to basin or dry swales to improve retention and infiltration; e) increase vegetative buffer zones at riparian edge of water consistent with Shoreline Protection Act.
- Runoff from Roads. Following meetings with MLPA, property owners, towns, and the state, possible management measures for controlling runoff from Lang Pond, Waumbeck Road and State Route 109 include: a) structural runoff controls, including infiltrations basins/trenches and vegetative filter strips; b) appropriate and relevant land use practices as listed above.
- Re-suspension of Sediment Phosphorus. Following MLPA review of existing surface water and sediment data in Mirror Lake, develop field sampling plan and analysis plan (FSAP) consistent with NHDES guidance and appropriate EPA QAPPs. Possible management measures for controlling sediments as secondary source of phosphorus in Mirror Lake include: a) monitoring of sediment concentrations following implementation of management measures listed above; b) spot dredging (suction preferably over clamshell) and transport of sediment to offsite permitted infiltration area; c) hypolimnetic phosphorus inactivation using alum injection.

The management measures listed above vary in cost and ease of implementation¹. The goal of the watershed based plan will be to identify and implement measures that “make sense”, economically and practicably before considering more costly measures. More costly measures are outside the scope of this pre-application and would be identified through discussions with the NHDES as possible additional phases of management after implementation of the watershed plan.

d) *Costs and authority: An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement this plan. Describe the types and sources of match that will be used to implement the project, keeping in mind that at least 40% of the project cost must be provided in non-federal match.*

Technical and financial assistance will vary throughout the life of the project. The MLPA understands that much of the cost will be at the early stages of developing and implementing the watershed plan and that annualized costs associated with long-term monitoring are likely to be much less. The MLPA will continue to seek sources of federal, state, local and private funds or resources to aid in implementing the plan. At this time, the types and sources of non-federal match funding will include contributions from private trust funds, municipalities and local governing bodies, cash donations (from MLPA members and local businesses), in-kind contributions from MLPA members, residents, and project partners, and local fund raising activities. In addition, technical resources include the NHDES, UNH, environmental consultants (water quality scientists and engineers), outreach/education consultants, the Volunteer River Assessment Program (VRAP), New Hampshire Lakes Association, Lakes Region Conservation Trust, the Tuftonboro Conservation Commission, and private citizens who are active in the environmental profession and will serve as technical advisors on the project.

A summary of costs for major tasks towards implementing the watershed based plan is shown in the Table below. A detailed breakout of these costs is provided in Attachment C.

Task # and Brief Description of Task	Requested Grant (\$\$)	Non-Federal Match (\$\$)	Total Task Cost
Task 1.0 Preliminary Planning	\$ 3,140	\$ 2,093	\$ 5,233
Task 2.0 Education and Outreach	\$ 8,575	\$ 5,716	\$ 14,291
Task 3.0 Source Identification and Surveys	\$ 17,489	\$ 11,659	\$ 29,149
Task 4.0 Baseline and Predictive Modeling	\$ 6,887	\$ 4,591	\$ 11,478
Task 5.0 Finalize/Update Goals; Remedy	\$ 5,731	\$ 3,821	\$ 9,552
Task 6.0 Design Implementation Plan	\$ 4,266	\$ 2,844	\$ 7,110
Task 7.0 Assemble, Submit and Implement Watershed Plan	\$ 7,959	\$ 5,306	\$ 13,266
TOTALS	\$ 54,046	\$ 36,031	\$ 90,077

NOTE: See attached spreadsheet for itemized labor and direct cost details
 Non-federal match estimate is within MLPA predictions for matching grant

¹ Costs for spot dredging of sediments or injection treatments with alum are extremely costly and are used here as examples of what could be done if sediments are determined to be a significant source of phosphorus.



- e) *Outreach and education: An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing NPS management measures.*

Historically, the focus of the MLPA has been on bringing property owners around Mirror Lake together annually to discuss issues and concerns about the Lake with residents. The MLPA understands that for the watershed based plan to succeed, public outreach must extend to all residents within the watershed and to the municipal governing bodies and communities in which they reside. This outreach will occur early on in the development of the watershed based plan, and throughout its implementation. The MLPA is planning to hire a subcontractor to assist in outreach/education whose goal will be to provide as much incentive as possible to promote actions which foster the protection of the watershed through regularly communication, education, and sharing of results (successes and failures). We understand that to do this, we will need to identify our objectives and tailor our educational materials to a potentially diverse audience. Our approach will be as follows:

1. We will invite one or more guest speakers from organizations that have successfully developed a watershed based plan in New Hampshire. This will be an opportunity for residents within the Mirror Lake watershed to listen and ask questions from those with direct experience in the watershed planning and implementation process.
2. We will establish a website and/or blog to distribute information throughout the residential community on "Mirror Lake Watershed News". This communication tool will help the MLPA to seek volunteers for specific tasks and receive feedback or questions from residents on our progress and findings.
3. We will develop a program for site-specific property owner's consultation for Mirror Lake lakeside residential properties to evaluate property specific management methods for reducing and managing stormwater runoff and septic systems.
4. We will develop and distribute a site-specific property owner's guide for Mirror Lake watershed residential properties with specific management methods for reducing phosphorus loads to the tributaries of Mirror Lake.

Information that is readily available will be used to assemble education materials (i.e, EPA's Nonpoint Source Toolbox).

- f) *Schedule: A schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.*

A draft schedule for implementing management measures and completing the watershed based plan for Mirror Lake is provided below.



Stage	Task	Estimated Start	Estimated End
PRE-AWARD	Pre-Proposal Due	--	September 4, 2009
	Full Proposal Due	--	December 4, 2010
	RfP for Subcontractors (Env and Edu)	January 1, 2010	March 1, 2010
	Review Subcontractor Proposals	March 15, 2010	April 1, 2010
	Select Subcontractors	April 1, 2010	April 15, 2010
	Project Award Due from DES	--	April - May, 2010
POST-AWARD	Assemble Watershed Team	May 15, 2010	May 30, 2010
	Education and Outreach Coordination/Implementation	May 30, 2010	September 1, 2010
	Source Identification Tasks	May 30, 2010	June 15, 2010
	Baseline Modeling	June 15, 2010	June 30, 2010
	Identify Priorities and Management Measures	July 1, 2010	July 15, 2010
	Predictive Modeling of Load Reductions	July 15, 2010	August 1, 2010
	Develop Watershed Based Plan (WBP)	July 15, 2010	August 20, 2010
	Submit WBP to NHDES for Approval	--	August 20, 2010

g) *Milestones: A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.*

The MLPA will follow a stepwise approach to selecting management practices that is consistent with New Hampshire Guidelines for Coordinated Lake Management and Shoreline Protection Plans (NHDES 2009a) and Guidelines for Developing Watershed Management Plans in New Hampshire (NHDES 2009b). Our view is that the milestones we provide here are those that focus on: a) collecting the information or data that is needed to develop a comprehensive Lake Inventory Program, b) gauging the implementation of preliminary management measures; and c) completing the required components of a watershed based plan for Mirror Lake. Preliminary short term measurable milestones include:

- **Milestone 1.** Enter into an agreement with one or more environmental and I/E subcontractors to perform site-specific property owner's analysis, field surveys, establish models, and assist in assembly of the watershed based plan.
 - *Responsible Party: MLPA*
 - *Verification: Signed contracts*
- **Milestone 2.** Implement I/E component and outreach by scheduling guest speakers, develop a web-based community news network, and develop/distribute property owner's guide.
 - *Responsible Parties: MLPA, I/E subcontractor, volunteers*
 - *Verification: meetings, postings, and distributed documentation*

- **Milestone 3.** Conduct fact finding efforts (data review, land use and field surveys, septic surveys, source identification, etc.) for populating water quality models
 - *Responsible Parties: MLPA, environmental subcontractor(s), volunteers*
 - *Verification: scheduling site-specific property owner meetings, field efforts, field notes, surveys returned to MLPA*
- **Milestone 4.** Establish baseline pollutant loading to watershed, identify priority areas and implement management measures
 - *Responsible Parties: MLPA and environmental subcontractor(s)*
 - *Verification: completed STEPL model runs*
- **Milestone 5.** Construct a comprehensive lake inventory and watershed based plan for Mirror Lake
 - *Responsible Parties: MLPA, subcontractors, volunteers*
 - *Verification: Document submitted to NHDES for approval*
- **Milestone 6.** Adaptive management and monitoring
 - *Responsible Parties: MLPA, subcontractors, volunteers*
 - *Verification: STEPL model runs and surface water quality programs (LLMP, VRAP, ITP)*

Additional long-term milestones would be related to management measures requiring detailed planning, engineering design, permitting and remediation (i.e., sediment removal, road BMPs, alum treatments, etc.).

h) Success indicators and evaluation: A set of criteria that can be used to determine whether loading reductions or habitat restoration is being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed-based plan needs to be revised.

The MLPA will verify project success through documentation of phosphorus load reductions (modeled and sampling) following implementation of management measures. STEPL modeling will provide the foundation for evaluating success following implementation of programmatic success indicators. For programmatic success criteria, please see Section VII, paragraph g (above). For environmental criteria, surface water monitoring programs (LLMP, VLAP and ITP) will be used to confirm the findings of the model and evaluate the success of environmental criteria.

1. Surface water phosphorus concentrations that are <10ug/L (short-term water quality goal); and
2. Surface water phosphorus concentrations that range between 6-8ug/L (long-term water quality goal); and

The development of an approved watershed based plan will be an indication of an initial success for Mirror Lake. Once the watershed plan (and associated management measures) are implemented future success of the project will be measured by documenting phosphorus reduction in Mirror Lake sources, surface waters, and occurrence of cyanobacteria blooms.

- i) *Monitoring plan: A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) immediately above.*

The MLAP will establish a monitoring component of the watershed plan to gauge the progress of meeting and sustaining applicable water quality standards. Monitoring will be conducted under an adaptive management process. This component will take advantage of predictive modeling (with STEPL) and existing water quality sampling programs (LLMP, VLAP, and the ITP), conducted by MLPA volunteers. We will develop an abbreviated QAPP for the STEPL model ITP sampling. Sampling activities currently conducted by the LLMP, VLAP, and are done under existing QAPPs.

We do not anticipate that additional monitoring beyond that mentioned above is needed at this time, but if data needs are identified, the MLPA will develop any additional work plans and QAPPs using NHDEP templates and guidance.

VIII. Performance Targets

Provide examples of the interim performance targets required to realize the desired outcome. Performance Targets are specific changes in behavior or physical condition. Targets can be verified and are directly controlled by the applicant, e.g., Stabilize at least 500-feet of streambank to eliminate excessive NPS pollutant runoff.

Examples of interim performance targets for this project are:

- **Performance Target 1:** The MLPA establishes I/E tools for watershed and lakeside residents that are implemented to reduce/ manage storm water runoff thereby reducing phosphorus runoff and loading to Mirror Lake.
- **Performance Target 2:** The MLPA organizes lakeside residential septic system survey and provides recommendations on steps necessary to reduce phosphorus loading from septic systems.
- **Performance Target 3:** The MLPA works with watershed land owners to implement appropriate and relevant land use practices that minimize phosphorus loadings.
- **Performance Target 4:** The MLPA, municipalities and Towns cooperate to continue best management practices associated with the operation of the Town's WWTF to control phosphorus loading to Mirror Lake by reducing runoff of treated effluent.

- **Performance Target 5:** A Watershed Based Plan is developed using NHDES guidance and NHDES reviews and approves plan. The watershed based plan focuses on management measures needed to reduce phosphorus loads to Mirror Lake.

IX. Phasing Considerations

Certain watershed restoration projects may be designed to anticipate a second phase or more phases. If additional phases of the project are anticipated beyond this grant project time period, briefly describe the goal of each phase.

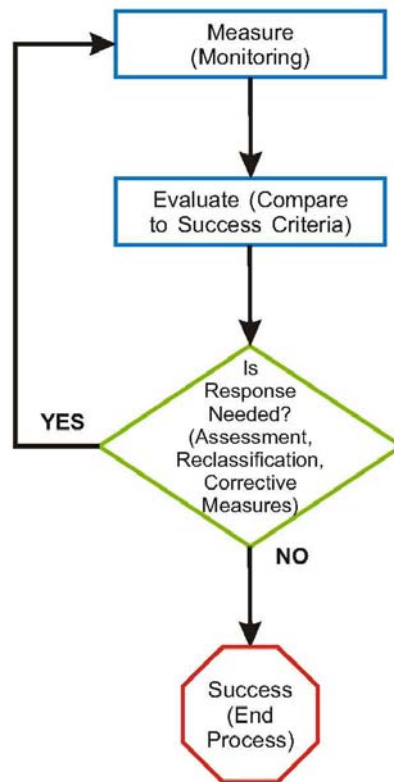
The MLPA understands that the initial phase of developing a watershed based plan is one that focuses on “fact finding” (data/information collection) and education. We recognize that to identify the priority areas for reducing phosphorus loads to the Lake, data must be gathered, modeling conducted, and information analyzed. We also understand that education and public outreach measures can be implemented immediately and that positive results are possible in the short-term.

However, additional phases for this project are likely. In the past, high levels of phosphorus loading to the Mirror Lake watershed have occurred from the neighboring Town’s WWTF. These loadings may have impacted sediments of Mirror Lake enough to sustain an active, “secondary source” during normal, seasonal lake cycling². The impact of sediment as a secondary source would be identified if, following the implementation of the watershed plan (and during monitoring), short-term management measures are found to be ineffective in lowering surface water concentrations of phosphorus. If sediments are suspected, several sediment samples could be collected and analyzed to confirm sediments as a source. As required, a site specific work plan and QAPP would be written to address these additional data needs.

The MLPA recognizes that sediment removal is costly and that such an approach would require professional assistance (and NHDES approval) of an engineering design plan, permit, and remedial approach. We also recognize that this same approach would need to be followed for other possible management measures (i.e., alum treatment of Abenaki Pond, storm water engineering of roadways, etc.), if achieving water quality goals is not possible with short-term management measures. If needed, additional management measures such as those described above would “build off of” the watershed based plan as separate phases of the project.

If success indicators or criteria (Section VII, paragraph h) are not being met and where corrective measures identify the need to alter sampling approach, or, where additional (or different) data are needed, the MLPA will develop a field work plan and QAPP to address additional scope/data quality needs as these situations arise. Using an adaptive management framework, success will be defined when modeling and monitoring indicates that management measures are effective and meeting success criteria.

² Mirror Lake is 40 feet deep in some areas and at that depth stratification is probable, at least in the early part of the summer stratification period.



Adaptive Management Framework

X. About Your Organization

- A. *Please describe your organization's core areas of knowledge or expertise. You may list prior successful projects, or other items that you would include in your organization's "resume".*

The MLPA was formed by a group of lakefront property owners concerned with the maintenance and preservation of the environmental quality of Mirror Lake and its environs. It was incorporated as Mirror Lake Protective Association, Inc., a New Hampshire non-profit corporation, August 22, 1991; as amended January 24, 1996, and January 14, 1997. The MLPA received Internal Revenue Service 501(c)3 status February 7, 1996.

As stated in Article I of the MLPA By-laws, "The objects for which this corporation is established are the protection and preservation of Mirror Lake in the Towns of Tuftonboro and Wolfeboro, state of New Hampshire, and the wildlife and wildlife habitat associated with them, the promotion of knowledge about the lake and its history, and the performance of such other acts or things as may be necessary, useful or convenient to carry out said objects, provided that the corporation shall not carry out any activities not permitted to be carried on by a corporation exempt from Federal income tax."

As discussed above, the MLPA has participated in the UNH LLMP since 1991 and is an active participant in the state-sponsored Lake Host and Weed Watcher Programs. The MLPA supports, through charitable donations, the New Hampshire Lakes Association, the Lakes Region Conservation Trust, the Loon Preservation Committee, and the Friends of Libby Museum. Many of the MLPA's members are also members of these organizations and participate in the activities and educational programs sponsored by these organizations.

The MLPA provides ongoing educational opportunities to its members and the public. At the annual meetings, speakers are invited to present information on topics of special interest. In past years, speakers representing DES, UNH, the New Hampshire Lakes Association, the Lakes Region Conservation Trust, the Loon Preservation Committee, other local and regional conservation groups, The Tuftonboro Conservation Commission and Board of Selectmen have participated in these meetings.

Also at these meetings, the results from the LLMP for the prior year have been presented. Documents and pamphlets regarding the Shoreline Protection Act, boating safety, weed control, use of fertilizers, septic system monitoring, etc., are made available to the members. These and copies of the LLMP Annual Report are also provided to the Tuftonboro Free Library for use by all local residents.

In recent years, the MLPA successfully convinced the Town of Wolfeboro not to clear a two-acre parcel of land on the shore of Mirror Lake, near the Libby Museum on State Route 109. After extensive research, the MLPA determined that the land was held in a defunct trust, of which, as a result of numerous conveyances, there were 35 beneficiaries. Through meetings with the Towns of Wolfeboro and Tuftonboro, filings with the Carroll County Court, and correspondence and meetings with the beneficiaries, the MLPA was able to clarify ownership of the property. As a result of the MLPA's efforts, this land was conveyed to the Town of Tuftonboro, with conservation easements, which restrict the land's use as a park, in perpetuity.

Since the discovery of cyanobacteria in Mirror Lake in August 2007, the activities of the MLPA members, residents and community have increased significantly. Highlights of these activities are summarized below. These activities demonstrate the MLPA's members' organizational and communication skills. In addition, a number of our members have scientific, engineering, information systems, legal and environmental expertise which helps to facilitate these efforts.

To help identify the sources and scope of the excess nutrients in Mirror Lake, in October 11, 2007 the MLPA sought the assistance of Drs. Baker and Haney from Department of Zoology, Center for Freshwater Biology at UNH. Under their supervision, UNH students, with the help of MLPA volunteers, undertook an analysis of the physical, biological, and chemical properties of Mirror Lake, including vertical and horizontal profiles. The conclusion was that "...nutrient loading has taken place in Mirror Lake and the large population of cyanobacteria may be a health threat to Mirror Lake residents..." They recommended that "better management of Mirror Lake include continuous water sampling-especially at the inlets by Lang Pond Road as well as monitoring ...at more than one spot in the lake." Further analysis was undertaken in the spring of 2008. On June 27, 2008, a public meeting, sponsored by the Town of Tuftonboro Board of Selectmen and MLPA was held and over 100 people attended. The UNH students informed the residents of their findings. Representatives from UNH and DES were also present to answer questions from the audience.

As discussed above, the water testing programs of the Lake and tributary at Lang Pond Road continue. The ITP began after a meeting on July 18, 2008 at UNH, with representatives of DES, UNH and MLPA. At that meeting, it was recommended that an integrated water sampling and testing program be developed for Mirror Lake. In August, water testing at six sites began. These tests were carried out by 35 MLPA volunteers, weekly, from August, 2008 through December, 2008 and in April, 2009 through May, 2009. Bi-monthly water testing for phosphorus and chlorophyll continues. On November 3, 2008, the MLPA received a grant from Meredith Village Savings Bank for \$2,478 to fund a portion of the cost of the laboratory analysis of these water samples.

MLPA has also had many meetings and correspondence with the Boards of Selectmen of the Towns of Tuftonboro and Wolfeboro concerning cyanobacteria in Mirror Lake. The MLPA has sought the assistance from the Town of Wolfeboro to reduce the spraying of effluent at the WWTF onto the fields that run into the tributary to Mirror Lake. On November 7, 2007, Wolfeboro advised the MLPA that it had reduced the amount of area sprayed and flow at the WWTF, and, by October 8, 2008, had reduced the total average nitrogen and phosphorus concentration in the effluent. Wolfeboro expressed concern that the nutrient overloads in Mirror Lake could be attributable to Mirror Lake residents' septic systems and other land use practices. The Rapid Infiltration Basins (RIBs), which replaced the WWTF's spray fields, commenced operation in February 2009.

As part of its community outreach program, the MLPA has worked extensively with the Tuftonboro Conservation Commission. The MLPA supported a 19 Mile Brook Watershed Baseline Environmental Assessment: Aquatic Biota and Water Quality Study which was completed in December, 2008. In April 2009, the Commission appointed a permanent liaison to the MLPA. In addition, in August, 2009, in lieu of accepting a donation from the Winter Harbor Road Association, the MLPA board voted to assist the Association in establishing a UNH water testing program, which program will include the Mirror Lake outlet under State Route 109 into Winter Harbor, Lake Winnepesaukee and additional sites established by UNH in Winter Harbor, Winnepesaukee. MLPA members are teaching the Association's members the testing protocols. Also, on July, 11, 2009, the MLPA made a presentation about excess nutrients in the Lake to the Mirror Lake Road Association, whose members are lakeside and adjacent to Mirror Lake on the west end of the Lake.

As part of its Mirror Lake watershed outreach program, in July 2009, the configuration of the Mirror Lake Watershed was established and the names and addresses of the Mirror Lake watershed residents identified, including a separate identification of lakeside residences. In August 2009, a door-to-door information and solicitation program of lakefront residents commenced, which information included a cover letter summarizing MLPA concerns and activities regarding excess nutrients in Mirror Lake, and a "What is Cyanobacteria – Fact Sheet" and a "Don't Drink the Water" brochure from DES. The cover letter encouraged residents to contact members of the Board for more information and names, telephone numbers and addresses of the Board were provided. Board members were provided "Talking Points" and web site references to ensure that they could be responsive to persons inquiring about the excess nutrients in Mirror Lake. In the Fall, the MLPA plans to mail to all watershed residents literature advising them of what a watershed is, how they affect Mirror Lake, why they should care, and how they can help.



As the foregoing reflects, the MLPA has a substantial, committed, group of volunteers dedicated to addressing pollution issues in Mirror Lake.

Managing the project for the MLPA are:

Norleen ("Dusty") O. Davies
PO Box 61
2 Chipmunk Road
Mirror Lake, NH 03853
(June-Oct.) 609-569-1310
(Nov.-May) 352-377-7332
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Stephen P. Truchon
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9 Haverhill Acres Road
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(c) 603-801-9541
stephen.truchon@gmail.com

Nancy Byrd
85 Mirror Lake Dr.
Mirror Lake, NH 30853
(603) 515-0025
nancy@pangean.com

XI. Project Partners, and Sources of Matching Funds, and Estimated Project Cost

Please provide a rough estimate of your anticipated funding requirements.

- Less than \$25,000 grant funds.
- Between \$25,000 and \$50,000 grant funds.
- Between \$50,000 and \$75,000 grant funds.
- Between \$75,000 and \$100,000 grant funds.
- Greater than \$100,000 grant funds.

Grantees should be aware that the EPA 319 Grant funds require a 40% match in non-federal funds. Match can be in the form of cash, or in-kind contributions from your organization or project partners. Please list your expected project partners and proposed sources of matching funds.

Our expected project partners and sources of matching funds are:

1. Cash donation from private trust funds: \$1,000
2. Cash donations from municipal and other local governing bodies: \$500



3. Cash donations from members (MLPA): \$4,000
4. Cash donations from other interested parties (i.e. local businesses): \$500
5. In kind contributions from MLPA members \$30,375 (35 people contributing 50 hours @ 20.25 per hr.)
6. In kind contributions from project partners: \$2,500
7. Local fund raising activities: \$500

ANTICIPATED TOTAL: \$39,375

XII. Public Participation and Outreach

Describe how information and education will be used to enhance public understanding of the project and encourage public participation in selecting, designing, and implementing nonpoint source pollution management measures (e.g., “Train citizens to monitor water quality through volunteer river monitoring program”, or “Involve lakeside residents in planting trees and shrubs in the protected shoreland area”, etc). For more information on how to plan the public participation and outreach components of your project see [Outreach Guidance for Watershed Assistance and Restoration Grant Projects](#).

Sources of public participation and outreach ideas that the MLPA will use include, but are not limited to:

- *Getting In Step: A Guide for Conducting Watershed Outreach Campaigns* by EPA. (EPA 841-B-03-02) www.epa.gov/owow/watershed/outreach/documents/getnstep.pdf ;
- *Fostering Sustainable Behavior* by Doug McKenzie-Mohr and William Smith
- *Tools of Change* www.toolsofchange.com,

The MLPA will enter into an agreement with an I/E subcontractor who, together with MLPA volunteers and the local community will use these aids to enhance public understanding of this project and encourage participation in selecting, designing and implementing a watershed plan to effect NPS pollution management of the Mirror Lake watershed.

The process used to determine appropriate action will may include an analysis of: who is MLPA’s target audience; what do we want this target audience to do; an assessment of what they already know and what they are presently doing; determination of the barriers to success; development of a specific message; identification of a methodology for delivering the message; and, evaluation of its success.

Information and education outreach efforts will include, among other things, the sponsorship by the MLPA of public and private meetings of MLPA members and experts, with local municipal governing bodies, including professional municipal managers, Boards of Selectmen of

Wolfeboro and Tuffonboro; state officials, as appropriate; and local business entities. Information and education will also include private and public meetings with the local community, and lakefront and watershed residents. Mass media, including newspapers, radio and websites will also be utilized and, where appropriate, one-on-one meetings will take place.

Implementation efforts may focus on, among other, targeted topics such as: general storm water and storm drain awareness; lawn and garden care; pet care; septic system care; motor vehicle care; and, household chemicals and waste and will include, among other actions:

- presentations by local landscape businesses covering effective vegetative buffer zones;
- a site specific property analysis of lakefront residences with specific management measures for reducing storm water runoff, such as planting trees and shrubs;
- identification of and education about storm water runoff from the watershed, including site specific suggestions for control and diversion of flows;
- a septic survey and treatment plan with information on how to address specific issues;
- identification of specific household chemicals and waste products harmful to the watershed; and
- identification of how and where to dispose of harmful household waste.

The analysis of behavioral changes resulting from these efforts will be evaluated through surveys, site reviews and continued water quality testing.

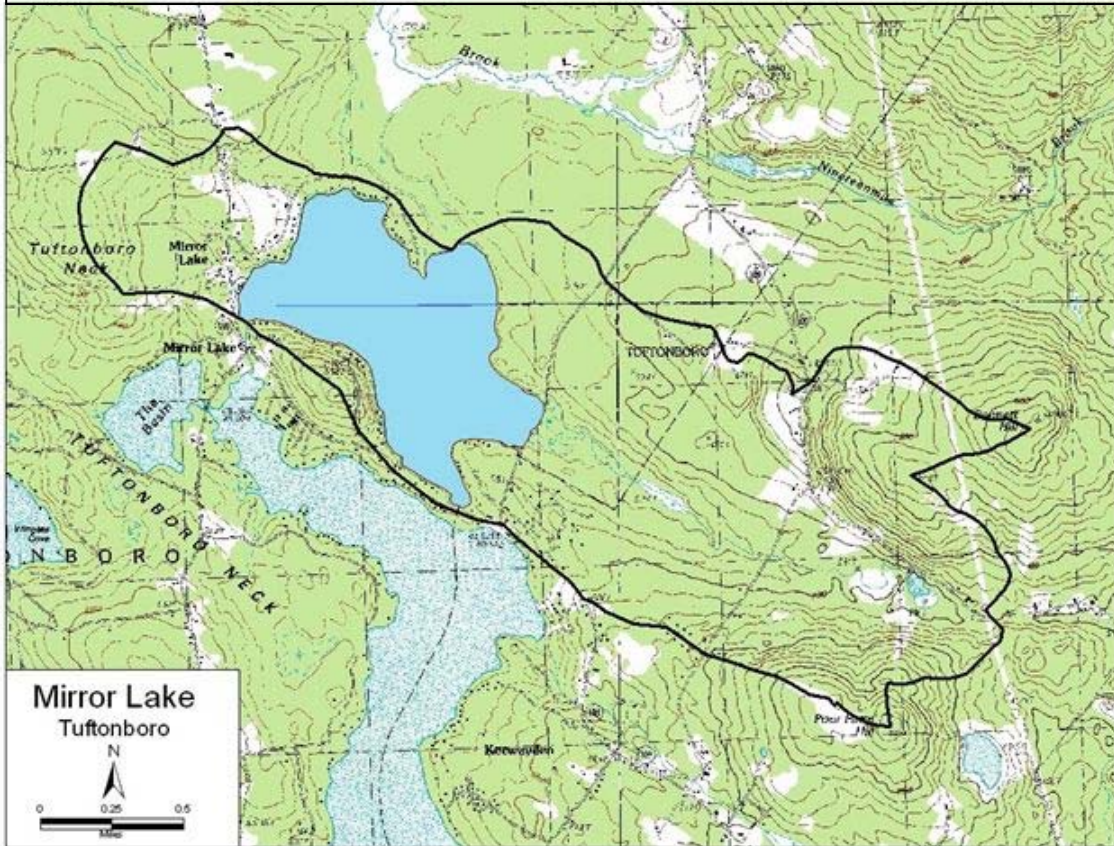
XIII. Attachments

- *Attachment A. Project Site Map*
- *Attachment B. Historical Water Quality Data*
- *Attachment C. Cost Details and Assumptions*

Where possible, please provide information in the form of web links to online data or electronic files to reduce paperwork.

ATTACHMENT A. PROJECT SITE MAP

MIRROR LAKE WATERSHED



ATTACHMENT B. HISTORICAL WATER QUALITY DATA

B1. UNH LAKE LAY MONITORING PROGRAM DATA

Mirror Lake, New Hampshire
Lakes Lay Monitoring Program
Total Phosphorus Levels (ppb)

Page 1

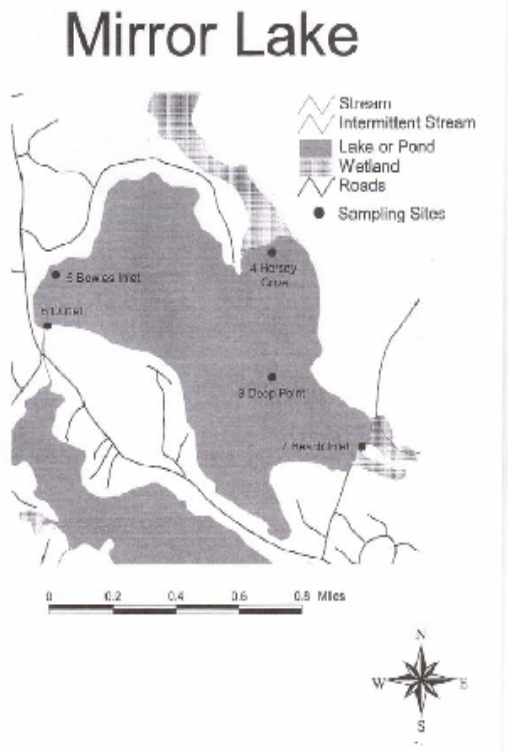
Test Site: 3 Deep Point								Test Site: 4 Hersey Cove								
Year	Mar	Apr	May	Jun	Jul	Aug	Sep	Year	Mar	Apr	May	Jun	Jul	Aug	Sep	
1991							2.6	1991							3.3	
1992							4.9	1992							5.3	
1993							5.5	1993	no tests							
1994			14.5				8.2	8.7	1994			8.7			6.1	21.5
1995			17.5						1995	no tests						
1996	no tests								1996	no tests						
1997					30.7		8.4		1997		14.8		16.9			
1998					12.7, 15.3		10.6		1998				14.5			
1999	no tests								1999		31.2					
2000	no tests								2000	no tests						
2001	no tests								2001	no tests						
2002			14.1						2002	no tests						
2003		17.2							2003	no tests						
2004	no tests								2004	no tests						
2005			8.9						2005	no tests						
2006							8.5		2006	no tests						
2007			10.0, 9.6				21.4, 22.6		2007	no tests						

Test Site: 5 Bowles Inlet								Test Site: 6 Outlet							
Year	Mar	Apr	May	Jun	Jul	Aug	Sep	Year	Mar	Apr	May	Jun	Jul	Aug	Sep
1991							2.9	1991							2.2
1992							4.0, 24.5	1992							6.2
1993			5.7					1993						11.5	
1994			10.6	12.6			8	57.4	1994			7.7		10.6	55.7
1995				10.4					1995	no tests					
1996	no tests								1996	no tests					
1997			10.8		16.9				1997	no tests					
1998					40.2				1998				17.7		
1999			13.4						1999	no tests					
2000			16.1						2000	no tests					
2001	no tests								2001	no tests					
2002			63.1						2002			11.4			
2003			20.4						2003			10.6			
2004			12.8						2004			7.6			
2005	no tests								2005	no tests					
2006	no tests								2006			10.8			
2007	no tests								2007	no tests					

Mirror Lake, New Hampshire
Lakes Lay Monitoring Program
Total Phosphorus Levels (ppb)

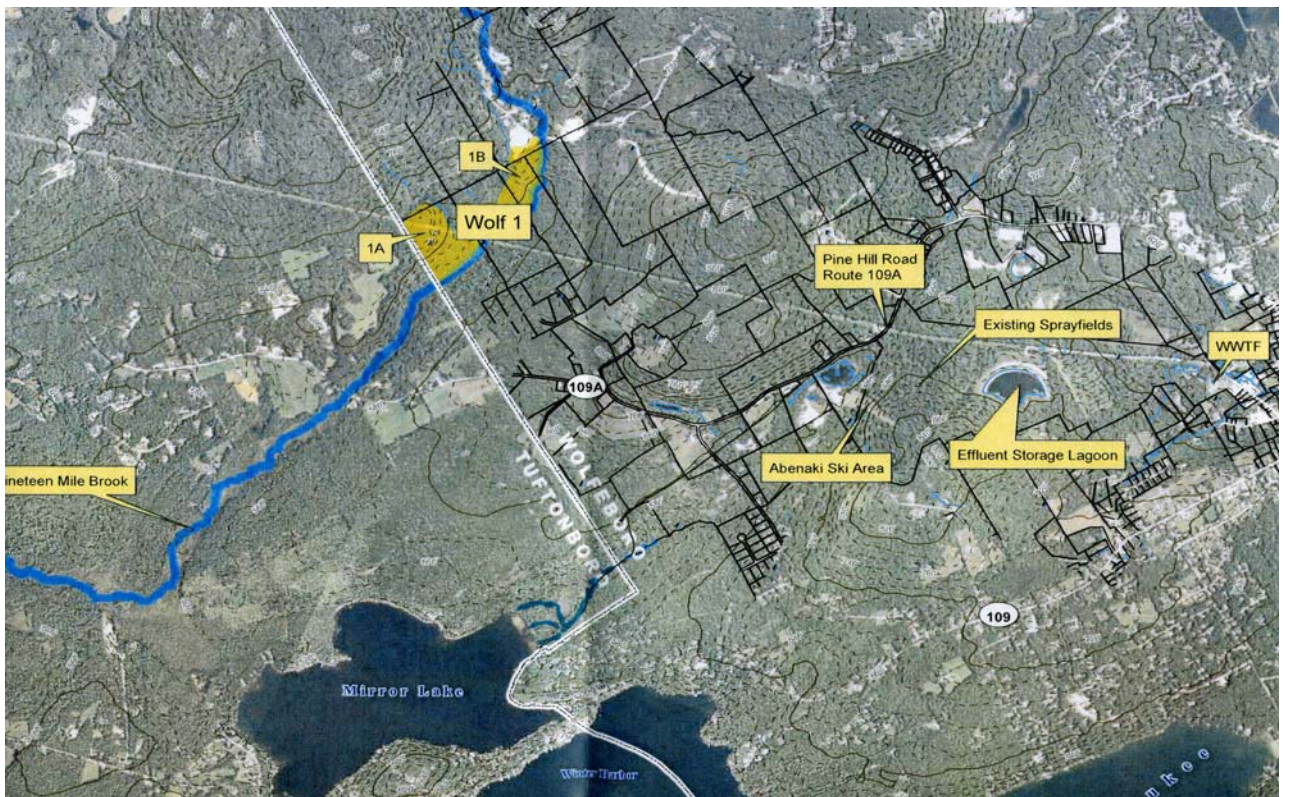
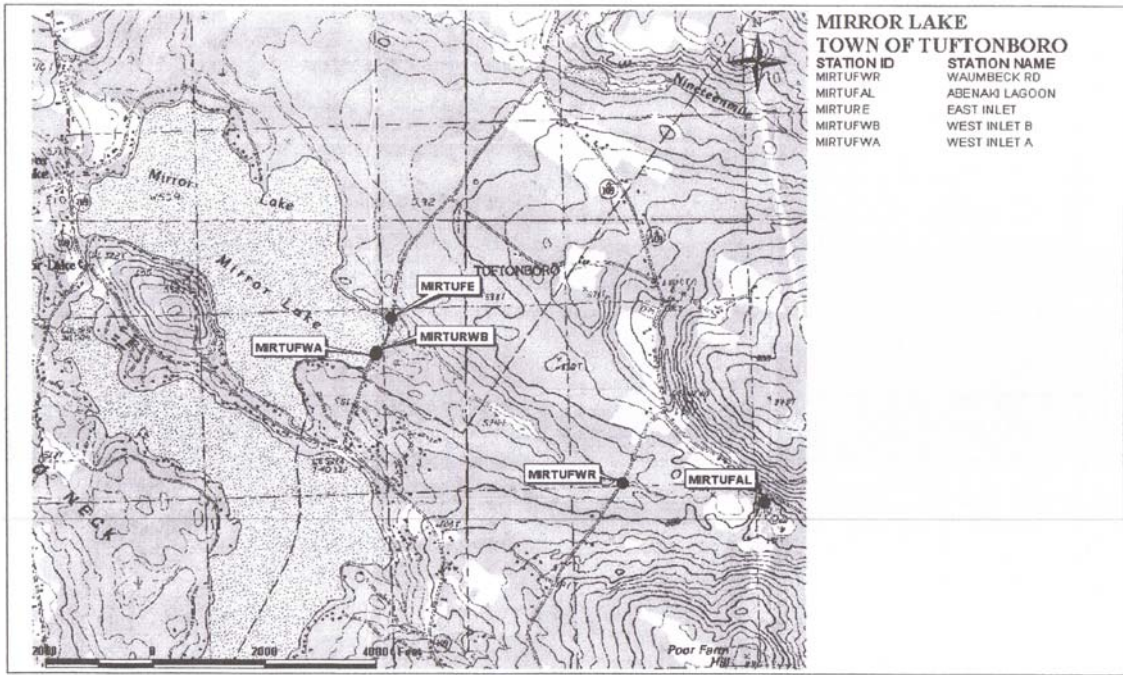
Page 2

Test Site: 7 Beach Inlet (east and/or west)							
Year	Mar	Apr	May	Jun	Jul	Aug	Sep
1991	no tests						
1992		36.6					
1993		8.4				3.5	
1994		9.4	9			13.6	42.6
1995			10.1				19.5, 13.2
1996		4.3					
1997		14.9		35.5			
1998		19.5		22.3			
1999		17.6					
2000		10.1, 13.6					
2001	no tests						
2002		12.3	14.1				
2003		14.5					
2004		9.2, 12.3					
2005	no tests	8.9, 7.6	6.9				
2006	20.2, 22.2						
2007			10.0, 9.6				44.2



ATTACHMENT B. HISTORICAL WATER QUALITY DATA (CONT)

B2. NHDES VOLUNTEER LAKE ASSESSMENT PROGRAM (VLAP) DATA



NH Department of Environmental Services Volunteer Lake Assessment Program

Current Year Chemical and Biological Data

MIRROR LAKE

WOLFEBORO

January-03-2008



Stationid	Statname	Depthzone	Startdate	Activityid	Category	ANC	Chl-a	Cl	Cond	EC	PH	Secchi	TP	Turb
												NVS		
MIRTUFAL	MIRROR LAKE-ABENAKI LAGOON		09/17/2007	2007-5115	SAMPLE				=306		6.9		0.039	=2.64
			10/17/2007	2007-5356	SAMPLE				=271		6.56		0.029	=2.37
			11/26/2007	2007-5554	SAMPLE				=236		6.48		0.02	=1.41
MIRTUFD	MIRROR LAKE-DEEP SPOT	COMP	07/24/2007	2007-3037	SAMPLE		1.604							
		EPI	07/24/2007	2007-3031	SAMPLE	8.4		10	=63.1		6.86	=5.75	0.0077	
		HYPO	07/24/2007	2007-3033	SAMPLE	11.5		9	=65.53		6.44		0.021	
		META	07/24/2007	2007-3032	SAMPLE	9.1			=62.58		6.16		0.016	
MIRTUFEC01	MIRROR LAKE-BACTERIA SAMPLE #01		07/24/2007	2007-3035	SAMPLE					<10				
			07/30/2007	2007-3345	SAMPLE					<10				
			08/13/2007	2007-3961	SAMPLE					<10				
MIRTUFEC02	MIRROR LAKE-BACTERIA SAMPLE #02		07/24/2007	2007-3036	SAMPLE					<5				
MIRTUFWA	MIRROR LAKE-WEST INLET A		09/17/2007	2007-5117	SAMPLE				=240		6.29		0.032	=2.47
			10/17/2007	2007-5359	SAMPLE				=205		6.36		0.092	=3.33
			11/26/2007	2007-5557	SAMPLE				=166		6.24		0.023	=2.26
MIRTUFWB	MIRROR LAKE-WEST INLET B		09/17/2007	2007-5118	SAMPLE				=240		6.26		0.033	=2.56
			10/17/2007	2007-5360	SAMPLE				=205		6.27		0.023	=1.96
			11/26/2007	2007-5558	SAMPLE				=165.7		6.34		0.014	=1.27
MIRTUFWR	MIRROR LAKE-WAUMBECK RD		09/17/2007	2007-5116	SAMPLE				=220		7.08		0.026	=1.21
			10/17/2007	2007-5357	SAMPLE				=216		6.93		0.013	=0.85
			11/26/2007	2007-5556	SAMPLE				=197.4		6.72		0.015	=1.3
MIRTURE	MIRROR LAKE-EAST INLET		10/17/2007	2007-5358	SAMPLE				=230		5.62		0.015	=0.7
			11/26/2007	2007-5555	SAMPLE				=128		5.7		0.025	=2.86

Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chl-A (mg/M3)

02
 NH Department of Environmental Services Volunteer Lake Assessment Program
 Current Year Chemical and Biological Data
 MIRROR LAKE
 WOLFEBORO
 December-09-2008



Stationid	Statname	Depthzone	Startdate	Activityid	Category	Cond	PH	TP	Turb	Cl
MIRTUFAL	MIRROR LAKE-ABENAKI LAGOON		01/07/2008	2008-34	SAMPLE	=159.2	6.29	0.036	=0.66	D512(C)
		01/29/2008	2008-175	SAMPLE	=162.9	6.05	0.022	=0.63	=26	
		02/04/2008	2008-219	SAMPLE	=146.2	5.84	0.019	=1.89		
		03/24/2008	2008-470	SAMPLE	=125.6	5.98	0.014	=0.52	=24	
		04/07/2008	2008-552	SAMPLE	=94.83	6.03	0.017	=0.68	=14	
		05/08/2008	2008-893	SAMPLE	=106.3	6.62	0.03	=1.41	=21	
		06/15/2008	2008-1411	SAMPLE	=203	6.55	0.095	=6.16	=34	
		07/08/2008	2008-2471	SAMPLE	=180	6.59	0.035	=2.03		
		08/14/2008	2008-4386	SAMPLE	=202	6.71	0.025	=0.87	=49	
		09/18/2008	2008-5663	SAMPLE	=241	6.42	0.034	=0.86	=49	
		10/22/2008	2008-6065	SAMPLE	=248	6.48	0.023	=1.57	=53	
		11/16/2008	2008-6153	SAMPLE	=203	6.3	0.029	=1.25	=43	
MIRTUFE	MIRROR LAKE-EAST INLET		01/07/2008	2008-35	SAMPLE	=84.11	6.09	0.48	=2.21	
		01/29/2008	2008-177	SAMPLE	=74.15	5.75	0.017	=0.93	=7.3	
		03/24/2008	2008-471	SAMPLE	=44.52	5.8	0.015	=0.71	=5.2	
		04/07/2008	2008-553	SAMPLE	=40.02	5.84	0.0094	=0.45	<5	
		05/08/2008	2008-894	SAMPLE	=50.76	5.96	0.029	=1.92	=5.5	
		06/15/2008	2008-1412	SAMPLE	=69.11	6.24	0.057	=4.16	<5	
		07/08/2008	2008-2472	SAMPLE	=79.72	6.37	0.052	=3.44		
		08/14/2008	2008-4387	SAMPLE	=69.3	6.1	0.039	=1.34	=9.3	
		09/18/2008	2008-5664	SAMPLE	=83.96	5.97	0.055	=1.55	=7.4	
		10/22/2008	2008-6066	SAMPLE	=116	5.92	0.029	=1.59	=19	
		11/16/2008	2008-6154	SAMPLE	=50.25	5.64	0.016	=0.48	=7.2	
		MIRTUFWA	MIRROR LAKE-WEST INLET A		01/07/2008	2008-37	SAMPLE	=128	6.54	0.014
01/29/2008	2008-179			SAMPLE	=118.5	6.29	0.017	=1.2	=19	
02/04/2008	2008-221			SAMPLE	=116.2	6.33	0.014	=0.74		
03/24/2008	2008-473			SAMPLE	=98.08	6.26	0.0098	=0.73	=19	
04/07/2008	2008-555			SAMPLE	=78.84	6.24	0.014	=1.26	=12	
05/08/2008	2008-896			SAMPLE	=89.93	6.42	0.015	=0.89	=16	

Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chl-A (mg/M3)

NH Department of Environmental Services Volunteer Lake Assessment Program

Current Year Chemical and Biological Data

MIRROR LAKE

WOLFEBORO

December-09-2008



Stationid	Statname	Depthzone	Startdate	Activityid	Category	Cond	PH	TP	Turb	Cl
										DS12(C)
MIRTUFWA	MIRROR LAKE-WEST INLET A		06/15/2008	2008-1414	SAMPLE	=158.3	6.49	0.052	=2.55	=24
			07/08/2008	2008-2474	SAMPLE	=181.8	6.45	0.085	=4.57	
			08/14/2008	2008-4389	SAMPLE	=140.7	6.35	0.032	=1.24	=29
			09/18/2008	2008-5665	SAMPLE	=170.3	6.2	0.036	=1.98	=32
			10/22/2008	2008-6068	SAMPLE	=156.6	6.28	0.018	=1.37	=30
			11/16/2008	2008-6156	SAMPLE	=88.06	6.22	0.019	=1.08	=17
MIRTUFWB	MIRROR LAKE-WEST INLET B		01/29/2008	2008-178	SAMPLE	=118.9	6.26	0.013	=0.6	=18
			03/24/2008	2008-474	SAMPLE	=98.43	6.3	0.0096	=0.93	=18
			04/07/2008	2008-556	SAMPLE	=79.39	6.38	0.012	=0.77	=11
			05/08/2008	2008-897	SAMPLE	=88.86	6.31	0.018	=1.51	=16
			06/15/2008	2008-1415	SAMPLE	=150.7	6.25	0.062	=3.14	=25
			07/08/2008	2008-2475	SAMPLE	=182.2	6.41	0.063	=4.12	
			08/14/2008	2008-4390	SAMPLE	=142.4	6.34	0.035	=1.34	=28
			09/18/2008	2008-5666	SAMPLE	=170.6	6.21	0.034	=1.52	=32
			10/22/2008	2008-6069	SAMPLE	=156.9	6.35	0.017	=1.06	=30
			11/16/2008	2008-6157	SAMPLE	=88.33	6.31	0.02	=0.89	=17
			MIRTUFWR	MIRROR LAKE-WAUMBECK RD		01/07/2008	2008-36	SAMPLE	=37.74	6.39
01/29/2008	2008-176	SAMPLE				=136.2	6.66	0.017	=0.83	=21
02/04/2008	2008-220	SAMPLE				=55.55	6.26	0.16	=10.3	
03/24/2008	2008-472	SAMPLE				=117.4	6.48	0.017	=1.98	=22
04/07/2008	2008-554	SAMPLE				=89.22	6.31	0.027	=1.48	=14
05/08/2008	2008-895	SAMPLE				=102.6	6.76	0.024	=1.27	=17
06/15/2008	2008-1413	SAMPLE				=142.2	6.96	0.036	=2.13	=22
07/08/2008	2008-2473	SAMPLE				=176.2	7.16	0.033	=1.94	
08/14/2008	2008-4388	SAMPLE				=101.7	6.71	0.033	=11.6	=19
09/18/2008	2008-5667	SAMPLE				=180.1	6.88	0.021	=11.1	=35
10/22/2008	2008-6067	SAMPLE				=121.9	6.67	0.026	=1.2	=21
11/16/2008	2008-6155	SAMPLE				=61.1	6.12	0.023	=2.57	=10

Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chl-A (mg/M3)

NH Department of Environmental Services Volunteer Lake Assessment Program
 Current Year Chemical and Biological Data
 MIRROR LAKE
 WOLFEBORO
 May-12-2009



Stationid	Statname	Depthzone	Startdate	Activityid	Category	TP	Cond	PH	Turb	Cl
MIRTUFAL	MIRROR LAKE-ABENAKI LAGOON		02/01/2009	2009-163	SAMPLE	0.041	=160	5.73		=28
			03/23/2009	2009-383	SAMPLE	0.012	=76.57	5.95	=0.57	=20
			04/16/2009	2009-607	SAMPLE	0.024	=101.2	6.41	=1.56	=20
MIRTUFE	MIRROR LAKE-EAST INLET		02/01/2009	2009-164	SAMPLE	0.076	=68.04	5.72		=9.4
			03/23/2009	2009-384	SAMPLE	0.015	=33.89	5.68	=1.49	<5
			04/16/2009	2009-608	SAMPLE	0.017	=46.54	5.87	=0.78	=5.5
MIRTUFWA	MIRROR LAKE-WEST INLET A		02/01/2009	2009-166	SAMPLE	0.02	=116.9	6.27		=20
			03/23/2009	2009-386	SAMPLE	0.016	=87.91	6.36	=1.24	=23
			04/16/2009	2009-610	SAMPLE	0.013	=90.3	6.41	=0.54	=17
MIRTUFWB	MIRROR LAKE-WEST INLET B		02/01/2009	2009-167	SAMPLE	0.031	=140.4	6.35		=24
			03/23/2009	2009-387	SAMPLE	0.014	=88.38	6.36	=0.67	=23
			04/16/2009	2009-611	SAMPLE	0.012	=89.92	6.32	=1.03	=18
MIRTUFWR	MIRROR LAKE-WAUMBECK RD		02/01/2009	2009-165	SAMPLE	0.024	=138.8	6.39		=23
			03/23/2009	2009-385	SAMPLE	0.015	=78.4	6.51	=2.21	=19
			04/16/2009	2009-609	SAMPLE	0.018	=90.41	6.6	=1.96	=16

Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chl-A (mg/M3)

NH Department of Environmental Services Volunteer Lake Assessment Program

Current Year Chemical and Biological Data

MIRROR LAKE

WOLFEBORO

August-11-2009



Stationid	Statname	Depthzone	Staridate	Activityid	Category	TP	ANC	Chl-a	Cond	EC	PH	Secchi		Turb	
												NVS	VS		
MIRTUFAL	MIRROR LAKE-ABENAKI LAGOON		02/01/2009	2009-163	SAMPLE	0.041			=160		5.73				
			03/23/2009	2009-383	SAMPLE	0.012			=76.57		5.95			=0.57	
			04/16/2009	2009-607	SAMPLE	0.024				=101.2		6.41			=1.56
			05/21/2009	2009-830	SAMPLE					=114.2		6.68			=3.33
				2009-831	SAMPLE	0.022									
			06/18/2009	2009-1577	SAMPLE	0.058				=99.26		6.89			=1.04
	07/16/2009	2009-2949	SAMPLE	0.033				=94.1		6.64			=1.91		
MIRTUFE	MIRROR LAKE-EAST INLET		02/01/2009	2009-164	SAMPLE	0.076			=68.04		5.72				
			03/23/2009	2009-384	SAMPLE	0.015			=33.89		5.68			=1.49	
			04/16/2009	2009-608	SAMPLE	0.017				=46.54		5.87			=0.78
			05/21/2009	2009-834	SAMPLE					=66.12		6.43			=1.6
				2009-835	SAMPLE	0.038									
			06/18/2009	2009-1578	SAMPLE	0.035				=52.88		6.27			=1.11
	07/16/2009	2009-2950	SAMPLE	0.1				=62.62		6.11			=7.16		
		2009-2951	DUPLICATE					=62.78		6.12			=8.34		
MIRTUFWA	MIRROR LAKE-WEST INLET A		02/01/2009	2009-166	SAMPLE	0.02			=116.9		6.27				
			03/23/2009	2009-386	SAMPLE	0.016			=87.91		6.36			=1.24	
			04/16/2009	2009-610	SAMPLE	0.013				=90.3		6.41			=0.54
			05/21/2009	2009-828	SAMPLE					=116.2		6.42			=1.48
				2009-829	SAMPLE	0.027									
			06/18/2009	2009-1580	SAMPLE	0.032				=98.26		6.68			=1.46
	07/16/2009	2009-2953	SAMPLE	0.039				=110		6.38			=1.95		
MIRTUFWB	MIRROR LAKE-WEST INLET B		02/01/2009	2009-167	SAMPLE	0.031			=140.4		6.35				
			03/23/2009	2009-387	SAMPLE	0.014			=88.38		6.36			=0.67	
			04/16/2009	2009-611	SAMPLE	0.012				=89.92		6.32			=1.03
			05/21/2009	2009-836	SAMPLE					=116		6.55			=1.48
				2009-837	SAMPLE	0.026									
			06/18/2009	2009-1581	SAMPLE	0.031				=98.08		6.62			=1.28
	07/16/2009	2009-2954	SAMPLE	0.039				=110.3		6.32			=1.9		

Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chl-A (mg/M3)

NH Department of Environmental Services Volunteer Lake Assessment Program

Current Year Chemical and Biological Data

MIRROR LAKE
WOLFEBORO
August-11-2009



Stationid	Statname	Depthzone	Startdate	Activityid	Category	TP	ANC	Chi-a	Cond	EC	PH	Secchi		Turb
												NVS	VS	
MIRTUFWC	MIRROR LAKE-WEST INLET C		07/16/2009	2009-2955	SAMPLE				=110		6.36			=1.85
MIRTUFWR	MIRROR LAKE-WAUMBECK RD		02/01/2009	2009-165	SAMPLE	0.024			=138.8		6.39			
			03/23/2009	2009-385	SAMPLE	0.015			=78.4		6.51			=2.21
			04/16/2009	2009-609	SAMPLE	0.018			=90.41		6.6			=1.96
			05/21/2009	2009-832	SAMPLE				=120.6		6.98			=1.3
				2009-833	SAMPLE	0.028								
			06/18/2009	2009-1579	SAMPLE	0.031			=83.3		6.93			=1.96
			07/16/2009	2009-2952	SAMPLE	0.026			=112.8		7.09			=1.02

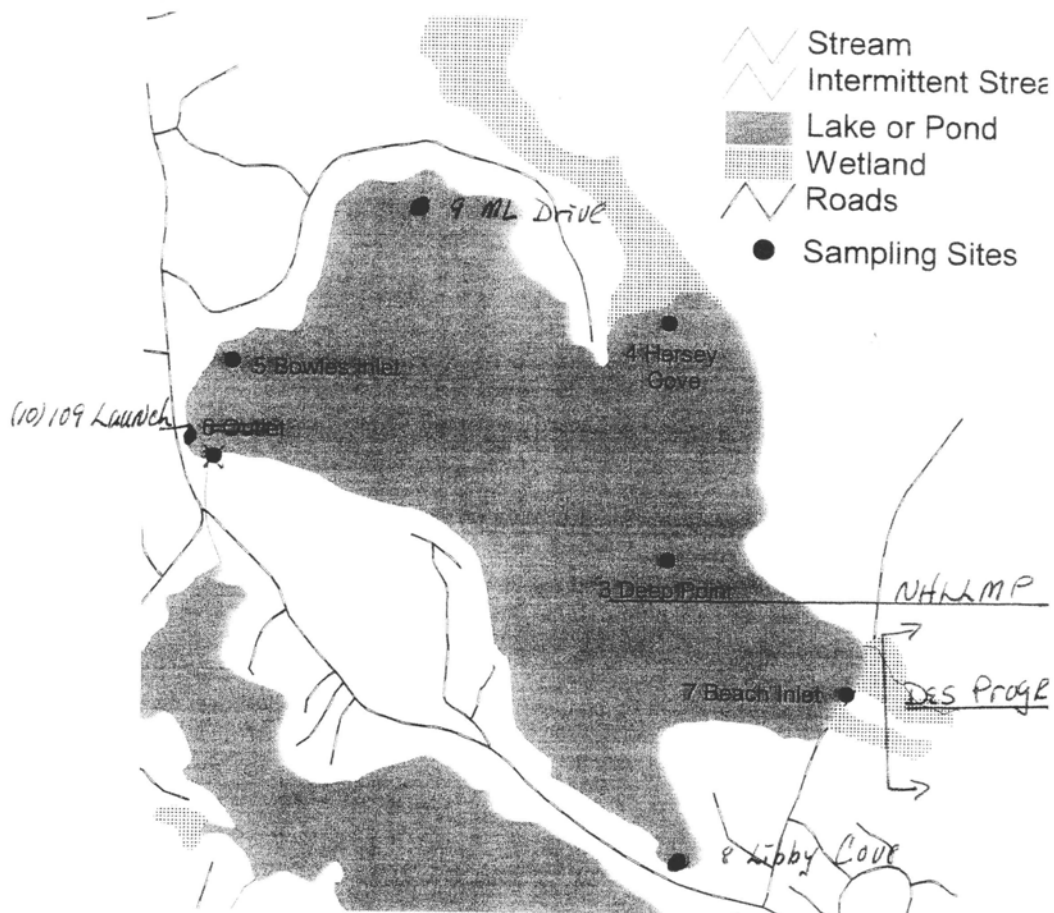
Please Note: pH (units), TP (mg/L) (ND = < 0.005 mg/L), Cond (UMHOS/cm), Secchi (M), EC = E. coli (cts/100mL), Turbidity (NTU), ANC (mg/L), Chloride (mg/L), Chi-A (mg/M3)

ATTACHMENT B. HISTORICAL WATER QUALITY DATA (CONT)

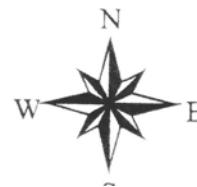
B3. INTERIM TESTING DATA

PROJECT 1 MAP

Mirror Lake



0 0.2 0.4 0.6 0.8 Miles



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Lake	Site	Date	Secchi Disk Transparency (meters)	Sampling Depth (meters)	Chlorophyll a (ug/l)	Dissolved Color (CPU)	Total Phosphorus (ug/l)	Depth (meters)	Total Phosphorus (ug/l)
Mirror	3 Deep Pt	5/26/2008	3.5	3.0	2.5	24.3	12.4	11.0	52.7
Mirror	3 Deep Pt	6/11/2008	3.3	2.5	1.6	30.4			
Mirror	3 Deep Pt	6/18/2008	4.3	3.5	2.3	33.9			
Mirror	3 Deep Pt	6/25/2008	4.2	3.5	2.4	20.9			
Mirror	3 Deep Pt	6/30/2008	4.5	3.5	1.8	21.7			
Mirror	3 Deep Pt	7/7/2008	4.7	2.5	1.3	22.6	7.8		
Mirror	3 Deep Pt	7/15/2008	5.0	5.0	1.5	20.9			
Mirror	3 Deep Pt	7/27/2008	3.5	3.5	2.7				
Mirror	3 Deep Pt	8/5/2008	3.5	4.5	4.0	16.5			
Mirror	3 Deep Pt	8/13/2008	3.5	5.0	1.1				127.4
Mirror	3 Deep Pt	8/21/2008	2.3	3.0	3.0		4.6		
Mirror	3 Deep Pt	8/27/2008	3.3	5.0	2.5	21.7		13.0	96.4
Mirror	3 Deep Pt	9/1/2008	4.5	5.5	2.5		9.9	11.5	154.8
Mirror	3 Deep Pt	9/7/2008	4.0	5.0	2.5		3.1		
Mirror	3 Deep Pt	9/14/2008	4.8	5.5	3.1	26.9			99.3
Mirror	3 Deep Pt	9/21/2008	5.4	5.5	4.8	25.2	18.6		
Mirror	3 Deep Pt	9/29/2008	4.7	5.0	3.6	22.6			
Mirror	3 Deep Pt	10/6/2008	4.0	1.0	1.6		13.6		
Mirror	3 Deep Pt	10/13/2008	4.0	2.0	4.1				86.1
Mirror	4 HerseCv	8/27/2008		0.5				0.5	8.7
Mirror	4 HerseCv	9/1/2008						0.5	8.4
Mirror	4 HerseCv	9/7/2008				58.2			
Mirror	4 HerseCv	9/14/2008		0.5	4.2			0.5	9.6
Mirror	4 HerseCv	9/21/2008		0.5	2.5			0.5	7.9
Mirror	4 HerseCv	9/29/2008		0.5	2.4			0.5	8.2
Mirror	4 HerseCv	10/6/2008		0.5	4.0			0.5	10.6
Mirror	4 HerseCv	10/13/2008		0.5	2.4			0.5	9.6
Mirror	4 HerseCv	10/30/2008		0.5	2.1			0.5	10.9

Lake	Site	Date	Secchi Disk Transparency (meters)	Sampling Depth (meters)	Chlorophyll a (ug/l)	Dissolved Color (CPU)	Total Phosphorus (ug/l)	Depth (meters)	Total Phosphorus (ug/l)
Mirror	5 BowlInl	5/3/2008						0.5	14.2
Mirror	5 BowlInl	8/27/2008		0.5	2.1			0.5	6.8
Mirror	5 BowlInl	9/1/2008						0.5	9.5
Mirror	5 BowlInl	9/7/2008				39.1			
Mirror	5 BowlInl	9/14/2008		0.5	3.4			0.5	9.5
Mirror	5 BowlInl	9/21/2008		0.5	3.1			0.5	7.8
Mirror	5 BowlInl	9/29/2008		0.5	4.5			0.5	11.9
Mirror	5 BowlInl	10/6/2008		0.5	3.1			0.5	8.6
Mirror	5 BowlInl	10/13/2008		0.5	2.7			0.5	10.6
Mirror	5 BowlInl	10/30/2008		0.5	2.2			0.5	10.6
Mirror	7 BeacInl	8/27/2008		0.5	1.9			0.5	6.7
Mirror	7 BeacInl	9/1/2008						0.5	7.2
Mirror	7 BeacInl	9/7/2008				64.3			
Mirror	7 BeacInl	9/14/2008		0.5	2.4			0.5	10.6
Mirror	7 BeacInl	9/21/2008		0.5	1.9			0.5	8.0
Mirror	7 BeacInl	9/29/2008		0.5	2.4			0.5	12.2
Mirror	7 BeacInl	10/6/2008		0.5	2.7			0.5	11.0
Mirror	7 BeacInl	10/13/2008		0.5	2.6			0.5	9.3
Mirror	7 BeacInl	10/30/2008		0.5	4.3			0.5	14.6
Mirror	8 Libby Cve	8/27/2008		0.5	2.6			0.5	8.1
Mirror	8 Libby Cve	9/1/2008						0.5	8.5
Mirror	8 Libby Cve	9/7/2008				38.2			
Mirror	8 Libby Cve	9/14/2008		0.5	4.4			0.5	9.1
Mirror	8 Libby Cve	9/21/2008		0.5	1.0			0.5	7.1
Mirror	8 Libby Cve	9/29/2008		0.5	3.1			0.5	11.6
Mirror	8 Libby Cve	10/6/2008		0.5	3.5			0.5	12.9
Mirror	8 Libby Cve	10/30/2008		0.5	2.0			0.5	12.6
Mirror	9 M.L. Drive	8/27/2008		0.5	2.1			0.5	6.8
Mirror	9 M.L. Drive	9/1/2008						0.5	7.3
Mirror	9 M.L. Drive	9/7/2008				39.1			
Mirror	9 M.L. Drive	9/14/2008		0.5	4.1			0.5	9.1
Mirror	9 M.L. Drive	9/21/2008		0.5	3.6			0.5	9.6
Mirror	9 M.L. Drive	9/29/2008		0.5	1.8			0.5	8.2
Mirror	9 M.L. Drive	10/6/2008		0.5	3.1			0.5	9.3
Mirror	9 M.L. Drive	10/13/2008		0.5	2.2			0.5	10.4
Mirror	9 M.L. Drive	10/30/2008		0.5	2.4			0.5	11.5

Mirror	10 109 Laun	8/27/2008		0.5	1.9			0.5	6.9
Mirror	10 109 Laun	9/1/2008						0.5	8.2
Mirror	10 109 Laun	9/7/2008				43.5			
Mirror	10 109 Laun	9/14/2008		0.5	4.9			0.5	12.4
Mirror	10 109 Laun	9/21/2008		0.5	6.1			0.5	11.0
Mirror	10 109 Laun	9/29/2008		0.5	4.1			0.5	13.3
Mirror	10 109 Laun	10/6/2008		0.5	2.9			0.5	9.5
Mirror	10 109 Laun	10/13/2008		0.5	2.6			0.5	10.5
Mirror	10 109 Laun	10/30/2008		0.5	1.5			0.5	9.4
Mirror	End McKers	5/3/2008		1.0	5.7	26.9		0.5	13.7
Mirror	Rte 109 Outl	5/3/2008						0.5	11.7

REV

Lake	Site	Date	Secchi Disk Transparency (meters)	Sampling Depth (meters)	Chlorophyll a (ug/l)	Dissolved Color (CPU)	Total Phosphorus (ug/l)	Depth (meters)	Total Phosphorus (ug/l)
Mirror	3 Deep Pt	4/27/2009	-----	-----	-----	-----	-----	0.5	10.1
Mirror	3 Deep Pt	5/3/2009	4.7	0-4.7	1.7	-----	10.2	-----	-----
Mirror	3 Deep Pt	5/11/2009	-----	0-5.5	2.4	-----	-----	-----	-----
Mirror	3 Deep Pt	5/19/2009	4.0	-----	-----	-----	Bottom (12 meters?)	-----	10.8
Mirror	3 Deep Pt	5/19/2009	-----	-----	-----	-----	0.5	-----	-----
Mirror	3 Deep Pt	5/25/2009	5.0	0-6.0	4.4	-----	-----	-----	-----
Mirror	3 Deep Pt	6/8/2009	3.5	0-2.0	3.6	-----	-----	0.5	19.3
Mirror	3 Deep Pt	6/13/2009	4.6	0-5.0	0.7	-----	-----	-----	-----
Mirror	4 HerseCv	4/27/2009	-----	-----	-----	-----	-----	0.5	9.4
Mirror	4 HerseCv	5/11/2009	-----	-----	-----	-----	-----	0.5	19.2
Mirror	4 HerseCv	5/19/2009	-----	-----	-----	-----	-----	0.5	7.9
Mirror	4 HerseCv	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	4 HerseCv	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	4 HerseCv	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet
Mirror	5 BowlInl	4/27/2009	-----	-----	-----	-----	-----	0.5	12.0
Mirror	5 BowlInl	5/11/2009	-----	-----	-----	-----	-----	0.5	8.2
Mirror	5 BowlInl	5/19/2009	-----	-----	-----	-----	-----	0.5	8.2
Mirror	5 BowlInl	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	5 BowlInl	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	5 BowlInl	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet
Mirror	7 BeacInl	4/27/2009	-----	-----	-----	-----	-----	0.5	12.1
Mirror	7 BeacInl	5/11/2009	-----	-----	-----	-----	-----	0.5	15.9
Mirror	7 BeacInl	5/19/2009	-----	-----	-----	-----	-----	0.5	9.0
Mirror	7 BeacInl	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	7 BeacInl	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	7 BeacInl	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet
Mirror	8 Libby Cve	4/27/2009	-----	-----	-----	-----	-----	0.5	9.2
Mirror	8 Libby Cve	5/11/2009	-----	-----	-----	-----	-----	0.5	13.1
Mirror	8 Libby Cve	5/19/2009	-----	-----	-----	-----	-----	0.5	8.8
Mirror	8 Libby Cve	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	8 Libby Cve	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	8 Libby Cve	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet
Mirror	9 M.L. Drive	4/27/2009	-----	-----	-----	-----	-----	0.5	9.1
Mirror	9 M.L. Drive	5/11/2009	-----	-----	-----	-----	-----	0.5	7.5
Mirror	9 M.L. Drive	5/19/2009	-----	-----	-----	-----	-----	0.5	7.7
Mirror	9 M.L. Drive	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	9 M.L. Drive	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	9 M.L. Drive	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet
Mirror	10 109 Launch	4/27/2009	-----	-----	-----	-----	-----	0.5	12.6
Mirror	10 109 Launch	5/11/2009	-----	-----	-----	-----	-----	0.5	8.0
Mirror	10 109 Launch	5/19/2009	-----	-----	-----	-----	-----	0.5	10.0
Mirror	10 109 Launch	5/25/2009	-----	-----	-----	-----	-----	1.0	??
Mirror	10 109 Launch	6/8/2009	-----	-----	-----	-----	-----	0.5	-----
Mirror	10 109 Launch	6/13/2009	-----	-----	-----	-----	-----	0.5	Not Analyzed yet

ATTACHMENT C. ESTIMATED WATERSHED PLAN COSTS 2010

MIRROR LAKE PROTECTION ASSOCIATION ESTIMATED WATERSHED PLAN COSTS 2010

Task/Subtask	ESTIMATED ENV AND EDU CONSULTANT LABOR COSTS								GRAD Student	Labor Hrs.	Other Direct Labor \$	Other Direct Costs	Totals	Requested Grant (\$)	Non-Federal Match (\$)
	Sr. Principle Scientist	Principle Scientist	Senior Scientist	Sr. Project Scientist	Project Scientist	Sr. Tech or Drafter	Clerical								
Task 1.0 Preliminary Planning	\$ 135.20	\$ 119.60	\$ 95.68	\$ 75.92	\$ 64.48	\$ 54.08	\$ 45.76	\$ 20.25							
Stakeholder Meetings: Identify Issues & Set Preliminary Goals	0	0	0	0	16	0	0	0	16	\$1,032		\$1,032			
Identify Consultants; Develop RFP in Accordance with EPA Requirements	0	0	0	0	40	0	0	0	40	\$2,579		\$2,579			
Review Consultant Quals; Meetings	0	0	0	0	12	0	0	0	12	\$774		\$774			
Select Consultant; Finalize Understanding of Goals, Scope & Costs	0	0	0	0	12	0	0	0	12	\$774		\$774			
									Subtotal	\$5,158	\$75	\$5,233	\$ 3,140	\$ 2,093	
Task 2.0 Education and Outreach															
Guest speakers and meetings	0	8	0	0	32	0	8	0	48	\$3,386		\$3,386			
Website/blog development and watershed news bulletins	0	8	0	0	32	0	8	0	48	\$3,386		\$3,386			
Site specific property owners guides	0	8	0	0	55	0	20	0	83	\$5,418		\$5,418			
									Subtotal	\$12,191	\$2,100	\$14,291	\$ 8,575	\$ 5,716	
Task 3.0 Source Identification and Surveys															
Historical data/review; source identification and inventory	0	0	0	4	16	32	0	0	52	\$3,066		\$3,066			
Model Support: land use surveys (graduate student from local University)	0	0	0	4	16	24	0	300	344	\$8,708		\$8,708			
Model Support: lakeside septic survey	0	0	0	4	32	60	0	0	96	\$5,612		\$5,612			
Model Support: road surveys	0	0	0	4	16	32	0	0	52	\$3,066		\$3,066			
Milestone: comprehensive lake inventory	4	8	8	6	24	32	0	0	82	\$5,997		\$5,997			
									Subtotal	\$26,449	\$2,700	\$29,149	\$ 17,489	\$ 11,659	
Task 4.0 Baseline and Predictive Modeling															
Estimate TP loading (STEPL)	0	0	4	16	32	0	0	0	52	\$3,661		\$3,661			
Identify Priority Areas	0	0	4	16	24	0	0	0	44	\$3,145		\$3,145			
Estimated load reductions needed to meet goals (STEPL)	0	4	8	16	32	0	0	0	60	\$4,522		\$4,522			
									Subtotal	\$11,328	\$150	\$11,478	\$ 6,887	\$ 4,591	
Task 5.0 Finalize/Update Goals; Remedy															
Finalize/update goals and management objectives	0	0	8	20	0	0	0	0	28	\$2,284		\$2,284			
Finalize/update performance targets/criteria	0	0	8	20	0	0	0	0	28	\$2,284		\$2,284			
Finalize/update management measures to achieve goals	4	8	12	24	0	0	8	0	56	\$4,834		\$4,834			
									Subtotal	\$9,402	\$150	\$9,552	\$ 5,731	\$ 3,821	
Task 6.0 Design Implementation Plan															
Develop Schedule, Milestones, Progress Criteria, Monitoring Components, I/E, etc.	0	2	8	16	32	0	8	0	66	\$4,649		\$4,649			
Identify Technical and Financial Needs to Implement Plan	0	0	4	8	12	0	0	0	24	\$1,764		\$1,764			
Select and Assign Responsibility of Annual Review and Revisions to Plan	0	0	2	2	2	0	0	0	6	\$472		\$472			
									Subtotal	\$6,885	\$225	\$7,110	\$ 4,266	\$ 2,844	
Task 7.0 Assemble, Submit and Implement Watershed Plan															
Implement Management Strategies, Monitor, and Conduct Periodic I/E Activities	4	8	16	24	60	24	24	0	160	\$11,116		\$11,116			
									Subtotal	\$11,116	\$2,150	\$13,266	\$ 7,959	\$ 5,306	
Totals:	12	54	82	184	497	204	76	300	1,409	\$82,527	\$7,550	\$90,077	\$ 54,046	\$ 36,031	

ODCs

	Task 1.0	Task 2.0	Task 3.0	Task 4.0	Task 5.0	Task 6.0	Task 7.0
Direct Costs							
Travel (Lodging/Meals)	\$ -	\$ 300	\$ 600	\$ 50	\$ 50	\$ 50	\$ 300
Mileage	\$ -	\$ 200	\$ 800	\$ 100	\$ 100	\$ 100	\$ 200
Reproduction/Copies	\$ 50	\$ 1,000	\$ -	\$ -	\$ -	\$ -	\$ 1,200
Shipping/Mailing	\$ 25	\$ 300	\$ -	\$ -	\$ -	\$ -	\$ 250
Field Survey Rental equipment	\$ -	\$ -	\$ 1,200	\$ -	\$ -	\$ -	\$ -
Expendable Supplies	\$ -	\$ 200	\$ 100	\$ -	\$ -	\$ 25	\$ 150
Misc.	\$ -	\$ 100	\$ -	\$ -	\$ -	\$ -	\$ 50
TOTAL	\$ 75	\$ 2,100	\$ 2,700	\$ 150	\$ 150	\$ 225	\$ 2,150