



Lilly's Letter

Spring 2007



Dear Friends of the Lake:

Isn't it funny how quickly our thoughts turn from enjoying the beautiful cold serenity of a frozen lake to getting ready to enjoy our recreation on the lake the minute the ice disappears? Connecticut may be the finest place in the world to live, though some might argue for a shorter winter. Yet the short summers here encourage us to enjoy the warm days we have in earnest – and also makes critical the quality of those few days.

Wouldn't it be nice, for those too-few days, to enjoy a lake free from man-made and wood debris? Swimming and boating in clean, clear water? Simply stated, that is the goal of Friends of the Lake.

With this goal for Lake Lillinonah in mind, we are pleased to present the first newsletter of 2007. There are many good things happening to improve our lake, with so much yet to be done. Please get involved, and encourage your friends and neighbors to join us.

Any comments you may have about the issues presented here, or any other issues you'd like to raise, would be welcome at info@friendsofthelake.org.

Enjoy this coming season safely,

Your Executive Team

How Green Is My Lake?

A Brief History and Current Report on Water Quality, Sewage Treatment, and Phosphorous Reduction on Lake Lillinonah

Richard Llewelyn's 1939 best seller *How Green Was My Valley* and John Ford's classic 1941 movie of the same name tell the story of the devastating environmental effects of reckless coal mining activities on a pristine Welsh valley. Each summer, on Lake Lillinonah, we ask a similar question: "How green is my lake?" Since its founding in 2003, Friends of the Lake has been asking another question: "How can we fix the problem?"

We have concluded that the problem can be fixed. But we have also found that the problem has a long and

complex history and that the solutions will require a cooperative effort among government entities, stakeholders and citizens. With the help and support of our members, a dedicated board of the Lake Lillinonah Authority, the Connecticut DEP, and Attorney General Blumenthal, we are now making real progress towards a solution.

But to understand the nature of the problem and to identify the path forward, one must first have some understanding of its origins and history.



Brief History of the Danbury Sewage Treatment Plant

Believe it or not, the history of efforts to treat sewage discharges into the Still River and Lake Lillinonah began more than a century ago. A history of Danbury's sewer service relates the following:

Danbury, like many other cities, first adopted the expedient of emptying its untreated sewage into the largest available river, the Still River. In time farmers, mill owners and others downstream complained. In 1893 the State ordered Danbury to build a filtration plant for treating its sewage, as an early precedent in Connecticut's water quality planning.

<http://www.hvceo.org/sewersdanbury.php>¹

Since the first efforts at sewage "filtration" in 1893, Danbury's sewage treatment facilities have undergone many expansions and upgrades. However, the history is one of expansion that has outpaced improvements in treatment to protect the water quality of the Still River and Lake Lillinonah.

There is also a long history of the Connecticut DEP's dissatisfaction with municipal sewage treatment efforts. By 1978, the Connecticut Department of Environmental Protection found the water quality of the Still River unacceptable and mere persuasion insufficient to effect change. As a result, the DEP issued a pollution abatement order to the City of Danbury with respect to its phosphorus discharges. The abatement order required the City of Danbury to take steps to reduce phosphorus discharges and to improve the water quality of the Still River from what the DEP

¹ The primary source for the historical facts recited herein is the Danbury Plan of Conservation and Development, as excerpted at the HVCEO web site.

defines as "C" quality to at least a "B" quality, and thereafter to maintain the water quality at no worse than a "B" level.

Danbury responded initially by installing temporary phosphorus removal facilities. However, in 1979, DEP issued further pollution abatement orders, requiring Danbury and Bethel to upgrade the treatment level at their sewage treatment plants. In the late 1980's Danbury planned for a major upgrade and expansion of its sewage treatment plant. Work on the project began in 1990 and upon completion in 1993, the capacity of the Danbury Sewage Treatment Plant ("DSTP") reached its present permitted discharge level of 14.5 million gallons per day. In 1993, after completing the DSTP upgrades and expansion, the City of Danbury touted the accomplishment in a brochure promoting the positive environmental role of the DSTP, entitled: **Protecting the Housatonic River Basin: Danbury's Upgraded and Expanded Water Pollution Control Plant.** While we are surely better off for the existence of the DSTP, its effluent continues to degrade the quality of the water in the Still River and Lake Lillinonah to unacceptable levels. The DSTP can and must do more to fulfill its promise as a protector of the Housatonic River Basin.

The Long History of Efforts to Study and Solve the Problem

The history of planning and formal scientific studies of Danbury's sewage treatment can be traced back at least as far as Danbury's 1960 City Plan of Development and a 1967 study of sewerage needs prepared for the city by Manganaro, Martin and Lincoln. A further study published in 1981 by Drs. Jones and Lee entitled "Impact of Phosphorus Removal at the Danbury, Connecticut Sewage





Treatment Plant on Water Quality in Lake Lillinonah” found, long before the major expansion of the DSTP in the 1990’s, that Lake Lillinonah was “highly eutrophic” and received 20 to 30% of its phosphorus load from domestic wastewaters in Danbury.

In 2003, Jennifer Klug, Ph.D. of Fairfield University conducted a further study relating to the potential negative effects of proceeding with upgrades to the DSTP that focus exclusively on reducing nitrogen discharges, thus altering the ratio of nitrogen to phosphorus in Lake Lillinonah. Dr. Klug’s study identified the concern that such alteration of the N/P ratio could encourage proliferation of a harmful variety of blue-green algae known as cyanobacteria in Lake Lillinonah. Further supporting this concern is an article by Val Smith, Ph.D. of the University of Kansas, published by the North American Lake Management Society. Dr. Smith recites “[e]xtensive evidence worldwide” supporting the hypothesis that nitrogen reduction without a corresponding program to reduce phosphorus can cause blooms of cyanobacteria that produce foul odors and emit toxins harmful to humans and animals. Smith, “Blue-Green Algae in Eutrophic Fresh Waters” (Lakeline, Spring 2001). Based on this evidence, Dr. Smith concludes, “it is extremely ill-advised to pursue nitrogen management strategies that remove nitrogen alone.” Id.

In addition, for approximately the past four years, the Lake Lillinonah Authority has commissioned studies by its consultant, George Knoecklein, Ph.D. directed at understanding the nature of the phosphorus pollution problem in Lake Lillinonah and at identifying potential solutions. Dr. Knoecklein has conducted extensive water sampling and analysis tracking phosphorus levels from the spring through the fall months at sampling sites from the Bleachery Dam in the northern reaches of Lake Lillinonah to the Shepaug Dam and up the Shepaug River to Roxbury Falls.

We at Friends of the Lake also have commissioned studies of the issue by our consultant, Curtis Read and Larry Paetsch of Hydro-Technologies. The Hydro-Technologies studies provide compelling evidence of the DSTP’s major role in causing excessive levels of phosphorus and resulting algae blooms in Lake Lillinonah. The evidence points directly to the discharge of phosphorous from the DSTP into the Still River and its eventual downstream discharge into Lake Lillinonah as the reason Lake Lillinonah passes the tipping point and experiences severe eutrophic conditions and algae blooms in the summer months. Yet, current plans to upgrade the DSTP call for spending millions of dollars to improve nitrogen reduction, while phosphorus reduction remains the subject of further study.

The Current Situation

Despite all of the efforts to address the problem, Lake Lillinonah and the Still River continue to be designated as impaired waterways by the DEP and the EPA. Further, despite the DEP’s mandate that the Still River be improved to meet and maintain “B” water quality criteria, there is strong evidence that this mandate is not being met.

Does the Still River, or for that matter Lake Lillinonah, meet the DEP’s definition of a “B” water quality standard? Let’s review DEP’s own definition of the “Class B Designated Uses” and “Class B Criteria” as stated in the DEP publication *Water Quality Standards* (available at www.dep.state.ct.us).

“Class B Designated Uses” of a waterway are: “habitat for fish and other aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply.” Id. DEP’s “Class B Criteria” include the following parameters:

| PARAMETER | CRITERIA |
|--|--|
| Aesthetics | Good to Excellent |
| Dissolved Oxygen | Not less than 5 mg/l at any time |
| Color | None which causes visible discoloration of the surface water outside of any designated zone of influence |
| Suspended and Settleable Solids | None in concentrations which would impair the most sensitive designated use; none aesthetically objectionable . . . ; shall not exceed 10 mg/L over ambient concentrations |
| Chemical Constituents | None in concentrations which would be harmful to designated use |

It would be difficult for anyone to contend seriously that the Still River (or for that matter Lake Lillinonah) meets the above criteria, particularly in the summer months. This is so despite the fact that a DEP abatement order issued more than twenty-five years ago mandated that the Still River water quality be improved to and maintained at least a “B” designation.

If the Still River did meet the “B” quality criteria, then its downstream discharge into Lake Lillinonah would of necessity meet those criteria as well, and the Still River would no longer be a major contributor to degradation of the water quality in Lake Lillinonah.



New Efforts and Progress Toward a Solution

Present and ongoing efforts of the Connecticut DEP, the Lake Lillinonah Authority and Friends of the Lake hold out the hope that we may be able finally to make real progress on this issue of vital importance to those who care about protecting the precious natural resource known as Lake Lillinonah.

There are two significant and related areas of progress.

- First, after years of failing to include improved phosphorus removal on its list of priorities, Danbury has commissioned a feasibility study with respect to improving the phosphorus removal capabilities of the DSTP at the same time that the plant undertakes already planned improvements to its nitrogen removal capabilities. The report of that study is expected to be available within the next few months.
- Second, the Connecticut DEP has started a process to establish a legal limit, known as a “TMDL” or “Total Maximum Daily Load” of phosphorus with respect to Lake Lillinonah and the Still River. The essential goal of the TMDL is to establish a limit of phosphorus inputs into these waterways that will be consistent with achieving improved water quality and will not allow the severe eutrophication and algae blooms we currently experience. The DEP has been gathering data for this purpose for the past several years. In a recent positive development, the DEP has decided to proceed with the TMDL on the Still River ahead of the TMDL for Lake Lillinonah, because the data collection required for the Still River TMDL is essentially complete. In addition, the nature and cause of elevated phosphorus and the means to control phosphorus levels in the Still River is far less complicated than on Lake Lillinonah.

According to a DEP official, the decision to proceed with the Still River TMDL means that there is a more realistic chance of having a TMDL in place for the Still River as the DSTP goes through the process of obtaining a re-issuance of its DEP discharge permit next year. Once the Still River phosphorus TMDL is in place, it will establish a legal mandate that the DSTP’s discharges of phosphorus be limited to a level consistent with the water quality goals of the TMDL. If the DSTP and Still River contributions to the phosphorus problem on Lake Lillinonah are controlled in this manner, we expect significant reduction in the phosphorus levels in Lake Lillinonah and significantly improved water quality.

A recent article in the Brookfield Journal noted that Lake Lillinonah “has become known as the ‘emerald lake’ because it is covered with algae.” Our goal is to make such references a distant memory and to have Lake Lillinonah known simply as the “jewel” of Northwest Connecticut. With your help, we will contribute to writing a new chapter in the history of Lake Lillinonah – a chapter that might be appropriately titled: “How Green Was My Lake.”

4th Annual Save the Lake Day

Friends of the Lake is proud to announce the 4th Annual Save the Lake Day! The event will be held much earlier this year on May 12th from 9 a.m. to 1 p.m. Last year was a terrific success and we cannot wait to see you all again this year!

Save the Lake Day is a great chance for everyone to join together to help clean Lake Lillinonah of garbage and debris! All volunteers make a huge difference whether they walk the shores or take out a boat. If you can’t be there – then we ask you to walk your shoreline and leave what you collect in a bag on your dock for our teams to collect.


The event will start at the Route 133 State Boat Launch in Bridgewater and supplies and food will be provided.

We encourage all of our members to spread the word and come join us on May 12th! Please watch your mailbox for more information and come out and join us for Save the Lake Day! If you would like to volunteer or are interested in being a sponsor please contact this years Chairperson, Nora Allen at (860) 210-8064 or email us at volunteers@friendsofthelake.org. We look forward to seeing you all in May!

Lake Lillinonah and Shepaug Dam Ownership Changes

Last November, Northeast Utilities sold ownership of its hydroelectric facilities in Connecticut and Massachusetts including Lake Lillinonah and the Shepaug dam to NE Energy Inc. Recently, they announced the relocation of their headquarters to downtown Hartford, CT. and renamed the company to **FirstLight Power Resources Inc.** (“FPR”). They will operate Shepaug/Lillinonah and provide services to the company through their operating subsidiaries FirstLight Hydro Generating Company and FirstLight Power Resources Services.

FOTL’s initial contacts with FPR have been positive and we are looking forward to developing a positive and cooperative



relationship with the company and its executive staff. They have agreed to participate in the Save the Lake day this spring.

FOTL works with LLA to submit three NRD grant requests

Pursuant to an October 2000 Consent Decree, General Electric paid over \$15 million in fines for natural resources damage due to their releasing of polychlorinated biphenyls (“PCBs”) into the Housatonic river. This sum has been divided between the geographic regions of Connecticut and Massachusetts so that roughly half of the \$15 million plus interest will be available for restoration projects in each state. According to federal regulations, these funds must be used in a manner that restores the natural resources and services that were impaired by the release of PCBs.

Before the funds allocated to Connecticut can be used to implement natural resource restoration projects, the Natural Resource Trustees for the Housatonic Project in Connecticut, including representatives from the State of Connecticut, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration, must develop a Natural Resources Restoration Plan. The Restoration Plan must evaluate restoration alternatives, solicit public input and present the rationale for the selection of the restoration projects.

A total of 92 Restoration Project Proposals and ideas were submitted. To view all submissions click on the following link: [Project Proposals and Ideas](#). When the ‘Project Proposals and Ideas’ page appears, a table listing all 92 proposals with a hyperlink to each will be displayed. News and updates on the eligibility screening process will be posted on the ‘Latest News’ page.

FOTL hired the environmental consulting firm of Sterns and Wheeler, LLC to evaluate and provide technical support for over a dozen concepts posed by the LLA and FOTL. After several workshops were held that included committee members from LLA, three proposals were selected. All three grant requests were endorsed by FOTL and LLA. Below is a brief description of our grant requests.

- Still River Wetland Enhancement Project
- This project proposes to improve and enhance wetlands of the Still River to help reduce excessive nutrient loading that directly affects water quality in Lake Lillinonah.
- Lake Lillinonah Sediment Control & Sand Bar Enhancement

- This project proposes manipulating an existing sand bar, just south of Lover’s Leap gorge, enlarging the Good-year island and creating a sump to manage the sediment problems within the lake. New plantings would encourage wildlife habitat.

- Lake Lillinonah Emergent Growth Vegetation

- This project proposes to install beneficial vegetation to selected areas of the lake.


We believe that these projects meet the eligibility requirements defined in the grant applications. We will keep the membership posted on developments with these and any other projects that may benefit our lake.

Shoreline Management Plan Update (SMP)

As many of you know, the re-licensing of Lake Lillinonah’s power generating capabilities, now in the hands of a new owner, First-Light Power Resources, Inc., stipulates several lake management initiatives to help control unregulated development, reduce debris, and monitor and help the lake’s ecosystem.

The Shoreline Management Plan (SMP) is one of these initiatives, and focuses on the development of lakefront properties. Although the SMP is long and affects many aspects of ‘shoreline management,’ two items are of critical importance to Lake Lillinonah residents and users. They are the introduction of fees for lakeside residents’ docks, boat houses, sheds, decks and the like, and the raising of the allowed level of Lake Lillinonah. The Friends of the Lake executive team has focused on the latter, as we believe that Candlewood lake residents are adequately addressing concerns regarding the fees proposal. The SMP as written allows the power generation company to raise the lake 2.3’ higher than the ‘normal’ high you would see on a typical Sunday afternoon. In conjunction with the Lake Lillinonah Authority, FOTL has retained environmental consultants who have studied the issue and have reported that a huge negative impact would result from such a change to the lake level. The death of tens of thousands of trees, massive erosion, and damage to existing shoreline and structures would result. The following is an excerpt from a letter written to the Federal Energy Regulatory Commission (FERC) by the Lake Lillinonah Authority:

“We believe that (FirstLight Power Resources, Inc., ‘FPR’) has made errors and false statements to date. First, FPR (has) requested that the Water Quality Certificate from Connecticut DEP



be set at 198.3 NGVD. In this application they state that they wished to continue “normal” operations on Lake Lillinonah and that there (would be) “no change” from current operations. Secondly, during the (environmental impact statement; ‘EIS’) they expressed a desire to “use the upper 3 feet (of) its operating range on a more regular basis.” FPR never stated that the elevation of the current shoreline is 196 NGVD and how this plan would impact erosion and live trees to elevation 198.3. The EIS was fatally flawed! Thirdly, in comments regarding wood debris NGS again stated that water elevations have not changed. Finally, in the Littoral Zone Plan comments FPR responded to criticism about its intention to raise Lake Lillinonah’s operating elevation 1.5 feet on average by stating “There is no change in maximum operating levels. Therefore no modification to the plan is needed.” We believe that FPR has intentionally not disclosed the impact of elevated water levels to Lake Lillinonah’s shoreline, so that it could maximize the sales price of the Shepaug operations by essentially having all the approvals in place.”

Friends of the Lake’s executive board agrees with this assessment, that the SMP contains language that is misleading and if allowed, will cause great damage to forty-five miles of Lake Lillinonah’s shoreline. We have filed for intervener status with FERC. We have sent written statements to all pertinent parties, attended necessary meetings, and helped the LLA with this battle. We now await the decision of FERC to see what the SMP will mandate.

On the bright side, the new owner of the lake, FirstLight Power Resources, Inc., has publicly stated that they will not raise the lake above ‘historic levels,’ though ‘historic’ and the duration of a raised lake event still need specification.

Also good news is that Bob Gates, formerly the station manager with Northeast Generation Services, retains his position with FirstLight Power Resources, Inc., and has vast knowledge and experience with the lake and with our concerns.

We will let our membership know of any decision handed down by FERC regarding the SMP as soon as we hear.

Debris Update

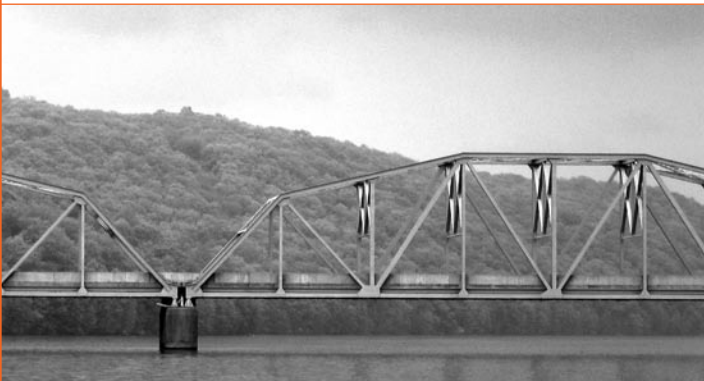
2006 marked the implementation of the initial year of operation by FirstLight Power Resources, Inc. for the Debris Management Plan for Lake Lillinonah and Lake Zoar. Considering this was the first year, and somewhat of a test year, the program was a moderate success since over 500 cubic yards of woody material was removed and ultimately chipped. FirstLight Power Resources, Inc. experienced navigational and mechanical problems with the equipment and upon repair and with more experience on the equipment the operators were able to perform debris removal reasonably well. The skimmer is limited operationally in that it only moves 5 MPH and has limited capacity by weight and draft. This year’s debris operations will try to address these limitations by utilizing more concentrated removal tactics.

The coves along the lake contained both large and small woody debris and was generally tightly compacted into the coves along the shoreline. The FirstLight Power Resources, Inc. operators found they were more effective in removing the small trapped debris after freeing it up by pulling out the larger logs. FirstLight Power Resources, Inc. further noted there appeared to be very little man made debris identified and attributed this to the on-going FOTL sponsored annual lake cleanup.

FirstLight Power Resources, Inc. submitted their first Annual Assessment Report on the DMP to FERC in March. The report contains detailed data and information on the DMP including debris summaries, operational activities, transect surveys and compliance statements. This Assessment Report can be viewed through a link on our website.

According to FirstLight Power Resources, Inc., the plans for the 2007 DMP on Lake Lillinonah have a simple message and tactic, “Debris Removal will be Early and Often”. A debris survey will be performed immediately after the freshet when the ice goes out. Lake Lillinonah debris will be tackled first and then Lake Zoar. They expect to commence debris operations in early May concentrating on areas prioritized from the survey. Most likely, the early debris removal will be concentrated near the Shepaug dam then move upstream. They will also continue to concentrate on the larger woody debris. FirstLight Power Resources, Inc. is working with FOTL and LLA to develop ideas for volunteer groups to trap and more effectively coral and remove the smaller debris.

FirstLight Power Resources, Inc. is also looking for locations to temporarily anchor the Skimmer North of the 133 Bridge due to the slow operational speed of the unit. This with several potential locations to take out the debris North of the 133 Bridge will significantly improve the efficiency of the DMP operation.





Additional FOTL Information

FOTL Alert System

Friends of the Lake have upgraded their lake level alert system. Over the winter we hired a firm called Alert Now (alertnow.com). When we have a special announcement or a water level alert the system will be activated and our members will be contacted by Email and Phone. You will have the opportunity to opt-out, if you so choose.

This system is similar to the system the LLA instituted last summer. We encourage you to also sign up for their alert system. You can do that by emailing the LLA at lakelillinonahauthority@hotmail.com and providing them the following information:

- Name
- Primary phone number [format: xxx-xxx-xxxx]
- Secondary (if any) phone number
- Mailing address
(to be used to update the LLA Newsletter mailing list)
- Actual location address (if different from mailing address)

With both systems, all your information will be kept in confidence and will be used only for the Lake Alert system and communications directly to you.

Water Quality Monitoring Program – **VOLUNTEERS NEEDED**

Last year FOTL worked with Professor Klug from Fairfield University, on a water quality monitoring for our lake. This includes daily recording from dock locations on the lake recording temperature, algae blooms and general water quality observations. If you have any interest in either dock monitor or boat monitoring please contact FOTL at (860) 210-8064 or email us at info@friendsofthelake.org.

Membership

Please encourage your neighbors, friends and family members to join FOTL. It is our large membership and active voice that will insure the protection of Lake Lillinonah for generations to come. You can visit our website for more membership information at www.friendsofthelake.org.

We are also available to speak at a neighborhood community gatherings or social clubs – call us at (860) 210-8064.

SAFE BOATING CERTIFICATE CLASSES

To legally operate any boat with an engine or motor, other than a personal watercraft, or a sailboat 19 ½ feet in length or longer, the following persons must obtain a Safe Boating Certificate (SBC):

- Residents of Connecticut
- Owners of real property in Connecticut
- Anyone using Connecticut waters more than 60 days in a year.

Operators of a personal watercraft, regardless of state residency, must possess a Certificate of Personal Watercraft Operation (CPWO) to operate on Connecticut waters (from the Connecticut Boater's Guide, 2007)

There are a variety of ways to fulfill the educational requirements in order to obtain a SBC or CPWO. For a listing of public classes around the State go to: <http://www.ct.gov/dep/site/default.asp>. Then navigate to "Outdoor Recreation," select "Boating," and choose the link for "Safe Boating Classes." The Sound Environmental Associates at <http://www.SeaDolphin.com> also offer classes. Classes will be starting soon in Danbury and New Milford; additionally, private classes are available. Call 1-800-510-9995 for more details.

The NJ Boating Safety group also offers classes in the area for Connecticut residents. For more information, go to www.NJBoatingSafetyClasses.com. ■



Friends of the Lake

(FOTL) is a non-profit group of concerned citizens who care about the management, safety and recreational uses of Lake Lillinonah and wish to develop a lake community to encourage the continued protection of its natural beauty and wildlife. The objective is to work closely with the Lake Lillinonah Authority, elected officials and residents of the bordering towns to increase awareness, foster stewardship and solicit additional funding for prioritized projects in order to reduce debris and pollution so that we may protect and maintain the quality of Lake Lillinonah now and for future generations.

