

# DNREC's remediation and restoration of Mirror Lake in Dover gets under way

*Innovative project will significantly improve health of the lake*

DOVER (Nov. 7, 2013) – Scientists from DNREC with help from numerous partners are adding to the list of “firsts” for the First State. Work is now under way on an innovative project that will clean up and restore Dover’s Mirror Lake. Officials, including Governor Jack Markell, EPA’s Mid-Atlantic Region Administrator Shawn Garvin, DNREC Secretary Collin O’Mara, Dover Mayor Carleton Carey, and others were on hand today to view early progress of the work, which began Oct. 1.

The project uses activated carbon – the same technology used in many water filters – to bind contaminants in lake sediments, significantly improving the health of the lake. Mirror Lake’s health has been in decline for several decades due to contaminants in bottom sediments that accumulate in fish, stormwater runoff and sedimentation, and invasive plant species.

“Mirror Lake is a gateway to historic Dover,” said Gov. Markell. “Restoring it is important for several reasons. First, we are improving the natural, aesthetic beauty of the lake for everyone to enjoy as they approach our State Capitol. Second, we are cleaning up contamination so fish are safe to eat. And third, we want to draw people to Silver Lake Park’s exceptional walking paths for fitness and general enjoyment. When we clean and beautify our natural areas, we make Delaware more enjoyable to people that live here and more attractive to businesses who may consider locating here.”

The activated carbon product being used is called SediMite,

and it is being incorporated into the sediments of the lake. It is expected to result in the reduction or removal of the fish consumption advisory in the lake and the St. Jones River downstream to Court Street in Dover within three to five years. The project marks the largest application of SediMite anywhere in the U.S. to date, and is the first state-funded sediment remediation project of its kind in the country.

“This technology demonstrates that we can, in a few short years, reverse the environmental damage that has been done in one of the most beautiful lakes in Kent County and make it fishable again,” said DNREC Sec. O’Mara. “This is a great example of what makes Delaware special – the strong support of our Congressional Delegation, the Governor, General Assembly, municipal government and local volunteers – all working together to accomplish big things.”

In addition to cleaning up the sediment with SediMite, the project includes several habitat improvement and restoration activities. The existing sandbar in the lake is being converted into an intertidal wetland that will improve ecological function and visual appeal of the lake. Coir logs – artificial logs made of coconut husks – and stone rip-rap flow diversion structures will also be used to protect the new wetland and prevent further streambank erosion. Finally, DNREC plans to add native plants to the new wetland area as well as on the western bank of the lake next to Fraizer’s Restaurant.

“This project once again demonstrates Delaware’s innovative leadership when it comes to restoring watersheds,” said EPA Regional Administrator Garvin. “Reviving Mirror Lake will improve water quality, restore habitats and increase biodiversity in the St. Jones Watershed.”

For decades the lake and downstream areas have been negatively impacted by sedimentation, stormwater runoff, chemical contaminants including PCBs and mercury, excess nutrients, bacteria, and invasive plant species. If left to restore on

its own, DNREC forecasts it would take several decades for the fish in Mirror Lake to be safe to eat and for the advisory to be lifted. DNREC scientists anticipate a reduction of contaminants in fish tissue up to 90 percent within a matter of a few years.

“Mirror Lake should be a jewel in Dover’s crown, but sadly over the years it’s lost some of its luster,” said State Senator Brian Bushweller, whose district includes the lake. “But with this innovative, first-in-the-nation project, I think that Mirror Lake will become one of our crown jewels once again. The project will be a big boost for the city.”

“I am excited about this project, the first of its kind in the nation, and excited for what the completion will mean for the people of Dover,” said State Representative Darryl Scott. “Years ago, Mirror Lake was a healthy, clean, and beautiful ecosystem. By restoring it to that condition, we will make it once again a landmark all Dover residents can be proud of and enjoy.”

“The remediation and restoration of Mirror Lake will be a great asset to the City of Dover,” said Dover Mayor Carey. “This will add to the beautification of the area. Mirror Lake and the park are wonderful places for families to visit and have special events, such as weddings and other events – at the Fireman’s Monument and throughout the park area. We couldn’t be more pleased.”

“The Mirror Lake Remediation and Restoration project is the largest and most ambitious part of the Silver Lake Park Revitalization Plan that was initiated in 2007,” said Silver Lake Commission Chairman Dean Holden. “There are so many people who have made this possible. DNREC and their skilled and dedicated staff have charted the course with the help of a long list of organizations and volunteers. They all deserve our sincerest thanks for all their hard work.”

DNREC's team evaluated several options for remediating Mirror Lake and downstream areas prior to choosing the in-situ (in-place) treatment technology. Complete removal of the contaminated sediments would cost approximately \$1.5 million, not including the significant price for disposal of the contaminated material. Capping the contaminated sediment with clean sediment was also considered. Although cheaper than dredging, the added volume of capping material would significantly reduce the depth of the lake and change flow patterns, neither of which is desirable. The chosen technology of incorporating SediMite has been successfully tested on a smaller scale at several federal facilities, including nearby Aberdeen Proving Grounds. DNREC has partnered with a world-renowned sediment remediation researcher from the University of Maryland, Baltimore County (UMBC) to develop the remediation plan.

The approximately \$1 million remediation/restoration project is being funded primarily by state sources, plus \$73,800 in federal grant funds from the Clean Water Act Section 319 Nonpoint Source for the wetland restoration and coir log installation by federal grant funding. The project also includes Community Transportation Funds from Sen. Bushweller and Rep. Scott.

Project partners include all Divisions of DNREC, UMBC, the City of Dover, the Silver Lake Commission, Brightfields, Inc., Biohabitats, Inc., local political leaders and others.

DNREC is keeping project costs down by using volunteer labor where possible. Invasive species removal and some general site preparation work were conducted by Delaware's Boot Camp Program, as well as by AmeriCorps volunteers. DNREC personnel from every Division are providing the majority of the labor required to broadcast the SediMite into the approximately five-acre project area. More than 3,500 hours of labor is estimated to complete the remediation/restoration project, which should be finished later this month.

DNREC and UMBC scientists have plans to monitor the effectiveness of the innovative treatment technology by collecting and analyzing sediment, water and fish tissue samples over the next three years. If the technology proves to be as successful as expected, then it is anticipated that other impacted rivers, creeks, streams and ponds across the First State may be rehabilitated using SediMite or similar non-destructive and cost effective technologies in the future.

To learn more about the Mirror Lake project, please check out a new video on DNREC's YouTube channel at <http://youtu.be/gplVE07eUq4>.