

Water Quality Sub-Committee

Subcommittee members: *Steering Committee members (SC), Citizen (C), State Gov(SG) County Gov (CG)*

Willie Lantz – SC
Steve Green – SC
John Forman – SC
Pete Versteegen - SC
Ken Fisher – C
Chuck Hoffeditz – C
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Staff Support

Christine Conn – DNR
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Tim Culbreth – DNR
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Ron Klauda – DNR
Tony Prochaska – DNR
Richard Ortt - DNR

Subcommittee summary:

The Subcommittee held its first meeting on December 17, 2013 and met 6 times through April 17, 2013. The group was charged with addressing the concerns expressed by both the Steering Committee and the public and as described in the “problem statements” on water quality concerns. Their work focused on defining goals, objectives and strategies to address three key issue areas: 1) Lake and Stream Water Quality, 2) Submerged Aquatic Vegetation (SAV), and 3) Erosion and Sediment Control. Additional strategies may be needed following the completion of the work of the other 3 subcommittees. The following goals, objectives and strategies are presented to the Steering Committee for their consideration for inclusion in the Watershed Plan.

Problem statement regarding Lake and Stream Water Quality

- There is concern that water quality in the lake may worsen. Specific sources of concerns include septic systems, sewage spills, storm-water runoff from multiple sources, geese, gasoline engines, lawn management, agriculture, and acid mine drainage.

Draft Goal 1 - Protect, maintain, and/or improve water quality parameters in the lake and watershed, to maintain and improve Deep Creek Lake at the mesotrophic level and to maximize the capacity of the Deep Creek Lake watershed to support recreational uses and healthy aquatic and terrestrial living resources and habitats.

Objective 1

Improve our understanding of the sources of nitrogen, phosphorus and sediment inputs to streams and the lake in order to prioritize where conservation, restoration and management activities will be most effective.

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		1. Conduct a nutrient synoptic survey in the spring when nutrient concentrations are typically at their highest to quantify nutrient concentration and yield from subwatersheds.
	State DNR	2. By Fall 2014, develop an inventory of stream restoration opportunities by conducting a Stream Corridor Assessment of 30 miles of streams within the watershed. Prioritize stream restoration projects.
		3. Develop an inventory of lake shoreline restoration and management opportunities by analyzing existing video shoreline surveys and categorizing and ranking the opportunities in a GIS database
		4. Develop stakeholder partnerships which would focus on landowner engagement for each tributary drainage to support the identification and implementation of watershed restoration projects

Objective 2

Continue regular monitoring of the Deep Creek Lake Watershed (lake and stream water quality) to inform lake and watershed conservation, restoration and management actions.

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Continue the Deep Creek Lake water quality monitoring workgroup making certain to engage all entities that conduct and/or use the data developed by water quality monitoring programs2. Identify monitoring objectives and develop a water quality monitoring program for the next 5 years, reevaluate every 5 years and include long term monitoring objectives and criteria.3. Convene yearly Water Quality monitoring meetings to discuss results, progress and integration of multiple monitoring programs4. Develop a WQ dashboard/set of indicators to document condition, trends and implementation progress

Objective 3

Maximize the beneficial water quality, air quality, habitat and economic services provided by forests through conservation, restoration and management efforts.

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Encourage the retention of forest land by engaging landowners in forest stewardship management plans through the Garrett County Forestry Board2. Identify landowner incentive programs and conduct outreach and education to increase tree canopy and lakeshore and stream riparian buffers.3. Develop conservation priorities for forests and for other lands in natural condition that provide exceptional water quality protection and support high quality aquatic and terrestrial habitats4. Develop a plan to protect conservation priorities based on existing zoning, future growth impacts, and private, local and state conservation assistance programs.

Objective 4

Maintain agricultural land use within the watershed and ensure that best practices are deployed to minimize, mitigate and reduce the impacts of nutrient and sediment inputs to the lake

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		1. Educate and encourage landowners to keep land in agriculture through State and county conservation and agricultural land retention programs
		2. Identify and prioritize opportunities to implement agricultural BMPs such as cover crops, stream protection, stream buffers, wetland restoration, etc.
		3. Encourage compliance with nutrient management and target outreach and monitoring efforts to maximize compliance
		4. Enhance profitability to farm and forest landowners through alternative incomes sources and use of locally produced farm and forest products
		5. Coordinate efforts of the Forestry Board and Farm Bureau to achieve mutual objectives

Objective 5

Minimize fertilizers and pesticide inputs to the lake and its streams from lawn care practices

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		1. Conduct a survey of residential lawn owners and lawn care companies to determine the degree of homeowner and commercial fertilizer application practices
		2. Educate lawn owners about lawn care practices that reduce fertilizer inputs and includes soil testing before application

Objective 6

Manage concerns over additional nonpoint and point sources of pollution to Deep Creek Lake and its streams, including those associated with geese populations.

Strategies

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Educate landowners on habitat modification practices and permits for nest production control for the reduction of geese populations.2. Prohibit or discourage feeding of geese on public and private lake shoreline property.3. Encourage goose hunting outside of the buffer strip area of Deep Creek lake4. Determine if permitted point source discharges to the lake and its streams need to be re-evaluated. [This should be a continuing program to assess if progress is being made with remedial measures]

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Problem Statement regarding Submerged Aquatic Vegetation

- SAV is a normal component of healthy freshwater ecosystems. They provide a number of important ecological functions such as oxygen production as well as nutrients and food for all aquatic organisms. In addition, SAV function as habitat and nursery areas for many fish and other aquatic animals. Healthy SAV communities are also important in maintenance of desirable water quality. However, excessive growth of SAV are viewed as a nuisance by recreational users such as boaters and swimmers. SAV in several parts of DCL have become a problem, In addition, recently found non-native invasive species, Eurasian Water milfoil (*Myriophyllum spicatum*) and Hydrilla (*Hydrilla verticillata*), have impacted recreational use of the lake and do not provide the same ecological benefits as native SAV species.
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Draft Goal 2 - Manage SAV in Deep Creek Lake to maintain and improve the ecological stability of the lake, as well as reduce and minimize the interference of SAV with recreational uses of the lake.

Objective 1

Continue the existing Deep Creek Lake Watershed Monitoring Plan (DCLWMP) monitoring plan and develop a long term monitoring plan to track changes in SAV species composition, abundance and distribution to inform native and non-native SAV management plans.

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Establish an ongoing Water Quality Work Group (WQWG) charged with the responsibility for directing and coordinating the DCLWMP.2. The WQWG will identify and recommend additional monitoring objectives to be incorporated into the long term monitoring plan.3. The WQWG will prepare publicly available annual reports on DCL watershed water quality monitoring results, implementation actions, and management recommendations.4. Identify research needs to complement monitoring and management objectives in partnership with academic institutions and funding programs. For example, a holistic integrated study of the lake to determine ecological thresholds for various attributes of the lake to ensure

healthy ecosystems and meet recreational/economic uses should be conducted.

Objective 2

Manage the SAV communities in the lake that affect recreational uses such as boating and swimming to minimize interference with public recreation.

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Identify areas where SAV populations are considered to be a public use concern through a user-based evaluation, such as participatory GIS recreational use workshop or other venue.2. Identify all possible SAV management options, including control strategies and dock permitting policies, and the appropriate means of implementing them.3. Develop an education program to provide all watershed and lake users with appropriate management solutions and options for support and maintenance of native SAV communities and healthy fish populations.

Objective 3

Control existing populations of established invasive SAV species communities using best management practices and prevent future introductions of harmful non-native species of SAV.

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Determine if existing non-native SAV species are detrimental to maintaining a healthy lake ecosystem and active recreational usage.2. Identify control strategies to reduce the negative impacts of targeted non-native harmful species, such as Hydrilla and others.3. Identify management plans to prevent future introductions of Hydrilla, Eurasian Water milfoil and other harmful non-native species of SAV.

Problem Statement regarding Erosion and Sedimentation

- Sediment deposition and movement affect the habitat and recreational use of the shallow areas of the lake. Existing regulations and fees are burdensome for lakefront property owners who want to protect the shoreline.
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Draft Goal 3 - Prevent erosion and sedimentation to the greatest extent possible to protect the water resources of the watershed from increased sediment loading and associated water quality problems.

Objective 1

Identify the causes and mechanisms of erosion and sources of sediment that operate within the Deep Creek Lake watershed, including the movement of sediment in the lake itself

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Identify probable sources of sedimentation through an analysis of watershed condition based on soil type, slope, drainage patterns, land use, and other factors and considering sedimentation studies done to date.2. Identify and quantify the causes and mechanisms of lake and stream shoreline erosion.3. Categorize erosion by shoreline type and severity potential.4. Identify existing shoreline control measures around the lake and categorize with respect to efficacy and visual impact and correlate with the results from 1 and 25. Prioritize areas of special concern and develop remedial approaches

Objective 2

Develop an Erosion and Sediment Control Implementation Plan

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Identify the means to control to various erosion processes identified under Objective 1.2. Define measures to judge the performance and adequacy of erosion control projects3. Identify and prioritize erosion and sediment control

projects. Coordinate with results from stream walks, storm water management and agricultural erosion initiatives.

4. Identify funding and partnerships to complete at least 1 or 2 projects a year

Objective 3

Revise, streamline and incentivize lake shoreline protection measures

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Determine the legal responsibilities of the State and Lake-side property owners regarding the maintenance of the buffer strip and the shoreline.2. Define and develop standard approaches for selecting and installing shoreline protection measures based on the various types of shoreline conditions that need to be protected.3. Review permitting requirements and procedures, identify needed improvements and develop a process that streamlines shoreline erosion control practices in a cost-effective manner for the landowner.

Objective 4

Make the coves navigable for existing and future boat docks/slips. Include considerations for moving and/or extended docking facilities and dredging to the original lake bottom contours.

<i>Priority¹</i>	<i>Lead entity(s)</i>	<i>Strategy</i>
		<ol style="list-style-type: none">1. Review and modify, if necessary, laws, rules, regulations and methods to extend docking facilities to deeper waters2. Develop evaluation criteria and identify areas where private and/or county led initiatives to remove sediments are possible3. Identify means and disposal options to remove sediments by private and/or county organizations4. Assess the legal, permitting and disposal requirements related to dredging.5. Develop organizational structures that can deal with the needs

6. Identify sources of potential funding

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