

# Deep Creek Lake Scientific Symposium

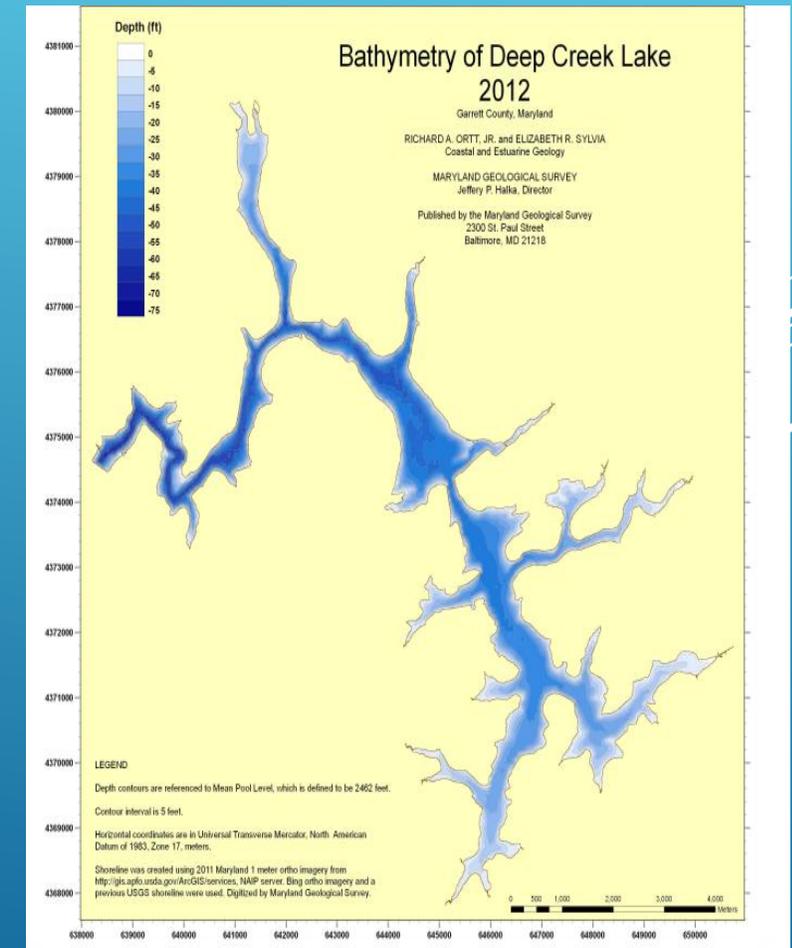
## A Historical Perspective of Deep Creek Lake Sediment Studies and Projects

October 25, 2025

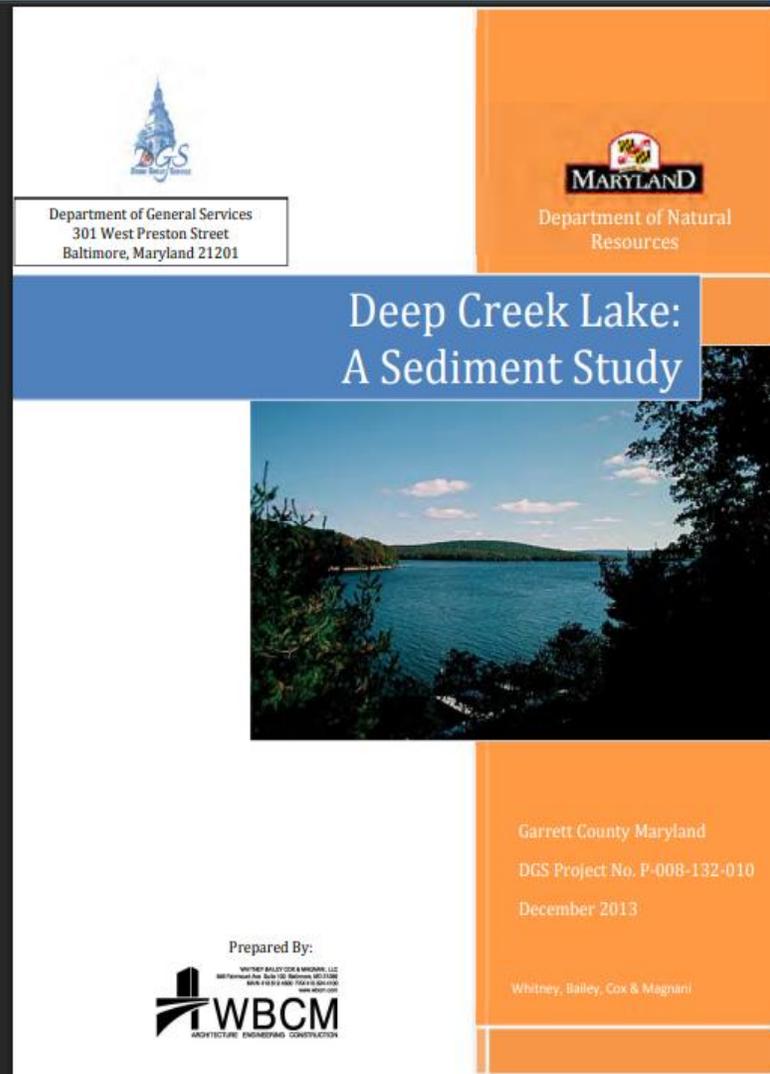


# Deep Creek Lake Monitoring

- 2009 DNR initiates a comprehensive long-term water quality and habitat monitoring program
- 2010 Long-term Submerged Aquatic Vegetation (SAV) monitoring program
- 2010-2011 Maryland Geological Survey conducts DCL bathymetric and sediment chemistry survey



# Historical Deep Creek Lake Sedimentation Studies



Department of General Services  
301 West Preston Street  
Baltimore, Maryland 21201



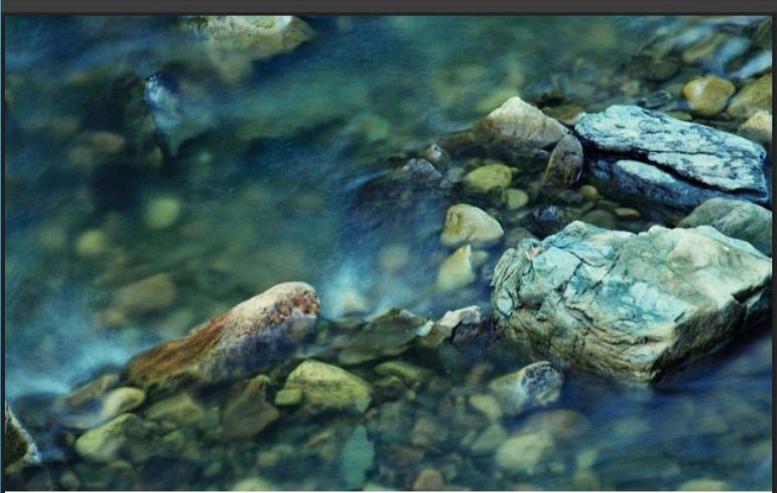
Department of Natural Resources

## Deep Creek Lake: A Sediment Study



Garrett County Maryland  
DGS Project No. P-008-132-010  
December 2013

Prepared By:  
  
WHITNEY, BAILEY, COX & MAGNANI



July 2017  
Deep Creek Lake Dredging Evaluation Garrett County, Maryland



## Cove Evaluation Report

Prepared for Maryland Environmental Service



May 2020  
Arrowhead Cove Sediment Removal at Deep Creek Lake



## Alternatives Analysis

Prepared for Maryland Environmental Service

# Deep Creek Lake: A Sediment Study (December 2013)

- Provided in-depth independent study of Deep Creek Lake sediment conditions
- Study based on DNR's Maryland Geological Survey DCL bathymetric and sediment analyses conducted in 2010-2011
- Analysis confirmed that there are 10 sediment impacted coves in DCL since creation of lake in 1925

# Key Study Findings

## **Sediment Composition:**

Deep Creek Lake sediments are primarily fine-grained, consisting of approximately 39% silt and 43% clay

## **Source of Fine Sediments:**

The abundance of clay in the sediments is a consequence of the underlying shale formations within the lake's watershed

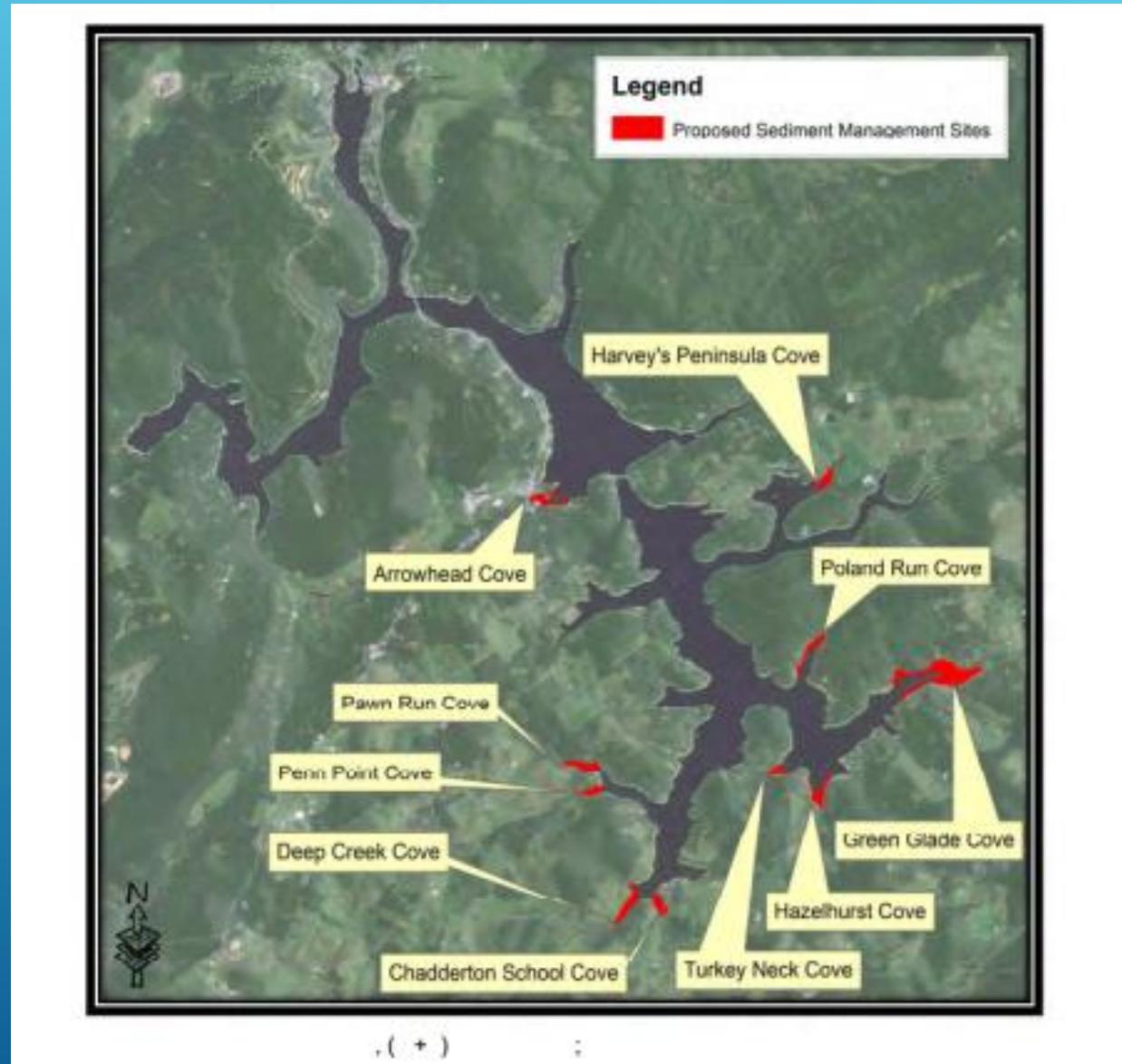
## **Sediment Accumulation:**

Studies confirmed that sedimentation is occurring in the lake, with most accumulation concentrated in the southern coves

## **Impacts:**

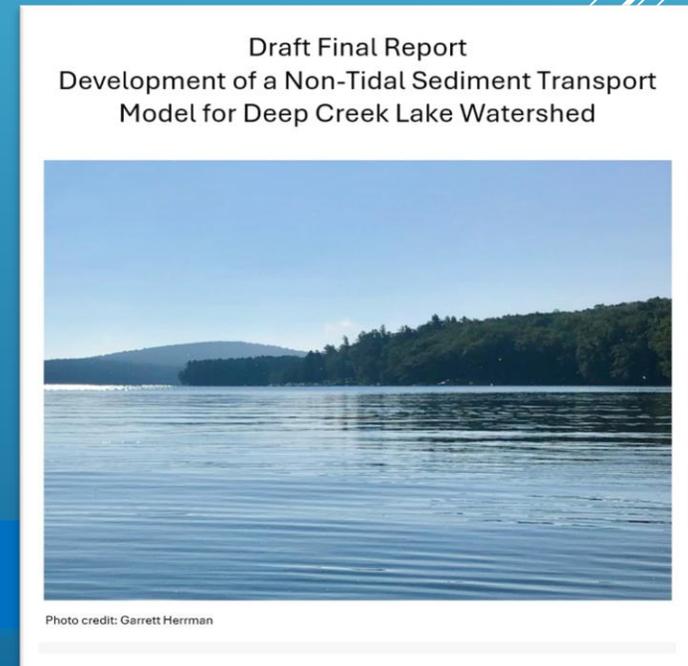
Sediment accumulation negatively affects recreational uses and access to the lake

# 10 DCL Sediment Impacted Coves



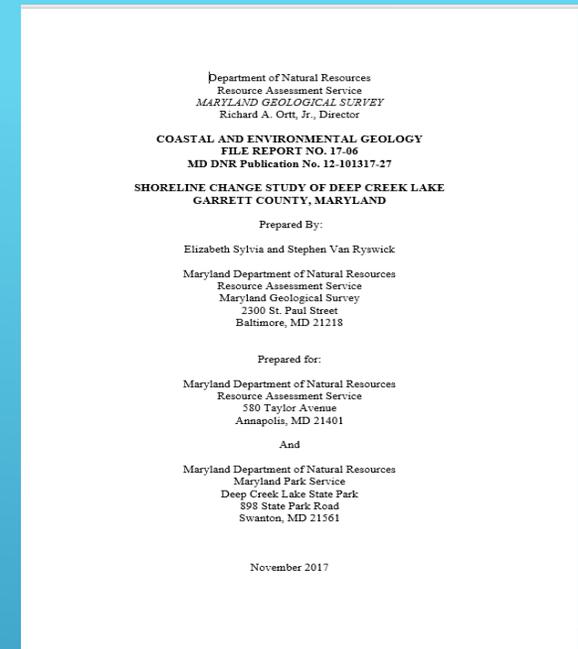
# Deep Creek Lake Tributaries Listed as Sediment Impaired

- The DCL watershed was listed on the 2008 Integrated Report of impaired waters with a biological impairment
- The biological impairment listing is based on the combined results of the Maryland DNR Maryland Biological Stream Survey (MBSS) round one (1995-1997) and round two (2000-2004) data
- All MBSS stations have benthic and/or fish index of biotic integrity (BIBI, FIBI) scores considered to be biologically impaired
- A subsequent stressor analysis was conducted by MDE to determine the primary cause of the biological impairment is sediment related



# Additional State Funded Sediment input Studies

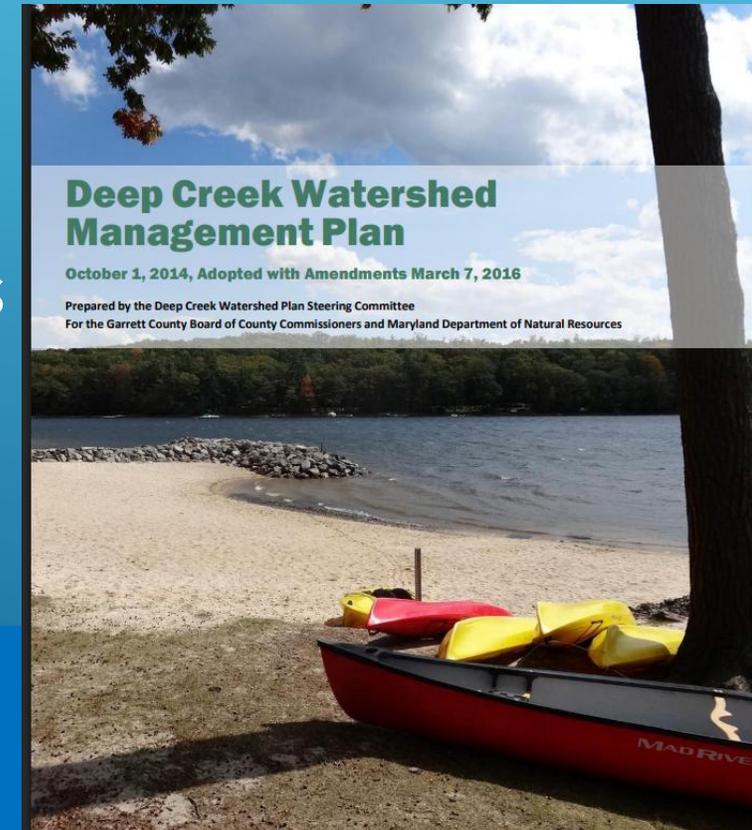
- MGS Shoreline Erosion Study – 2017
- RAS DCL Select Tributary Suspended Sediment and Nutrient Tributary Load Monitoring Study
- Data collect between 2015-2016
- Projects funding through DNR's Waterway Improvement Funding (WIF)



Early DCL monitoring efforts, studies and reports were pieces of evidence and driving forces for multiple DCL stakeholder, local, State and federal representative meetings, working groups, along with legislative efforts to secure sediment mitigation funding and actions to address the DCL sediment issue

## Outcomes:

- Provided input for DCL Watershed Management Plan
- Drove Legislative action to create the State Lakes Protection and Restoration Fund
- Encouraged DNR and legislators to provide funding to implement the Arrowhead Cove Pilot dredging and other projects



# State Funded Sediment Reduction and Mitigation Projects

- Silver Tree Shoreline Stabilization Demonstration Project
- Funded by DNR's Waterway Improvement Fund
- Three types of shoreline stabilization types
- Completed in 2022



# State Lakes Protection and Restoration Fund (2018)

Purpose of the legislatively enacted Fund:

- Removing sediment
- Treating contaminated sediment
- Preventing the spread of invasive species
- Improving ecological and recreational value
- Taking any other action the department deems necessary

Funding level \$1 M per year, but legislative funding ended June 30, 2025



# SLPRF Projects at Deep Creek Lake (~\$400K-\$500K per year since 2018)

- Shoreline stabilization cost-share program at ~\$200,000 per year
- *Hydrilla* Control (*hydrilla* first found in DCL in 2013; began chemical treatment in 2014)
- Create and improve fish habitat

# Arrowhead Cove Pilot Dredging Project

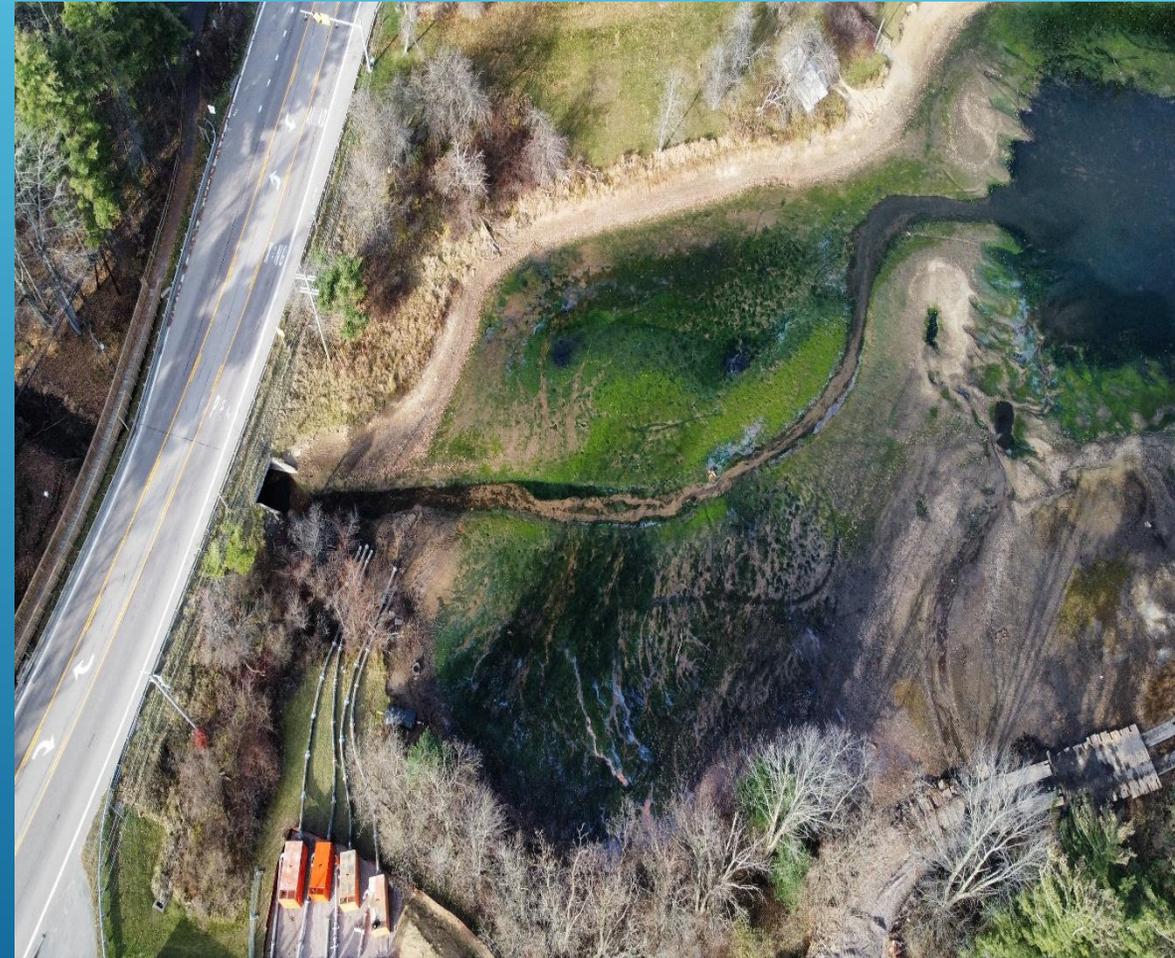
## Purpose:

To determine if dredging can be an effective tool for removing accumulated sediment in Deep Creek Lake shallow coves

## Funding:

- Project entirely funded by the State of Maryland at ~ \$2.4 M
- Initial project design costs funded by DNR's Waterway Improvement Fund
- Project permitting, review, bidding, implementation and reporting funded by DNR through special allocation to the State Lakes Protection and Restoration Fund

# Drone survey of arrowhead cove after Brookfield lowered lake levels to 2456.5 feet – Nov. 20, 2023



# Arrowhead Cove Bottom Dredging: Removed 1' - 5' of Material



# Arrowhead Cove Dredging Final Reports

## DEEP CREEK LAKE ARROWHEAD COVE DREDGING PROJECT LESSONS LEARNED REPORT

**FINAL**



**Prepared for:**

Garrett County Government  
203 S 4th St #207  
Oakland, MD 21550



**Prepared by:**

Maryland Environmental Service  
259 Najoles Road  
Millersville, MD 21108



## DEEP CREEK LAKE ARROWHEAD COVE DREDGING AS-BUILT DRAWINGS

**FINAL**



**Prepared for:**

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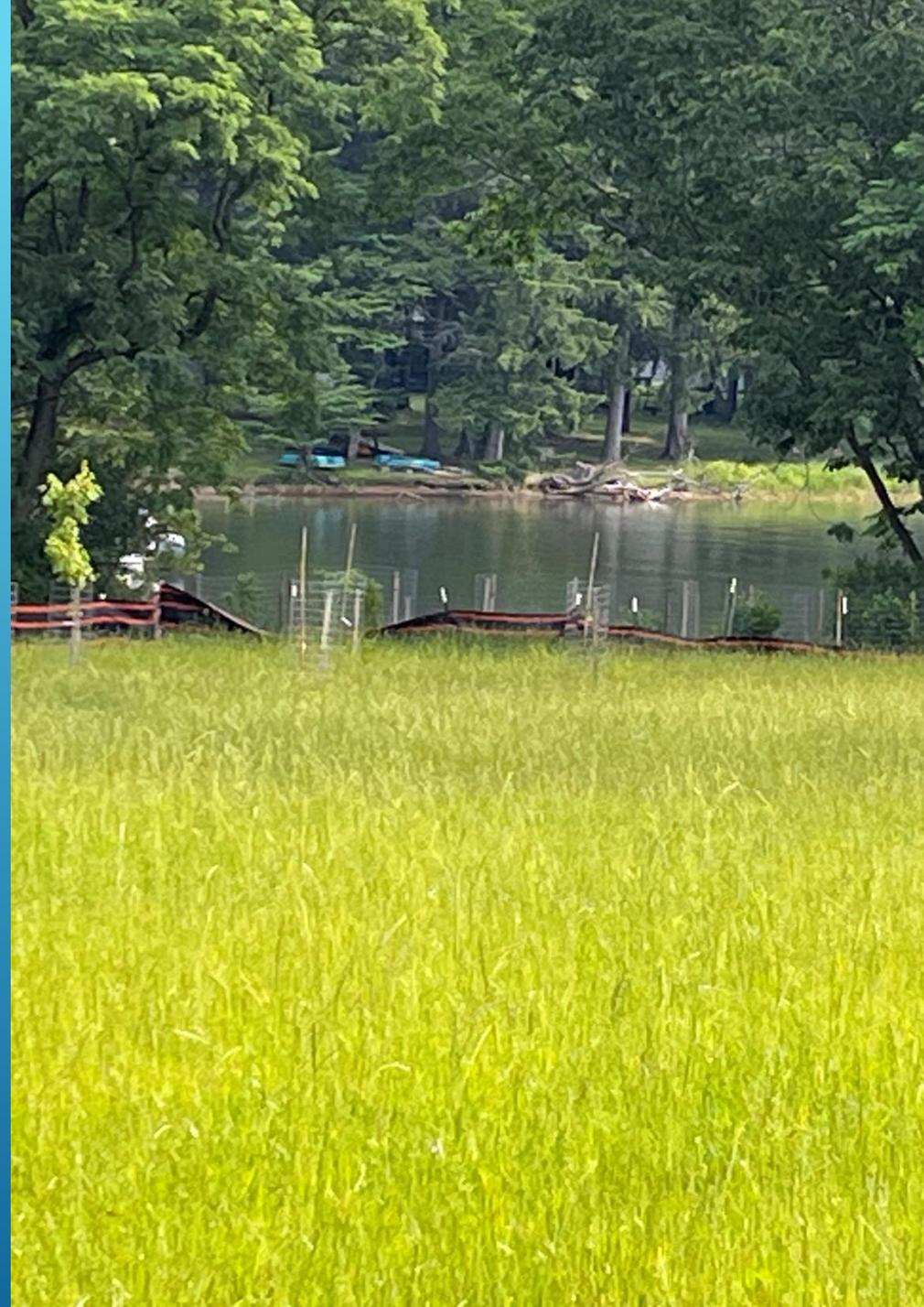
Maryland Environmental Service  
259 Najoles Road  
Millersville, MD 21108



March 2025

# Project findings (lessons learned)

- Successfully removed over 11,000 cy of accumulated sediment
- Mechanical dredging in the dry during fall and winter demonstrated to be an effective tool for removing a relatively large amount of sediment, but at a significant cost and uncertainty due to weather
- Project improved boating and swimming access
- SAV and upland restoration appears to be successful
- Impacts to fishing are yet to be determined



# Project findings (lessons learned) continued

- Main issues of concern for mechanical dredging in the dry are weather, time of year restrictions, water levels, high costs
- Consider evaluating hydraulic dredging, which could be less expensive while avoiding some of the major issues of concern and uncertainty
- Lessons Learned Report can be found at: [www.garrettcounty.md.gov/community-development/watershed-management/arrowhead-cove-dredging-project](http://www.garrettcounty.md.gov/community-development/watershed-management/arrowhead-cove-dredging-project)



# Deep Creek Watershed Foundation Projects

- Funding to support continuous water quality monitoring
- Tributary monitoring studies: 2022 and 2025 – generally good water quality, but low macroinvertebrate and fish abundance due to siltation and embedded stream bottoms
- Support for DCL 10 By 10 Program - goal is to reforest the buffer strip along the Lake shore with at least 10% of woody vegetation in 10 years



# Where do we go from here on preventing and addressing DCL sediment accumulation and mitigation?

- Continue implementing Goals from the DC Watershed Management Plan: - Goal 6: Prevent erosion and sedimentation to the greatest extent possible to protect water resources from increased sediment loading and associated water quality problems
- Maintain significant long-term and targeted monitoring efforts
- Identify additional DCL funding opportunities as some long-term funding is currently no longer available

# Questions?

Additional information can be found on Garrett County's website:

<https://www.garrettcounty.org/watershed/deep-creek-lake/arrowhead-cove>

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