Submerged Aquatic Vegetation Management in Deep Creek Lake

Cristina Sanders
Deep Creek Lake Manager

Agenda

- Background
- Ecological Role of Submerged Aquatic Vegetation (SAV)
- Objectives
- Considerations
  - Aquatic Invasive Species (AIS)
  - Impacts to Fisheries
  - Impacts to Native SAV
- Harvester Pilot Study Sites/Methods
- Discussion
- Next Steps

Background

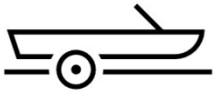
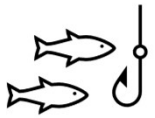
- SAV is a natural part of the ecosystem of Deep Creek Lake; however, despite its inherent ecological benefits, SAV can become an impediment to recreation if it becomes overgrown.
- Currently, mechanical removal and benthic mats are the only management options available.
- Management is an individual responsibility and is restricted to the areas surrounding docks.
- 2025 Harvester Feasibility Pilot Study

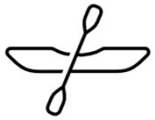
Ecological Role of SAV

- SAV forms the foundation of healthy lake ecosystems
  - Produces oxygen through photosynthesis, vital for lake life
  - Provides food, habitat, and nursery areas for fish and invertebrates
  - Absorbs nutrients, reducing the risk of algal blooms
  - Improves water clarity
  - Reduces shoreline erosion from wake
  - Major food source for waterfowl
  - Helps prevent invasive species occurrences

Objectives

- Despite ecological benefits, SAV can hinder recreation and boating
- Some DCL residents have expressed concerns about dense SAV beds
- Additional management strategies using data driven information to make informed decisions
- 2025 Harvester Feasibility Pilot Study

Considerations - AIS

- Hydrilla is an invasive aquatic plant
  - First discovered in the southern portion of the lake in September 2013.
  - Following the discovery of Hydrilla, a management and control plan was designed and has been implemented
  - During the 2025 Harvester Feasibility Pilot Study – two new occurrences of hydrilla were found
  - Fragmented hydrilla can travel and take root in a new area
- Invasive hitchhikers & new AIS
  - Harvester equipment may be operated in bodies of water with invasive species

Considerations - Fisheries

- SAV provides nursery habitat to juvenile fish species
- By-catch is a high potential when removing SAV with an aquatic harvester
  - Determining how impactful this method is to fisheries is important
- Many trophy fish species in Deep Creek Lake are ambush predators and SAV provides good cover
- Implications to food web
  - Invertebrates
  - Juvenile fishes
  - Waterfowl

Considerations – Native SAV

- Benefits of SAV
  - Oxygen
  - Habitat
  - Water quality
  - Shoreline protection
  - The high density and diversity of SAV in most areas of DCL are promoting water clarity throughout the lake and providing habitat for a healthy population of fish and invertebrates.
- Nuisance VS regular
- Large-leafed pondweed (*Potamogeton amplifolius*)
  - Native to Maryland but was thought to be extirpated from the state until 2013, when it was documented in both Rocky Gap State Park's Lake Habeeb and Deep Creek Lake.
  - Since its discovery, populations have expanded in both density and distribution throughout Deep Creek Lake.

MARYLAND DEPARTMENT OF NATURAL RESOURCES

MARYLAND PARK SERVICE

What is an Aquatic Harvester?

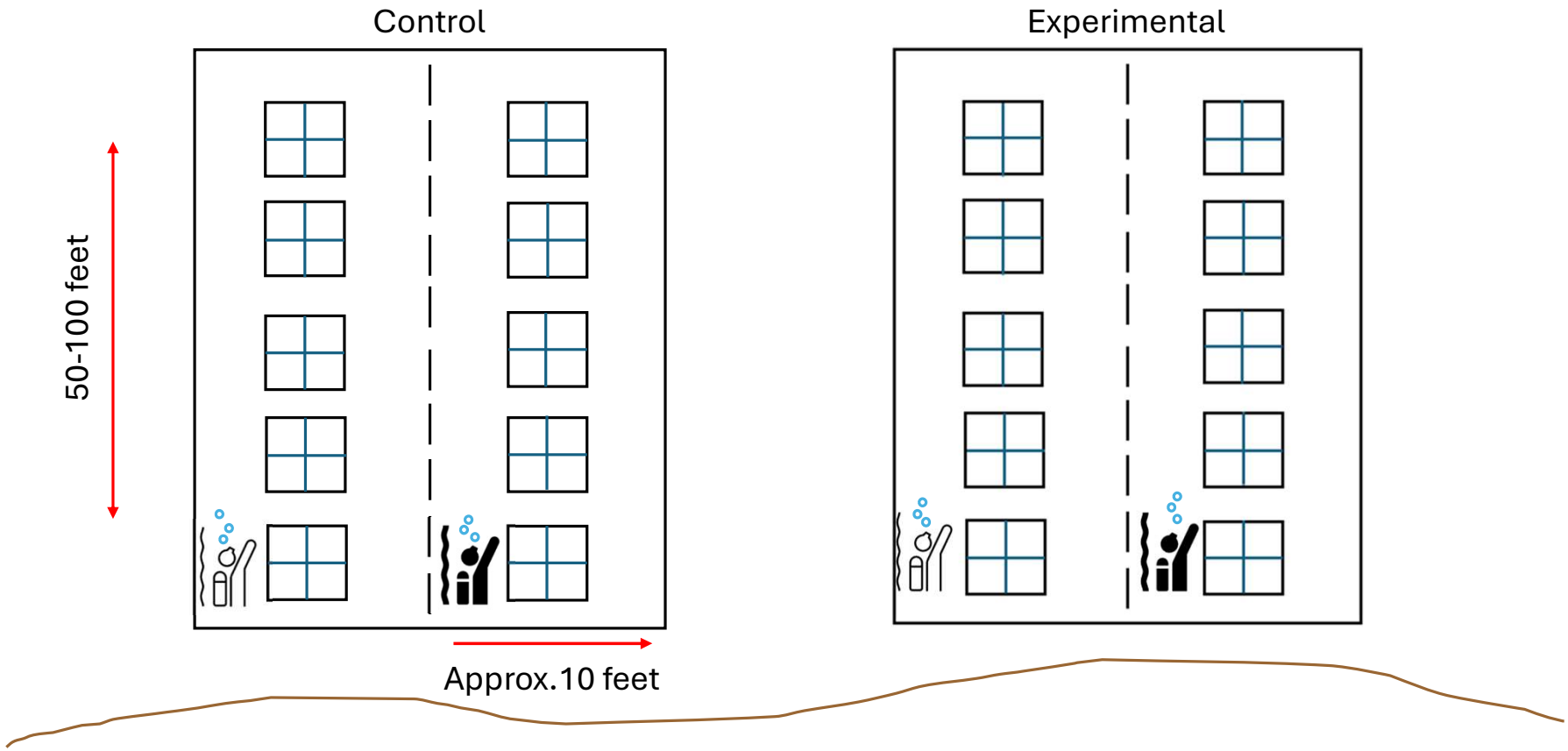
Harvester Feasibility Pilot Study Sites

- 3 Study Sites
  - Shallow (1m/3.3ft)
  - Intermediate (2m/6.6ft)
  - Deep (4m/13.1ft)

- Selected locations were areas with SAV that were away from private and commercial docks

Harvester Feasibility Pilot Study Methods

- Calibration Survey
- Pre & Post Cut SAV Surveys
  - Transects using square meter transects
    - SAV Species
  - SCUBA
- Harvesting occurred twice
- DNR Fisheries


Control
Experimental
50-100 feet
Approx.10 feet

MD DNR Deep Creek Lake SAV Survey

Divers:_____

Beginning Waypoint:_____

Date:_____

Recorder:_____

End Waypoint:_____

Site:_____

Control / Impacted

Quadrat:_____

				Species →																	
Distance Along Transect (m)	Total Canopy Ht (m)	Total SAV % cover	Epis?	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)	% cover	Can Ht. (cm)

Notes:

Va Wild Celery
Ec Common Waterweed
Px Potamogeton species

Ms Eurasian Watermilfoil
Ppu Slender Pondweed
Sc Crested Arrowhead

Pc Curly Pondweed
Pa Broadleaf Pondweed
Pe Ribbon-leaved Pondweed

Hv Hydrilla
Pv Vasey's Pondweed
Ngd Southern Naiad
Ngr Slender Naiad

Discussion

- Need to determine nuisance SAV versus SAV

- What density would qualify for harvesting
  - Impacts to fisheries, water quality, etc.

- Increased workload
  - Snorkel or SCUBA Survey to confirm absence of AIS

- Who is responsible for the harvesting?

Next Steps

- Analyze the data
- Work with partners (fisheries, RAS) to discuss results and options
- Write the report!

Cristina Sanders
Deep Creek Lake Manager
(301) 387- 4112 (office)
(240) 920 - 8766 (cell)
cristina.sanders@maryland.gov