

2022 Lake Orange and Sediment Control Structures (SCS) #1, #2, and #3 Submerged Aquatic Vegetation Survey NC Division of Water Resources

Introduction

Hydrilla, (*Hydrilla verticillata*), is one of the most destructive and ecologically damaging invasive aquatic plants in the world. It can form dense monocultures that crowd out native vegetation, reduce the habitat for aquatic organisms and severely impact recreational activities. For these reasons, it is considered a federal and state noxious weed which prohibits the import, sale and movement of Hydrilla without a permit. Hydrilla was first found in Lake Orange in 1992. A fish barrier was installed and sterile grass carp were stocked in 1994 and 1998 to manage Hydrilla within the reservoir. Hydrilla was thought to be extirpated from the site around 2005 but a resident at the upper end of the lake reported that they were actively seeing Hydrilla growing. A whole lake survey was completed in 2014 and found approximately 2.5 acres of Hydrilla within Lake Orange. More information concerning past management activities can be found on the AWCP online database ([NCDEQ-DWR :: Aquatic Weed Control \(ncwater.org\)](https://ncwater.org)).

Methods

The AWCP completed a full-lake survey of SCS #1, #2, and #3 on November 7th. For Sediment Control Structure #1 (Compton's Pond) a point-intercept method was used. A total of 24 points were sampled at (Figure 1). Three rake tosses were conducted at pre-determined points throughout the lake to determine presence/absence of SAV as well as quantify rake coverage. Rake coverage was quantified using a scale from 0 to 4 (0 = no vegetation; 1 (Trace) = <25%; 2 (Sparse) = 25% - 50%; 3 (Moderate) = 50% - 75%; 4 (Dense) = 75% - 100%). Additionally, a recording fathometer (SONAR) was used to map and record the bottom. Approximately 2 miles of sonar tracks were logged. The SONAR data was uploaded to a third-party company, Biobase, to quantify the depth and biovolume data. Biovolume is a percentage of the water column taken up by vegetation when vegetation is present. All of this was then combined with the rake-toss data using GIS software to estimate coverage. For Sediment Control Structure #2 and #3 visual surveys were conducted from the shoreline with rake tosses thrown at random locations along the shoreline.

Results

Lake Orange

There was no survey conducted in 2022. The lake was drawn down for repairs to the dam.

Sediment Control Structure #1

SAV was found at 12, or 50%, of the rake toss points (Figure 2). Species found during the survey include the filamentous algae (*Spirogyra spp.*), the macroalgae Chara (*Chara spp.*), and the blue-green algae Lyngbya (*Microseira wollei*) (Figures 3 – 5).

Sediment Control Structures #2 and #3

There was no Hydrilla found during the visual survey from the shoreline. There was also no other SAV found.

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Figure 1. Map showing locations of pre-determined rake toss points.

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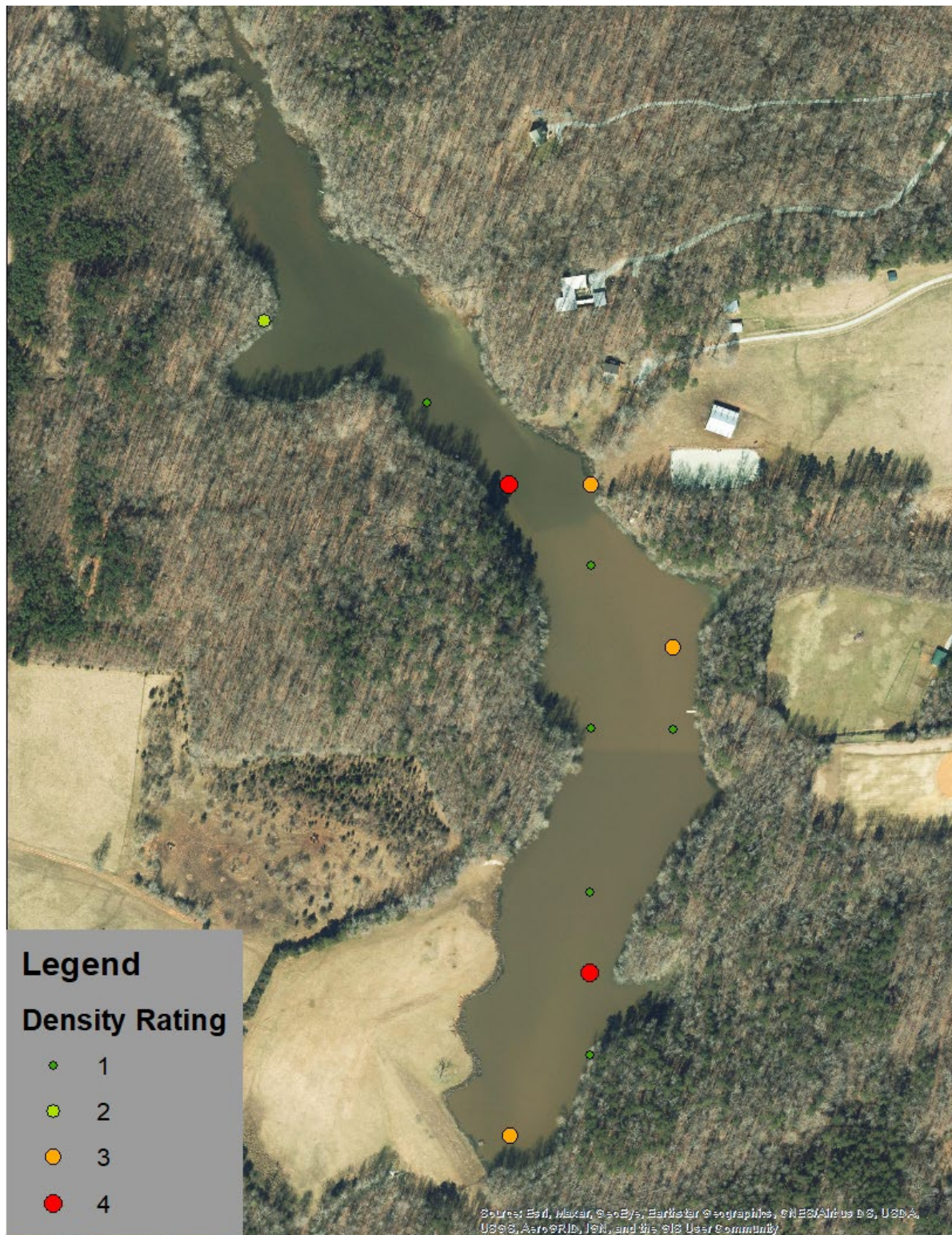


Figure 2. Map showing location and associated density rating of SAV.

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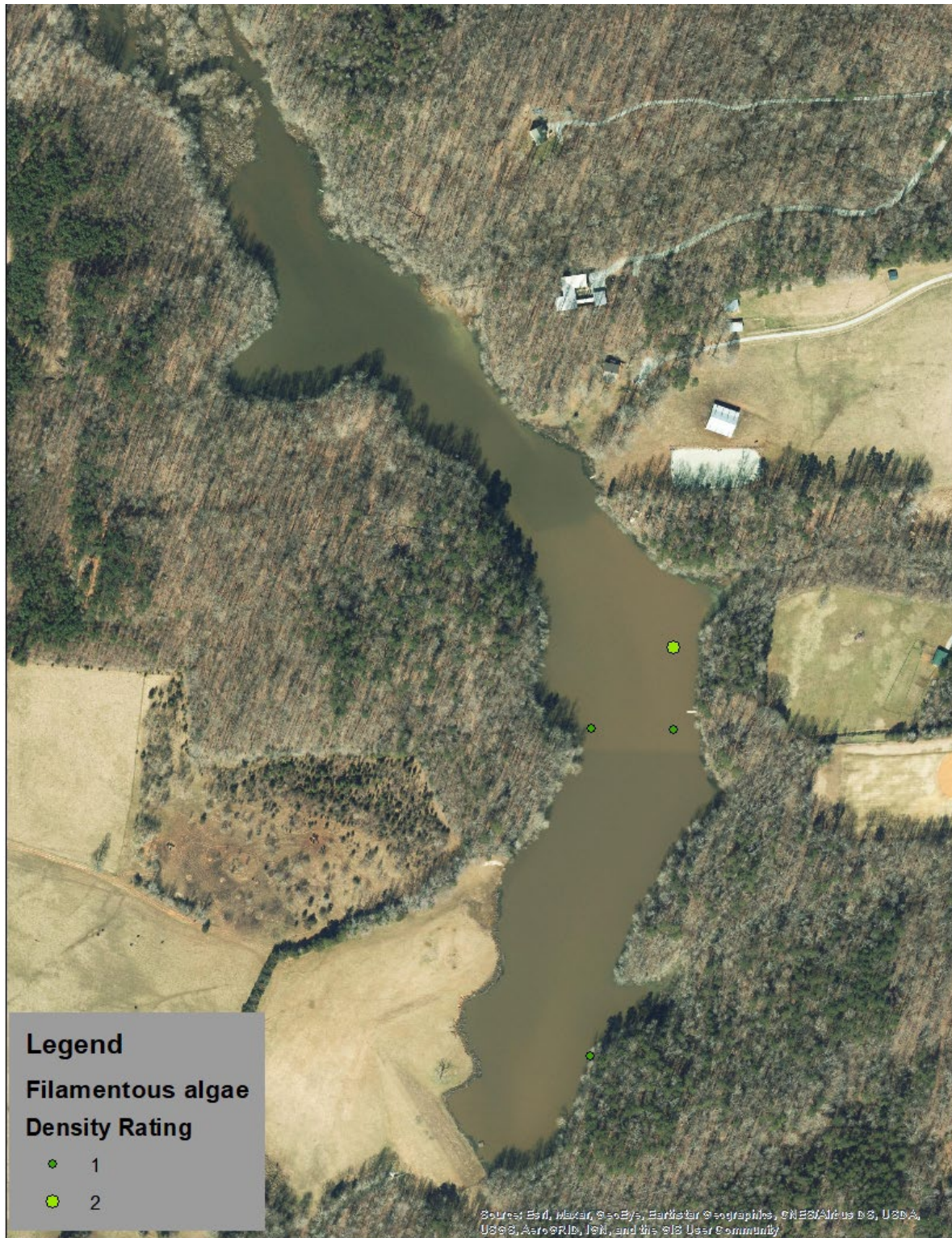


Figure 3. Map showing location and associated density rating of *Spirogyra spp.*

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Figure 4. Map showing location and associated density rating of Chara.

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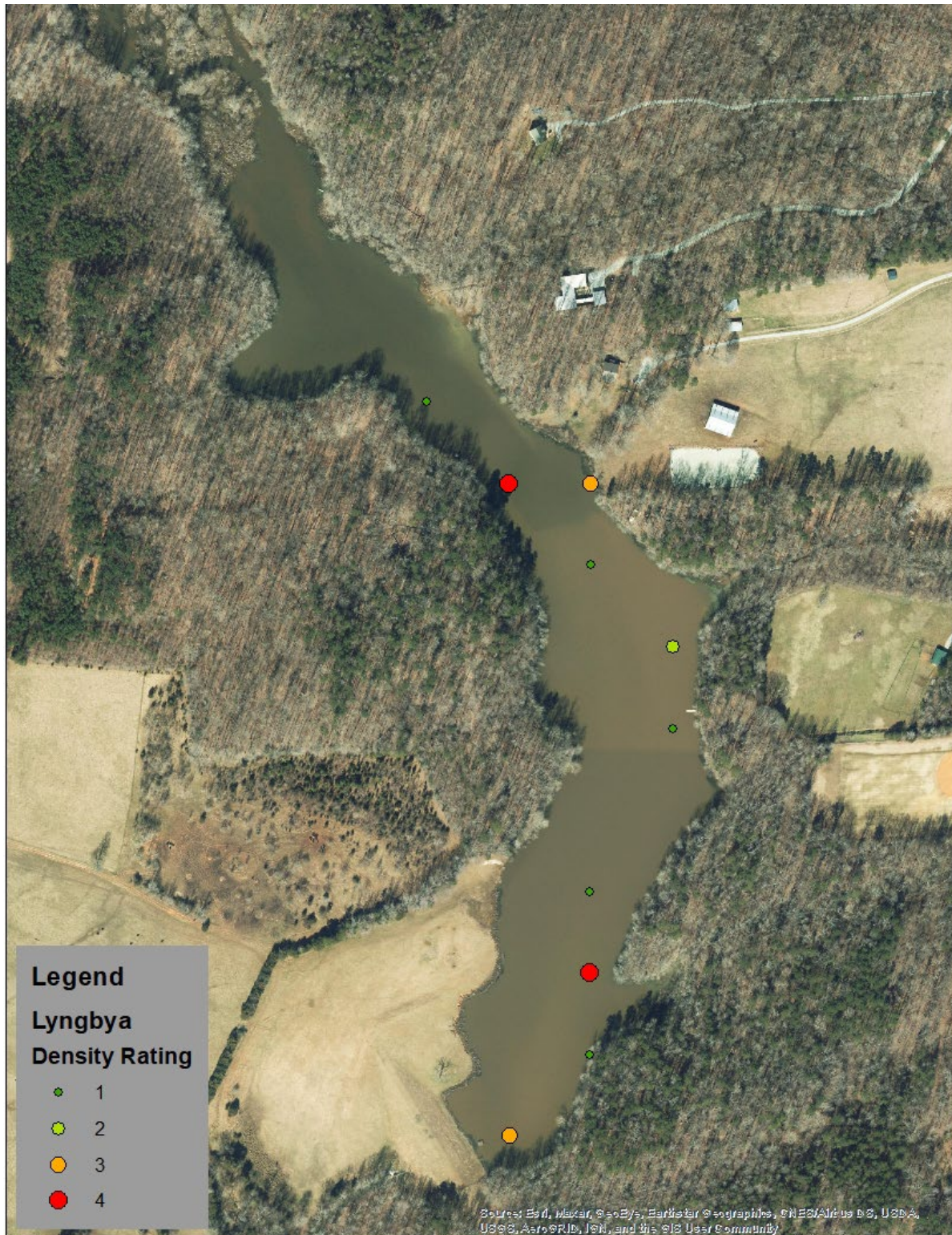


Figure 5. Map showing location and associated density rating of Lyngbya.