2021 Lake Tillery Submerged Aquatic Vegetation Survey
NC Division of Water Resources

Introduction

Hydrilla, (*Hydrilla verticillata*), is one of the most economically and ecologically damaging invasive plants in the world and can lead to many undesirable outcomes. These include the forming of dense monocultures that crowd out native vegetation, reducing the habitat quantity and quality for aquatic organisms, clogging of municipal water intakes and severely impacting recreational activities such as boating and swimming. 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 reported in Lake Tillery in 2006, around the Swift Island boat ramp, and herbicide applications began that year as well. Since then, multiple partners including the Aquatic Weed Control Program (AWCP), the NC Wildlife Resources Commission (WRC), and Duke Energy have worked together to manage Hydrilla in the reservoir. More information concerning past management activities can be found on the AWCP online database (NCDEQ-DWR :: Aquatic Weed Control (ncwater.org)).

Methods

The AWCP completed a full-lake survey of Lake Tillery September 24th and September 28th – 30th. Three rake tosses were conducted at pre-determined points along the shoreline to determine presence/absence of SAV as well as quantify rake coverage. Additionally, a recording fathometer (SONAR) was used to map and record the bottom. Roughly 79 miles of SONAR 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.

Results

A total of 206 points were sampled (Figure 1). Of those 206 points, Hydrilla was found at 4, or 2%, of them (Figure 2). This was a slight increase from 2020 where Hydrilla was found at 8, or 4%, of the 206 points. The total estimated coverage of Hydrilla in 2021 is 5 acres (Figure 3). Additionally, Hydrilla was found at 3 locations in between the pre-determined rake toss points (Figure 4). Other SAV found during the survey includes Proliferating Spikerush (*Eleocharis baldwinii)*, Southern Naiad (*Najas guadalupensis*) and Coontail (*Ceratophyllym demersum*). Proliferating Spikerush was found at 5, or 2%, of the rake toss points (Figure 5). Southern naiad was found at 3, or 1%, of the rake toss points (Figure 6). Coontail was found at 2, or 1%, of the rake toss points (Figure 7). Water Willow was observed growing along much of the shoreline. Other emergent vegetation observed during the survey was Cattail (*Typha spp.*) and Alligatorweed (*Alternanthera philoxeroides*). The macroalgae Chara, *Chara spp.*, was found at 8, or 4%, of the rake toss points (Figure 8). The cyanobacteria Lyngbya, *Microseria wollei*, was also found in the reservoir. It was found at 6, or 3%, of the sample points (Figure 9).

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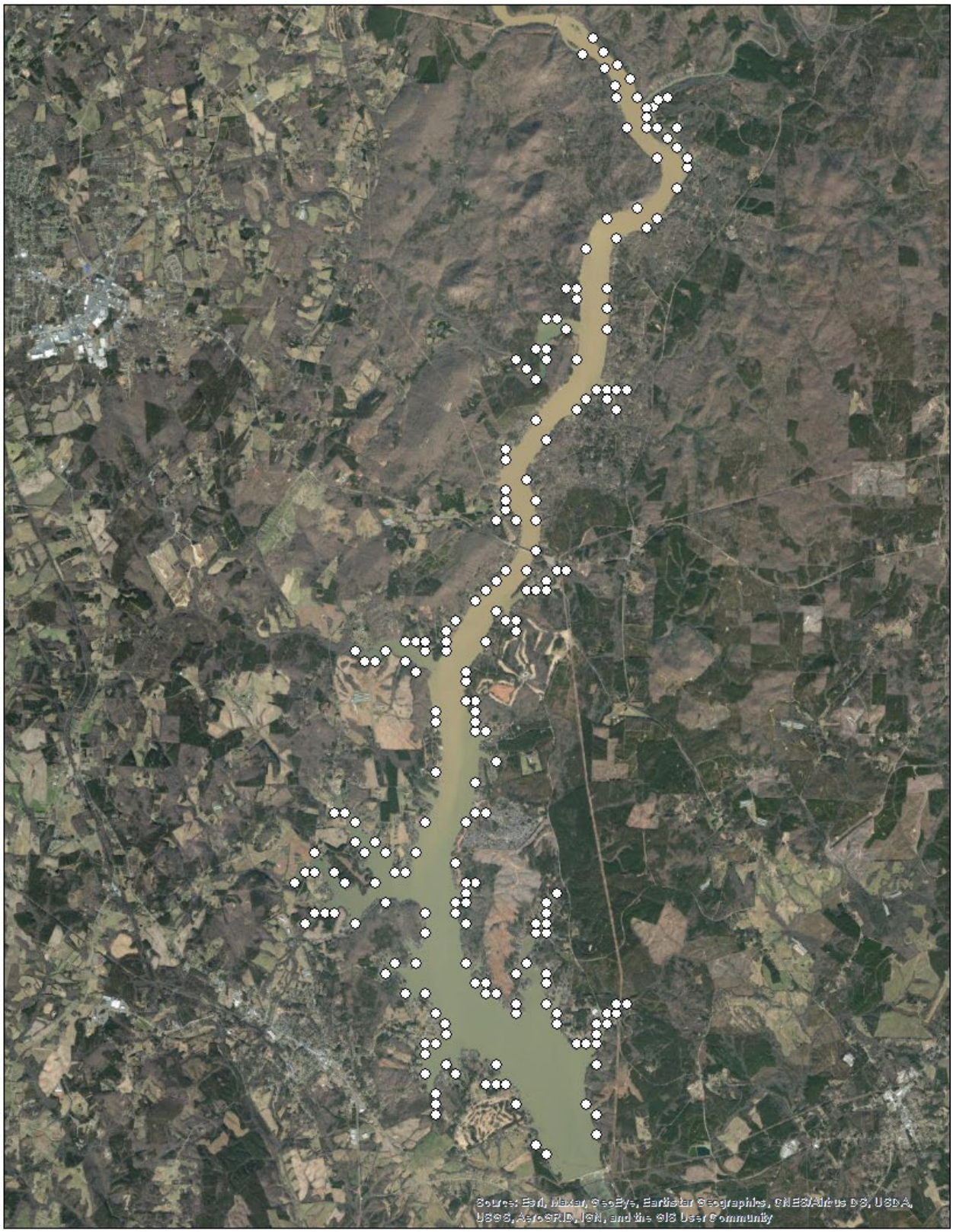

Figure 1. Map showing location of 206 pre-determined RTP.

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Figure 2. Map showing locations of Hydrilla.

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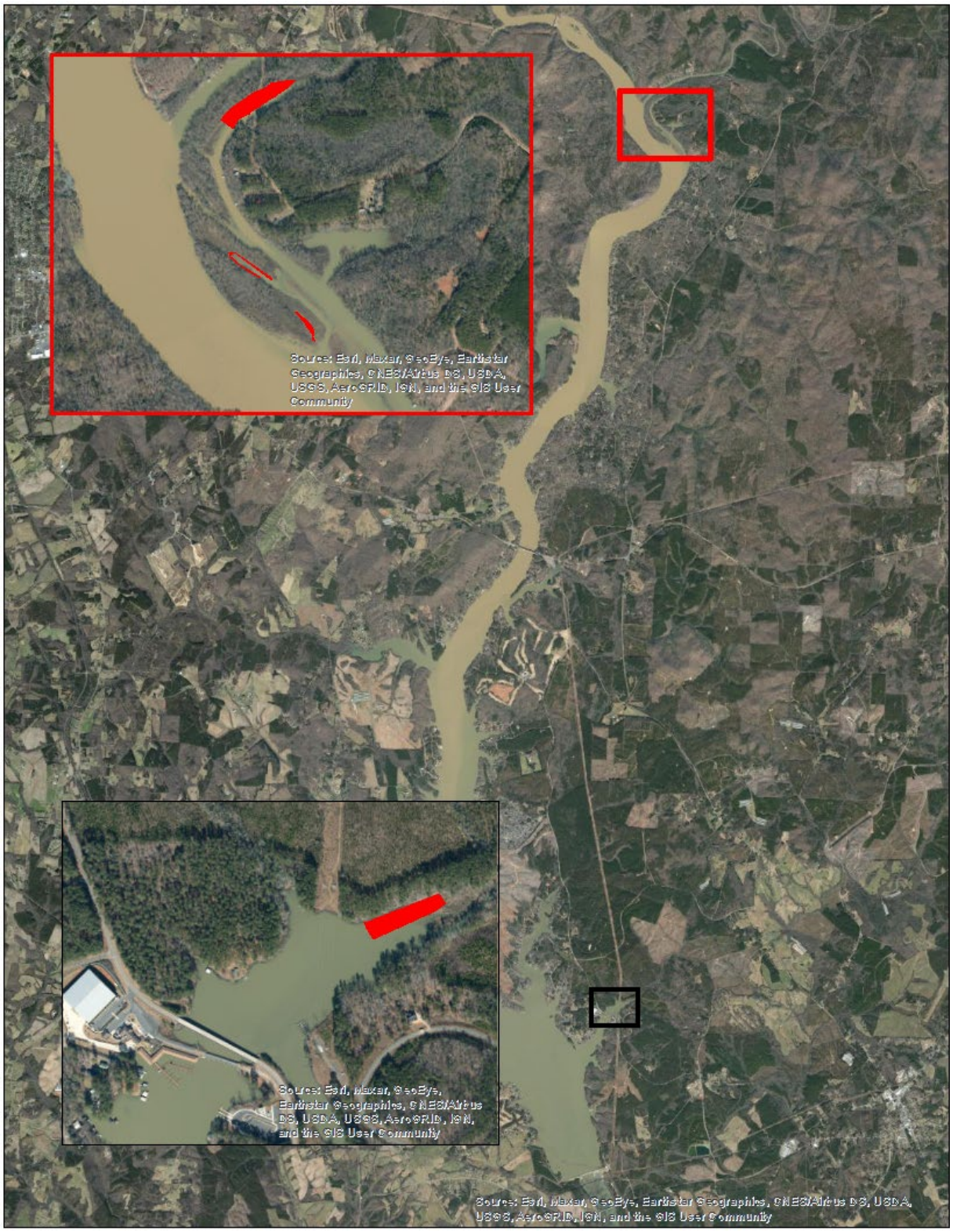

Figure 3. Map showing Hydrilla coverage (5 acres).

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Figure 4. Map showing Hydrilla presence between pre-determined RTP.

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Figure 5. Map showing locations of Proliferating Spikerush.

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Figure 6. Map showing locations of Southern Naiad.

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Figure 7. Map showing locations of Coontail.

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Figure 8. Map showing locations of the macroalgae Chara.

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Figure 9. Map showing locations of the cyanobacteria Lyngbya.