Van Cortlandt Lake Angler Survey Final Report

Tibbetts Brook Watershed, NY

October 30, 2020

The 2020 Angler Survey was funded by the Bronx Council for Environmental Quality.

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1. Introduction

As a key member of the Bronx & Harlem River Urban Waters Federal Partnership, the Van Cortlandt Park Alliance (VCPA) works on a series of projects along Tibbetts Brook, the Harlem River's last remaining tributary. Tibbetts Brook is a 4 mile long freshwater stream that begins its course in the Dunwoodie section of Yonkers, NY and travels south. First passing through H.F. Redmond Jr. Memorial Park, a Yonkers city park, then Tibbetts Brook Park, a Westchester County park, before entering the Bronx in Van Cortlandt Park. Stormwater, channelization, non-point source pollution from two golf courses, stream barriers in the form of dams and culverts, lack of effective riparian buffers, and the eventual entering into the NYC combined sewer system make up a majority of the issues found along the small urban river.

With a mission to preserve, support and promote the recreational, ecological and historical value of Van Cortlandt Park, VCPA has taken on some of these issues that degrade Tibbetts Brook through restoration practices and research within the borders of the city park. A survey of people who fish in Van Cortlandt Lake falls into this category as well. Through various sources of funding and partnerships, VCPA has been working on the following projects with the goal of positively impacting the Brook:

1.1 Riparian Forest Restoration

Nearly 90 acres of Van Cortlandt Park is Tibbetts Brook floodplain forest and the open waters of Van Cortlandt Lake. In the northern section of the park, this forest has been negatively impacted by the construction of the Mosholu Parkway and Henry Hudson Parkway during the 1930's. The brook was channelized and placed into a culvert to pass between a cloverleaf of on and off ramps of the parkways. Fill was added in some sections of the floodplain forest to build up the area surrounding the highways. To this day, some sections of this forest are highly degraded, with multiple invasive shrubs, trees and vines taking control.

VCPA is currently restoring 16 acres of this northern section of the floodplain forest within Van Cortlandt Park. Staff have been cutting back and removing the roots of the invasive vines and shrubs and replacing with native shrubs, trees, and herbaceous cover. At the time of this writing, during the Fall of 2020, VCPA staff have planted 180 native trees and shrubs, 183 perennial forbs and flowers and seeded 0.2 acres with a native seed mix.

1.2 Trash Removal

After taking part in a research program called "Stopping Trash Where It Starts" through the NY/NJ Harbor and Estuary Program in 2018 and 2019, the area in Yonkers between the southern end of Tibbetts Brook Park and northern end Van Cortlandt Park was found to be the largest source of litter within the Tibbetts Brook system. VCPA

holds one to two cleanups with the public per year and staff regularly clean the floodplain where they are working, however more was needed to be done.

In September of 2020, VCPA staff installed a trash boom at the border of Yonkers and the Bronx, within Van Cortlandt Park. Regular cleaning of the boom is done by VCPA staff and data on the type of litter removed is recorded and catalogued for future use. VCPA staff utilize a similar model of trash categorization as other partners in the Bronx & Harlem River Urban Waters Federal Partnership including the Bronx River Alliance and Randall's Island Park Alliance.

1.3 Japanese Knotweed Solarization Research

Beginning in 2020, research using the technique of solarization on Japanese knotweed (*Reynoutria japonica*) began along the banks of Tibbetts Brook. In partnership with Groundwork Hudson Valley, and with funding from the New York State Department of Environmental Conservation's Invasive Species grant, six locations along the brook are being studied. At each site, the invasive plant has been knocked down, and thick tarps placed on top of where the plants were knocked down. The tarps are staked down and left, essentially "cooking" the roots left underneath the tarps. Japanese knotweed is a highly invasive plant that grows abundantly in Tibbetts Brook floodplain. The plant poorly holds onto sediment from the banks of rivers and thus is not an ideal plant to have along riverbanks. The goal of this study is to better understand what may be occurring both above and below ground when using the method of solarization to remove Japanese knotweed.

1.4 Water Quality Monitoring

Since December of 2015, regular sampling of Tibbetts Brook has occurred. Currently, samples are taken from nine different locations, in both Yonkers and the Bronx. General water quality parameters such as dissolved oxygen, pH, and conductivity are measured at each site. Samples are brought to Manhattan College to be tested for nutrients, heavy metals, and bacteria. During the summer months, VCPA takes part in a state-wide Harmful Algal Blooms (HABs) program, regularly monitoring Van Cortlandt Lake for HABs. To date, no HABs have been recorded on the lake.

1.5 Water Chestnut Removal

The invasive non-native plant known as water chestnut (*Trapa natans*) covers two open ponds along the Tibbetts Brook system, Tibbetts Brook Park Lake and Van Cortlandt Lake. Since 2016, VCPA has led the removal of water chestnut from the surface of Van Cortlandt Lake and VCPA partner Westchester Parks Foundation leads the removal in Tibbetts Brook Park. The plant can cover a body of water, blocking sunlight from reaching the lower reaches of the water body, thus reducing other plant growth. When the plant dies en-masse during the fall, an associated drop in dissolved

oxygen caused by aerobic bacteria breaking down the plant matter, can negatively impact fish populations.

2. Purpose

This report is to share data recorded from surveys of Van Cortlandt Lake experiences via people who fish or have fished on the water body. During the months of July through September of 2020, 19 participants were surveyed using an online survey created by VCPA seasonal Tibbetts Brook Restoration staff. The two seasonal staff members, along with their supervisor developed the online survey. The goal of this survey was to receive feedback from those who utilize Van Cortlandt Lake so that VCPA can take this into consideration for future projects and funding. The 2020 Angler Survey was funded by the Bronx Council for Environmental Quality.

3. Results

In the survey, a series of questions were asked relating to the persons connection to fishing in Van Cortlandt Lake. Of the 19 people surveyed, 10 participants or 52.6% knew of the work that VCPA does along Tibbetts Brook. A majority of the participants live in neighboring zip codes, but most polled noted that they only fish in Van Cortlandt Lake a few times a year or less. Asked what type of fish participants were fishing for in Van Cortlandt Lake, the most common was largemouth bass (*Micropterus salmoides*) with 17 of 19 participants mentioning bass. Those surveyed noted that they also fish in the Catskills, the NYC DEP reservoirs and the Hudson River along with Van Cortlandt Lake.

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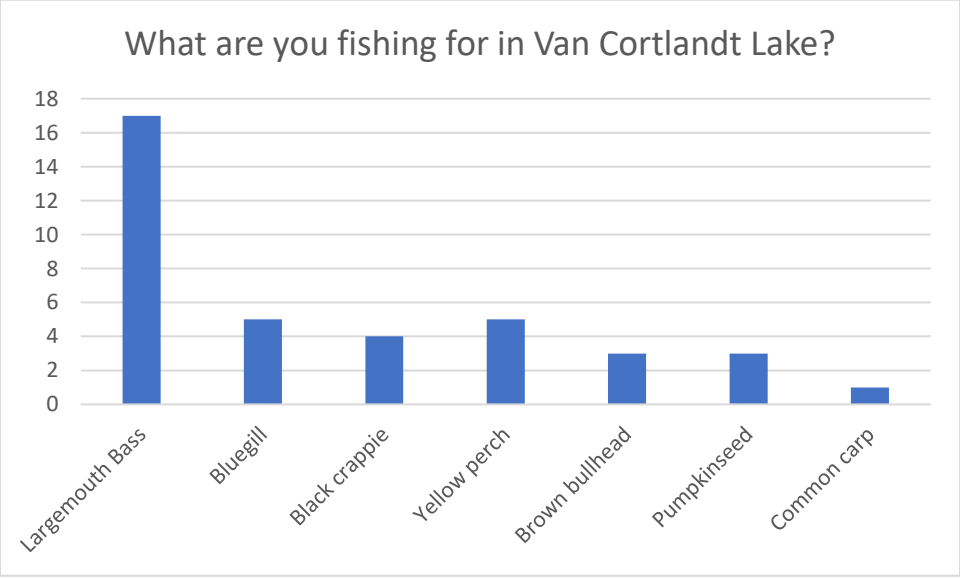
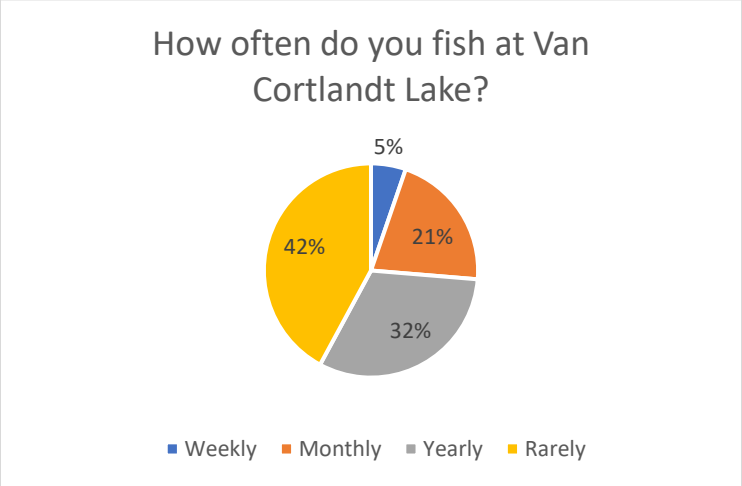


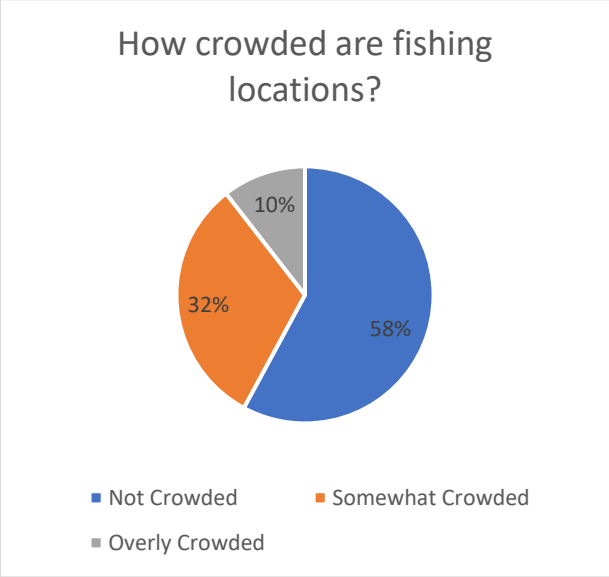
When asked about what brings them back to fishing in Van Cortlandt Lake, responses mainly mentioned that it is quiet and close to home, with one noting that "serene features and quietness" of Van Cortlandt Lake while another mentioned that it is an "amazing escape". A majority of those polled answered that the fishing locations around Van Cortlandt Lake are not crowded.

Table 2:



Participants were then polled about their thoughts on improvements needed along Van Cortlandt Lake. They mentioned there is a need for more open shoreline, more enforcement of fishing regulations, removal of aquatic plants is needed, adding a fishing dock, stocking more fish, and that others fishing need to clean up after themselves. A majority answered that trash is not a hindrance to fishing at Van Cortlandt Lake, but that aquatic plants are a hindrance. Answers were varied as to the difficulty level in finding a good fishing location. At the end of the survey, just 11 out of the 19 answered that they would be interested in programming led by VCPA with a focus on aquatic ecology and best fishing practices.

Table 3:



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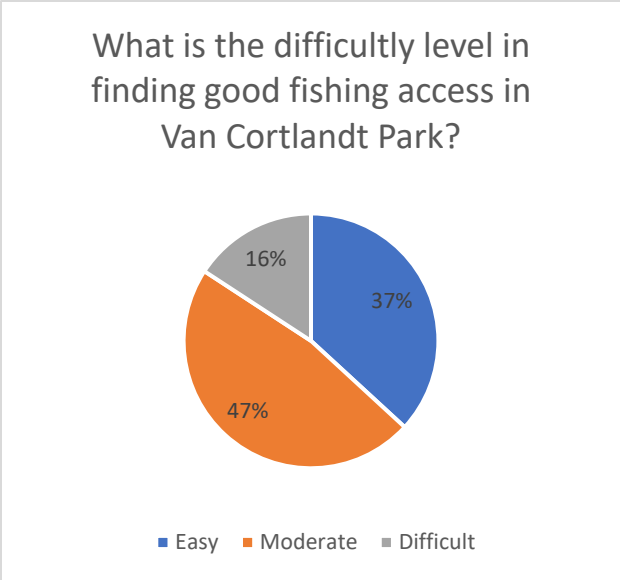

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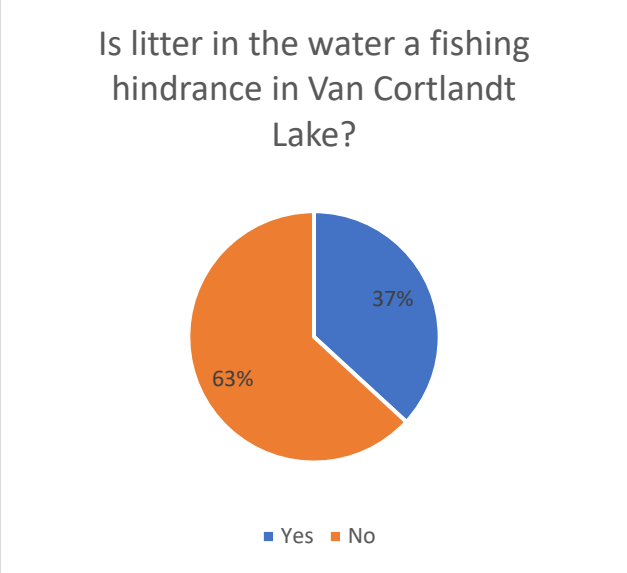

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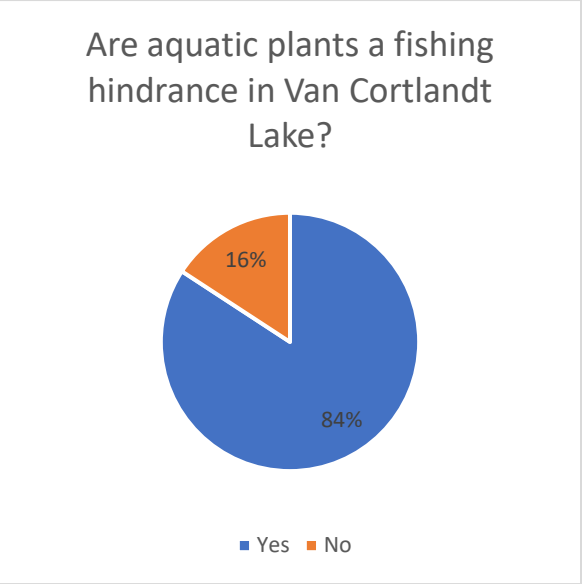

4. Discussion

Although only a small sample size was reached this year, due to many difficulties during the 2020 season to work with the public due to Covid-19, interesting points were brought up in the survey. The first to address are the issues with aquatic plants. The excessive growth of aquatic plants and green algae on Van Cortlandt Lake is a biproduct of the elevated levels of phosphorus in the system. This has led the State of New York to deem Van Cortlandt Lake as impaired by phosphorus.

VCPA assessed the species of aquatic plants found on Van Cortlandt Lake during the summer months, with the five most common being water chestnut (*Trapa natans*), prickly hornwort (*Ceratophyllum echinatum*), curly pondweed (*Potamogeton crispus*), American white water-lily (*Nymphaea odorata*) and yellow pond lily (*Nuphar lutea*). Of these species, water chestnut and curly pondweed are both non-native invasive species, with the other three being native species. To note, prickly hornwort is listed on the 2019 New York Natural Heritage Program's watch list as a rare species. This species population in the lake should be protected. The lake also has heavy growth of minute aquatic plants such as duckweeds, duck meal and water ferns as well as filamentous green algae. Future goals for VCPA are to work with NYC Parks to obtain a harvester to reduce the water chestnut populations on the Lake; this will hopefully begin during the summer of 2021.

The questions relating to the difficulty in finding good fishing access may have been a bit skewed, as this survey was performed during a time when the Putnam Greenway was blocked by construction fencing, closing off a high amount of the shoreline of Van Cortlandt Lake. Multiple survey takers did note that a fishing dock would be a nice addition to the Park, which would increase fishing access points and provide another designated fishing location. Trash in Van Cortlandt Lake did not seem to be of high concern to many anglers, however increased trash removals in the Lake would only improve the aesthetics and fish habitat.

The largemouth bass is by far the most sought-after fish in Van Cortlandt Lake. What is interesting, is that nearly every species mentioned as a species that anglers are fishing for in the lake, besides the brown bullhead, are most likely non-native fish stocked in the lake by past generations. Native species to the region including brown bullhead, golden shiner, and white sucker, can also all be found in Van Cortlandt Lake. The non-native species compete for food and habitat with the native species. With plans to daylight Tibbetts Brook, there is a possibility with the help of a fish pass that native diadromous fish species such as the alewife and American eel can return to the waters of the brook. The native diadromous fish would be heavily predated upon by the non-native fish species in Van Cortlandt Lake. However, restoring these native fish populations would not only provide resilience to the system, but also provide an amazing educational experience for anglers, students, and the community.

Special Thank You to All of Our Tibbetts Brook Watershed Projects Supporters and Partners:

Bronx Council for Environmental Quality
Groundwork Hudson Valley
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New York City Department of Parks and Recreation
New York State Department of Environmental Conservation
Patagonia
Westchester County Parks
Westchester Parks Foundation