



**MONTCLAIR PROPERTY OWNERS’ ASSOCIATION, INC.
LAKE MANAGEMENT COMMITTEE
Annual Report for 2023**

The MPOA Lake Management Committee (LMC) prepares an annual report (Lake Montclair Environmental Quality Report (LMEQR)) providing an update to the MPOA BoD and residents on activities of LMC and others relevant to Lake Montclair’s environmental quality.

1. Lake Recreational Activities and Water Use.

Swimming, sporting and social activities in and around Lake Montclair are the primary recreational uses of the lake and continue to be key reasons residents’ value the lake for its contributions to their quality of life in Montclair. Safety & security remained priorities for use of the lake. MPOA continued in providing lifeguards, recreational guards and security personnel for activities making use of the lake and beaches.

2. Water Quality Management and Water Level Management and Control.

Water Quality is perhaps the most important concern for the management of Lake Montclair. On-going monitoring and assessment activities of Lake Montclair and Powells Creek Watershed ecosystem will provide information vital for evaluating water quality to determine whether the lake is safe for swimming, fishing, boating and other uses.

The “Water Quality Testing, Assessments and Advisories” plan was approved in March 2022. This document serves as a guide for the MPOA Management Staff and Lake Management Committee in assessing water quality relative to E coli and Harmful Algae Blooms.

Surface water testing for E-Coli is conducted weekly at all three of Montclair’s beaches during the summer swimming months. Past testing has generally indicated overall good conditions. MPOA contracts for water testing at beaches to examine the level of fecal coliform and to assess possible impact on the health of swimmers; long term trends of fecal coliform count at each beach and causes and potential actions to correct issues stemming from fecal coliform. The Table below shows results of those tests conducted during the 2023 swimming season. Results were recorded using one 100 ml sample from each beach tested for counts of fecal coliform.

Surface Water Testing for E-Coli Testing Conducted by Joiner Lab during 2023 Swimming Season					
MPN 3-dilutions - Acceptable readings 235/100ml for single sample maximum and 126/100 ml monthly average limit					
Date	#1-Beaver Landing	#2-Dolphin	#3-West	Day Air Temp F *	Night Air Temp F
5/23/2023	12 MPN/100mL	64 MPN/100mL	6 MPN/100mL	75	61
6/1/2023			18 MPN/100mL	84	59
6/6/2023	38 MPN/100mL	82 MPN/100mL	55 MPN/100mL	83	61
6/20/2023	32 MPN/100mL	6 MPN/100mL	96 MPN/100mL	81	72
6/28/2023	40 MPN/100mL	19 MPN/100mL	32 MPN/100mL	82	68
7/5/2023	22 MPN/100mL	38 MPN/100mL	21 MPN/100mL	93	76
7/11/2023	9 MPN/100mL	111 MPN/100mL	3 MPN/100mL	90	71
7/18/2023	17 MPN/100mL	98 MPN/100mL	15 MPN/100mL	90	74
7/25/2023	7 MPN/100mL	22 MPN/100mL	19 MPN/100mL	89	72
8/1/2023	8 MPN/100mL	20 MPN/100mL	98 MPN/100mL	81	68
8/9/2023	66 MPN/100mL	457 MPN/100mL	108 MPN/100mL	86	71
8/14/2023	8 MPN/100mL	345 MPN/100mL	88 MPN/100mL	91	73
8/15/2023	8 MPN/100mL	36 MPN/100mL	86 MPN/100mL	88	76
8/22/2023	10 MPN/100mL	11 MPN/100mL	36 MPN/100mL	84	72
8/29/2023	9 MPN/100mL	44 MPN/100mL	91MPN/100mL	81	73

Montclair’s monitoring program uses the U.S. Environmental Protection Agency standard, which triggers short-term swimming advisories when bacteria levels exceed 235 Most Probable Number (MPN). The "Advisory" standard of 235 MPN /100 mL (E. coli in water) was adopted based upon data from three EPA studies. These studies indicate that E. coli and/or Enterococci are the best bacterial indicators to assess the risk of acquiring a gastrointestinal illness because of using recreational waters.

With E. coli counts under 235 MPN/100 mL, the beach has no advisories or warnings issued. Once the E. coli count is greater than 235 MPN/100 mL management will issue an advisory. Once a reading is reported more than 235 MPN organisms per 100ml sample management will order additional test and lift advisories once samples are below 235 MPN.

MPOA maintenance staff routinely removed/disposed of goose droppings and pet waste from beaches to reduce the E-coli counts. Pet waste and goose droppings have contributed to higher levels of E-Coli in the lake, creating human health hazards, aesthetic losses, & property damage.

Cyanobacteria, or blue-green algae are single-celled organisms that naturally exist in fresh waters. They use sunlight to make their food. When there are a lot of nutrients available in the water, the bacteria can grow rapidly or “bloom” to form a visible film or scum on the surface of the water. This is more likely to occur in warm spring and hot summer months, however,

unseasonably warm temperatures in fall and winter can produce blooms. Cyanobacterial blooms are often green or blue green in color but not always.

The development and proliferation of algal blooms likely result from a combination of environmental factors including available nutrients, temperature, sunlight, ecosystem disturbance (stable/mixing conditions, turbidity), hydrology (flow and water storage levels) and the water chemistry. However, the combination of factors that trigger and sustain an algal bloom is not well understood and it is not possible to attribute algal blooms to any specific factor.

Virginia Department of Health, Guidance for Cyanobacteria Bloom Recreational Advisory Management will be used for determining when to issue an advisory. Cell counts of the Microcystis species of cyanobacteria above 40,000 will trigger an advisory. Cell count above 100,000 of any combination of the species on VDH list will trigger an advisory. Below are the results of the 2023 algae testing efforts. Lake Montclair did not experience a lake wide Harmful Algae Bloom in 2023.

Lake Montclair - Hazardous Algae Test Results						
Date	HAB Identification	1- Dolphin Beach	2- West Beach	3-Beaver Landing	Day Air Temp F	Night Air Temp F
5/23/2023	Aphanizomenon	910	24,100	290	75	61
5/23/2023	Aphanocapsa sp.		10,200			
6/6/2023	Aphanocapsa sp.	5,200	3,400	4,200	83	61
6/6/2023	Aphanizomenon		1,100			
6/20/2023	Aphanizomenon		< 40	< 40	81	72
6/20/2023	Gloeocystis	4,400	< 40	< 40		
7/5/2023	Snowella	2,600	4,800	990	93	76
7/18/2023	Aphanizomenon	6,300	5,900	9,900	90	74
7/18/2023	Woronichinia sp.	5,100				
7/18/2023	Trachelomas sp.		250			
8/1/2023	Aphanizomenon	43,800	54,400	38,700	81	68
8/15/2023	Aphanizomenon	25,700		14,600	88	76
8/15/2023	Phormidium		154,500	11,900		
8/18/2023	Phormidium		121,600		84	71
8/18/2023	Aphanizomenon		32,900			
8/29/2023	Aphanizomenon	34,200	39,800	13,600	81	73
8/29/2023	Dolichospermum	14,800	7,500	6,700		

ALERT INDEX	SeSCRIPT* ALERT INDEX	EXPOSURE RISK	CYANOBACTERIA LEVELS (cells/mL)
	★	Low	<20,000
	★★	Moderate	20,000 to 100,000
	★★★	High	>100,000
	★★★★	Extreme	>100,000 with scums/mats
<i>See the following Cyanobacteria Alert Guide for additional information</i>			

- Montclair residents should continue to be made aware of the Virginia law banning use of lawn fertilizer containing phosphorus, and prohibition on sale and use of de-icers containing urea (or carbamide), nitrogen or phosphorus.

3. Lake Sustainment, Access, and Use. Lake water level is managed and controlled based on current conditions. As a part of dam operations, MPOA management staff monitor the weather to determine when to lower the lake in advance of hazardous conditions. The staff will lower the lake as needed. Lake level monitoring equipment allows for more multiple people to be alerted at the same time, helping in making decisions more quickly in any emergency events.

The earthen impounding structure (dam and spillways) is arguably the most important asset for the Lake Montclair community. The boat ramp, beaches, and common areas offered access for use of the lake.

- MPOA was issued a Regular Operations and Maintenance Certificate entitling MPOA to operate and maintain the Dam. The certificate was effective May 31, 2019 and expires May 31, 2025.
- The Operations and Maintenance Plan was approved in August 2021 and updated to include sluice gate operating procedures. The plan identifies key operations procedures, required maintenance, required inspections, monitoring and surveillance procedures, defines responsibilities and provides project history and other general information.
- The annual inspection of the Lake Montclair Dam and spillway tunnel in September 2023. The overall condition of the Dam and Primary Spillway is assessed to be “POOR”. This dam embankment and auxiliary spillway are in good condition and maintenance is performed as determined it is needed. Severe damage to interior backup valve which should be replaced as soon as practical. While it is a backup valve, there are concerns with the primary valve due to the unknown material protruding into the conduit creating a condition where it could interfere with operation when needed. Water tracking is evident from the seepage into cracks in the concrete conduit on all sides including the top, so seepage is expected to be observable at the plunge pool. During this visit the downstream plunge pool was very low creating the best opportunity to observe for seepage tracking but none could be observed due to the rip rap and wingwalls. At least two prior grout injection operations have occurred in the past so another should be planned. Alternatively, could perform a slip line treatment of the conduit and add a large graded filter around the conduit near the outlet to capture and monitor seepage tracking.

Recommendations:

- Replace inner valve as soon as practical.

- Replace bottom drain trash rack.
- Plan for bottom conduit repair in the next few years for seepage entering conduit through cracks and structural support for ceiling of the bottom box culvert.
- The Emergency Action Plan (EAP) drill for the Lake Montclair Dam was practiced in April 2023. The next EAP exercise is anticipated to be Apr 2024.
- Dam Mowing and Maintenance LLC provided deicers mowing and nutrient management services. They have the required equipment for the steep slopes of the dam.
- In June 2023, a dive team from Bander Smith Inc conducted an inspection of the Low Level Drain Intake. Conclusions: The existing trash rack should be removed. If left in place, it will eventually fail and could potentially be pulled through the low-level drain valve conduit and into the valve. A new trash rack and bulkhead combination should be installed onto the end of the inlet. The locator cable should be re-connected to the new trash rack/bulkhead. AMT engineering is on contract to design a new trash rack.

4. Watershed Property Use and Monitoring Relevant to Lake Ecosystem Management.

Because properties in Montclair and upstream in the watershed are ‘connected’ to the lake through flow of water, MPOA (primarily through LMC and property management) continued to coordinate and work with others in accomplishing objectives for land use that are relevant to lake management.

- The LMC continues to Montclair residents information on the threat to water quality caused by allowing excessive nutrients to accumulate in the lake. Information was relayed by several articles in the Montclairion that includes actions to help prevent nutrients from entering the lake.
- Goose fecal droppings and improperly disposed pet waste continued to contribute to degradation of the lake’s water quality. Resident Canada Geese on Lake Montclair left excessive amounts of fecal droppings on turf and beach areas, and some residents are ignoring PWC statute and MPOA guidelines by not cleaning up after their pets.
- The Nutrient Management Plan for the Dam, created by the Virginia Cooperative Extension, remains in effect until 1 May 2026.

5. Storm Water Management, Dredging, and Management of Soil, Sand and Sediment.

Erosion and sediment control were a primary consideration for storm water management. The progressive build-up of sediment requires periodic dredging to properly sustain or restore lake-ecosystem functions. The BOD approved lake dredging for the fall 2022; however, depositing dredging material at county landfill was not approved by PWC. The County indicated they don’t have the room. Staff continue to work with PWC to determine a location for dredged material. The issue is unresolved.

The Timber Ridge Forebay is designed to reduce the amount of sediment that enters the lake. This forebay was dredged in September 2023. PWC Landfill accepted the dredged material.

6. Biological Communities (vegetation, insects, wildlife, fish, & aquatic life) in/around the lake.

Fish Stocking: 225 lbs. of 2 ½ inch Golden Shiners and 900 8 to10 inch Channel Catfish were released into the lake in April. Channel Catfish would not normally spawn in Lake Montclair.

PWC conducts annual sampling and analysis of sediment from surface water points at Spriggs Road crossing of Powell’s Creek, the Powell’s Creek and Lake Montclair confluence, and site storm water basins for primary pollutants. Awaiting most recent results.

The LMC annual lake inspection was not held due to weather conditions. The purpose of the inspection tour was to look at the overall condition of the lake and lake front properties, including shoreline vegetation. The lake inspections offer opportunities to see the different areas where work is needed, on-going or planned.

The Canada Goose population on Lake Montclair is continually monitored and action should be taken to ensure the goose population remains at an environmentally safe size (approx. 25 geese).

7. Systems and Procedures for Community Interaction, Training, and Information Resources.

MPOA provided information resources and opportunities for community engagement. Residents have needed to understand how their actions can have an impact on lake stewardship efforts, and their participation has been required for improvements in lake-ecosystem use and stewardship to be realized.

Given the nature of the dam, its aging and the changing of the Association Management, Engineers and Managers, it is vitally important that all the material records of the Dam be kept in one place. The historical information is very important to the Association and its consultants to make informed decisions on the dam in future years. A small team continues to collect and file Dam, Lake and LMC related documents.

Montclair Lake Management Program Plan (LMPP) v2,13 March 2019, was approved by the MPOA Board of Directors. First approved by MPOA BoD on 11 Sept 2013 (commemorating the 25th Anniversary of MPOA ownership of Lake Montclair), the LMPP continues to evolve; covering strategies and programs that reflect a resilience-centric approach focused on safeguarding the continuity of lake-ecosystem functions along with a human-centric approach focused on enabling harmonious use of the lake & its “ribbon of life” assets.

Submitted by the MPOA Lake Management Committee members with MPOA BoD Liaison and MPOA Staff liaisons:

- Buck Arvin - LMC Chairman
- Austin Carroll - Member
- Mike Czapiewski - Member
- Jim Greenwood - Member
- Desiree Morehead - Member
- Bill Warner – Member
- Jesse Kirk - Member
- Ned Green, MPOA Board Liaison
- Adam Werle - MPOA Assistant General Manager