

Lake Montclair Environmental Quality Report for 2019

In alignment with community interests reflected in the Lake Management Program Plan (LMPP), the MPOA Lake Management Committee (LMC) prepares an annual Lake Montclair Environmental Quality Report (LMEQR) and submits it to MPOA Board of Directors (BoD):

- Development of the LMEQR is an LMC responsibility with support from MPOA staff, and the intent of this LMEQR is to provide a periodic update to MPOA BoD and residents on activities of LMC and others relevant to Lake Montclair's environmental quality.

The LMPP is used in support of MPOA efforts focused on ensuring environmental quality of the lake and its 'ribbon of life' assets. It serves as a resource linking stewardship objectives with community interests. Aligned with regional, state, and county programs, the LMPP addresses strategies and activities that reflect both a resilience-centric approach focused on safeguarding the continuity of lake-ecosystem functions and a human-centric approach focused on enabling harmonious use of the lake and its "ribbon of life" assets. Addressing lake management focus areas (hydrology, soils, vegetation, fish & wildlife, materials, and human well-being), the LMPP is periodically updated and submitted by LMC to the MPOA BoD for approval. The LMPP specifies 25 objectives with strategies that support seven community interests relevant to environmental quality:

- Lake Recreational Activities and Water Use;
- Water Quality Management and Water Level Management and Control;
- Lake 'Ribbon of Life' Sustainment, Access and Use;
- Watershed Property Use and Monitoring Relevant to Lake Ecosystem Management;
- Storm Water Management, Dredging, and Management of Soil, Sand and Sediment;
- Biological Communities (vegetation, insects, wildlife, fish, & aquatic life) in/around the lake;
- Systems and Procedures for Community Interaction, Training, and Information Resources.

These are also the seven categories used in organizing this LMEQR, and they are the categories of LMC uses in making recommendations associated with strategic goals and objectives.

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 its 'ribbon of life' assets; they continue to be key reasons residents' value the lake for its contributions to their quality of life in Montclair. Montclairions enjoyed full access to the lake's recreational facilities after the completion of the 2018 Spillway Project.

- Organized activities that took advantage of the lake provided highlight events for Montclair residents. Lake-related activities include the "Fishing Tournament", "Lantern Launch", and "Triathlon". Other community events on Dolphin Beach, such as "Montclair Day", "Independence Day", and "Beer on the Beach" enabled residents to enjoy the lake.
- Safety & security remained priorities for use of the lake. MPOA continued to address residents' safety needs in using the lake and properties abutting the lake by providing lifeguards, recreational guards and security personnel for activities making use of the lake and beaches. LMC provided information on safety considerations in using the lake.

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

MPOA continued to monitor and assess environmental water quality, risk mitigation and prevention, water level management, as well as community alert and notification efforts associated with changes in water quality and water level.

- Surface Water Testing for E-Coli at Beaches is an on-going program conducted weekly at all three beaches during the summer swimming months. Readings continue to indicate overall good conditions, especially considering reduced geese on lake and high volume of rain. MPOA contracts for water testing at beaches to examine the level of fecal coliform and to assess possible impact on health of swimmers; long term trends of fecal coliform counts at each beach and causes and potential actions to correct issues stemming from fecal coliform. E-Coli test results reflect the Most

Probable Number (MPN) 3-dilutions. Acceptable readings are: 235/100ml for a single sample maximum. Anything above those readings warrants taking precautionary measures. The Table below shows results of those tests conducted during the 2019 swimming season. Results were recorded using one 100 ml sample from each beach tested for counts of fecal coliform with indication of the day, time and weather condition.

Surface Water Testing for E-Coli Testing Conducted by Joiner Lab during 2019 Swimming Season			
MPN 3-dilutions - Acceptable readings 235/10 ml for single sample maximum and 126/100 ml monthly average limit			
Date	Beaver Landing	Dolphin	West
5/22/2019	4 MPN/100mL	133 MPN/100mL	23 MPN/100mL
5/29/2019	3 MPN/100mL	14 MPN/100mL	225 MPN/100mL
6/5/2019	18 MPN/100mL	12 MPN/100mL	91 MPN/100mL
6/12/2019	10 MPN/100mL	20 MPN/100mL	44 MPN/100mL
6/19/2019	20 MPN/100mL	23 MPN/100mL	38 MPN/100mL
6/26/2019	19 MPN/100mL	19 MPN/100mL	1 MPN/100mL
7/1/2019	10 MPN/100mL	33 MPN/100mL	5 MPN/100mL
7/10/2019	11 MPN/100mL	18 MPN/100mL	2 MPN/100mL
7/17/2019	1 MPN/100mL	12 MPN/100mL	8 MPN/100mL
7/24/2019	3 MPN/100mL	16 MPN/100mL	461 MPN/100mL
7/31/2019	4 MPN/100mL	1 MPN/100mL	579 MPN/100mL
8/7/2019	1 MPN/100mL	5 MPN/100mL	11 MPN/100mL
8/14/2019	1 MPN/100mL	4 MPN/100mL	579 MPN/100mL
8/21/2019	411 MPN/100mL	326 MPN/100mL	1410 MPN/100mL
8/28/2019	3 MPN/100mL	6 MPN/100mL	488 MPN/100mL

Trends from the past several years indicate higher-than-acceptable E-Coli readings immediately after rainstorms (most likely attributable to storm water run-off transporting fecal waste over beaches and upstream watershed properties). Trends also indicate West Beach often has higher than acceptable E-Coli readings from mid-July to mid-August, and Dolphin Beach and Beaver Landing also have occasional higher-than-acceptable E-Coli readings after rainstorms. Residents should consider this data such that they could make risk-informed decisions to take precautionary measures in swimming off West Beach during that period or off any beach after a rainstorm.

- MPOA maintenance 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.
- Montclair residents should 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.
- Lake water level is managed and controlled based on current conditions. As a part of dam operations, MPOA property management staff monitored weather to determine when to lower the lake in advance of hazardous conditions; will lower the lake, as needed, in response to expected rainfall.
- The Emergency Action Plan (EAP) for the Lake Montclair Dam was reviewed and updated in August 2019 in compliance with Virginia Impounding Structure Regulations 4VAC50-20. The LMC worked with property management staff to update the EAP that defines three stages of emergency actions and their initiation under prescribed conditions, and it identifies officials and organizations with associated responsibilities. Conditions requiring actions under the EAP are brought about by actual precipitation or “sunny day” emergency conditions which could occur at or near the dam. The EAP includes a chart summarizing how MPOA detects hazardous conditions, assesses emergency conditions and determines Emergency Level Stages that will be used to direct subsequent notification and response actions.
- Alert systems with established notification procedures offered by MPOA and PWC provided timely information to residents to act, as needed, in terms of addressing changes in water level

and weather conditions. FSR Connect notifications included means for alerting residents of potentially detrimental changes in water quality and changes in water level (either raising or lowering), as well as weather-related hazardous conditions. Weather alert warnings from PWC helped residents better understand how to proceed with caution in hazardous conditions.

3. Lake ‘Ribbon of Life’ Sustainment, Access and Use.

The earthen impounding structure (dam and spillways) continued to serve as the most important asset for sustaining Lake Montclair. 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.
- MPOA staff conducted the annual inspection of the Lake Montclair Dam and spillway tunnel on 4 December 2019. The overall condition of the Dam and Primary Spillway is assessed to be satisfactory.
- MPOA’s consulting dam engineer is David A. Krisnitski P.E., CFM Water Resources Engineer, Froehling & Robertson, Inc. examined the outflow tunnel and reported that there was no immediate concern but recommended continued monitoring. There are areas that would need to be repaired in perhaps 3 or 4 years. An identified bulge in one section of the tunnel ceiling was also photographed for future reference.
- Dam Maintenance is an ongoing function, especially sustaining turf, mowing, and weeding in riprap, along with other maintenance as required. In 2018 MPOA contracted a “Brightview Landscaping”, to specifically service the Dam turf. The primary spillway trash racks were repaired by “Lake Services” in April 2019. The Primary Spillway sluice gate was repaired in Mar 2019, additional refurbishment scheduled in 2020. A new debris boom around the spillway riser was installed June 2019. A backup sluice gate will be installed in Jan 2020. Lake Level monitoring equipment was repaired in Jan 2020.
- Dolphin Beach projects completed in 2019: new deck; new floating dock; new pavilion; new lifeguard stands; the path on dam’s crest was repaved; new playground equipment; new retaining walls around the playground and amphitheater and installation of new lighting components.
- Beaver landing projects completed in 2019 include new lifeguard stand, road to the beach was repaved and shoreline clean up
- West Beach projects completed in 2019 included: New playground equipment installed; road to the boat ramp was repaved and rip rap installed. Installation of a new sign identifying fish species in the lake and habitat locations.
- A project list for all three beaches is continually updated.

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.

- In response to a BoD tasking on water quality the LMC recommended informing Montclair residents of the threat to water quality caused by allowing excessive nutrients to accumulate in the lake. Information could be relayed by an article in the Montclairion that includes actions to help prevent nutrients from entering the lake. Actions to include in the article: Proper handling of chemicals (lawn and garden, de-icers). Planting vegetative buffers that hold soil in place, prevent erosion, filter pollutants, and provide habitat. Fertilizing in the fall not the spring. Not applying fertilizers or pesticides near bodies of water, or before a rain. Sweep up any residue from hard surfaces and dispose of properly. Proper disposal of pet waste. Using native, hardy plants suited for our climate. Use a mulching mower and return your grass clippings to the lawn. Sweep up and collect all yard waste off the street and sidewalks.

- Surface Water, Ground Water and Sediment Tests (as Specified by VDEQ) were conducted since Prince William County contracted to conduct sediment testing in Powells Creek. Tom Smith, PWC Solid Waste Division Chief, assured Montclair that the County would continue to conduct surface and ground water tests, and sediment tests in Powells Creek. The County now tests the waters annually rather than on a 6-month cycle.
- 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 20 Aug 2020.

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 required periodic dredging to properly sustain or restore lake-ecosystem functions.

- The Timber Ridge Forebay is one of several forebay's in Montclair designed to reduce the amount of sediment that enters the lake. In 2012 the Timber Ridge Forebay was dredged and approximately 600 cubic yards of sediment was removed. It was dredged again 2015 and large rock was added to help control sediment. In 2018 the forebay needed dredging again and the rock from 2015 needed to be repositioned. Lake Services Inc removed approximately 590 cubic yards of wet material making 59 recorded trips to the Prince William County Landfill. The landfill charged MPOA \$50 per truck load in tipping fee. The Landfill had never charged MPOA to dump this material before and is no longer willing to accept dredged material at no cost. The next will likely be 2021.

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

Use of the lake continued to be interdependent upon the resilience and vitality of biological resources in and around the lake, such as fish and vegetation. MPOA collaborated with county and state organizations to accomplish objectives relevant to stewardship of the lake.

- LMC continues to conduct annual lake inspections each summer. The purpose of the inspection tour was to look at 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.
- Aquatic lake vegetation has been well managed. Renewed growth of Hydrilla aquatic weed in Lake Montclair was not observed.
- Lake-ecosystem biodiversity was complemented with natural control of invasive aquatic weeds. As part of MPOA's aquatic weed control program, Triploid Grass Carp are a protected species that cannot be hunted, killed or removed from the lake and must be released if accidentally caught. These carp are probably nearing the end of their lifespan.
- Fish Flesh Testing was not conducted in 2019.
- Another project will be to make and place an additional 25 Spider Blocks in our Lake in spring of 2020. A map showing the locations of the fish habitats is available on the Montclair web site and FSR Connect.
- Fish stocking. The next project will be the stocking of 450 pounds of forage fish (fathead & golden shiner minnows) in early spring 2020.
- The Canada Goose population on Lake Montclair is continually monitored and action will be taken to ensure the goose population remains at an environmentally safe size.

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

Submitted to MPOA Board of Directors in March 2020

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 2/3 of the 25 objectives for lake-ecosystem use and stewardship to be realized. Recreational activities on the lake and beaches contribute to the quality of life in Montclair.

- 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
Dave Alachnowicz - Member
Brian Bell - Member
Jesse Burgess - Member
Austin Carroll - Member
Mike Czapiewski - Member
Walt Giraldi – Member
Jim Greenwood, Member
Joe Perez - Member
Chris Pettyjohn – Member
Georgia Mayer - Member
Desiree Morehead - Member
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Ned Green, MPOA Board Liaison
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