



County of Fairfax, Virginia

MEMORANDUM

DATE: March **X**, 2023

TO: Fairfax County Board of Supervisors

FROM: Larry J. Zaragoza, DEnv, Chair
Environmental Quality Advisory Council

SUBJECT: Streams and Lakes/Ponds

The Environmental Quality Advisory Council (EQAC) wanted to reaffirm its position on prioritizing stream restoration in order to return the natural biological functions to surface water ecosystems. EQAC notes that while the costs of restoring degraded streams is high, the costs of maintaining lakes and ponds can be much higher.

RECOMMENDATION

Recently, the question of whether man-made ponds created by impounding streams should be returned to streams has been posed. Streams are the original natural water resources of Fairfax County. EQAC supports creating and implementing plans that will restore the ecological integrity of Fairfax streams, adjacent wetlands, and wetland ponds, in stream valley systems should be the primary goal in managing the county's natural water resources. The county completed the development of watershed plans for all 30 of its watersheds in 2011. These plans now serve as a framework to document changing conditions and identify actions needed to preserve and restore the ecological health of local streams. *The Board's Environmental Vision: Fairfax County considers the protection, restoration and enhancement of environmental quality through the sustainable management of its water resources to be one of its highest priorities.*

Background

Fairfax has over 1000 miles of perennial streams in 30 watersheds. As the 2003 Fairfax County Stream Strategy Baseline study shows most of these streams have been significantly and negatively impacted by human activities. Some of the streams have been dammed to create ponds and lakes for a myriad of reasons such as flood control, recreational amenities for citizen use etc. Almost all of these ponds and lakes, whether designed for this purpose or not, have greater capture of sediment and nutrients as a consequence of upstream development.

Continuing streambank erosion and sediment deposition

As development occurs, natural areas that once had vegetative cover that absorbed water and filtered pollutants are replaced by impervious surfaces such as roads, driveways, and buildings. With the increase in impervious surface and loss of vegetative cover, the amount of stormwater

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runoff increases, which flows into streams more quickly. Increased uncontrolled runoff causes stream erosion, resulting in scouring, down cutting, and over-widening of stream channels and loss of streamside vegetation. When stream channels become incised from down-cutting, they become disconnected from their floodplains. Water cannot get out of the banks onto the adjacent floodplain where flows can be dissipated and drop their sediment loads. High flows stay in the channel, resulting in increased erosion. Silt and sediment from erosion smother the stream bottom and destroy in-stream habitat for sensitive benthic macroinvertebrates. Continuing stream bank erosions and sediment deposition will occur until the streambanks have been stabilized.

Sediment/Nitrogen and Phosphorous

Many of these ponds and lakes did not have maintenance schedule for sediment removal. Therefore, many of these ponds did and do have enormous sediment deposition in them. Nitrogen and phosphorous deposition also often accompany sediment deposition. Although these are naturally occurring nutrients essential for plant growth and health, excess amounts in water systems can create problems. The amount of these nutrients in an ecosystem is often a “limiting factor”. Because they are necessary for algal growth and usually not available in large quantities they ultimately control the growth of algal. When excessive amounts of nutrients are found in water resources then see algal blooms occur on the surface of rivers and the Chesapeake Bay and other water bodies. Continued sediment deposition and nutrient accumulation into lakes and ponds is increased will be ongoing until the upstream banks are stabilized.

We welcome any questions on our comments and look forward to hearing from you.

cc: Rachel Flynn, Deputy County Executive
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Ellie Coddling, Deputy Director, DPWES
John Morrill, Acting Director, Office of Environmental and Energy Coordination, (OEEC)
EQAC