

Long Creek Residual Designation

Executive Summary

Introduction

The Clean Water Act (CWA) authorizes EPA to control storm water pollution by designating certain categories of storm water discharges as requiring Clean Water Act permits. For example, EPA may require permits for a discharge or a category of discharges within a geographic area which contributes to violations of water quality standards.

On March 6, 2008, EPA Region I received a petition from the Conservation Law Foundation requesting that the Agency designate certain storm water discharges into Long Creek as requiring NPDES permits. Upon reviewing the petition and other relevant facts and law, and in consultation with the State of Maine, Region I determined that a designation pursuant to its authority under the CWA is appropriate.

This Record of Decision documents a preliminary decision by the Regional Administrator of EPA Region I that storm water controls and NPDES permits are needed to address serious water quality problems in Long Creek. The decision addresses storm water discharges in the Long Creek watershed which are located within the towns of South Portland, Westbrook, Scarborough, and Portland, Maine. Permits will be required for properties that discharge storm water from one or more acres of impervious surfaces, including roofs, roads, and other paved areas.

This designation will required controls on stormwater discharges once the Maine Department of Environmental Protection has issued a general or individual permit for these discharges.

Factual Background

Long Creek is a low-gradient freshwater stream in southern Maine that flows into Clark's Pond, the Fore River, and eventually Casco Bay. The entire Long Creek above Clark's Pond drains a watershed area of 3.45 square miles. Long Creek is located primarily in the City of South Portland and the Town of Westbrook, with smaller portions of the watershed located in the Town of Scarborough and the City of Portland, Maine.

In 1998, Long Creek was put on Maine's list of nonpoint source priority watersheds for restoration funding, despite its very small size, due to its potential high value in an urban setting. In the years following, DEP conducted an extensive scientific study of Long Creek's chemical, physical, and biological water quality, as well as its hydrology and fluvial geomorphology. Funded in large part by EPA Region I, DEP's sampling and analysis indicated that Long Creek's water quality was impaired by multiple environmental problems associated with storm water, including decreased dissolved oxygen, altered flow regime, decreased woody debris, increased temperature, and

increased toxicity. All these ecological stressors are linked back to impervious area or land cover in the watershed.

In undeveloped areas, precipitation is normally infiltrated into the ground and taken up by vegetation. When natural land cover is cleared, the construction of impervious surfaces converts rain to surface runoff. This increases the volume of runoff, which carries with it whatever pollutants have accumulated on roofs, roads and parking lots. Land areas with a high percentage of impervious surfaces tend to contribute a proportionally high volume of pollutants to the river.

The past few decades have brought significant urbanization and commercial development in the Long Creek watershed, including the Maine Mall and many other associated commercial and retail developments, I-95 and I-295 and associated interchanges, industrial facilities, office parks, and hotels. The expansion of impervious cover has resulted in increased volume and frequency of storm water runoff, a decline in Long Creek water quality, and violations of Maine's water quality standards.

Besides contributing to low dissolved oxygen and violations of Maine's aquatic life criteria, storm water carries with it suspended solids, and high levels of heavy metals, specifically zinc, lead, and copper. Sediment comes from sand, soil, and dirt that accumulate on urban impervious surfaces. Zinc in urban environments results from the wear of automobile tires, fuel combustion, weathering of paints, galvanized gutters and downspouts, roofs and road salts. Sources of lead include diesel fuel emissions, and weathering of paints and stains. Sources of copper include auto brake pad wear, and weathering of pipes and fittings. These pollutants accumulate on impervious surfaces, are washed off quickly during storms, and are often efficiently delivered to down-stream surface waters.

Legal Background

EPA's regulations addressing the control of storm water discharges are found, generally, at 40 C.F.R. Part 122. The authority to designate storm water discharges for permitting is found at 40 C.F.R. 122.26(a). That section provides that the state environmental Director or in States with approved NPDES programs, either the Director or the EPA Regional Administrator may require NPDES permits for stormwater discharges where he determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

This residual designation is based on 40 C.F.R. §122.26(a) (9)(i) (D).

Factual Bases for Determination

The designation issued today is based on excessive storm water discharges from impervious surfaces in the Long Creek watershed. Storm water discharges from impervious surfaces carry high pollutant loads, and contribute to violations of water quality standards.

The relevant standards for Long Creek are those for Class B waters (for those portions located in Westbrook) and for Class C waters (for those portions located in South Portland, Scarborough, and Portland). Violations of Maine's water quality standards in Long Creek included non-attainment of dissolved oxygen criteria, toxics criteria for zinc, lead, and copper, and aquatic life criteria:

- Dissolved oxygen criteria were violated in terms of concentration and percent saturation, for Class B in Westbrook (7 mg/l and 75% saturation), and Class C in South Portland, Scarborough, and Portland (5 mg/l and 60 percent saturation).
- Toxics criteria for zinc, lead, and copper were violated during each of the three storm events monitored, with metals concentrations exceeding both chronic and acute criteria. In contrast, concentrations of these same metals during dry weather sampling, or under baseflow conditions, were either at non-detectable levels, or below the toxics criteria.
- Although Maine does not have numeric criteria for sediments, the presence of suspended solids in storm water discharges interferes with aquatic life (aquatic plants, macroinvertebrates, and fish) in many ways, including reduced light penetration, scouring effects, and damage to gills. These impacts of sediment on aquatic habitat constitute a violation of Maine's narrative aquatic life criteria which require Maine waters to be of such quality that they are suitable as habitat for fish and other aquatic life.
- Through the use of biomonitoring and associated macroinvertebrate community structure modeling, Maine Department of Environmental Protection applies criteria for the each stream classification. These criteria are used as in-stream numeric water quality compliance measures. Violations of these macroinvertebrate-based aquatic life criteria were documented in 1999 and 2004.
- Long Creek is known to have been a fishery for brook trout in the past. Monitored absence of brook trout during fish surveys in 2000 documented violation of Maine's narrative aquatic life use criterion that requires all stream classes to support indigenous fish species.

Selection of Designated Discharges

EPA is focusing this designation on storm water discharges from impervious surfaces equal to or greater than one acre in the Long Creek watershed. Imperviousness relates directly to the quality and quantity of storm water discharged into Long Creek, and has a direct and well understood relationship to water quality degradation generally. With respect to Long Creek specifically, scientific observations confirm that, as land development and the attendant impervious cover expanded in the watershed, aquatic habitat in the stream declined to the point where uncontrolled storm water discharges from impervious surfaces are a major source of water quality degradation in Long Creek.

Impervious cover analyses based on 2005 Long Creek conditions indicate that a one-acre impervious area threshold for this preliminary residual designation will result in 90% of the impervious area in the watershed coming under NPDES jurisdiction. The State of Maine is approved to administer the NPDES permit program. Once the State of Maine issues NPDES permits covering the designated discharges, this residual designation will result in a level of storm water control that will significantly improve water quality in Long Creek.

This preliminary designation is intended to help restore Long Creek and is not a determination that smaller impervious surfaces are not contributing to water quality standards violations. Use of this one-acre threshold is based on localized conditions, and is a reasonable approach to address adverse impacts of storm water and to protect and maintain water quality in Long Creek, as required by the Clean Water Act.

Determinations

1. As noted above, the applicable Maine Water Quality Standards identify Long Creek as a Class C water in South Portland, Scarborough, and Portland, Maine and as a Class B water in Westbrook, Maine. Both classes are designated to support Long Creek as a habitat for fish and other aquatic life. Maine's applicable water quality standards contain designated aquatic life uses and criteria to protect those uses.
2. Based on extensive sampling, Maine determined in its 1998 Section 303(d) list that Long Creek was not meeting water quality standards for dissolved oxygen, and in its 2002, 2004, 2006, and 2008 Section 303(d) lists that Long Creek was not meeting the water quality standards relating to aquatic life use. Extensive water quality sampling has also shown that both biological and chemical water quality criteria are being violated. For purposes of this designation, the relevant water quality standards that are being violated are those related to: aquatic life criteria (based on benthic macroinvertebrate and habitat assessments and on sediment), dissolved oxygen, and toxic metals--specifically zinc, lead, and copper.
3. The discharges of storm water to Long Creek from impervious surfaces equal to or greater than one acre are directly or indirectly causing or contributing to violations of the applicable Maine water quality standards.
4. In order to ensure effective and enforceable reductions from these designated discharges, that category of discharges must be controlled through the issuance of permits under the NPDES program.