

Out of the Blue and Into the Green: Mitigating Stormwater Risk by Reducing Contamination of Receiving Waters

by Martin Alpert and Charles Adams

Abstract

Stormwater runoff may be a source of both liability and opportunity. It can pick up various pollutants as it flows into nearby bodies of water, harming the environment and possibly requiring remediation by the relevant entity, but it also represents a valuable source of fresh water. In addition to transferring their risks through insurance, businesses and governments are using both traditional and so-called green infrastructure to control runoff and manage stormwater as close to the source as possible.

Stormwater runoff, typically generated by rain and snowmelt, picks up contaminants and assorted detritus and then flows into streams, rivers, lakes, and coastal waters. Such contamination has been compounded by shifts in land coverage, typified by suburban sprawl, that have led to the increased prevalence of impervious surfaces, such as roofs, driveways, parking lots, and roadways.

Roadways, for example, collect contaminants in the form of heavy metals from tires, breaks, and engine wear, as well as hydrocarbons from lubricating fluids—all of which can move freely into a nearby water-conveyance system or body of water. Additionally, industrial land use generates potentially toxic runoff and other pollutants. Meanwhile, natural filters such as forests, meadows, and wetlands have diminished. The resulting spike in polluted runoff compromises receiving waters and creates liability issues for those who control or contribute to the discharge.

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Many older cities in the United States, particularly along the eastern seaboard, still handle stormwater runoff using antiquated combined sewage systems, which incorporate stormwater into their sanitary sewage. During heavy storms, excessive stormwater can overwhelm wastewater-treatment plants, which may result in the discharge of contaminated effluent into a receiving body of water.

These events are commonly called combined sewage overflows (CSOs). The modern analogues of combined sewage systems are municipal separate storm sewer systems (MS4s), which typically do not treat water before discharging it into receiving waters. Thus, regardless of whether a municipality uses a combined or separate system, reducing the volume of stormwater and managing runoff pollution are pertinent concerns. To address these issues, municipalities are increasingly incorporating green stormwater infrastructure as a risk management strategy.

Stormwater Regulation

The federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA), authorizes the Environmental Protection Agency (EPA) to regulate stormwater discharge under the National Pollutant Discharge Elimination System (NPDES) permit program. With limited exceptions, the EPA cedes permit functions to the states. Cities and local jurisdictions that operate an MS4 must obtain NPDES permit coverage to discharge municipal stormwater into U.S. waters. Similarly, individual owners must have NPDES permit coverage for stormwater from their industrial-activity sites, and construction contractors must have NPDES permits for construction sites that disturb more than an acre of land.

NPDES permits require MS4 operators to develop stormwater management programs that include public education and outreach, public participation and involvement, illicit-discharge detection and elimination, control of construction-site and postconstruction runoff, pollution prevention, and good housekeeping. The permit may also impose water-quality requirements to address such issues as total maximum daily loads for specified contaminants and protecting designated uses (e.g., fishing or swimming). MS4 permit requirements are continually adapted to reflect current conditions and the effectiveness of the control measures in maintaining water-quality standards.

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Potential Liability for Municipalities and Businesses

In addition to the harmful effects that contaminated stormwater have on receiving waters, dischargers are exposed to significant liability. One source of such liability is permit violations, which may result in administrative fines and injunctive relief. Violations may also lead to enforcement actions by the EPA and/or state environmental agencies, which typically seek injunctive relief to enforce compliance with the terms of the applicable permit, as well as significant civil penalties.

In addition, dischargers may be liable for the cost to remediate contaminated sediment in receiving waters. Although stormwater discharge is regulated under the CWA, claims for the cost of remediating contaminated receiving waters may be brought under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)—the Superfund law.

CERCLA is a strict-liability plan designed to fund remediation projects with contributions from potentially responsible parties. These may include owners and operators (both current and at the time of disposal), those who arranged for the disposal or treatment of hazardous substances, and transporters of the relevant hazardous substances.

Given the tendency for CERCLA matters to be settled out of court, related case law is limited. However, in *United States of America v. Washington State Department of Transportation* (WSDOT), the court held that WSDOT was potentially liable as an arranger, finding that it "arranged for the disposal of hazardous substances" by its design of a drainage system for highway runoff. A subsequent bench ruling found WSDOT jointly and severally liable for $9.3 million in response costs related to the Commencement Bay Superfund Site in Tacoma, Washington.

Insurance

Given the scope of potential liability associated with stormwater, dischargers should consider a comprehensive risk management strategy that includes both control measures and insurance coverage. Typical commercial general liability policies exclude pollution-related losses. However, dischargers may seek coverage under a variety of environmental insurance products, including:

- Premises pollution liability—for municipal, industrial, and commercial entities that discharge wastewater or stormwater directly from a point source (such as a pipe) and cause an inadvertent pollution release

- Contractors pollution liability—for pollution events caused by contracting operations
- Environmental professional liability—for claims arising from the design or modification of a stormwater discharge plan

Managing Stormwater Risk Through Infrastructure

To better manage stormwater risk, municipalities often incorporate infrastructure improvements into their stormwater-management programs. These improvements are typically grouped into one of two buckets: gray or green.

Gray infrastructure includes traditional stormwater management practices involving concrete and steel—pipes, sewers, and downstream wastewater-treatment facilities. For combined sewage systems, one commonly implemented gray-infrastructure strategy is off-line storage, which diverts combined sewer flows to prevent CSOs. The combined sewer flows are stored in tanks, basins, or tunnels until a wastewater-treatment plant has sufficient capacity for them.

In contrast, green infrastructure employs natural hydrologic processes to control runoff and manage stormwater as close to the source as possible. At the scale of an individual neighborhood, green infrastructure may include downspout disconnections, rainwater harvesting, rain gardens, planter boxes, bioswales, permeable pavement, green streets and alleys, green parking, and green roofs. Larger-scale strategies, working at the level of a regional watershed, may include riparian buffers and large infiltration systems, as well as efforts to preserve or restore flood plains, wetlands, and forests.

Compared with more capital-intensive downstream treatment technologies, green infrastructure offers many advantages: in addition to reduced operating costs, green infrastructure can improve local air and water quality, reduce the urban heat island effect, and provide valuable wildlife habitat and recreational opportunities.

Turning the Tides

The expansion of green stormwater infrastructure has led to a growing appreciation of the potential value of harvesting stormwater, particularly in the recently drought-stricken state of California.

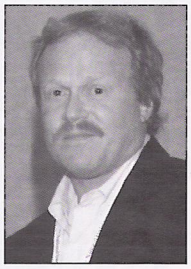
In 2016, Governor Jerry Brown amended the state's water code by signing AB-2594. Building on existing law, specifically the Storm Water Resource Planning Act, AB-2594 established that public organizations that harvest urban stormwater before it enters a "natural channel shall be entitled to use the captured water to the extent that the water augments existing water supplies."

By clearly establishing the right of public entities to capture and use stormwater, AB-2594 represents a potential paradigm shift. Instead of treating stormwater as a waste product, the bill recognizes its potential as a natural resource. By some estimates, harvesting stormwater could produce 630,000 acre-feet (about 205 billion gallons!) of water. In the face of increasing water scarcity brought on by climate change and shifting drought patterns, this potential resource is invaluable.

Codification of public entities' right to use concerning stormwater could have significant implications. First, the quantitative value of the water rights could provide additional options to finance stormwater systems, thus encouraging more entities to implement capture systems. Additionally, at least one California court has recognized a city's right to use captured water under the new bill as a sufficient property interest on which to state a claim for nuisance. Previously, the absence of this property interest precluded cities from having standing to sue entities directly for claims related to stormwater pollution. Thus, AB-2594 is already affecting the environmental-litigation landscape.

Here, then, are some main takeaways regarding stormwater: Incorporating green infrastructure into a municipality's stormwater management program can help mitigate the risks related to stormwater pollution. Additionally, harvesting stormwater could lead to significant changes in municipal water supplies. And finally, legal recognition of the right to use regarding stormwater, as recently developed in California, will likely continue to affect environmental litigation as municipalities seek to recover for damages to their newly realized resource. ■

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