Stormwater Action Monitoring

Project Title

Illicit discharge detection and elimination (IDDE) data evaluation for Western Washington

Source Identification

Lead Entity

City of Lakewood

Partners

Aspect Consulting, Cardno, Inc.

WA Dept. of Ecology Water Quality Program

Collectively improving stormwater management

Stormwater Action Monitoring (SAM) is a collaborative, regional stormwater monitoring program that is funded by more than 90 Western Washington cities and counties, the ports of Seattle and Tacoma, and the Washington State Department of Transportation. SAM's goal is to improve stormwater management to reduce pollution, improve water quality, and reduce flooding. We do this by measuring stormwater impacts on the environment and evaluating the effectiveness of stormwater management actions.

Questions about SAM? Send an email to SAMinfo@ecy.wa.gov

Study goals

The goals of the project were to:

1. Compile a regional dataset of illicit discharge detection and elimination (IDDE) activities by municipal stormwater permittees; and
2. Analyze the data to: provide information about the most common problems; compile the source identification and elimination methods in use; and find opportunities for regional solutions to common problems and support permittees' IDDE programs.





Photo credit: Diana Halar, City of Lakewood

Stormwater management problem

Municipal stormwater staff invest a substantial amount of time investigating and addressing potential illicit discharges to their storm sewer systems. They encounter many different types of problems that require unique approaches. Over the past decade of implementing IDDE programs, stormwater staff have gained a general sense of the most common problems in their jurisdictions. A collective summary of permittees' IDDE activities helps the region to set overall priorities and secure funding to enhance efforts to address sources of stormwater pollution.

Project findings

Permittees throughout Western Washington reported 2,913 illicit discharge detection and elimination (IDDE) incidents for the 2014 calendar year. Fifteen permittees reported zero illicit discharges or illicit connections during this time period. The evaluation compared counts of record types and incident characteristics. About two-thirds of the Phase I records and about one-fifth of the Phase II records came from just two cities. Much of the data summary and analysis was weighted toward these cities' programs. Statistical analysis was done to quantitatively compare all permittees' records.

The most common stormwater pollution problems were petroleum hydrocarbons and other vehicle fluids from spills and accidents, sediment from construction sites and flooding, chemicals from industrial activities, and sewage from illicit connections.

Most of the incidents were reported directly by the public via pollution hotline calls and other citizen complaints. Municipal staff observations during inspections resulted in the second highest number of reports. A significant number of the incidents permittees responded to were not illicit discharges to the stormwater system; these included allowable discharges, solid waste dumping, and unconfirmed complaints. Permittees will continue to spend time and effort responding to such calls.

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Permittees most commonly traced sources using visual indicators and empirical methods, which included visual reconnaissance, field observations, and mapping analysis. Problems were most commonly corrected and eliminated using best management practices (BMPs) such as adding or improving source control, cleaning up spills, education, technical assistance, and behavior or operational modification.

Enforcement was used in relatively higher proportion for Phase I jurisdictions than for Phase IIs. Incident response times were mostly within one to three days on average and resolution times were mostly under eight days for Phase I permittees and up to 53 days for Phase II permittees. Almost all of the 59 illicit connections reported were resolved within six months.

Recommendations

A regional dataset provides objectivity to understand and therefore address the most common IDDE problems encountered by municipal stormwater permittees. The entry of data for this evaluation from permittee submittals was a time-consuming process that would be more efficient with standardization of information that permittees report. An expanded and improved list of standard data fields and entry options was developed through this project to provide consistent and richer data while not increasing the time needed for data entry by permittees.

Knowing the relatively large number of incidents related to vehicle spills and accidents, we should consider enhanced efforts to educate transportation accident responders such as tow truck drivers and police on the use of spill kits and the importance of timely reporting. We should place more spill kits in emergency response vehicles and in businesses. Ecology and local jurisdictions should consider more frequent and proactive construction inspections to reduce the incidents of sediment leaving those sites.

Why does this study matter?

The goal of stormwater management is to protect receiving waters and biota. These results confirm that collectively, the large number of small spills from vehicles and incidents of sediment runoff from construction sites are likely posing a threat to these public resources. Local jurisdictions may need assistance from a regional effort to make meaningful headway to reduce these types of pollution. This type of objective data – rather than a collection of anecdotes – is needed to set priorities for regional activities. Standardized data from permittees will provide even more basis for regional action.

What should we do with this information?

Stormwater managers should consider prioritizing education and outreach campaigns and staff training programs around the most common stormwater pollution problems in their jurisdictions. Permittees should keep good records to support enforcement actions and to explain the value of their IDDE programs to their councils and commissions.

What will Ecology do with this information?

Ecology will use these findings to drive priorities for funding requests that support permittees' IDDE programs and address common IDDE problems. Ecology will continue to invest in developing tools and technologies to identify, prevent, and reduce illicit discharges from various sources and support permittees' efforts to keep pollution from entering stormwater systems. Ecology has already assisted many permittees in making needed improvements to their record keeping and reporting, and has proposed a detailed municipal stormwater permit requirement to improve and standardize future reporting. Ecology is committed to supporting the regional effort to collect and maintain a consistent dataset to inform regional funding priorities.



For more information

Visit the SAM website at www.ecology.wa.gov/SAM and search for "IDDE data analysis report."

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This was written by the SAM program for the Department of Ecology. It was originally hosted on EZview and was transferred to Biblio for records purposes as a publication in 2026.

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