

1: Using leaf collection and street cleaning to reduce nutrients in urban stormwater

Apr 27, 2001. This is a digitized version of an article from The Times's print archive, before the start of online publication in 1996. To preserve these articles as they originally appeared, The Times does.

View All A total of 71 paired samples were collected over the study period 40 collected during the calibration phase and 31 collected during the treatment phase. Sample results from the calibration phase were used to establish a relation between the control and test catchments without any leaf collection or street cleaning, while sample results from the treatment phase were used to evaluate any changes in that relation due to the implementation of the leaf collection program. When an active, thorough leaf removal and street cleaning program is in place, total and dissolved phosphorus loads were reduced by 84 and 83 percent, respectively, and total and dissolved nitrogen loads were reduced by 74 and 71 percent, respectively compared to no leaf removal and street cleaning program. The timing of leaf removal is important because of the highly leachable nature of leaves, and significant reductions in loads of the total and dissolved forms of phosphorus and nitrogen can be achieved with removal of leaf litter prior to a precipitation event. Under non-leaf-removal conditions, fall leaf litter contributed 56 percent of the annual total phosphorus yield winter excluded compared to 16 percent when leaf removal was implemented. However, fall leaf litter showed only a minor change for nitrogen, contributing 19 percent of the annual nitrogen yield without leaf removal compared to 16 percent with leaf removal. Additionally, in the fall, the majority of nutrient concentrations were dissolved, and the removal of leaves accumulated on streets and in piles near the street curb can reduce contributions of nutrients to storm drains. This makes leaf collection one of the few treatment options available that can be effective at reducing the amount of dissolved nutrients in stormwater runoff. **TREATMENT** Regardless of catchment, the overall pattern of mean monthly concentrations was similar during the calibration phase Phosphorus concentrations were generally lowest in summer and highest in fall. Nitrogen concentrations were lowest in summer but highest in spring. Calibration Phase Mean monthly concentrations in both the control and test catchments showed little variation from April through September with only minor increases measured during the month of May, likely due to the presence of new blossoms, seeds and pollen from emerging vegetation. As leaves matured by early June, concentrations of phosphorus were lower and remained relatively steady through September. During this period of leaf maturation, sources other than seeds and leaves, such as street dirt and grass clippings, were likely the primary contributor to phosphorus and other nutrients in runoff. The maximal amounts of nutrients measured in runoff occurred from senescent leaf litter in the fall where appreciable gains in concentration were observed in October, a period of time when the amount of leaf litter intensified. The largest gains were observed in dissolved phosphorus with a and percent increase over average summer June through September concentrations in both the control and test catchments, respectively. Dissolved nitrogen similarly increased but to a lesser degree 91 and 18 percent, respectively. As fall advanced, fewer leaves were deposited thus minimizing sources of nutrients. With the exception of nitrogen in the test catchment during the calibration phase, nutrient concentrations in November declined from October levels but remained above those measured during spring and summer months. This pattern was observed in the control catchment for both study phases as well as the test catchment during the calibration phase, indicating the monthly distribution of nutrients without a leaf collection program was generally repeatable both spatially and temporally. Nitrogen, unlike phosphorus, appeared to be more erratic and less predictable. Similar to phosphorus, mean monthly concentrations of total and dissolved nitrogen were generally lowest during summer months with higher concentrations observed in May and October. In contrast to phosphorus, the magnitude of increase in October was less, with concentrations higher than summer levels but lower than those observed in spring. It is unclear why the month of November showed an increase in total and dissolved nitrogen in the control catchment during the calibration phase when all other instances observed a decrease. One such source may have been the application of lawn fertilizers which contain nitrogen as a nutrient to stimulate root growth. Lawn fertilizer is typically applied in the spring and fall, which coincided with observed increases in concentrations. Treatment Phase Mean monthly nutrient concentrations in the control

catchment during the treatment phase were not significantly different than the calibration phase since there was no change in leaf collection practices. The test catchment, like the control, also displayed a pattern in nutrient concentrations similar to the calibration phase, but only for the months of April through September. The month of May continued to show slightly higher mean concentrations than the rest of the spring and summer months despite the addition of weekly street cleaning efforts. In contrast, the combination of leaf collection and street cleaning in the months of October and November reduced nutrient concentrations to near summer levels. Compared to the calibration phase, mean October concentrations of total and dissolved phosphorus in the test catchment during the treatment phase decreased by approximately 80 percent. Mean monthly concentration of nutrients phosphorus and nitrogen measured in stormwater runoff in the control and test catchments during the calibration and treatment phases Selbig, April-May, mature summer: June-September, or in recession fall: Winter months December-March were not monitored as part of this study. Seasonal contribution to annual yields of total phosphorus and total nitrogen winter excluded in the control and test catchments during the treatment phase Selbig, The portion of dissolved vs particulate phosphorus shifted from primarily particulate in the spring and summer to dissolved in the fall. During the calibration phase, fall concentrations of dissolved phosphorus in the control and test catchments were 85 percent or more of total phosphorus compared to less than 50 percent in spring or summer. A similar trend was observed during the treatment phase. Like phosphorus, summer concentrations of nitrogen were variable but generally lower than spring and fall. Unlike phosphorus, mean concentrations of nitrogen were highest in the spring and did not have the same spike in fall. Loads of total and dissolved nitrogen were reduced through a combination of leaf removal and street cleaning in spring and fall during the treatment phase. However, the removal of phosphorus was greater than nitrogen. These two observations suggest sources of nitrogen other than leaves and organic detritus may have contributed to what was measured at the outfall. One such source of nitrogen may have been the application of lawn fertilizers which contain nitrogen as a nutrient to stimulate root growth. Lawn fertilizer is typically applied in the spring and fall, which coincided with observed increases in nitrogen concentrations. Phosphorus from fertilizers was not a concern for this study since the state of Wisconsin enacted a ban on phosphorus in lawn and turf fertilizer in 1990. After implementing a street cleaning program, modest reductions were observed in spring for total and dissolved phosphorus and nitrogen. With the exception of total phosphorus, results indicated no significant difference in loads between study phases during summer, meaning any reduction in loads of dissolved phosphorus and total and dissolved nitrogen as a result of street cleaning was negligible. Street cleaning did, however, show some influence on total phosphorus in summer, reducing loads by 36 percent. Seasonal mean concentrations of phosphorus and nitrogen in the control and test catchment during the calibration and treatment phase Selbig, The addition of leaf collection in the fall significantly reduced loads of all nutrients. Reductions in total and dissolved phosphorus were similar at 84 and 83 percent, respectively. Significant reductions were also observed for total and dissolved nitrogen at 74 and 71 percent, respectively. Fall reductions for both phosphorus and nitrogen were at percentages nearly twice as those observed during spring. The magnitude of the percent change is a reflection of the amount of organic and inorganic material available for wash off during a precipitation event. A larger amount of leaf litter and other organic detritus would produce higher nutrient concentrations. Although this study used methods to remove detritus from streets that are beyond the capabilities of most municipal programs, it represents the upper boundary of achievable reductions in nutrient concentrations, and other municipal leaf collection programs would likely result in lesser reductions. While the year precipitation average shows only 16 percent of annual precipitation occurs typically in October and November, the magnitude of increase in nutrient concentration may produce a greater nutrient load with less stormwater runoff. Estimates of the total phosphorus yield in showed that, despite having the fewest number of precipitation events 8, the highest proportion of annual yields in the control catchment occurred during the fall 56 percent. Conversely, spring and summer contributed much lower proportions of annual total phosphorus yield at 14 and 30 percent, respectively, despite having double and triple the number of precipitation events 16 and 24. Comparatively, the inclusion of leaf removal and street cleaning in the test catchment during the fall resulted in only 16 percent of the annual total phosphorus yield, much lower than the

control at 56 percent. Little difference in summer yield was observed between the control and test catchments, suggesting the majority of total phosphorus originated from sources other than organic debris on streets and could not be captured by street cleaning. By removing leaf litter in the fall, the seasonal yield of total phosphorus shifted away from being dominated by the decomposition of fall leaf litter to being focused on the frequency of precipitation events. This is an important finding for environmental managers who must evaluate cost-effective strategies to meet pollution reduction goals. Estimates of total nitrogen yield did not follow the same general pattern as total phosphorus. The differences between mean seasonal concentrations of total nitrogen were not as large as total phosphorus, with fall concentrations only slightly larger than summer but less than spring meaning seasonal yields were mostly controlled by the frequency of precipitation events. Summer, despite having the lowest seasonal mean concentration of total nitrogen, had the largest number of precipitation events 25 which produced the greatest percentage of annual yield 53 percent in the control catchment. Spring, with fewer precipitation events 16 but a greater seasonal mean concentration, produced 28 percent of the total nitrogen yield in the control catchment followed by fall at 19 percent. Spring and fall percentages were only slightly shifted downward as a result of leaf collection and street cleaning in the test catchment. While the results of this study show promising results, leaf management and street cleaning through a municipal program, or combined with modifications to homeowner behaviors, may not necessarily result in similar concentration and load reductions in stormwater runoff. The methods used to remove organic material from streets during this study exceed what most municipal programs are capable of implementing and therefore represent best-case reductions in nutrient concentrations as a result of treatment. Research is currently ongoing to quantify the reduction of nutrients in stormwater over a range of commonly used municipal leaf collection programs in Wisconsin. Results from this study will be used to create a framework by which development and adoption of statewide phosphorus credits can be granted to permitted cities that implement a leaf collection program. The results from these evaluations can also be used as incentive for cities to change or amend leaf collection programs as a way to improve the quality of urban stormwater to receiving waters. This research will conclude in

2: Tanzania's Magufuli leads fight against corruption | Africa | DW |

Executives from the financial institutions who received TARP funds, Goldman Sachs Chairman and CEO Lloyd Blankfein, JPMorgan Chase & Co Chairman and CEO Jamie Dimon, The Bank of New York Mellon CEO Robert P. Kelly, Bank of America CEO Ken Lewis and State Street Corporation CEO and Chairman Ronald Logue testify in Washington, DC.

Summer Cities More than 15 years after long-struggling Philadelphia elected sometime reformer Ed Rendell mayor, the City of Brotherly Love has more murders per year than New York City, with just one-sixth the population. But now it looks as if Philly may at last be ready to embrace change. Democratic mayoral nominee Michael Nutter won a closely contested primary with the endorsement of every significant newspaper and good-government group, in a climate in which a majority of voters, not just for the general election but even in the Democratic primary, have identified crime as their Number One concern. Nutter ran on a platform of lowering the extremely high tax and crime rates that have driven businesses and the middle class out of the city. But after the early front-runner, U. Congressman Chaka Fattah, a classic suit in search of an office, failed to generate momentum, the race boiled down to a black-white contest—as it almost always does in Philly. The chief rivals were Nutter black and businessman and former deputy mayor Tom Knox white , with congressman and political fixer Bob Brady and state representative and longtime reformer Dwight Evans in the second tier. After the major press endorsements all went his way, Nutter pulled away from the wealthy Knox, who had contributed generously to his own campaign. Nutter has the kind of reform agenda that people wrongly associate with Rendell, who entered office with a mandate for change and a city teetering on bankruptcy. After winning significant concessions, though, Rendell aligned himself with Street, then the city council president. Rendell took care of downtown, which thrived, while Street ran the rest of the city as his private patronage kingdom. With his eye on higher office and his reputation secure, Rendell chose not to pursue the reforms that other innovative mayors enacted in the s. He opposed welfare reform and did little to fight crime outside of downtown. Street trailed in polls. But then came the incident that allowed Street to portray himself as a victim of Republican racism. Street spent the rest of the campaign bragging that he was just playing the game as it had always been played; in one debate, he cheerfully acknowledged that contracts went to friends first, just as under his white predecessors. Whom else would he give them to? Murders rose from in to in , and have gone up at a higher rate this year, even as crime continues to decline in big cities nationwide. Philadelphia seems to have come to the same conclusion in the recent primary. As one Philadelphia Inquirer columnist put it:

3: Police Officer Misconduct | City of New York

Another: the aborted mayoral run of Mayor Street's brother Milton, a hot-dog vendor under indictment for corruption and tax evasion, who'd taken advantage of his brother's power to procure a major airport concession contract.

At the forefront is President John Magufuli. Since assuming office in November, Magufuli has been rebuilding lost trust with Western donors by firing public officials deemed to be incompetent and corrupt. Magufuli left no doubt about his aims immediately after he was sworn in. They were tolerated for a long time. This is the end," Magufuli warned in his first speech as president. Later, he matched his words with actions, slashing the number of cabinet posts from 30 to 19 by merging ministries. The president went further to ban the Independence Day celebrations in favor of leading a street cleaning campaign. While there, he said he had turned down many invitations from the West to attend various conferences. He drove all the way to Rwanda, avoiding flight costs. Many heads of state on the continent have vowed to eradicate corruption from their countries. Legislation to punish the vice has been drafted and anti-corruption authorities have been formed. However, on the ground, little seems to have changed. Rwandan researcher and political commentator Christophe Kayumba told DW that, unlike other African heads of state, Magufuli has translated his intentions into actions. He has suspended corrupt officials and reduced public expenditure," Kayumba said. According to a local newspaper, Tanzania Daily News, besides cutting costs and taking administrative action against incompetent and corrupt public servants, some cases related to corruption are currently before the courts. Magufuli opted to clean up rather than celebrate independence. Many Tanzanians say they believe in Magufuli. However, some fear their president is fighting a lone battle. Another resident, Msafiri Musa, told DW that the president is fighting against top officials, influential leaders and wealthy people who have been surviving on graft. We must back him in this struggle," Musa said. Also in Arusha, Mary Mahu said all corrupt activities should be exposed. However, Kayumba is optimistic the president will keep up the fierce fight against corruption. He is a disciplinarian person," Kayumba said.

4: Alternate Side Parking or Street Cleaning | City of New York

Sample Service Contract for Collection of Municipal Solid Waste and Street Cleaning - to be read together with the schedules. Schedules for LOT 1 relate to street cleaning and waste collection only. If government wishes to include operation of transfer station and long distance transportation.

5: Contract for street sweeping and municipal waste collection | Public private partnership

*Contract for street sweeping and collection (prepared in French for country in Francophone country in North Africa)
Contract for street sweeping and collection (and for operation of transfer stations and long distance transportation)
(prepared in English for country in North Africa).*

6: Street Cleaning in Philly: Is reform finally coming to a corrupt city? | City Journal

Alternate side parking (street cleaning) rules are suspended on Wednesday, November 7 for Diwali. Meters and all other parking regulations remain in effect on this day.

7: City of Chicago :: Street Sweeping

changes as a result of leaf collection and street cleaning According to the paired-catchment approach, any change in the relationship that was established between the control and test catchments during the calibration phase of the study can be attributed directly to leaf collection and/or street-cleaning activity.

8: Solid Waste Sample and Contracts: Street cleaning and waste collection | Public private partnership

Mar 05, Â· Russia dismisses sweeping corruption allegations against Medvedev who emerged as an anti-corruption whistleblower and took a leading role in the street protests that accompanied Putin's

9: Deregulation of Wall Street Is Plain and Simple Corruption

View the Street Cleaning Map with the street sweeping schedule for all streets in San Francisco, including street cleaning holidays. Enter your residential parking permit and see where you can park for a few days and avoid Street Cleaning.

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