

Reducing Pet Waste

Submitted to:
Southwest Florida Water Management District

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Background

Is your water safe to swim in, fish from, and drink? Does your municipality take care of its pet waste? While the latter question may seem irrelevant to the former, water quality and pet waste management have more in common than what one may originally think.¹

Two studies conducted in the mid-90s revealed that 95% of the fecal matter found in urban watersheds was non-human.² The problem? Pet waste contains bacteria that can contaminate a watershed, posing health risks to humans and other animals, potentially causing the spread of disease, such as *Giardia* and *E. coli*.³ Based on results from the above-mentioned studies, if all pet owners scooped their pets' waste, 95% of fecal matter could potentially be eliminated from urban watersheds, thus greatly improving water quality. Improved urban water quality also results in an improved economy, with better lakes for fishing and swimming. For example, it has been estimated that for a 20-square-mile watershed draining into a coastal bay, a population of 100 dogs would drop enough fecal matter within two to three days to temporarily close a bay to shell-fishing and swimming.⁴

The facts are clear—not picking up after pets affects water quality. Yet, a significant number of people do not pick up after their pets. Several surveys indicate that 60%–70% of dog owners claim to clean up after their dogs most or all of the time, leaving 30%–40% of pet owners who rarely or never do.⁵

Barriers and Benefits

There are a number of barriers to participating in this activity that need to be overcome. Lack of knowledge as to how pet waste contributes to water pollution is a major barrier. Thirty-seven percent of dog walkers surveyed did not agree, or expressed no knowledge, when asked if pet waste could contribute nutrients to local water bodies.⁶ In addition, when 600 King County (Washington) residents were asked to rank important factors that cause water pollution, pet waste ranked last as a contributor.⁷

In a survey conducted by the University of Maryland Cooperative Extension, the 38% of dog owners who did not pick up their dog's waste listed the following excuses: because it eventually goes away, just because/no reason, too much work, on edge of my property, it's in my yard/it's in the woods, not prepared, small dog = small waste, use as fertilizer, and sanitary reasons.⁸ Some of these barriers would likely be overcome if pet owners were educated about the link between pet feces and water quality. In an informal focus group involving a neighborhood web blog within the Tampa Bay region, the most significant barriers to scooping pet waste were residents' misconceptions that dog waste is a fertilizer that is good for the environment, followed by the 'ickiness' factor.⁹

In the same survey, pet owners who regularly scoop their dog's waste listed the following as benefits for doing so: it's the law — 18%; environmental reasons, such as hygiene/health, courtesy, nonflushable, it should be done, and it keeps the yard clean — 42%.¹⁰ Eighteen percent did their duty because it's the law, which indicates that pet waste cleanup ordinances are valuable, but perhaps best used in combination with educational efforts. Other observed benefits from the survey appear to be normative in nature, such as for those who do their duty because it is courteous to others and because of a belief that it simply should be done.

Summaries of Programs

Based on the barriers and benefits related to this behavior, the following is a list of attractive programs:

Pooches for the Planet, *Tampa Bay Estuary Program*¹¹

Pooches for the Planet is an 8-month neighborhood-oriented pilot project that aims to increase awareness about the connection between dog waste and water quality in Tampa Bay's Rivercrest Greenway and Park area. The program's motto is "Clean waters, clean yards. And clean shoes!" Nanette Holland, the project organizer, has set up an information station in her own neighborhood where she displays Pooches for the Planet informational materials. At the information station, she also gives away photo fridge magnets as reminders to engage in the targeted behavior and fire-hydrant shaped plastic bag dispensers to help people carry bags on their dog's lead.

After the first information station session, three neighborhood residents volunteered to help manage the station and two others volunteered to routinely refill the plastic bag dispensers already installed in the park. Involving neighbors actively in this manner is likely to help develop a community norm that picking up dog waste is the right thing to do. Initial feedback of the program is generally very positive.

The project is currently under assessment. Holland used GPS to track the number and locations of dog waste piles in the Rivercrest Greenway and park area on June 4, 2006. She continues to track the piles, but the rainy season is currently confounding her results. All information session booth materials, including chairs for the booth, 1,000 fire hydrant bag holders and 1,000 photo magnets, cost \$3,000 US.¹²

Pooptopia LBS¹³

Pooptopia LBS is an urban game of pet waste removal designed by Arom Saroyan Armstrong as his thesis project for Interaction-Ivrea in Milan, Italy. Pooptopia is designed to make pet waste removal easier for residents of the community, and fun! You play the game as follows: First, join one of Pooptopia's three teams; second, locate poop; third, photograph it with a digital camera for proof; fourth, send the photo by email to tesoro@pooptopia.com, describing the location and name of your team; and finally, mark it on Pooptopia's Tesoro Scuro map online. The online map is used by "Pootectors," private contractors, to plan nightly poop pickup routes. To encourage

people to map the poop piles, teams receive double points for this step. Pooptopia has a weekly top poo-hunter, who is rewarded with a small prize. Four times a year, doggy-doo ratings are reviewed by Pooptopia to classify residential zones as either “pooptopias” or “puptopias.” The former are deemed areas where dog waste litters the sidewalks and there is a lack of pup-friendly parks. “Puptopias,” on the other hand, are areas of the city that sustain clean sidewalks and adequate park space. As an extra incentive to participating in this game, Pooptopia LBS has teamed up with the city to award Puptopian zones with lower service fees for dog owners and penalize Pooptopian zones with higher service fees. In order to make cleanup easier for owners and possible for all residents of Milan, there are plastic bag dispensers, called “Bag It or Flag It” stations, placed on the streets.

This program is both incentive and community-based, therefore overcoming the barrier of a lack of motivation while enhancing the benefit of community norms. While there seems to be some interest in the program as displayed by the number of poop piles tagged on the Tesoro Scuro map, there is no official data as to the program’s effectiveness. Indeed, the program was not designed to remove pet waste because of water quality issues, but for cleaner streets. The program could benefit from an educational component relating to the people of Milan the serious health risks associated with pet waste and water quality. Additional educational efforts may engage a larger playing audience.

Snohomish County’s 101 Reasons to Pick Up Pet Waste Awareness Campaign¹⁴

Snohomish County and Everett in Washington, D.C. have a very attention-grabbing poster awareness campaign. Each poster displays a different reason to pick up pet waste, and all include the slogan “Scoop the poop, bag it, and place it in the trash. Clean Yards. Clean Streams. And Clean Shoes!” Some of the 101 reasons are better at linking pet waste to health concerns than others. For example, one poster depicts a cute puppy with the title “Fecal coliform machine...the ingredients of dog waste are harmful to children.” Perhaps an even stronger message is conveyed with the following statement: “Some things last longer than you think...harmful bacteria that can be transmitted from pet waste to children can persist for weeks.” Another is very good at sending a clear message to overcome the barrier of believing that dog waste is a good fertilizer: “Dog waste is not fertilizer...landfills are designed to handle substances such as dog waste, cat litter, and dirty diapers. Yards are not.”

The posters are attractive and informative. The initial response to this large-scale awareness campaign pilot is positive, but the campaign is currently only about 30% into fielding.¹⁵ The program is monitored extensively with staff on garbage trucks, walking dogs in neighborhoods, tracking veterinary contacts, and by driving around neighborhoods to count garbage can stickers.¹⁶ The program monitors home yard dog waste, as opposed to public dog waste, because their research found that 89% of residents report that most of their dog waste is deposited in the backyard.¹⁷ If you would like to be added to a distribution list for program information, please contact Dave Ward.¹⁸

City of Melbourne, Australia, Pet Waste Management Program¹⁹

Melbourne, Australia, has utilized law enforcement to encourage proper disposal of pet waste. By law, dog owners must always pick up after their pet's waste and carry plastic bags or a pooper-scooper as an appropriate container. Fines can be upwards to \$250, which may be a large enough sum of money to encourage even the most stubborn dog owner to pick up after his or her pet. To help citizens comply with the law, the city offers sample packs of plastic dog bags and POOch Pouches that can be obtained by calling the city. They have also conveniently placed pet waste bins in its parks.²⁰ In addition, the Department of Primary Industry and the Bureau of Animal Welfare run a responsible pet ownership program in pre-schools and elementary schools to inform children about looking after their pets and cleaning up their pet's waste.²¹ In addition, Melbourne Water runs an awareness campaign about the relation between pet waste and bacterial *E. coli* counts in waterways and beaches.²²

While there is no professional assessment of the effectiveness of the by-law and free bags and pouches on diminishing pet waste, casual observation suggests that there is significantly less waste on the streets and in the parks than there was a few years ago.²³ Thanks greatly to the Lost Dogs' Home, programs such as this one have been introduced in and around Melbourne in the state of Victoria, Australia.²⁴

In 1997, the city of Port Phillip pinpointed dog waste as responsible for approximately 10% of the contamination of storm water flowing into the bay, which had to be closed frequently due to bacterial levels in the water.²⁵ Citizens of Port Phillip were unsatisfied with the amount of dog waste lying around, but *Streetsahead*, the internationally hired streets and beaches cleaning service, and *PALMS*, the internally hired park cleaning service, were reluctant to clean up dog waste after dog owners.²⁶ Port Phillip decided on a media blitz, along with a bonus scheme for cleaning services, to spread the message to the broader community that pet owners must scoop up their dog's litter and to improve city cleaning services for when pet owners failed to do so.²⁷ Port Phillip spread their message with a number of techniques, including stickers on garbage cans in dog waste hotspots and 'pooper scooper' stands placed throughout the municipality with the accompanying sign "Please pick up after your dog." The campaign gained publicity when it was articulated in *Community Update*, the council newsletter delivered to 46,000 residences and businesses. Dog owners and dog groups such as Alma Dogs and the Gasworks Arts Park Dog Group "policed" the dog waste policy by reminding owners of their responsibilities through newsletters and web sites. Also working with Gasworks Arts Park, Port Phillip established a Dung Beetle Award for Responsible Dog Ownership, which was given out at a two-day dog festival held in April 2000. The mayor spoke at the festival. Media was a large component of Port Phillip's efforts, and the city managed to utilize a number of media outlets, such as local newspapers, Port Phillip's community newsletter, metropolitan newspapers, radio and television ads. Overseas media outlets also took interest, including CNN and the BBC World Service. As well, national media outlets including Radio Australia gave the campaign more publicity. Dog waste efforts involving DNA testing of dog waste to identify an offending owner became an item on a sketch comedy television program, *Something Stupid*, set at nearby Elwood Beach. There is also a law prohibiting dog owners to leave their dog's waste on

the ground, and this is made quite clear. While the city of Port Phillip in contract with the Lost Dog's Home provides only 1.5 animal control officers full-time, the campaign buzz created an illusion of an army of animal control officers ready to pounce on offending dog owners. To overcome the barrier of street, beach, and park cleaners not cleaning up dog waste, \$4.51 AUD (\$3.49 USD) was given to the two cleanup crews for each dog waste pile, of which a dollar each was given to crew members.

This program was not very costly. The cost of the anti-dog waste stickers was covered by the contract between the City of Port Phillip and the Lost Dogs' Home. The bonus paid by the city to hired cleaners was covered by an increase in dog registration fees. The only costs for media were labor time for the Council Media Officer and the costs of paper, phone calls and faxing to media outlets. The campaign has resulted in an apparently more responsible dog owner community, and council cleaning services have overcome their initial reluctance to pick up dog waste. Statistics on the incidence of dog waste were only kept for the seven-month period of the bonus scheme, but Dr. Graeme Smith, manager of the Lost Dogs' Home, estimates that dog waste has been reduced by one-third in Port Phillip and in Melbourne as a whole, from mid-1998. Community Satisfaction Surveys conducted by Newton Wayman Chong show that community satisfaction in Port Phillip regarding the "absence of dog litter from pathways and beaches" has gone up by 12%, from 44% in 1998 to 56% in 1999. The program was also awarded the "Public Relations Institute of Australia Victorian State Award for Excellence" in 2000.

For more program design information, Victorian Litter Action Alliance of Australia offers an online "Dog Poo Litter Tool Kit," with many excellent program suggestions, as well as a number of case studies of programs targeting dog waste management in and around Melbourne, Australia. The kit is the third in a series of litter prevention kits produced by Victoria's Litter Champion Project. It was developed by the Victorian Litter Action Alliance (VLAA) in partnership with the Bureau of Animal Welfare's Community Education Program, Victorian Department of Primary Industries.²⁸

Pet Waste Reduction Pilot

Programs designed to combat pet waste fall into three broad categories. Cities often create programs that overlap these categories for optimal results.

- (1) Awareness Campaigns (Owner-based):²⁹**
Programs designed to overcome educational barriers. Owners are educated about the health risks associated with not cleaning up their dog's waste and are left with the responsibility of finding methods (e.g., pooper scooper, plastic bags) to pick up after their pet.

- (2) Pet Waste Control Ordinances (Management-based):**
Introduction of a law whereby pet owners must pick up after their pets or risk receiving a fine that is enforced by the municipality.

(3) **Specially Designed Dog Parks (Management-based):**

Collection Systems: The simplest addition to a dog-friendly park are pet waste collection systems, which hold plastic bags for owners to utilize to pick up waste, and where garbage cans are placed in close proximity to the bag dispensers and the exits to the park. Bag dispensers can also include educational signage.³⁰ Collection systems can cost anywhere between \$60–\$200 US.³¹ The pickup bags purchased in bulk cost 5¢–14¢ each.³²

Doggy Loos: Pet feces disposal units are placed in the ground, which operate by foot-activated lids. Decomposition is quick, and messy cleanup is avoided.³³

Pooch Patch: Upon entrance into the park, the dog is introduced to a telegraph pole, surrounded by a scattering of sand. Dogs are encouraged to defecate on the patch, and bins are close by for owners to dispose of their dog's waste.³⁴

Long-Grass Principle: Parks can have areas where grass is not mowed where pet owners can take their dogs to defecate. A height of around 10 cm is necessary for the feces to disintegrate naturally without stormwater runoff. Long grass areas, however, should not be placed in close proximity to overland flow paths, stream channels, lakes, drinking water wells, and stormwater drainage inlets.³⁵

It should be noted that although many municipalities have programs designed to cope with pet waste, few of these programs have been properly assessed in order to determine their cost/benefit. As of yet, there is minimal empirical evidence to suggest which programs are superior, and likely a combination of tactics is best.³⁶ Only in the last five to ten years have local governments been focusing on pet waste management as more than a public nuisance.³⁷

Accordingly, the proposed pilot encompasses several strategies to address the barriers that have been identified. The key elements of the proposed pilot involve education, creating community norms, making proper disposal more convenient, and bylaws and incentives.

Education: Educational efforts are necessary to overcome lack of knowledge as a barrier. Such efforts need to address owners' beliefs that pet waste is a fertilizer, beliefs that it's fine as long as it is in their yard, and lack of knowledge regarding where their pet's feces goes, when it eventually goes away. As with most communications, these efforts are best accomplished through face-to-face dialogue backed up by strategically placed posters (e.g., entrances to parks and broad-reaching media). Two methods for enhancing knowledge are suggested that can be tested against each other for their relative efficacy. The first involves door-to-door visits to the homes of pet owners. It is suggested that pet owners be recruited from the neighborhood and trained to speak to other pet owners regarding the necessity of properly disposing of their pet's waste. To legitimize these conversations, the "block leaders" need to be provided with photo identification, in addition to the educational materials that they would distribute. It is suggested that homeowners be directly targeted at their residence since a significant

percentage of dog waste occurs on the dog owner's property. Further, some of the materials noted below are best distributed at the dog owner's home. In the second strategy, local pet owners are again recruited as block leaders, but the conversations occur when these individuals are out walking their own dogs. It is common for dog owners to stop and talk with one another and these conversations create a natural opportunity for educational efforts to occur.

Making people aware of the issues involving pet waste will overcome one barrier to engaging in this behavior, but there are a number of others to consider as mentioned above in the barrier/benefit portion of this report. The best programs will combine a number of methods.

Community Norms: Incorporating a normative element into a pet waste cleanup program, such as by developing neighborhood-oriented campaigns, may urge people to clean up their pet waste to avoid guilt and societal disapproval. Several methods exist for establishing community norms regarding proper disposal. First, the conversations suggested above will begin the process of creating norms regarding proper disposal. To further enhance the quick development of such norms, two other strategies are suggested. First, when the above conversations occur, pet owners are provided with not only bags, but also a holder for the bag that can be attached to the dog's leash. This holder makes cleaning up after a dog more appealing as the bag does not have to be held until a garbage container is reached. Further, it provides the opportunity for a message to be placed on the holder itself that can facilitate the development of community norms. A message such as "I properly dispose of my pet's waste at home and in the community" serves not only to develop a community norm, but also as a method of obtaining a visible and durable public commitment from the owner. As with the other strategies suggested here, this strategy should be market-tested through focus groups prior to being utilized.

One additional method of creating norms regarding proper disposal is particularly promising. The development of community norms regarding picking up after your dog is hindered by pet owners having few opportunities to see others engage in this behavior. As a consequence, it is important to provide tangible evidence of pet owners' commitment to proper disposal. One of the most cost-effective methods for doing this involves having owners sign a bulletin board in the public park that they frequent, committing to picking up after their pet. By having numerous owners publicly sign such a board, the development of community norms can be facilitated.

Making Proper Disposal More Convenient: Convenience of disposal is a significant barrier to owners cleaning up after their dogs. Well-marked disposal containers that are located in parks and recreation areas that are frequented by pet owners are critical to proper disposal. These containers should also have beside them bag dispensers for those owners that forgot to bring them with them. Decisions regarding where to locate the containers should be made after a field study that determines where the greatest concentration of dog waste is occurring. Further, these containers should have located beside them the bulletin boards described above.

Bylaws: Given that a sizeable portion of dog owners (44%) report that they rarely or never clean up,³⁸ effective strategies may need to include bylaws and associated fines. For such fines to be effective, however, owners will need to believe that there is a significant likelihood of being fined.

Incentives: Cleaning up dog waste is understandably not seen as a pleasant activity by municipal staff. However, if dog waste is not removed, its presence sends a normative message that not cleaning up after your dog is considered appropriate. As a consequence, an effective pet waste reduction strategy will likely need to provide municipal staff with an incentive to clean up waste as was done in Port Phillip.

Pilot Evaluation

To assess the effectiveness of the proposed strategies it is suggested that three neighborhoods be selected. Each neighborhood should be known to have a large number of dog owners and should contain a park area where the dogs are frequently taken for walks. Random assignment cannot be used with this pilot, as the development of social norms is a key part of the methodology. As a consequence, these three areas need to be matched closely based upon factors such as property values, size of lots and social-economic data. Each area would be randomly assigned into one of three pilot conditions: (1) door-to-door visit by pet owners who are serving as block leaders; (2) conversations that occur by pet owners that are serving as community block leaders while they are out walking their dogs; and (3) the control group, where no information is provided or contact made with households.

First, neighborhood pretesting would be conducted in which researchers would walk through the three neighborhoods recording the number of incidences of dog waste that occur within the neighborhood and the associated park. To ensure that the “deposits” are not double-counted they will need to be picked up after they are recorded. The pretesting should occur twice a week for a period of one month to ensure that an adequate baseline is established. The interventions are then carried out and same recordings are made for an initial period of one month and then at periods of 3 months, 6 months and 1 year following the interventions to measure the longevity of the findings. Since each of the three pilot areas would likely have initially differed from one another, assessment of the impact of the pilot interventions will involve subtracting the pretest measurements from the follow-up measurements so that “magnitude of change” can be assessed for each of the three areas. The impact of these voluntary methods should be compared to the impact of introducing a bylaw in another community in which similar measurements are obtained. In all cases, the cost to deliver the interventions and the bylaw should be compared to the reduction in observed dog waste to obtain a measure of cost-effectiveness.

Endnotes

¹ Center for Watershed Protection (2000).

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⁵ Hardwick, N. (1997).

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⁹ Holland, N. (2006). Public Outreach Coordinator, Tampa Bay Estuary Program. Personal communication, August 25, 2006.

¹⁰ Center for Watershed Protection

¹¹ All information regarding Pooches for the Planet from Holland, Nanette. (2006, Aug. 25). Personal communication.

¹² Contact: Nanette Holland, Public Outreach Coordinator, Tampa Bay Estuary Program. 100 8th Ave. S.E. St. Petersburg, FL 33701 **phone:** (727) 893-2765 **fax:** (727) 893-2767 **e-mail:** Nanette@tbep.org.

¹³ All information and graphics taken from Pooptopia's website: <http://pooptopia.com/>. 2006.

¹⁴ Snohomish County, Washington, Public Works: Surface Water Management. (?) Online, internet: http://www1.co.snohomish.wa.us/Departments/Public_Works/Divisions/SWM/Services/Water_Pollution/Pet_Waste_Posters.htm

¹⁵ Ward, Dave. (2006, September 7). Personal Communication.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ **Program Contact:** Dave Ward , Principal Watershed Steward , Snohomish County Surface Water Management, 3000 Rockefeller Avenue, MS-607, Everett WA 98201-4046, (Phone) 425-388-3464 ext. 4667, (Website) www.surfacewater.info, or (Website): <http://www1.co.snohomish.wa.us/>.

¹⁹ All information regarding program, unless otherwise noted, taken from the city of Melbourne's website: <http://www.melbourne.vic.gov.au/info.cfm?top=6&pa=523&pg=526>.

Contact: **City of Melbourne**, Town Hall, 90-120 Swanston Street, Melbourne, 3000 Victoria, Australia, PO Box 1603, Melbourne Vic 3001, (phone) +61 3 9658 9658 (fax) +61 3 9654 4854, (e-mail) enquiries@melbourne.vic.gov.au

²⁰ Waiting for more info as to who Amanda, pomegranate02@gmail.com, is.

²¹ Daniella, Failla. (2006, Sept.14). Personal Communication. E-mail danfai@melbourne.vic.gov.au.

²² Ibid.

²³ Kelly, Amanda. (2006, Aug. 25). Personal Communication. E-mail pomegranate02@gmail.com and Berry, Dr. David. (2006, Sept. 3). Personal Communication. Veterinarian and Education & Training Officer, Melbourne, Australia.

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²⁶ Ibid. Pg.4

²⁷ Ibid. pg.4

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²⁹ Harlock Jackson Pty. Ltd., J. K. Blackshaw, and J. Marriott. 1995. *Public Open Space and Dogs: a Design and Management Guide for Open Space Professionals and Government*. Harlock Jackson. Victoria, Australia. Online, internet: <http://www.petnet.com.au/openspace/7.0.html>

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³¹ See 13 above.

³² See 13 above.

³³ See 1 above and 18 below.

³⁴ See 1 above and 18 below.

³⁵ United States Environmental Protection Agency. (2001). Source water protection practices bulletin: Managing pet and wildlife waste to prevent contamination of drinking water. Online, internet: <http://www.epa.gov/safewater/protect/pdfs/petwaste.pdf#search=%22doggy%20loos%22>

³⁶ See 12 above

³⁷ See 13 above.

³⁸ Center for Watershed Protection. (1999). A survey of residential nutrient behaviour in the Chesapeake bay. Online, internet: http://www.cwp.org/UNEP_all.PDF.