

Stormwater Runoff Debris near Santa Monica Pier

PHOTO: KIRSTEN JAMES, HEAL THE BAY



## Averting the Scourge of the Seas: Local and State Efforts to Prevent Plastic Marine Pollution

### *Case Study: Plastic Bags*

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*Marine debris is a global problem that threatens marine life and ocean environments. It is largely comprised of plastic materials, which can take years to break down and may never truly biodegrade in the marine environment. Single-use plastics, such as plastic bags, bottle caps, and polystyrene pieces, are frequently found during creek and beach clean-up events. Of these items, plastic bags and polystyrene food packaging have been common targets for policy-based approaches to pollution prevention at local, state, and national levels. This article focuses on single-use plastic bag policies, discusses lessons learned from international and U.S.-based models, and provides recommendations for effective policy-related reduction and prevention measures within California.*

**SINCE THE 1970s, MARINE DEBRIS**, which is simply man-made trash and materials that litter our beaches and seas, has been widely recognized as a threat to the marine environment (Figure 1). Quantities of marine debris are increasing at an alarming rate, despite past control measures such as the MARPOL (MARine POLLution) international treaty prohibiting dumping plastics at sea (California Coastal Commission 2006; MARPOL 1988). An estimated 80% of marine debris comes from land-based sources, while only 20% comes from sea-based sources (U.S. Department of Commerce 1999).

Marine debris is primarily comprised of plastic materials, which make up roughly 60–80% of all marine debris and 90% of all floating debris (California Coastal Commission 2006). Plastic resin polymers are so durable that it can take hundreds of years for plastics to break down at sea, and some may never truly biodegrade in the marine environment (California Coastal Commission 2006). A study conducted by the Algalita Marine Research Foundation in the North Pacific Gyre found six times more plastic particles than plankton, by mass, in these waters (Moore et al. 2001).

This pollution threatens the health of the marine ecosystem, as well as mariner safety. More than 267 species worldwide have been injured or killed by marine debris, primarily through ingestion and entanglement (Laist 1997). Marine debris is particularly detrimental to seabirds, marine mammals (Figure 2), and sea turtles (Laist 1997). Plastic marine debris can also attract dangerous chemicals present in the marine environment, such as polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethane (DDT): researchers have found concentrations of these chemicals on plastics in the marine environment at nearly one million times above background levels (Mato et al. 2001). More research is needed to better understand the effects on marine life of ingesting chemical-laden plastics.

Marine debris is also a significant economic burden for local and state governments. Public agencies in California spend millions annually on litter cleanup (California Department of Transportation 2008). In fiscal year 2005–2006, Caltrans spent \$55 million to remove litter and debris from roadsides and highways, which otherwise could have drained to the

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Figure 1. 1<sup>st</sup> Flush, Pico-Kenter Storm Drain in Santa Monica

PHOTO: MEREDITH MCCARTHY, HEAL THE BAY



ocean. Locally, the Los Angeles County Department of Public Works and the Flood Control District spend an annual average of \$18 million on street sweeping, catch-basin cleanouts, cleanup programs, and litter prevention and education efforts (Los Angeles County Board of Supervisors 2007). Marine debris is becoming a globally recognized environmental problem, and stakeholders can learn from the successes and obstacles of policies to address the issue explored elsewhere. Single-use plastics, such as plastic bags, bottle caps, polystyrene pieces, and cigarette lighters, are among the types of marine debris commonly found during beach and creek cleanups (Moore and Allen 2001). Of these items, plastic bags and polystyrene have been common targets for policy-based approaches to pollution prevention. This article will focus on single-use plastic bag reduction and prevention measures.

## Lessons Learned from International and U.S. Models

Enacting plastic bag pollution prevention policies is not a new concept. Local governments and countries around the world, from Bangladesh to Belgium, have adopted measures, ranging from fees to bans, aimed at decreasing plastic bag pollution. Ireland is an example of a particularly successful program.

### *Ireland's Plastic Bag Levy, a Success Story*

Ireland has been a global leader in curbing plastic bag pollution through a consumer-based fee approach. The Irish government adopted the "Plastic Bag Levy" in March 2002, with the intent of reducing the consumption of disposable plastic bags (Department of the Environment, Heritage and Local Government 2007). To effectively deter the use of plastic single-use bags distributed at the point

of sale and to encourage consumers to switch to reusable bags, the Levy was designed to be placed at a price point high enough to change consumer behavior.

Before the measure was introduced in 2002, an estimated 1.3 billion shopping bags were issued annually in Ireland, and plastic bags were commonly found as litter. The Levy, which is currently set at an equivalent of US\$0.33, has decreased plastic bag distribution by more than 90% (Department of the Environment, Heritage and Local Government 2004). The Levy is applied equally to plastic and compostable single-use bags, as both forms cause environmental blight. Although the Plastic Bag Levy was adopted as a litter-control reduction measure, the Levy has raised more than 117 million pounds as of January 2009. These funds are used to support waste management, recycling, and other environmental projects, including litter prevention efforts, environmentally friendly product promotion, environmental partnerships, and education and outreach efforts (Mulhall 2009). Over the lifetime of the program, Ireland has increased the fee once to keep plastic bag distribution stable at a low level (Department of the Environment, Heritage and Local Government 2007).

The Plastic Bag Levy has successfully reduced plastic bag litter and resulted in a savings to local authorities, which now spend less on litter cleanup and abatement (Mulhall 2009). The Levy has also garnered wide public support. A nationwide survey on public perception of the Levy, conducted in 2003, found that 91% of those surveyed supported the fee, for a variety of reasons, including its environmental benefits, the aesthetic benefits from plastic bag litter reduction, and because they found reusable alternatives to be more convenient and durable (Mulhall 2009).

Figure 2. Sea Lion Pup with Plastic Bag

PHOTO: PETER WALLERSTEIN, MARINE ANIMAL RESCUE



### *Seattle Action Thwarted by Industry Opposition*

Possibly taking a cue from Ireland, in 2008, the Seattle City Council adopted a \$0.20 green fee on single-use shopping bags. Concerned by the negative energy, climate, wastewater, litter, and water quality impacts of disposable plastic and paper bags on Seattle's environment, the council introduced the green fee as an environmentally beneficial measure (Seattle Public Utilities 2008). The fee structure is consumer-based and applies to paper and plastic single-use shopping bags provided at the point of sale at grocery stores, drugstores, and convenience stores.

The price point that will influence consumer behavioral change is often at question in the design of fee-based environmental policy measures. Producer- or retailer-based fees are not as effective at changing consumer behavior (Green Cities California 2010). A consumer study of Seattle residents conducted in 2008 indicated a fee of \$0.20 would reduce the distribution of single-use plastic bags by 70% or more at participating stores (Seattle Public Utilities 2008). Although the green fee was designed to be a litter prevention measure, Seattle planned to use associated revenues for education and outreach efforts, including fee and waste prevention, recycling, and environmental education programs.

Seattle's green fee was to take effect on January 1, 2009, but soon after the City Council adopted the measure, efforts to fight the fee ensued. The Progressive Bag Affiliates of the American Chemistry Council collected enough voter signatures to put the green fee measure on the August 2008 primary ballot as a referendum, and subsequently spent \$1.4 million to defeat the measure (Thompson 2009). In the end, the referendum was defeated. The American Chemistry Council's investment to prevent regulation of single-use plastic bags proved successful in Seattle. Along with affiliates, the American Chemistry Council continues to fight local and state action intended to reduce plastic pollution in the United States, including California.

### **Local and State Action and Policy Options in California**

#### *Local Plastic Bag Measures Face Challenges, Yet Persevere*

Californians use approximately 19 billion single-use plastic bags each year. However, less than 5% of single-use plastic bags are actually recycled (California Department of Resources Recovery and Recycling n.d.). Instead, many of these plastic bags become litter and eventually end up in our oceans as marine debris.

In March 2007, the City of San Francisco became the first U.S. city to ban single-use plastic bags at large supermarkets and pharmacies (City of San Francisco Ordinance 81-07). Many environmental groups heralded this action as a major win for the environment (Figure 3), while some questioned the decision to allow the continued distribution of single-use paper and compostable bags in many outlets. It is no surprise that industry groups such as plastic bag manufacturers and the American Chemistry Council criticized the decision entirely and saw the ordinance as a threat to their livelihood.

Figure 3. San Francisco Storm Drain with Plastic Trash

PHOTO: SARAH WOODARD



The San Francisco action sparked a wave of momentum surrounding single-use bags, in California and beyond. Many California communities quickly became motivated to follow suit. At the same time, industry opposition began to coalesce. San Francisco's neighbor, the City of Oakland, was one of the next municipalities to pass a single-use bag ban. However, in an attempt to reverse Oakland's decision and intimidate other local governments from doing the same, a group calling itself The Coalition to Support Plastic Bag Recycling sued the city over its failure to complete an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA). In other words, the industry was turning CEQA against itself to halt, instead of promote, environmental progress. As a result of the lawsuit, Oakland moved to a voluntary ban of single-use bags.

The Oakland lawsuit marks one of the many legal challenges and threats against communities exploring single-use bag policies. However, despite the legal threats, several Southern California communities have moved forward with policies of their own. The City of Malibu adopted a policy in May 2008 (City of Malibu Ordinance No. 323). Learning from some of the weaknesses in the San Francisco policy, Malibu decided to ban plastic and "compostable" single-use bags, because compostable bags do not degrade in the aquatic environment. The City also recommended that their Council should consider a fee on plastic bags in the future. (As discussed later in the article, state law AB 2249 preempts levying fees on plastic bags.) In addition, Malibu expanded the definition of "store" to include all retailers, so that more of the single-use pollution problem could be addressed.

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Trash Boom between the Lincoln Blvd and Culver Blvd Overpasses in Ballona Creek

PHOTO: SMBRF



In July 2008, Manhattan Beach adopted a nearly identical policy to Malibu's ordinance (City of Manhattan Beach Ordinance No. 2115). While Malibu may have slipped through the cracks on a legal challenge, Manhattan Beach was sued by a newly formed industry group named Save the Plastic Bag. Save the Plastic Bag held that Manhattan Beach failed to look at the impacts on the environment from banning plastic bags and not paper ones (Save the Plastic Bag Coalition v. City of Manhattan Beach). Again, CEQA was used opposite of its intent. Unfortunately, thus far, the courts have ruled in favor of the plaintiff, but the case was appealed to the State Supreme Court and will be heard in the near future.

Many municipalities are still charging forward. In an effort to sustain momentum on this issue, a group of 12 cities from Green Cities California spearheaded an effort to complete a Master Environmental Assessment (MEA) on single-use plastic bag policies that could serve as a template for an Environmental Impact Report (Green Cities California 2010). The final MEA was released in March 2010. The MEA explores a range of policy options, including bans and fees. Additionally, the County of Los Angeles issued a Countywide Environmental Impact Report for a single-use plastic bag ban ordinance in June 2010. It is designed to be used by any of the 88 cities in Los Angeles County that are interested in adopting similar ordinances.

Due in part to the MEA and Los Angeles County EIR, we expect to see many California cities pursue single-use bag policies in the upcoming year. Many of these municipalities will probably consider plastic, paper, and compostable bags in their policies, since negative environmental impacts are associated with all three types of bags. In addition,

we anticipate a broadening of the definition of "store" in order to capture more of the distributed bags. Despite municipalities pursuing exactly what Save the Plastic Bag and other industry groups have called for (an Environmental Impact Report), the industry will likely continue to fight on other fronts.

## *California Makes Strides Toward Effective Prevention Measures*

Since 2005, the introduction of single-use bag legislation has proceeded steadily in the California legislature. In 2006, AB 2449 (Levine) was signed into law. This law created an in-store recycling program for collecting and recycling plastic "carry out" bags. In addition, the author made a last-minute industry concession to preempt local municipalities from levying fees on plastic single-use bags. Since the implementation of this law in 2007, there has not been a marked increase in the plastic-bag recycling rate. The status quo recycling rate of less than 5% (Los Angeles County Board of Supervisors 2007) has not increased and barely puts a dent in the pollution problem (California Department of Resources Recovery and Recycling n.d.). The local preemption has greatly limited the policy options available to local municipalities. Several industry-backed bills over the past few years have also focused on voluntary approaches and recycling—policies shown to be insufficient for addressing the pollution problem created by single-use bags.

Several bills in recent years have proposed placing a fee on single-use plastic, paper, and compostable bags with the majority of the funds collected going back to local governments for single-use bag pollution abatement (AB 2869 [Levine]; AB 68 [Brownley]; AB 87 [Davis]). Not only have fee policies worked well to reduce bag usage in countries such as Ireland, but the funds generated can also help budget-strapped communities. However, in part due to the economic downturn in recent years, the California legislature has not been willing to pass a bag bill that places a fee on the consumer.

Given the legislature's negative record on bag fee legislation, this legislative session has marked a shift in proposed single-use bag policy. AB 1998 (Brownley) proposed a ban on single-use plastic and compostable bags by January 1, 2012, and an at-cost charge on high recycled content paper bags. Many environmental groups found this policy preferable to fees because a straight ban on plastic would result in fewer bags in the environment.

## *A Win-Win for the Economy and the Environment: Will Bags Be Sacked in California?*

As discussed above, there is much momentum on the issue of single-use bags at the state and local levels. Ideally, California will have a statewide policy that bans plastic and compostable single-use bags and bans or places a fee on paper bags at all large supermarkets, pharmacies, and convenience stores in the near future. This would lead to the greatest reduction in single-use bag pollution and would drive consumers toward reusable bags, the environmentally preferable alternative (Figure 4). As a result of such a policy, municipalities would have fewer cleanup costs, and stores would not need to imbed the price of "free" bags in the cost of consumer products.

Figure 4. Plastic Bag Monster Distributing Reusable Bags in Huntington Park

PHOTO: SAIRA GANDHI, HEAL THE BAY



Despite the buildup in momentum, the last four years have demonstrated that it is not easy to pass single-use bag legislation at the state level. AB 1998 passed out of the state Assembly with a vote of 42-27. Notwithstanding a unique and broad coalition of supporters including the California Grocers Association, local governments, United Food and Commercial Workers Union, environmental groups, and the Governor, the bill failed to pass the state Senate. The American Chemistry Council poured millions into an anti-AB 1998 advertisement campaign as well as donations to strategic high-powered lobbyists and senators. This effort was likely a big contributor to the bill's demise.

Despite this setback at the state level, it is essential for policy to move forward at the local level—not only to create positive environmental change but also to drive state action in the future. Many local governments were waiting to hear the results AB 1998 before moving forward with their own policies. In the short time since the end of the legislative session, local governments are already starting to take action on plastic bags. Hopefully the momentum at the local level in the coming months, and the possible reality of a “patchwork” of plastic bag policies throughout the state, will send a strong message to the legislature that a statewide approach is needed.

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