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Regulating the Use of Plastic Checkout Bags

Background information on laws and bylaws proposing a ban on checkout bags.

The Massachusetts Sierra Club supports laws that ban non-biodegradable plastic shopping bags. These bags are typically made of synthetic **polyethylene** (HDPE & LDPE). These proposed laws **do not limit other types of bags**, although some communities have also regulated produce bags that are used in a supermarket's vegetable aisle.

Plastic bags are convenient and cheap. However, the environmental expense of plastic bags far exceeds the cost retailers are currently paying to provide them. There is no need for this. Simple alternatives such as **reusable** bags and **biodegradable** single-use bags are available and already used in many stores throughout Massachusetts. Single-use plastic bags should be limited because:

- **Plastic bags harm wildlife**. The bags are often mistaken as food by both domesticated and wild **animals**. Birds may also use them for nesting material with dangerous results. Untold numbers of animals die per year by ingesting plastic bags.[1] These animals suffer a painful death, the plastic wraps around their intestines or they choke to death. **Plastic bags choke, strangle, and entangle turtles, whales, sea lions, seals, birds, and fish** among other species.[2] [3] Many of these animals are already threatened due to issues such as over fishing or habitat loss. The list of local animals threatened by plastic bags includes green turtles that nest on Nantucket and the right whales that feed off the Massachusetts coast line.
- Plastic bags are a **major litter problem**. They are so aerodynamic that, even when properly disposed of, they often blow away. Wind-blown plastic bags become a unique form of litter when tangled in trees or barbed wire causing visual blight among other problems. The City of Los Angeles found that plastic bags account for 25% of litter in their storm drains.[4] Bags easily escape from the garbage truck, landfill, boat, and average consumer's hands – and are then carried into lakes and waterways, and eventually into the ocean. Plastic bags make up the third largest type of litter from land-based sources found on U.S. coasts.[5]
- Plastic bags cause the **suffocation** of human **infants**.[6] Plastic shopping bags carry a warning to this effect.
- **Plastic bags do not biodegrade**[7] and although they do fragment through mechanical action[8] and photodegradation in the presence of light, these processes are slow taking an estimated 200+ years to complete. When an animal is killed by a plastic bag, the bag may go on to kill again. When plastic bags finally do break down, they do not dissolve into benign substances: they just fracture into smaller and smaller bits called "microplastics." These small particles present the greatest long-term danger, as these particles **displace food supplies in the world's oceans.** As they have a nearly identical density of seawater, their removal is not possible. Once microplastics enter our oceans, they will stay there virtually forever.
- Although this is not an issue of recycling, bags are rarely recycled due to their low value – **only 5.2% of our plastic bags are recycled**.[9] But even if the recycling rate were significantly increased, the end result would still have an unacceptable negative impact.
- Polyethylene plastic bags are made from **non-renewable fossil fuels**. The over 100 billion plastic shopping bags used each year in the United States[10] are made from the estimated equivalent of 439 million gallons of oil. Produce bags are used in comparable quantities. Most bags in the U.S. are made from natural gas, which has a relatively lower cost because of hydrofracking.

The Problem of Microplastics

Rather than eventually breaking down, polyethylene plastic bags fracture into small plastic particles (microplastics), which persist in the environment. These tiny particles, 5 mm or smaller[11], pose a serious risk to marine and land animals. Animals from shellfish to whales can ingest them. This can displace space in an animal's stomach or block their digestive tracks,[12] and then cause animals to die from starvation. The particles also bond with toxins, thus concentrating highly toxic and pervasive pesticides and pollutants (such as PCBs, DDE, DDT, and bis(p-chlorophenyl)-1-1 trichloroethane) that move up the food chain and onto our dinner tables.[13]

Bioplastics

An alternative to polyethylene is bioplastics, which are biodegradable, compostable, and meets the tough environmental testing standards ATM 6400 and ASTM 7081. Allowing ASTM 6400 and ASTM 7081 bioplastics will allow shoppers to use checkout bags that have the convenience of PE bags.

Bags are being Banned Worldwide

In addition to 60+ cities and towns in the Commonwealth, bans on lightweight non-biodegradable check-out plastic bag have been put in place all over the world: in major cities such as Seattle, Austin, Mexico City, and Paris; California, Hawai'I, and 3 states in Australia; and countries such as Bangladesh, China, India, Italy, Macedonia, Rwanda, South Africa, and Taiwan. Some of these places have very extensive bans.[14] [15]

This list is proof that plastic bags bans can be implemented successfully. The solution is to bring reusable plastic or cloth bags, or to use paper bags. Paper bags are easily reused and recycled, and biodegrade naturally. It is worth remembering that plastic bags did not even exist until the 1960s.

Conclusion

Single-use plastic bags are contributing to serious issues facing the Commonwealth, the United States, and the world. Tackling these issues will require the culmination of many small actions to bring about large change. Banning single-use, non-biodegradable plastic bags is an important and easily implemented step towards meaningful change.

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[3] United Nations Environmental Programme. "Marine Litter-Trash that kills". 2001. [http://www.unep.org/regionalseas/marinelitter/publications/default.asp]

[4] California Ocean Protection Council, "An Implementation Strategy to Reduce and Prevent Ocean Litter", 2004, p. 13 [http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf]

[5] Ocean Conservancy, "Tracking Trash", 2011 report, p. 66

[6] The U.S. Consumer Product Safety Commission, Consumer Product Safety Alert #5604.

[7] Algalita Marine Research Foundation, *Research-Pelagic Plastic-Gyre Voyage 2002*, July 26, 2002 (http://www.algalita.org/research_ffs.html).

[8] Crump, Andrea, Marine Conservation Society, *Long Term Impacts of Plastic Bags in the Marine Environment* www.mcsuk.org/downloads/policy/coastal_polln/MCS_Long_Term_Impacts_of_Plastic_Bags_In_the_Marine_Environment_(Aug_2004).doc).

[9] US Environmental Protection Agency (EPA), Wastes, Non-Hazardous Waste, Municipal Solid Waste. November, 2008.

[10] U.S. International Trade Commission, "Polyethylene Retail Carrier Bags from Indonesia, Taiwan, and Vietnam", May 2009, p. IV-7. [http://www.usitc.gov/publications/701_731/pub4080.pdf]

[11] Le, Phuong, “New ocean concern: tiny plastic pollutants; Study under way at UW Tacoma; Measuring volume is seen as a first step." *The Seattle Times*, 2010-06-12. [http://seattletimes.com/html/localnews/2012102451_microplastics13.html]

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[14] Florida Department of Environmental Protection, “Retail Bags Report - List of Retail Bag Policies - Asia”, http://www.dep.state.fl.us/waste/retailbags/pages/list_Asia.htm

[15] Janel Sterbentz. “More Cities and Stores Banning Plastic Bags”. Website. http://planetsave.com/2008/02/16/more-cities-and-stores-banning-plastic-bags/.