Toxic Runoff, Plastics, and its Impact on the Habitats of Manatees

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4/29/2023

Most people would never say that they want an animal to die without cause, and most people would have no issue killing one with their everyday actions. In 2022, over a quarter of the UK's population gave money to support animal-focused charities, comprising nearly 30% of the nation's total charitable efforts.[1] The US gave a total of $11.83 billion in 2017, though animal charities commanded only 3% of total charitable donations, less than the percentage of donations given to arts and culture.[2] Simultaneously, half of all plastics worldwide have been designed for one-time use and 3% of worldwide plastic waste found its way to the ocean in 2010.[3] [4]

In the state of Florida, the manatee is a prized cultural and state symbol, a graceful creature with no natural predators. In 2022, 800 manatees met their end from starvation and one in ten contained plastic debris. One manatee "died from ingesting a 3-foot ball of plastic bags the size of a cantaloupe." [5] Starvation has been wrought by the decline of seagrass beds in the warm water manatees require for their habitats, a decline driven in large part by toxic runoff from chemicals such as lawn fertilizers. The conservation efforts the public can take are minorly disruptive to ordinary life, as many lawns can thrive without or with minimal fertilizers and recycling plastics demands as much time as using a reusable bag or repurposing a plastic one.[6] Nevertheless, the obstacles inhibiting ethical consumerism are built just as sturdily upon a public that feels ineffective in the efforts communicated to them as they are built on a public that is noncompliant.

The empathy of a population towards such issues is rarely absent when such statistics are presented. In all likelihood, the empathy that an individual feels when global or national problems are revealed is an even blend of sorrow for the devastation occurring and guilt over any contributions to that devastation for which they perceive themselves to be responsible.

Nevertheless, if an animal like the manatee can straddle extinction so closely in the absence of any natural predators, where does empathy fail to translate?

The poet Ella Wheeler Wilcox once drew a common illusion to the work of a farmer in relation to the deeds of every person, musing that "with every deed you are sowing a seed, though the harvest you may not see." [7] If empathy is assumed to be the natural inclination of the average individual, motivation is likely to be that individual's average weakness and one of the drivers behind human-caused environmental turmoil. That is, there is a likely overlap between individuals who sympathize for the habitat loss and starvation of manatees and those who simultaneously feel as if their efforts will have a negligible effect on the outcome of their rehabilitation. In another vein, there are some efforts in the realm of ethical consumerism which the average consumer feels demands too great a sacrifice in their daily life, whether for socioeconomic reasons (not being able to afford more sustainable alternatives) or selfish reasons (laziness or apathy over extra effort that may impede routine).

Though it may be that some causes demand a higher level of thrust for consumers to change their day-to-day routines, the salvation of the manatee is no such cause. The mammal has unique physiological needs that require it to inhabit waters above 60°F, giving them a predilection for shallow areas. This preference puts the manatee under a variety of threats, namely injury from boats, exposure to toxic runoff, and vulnerability to debris from the shore. In spite of these threats, measures that demand almost no time or money can be adopted in an effort to keep ourselves from being their only predators.

Boating accidents in a ten-year study were found to be responsible for 20-25% of deaths among manatees and the presence of vessels in manatee habitats gave way to a 58% decrease in underwater vegetation, including the seagrass vital to the animal's diet.[8] The solution to this

problem, more so than any other threat, simply requires the same care that driving on roadways demands. Before receiving a license, drivers are taught to watch for signs that indicate potential hazards, be it in the form of physical signs posted along roads or natural signs such as deer on the side of the road. Though some choose to ignore these signs, all know that they can be the difference between harm to themselves and others or safety. Likewise, boating should operate under a mentality of equal severity. Watching for the natural signs of seagrass beds or manatees themselves can mean the difference between harming federally protected creatures and their habitats, not to mention causing damage to the vessel, or the safeguarding of an animal whose only serious threats are those on the shore.

The average consumer, however, is not a boat owner. The average consumer, specifically 65.9% of consumers, are homeowners with lawns for which they care.[9] While there are not manatee habitats in the vicinity of every homeowner in the nation, there are similarly threatened aquatic animals in nearly every water source because of the threat of water pollution. Similarly, despite many homeowners living some distance from the shore of their nearest water source, surface runoff leaves the potential for any body of water to be contaminated regardless of the homeowner's geographic placement. Surface runoff occurs whenever land becomes too saturated with water to absorb any more, leading to a flow, one that potentially contains chemicals, plastics, or other harmful materials, which finds its way back into creeks, rivers, lakes, and oceans. The average homeowner, who shops in supermarkets or home improvement stores and stares at listless walls of lawn care products, is attracted to fertilizers that will facilitate the growth of a healthy lawn year-round. Fertilizers are vital to food production globally, aiding nearly half of totals.[10] As such, the average consumer who feels depleted motivation towards abandoning routines needs not feel a condemnation to avoid fertilizers.

In fact, the actions necessary to prevent water pollution and the infection of habitats belonging to manatees and other creatures are ones that preserve the health of lawns and save money. Synthetic fertilizer has a lower sticker price than organic fertilizer from first glance at the store checkout counter. However, much like the fable of the Tortoise and the Hare, the right fertilizer is the one that is able to account for the long game over the heat of the moment. Synthetic fertilizer prioritizes fast-acting applications of chemicals that undermine and harm nutrients in soil which, in the long-term, will drive a higher cost of repair to a malnourished lawn, like the hare ignorant to the consequences of immediacy. Though synthetic fertilizer is a necessary evil that supports food production systems in vital ways, the average homeowner is not a farmer and, therefore, has the license to seek environmentally conscious measures. Yet, the upside of such measures is that the average consumer uses more fertilizer than necessary in tending their lawn which, on top of adding unnecessary amounts of chemicals to soil and surface runoff, wastes money that could be saved by following the printed instructions. For the motivationally depleted, a glance at the instructions on a bag already purchased is a miniscule ask when it leads to cost savings.

Even so, with current generations finding increasing difficulty purchasing homes for themselves, there are still actions that can be taken to protect the manatees that rely on the aid of every person to live healthy and peaceful lives. If only 65% of citizens are homeowners, 100% are users of plastics. Similar to synthetic fertilizers, the largest threat of plastics, multilayer plastics, is a necessary evil in certain circumstances, particularly in preserving foods for longer durations from decay or contamination. A plastic-free world is an impractical utopia in the present, especially as developing countries without the expendable funds for alternatives are considered. Furthermore, processes for recycling such products at the city or national scale,

flawed as they are, remain outside of the control of the average individual. Indeed, the technology for recycling multilayered plastics is not presently available at the scale necessary to diminish the quantity of plastics produced.

Adding an additional layer of obstacles, much of the efforts to reduce single-use plastics are stifled by macroeconomic complexities, leading the equivalent of 250 Olympic swimming pools' worth of plastic products placed in blue bins by Americans to end up being incinerated instead of reused.[11] A historical solution to the issue was to sell recyclables to facilities domestic and abroad that maintain the capabilities for reusing the materials. However, policy shifts with foreign nations have led the bulk of plastics to remain within the nation, building a stockpile that facilities are incapable of, or disinterested in, handling.

Despite these obstacles, many simple solutions reducing plastic use have already been implemented to aid a number of environmental efforts, conservation efforts to save manatees among them. The growing national shift towards reusable shopping bags has kept incidents, such as the one previously described where a manatee ingested a cantaloupe-sized wad of plastic bags, from recurring as often as before. With many stores requiring or encouraging the use of reusable bags, there is no demand from the average consumer to change any routine habits. While recycling systems on the macro scale presently run into issues living up to their intended purposes, consumer recycling can be encouraged by keeping up recycling habits while encouraging the developing of improved methods by those with the capabilities to do so. Finally, reuse of both multilayer plastics and single-use plastic products that defy their name (such as plastic shopping bags repurposed for carrying an extra change of clothes) ensures that debris is kept from waters and being ingested by animals too innocent to know the difference between their normal diet and their last meal.

Ultimately, empathy fizzles from being effective without motivation that can accept simple actions. The attentiveness of boaters, short-term investment and saving habits of homeowners, and thoughtful reuse of plastics by every consumer are measures that will not noticeably impact anyone's day, except for the day of a manatee grazing through grasses that have been allowed to grow in waters uncluttered with boats and absent of plastic debris in a delectable meal that has been preserved by those who turned from corruptors into caregivers.

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