Cost Benefit Analysis – Prohibited Release of Balloons

Introduction

The Rhode Island Department of Environmental Management (RIDEM) proposes to adopt regulations regarding the implementation and enforcement of the Prohibited Release of Balloons (PRB) R.I. General Laws Chapter 23-96[1]. This analysis estimates the societal benefits and costs to the State of Rhode Island and its' residents that result from the adoption of the proposed regulations

Pursuant to the Administrative Procedures Act (APA) R.I. General Laws Chapter 42-35[2], RIDEM has conducted a regulatory analysis for the proposed regulations. RIDEM used the best available information at the time of publication to estimate the benefits and costs of the proposed regulatory provisions.

RIDEM aims to complete the regulatory analysis to measure whether the benefit of the proposed rule justifies the cost of the proposed rule, the proposal rule will achieve the objectives of the authorizing statute, provide a concise summary of the analysis, and in doing so make a good-faith effort to comply with the APA.

Background

In 2021, the PRB required RIDEM to promulgate regulations prohibiting release of balloons. The PRB was intended to address severe environmental impacts that balloon releases pose to environment of Rhode Island.

Balloons are generally defined as a flexible nonporous bag made from any material that can be inflated and then sealed at the neck. The Prohibited Release of Balloons (PRB) R.I. General Laws Chapter 23-96 specifies that no person or entity shall intentionally release, intentionally organize the release of, or otherwise intentionally cause the simultaneous release of ten (10) or more balloons inflated with a gas that is lighter than air, except for: (1) A balloon released for scientific or meteorological purposes, on behalf of a governmental agency or pursuant to a governmental contract; (2) A hot air balloon that is recovered after launching; or (3) A balloon that is released and remains indoors.

It is important to note that the PRB does ***not*** prohibit the manufacture, distribution, sale, purchase, or usage of balloons that are inflated with a gas that is lighter than air.

Regulatory Development

[1] http://webserver.rilegislature.gov//Statutes/TITLE23/23-96/INDEX.htm

[2] http://webserver.rilegislature.gov//Statutes/TITLE42/42-35/INDEX.htm

The ACT has an effective date of November 1, 2021. Beginning in June of 2023, RIDEM embarked on creating the regulations, cost benefit analysis, and fiscal note for the proposed regulations.

Problem being addressed

The release of balloons inflated with lighter-than-air gases air (herein referred to as "balloon" or "balloons") pose a danger to our environment. Birds, Turtles, and other animals commonly mistake balloons for food, which can harm, or event kill them[3]. In addition, many animals can become entangled in balloon strings, which can strangle them or hurt their feet and hands.

With Rhode Island taking great strides via the Act on Climate[4], the Ocean State will increase it dependency on the distribution of electricity produced via renewable energy sources, and the release of balloons poses a danger to the electrical grid. As reported in the nearby state of Maryland, Mylar balloons, while often shiny and bright, can wreak havoc on the electric grid. Mylar balloons have a metallic coated shell and when they contact an electric power line can cause significant damage, leading to power outages. From 2018-2022, over 3,000 Delmarva Power customers experienced an outage due to a mylar balloon contacting our electric infrastructure. That amounts to about 3,150 hours customers spent without power, or 62 minutes per customer over the same time. Already in 2023, more than 20 Delmarva Power customer outages have been caused by balloons[5].

Balloons can become litter and a form of plastic pollution that is dangerous to the health of our oceans and ocean species, contributes to climate change, and is a component of unsightly litter both on our lands and in our waters. Plastics that enter the marine environment break down through wave action and sunlight into smaller pieces called microplastics, which can be ingested by marine life, putting Rhode Island's fishing industries and aquatic ecosystems at risk.

Global issue of Balloons

A 2023 study[6] by 5Gyres.org now estimates that over 180 trillion plastic particles are afloat in the world's ocean, and it is estimated that globally, people consume

[3] https://www.fws.gov/story/2015-08/balloons-and-wildlife-please-dont-release-your-balloons

[4] http://webserver.rilegislature.gov//Statutes/TITLE42/42-6.2/INDEX.htm

[5] https://thesource.pepcoholdings.com/the-mylar-menace-foil-balloons-and-their-impact-on-power-lines/

[6] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281596

the equivalent of a credit card of plastic every week[7], and it is estimated that there will be more plastic than fish in the sea by 2050[8].

The Ocean Conservancy collects data of shoreline cleanups across the world and in 2022 the reported data showed that 46,510 balloons were removed the environment at 4,171 cleanup events[9].

A 2014 study[10] by UNEP at a time when the worlds' population[11] was 7.2 billion people, estimates that the annual financial damage of plastics to marine ecosystems is equal to $13 Billion dollars, or approximately $1.81 per person. It also estimated that over 30 percent of the natural capital costs of plastic are due to greenhouse gas emissions from raw material extraction and processing.

Local issue of balloons

Rhode Island Census data for 2020[12] reported a population of 1,097,379 and applying the per person annual financial impact of plastics to the marine ecosystems equates to annual Rhode Island Annual financial damage of plastics to marine ecosystems equal to $1,981,379.

Save The Bay runs the International Coastal Cleanup annually in September and since 2015 has provided annual reports[13] in 2015 through 2022 of the litter collected at area beaches, parks, and watershed areas around the State of Rhode Island. The litter collection and data tabulation are performed by volunteers and shows via the chart that balloons remain a problem for the State of Rhode Island.

Year	Volunteers	Balloons	Balloons per Volunteer
2015	2,199	712	0.324
2016	2,205	649	0.294
2017	2,629	835	0.318
2018	2,293	737	0.321
2019	2,807	503	0.179
2020	587	89	0.152
2021	1,940	671	0.346
2022	2,465	510	0.207

[7] https://d2ouvy59p0dg6k.cloudfront.net/downloads/plastic_ingestion_web_spreads.pdf

[8] https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics-catalysing-action

[9] https://www.coastalcleanupdata.org/

[10] https://www.unep.org/news-and-stories/press-release/plastic-waste-causes-financial-damage-us13-billion-marine-ecosystems

[11] https://www.un.org/en/development/desa/population/publications/pdf/trends/Concise%20Report%20on%20the%20World%20Population%20Situation%202014/en.pdf

[12] https://www.census.gov/quickfacts/fact/table/RI/POP010220

[13] https://savebay.org/about-us/publications/

Applying the independent sector value of volunteer rate[14] for the State of Rhode Island to International Coastal Cleanups shows that $463,816 of labor was required to remove significant volumes of litter including 4,706 balloons during the seven-year time frame.

Local issue on fisheries

Fisheries have a high economic value of $103.3 million[15] in 2021 for the State of Rhode Island and efforts to maintain the health of the water is of vital importance. Specifically, Quahogs are the largest sole-Bay fishery, and they are a filter feeding bivalve making it more susceptible to the impacts of microplastics. Research is underway to understand the ingestion of microplastics by bivalves and the rate of *bioaccumulation* and whether microplastics are a transfer mechanism for toxins.

Recreational fishing as defined in the Rhode Island Constitution[16] is a right for all people to enjoy and freely exercise in the State of Rhode Island. In 2021 there were 3,507,188[17] fishing trips for fish ranging from winter flounder to scup. These fish are part of the ocean's food chain where plankton are consumed by zooplankton which are consumed by fish larvae which are consumed by small fish which are consumed by predators that are the common fishes caught in recreational fishing in Rhode Island. The introduction of microplastics into the oceans leads to a *trophic transfer* of microplastics across the food chain and can result in humans eating fish that contain microplastics. Research is underway to quantify the impacts of trophic transfer on humans.

Background Information

History of the Policy at the Federal Level

No policies exist at the Federal level specifically addressing balloons, however the Environmental Protection Agency (EPA) Draft Strategy to Prevent Plastic Pollution[18] Objective A has clearly stated to *"Reduce the production and consumption of single-use, unrecyclable, or frequently littered plastic products." Most plastic products found in the environment are items that are single-use, unrecyclable, or frequently littered. To minimize the associated environmental impacts of these plastics it is essential to reduce the increasing rates of both*

[14] https://independentsector.org/wp-content/uploads/2023/04/Value-of-Volunteer-Time-by-State-2001-2022.pdf

[15] https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf

[16] http://webserver.rilin.state.ri.us/RiConstitution/ConstFull.html

[17] https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf

[18] https://www.epa.gov/system/files/documents/2023-04/Draft_National_Strategy_to_Prevent_Plastic_Pollution.pdf

plastic production and consumption in the United States and to address pollution that occurs along the life cycle of plastics products. It is also important to reduce impacts from the production of materials, which can negatively impact the environment and human health, especially in disadvantaged or underserved communities with environmental justice concerns. EPA's estimates of plastic products in the municipal solid waste stream show that plastic waste is growing. Plastic products in the U.S. municipal solid waste stream predominantly consist of containers and packaging, which includes some single-use products such as bags, wraps, and bottles[19].

History of Policy at the State Level

Ten States[20] has enacted laws that regulate balloons with definitions ranging from an outright prohibition of the sale and release of balloons, only allowing balloons made of specific materials, and prohibiting the release of defined number of balloons. These mixed definitions fall into the broad category of "balloon bans".

History of Policy in Rhode Island at the State Level

The Rhode Island General Assembly has been aware of this problem which is evident in the Chart below with legislation being introduced in 2019 and eventually passed by the House and Senate in 2021.

Year	House Bill	Senate Bill
2019	https://webserver.rilegislature.gov/billtext19/housetext19/h5865.htm	
2020	https://webserver.rilegislature.gov/billtext20/housetext20/h7261.htm	https://webserver.rilegislature.gov/billtext20/senatetext20/s2191.htm
2021	https://webserver.rilegislature.gov/billtext21/housetext21/h5376aaa.htm	https://webserver.rilegislature.gov/billtext21/senatetext21/s0038aaa.htm

History of Policy in Rhode Island at the Municipal Level

The community of New Shoreham (Block Island) has been aware of this problem and is evident by their passage of a local ordinance in 2018 to prohibit the sale and release of balloons[21].

Goal of the Policy Change

The policy of The Prohibited Release of Balloons is in the best interests of the health, safety and welfare of citizens and visitors to Rhode Island to protect our environment and our natural resources by deterring persons from releasing balloons because of the threat of punishment. The policy does ***not*** prohibit the manufacture, distribution, sale, purchase, or usage of balloons that are inflated with a gas that is lighter than air. RIDEM will be required to enforce this change.

[19] https://www.epa.gov/sites/default/files/2021-01/documents/2018_tables_and_figures_dec_2020_fnl_508.pdf

[20] https://balloonsblow.org/balloon-laws/

[21] https://www.cnn.com/2018/04/06/us/balloon-ban-new-shoreham-trnd/index.html

Setting the Scope Analysis

The timeline of the scope analysis has a timespan of one year. The state law was signed by the Governor on August 17, 2021, with an implementation date effective as of November 1, 2021. However, enforcement has not occurred due to lack of regulations. It is expected that most financial impact (in the form of penalties to persons) will occur in the first year, however, the environmental benefits will last for years, decades, and into the rest of time.

It is not expected that future changes to the PRB are to occur, with the exception being that changing the number of balloons that triggers a violation could occur.

It is not expected, however if the State were to prohibit ***the sale*** and release of balloons, that would trigger an entirely new cost benefit analysis that is outside the scope of this regulatory analysis.

Established a Baseline

It should be noted that a baseline provides a means of comparing regulatory alternatives, and the analysis explores alternatives afforded by the statute within the regulatory analysis although the PRB provides a highly prescriptive statute that evolves into one set of rules.

If the regulatory change associated with the PRB is not implemented, the future situation as it relates to the release of balloons and the environmental impacts is such that Rhode Island will continue to see hundreds of balloons littered on our shorelines and impacting marine and terrestrial environments. Without a state law, it is possible that municipalities will create their own local ordinances, and these may have differing definitions that creates a challenging environment for the overall deterrence.

Proposed Action

The proposed regulatory action is to enact rules that prohibit the release of balloons with a few exceptions: (1) A balloon released for scientific or meteorological purposes, on behalf of a governmental agency or pursuant to a governmental contract; (2) A hot air balloon that is recovered after launching; or (3) A balloon that is released and remains indoors.

The statute and proposed regulations do not take into consideration the material used to create the balloon, whereas in other states there are exceptions, such as in Florida[22].

[22] https://www.flsenate.gov/Laws/Statutes/2014/379.233

Cost Benefit Analysis – Prohibited Release of Balloons

Identifying Stakeholders

The stakeholder scope of the regulatory analysis pertains only to entities of the State of Rhode Island with a focus on the societal benefits and costs of the regulatory change. The entities include state government, private businesses, and individual citizens. Private businesses and individual citizens represent the entities that may be performing prohibited balloon releases such as and not limited to event organizers, wedding planners, celebrations, memorials, birthday parties, and traditions. Entities that are outside the scope of the regulatory analysis include all entities that are responsible for the manufacture, distribution, and sale of balloons. Stakeholders are affected differently by the PRB, and the regulatory analysis looks at each stakeholder with their unique circumstances.

State Government

The Rhode Island Department of Environmental Management will be required to perform all enforcement of the regulations. Balloon releases are not common and are difficult to capture so the level of effort is envisioned to be small. No other state agencies are anticipated to have a direct or indirect impact.

Local Government

Local municipalities are not involved to enforce the regulations.

Private Business and Organizations

Private businesses and organizations (event organizers, wedding planners, celebrations, memorials, birthday parties) that may use balloons will be required to make sure the balloons are not released; however, the extent of the impact will vary depending on the circumstances of each private business, their choice of how to provide alternatives for their customers.

Individuals, Customers, and Constituencies

Individual persons affected by this regulation are limited to those that purchase balloons that are filled with lighter than air gas and take the balloons outside. The regulation itself does not prohibit the purchase, but the violation of the regulation would result in a financial impact of the penalties. There are no individuals affected differently due to geographic location, income level, or other demographic factors.

Identifying Benefits and Costs

Cost Benefit Analysis – Prohibited Release of Balloons

The affected stakeholders are a subset of the entire population and limited to "persons" that purchase balloons that are filled with lighter than air gas and take the balloons outside in violation of the regulation. The regulatory analysis therefore puts attention and consideration for identifying the benefits and costs for the scenarios with yellow highlight as this is the scenario that will be prohibited and ***will experience a change (deterrent)*** from the regulations.

Scenario	Number
Person intentionally organizes the release of less than 10 balloons.	S1
Person intentionally organizes the release of 10 or more balloons.	S2
Person intentionally organizes the release of a balloon for scientific or meteorological purposes, on behalf of a governmental agency or pursuant to a governmental contract.	S3
Person intentionally organizes the release of a hot air balloon that is recovered after launching.	S4
Person intentionally organizes of a balloon that is released and remains indoors.	S5
Yellow - Scenario that ***will*** be impacted by the regulations.	
Green - Scenario that ***will not*** be impacted by the regulations.	

Benefits to Stakeholders

State Government Agencies

The direct benefits of the regulations are that the agency will have promulgated rules to support the PRB that advances the mission of the agency to protect, restore, and promote our environment to ensure Rhode Island remains a wonderful place to live, visit, and raise a family. The elimination of PRB will contribute to the reduction of the estimated annual economic impact of $1,981,379 and reduce the average annual amount of 588 balloons collected at the International Coastal Cleanup in Rhode Island. This will have the direct benefit to reduce plastic pollution, reduce the amount of plastic that enters the marine environment and breaks down into microplastics, reduce the occurrence of contaminants impacting the material recycling facility, reduce pollution of our waters, reduce greenhouse gas emissions, reduce storm drain blockage, and reduce litter. The ancillary benefits of moving away from PRB is it sends a message that the State of Rhode Island cares deeply about the natural resources.

This message can be amplified by the tourism agencies across the State of Rhode Island to increase visitors and this will have a positive impact on the local and state economy.

Local Government

Local governments will experience similar benefits as state government. Whereas local municipalities are on the front-line of litter issues and power outages, they will benefit from the reduction of PRB.

Private Business and Organizations

There are no direct benefits to private business and organizations, however the indirect benefits are that compliance of the regulation by all persons can allow for as-is conditions to continue in terms of manufacture, distribution, sale, purchase, and usage except for prohibited release of balloons. Additionally, businesses will benefit from an environment that is void of litter from balloon releases, and utility companies will benefit from less mylar balloons impacting power transmission lines. It is possible that the PRB will result in persons (organizations) purchasing less balloons and this would be a benefit in terms of savings on the expense.

Individuals, Customers, and Constituencies

There are no direct benefits to individuals, however the indirect benefits are that compliance of the regulation by all persons can allow for as-is conditions to continue in terms of manufacture, distribution, sale, purchase, and usage except for prohibited release of balloons. Additionally, persons will benefit from an environment that is void of litter from balloon releases, and persons that are dependent on electricity will benefit from less mylar balloons impacting power transmission lines. It is possible that the PRB will result in persons purchasing less balloons and this would be a benefit in terms of savings on the expense.

Costs to Stakeholders

The affected stakeholders are a subset of the entire population as the regulation analysis attempts to take into consideration that the PRB may result in persons purchasing less balloons.

State Government

The agency does not face any measurable costs for the administration of the regulation, it is seen as the cost of doing business. Employees will require minimal training as the enforcement entities provided input and review on drafting the regulation and are knowledgeable of the definitions and enforcement

requirements. The enforcement entities will use their existing systems and processes for the enforcement of the regulation. No direct or indirect substantial costs are anticipated for the cost of implementing, administering, and enforcing the regulation and the work effort will be performed by the enforcement entities of the agency. The agency is a staff-limited entity, so opportunity costs do not exist as the staff is optimized to work on the high-impact high-value outputs and outcomes aligned with the strategic direction of the agency.

Local Government

Local governments are not required for enforcement of the PRB. The municipality of New Shoreham (Block Island) has a local ordinance and the PRB does not override that ordinance, so their efforts can continue as-is.

Private Business and Organizations

The regulatory analysis puts attention and consideration for identifying the benefits and costs for the impact matrix scenarios with yellow highlight as this scenario will trigger the PRB.

Scenario	Number
Person intentionally organizes the release of 10 or more balloons.	S2
Yellow - Scenario that ***will*** be impacted by the regulations.	

There are no direct costs to private businesses or organizations.

It is possible that persons (individual people (1 person) or groups of people (more than 1 person) may decide to purchase less balloons to avoid violation of the PRB. If this were to occur, then private businesses that sell balloons in the State of Rhode Island would be impacted by the reduced sales. However, the PRB does not put any restrictions on the manufacture, distribution, sale, or purchase of balloons so the impact of this potential scenario is out of scope of the regulatory analysis.

Developing Alternatives

While the statute is prescriptive in nature, it does not allow for the development of alternatives, although alternatives could be envisioned. The statute definition refers to the prohibited act of releasing ten (10) or more balloons, however the statute definition refers to issue a penalty for violating “this section” of the

statute. As a result, the statute does not afford the agency any alternative, otherwise consideration could be given to issuing the violation per balloon.