FROM DICTATORS TO CORPORATE GREED: MICHIGAN'S TEN-CENT SINGLE-USE PLASTIC PROBLEM

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I. INTRODUCTION

Before the 1970s, reusable glass containers dominated the beverage industry and bottle-deposit legislation did not exist in the United States.[1] In the 1930s, manufacturers created beverage containers using mass-production food preservation machinery.[2] Refillable glass bottles catered to consumer convenience.[3] Less than a decade later, beverage companies turned to throwaway single-use cans as an alternative to heavy, breakable glass containers.[4] Michigan consumers disposed of the bottles by littering, covering cities with thousands of sticky, empty cans.[5] Despite opposition from beverage corporations, Michiganders passed the Beverage Container Act of 1976, providing a legal framework for consumers to return certain beverage containers to retailers.[6] Although the Act garnered national attention for its success, it fell short of addressing many time-sensitive global environmental concerns.[7] While Proposed Bill H.B. 4904 would have moved Michigan closer to having environmentally-sound beverage container policies, it failed to push for environmental education and hold corporations accountable for mass-producing throwaway containers.[8]

This Note examines the events that led up to Michigan codifying the United States' third statewide bottle bill and argues that Michigan's current bill, along with two other proposed bills, fails to address problems in the current statute and propose innovative solutions to combat a normalized throwaway lifestyle. The current statutory scheme, even if the proposed bills were adopted, fails to impose harsh penalties on beverage companies who push their own responsibilities of mass-producing single-

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1. *Beverage Container Deposit Legislation*, RETAIL COMPLIANCE CTR., https://www.rila.org/retail-compliance-center/beverage-container-deposit-legislation (July 2023) [https://perma.cc/9N2S-GXBW].

2. *The Evolution of the Beverage Can – Napoleon, Churchkeys & Ring-Pulls...*, AIR CONTROL INDUS. (Sept. 13, 2014), https://www.aircontrolindustries.com/us/packaging-and-labelling-us/evolution-of-the-beverage-can/ [https://perma.cc/66NM-KTRU].

3. *How Did We Live Before Single-Use Plastic?*, GOSILI, https://www.gosili.com/blogs/news/life-before-single-use-plastic [https://perma.cc/57SN-7CMD].

4. Bob Clark, *A Fizzled Empire*, BOSTON GLOBE (Sept. 15, 2011), http://archive.boston.com/news/local/articles/2011/09/15/remembering_clicquot_club_soda_in_millis/ [https://perma.cc/Q6NW-NKJ6].

5. *Michigan Bottle Bill of 1976*, UNIV. OF MICH. DEP'T HIST., https://ecologycenter.umhistorylabs.lsa.umich.edu/s/ecohistory/page/michigan-bottle-bill-of-1976 [https://perma.cc/HC2U-U9N6].

6. MICH. COMP. LAWS § 445.571 (1976).

7. *Id.*

8. H.R. 4904, 102d Leg., Reg. Sess. (Mich. 2023). This bill died in committee when the 102nd Michigan legislature ended in December 2024.

use products onto consumers.[9] Instead, the Bill heavily prioritizes the Michigan Department of Treasury's bottle fraud prevention program, punishing consumers returning out-of-state deposit containers, regardless of their intent, and focuses on cleanup measures instead of preventative ones.[10] It is not in the interest of the Department of Treasury or public policy to distribute copious amounts of consumer funds to the Michigan State Police to search for potential bottle fraudsters. The money would be better spent on non-legislated environmental issues rather than preventing unknown amounts of distributor bottle fraud, which is already punishable by 20 years in prison.[11] Instead, the Treasury Department should spend its money on environmentally friendly solutions, like advanced bottle return machines, modern environmental education, and litter cleanup programs.

Part II of this Note discusses the development of the canning industry to include beverages.[12] It also explains the creation and implementation of bottle return machines in retail stores to curb consumer littering habits.[13] It then compares Michigan's bottle bill to other bottle bills nationally and globally.[14] It further includes a discussion regarding the disposable product accountability struggle between corporations and consumers.[15]

Part III applies collected deposit data to address varying state deposits.[16] It discusses the current single-use 'disposable' lifestyle and materialism's impact on the current environmental state.[17] This Part also discusses current littering rates and improper plastic disposal's impact on human health.[18] Next, it examines fragmented and outdated science standards and how the lack of a unified, informed, and modern environmental education exposes consumers to deceptive environmental manufacturing and packaging through greenwashing.[19] It also discusses the economic and environmental benefits of reusing aluminum, as well as garnering political support by strategically naming the proposed bill as the

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9. MICH. COMP. LAWS § 445.571 (1976); H.R. 4904, 102d Leg., Reg. Sess. (Mich. 2023).

10. *See generally* H.R. 4904, 102d Leg., Reg. Sess. (Mich. 2023).

11. MICH. COMP. LAWS § 445.574(2)(f) (1976); *FAQ: Bottle Deposit Law*, DEP'T OF ENV'T, GREAT LAKES, AND ENERGY, https://www.michigan.gov/egle/faqs/recycling/bottle-deposit-law [https://perma.cc/4ARK-CCLP].

12. *See* discussion *infra* Part II.A.

13. *Id.*

14. *See* discussion *infra* Part II.B.1–4.

15. *See* discussion *infra* Part II.B.5.

16. *See* discussion *infra* Part III.A.

17. *See* discussion *infra* Part III.B.

18. *Id.*

19. *See* discussion *infra* Part III.C.

commonplace name of the current bill, and the push for a voter referendum to avoid voting hurdles in the state legislature.[20]

Part IV concludes that federal and state legislatures should look to other successful deposit schemes to frame their own bottle deposit legislation in the wake of growing environmental concerns regarding aluminum, plastic, and carbon dioxide emissions.[21] Federal and state legislatures should draft bottle legislation that both educates consumers and corporations about the importance of returning and reusing plastic and aluminum beverage containers while providing economic incentives to consumers in the form of mandated bottle deposits to ensure that beverage containers return to retailers for reuse. Updating environmental education curriculum and mandating environmental education at the federal level will ensure current and future generations have comprehensive, uniform, and accurate knowledge about modern, time-sensitive environmental issues, including single-use bottles. Naming proposed legislation with the same bottle law names commonly accepted in current bottle deposit states and taking bottle deposit proposals out of the hands of legislatures and into the hands of voters through referendums will familiarize citizens with what the law entails and incentivize consumer environmental responsibility.

II. BACKGROUND

A. Evolution of Beverage Containers and Bottle Return Machines

Prior to 1970, bottle deposit legislation did not exist in the United States.[22] Before the rise of single-use plastic, suppliers packaged sodas, milk, and other beverages in glass bottles.[23] Consumers returned the glass bottles for cleaning and stores reused them.[24] In fact, stores resold glass bottles dozens of times before discarding them.[25] Consuming beverages was relatively waste free.[26]

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20. *See* discussion *infra* Parts III.D–E.

21. *See* discussion *infra* Part IV.

22. *A Changing Landscape: The History of Deposit Return Schemes*, TOMRA COLLECTION (Dec. 5, 2022), https://www.tomra.com/en/reverse-vending/media-center/feature-articles/history-deposit-return-schemes [https://perma.cc/TX9U-XMWH].

23. *How Did We Live Before Single-Use Plastic?*, *supra* note 3.

24. *Id.*

25. *What is a Bottle Bill?*, CONTAINER RECYCLING INST., https://www.bottlebill.org/index.php/about-bottle-bills/what-is-a-bottle-bill [https://perma.cc/5B9L-GXU9].

26. *How Did We Live Before Single-Use Plastic?*, *supra* note 3.

1. Evolution of Canning to Include Beverage Bottles

The history of canned beverages is incomplete without a broader explanation of canning.[27] Remarkably, canned food started with French dictator Napoleon Bonaparte.[28] In 1795, Napoleon was concerned that his soldiers were succumbing to scurvy and hunger and would not be fed by invaded countries so he "offered up a cash prize of 12,000 francs to whoever could successfully come up with a long-term food preservation method that could feed his armies."[29] Nicholas Appert created the solution 15 years after Napoleon's announcement and marked the beginning of canned food.[30]

Candymaker Nicholas Appert is known as "the father of canning."[31] Appert's canning process became the solution for preserving food to withstand travel and longer time periods.[32] His canning method consisted of placing food in jars, shutting the jar with a cork, and sealing the container with hot wax.[33] Appert submersed the jars in hot water, which preserved the food for an extended period of time, dependent on food type and quantity.[34] In 1803, French soldiers tried this food canning method for the first time.[35] However, manufacturers did not can beverages until 1935 with the introduction of the beer can.[36] The carbonation of many beverages made sealing cans quite problematic, and improperly sealed cans often leaked and ruptured.[37] Additionally, Appert did not understand the science

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27. *The Evolution of the Drinks Can*, CANTECH INT'L (Oct. 25, 2012), https://www.cantechonline.com/feature/3439/the-evolution-of-the-drinks-can/ [https://perma.cc/4P3V-E7UM].

28. Haldan Kirsch, *This Was the First Canned Soft Drink*, TASTINGTABLE (July 14, 2022, 3:26 PM), https://www.tastingtable.com/928314/this-was-the-first-canned-soft-drink/ [https://perma.cc/CTW9-Y6NM].

29. Kalea Martin, *How Napoleon Influenced the Canned Food Industry*, TASTINGTABLE (May 12, 2022, 2:42 PM), https://www.tastingtable.com/861564/how-napoleon-influenced-the-canned-food-industry/ [https://perma.cc/8MPW-LHFW].

30. *Id.*

31. Kat Eschner, *The Father of Canning Knew His Process Worked, But Not Why It Worked*, SMITHSONIAN MAG. (Feb. 2, 2017), https://www.smithsonianmag.com/smart-news/father-canning-knew-his-process-worked-not-why-it-worked-180961960/ [https://perma.cc/AYK8-Q6CR].

32. *Id.*

33. Martin, *supra* note 29.

34. *Id.*

35. Nate Barksdale, *How Canned Food Revolutionized the Way We Eat*, HIST., https://www.history.com/news/what-it-says-on-the-tin-a-brief-history-of-canned-food (Aug. 23, 2018) [https://perma.cc/ER7F-F54F].

36. Richa Badola, *The History of Canning: Timeline*, SCI. INDIA (Mar. 5, 2018), https://scind.org/History/article/The-History-Of-Canning-Timeline [https://perma.cc/4FB8-SDLX].

37. Kirsch, *supra* note 28.

behind his food canning process.[38] He did not know why the food remained edible for a longer period of time inside the jar, making it difficult for manufacturers to replicate the process with beverages.[39] For these reasons, consumers continued to purchase beverages in glass bottles until the rise of the steel can, despite the existence of food canning.[40]

In the 1930s, manufacturers began producing steel beverage cans, following technological advancements.[41] 1880 marked the creation of the first semi-automatic can making machine.[42] In 1931, Preston West patented the electric can opener.[43] This machine allowed consumers to remove a can's lid by cutting along its top rim.[44] In 1935, the Kruger Brewer Company produced the first beer can in Richmond, Virginia.[45] That same year, the United Kingdom introduced canned beer with "cone shaped top steel cans" that existing bottle-filling machinery could produce.[46] Beer was the first beverage that manufacturers served in steel cans, followed by beverages with higher acidity and carbonation, such as sodas.[47]

In 1938, Boston, Massachusetts's Clicquot Club Co. sold ginger ale, the country's first canned soda.[48] This sale marked the beginning of companies selling soft drinks in cans.[49] Even so, the Clicquot Club used tin, as opposed to aluminum that manufacturers use today.[50] The tin compound often reacted with the beverage, resulting in a unique metallic taste.[51] Companies inserted beverage liners to prevent the tin from

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38. Martin, *supra* note 29.

39. *Id.*

40. *How Did We Live Before Single-Use Plastic?*, *supra* note 3.

41. *The Evolution of the Beverage Can – Napoleon, Churchkeys & Ring-Pulls…*, *supra* note 2.

42. *History of the Can*, BUBBER MACH. TOOLS, https://canseamers.com/history-of-the-can/ [https://perma.cc/WMP6-RFQJ].

43. *History of the Can-Timeline*, INDUS. PHYSICS, https://industrialphysics.com/knowledgebase/articles/history-of-the-can-timeline [https://perma.cc/UU5R-PBRX]; *see also The History of the Can Opener*, GOOGLE ARTS & CULTURE, https://artsandculture.google.com/story/the-history-of-the-can-opener/ [https://perma.cc/S5HG-YCKP].

44. *History of the Can-Timeline*, *supra* note 43.

45. *Id.*

46. *Id.*; *see also* Jane Busch, *An Introduction to the Tin Can*, 15 HIST. ARCHAEOLOGY 95, https://www.jstor.org/stable/25615391 [https://perma.cc/3TYK-UUQ2].

47. *History of the Can-Timeline*, *supra* note 43.

48. Clark, *supra* note 4.

49. *Id.*

50. *The History of Canned Beverages*, TWIN MONKEYS BEVERAGE SYS., INC., https://twinmonkeys.net/the-history-of-canned-beverages/ [https://perma.cc/5MG9-UZYT].

51. *Id.*

leaching into the liquid and altering the beverage's taste.[52] Then, technology developed a new alternative: aluminum cans.[53] Manufacturers modeled the first aluminum can's shape after glass jars to fit into already existing bottle fill lines.[54] Manufacturers still use the same shape in aluminum cans.[55]

Before the current push tab design for opening carbonated beverages, consumers opened beverage cans using pull tabs.[56] The use of pull tabs resulted in some of the first beverage-littering problems, consumers pulled the tab off the can and threw it on the ground.[57] This problem continued for approximately 40 years, until the pull tab evolved into the can-opening method that consumers currently use.[58]

2. The Need for Bottle Deposit Machines

As bottles shifted from reusable glass to largely single-use aluminum, consumer littering created a need for an effective way to dispose of beverage cans.[59] On September 13, 1920, Elmer M. Jones and Sue Walker Vance filed an application for the first bottle-machine patent in the United States, also known as a reverse vending machine.[60] In the late 1950s, Wicanders invented and manufactured the first 'Bottle Return Machine' in Sweden.[61] In 1962, Aage Tveitan designed an advanced bottle machine that accepted bottles of different recyclable material, as well as multiple bottles at once.[62] Tveitan's bottle machine was foundational in constructing modern reverse vending machines.[63] Reverse vending machines collect single-use glass and aluminum beverage containers to promote recycling and reduce littering.[64]

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52. *Id.*
53. *Id.*
54. *Id.*
55. *The History of Canned Beverages*, *supra* note 50.
56. *Id.*
57. *Id.*
58. *Id.*
59. *Michigan Bottle Bill of 1976*, *supra* note 5.
60. *Brief History of Reverse Vending*, RVM SYS., https://rvmsystems.co.uk/reverse-vending-history [https://perma.cc/U9YL-6L24].
61. *Id.*
62. Myla Taylor, *Reduce, Reuse, Recycle with the Reverse Vending Machine*, 21 UNVI. S. CAL. ILLUMIN MAG., no. 1 (Apr. 21, 2011), https://illumin.usc.edu/reduce-reuse-recycle-with-the-reverse-vending-machine/ [https://perma.cc/683L-58NB].
63. *Id.*
64. Chloe Fisher, *Reverse Vending Machines – What Are They and How Do They Work?*, RECYCLE TRACK SYS. (Nov. 20, 2023), https://www.rts.com/blog/reverse-vending-machine/ [https://perma.cc/F64H-VKTT].

A bottle deposit is a set amount of money that a state adds to the initial purchase of a returnable beverage can.[65] Consumers refer to qualifying material as bottles, cans, beverage containers, and bottle deposit material, and these terms will be used interchangeably throughout this Note. When retailers purchase qualifying bottles from distributors, the retailer pays a state's bottle deposit amount on a per can basis.[66] Deposits range from two to fifteen cents, depending on the state, beverage type, and container type.[67] Retailers pass this deposit cost onto consumers, who the retailers then encourage to return their bottles.[68] If a consumer does not return their bottles, the state does not give the consumer their deposit back.[69] The distributor takes the deposit money that stores charge consumers when they purchase a bottle and reimburses the retailer for the original fee the retailer paid to the distributor, usually along with an additional handling fee.[70] By charging a per bottle fee to consumers, state legislatures design bottle deposits and greater bottle bill legislation to reduce roadside litter and encourage recycling.[71]

Bottle deposit machines work by scanning beverage container barcodes and tallying the number of qualifying bottles a consumer returns for deposit.[72] Before a bottle leaves a consumer's fingertips, deposit machines scan "the container's barcode and security mark."[73] Once consumers release the bottle, the machine's cameras detect the bottle's characteristics, including its "length, weight, shape, and material."[74] With this information, the machine determines the container's brand and uses the barcode to identify the exact type of container the consumer inserted.[75] The container type determines whether the machine can accept the

65. *Bottle Bill States and How They Work*, TOMRA COLLECTION (Sept. 8, 2023), https://www.tomra.com/en/reverse-vending/media-center/feature-articles/bottle-bill-states-and-how-they-work [https://perma.cc/28TE-PKSP].

66. *Id.*

67. *Id.*

68. *State Beverage Container Deposit Laws*, NAT'L CONF. STATE LEGISLATURES, https://www.ncsl.org/environment-and-natural-resources/state-beverage-container-deposit-laws (Mar. 13, 2020) [https://perma.cc/TCM4-HML3].

69. *Id.*

70. *Id.*

71. *Id.*

72. Wendi Schnaufer, *How the Bottle Bill Works in Michigan for Consumers and Supermarkets*, FRIENDS OF SLIGO CREEK (Aug. 1, 2007), https://www.friendsofsligocreek.org/how-the-bottle-bill-works-in-michigan-for-consumers-and-supermarkets/ [https://perma.cc/7KFL-H4YE].

73. *Inside Reverse Vending Machines*, TOMRA COLLECTION (Jan. 10, 2024), https://www.tomra.com/en/reverse-vending/media-center/feature-articles/inside-reverse-vending-machines [https://perma.cc/XC9X-A7DQ].

74. *Id.*

75. *Id.*

container for deposit.[76] A consumer inserts bottles one at a time into the machine, which determines if the bottle can be redeemed for deposit about halfway through the machine.[77]

If the bottle qualifies for redemption, the machine accepts the bottle, moves the bottle further into the machine, and adds the container to the total tally of returned beverage containers.[78] If the bottle does not have a deposit or has been mutilated to the point that the machine cannot read the barcode, the machine rejects the bottle and returns it to the consumer.[79] Once the consumer is finished, they notify the machine by pressing the machine's only button.[80] The machine multiplies the number of bottles by the state's deposit rate and issues the consumer a receipt that the consumer exchanges at the retailer's register for cash value.[81]

On the backside of the bottle machines, retailers place large rolling bins to collect accepted bottles.[82] Once the bins are full, the retailer places the bins to the side of the store for the distributor's pickup.[83] The retailer and distributor agree on the pickup process, the distributor takes the bottles back, and the distributor compensates the retailer with a handling fee.[84]

State statute dictates the location and number of places accepting bottle returns.[85] The state statute normally provides specific requirements that retail stores must meet for the statute to allow the store to accept bottles for deposit.[86] Many qualifying retailers in states with deposit legislation have installed deposit machines, also known as reverse vending machines (RVMs),[87] for efficiency reasons.[88] Although a state statute may require the retailer to accept bottles for deposit, retailers are not required to install bottle machines, but doing so increases convenience for stores

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76. *Id.*

77. *Id.*

78. Amy Drew, *How Does the Reverse Vending Machine (RMV) Know What to Accept?*, ENVIROBANK RECYCLING, https://support.envirobank.com.au/hc/en-us/articles/115003878434-How-does-the-Reverse-Vending-Machine-RVM-know-what-to-accept ("If a container does not meet the eligibility criteria or is not recognized as an accepted material, the RMV will reject it.") [https://perma.cc/ZG2L-J8LA].

79. Schnaufer, *supra* note 72.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. *See e.g.*, MICH. COMP. LAWS § 445.571 (1976); CONN. GEN STAT. § 22A-245 (2021).

86. *See e.g.*, MICH. COMP. LAWS § 445.571 (1976); CONN. GEN STAT. § 22A-245 (2021).

87. *Reverse Vending Machines for Bottle and Can Recycling*, TOMRA COLLECTION, https://www.tomra.com/en/reverse-vending [https://perma.cc/Y5EP-V3HD].

88. *See generally Plastic Bottle Recycling Machines: Making Recycling Easier*, RETECH MACH. CO. (Nov. 21, 2023), https://www.retechmachine.com/news/plastic-bottle-recycling-machines-making-recycling-easier.html [https://perma.cc/K97W-TE8H].

with more customers.[89] Additionally, state statutes may require a handling fee per can for stores operating bottle return machines.[90] Either way, stores must facilitate a convenient way for consumers to return bottles and receive deposits on bottles the retailer sells.[91]

The average bottle deposit machine costs $12,000, including the up-front base price and continuing fixation costs.[92] This expense can be high for small stores and stores receiving less business, because a machine's profitability depends on the number of cans that consumers return.[93] However, stores can incentivize consumers to return bottles if they have one or more bottle machines because the only alternative is for the consumer to wait in line at a register or customer service desk so an employee can hand count the bottles.[94] Although not all states have a statute requiring the machines, states with bottle deposit legislation require that establishments selling beverages with deposits provide a method that is convenient for customers to return the bottles.[95] Specifically, "all beverage retailers are required by law to provide a convenient means for customers to return to the retailer, for deposit refund, returnable containers of any kind, size, and brand offered for sale by the retailer, whether or not a particular container was sold by that retailer."[96] This regulation scheme is also known as the "return-to-retail" model.[97]

Bottle deposit machines, in combination with bottle bill legislation, have proven to be an environmental success.[98] In fact,

> Some regions in the world have Deposit Refund Scheme legislation combined with the RVM to incentivize the public the

89. Keith Matheny, *All Michigan Stores Selling Bottles, Cans with 10-cent Deposits Must Now Take Returns*, DET. FREE PRESS (Oct. 15, 2020, 6:12 PM), https://www.freep.com/story/news/local/michigan/2020/10/15/bottle-can-deposit-returns-michigan/3667716001/ [https://perma.cc/9KFJ-L42Z].

90. *See e.g.*, MICH. COMP. LAWS § 445.571 (1976); CONN. GEN STAT. § 22A-245 (2021).

91. *See e.g.*, MICH. COMP. LAWS § 445.571 (1976); CONN. GEN STAT. § 22A-245 (2021).

92. *How Does a Reverse Vending Machine Work? Questions answered*, SENSONEO, https://sensoneo.com/waste-library/reverse-vending-machine/ [https://perma.cc/D7A5-CXZ2].

93. Taylor, *supra* note 62.

94. *Id.*

95. *Notice Regarding Bottle Deposit Return Program*, MICH. DEP'T TREASURY (June 29, 2021), https://www.michigan.gov/treasury/reference/taxpayer-notices/notice-regarding-bottle-deposit-return-program [https://perma.cc/FA6J-76WJ].

96. *Id.*

97. *New to Deposit Return? Here's What Retailers Need to Know*, TOMRA COLLECTION, https://www.tomra.com/en/reverse-vending/your-recycling-role/reverse-vending-for-retailers/retailers-new-to-deposit-return [https://perma.cc/Y2L3-6Y8D].

98. *See generally Bottle Bills*, CONTAINER RECYCLING INST., https://www.container-recycling.org/index.php/issues/bottle-bills [https://perma.cc/JXX5-VHYM].

> aiding in the recycling of waste bottles provoking responsible citizen behavior. In this system, as the beverage containers are inserted into the RVM, it generates the receipt based on the value of the product which can be redeemed. This system has been proved as the most efficient system of inculcating the recycling culture among the general public as studies showed that above 45 countries around the world are successfully using it with a redemption rate of 90% which means that approximately 70-100% of containers are getting recycled which would be impossible with any other strategy employed.[99]

Consumer needs and convenience dictated the development of single-use beverage containers.[100] However, bottle deposit legislation as a method of returning recyclables lags decades behind, largely due to a lack of environmental awareness and anti-environmental corporate spending.[101]

B. Bottle Bill Legislation: Past, Present, and Future

The introduction of single-use containers quickly prompted a need for bottle deposit regulation in the interest of environmental protection.[102] Currently, manufacturers annually produce over 280 billion beverage cans worldwide,[103] and United States' consumers use eighty billion of those cans.[104] The United States represents 4.23% of the world's population but uses 29% of the world's single-use beverage cans.[105]

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99. *How Does a Reverse Vending Machine Work? Questions answered*, *supra* note 92.

100. Kayla Frost, *The Inconvenient Consequences of a Culture of Convenience*, ARIZ. STATE UNIV. NEWS (Oct. 3, 2018), https://news.asu.edu/20181003-solutions-asu-researchers-plastics-pollution-recycling [https://perma.cc/XUL9-7X2B].

101. *See* discussion *infra* Part I.B.5.

102. Fisher, *supra* note 64; *see also Litter Studies in Bottle Bill States*, CONTAINER RECYCLING INST., https://www.bottlebill.org/index.php/benefits-of-bottle-bills/litter-studies-in-bottle-bill-states (Jan. 16, 2024) [https://perma.cc/ZM8H-EVY4].

103. *The Evolution of the Beverage Can – Napoleon, Churchkeys & Ring-Pulls…*, *supra* note 2.

104. *Aluminum Facts*, MUNCIE SANITARY DIST., https://www.munciesanitary.org/departments/recycling/misc-recycling-facts/aluminum-facts/ [https://perma.cc/8AFC-MTTB].

105. *Id.*; *see also United States Population*, WORLDOMETER, https://www.worldometers.info/world-population/us-population/ [https://perma.cc/39RN-6NFQ].

1. Oregon's Bottle Bill Law

In 1971, Oregon took an unprecedented step by passing the United States' first bottle-deposit legislation.[106] In 1972, the Bill included a five-cent deposit,[107] which the Oregon legislature increased to ten cents in 2017.[108] Raising the deposit price was a success.[109] In just two years, the number of bottles collected over bottles sold in Oregon rose from 64% to 81%.[110] In 2018, Oregon expanded its bottle Bill "to include all beverages except wine, liquor, milk and milk substitutes; this includes tea, coffee, hard cider, fruit juice and coconut water."[111] That same year, Oregon launched the BottleDrop Refill Program, the nation's first and only statewide refillable bottle program.[112] Through BottleDrop, consumers can purchase 137 types of "beer, cider, and wine" in refillable glass bottles.[113] As of 2024, Oregon's BottleDrop Refill Program has saved at least 627,953 bottles "from being crushed and recycled."[114] Environmentalists consider glass the most sustainable package on earth.[115] Consumers can refill glass bottles about 25 times before recycling.[116] Refilling glass bottles produces "up to 66 times less [carbon dioxide] emissions, per container, than aluminum cans."[117] In sum, Oregon's commitment to reusing glass beverage containers continues to lessen the impact on the recycling stream and curb environmental issues single-use products cause.[118]

2. Michigan's Bottle Bill Law

In the late 1960s, consumers discarded about $841,000 worth of reusable bottles in heaps of trash around Detroit, the equivalent of six

106. *History of Oregon's Bottle Bill*, OR. BEVERAGE RECYCLING COOP., https://obrc.com/oregons-bottle-bill/history-of-oregons-bottle-bill/ [https://perma.cc/47VV-TA8S]; *see also* OR. REV. STAT. §459.810.

107. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

108. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

109. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

110. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

111. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

112. *History of Oregon's Bottle Bill, supra* note 106; OR. REV. STAT. § 459.810.

113. *Refillable Bottles*, OR. BEVERAGE RECYCLING COOP., https://bottledrop.com/buy-refillable-containers/ [https://perma.cc/5423-CV8M]. The original link was subsequently altered; the perma link contains the correct source.

114. *Id.*

115. *Making What Matters*, O-I GLASS (2018), https://www.o-i.com/wp-content/uploads/2019/04/2018csrreportupdate.pdf [https://perma.cc/FVG4-AMR4].

116. *Id.* at 16.

117. *Id.*

118. *See generally id.*

million dollars in 2017.[119] In 1973, a Michigan newspaper ad noted that Michiganders consumed enough beer cans the previous year to cross the Mackinac Bridge 13,000 times.[120] At five miles long, the Mackinac Bridge is one of the longest suspension bridges in the world.[121]

In the early 1970s, single-use bottles and cans made up 80% of Michigan's roadside litter.[122] Michigan environmental advocates hoped that the legislature would follow Oregon and Vermont in passing bottle bill legislation, but every proposed bottle bill in the early 1970s died in committee—an unfortunate foreshadowing of the fate of Proposed Bill 4904.[123] Ann Arbor proposed an ordinance to completely ban single-use beverage containers.[124] Retailers filed a lawsuit to challenge the ordinance and a Washtenaw County Circuit Court held the ordinance invalid because it interfered with Michigan's authority to regulate liquor packaging and sales.[125]

Advocacy groups again turned to the Michigan legislature to implement roadside litter solutions.[126] In 1975, the legislature re-introduced House Bill 4296, but many feared it would die again in committee.[127] The Michigan United Conservation Clubs circulated petitions to move the bottle bill from committee to a voter referendum.[128] The petition gathered over 400,000 signatures and the bottle bill became Proposal A in Michigan's November 1976 election.[129] Michiganders

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119. *Michigan Bottle Bill*, GIVE EARTH A CHANCE, https://michiganintheworld.history.lsa.umich.edu/environmentalism/exhibits/show/main_exhibit/1970s_activism/ecology-center-and-ann-arbor-a/the-michigan-bottle-bill [https://perma.cc/FTL5-6YSP].

120. *Id.*

121. *Is the Mackinac Bridge Still the Longest Suspension Bridge in the World?*, MACKINAC BRIDGE AUTH. (July 31, 2020), https://www.mackinacbridge.org/is-the-mackinac-bridge-still-the-longest-suspension-bridge-in-the-world/ [https://perma.cc/757W-YJQH].

122. *Michigan Bottle Bill of 1976*, *supra* note 5.

123. *Id.* In fact, not much has changed. Just like the 1970s, Michigan's 2023 bottle bill proposal died in committee. *See Michigan House Bill 4904 (Prior Session Legislation)*, *infra* note 154.

124. *Id.*

125. *Id.*

126. *Id.*

127. *Michigan Bottle Bill of 1976*, *supra* note 5.

128. *Id.*

129. *Id.* Interestingly, on November 13, 2024, Michigan State Senator Sean McCann announced his intention to place a bottle bill expansion proposal referendum "on the 2026 general election ballot." While his proposal, Senate Bill 1112, is slightly different from Michigan H.R. 4904 (2023), the referendum may help the Bill's passage. *See* Press Release, State Senator Sean McCann, *McCann Proposal Seeks to Put Bottle Law Expansion on Ballot*, MICH. S. DEMOCRATS (Nov. 13, 2024), https://senatedems.com/mccann/2024/11/13/mccann-proposal-seeks-to-put-bottle-law-expansion-on-ballot/ [https://perma.cc/S3DU-73RA]; S.B. 1112, 103d Leg., Reg. Sess. (Mich. 2024).

passed Proposal A with 64% of the vote, making Michigan the third state in the United States to pass a bottle return law.[130] Two years later, retailers implemented bottle deposit and return systems under the framework described below.

In 1978, Michigan began enforcing The Michigan Beverage Container Act, also known as House Bill No. 445 or Michigan's Bottle Bill.[131] The Bill established a 10-cent bottle-deposit return system for carbonated beverages, as well as a distribution breakdown for windfall profits.[132] Windfall profits happen when consumers pay bottle deposits to a retailer but never return the bottle and the state retains those funds.[133] The retailer sends the funds to the State's Department of Treasury's Bottle Bill Enforcement Fund.[134] The Bottle Bill Enforcement Fund is unclaimed deposit money the Michigan State Police uses to investigate violations of the Michigan Beverage Container Act.[135] The statute determines the allocation of the fund: the first million dollars goes to Michigan's Bottle Bill Enforcement fund unless the fund exceeds more than three million dollars at the end of the fiscal year.[136] If the fund has more than three million dollars, no money will be added to the fund until the fund drops below two million dollars.[137] The statute divides the remaining funds through percentages: 75% to Michigan's redevelopment trust fund and 25% to people or entities selling returnable containers to consumers, apportioned by the number of empty returnable containers handled.[138]

In addition to standard glass bottles and aluminum cans, the Bill included wine and liquor bottles, mandated the state acronym on every bottle, and included penalties for violations of the Bill.[139] The Bill illegalizes consumers throwing away returnable bottles.[140] A 2004 law requires that consumers take empty, clean beverage containers that they

130. *Michigan Bottle Bill of 1976*, *supra* note 5.

131. *Bottle Deposit*, MICH. DEP'T TREASURY, https://www.michigan.gov/taxes/business-taxes/misc/bottle-deposit [https://perma.cc/6N9A-M7GF]; *see also* MICH. COMP. LAWS § 445.571 (1976).

132. MICH. COMP. LAWS § 445.571 (1976).

133. *Id.*

134. MICH. COMP. LAWS § 445.573c (1976).

135. *FAQ: Bottle Deposit Law*, *supra* note 11.

136. MICH. COMP. LAWS § 445.573c (1976).

137. *Id.*

138. *Id.*

139. *Id.*

140. *Michigan Bottle Deposit Law Frequently Asked Questions*, DEP'T NAT. RES. & ENV'T, https://www.michigan.gov/-/media/Project/Websites/AG/consumer-protection/MI_Bottle_Deposit_Law_FAQ.pdf?rev=2ee8cdfbbe4d4e1d94143f78432e1503 (Apr. 8, 2010) [https://perma.cc/USW3-25TW].

do not redeem to recycling bins or a recycling center.[141] Michigan's Bottle Bill also illegalizes consumers redeeming out-of-state containers and distributors accepting nonreturnable containers.[142] Depending on the number of bottles wrongfully returned, penalties range from a civil fine of $100 to twenty years of imprisonment.[143] Because almost every other state has a different deposit amount or no deposit at all, consumers who redeem cans that they did not purchase with a deposit deplete the very bottle bill enforcement fund Michigan's Bottle Bill creates.[144] When consumers return out-of-state cans, the State of Michigan takes money from the Department of Treasury's bottle fund that is solely for reimbursing consumers for their initial deposit.[145] However, because the out-of-state citizen did not pay the deposit at checkout, the State loses 10 cents for every out-of-state can redeemed at retail stores.[146] Currently, there is no federal bottle bill,[147] but a federal bottle bill would effectively eliminate out-of-state deposit return issues by mandating all retail stores accept bottle returns regardless of the state of purchase.

On July 18, 2023, Representative Christine Morse introduced House Bill No. 4904 into the 102nd legislature of the Michigan House of Representatives.[148] The proposed Bill clarified mixed spirit drink to include spirit-based beverages, characterized plant-based milk as a type of redeemable container, and mandated that stores of less than 4,000 square feet regularly selling beverages must provide a convenient means for consumers to return redeemable containers inside or within 100 yards of the storefront.[149] Additionally, the Bill redistributed windfall profits to include equal percentages for Michigan's Community Pollution Prevention Fund, the Renew Michigan Fund, municipalities that have achieved a 45% recycling rate, programs and activities responding to the migration of contaminants and vapor intrusion, and programs that reduce plastic waste and pollution.[150] The Secretary of the Treasury would regulate the bottling fund, which would take effect two years after the legislature passed the Bill.[151]

Regarding the proposed bill, Rep. McCann, a cosponsor, stated:

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141. *Id.*
142. *Id.*
143. MICH. COMP. LAWS § 445.574A (1976).
144. *Michigan Bottle Deposit Law Frequently Asked Questions*, *supra* note 140.
145. *Id.*
146. *Id.*
147. *See* discussion *infra* Part II.3.
148. H.R. 4904, 102d Leg., Reg. Sess. (Mich. 2023).
149. *Id.*
150. *Id.*
151. *Id.*

> Over 40 years ago, Michigan became a pioneer with its historic 'Bottle Bill' to promote recycling and prevent littering…To this day, it is our state's most widely used and accepted state conservation program. We have an opportunity and responsibility to expand upon the success of the iconic legislation from the 1970s. There is no good reason that some of our plastic, glass and aluminum water bottles, and other single-use containers are not returnable when we have a functioning system that consumers and retailers are familiar with. We must act to protect our future by expanding our beverage container recycling system to keep bottles and cans out of landfills now![152]

On July 18, 2023, the legislature referred House Bill No. 4904 to the Committee on Regulatory Reform.[153] The Bill died in committee when the 102nd Michigan Legislature ended in December 2024.[154]

3. Federal Bottle Bill

Although bottle bills are currently at the discretion of state legislators, federal legislators have considered a national bottle bill.[155] In 1974, Senator Moss introduced a bill into the United States Senate that would require a five-cent deposit for all single-use beer and soda cans, as well as a two-cent deposit for all refillable beer and soda cans.[156] Moss pointed to the success of Oregon's bottle bill.[157] President Richard Nixon also supported the national bill.[158] Unfortunately, the bill never left the Senate.[159]

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152. Samantha May, *New legislation Aims to Include More Beverages in Michigan's Bottle Return Program*, UPNORTHLIVE (July 10, 2023, 9:52 AM), https://upnorthlive.com/news/local/bottle-return-deposit-bill-law-michigan-expanding-legislation-sean-mccann-christine-morse [https://perma.cc/5AN8-QGF4].

153. *See Bill Tracking*, WESTLAW, https://1.next.westlaw.com/RelatedInformation/I21550C1125EE11EE9D46C5B60049721D/riBillTracking.html?originationContext=documentTab&transitionType=BillTracking&contextData=(sc.Default)&docSource=b479adb34192423eb8d944d837101a30&rulebookMode=false&ppcid=2c1de4f1095d4d43a72a6fcfe66a5c13 [https://perma.cc/Y52X-ZUWC].

154. *Michigan House Bill 4904 (Prior Session Legislation)*, LEGISCAN, https://legiscan.com/MI/bill/HB4904/2023 [https://perma.cc/J29Y-UNBD].

155. *Michigan Bottle Bill*, *supra* note 119.

156. *The Nonreturnable Beverage Container Prohibition Act: Hearings on S. 2062 Before the Subcomm. on the Env't of the Comm. on Commerce*, 93rd Cong. 1 (1974), https://babel.hathitrust.org/cgi/pt?id=mdp.39015071091634&view=1up&seq=5&skin=2021&q1=shipping%20breweries [https://perma.cc/8U2P-3T9R].

157. *Id.*

158. *Michigan Bottle Bill*, *supra* note 119.

159. *Id.*

In 2021, Senator Jeff Merkley and Representative Alan Lowenthal introduced and sponsored the Break Free From Plastic Pollution Act,[160] the most recent attempt to pass a national bottle bill. Like every prior national bottle bill attempt, the bill ultimately failed.[161] However, in September 2023, Senator Merkley led the United States Senate Subcommittee on Environment and Public Works through a two-hour panel discussion on solutions addressing beverage container waste, including the possibility of a national bottle bill.[162]

While a national bottle bill once again sparked conversations in Congress, some states revamped a push for their own state-mandated bottle bills.[163] For example, the Illinois Senate introduced a bottle bill requiring 10-cent deposits for beverage containers 24 fluid ounces or less and 15-cent deposits for beverage containers more than 24 fluid ounces.[164] Despite the renewed push, the bill failed when the Illinois legislature session concluded on January 7, 2025.[165]

Without a national bottle bill, states have sole discretion over what container recycling they want to encourage.[166] States with bottle deposit laws have much higher bottle recycling rates compared to states without bottle bills.[167] In 2017, consumers recycled every qualifying deposit container at a rate of over 80% compared to about 45% for non-deposit containers.[168] The rates for glass bottles are even worse.[169] Consumers recycled glass bottles just under 70% for deposit containers compared to less than 15% for non-deposit containers.[170] As of 2019, only about 90 million people in the United States had access to a bottle deposit

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160. S. 984, 117th Cong. (2021); *Pollution Act*, #BREAKFREEFROMPLASTIC, https://www.breakfreefromplastic.org/pollution-act/ [https://perma.cc/J27F-4C89].

161. Megan Quinn, *National Bottle Bill Complexities Take Center Stage at Senate Hearing*, WASTEDIVE (Sept. 29, 2023), https://www.wastedive.com/news/national-bottle-bill-senate-container-recycling-institute-association-plastic-recyclers/695178 [https://perma.cc/Q45M-LJY4].

162. *Examining Solutions to Address Beverage Container Waste*, U.S. S. COMM. ON ENV'T & PUB. WORKS (Sept. 28, 2023, 10:00 AM), https://www.epw.senate.gov/public/index.cfm/hearings?ID=8B666190-2E52-4D9F-A8CF-FC4941F95F9E [https://perma.cc/T6EQ-6CS2].

163. *See* Quinn, *supra* note 161.

164. S.B. 0085, 103rd Leg., Reg. Sess. (Ill. 2023).

165. *Illinois Senate Bill 85 (Prior Session Legislation)*, LEGISCAN, https://legiscan.com/IL/bill/SB0085/2023 [https://perma.cc/3UDQ-TM93].

166. *See Bottle Bill States and How They Work*, *supra* note 65.

167. *See* Susan Collins, *International Embrace*, RES. RECYCLING, https://resource-recycling.com/recycling/2019/10/06/international-embrace/ (Oct. 10, 2019) [https://perma.cc/G762-256T].

168. *Id.*

169. *Id.*

170. *Id.*

machine.[171] States without deposit laws do not have reverse deposit machines because the states do not mandate distributors to implement convenient ways of returning bottles for deposit money.[172]

4. Europe's Bottle Bill Laws

The European Union has taken a more aggressive approach, by:

> [M]oving forward with several bold new waste reduction measures, including the Single-Use Plastics Directive that passed in May 2019. The directive requires EU member states to collect 90% of beverage bottles by 2029, with an interim target of 77% by 2025. This ambitious requirement will almost certainly necessitate that each member state adopt a deposit law – with very few exceptions, there is no other way to achieve recycling rates of more than 90% for containers.[173]

Denmark is a model country for bottle deposit programs.[174] In 2021, Denmark's Danish Bottle Deposit Scheme produced a 96% return rate, including 92% for cans and 96% for glass bottles.[175] Countries cannot achieve return rates this impressive without nationwide support for a bill and environmental initiatives.[176] In Denmark, deposit machines are located in public spaces for consumer convenience—not just grocery stores.[177] Denmark also utilizes deposit return banks, called Pantstations, that allow consumers to insert up to 90 cans into a bottle machine at once.[178] By focusing on consumer convenience, Denmark continues to inch toward a near-perfect bottle return rate.[179] Other countries in the European Union are equally successful: in 2021, Germany's bottle deposit return rate was

171. *Id.*

172. *See* Warren Stoll, *Beyond the Blue Bin: The Next Generation of Recycling*, GREENBIZ, https://www.greenbiz.com/article/beyond-blue-bin-next-generation-recycling (July 24, 2024) [https://perma.cc/696W-7UAX].

173. Collins, *supra* note 167.

174. Jordan Crowe, *Denmark's Bottle Deposit Scheme: The Best in The World*, WASTE MGMT. AUSTL., https://waster.com.au/denmark-bottle-deposit/ [https://perma.cc/6Q4H-9M93].

175. *Id.*

176. *See Story 10: Denmark's Successful Deposit Return System is a Leading Example of Producer Responsibility*, PLASTIC ACTION CTR., https://plasticactioncentre.ca/directory/denmark-deposit-return/ [https://perma.cc/8AQU-MEAY].

177. *Id.*

178. *Id.*

179. *Id.*

higher than 98%.[180] In 2023, Finland's bottle deposit return rate was 97%.[181] Like Denmark, Germany and Finland have both implemented national bottle deposit legislation.[182]

5. Corporate Response to Bottle Bill Laws

Further research of beverage containers paints a rather bleak picture for the globe. Aluminum takes between 200 and 500 years to fully degrade in a landfill.[183] Bottles make up nearly half the weight of the globe's packaging stream.[184] Proponents of bottle legislation continue to fight the narrative that the legislation results in higher costs for consumers.[185] Over half of the total production cost for beer and soda is attributed to packaging, a cost that consumers actually bear the brunt of when companies pass the packaging cost onto consumers in the total bottle price.[186] Almost half of U.S. states with a bottle bill only have a five-cent deposit, which consumers consider too low with good reason: a nickel in the 1970s, when many states passed bottle bills, was only worth a penny in 2023.[187]

Bottle deposit legislation was not without criticism.[188] Major bottlers and distributors including PepsiCo, The Coca Cola Company, and the National Beer and Wholesalers Association have shown their disapproval of bottle bills by remaining silent about the issue in the public eye while incentivizing politicians to shut down bottle bill proposals behind closed doors.[189] For example, the following is an exchange regarding the clash

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180. Irene Banos Ruiz & Jeannette Cwienk, *A Look at Germany's Bottle Deposit Scheme*, DEUTSCHE WELLE (Nov. 17, 2021), https://www.dw.com/en/how-does-germanys-bottle-deposit-scheme-work/a-50923039 [https://perma.cc/H2QP-TKR3].

181. *Detailed Overview and Results of the Current Deposit Return Scheme Implementations in Europe*, SENSONEO, https://sensoneo.com/waste-library/deposit-return-schemes-overview-europe/ [https://perma.cc/HX9K-FR2R].

182. *Id.*

183. *Aluminum Facts*, *supra* note 104.

184. Megan Quinn, *Reloop Report Offers 10 Ideas for Passing More Bottle Bill Laws in U.S.*, INDUST. DIVE (Nov. 14, 2023), https://www.wastedive.com/news/reloop-bottle-bill-report-mrfs-recycling-policy/699699/ [https://perma.cc/W7SS-QU69].

185. Megan Quinn, *Bottle Bill Report Aims to Debunk Claims That Program Costs Hurt Beverage Sales*, INDUST. DIVE (July 20, 2023), https://www.wastedive.com/news/bottle-bill-beverage-sales-report-CRI-Reloop/688475/ [https://perma.cc/UBL6-HKQA].

186. *Michigan Bottle Bill*, *supra* note 119.

187. Collins, *supra* note 167.

188. *Bottle Bill Opponents*, CONTAINER RECYCLING INST., https://www.bottlebill.org/index.php/bottle-bill-opponents [https://perma.cc/LY7T-D2FR].

189. Michael Corkery, *Beverage Companies Embrace Recycling, Until It Costs Them*, N.Y. TIMES (July 4, 2019), https://www.nytimes.com/2019/07/04/business/plastic-recycling-bottle-bills.html [https://perma.cc/3ZPB-TG5H].

between Coca-Cola's funding of four million dollars in Atlanta, Georgia, and environmental activists' efforts to push bottle deposit laws:

> The proposal was quickly shot down. Several members of the group expressed concern that pushing for a bottle bill could jeopardize the funding from Coca-Cola. The message, Ms. Seydel recalled, was "you better let that dog lie." The discussion at the meeting grew heated. Ms. Seydel and others argued that bottle bills were proven methods to increase collection rates of used plastic.

Kanika Greenlee, the city's environmental programs director, had come prepared with a statement from Coca-Cola, making clear its opposition to deposits. Bottle bills were inconvenient and costly, the company said.[190]

In 2016, a leaked Coca-Cola Europe classified document surfaced that included a chart entitled *Public policy risk matrix & lobby focus*.[191] In this chart, Coca-Cola grouped items into three categories: prepare, monitor, and fight back.[192] Coca-Cola included "EU scheme for deposit systems" in the fight back category and graphed the point as one that is likely to materialize and substantially impact business.[193]

Coca-Cola Australia has a website page dedicated to bottle deposit laws.[194] Despite trying to quash recycling bills in Europe and the United States, Coca-Cola has a "Why container deposit schemes are great news for recycling" subtitle on its bottle deposit page.[195] Coca-Cola's main reason for depositing bottles and cans is to "help keep bottles out of landfill[s]."[196]

Coca-Cola and Anheuser-Busch engaged in another interesting tactic: creating lobbying groups to shift the blame for single-use plastics from companies to consumers.[197] The companies created the non-profit

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190. *Id.*

191. Damian Kahya, *Radar Screen of EU Public Policies*, GREENPEACE, https://www.documentcloud.org/documents/3409808-EU-Radar-Screen-Issue-Update-2016-02-03.html (2016) [https://perma.cc/Y4QF-4MFX].

192. *Id.*

193. *Id.*

194. *Everything You Need to Know About Container Deposit Schemes*, COCA-COLA CO. (July 11, 2022), https://www.coca-cola.com/au/en/media-center/coca-cola-container-deposit-scheme [https://perma.cc/MUA6-WLTX].

195. *Id.*

196. *Id.*

197. Emily Galvin, *How Corporate Lobbying Campaigns Derail Advancements in Plastic Alternatives*, REPURPOSE (Aug. 1, 2022), https://repurpose.global/blog/post/how-plastic-lobbying-can-be-a-powerful-tool-for-corporations [https://perma.cc/QMR4-CP4J].

organization Keep America Beautiful, a prominent United States lobbying group, to shift the responsibility to eliminate beverage packaging from companies to consumers.[198] The non-profit promotes the idea of a litterbug, or "an individual who contributes to plastic pollution."[199] Testimony from Coca-Cola cites increased costs for bottle deposit laws compared to curbside recycling, but fails to address or support nationwide legislation to provide curbside recycling bins to every household.[200] In 2004, the Vice President of Coca-Cola Bottling New England claimed that deposit redemption costs the company $500-$700 per ton, compared to curbside recycling costing $150 per ton.[201] However, this figure is based on Coca-Cola's false claim that every community has a bottle recycling program, resulting in cheaper and more effective curbside recycling.[202] Coca-Cola's complaints about the cost for bottle deposit programs are quite strange, considering its $43 billion in revenue in 2022 alone.[203] Put differently, Coca-Cola generates billions of dollars annually by producing products in single-use containers but takes no responsibility for what happens to the containers after they have served their initial purpose.[204] Without legal ramifications, nothing stops Coca-Cola and other major bottle distributors from continuing to churn out a product that will inevitably escape a necessitated recycling process.[205]

Despite corporate attempts to terminate bottle deposit programs and lobby against bottle deposit legislation in the United States, Michigan continues to produce the highest bottle-deposit return rate in the United States.[206] As of 2019, Michigan's bottle-deposit return rate was 89%.[207]

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198. *Id.*

199. *Id.*

200. *Coke Testimony against BB Expansion*, BOTTLE BILL RES. GUIDE (Mar. 8, 2004), https://www.bottlebill.org/images/BBToolKit/coke-testimony.pdf [https://perma.cc/D3P9-RHAX].

201. *Id.*

202. *Id.*

203. *Coca-Cola Reports Fourth Quarter and Full-Year 2022 Results*, COCA-COLA CO. (Feb. 14, 2023, 6:55 AM), https://investors.coca-colacompany.com/news-events/press-releases/detail/1076/coca-cola-reports-fourth-quarter-and-full-year-2022-results [https://perma.cc/5AVG-Z2Z6].

204. *See Coca-Cola's Plastic Pollution Problem*, SIERRA CLUB MICH. CHAPTER (Dec. 1, 2022), https://www.sierraclub.org/michigan/blog/2022/12/coca-cola-s-plastic-pollution-problem [https://perma.cc/M9S4-Z6CW].

205. *See generally* Kahya, *supra* note 191.

206. Stacy Gittleman, *Bottle Return Law May Be Expanded in Michigan*, DOWNTOWN PUBL'N (Apr. 25, 2023), https://www.downtownpublications.com/single-post/bottle-return-law-may-be-expanded-in-michigan [https://perma.cc/XQ7H-NYSG].

207. *Id.*

C. Environmental Education

1. Next Generation Science Standards (NGSS)

Marginalized communities are not the only ones without adequate environmental education.[208] Similarly, educators lack environmental knowledge.[209] Outdated science and technology school curriculum, some of which date back to the 1990s, may contribute to this issue.[210] In 2013, the public education sector released new science standards, known as Next Generation Science Standards (NGSS), as an attempt to update school curriculum to reflect advancements in technology.[211] NGSS emphasizes applying learned scientific principles to research and real life problem solving scenarios instead of regurgitating large quantities of information for test-taking.[212] Proponents of NGSS hoped that the program would better prepare students interested in pursuing careers in fields utilizing subjects like science, engineering, and medicine to think through complicated problems and develop creative, practical solutions to current and future needs.[213] But states did not uniformly integrate NGSS in schools across the United States because it was a state-led initiative.[214]

As of 2024, only 20 states making up approximately 36% of the United States' student population have adopted the National Generation Science Standards.[215] Another 35% of the student population live in states that have developed their own version of NGSS,[216] meaning that while more than 70% of United States students are receiving some iteration of

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208. Kathryn T Stevenson et al., *Environmental, Institutional, and Demographic Predictors of Environmental Literacy among Middle School Children*, NAT'L LIB. MED. (Mar. 22, 2013), https://pmc.ncbi.nlm.nih.gov/articles/PMC3606223/ [https://perma.cc/2UGS-HJQD].

209. Anna Merod, *US Teachers are Struggling to Teach Sustainability in Schools*, INDUS. DIVE (Sept. 7, 2023), https://www.k12dive.com/news/smithsonian-poll-us-teachers-sustainability-curriculum/692983/ [https://perma.cc/BT3Y-VYDC] ("U.S. teachers [] said they have a lack of expertise (74%) and instructional materials (76%) to teach sustainability.").

210. Achieve, *Next Generation Science Standards*, YOUTUBE (Feb. 9, 2016), https://www.youtube.com/watch?v=MqOhLg7gfYQ [https://perma.cc/9RXB-67BF].

211. *FAQs*, NEXT GENERATION SCI. STANDARDS, https://www.nextgenscience.org/faqs/faqs [https://perma.cc/G4YT-CQMU].

212. *Less Memorizing, More Sense Making*, NAT'L SCI. TEACHING ASS'N, https://www.nsta.org/less-memorizing-more-sense-making [https://perma.cc/A3T8-P2AW].

213. *See Applying Knowledge in Context*, NAT'L SCI. TEACHING ASS'N, https://www.nsta.org/applying-knowledge-context [https://perma.cc/37C6-AQGX].

214. *FAQs*, *supra* note 211.

215. *NGSS States*, TWIG EDUC., https://www.twigscience.com/ngss-states/ [https://perma.cc/G9UA-XZ34].

216. *Id.*

NGSS, the other 30% of students are relying on alternative educational frameworks to implement science standards.[217] With such differing levels of implementation, educators and students across the United States have varying degrees of a modern approaches to scientific issues, and many of them educate themselves from textbooks lagging decades behind in scientific advancements.[218] Textbooks that are more than a quarter-century outdated do not adequately explain modern issues like climate change, the single-use plastic problem, and overall environmental education, and students are not equipped with the necessary and updated hands-on educational tools to face the world's most pressing environmental issues.[219]

2. Greenwashing

Without proper problem solving and critical analysis skills, individuals are more likely to ignore pressing environmental issues and fall victim to greenwashing.[220] Greenwashing describes tactics used by entities, mainly large corporations, to mislead and deceive the public into believing that corporations have implemented measures to combat time-sensitive environmental issues.[221] As a result, the public remains seemingly unaware of pressing environmental harms.[222] Absent public concern and outcry, companies continue to freely engage in operations that irreversibly harm the planet.[223]

Greenwashing has become more prominent with environmental conditions on the decline.[224] In *Dorris v. Danone Waters of America,*[225] consumers filed a class action lawsuit against a beverage company that claimed its water bottles were carbon neutral.[226] Danone Waters, the manufacturer of Evian water, produced packaging containing a picture of a footprint sandwiched between the phrases "carbon trust" and "carbon

217. *Id.*

218. Achieve, *supra* note 210.

219. *Id.*

220. *Greenwashing – The Deceptive Tactics Behind Environmental Claims*, U.N., https://www.un.org/en/climatechange/science/climate-issues/greenwashing [https://perma.cc/HTF5-C2DX].

221. *Id.*

222. *Id.*

223. *See generally COP27: 'Zero Tolerance for Greenwashing', Guterres Says as New Report Cracks Down on Empty Net-Zero Pledges*, U.N. (Nov. 8, 2022), https://news.un.org/en/story/2022/11/1130317 [https://perma.cc/CXC5-SCJ7].

224. *Id.*

225. Dorris v. Danone Waters of Am., 711 F.Supp.3d 179 (S.D.N.Y. 2024).

226. *Id.* at 184–85.

neutral."[227] Consumers utilized a reasonable consumer standard and argued that a reasonable consumer equates carbon neutrality with a product that creates no carbon dioxide or pollution.[228] Consumers also claimed that if they knew the product was not carbon neutral they would not have purchased the product.[229] Danone Waters of America argued that reasonable consumers would not believe Evian water traveled from the French Alps to California without emitting any carbon dioxide.[230] Further, Danone argued that it accurately represented "carbon neutral" to mean "certified by the Carbon Trust," as opposed to "without a carbon footprint."[231]

The United States District Court for the Southern District of New York sided with consumers, concluding that the packaging could mislead a reasonable consumer about the phrase "carbon neutral."[232] One reason was that the Merriam-Webster dictionary has two definitions of "carbon neutral:" (1) "having or resulting in no net addition of carbon dioxide to the atmosphere;" and (2) "counterbalancing the emission of carbon dioxide with carbon offsets."[233] The court also held that "carbon neutral" is a complex scientific term, not the commonplace expression Evian made it out to be.[234] Concluding that reasonable consumers can understand the phrase "carbon neutral" as something different from its precise and technical definition, the court decided a jury was best suited to decide whether Evian's bottle packaging was misleading.[235]

Next, the court turned to the Federal Trade Commission's (FTC's) Green Guides to support the reasonable consumer claim.[236] The FTC's Green Guides are agency-developed guidelines designed to help marketers avoid deceptive or misleading environmental marketing claims.[237] If the FTC determines a company made environmental claims inconsistent with its guidelines, the FTC can impose fines on the company under the Federal Trade Commission Act.[238] While not binding, the FTC's Green Guidelines persuaded the court that Danone Waters was engaging in the very conduct the FTC designed the Green Guidelines to eliminate.[239]

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227. *Id.* at 185.
228. *Id.*
229. *Id.*
230. *Dorris*, 711 F.Supp.3d at 189.
231. *Id.*
232. *Id.*
233. *Id.*
234. *Id.* at 190.
235. *Id.*
236. *Dorris*, 711 F.Supp.3d at 190.
237. *Id.*
238. *Id.*; *see also* 16 C.F.R. § 260.4(b); *see also* 15 U.S.C. § 45.
239. *Dorris*, 711 F.Supp.3d at 190–91.

The court then addressed factual allegations in the consumers amended complaint, holding that survey evidence showing that nearly 60% of consumers did not understand the term "carbon neutral" was enough to survive a motion to dismiss.[240] The court concluded that a reasonable consumer could confuse "carbon neutral" with "carbon zero" or "carbon free," even though carbon zero products do not yet exist.[241]

Finally, the court held that Evian's website explaining the Carbon Trust and relevant qualifications for Evian's carbon neutral status was insufficient to prevent consumer confusion.[242] Evian's website's description elaborating on its carbon neutral certification was irrelevant because the law does not require reasonable consumers to perform their own research to address possible misleading representations.[243]

The court's categorization of "carbon neutral" as an ambiguous term that misleads a reasonable consumer into thinking companies can produce products without emitting carbon dioxide into the atmosphere is a recent example of the judiciary attempting to shield the public from corporate greenwashing tactics. By recognizing Evian's packaging as misleading and deceptive, the court acknowledged corporations' tactics to trick consumers into paying more for a product they think will not harm the environment.[244] If companies are legally unable to fool consumers into believing their products are environmentally sound, consumers will be better positioned to hold companies accountable for the products they manufacture.[245]

D. Benefits of Aluminum

Approximately three quarters of the world's beverage cans are aluminum.[246] Aluminum has many benefits for containing beverages: it is light, it seals well, it allows liquids to reach ideal temperatures quickly, and it is infinitely recyclable.[247] Additionally, aluminum is the most abundant metal in the world.[248] Recycling aluminum has become such an

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240. *Id.*
241. *Id.*
242. *Id.*
243. *Id.*
244. *See Dorris*, 711 F.Supp.3d at 179.
245. *See generally COP27: 'Zero Tolerance for Greenwashing', Guterres Says as New Report Cracks Down on Empty Net-Zero Pledges*, *supra* note 223.
246. *How Are Beverage Cans Made?*, INDUS. PHYSICS, https://industrialphysics.com/knowledgebase/articles/how-are-beverage-cans-made/ [https://perma.cc/W8BB-5BHC].
247. *Id.*
248. Modau Weekly, *The Real Cost of Aluminum Cans*, MEDIUM (Aug. 1, 2023), https://gaelledgsage.medium.com/the-real-cost-of-aluminum-cans-cac2628674b1 [https://perma.cc/RLX4-8C26].

efficient process that cans returned to the store can be found in the store again in only 60 days.[249]

Compared to plastic, recycling aluminum is an economic no-brainer.[250] Recycling aluminum is 95% more energy efficient than making aluminum from scratch.[251] In addition to energy efficiency, recycling aluminum is also economically beneficial.[252] Unlike plastic, which is often cheaper to create from scratch than from recycling, creating aluminum is more expensive than reusing already extracted aluminum.[253]

The initial cost of creating aluminum is expensive because companies must extract it from ore, it costs a significant amount of energy, and it pollutes the environment.[254] Companies extract aluminum from bauxite, a sedimentary rock with naturally high levels of aluminum oxide.[255] Aluminum's extraction process is known as the Bayer Process.[256] The Bayer Process consists of four steps: hydrothermal digestion, clarification, crystallization, and calcination.[257] Hydrothermal digestion consists of heating bauxite in a hot, caustic soda solution to dissolve the minerals containing aluminum.[258] Next, the aluminum will be clarified by separating the aluminum-abundant solutions from the bauxite residue that did not dissolve in the soda solution.[259] Then, the solution is cooled and mixed with aluminum hydroxide to form solid aluminum, known as aluminum hydroxide or alumina tri-hydrate.[260] Finally, the alumina tri-hydrate is calcined through heat to form pure alumina.[261]

The Bayer Process requires large amounts of ore to produce small amounts of aluminum.[262] Generally, around five tons of bauxite will

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249. *Id.*

250. *See The Price of Virtue*, ECONOMIST (June 7, 2007), https://www.economist.com/leaders/2007/06/07/the-price-of-virtue [perma.cc/HGE7-HJH6]; *see also* Tom Husband, *Aluminum Recycling*, AM. CHEM. SOC'Y (Apr. 2012), https://www.acs.org/education/resources/highschool/chemmatters/past-issues/archive-2011-2012/aluminum-recycling.html [https://perma.cc/E6W9-8DXL].

251. *The Price of Virtue*, *supra* note 250.

252. Husband, *supra* note 250.

253. *Id.*

254. *Id.*

255. *Id.*; *see also Bauxite and Alumina Statistics and Information*, U.S. GEOLOGICAL SURV., https://www.usgs.gov/centers/national-minerals-information-center/bauxite-and-alumina-statistics-and-information [https://perma.cc/2DKM-W7ZM].

256. *Bauxite and Alumina Statistics and Information*, *supra* note 255.

257. *Section 4.8 Operational Report*, EPA (Dec. 5, 2019), https://epawebapp.epa.ie/licences/lic_eDMS/090151b2806ec707.pdf [https://perma.cc/ZX42-2N7G].

258. *Id.*

259. *Id.*

260. *Id.*

261. *Id.*

262. Modau Weekly, *supra* note 248.

produce one ton of aluminum.[263] Mining for aluminum leads to biodiversity loss, carbon emissions, and air and water pollution.[264] However, already extracted aluminum can be incredibly useful in the recycling process.[265] Unlike other materials, aluminum does not degrade when consumers recycle it,[266] meaning that aluminum retains its durability and structure regardless of how many times consumers recycle it.[267] Furthermore, aluminum is infinitely recyclable if consumers discard it properly.[268] Conversely, improperly disposed of aluminum can take up to 500 years to fully decompose.[269] For that reason, it is incredibly crucial that aluminum returns to recycling centers and beverage return machines to reap environmental benefits and ensure an infinite recycling loop.[270]

After identifying and analyzing a variety of models worldwide, one thing is clear: bottle deposit legislation encourages consumers to return beverage containers and reduce littering.[271] Although Michigan is correct in attempting to update its bottle bill to prevent more containers from ending up in landfills, the proposed statute perpetuates the currently flawed system of erroneously divvying up windfall profits.[272]

III. ANALYSIS

A. Expanding Beverages and Increasing Deposit Rates

Section 1 of Michigan House Bill 445.571 mandates that consumers pay bottle deposits on soda, beer, ale, mixed wine drinks, and mixed spirit drinks.[273] The proposed bill, H.R. 4904, includes these beverage types, but it adds carbonated and noncarbonated water, wine, spirits, and a catch-all provision for "a nonalcoholic carbonated or noncarbonated drink in liquid form and intended for human consumption, except for plant-based milks or dairy-derived products."[274] Adding these beverages to bottle deposit legislation is harmless to consumers and positively affects the

263. *Id.*
264. *Id.*
265. *Id.*
266. *Id.*
267. *Id.*
268. *See generally* Modau Weekly, *supra* note 248.
269. *Id.*
270. *Id.*
271. *Keep America Beautiful 2020 National Litter Study Summary Report: May 2021*, KEEP AM. BEAUTIFUL (May 2021), https://kab.org/wp-content/uploads/2021/05/Litter-Study-Summary-Report-May-2021_final_05172021.pdf [https://perma.cc/UV45-FFDR].
272. H.R. 4904(3)(c)(3), 102d Leg., Reg. Sess. (Mich. 2023).
273. *See generally* MICH. COMP. LAWS § 445.571 (1976).
274. H.R. 4904, 102d Leg., Reg. Sess. (Mich. 2023).

environment.[275] Manufacturers can recycle aluminum, plastic, and glass into new bottles and cans more efficiently and with fewer emissions than mining for virgin materials.[276]

The Container Recycling Institute's 2009 study revealed that in 2006, consumers in 11 states with bottle deposit legislation recycled almost as many beverage containers as the rest of the United States combined.[277] With no net cost to taxpaying consumers,[278] there is no drawback to consumers for implementing bottle deposit legislation in the other 39 states, or to implement a national bottle bill.

Research reveals another motive for expanding beverage types and increasing the deposit amount in bottle deposit legislation: consumers want their money back.[279] Comparing bottle return rates with varying deposit amounts provides evidence of this motive.[280] For example, in 2021, Connecticut's bottle deposit return rate was 46% with a five-cent deposit.[281] In contrast, in 2021, Michigan's bottle deposit return rate was 75% with a 10-cent deposit.[282] In fact, in the first 40 years after Michigan implemented its bottle bill, consumers returned 96% of the 150 billion containers sold with a deposit.[283] Michigan and Oregon, the only two states with 10-cent blanket deposits for all qualifying beverages, have consistently had the highest deposit return rates.[284] States with a flat five-cent deposit for qualifying beverage containers have significantly lower

275. *See* May, *supra* note 152.

276. *Sustainability*, DANSK RETURSYSTEM, https://danskretursystem.dk/en/sustainability/ [https://perma.cc/HDK6-RM7W].

277. *Recycling in Bottle Bill States and Non-Bottle Bill States*, CONTAINER RECYCLING INST., https://www.container-recycling.org/index.php/recycling-in-bottle-bill-states-and-non-bottle-bill-states [https://perma.cc/KF4T-QA9H].

278. Kevin Budris, *How the Best Bottle Bills Make a Real Impact*, JUST ZERO (Mar. 30, 2023), https://just-zero.org/our-stories/explainer/how-bottle-bills-make-real-impact/ [https://perma.cc/F8H3-KNHA].

279. *See Redemption Rates and Other Features of 10 U.S. State Deposit Programs*, CONTAINER RECYCLING INST., https://www.bottlebill.org/images/Allstates/10-state%20Summary%208-5-22r.pdf [https://perma.cc/MG8J-E7UB].

280. *Id.*

281. *Id.*

282. *Id.*

283. Michael Noel, *What Is a Bottle Bill?*, TOMRA (Apr. 5, 2022), https://www.tomra.com/en/reverse-vending/media-center/feature-articles/what-is-a-bottle-bill [https://perma.cc/27A9-PKUS].

284. *Redemption Rates and Other Features of 10 U.S. State Deposit Programs*, *supra* note 279; *see also Bottle Bill States and How They Work*, *supra* note 65.

return rates.[285] For example, in 2020, New York had a return rate of 64%, Connecticut had 44%, and Massachusetts had 43%.[286]

Legislators could also raise the deposit higher than 10-cents to an amount that further incentivizes bottle returns but does not economically burden low-income consumers.[287] More research is needed to determine the point at which consumer purchasing attitudes shift due to the upfront deposit price being too burdensome for buyers. Nevertheless, a cost-benefit analysis reveals that higher deposits financially motivate consumers to return beverages and expanding the beverages that consumers can return would likely reduce plastic and aluminum landfill waste.[288]

B. Consumer Attitudes and (Ir)responsibility

Setting money aside, a larger human behavior problem exists regarding plastic beverage waste.[289] In the twenty-first century, consumers and companies alike are less willing to take responsibility for their single-use plastic consumption's destructive environmental impact.[290] In 2011, the average American family produced double the amount of garbage than a family in 1960.[291] The single-use "throwaway" and "disposable" lifestyle

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285. *Redemption Rates and Other Features of 10 U.S. State Deposit Programs*, *supra* note 279.

286. *Id.*

287. *Deposit Return Schemes: Germany*, BLOOMBERGNEF, https://www.netzeropathfinders.com/best-practices/deposit-return-schemes-germany [https://perma.cc/SPA6-HRSV] ("Consumers in Germany are rewarded differently for returning single-use and reusable containers, with a €0.25 ($0.27) rate for all single-use plastic[] bottles, aluminum cans[,] and glass bottles…[Germany] achieved a 94% PET (polyethylene terephthalate) bottle recycling rate in 2019…By contrast, in California, retailers are not required to take back bottles, and deposit incentives are much lower, ranging from $0.05-$0.10. In this case, returning bottles is neither worthwhile nor convenient to consumers, resulting in a lower statewide bottle recycling rate of 59%."); *The Recipe*, INFINITUM, https://infinitum.no/the-recipe/ [https://perma.cc/J46Z-59UX] ("In Norway, the deposit is 2 NOK (about 0.2 euros) for packaging up to 0,5 liters and 3 NOK (0,3 euros) for bigger ones. The deposit rate for bottles and cans in Norway is 92.5% and the total return rate is 97.7%.").

288. *Redemption Rates and Other Features of 10 U.S. State Deposit Programs*, *supra* note 279.

289. *Consumer Behavior*, PLASTIC SOUP FOUND., https://www.plasticsoupfoundation.org/en/plastic-problem/bogus-solutions/consumer-behaviour/ [https://perma.cc/Z6EG-26JP].

290. *Id.*; *see also The Problem – Our Throwaway Lifestyle*, CLEAN WATER ACTION (2012), https://cleanwater.org/problem-our-throwaway-lifestyle-archive [https://perma.cc/LA3F-8WVP].

291. *Id.*

resulted in garbage heaps that will last many lifetimes.[292] Furthermore, studies show that consumers with materialistic values are more likely to have a low-environmental behavior because of a severed connection with nature.[293] Materialism is the belief that buying and possessing things makes people happy and successful.[294] A 2018 study found a negative association between materialism and pro-environmental attitudes,[295] meaning that people with more materialistic values tend to value their natural environment less.[296] A 2014 study reported that materialists are less likely to recycle plastic waste and reuse plastic bags and bottles.[297] Improper disposal of these items leads to littering.[298] In other words, people who do not feel a personal connection to items are less likely to care about how their buying habits impact the natural environment and what happens to the items post-disposal.[299]

1. Littering and Deposit Rates

Undoubtedly, littering is a big problem in America. In 2020, Keep America Beautiful's *Litter in America* study reported fifty billion pieces of litter on the ground in the United States.[300] Put differently, to make

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292. *How Long Does It Take Garbage to Decompose?*, NE. ILL. COUNCIL, http://storage.neic.org/event/docs/1129/how_long_does_it_take_garbage_to_decompose.pdf [https://perma.cc/8WAU-55NX].

293. Jing Wang & Yongquan Huo, *Effect of Materialism on Pro-Environmental Behavior Among Youth in China: The Role of Nature Connectedness*, 13 FRONTIERS PSYCH. 4 (2022), https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.794816/full [https://perma.cc/3HVW-WX2S].

294. Passent Ibrahim Tantawi, *Materialism, Life Satisfaction and Compulsive Buying Behavior: An Empirical Investigation on Egyptian Consumers Amid Covid-19 Pandemic*, NAT'L LIBR. MED. (Jan. 5, 2023), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9813889/ [https://perma.cc/Z9ZH-YAY4].

295. Dian Gu et al., *The Negative Associations Between Materialism and Pro-Environmental Attitudes and Behaviors: Individual and Regional Evidence from China*, SAGE JS. (Nov. 17, 2018), https://journals.sagepub.com/doi/full/10.1177/0013916518811902 [https://perma.cc/E94U-F8VR].

296. *Id.*

297. Luxiao Wang et al., *The Not-So-Dark Side of Materialism: Can Public Versus Private Contexts Make Materialists Less Eco-Unfriendly?*, NAT'L LIBR. MED. (Apr. 5, 2019), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6460118/ [https://perma.cc/SZ9G-CX63].

298. Abdul Haseeb Chaudhary et al., *Littering Behavior: A Systematic Review*, 45 INT'L J. CONSUMER STUD. 478 (2021), https://onlinelibrary.wiley.com/doi/full/10.1111/ijcs.12638 [https://perma.cc/M86W-N3E2].

299. *See generally id.*

300. *Keep America Beautiful 2020 National Litter Study Summary Report: May 2021*, *supra* note 271.

America litter-free, every United States' resident would have to pick up 152 pieces of garbage.[301]

The study shed light on the current state of bottle recycling in the United States.[302] Analyzing alcoholic beverage containers, the study showed a 27% increase in beer bottle litter from 2009 to 2020.[303] The study also revealed that consumers in states with bottle bills littered half the amount of deposit material as consumers in states without bottle bills.[304] Bottle deposit states also carried a higher degree of recycling responsibility for non-deposit plastics: deposit states had 30% less non-deposit litter compared to non-deposit states.[305] Because citizens in bottle deposit states recycle a significantly higher percentage of non-deposit material, it appears that consumers have more than just a financial motive for properly disposing of beverage containers.[306] Overall, current research shows that consumers in states with bottle deposit laws not only recycle qualifying beverage cans at increased rates, but also recycle non-bottle deposit material at significantly higher rates.[307] Against this background, legislators can approach bottle deposit legislation as a potential solution to reducing overall littering rates.

2. Plastic, Plastic, Everywhere

Expanding bottle bill legislation to include plastic bottles will positively impact human health.[308] Placing a deposit on plastic bottles will incentivize consumers to return the bottles to retail stores and recycling centers, diverting a significant amount of plastic away from waterways. Michigan has a heightened interest in plastic diversion because of its proximity to and ownership of the Great Lakes, and the United States should implement deposit on plastic bottles in the interest of protecting public health.[309]

Much of the world's plastic ends up in bodies of water.[310] America's infamous Great Pacific Garbage Patch (GPGP) is a culmination of more

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301. *Id.*
302. *Id.*
303. *Id.*
304. *Id.*
305. *Id.*
306. *Keep America Beautiful 2020 National Litter Study Summary Report: May 2021*, *supra* note 271.
307. *Id.*
308. *See generally Great Lakes Plastic Pollution*, ALL. FOR GREAT LAKES, https://greatlakes.org/great-lakes-plastic-pollution-fighting-for-plastic-free-water/ [https://perma.cc/TF59-N9ME].
309. *Great Lakes Plastic Pollution*, *supra* note 308.
310. *Id.*

than 1.8 trillion pieces of litter in the Pacific Ocean weighing approximately 100,000 metric tons.[311] In addition to weight, the GPGP is extensive in width, covering an estimated surface area of 1.6 million square kilometers,[312] the land equivalent spanning "twice the size of Texas or three times the size of France."[313]

Michigan's Great Lakes are no exception to marine debris: the State of Michigan and the Alliance for the Great Lakes acknowledged the presence of microplastics in all five Great Lakes.[314] Approximately 10,000 metric tons of plastic enters the Great Lakes annually.[315] While the Great Lakes comprise 84% of North America's fresh surface water, 90% of water samples taken from 2013-2023 show microplastic levels that are unsafe for wildlife.[316]

Over time, larger pieces of plastic will break down into smaller pieces of plastic, known as microplastics.[317] Because plastics and microplastics are so abundant in marine debris, marine life ingest plastic without knowing it.[318] Marine life mistake plastic as food, causing ingestion problems and sometimes death.[319] Most marine species, including "zooplankton, fish, mussels, and birds," ingest significant amounts of plastic.[320] In fact, microplastics have been found in every part of the food web.[321] In 2015, the scientific community predicted that by 2050, 99.8%

311. *What is the Great Pacific Garbage Patch?*, OCEAN CLEANUP, https://theoceancleanup.com/great-pacific-garbage-patch/ [https://perma.cc/H4UG-9KYZ]; *Metric Ton*, ENERGY EDUC., https://energyeducation.ca/encyclopedia/Metric_ton [https://perma.cc/9RZV-A3DD] (noting that one metric ton is equivalent to one tonne).

312. *Id.*

313. *Id.*

314. Sarah Lowe, *Breaking Down the Problem of Microplastics in the Great Lakes*, DEP'T OF ENV'T, GREAT LAKES, AND ENERGY (Apr. 4, 2023), https://www.michigan.gov/egle/newsroom/mi-environment/2023/04/04/breaking-down-the-problem-of-microplastics-in-the-great-lakes [https://perma.cc/8EMR-HUJM]; *see also Great Lakes Plastic Pollution*, *supra* note 308.

315. Lowe, *supra* note 314.

316. Kendall Rozen, *Microplastics in the Great Lakes: Unsafe for Wildlife*, ENV'T WORKING GRP. (Dec. 5, 2023), https://www.ewg.org/news-insights/news/2023/12/microplastics-great-lakes-unsafe-wildlife [https://perma.cc/X4D2-WRYQ].

317. *What Are Microplastics?*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., https://oceanservice.noaa.gov/facts/microplastics.html (June 16, 2024) [https://perma.cc/RGE3-735J].

318. *Id.*

319. *Ingestion*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., https://marinedebris.noaa.gov/why-marine-debris-problem/ingestion (Feb. 7, 2023, 7:52 AM) [https://perma.cc/78CN-HPST].

320. Lowe, *supra* note 314.

321. Rozen, *supra* note 316.

of seabirds will have ingested some type of marine plastic.[322] Humans also ingest millions of microplastics that are invisible to the human eye directly through drinking water.[323] Research estimates that humans consume a credit-card sized amount of plastic every week.[324]

Researchers do not fully understand plastic's effect on human health.[325] However, researchers commonly accept that plastic's chemical makeup contains substances toxic to humans, and that plastics can absorb toxins and potentially dangerous microbes in water.[326] Humans are simply not meant to ingest chemicals added to plastic to make plastic colorful, flexible, and flame resistant.[327] Studies have shown that 84% of plastics in the GPGP have at least one type of persistent bio-accumulative toxin, a harmful group of chemicals commonly found in single-use plastic.[328] In 2023, researchers linked the exposure of microplastics through a variety of sources, including plastic bottles and the marine life food chain, to a plethora of disturbing health problems, including DNA damage, organ dysfunction, impaired immune response, neurotoxicity, and reproductive and developmental toxicity.[329] Another 2023 study found that microplastics travel through the human body by blood circulation and found microplastics in at least 15 parts of the human body, including the spleen, liver, colon, and lungs.[330]

In addition to litter adversely effecting human health, litter cleanup is extremely costly.[331] The United States spends more than $11.5 billion each

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322. Chris Wilcox et al., *Threat of Plastic Pollution to Seabirds is Global, Pervasive, and Increasing*, PROC. OF THE NAT'L ACAD. OF SCIENCES OF THE U.S., https://www.pnas.org/doi/full/10.1073/pnas.1502108112 (Jan. 19, 2016) [https://perma.cc/4FSY-5M5R].

323. *Scientists Find About a Quarter Million Invisible Microplastic Particles in a Liter of Bottled Water*, PBS (Jan. 8, 2024, 4:38 PM) https://www.pbs.org/newshour/science/scientists-find-about-a-quarter-million-invisible-microplastic-particles-in-a-liter-of-bottled-water [https://perma.cc/3EZT-8UGL].

324. *Great Lakes Plastic Pollution*, *supra* note 308.

325. *Scientists Find About a Quarter Million Invisible Microplastic Particles in a Liter of Bottled Water*, *supra* note 323.

326. *Great Lakes Plastic Pollution*, *supra* note 308.

327. Lowe, *supra* note 314.

328. *What is the Great Pacific Garbage Patch?*, *supra* note 311.

329. Yue Li et al., *Potential Health Impact of Microplastics: A Review of Environmental Distribution, Human Exposure, and Toxic Effects*, AM. CHEM. SOC'Y PUBL'NS (Aug. 10, 2023), https://pubs.acs.org/doi/10.1021/envhealth.3c00052 [https://perma.cc/GUJ5-ZWS7].

330. Gurusamy Kutralam-Muniasamy et al., *Microplastic Diagnostics in Humans: "The 3Ps" Progress, Problems, and Prospects*, SCIENCEDIRECT (Jan. 15, 2023), https://www.sciencedirect.com/science/article/abs/pii/S0048969722062635?via%3Dihub [https://perma.cc/3SNS-PA42].

331. *The Costs of Litter*, KEEP LIBERTY BEAUTIFUL, https://keeplibertybeautiful.org/litter-facts-you-cant-ignore.html [https://perma.cc/9VBF-YKLK].

year cleaning up litter.[332] Although businesses bear most of this cost, this expenditure is likely passed onto consumers through the price of goods and services.[333] Over $1.3 billion in state and local taxes are expended to litter clean up every year.[334]

Thus, placing a deposit on plastic bottles will reduce the quantity of plastic in waterways, benefit human health, and reduce overall litter cleanup costs.[335] Reducing plastic in waterways will reduce the likelihood of plastic breaking down into microplastics that enter the human body through the food chain.[336] Combined with a reduction in overall littering costs, it is in the public interest from both a health and economic perspective to mandate a bottle deposit on plastic.[337] Educating citizens about plastic's harmful effects and spreading awareness of major littering costs is also in the interest of public policy.[338]

C. Mandated Federal Environmental Education Requirement

No federal requirement for environmental education exists in the American education system.[339] In 2020, New Jersey became the first state to mandate environmental education in school curriculum.[340] While a step in the right direction, New Jersey's environmental education requirement raised several concerns, including unfair distribution of educational materials and uneducated educators.[341]

It is no secret that marginalized communities receive lower-quality educations characterized by less educational materials and less time to

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332. *Id.*

333. *Id.*

334. *Id.*

335. *Fact Sheet: Deposit Return Systems Reduce Litter*, CONTAINER RECYCLING INST., https://www.reloopplatform.org/wp-content/uploads/2021/06/DRS-Factsheet-Litter-long-14June2021.pdf (June 2021) [https://perma.cc/9GQZ-NP27].

336. Kutralam-Muniasamy et al., *supra* note 330.

337. *Id.*; Marissa Heffernan, *Study: Modernized Bottle Bills Boost Redemption, Save Money*, RES. RECYCLING, INC., https://resource-recycling.com/plastics/2022/03/23/study-modernized-bottle-bills-boost-redemption-save-money/ (Mar. 23, 2022) [https://perma.cc/DT6V-KFHG].

338. *See* Preston, *infra* note 340.

339. *See generally Environmental Education: Is Learning About the Planet a Priority?*, EARTHSHARE (Nov. 7, 2022), https://www.earthshare.org/environmental-education-is-learning-about-the-planet-a-priority/ [https://perma.cc/Q6TU-C4BR].

340. Caroline Preston, *One State Mandates Teaching Climate Change in Almost All Subjects – Even PE*, HECHINGER REP. (Nov. 5, 2022), https://hechingerreport.org/one-state-mandates-teaching-climate-change-in-almost-all-subjects-even-pe/ [https://perma.cc/3LUY-DMQW].

341. *Id.*

focus on schoolwork.[342] Unfortunately, schools with the smallest distribution of educational resources are the same schools that environmental injustice most negatively impacts.[343] Marginalized communities suffering from "disproportionate and adverse human health and environmental effects and hazards"[344] lack the information necessary to hold polluters responsible for worsening adverse environmental impacts.[345]

1. Next Generation Science Standards (NGSS)

In addition to no federal bottle bill, there is no federal environmental education requirement.[346] Absent federal funding, the federal government does not mandate NGSS.[347] States choose whether environmental education is taught in schools, as well as what environmental curriculum will be taught.[348] As a result, learning about the environment is purely a choice for most students. Because this has been the standard in United States education for decades, the majority of educators do not have adequate environmental knowledge to teach students[349] if the federal government were to implement environmental education standards today. Thus, the federal government should focus on creating and offering free environmental education courses to educators tasked with teaching or incorporating environmental concepts into course instruction. The environmental education courses should be created by scientists and

342. Preston, *supra* note 340; *see also* Linda Darling-Hammod, *Unequal Opportunity: Race and Education*, BROOKINGS INST. (Mar. 1, 1998), https://www.brookings.edu/articles/unequal-opportunity-race-and-education/ [https://perma.cc/YU58-EFUR].

343. Preston, *supra* note 340.

344. *Environmental Justice*, EPA, https://www.epa.gov/environmentaljustice [https://perma.cc/Q4GN-JPM9].

345. Rolf Lidskog & Adam Standring, *Accountability in the Environmental Crisis: From Microsocial Practices to Moral Orders*, 33 ENV'T POL'Y AND GOVERNANCE 583 (Oct. 18, 2023), https://onlinelibrary.wiley.com/doi/full/10.1002/eet.2083 [https://perma.cc/J2PM-VFTU].

346. Renée Cho, *Climate Education in the U.S.: Where it Stands, and Why it Matters*, COLUM. CLIMATE SCH. (Feb. 9, 2023), https://news.climate.columbia.edu/2023/02/09/climate-education-in-the-u-s-where-it-stands-and-why-it-matters/ [https://perma.cc/6W3W-373P]; *Environmental Education: Is Learning About the Planet a Priority?*, *supra* note 339.

347. *Next Generation Science Standards (NGSS)*, NEXT GENERATION SCI. STANDARDS (2016), https://www.nextgenscience.org/sites/default/files/resource/files/NGSSFactSheet2016revised.pdf [https://perma.cc/4VE7-3ZHE].

348. *See generally NGSS States*, *supra* note 215.

349. Yazzie Suleiman, *Falling Far Behind: Insufficient Climate Education in the U.S.*, BERKELEY POL. REV. (Oct. 31, 2022), https://bpr.studentorg.berkeley.edu/2022/10/31/falling-far-behind-insufficient-climate-education-in-the-u-s/ [https://perma.cc/Y52V-J755].

educators alike and could be streamlined by current environmental educators in the American education system, particularly in higher education programs. By doing this, the government ensures accuracy and consensus regarding environmental topics and can begin executing courses within a reasonable timeframe.

After implementing environmental education courses capable of being taught by educators, the government should focus on updating and distributing a uniform science textbook, similar to NGSS, with supplements specific to region. Ideally, the main textbook would define basic structural concepts like environment, climate change, and pollution–just to name a few. The textbook would also include environmentally significant historic events, current environmental issues (like single-use beverage containers) and implemented and proposed solutions to address environmental harms. Examples of supplemental material could be a Midwest supplement providing a case study on the Great Lakes, or a Western supplement including information about the Great Pacific Garbage Patch. Like any other educational subject, topics and depth of substantive material will be relative to grade level, increasing in complexity as students advance in school.

New Jersey's environmental education is an example of incorporating environmental topics outside of a course dedicated to environmental education.[350] For instance, New Jersey kindergarteners are learning that different parts of the world have different climates in social studies classes, while high school students are learning about climate change activists in art class.[351] Because the environment impacts all parts of life, environmental topics could easily be incorporated into various already-mandated curriculum.[352] All in all, mandating a federal environmental education course, along with incorporating environmental education into all core subjects, creating a uniform environmental textbook for nationwide distribution with supplemental material according to region, and providing free environmental education courses to educators to better help students understand issues in environmental science are identified solutions to creating awareness of not only the single-use beverage container problem, but all time-sensitive environmental issues.[353]

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350. Preston, *supra* note 340.

351. *Id.*

352. Pam Wasserman, *Environmental Education for Elementary Students: How to Integrate EE in K-5 Core Subjects*, POPULATION EDUC. (Dec. 17, 2024), https://populationeducation.org/environmental-education-for-elementary-students-how-to-integrate-ee-in-k-5-core-subjects/ [https://perma.cc/UK9Q-4SA3].

353. *Id.*; Preston, *supra* note 340; Cho, *supra* note 346; *Next Generation Science Standards (NGSS)*, *supra* note 347; Suleiman, *supra* note 349.

2. Greenwashing

As discussed above, greenwashing refers to a tactic used by companies to deceive consumers into believing that purchasing product does not negatively impact the environment.[354] Although Evian attempted to convince a court that a reasonable consumer would not believe products can be created in a carbon neutral way, the United States District Court for the Southern District of New York in *Danone Waters of America* held that reasonable consumers indeed interpret the phrase "carbon neutral" to mean not emitting carbon into the environment during production and transportation.[355] By using the phrase "carbon neutral" and the accompanying footprint symbol on its water, Evian attracted customers who admitted to purchasing the product solely because they believed its production and transportation did not emit carbon into the environment.[356] Legislatures need to protect consumers by prohibiting companies, including beverage corporations, from using misleading environmentally friendly language on packaging and other forms of advertising to attract environmentally conscious consumers.[357]

To determine which environmental language is deceptive to the reasonable consumer, legislators should look to data scientists for conducted research that polls a large random sample of consumers about what a variety of environmentally friendly terms mean to them. Once the legislature knows how a reasonable consumer understands the term, it should compare this definition to the guidelines of the relevant authority defining the term for legal purposes. If the definitions are not the same or reasonably similar, the legislature should prevent companies from using the term. Alternatively, the legislature could defer to the relevant agency overseeing the subject matter the greenwashing language impacts. The impacts of greenwashing will likely be lessened through mandated environmental education, but such an effect would likely take years to materialize—years the climate simply does not have.[358] Knowing this,

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354. *Greenwashing – The Deceptive Tactics Behind Environmental Claims*, *supra* note 220.

355. Dorris v. Danone Waters of Am., 711 F.Supp.3d 179, 189–91 (S.D.N.Y. 2024).

356. *Id.* at 189.

357. *See* Cal. Leg., Assemb. B. 1305, 2023 Leg., Reg. Sess. (Cal. 2023) (codified at CAL. HEALTH & SAFETY CODE § 44475 (West 2024)) for an example of an anti-greenwashing law; Loyti Cheng et al., *California Enacts Anti-Greenwashing Requirements*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Nov. 18, 2023), https://corpgov.law.harvard.edu/2023/11/18/california-enacts-anti-greenwashing-requirements/#1 [https://perma.cc/P77L-VJCJ].

358. *See generally COP27: 'Zero Tolerance for Greenwashing', Guterres Says as New Report Cracks Down on Empty Net-Zero Pledges*, *supra* note 223.

legislatures should consult researchers, data scientists, and agencies and take swift action to prevent companies from using environmentally friendly language to prevent consumers from realizing the true impact of their purchasing decisions.

D. Benefits of Reusing Refined Aluminum

It is unlikely corporations and distributors would fight against bottle deposit systems if they understood the economic benefits of reusing and recycling aluminum.[359] Because the Bayer Process is very time intensive and large amounts of extracted mineral produce very little usable aluminum, refining aluminum is very costly to companies and ultimately impacts their profits.[360] When consumers discard aluminum cans instead of returning them to a bottle deposit location, companies are unable to reuse already refined aluminum and must start the expensive Bayer Process over again.[361] Instead of continuously mining for aluminum, it would be more cost-efficient for companies to collect used aluminum cans, melt down the cans, and place the aluminum back into automated can machines to be used again.[362] By doing so, companies skip the cost and time intensive process of mining for ore, they avoid the process of separating aluminum from other minerals, and they appear more environmentally conscious to consumers who avoid purchasing from companies known to negatively impact the environment.[363]

Thus, recycling aluminum, rather than mining it, benefits both consumers and corporations.[364] When consumers properly discard aluminum, pollution and carbon emissions decrease, contributing to a healthier, more sustainable environment for current and future generations.[365] Additionally, corporations are incentivized to recycle aluminum because the cost of melting down used beverage cans and re-molding the metal is cheaper than mining for bauxite.[366] Legislators should strongly consider placing limitations on aluminum extraction and require beverage companies to strictly engage in recycling purified aluminum.[367]

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359. Husband, *supra* note 250.
360. *Id.*
361. *Id.*
362. *Id.*
363. *Id.*
364. *Id.*
365. Husband, *supra* note 250.
366. *Id.*
367. *Id.*

E. Building Political Support

Environmental harms are not partisan, and they surely do not stop at a nation's border lines.[368] As the general public and a few actor-like members of the legislature attempt to make every issue political, bipartisan support in Congress has been on the rise.[369] In 2018, despite a divisive political climate, 68% of enacted bills in the 115th Congress received bipartisan support, an increase from 50% in 2012's 112th Congress.[370]

From a political perspective, supporting a bottle bill is both environmentally and economically beneficial to consumers.[371] Aside from the glaring benefit of reducing littering and pollution, bottle bills inherently create jobs.[372] A national bottle bill and deposit return system is expected to create almost 100,000 jobs and create 11 to 38 times more jobs than a curbside recycling program.[373] Expected areas of job growth include recycling collection, processing, and transportation.[374]

Approximately 75% of Americans support bottle bill legislation, despite less than 25% of Americans living in a state with a bottle bill.[375] As noted above, Michigan's bottle bill was met with major pushback during the legislative process and required a statewide referendum to become law.[376] If environmental advocacy groups feel confident in demonstrated public support for bottle bill laws, they should contemplate a possible path forward in a voter referendum.[377]

Michigan has relatively simple initiative and referendum processes.[378] An initiative is the power of the people to propose laws and to enact and

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368. *See generally* Justin Worland, *The Other Crisis at the U.S.-Mexico Border: Rising Air Pollution*, TIME MAG. (Feb. 24, 2022, 11:52 AM), https://time.com/6150882/the-other-crisis-at-the-u-s-mexico-border-rising-air-pollution/ [https://perma.cc/QW33-LSYH].

369. *Enacted Bills with Bipartisan Support at 20-Year High*, QUORUM, https://www.quorum.us/data-driven-insights/may-2018-congressional-activity-report/ [https://perma.cc/M6SK-QZQR].

370. *Id.*

371. Heidi Sanborn, *From Trash to Treasure: Why America Needs a National Bottle Bill*, STEWARDSHIP ACTION FOUND. (Mar. 23, 2023), https://www.stewardship-foundation.org/post/from-trash-to-treasure-why-america-needs-a-national-bottle-bill [https://perma.cc/U2EH-L89F].

372. *Id.*

373. *Id.*

374. *Id.*

375. *Id.*

376. *See* discussion *supra* Part II.

377. *Id.*; Press Release, *supra* note 129.

378. *Initiative and Referendum Processes*, NAT'L CONF. STATE LEGISLATURES, https://www.ncsl.org/elections-and-campaigns/initiative-and-referendum-processes#michiganci (Sept. 23, 2024) [https://perma.cc/5RKN-Y4QG]; *see also* MICH. COMP. LAWS § 168.471 (2018).

reject laws.[379] A referendum is the power of the people to approve or reject laws enacted by the legislature.[380] Applications for a petitioned referendum must be filed with the Secretary of State, pursuant to MCL § 168.471.[381] Eight percent of registered electors from the total votes cast for governor in the last general election must sign for an initiative and five percent for a referendum to be placed on the ballot.[382] Environmental advocacy groups in Michigan should consider returning to the referendum process to either pass new bottle legislation or update the current Bill.[383] Currently, 24 states in the United States have a codified referendum process.[384] With widespread public support, advocacy groups across the nation should strongly consider reviewing state referendum statutes if legislators remain unwilling to move forward with bottle legislation.[385]

A path forward to bipartisan environmental legislation partially hinges on its name.[386] Legislators have admittedly been reluctant to vote against legislation named after sympathetic figures, popular pieces of legislation, and titles that are either too short or too long.[387] Similar concern surrounds legislation that operates under a pseudonym because United States law is evolving under pseudonyms while the legislation's real name and substance remain unknown to the average American.[388]

Legislators should officially name Michigan's Bottle Bill the Michigan Beverage Container Act, and they should prioritize uniformly referring to the legislation using this name.[389] For example, the State of Michigan's website refers to the Bill as the Michigan Beverage Container Deposit Law,[390] but

379. MICH. COMP. LAWS § 168.471 (2018).

380. *Initiative and Referendum Processes*, *supra* note 378.

381. *Id.*

382. *Id.*

383. *Id.*

384. Although this Note focuses on Michigan's referendum process with regard to proposing or amending bottle legislation, each state with a citizen referendum process has different rules regarding the process for implementing a voter/citizen led referendum. *Initiative and Referendum Processes*, *supra* note 378.

385. *Id.*

386. Brian Christopher Jones, *Processes, Standards, and Politics: Drafting Short Titles in the Westminster Parliament, Scottish Parliament, and U.S. Congress*, 25 FLA. J. INT'L L. 61, 64–65 (2013).

387. *Id.* at 86–87.

388. *Id.* at 98.

389. John Stutz & Carrie Gilbert, *Michigan Bottle Bill*, MICH. RECYCLING COAL. (July 10, 2000), https://www.michiganrecycles.org/wp-content/uploads/2018/01/deq-ogl-mglpf-stutz_249882_7.pdf [https://perma.cc/S37M-68GF]; *see also* MICH. COMP. LAWS § 445.571 (1982).

390. *Michigan Beverage Container Deposit Law*, STATE OF MICH., https://www.michigan.gov/-/media/Project/Websites/lara/lcc/Folder5/CIS_LCC_bottbill.pdf?rev=f030427c05d44acfbfebff2ecf046319 [https://perma.cc/34TB-TFQS].

the Michigan Recycling Coalition, the Bottle Bill Resource Guide, and the University of Michigan Ecology Center all refer to the Bill as the Michigan Beverage Container Act.[391] The State of Michigan should adopt the name that environmental advocacy groups commonly use because this name has gained the most popularity since the Bill's passage 48 years ago.[392] Failure to name the Bill as the common name may lead consumers to believe an entirely new bottle deposit framework is being implemented, rather than just an extension of what consumers already operate under.[393] Consumers may feel confused if they have to know all the name variations that refer to the same Bill. Additionally, the Bill name is adequate in length, is not deceiving, and does not operate under a pseudonym.[394] By moving forward with an already accepted name, the Michigan legislature bypasses possible internal conflicts within the legislature and allows Michiganders to continue associating a relatively simple recycling process with a relatively simple Bill name.[395]

IV. CONCLUSION

The United States' piecemeal bottle deposit legislation lags behind the rest of the world.[396] While some states have taken steps in the right direction by mandating deposit on some aluminum and glass containers, even the most comprehensive United States bottle legislation pales in comparison to European models.[397] Because the United States failed to implement environmental education in its core curriculum, the average American citizen does not understand the long-term impacts of aluminum mining and virgin plastic on the environment and human health.[398]

The federal government's failure to implement a uniform, core environmental curriculum leaves current and future students with different understandings of prominent environmental issues, and past students are unable to bridge the gap because they too lacked an informative

391. *See id.*; *see also Michigan*, CONTAINER RECYCLING INST., https://www.bottlebill.org/index.php/current-and-proposed-laws/usa/michigan (July 18, 2024) [https://perma.cc/RP6L-Y782]; *Michigan Bottle Bill of 1976*, *supra* note 5.

392. *Michigan Beverage Container Deposit Law*, *supra* note 390.

393. *See generally Angela Bradbery Authors Article on the Controversy and Confusion Over Legislative Bill Names*, UNIV. FL. (Aug. 4, 2022), https://www.jou.ufl.edu/2022/08/04/angela-bradbery-authors-article-on-the-controversy-and-confusion-over-legislative-bill-names/ [https://perma.cc/4U56-BLRY] (equating some legislative bill names to deceptive advertising practices "if overseen by the Federal Trade Commission.").

394. *Id.*; *see also* Jones, *supra* note 386.

395. *See* Jones, *supra* note 386.

396. *See* discussion *infra* Part II.

397. *Id.*

398. *See* discussion *infra* Part III.C.

environmental education.[399] Inadequate environmental education provides beverage corporations the opportunity to deceive consumers into believing the products they are purchasing have little or no impact on the environment.[400] These beverage companies also create campaigns that shift the burden of single-use beverage products from corporations to consumers in an attempt to evade responsibility for mass producing using materials that cause environmental decay.[401] The same corporations are lobbying against low-cost beneficial bottle deposit policy behind closed doors while raking in tens of billions of dollars annually.[402]

Beverage containers developed from known food preservation methods in a time of war.[403] Companies moved away from glass bottles in favor of more durable, leak-proof options.[404] Unfortunately, legislation did not keep pace with technological innovations in the United States.[405] Now, consumers are paying the price.[406] Aluminum mining creates pollution and carbon dioxide emissions, and animals consume plastic that humans ingest through the food chain.[407] The first scientific studies on plastic's effects on human health are just beginning to surface, linking microplastic with severe impacts on the human body.[408]

Federal and state legislators should strongly consider mandating bottle deposits for aluminum, glass, and plastic beverage containers. Understanding that this issue is time sensitive, legislators should look to already existing bottle deposit systems and create new legislation using these frameworks.[409] If the federal government is unwilling to pass bottle legislation, state governments should pass their own bottle deposit laws. If state governments do not pass bottle legislation, environmental advocacy groups should push for a voter referendum to place bottle deposit programs directly into the hands of voters. Whatever the legal path forward may be, legislators should implement and update bottle deposit legislation in the interest of the environment, public health, education, and the economy.

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399. *Id.*
400. *Id.*
401. *Id.*
402. *See* discussion *infra* Part II.B.5.
403. *See* discussion *infra* Part II.A.
404. *Id.*
405. *Sustainable Means Profitable Too*, AM.'S BOTTLE BILL, https://www.americasbottlebill.com [https://perma.cc/7N83-M3ET].
406. *See* discussion *infra* Part III.
407. *Id.*
408. *Id.*
409. *Bottle Bill States and How They Work*, *supra* note 65.