

Cups - EE 538 - Fall 2025

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Objectives

This project began during a walk to Assembly Row, Somerville, MA:
As I was crossing the pedestrian footbridge under Fellsway West, I noticed a cup.

It wallowed in a fat puddle of whipped cream and liquid chocolate—
a Starbucks frappachino explosion, abandoned one step away from the Mystic River.

One step away from the water on which I row; the water in which our seagulls, geese, ducks, swans,
herons, and resident bald eagle hunt; the water in which our herring run.

I didn't want to touch that cup. *Gross!*
I wanted to photograph it, though...

I guess the thought was like, if people see *this*... they'll feel bad, right? And then they'll stop leaving
cup waste to pollute the river?

I didn't take a photo that day.
But the idea stayed with me...

This summer, I wrote a little poem called "cups" about the cup litter I walked by each and every day.
I presented the poem to MIT's Stephen Strang Writers' Group and received some notes...
(Mostly surprise. Most people there had never thought twice about their coffee cups. Somebody had
thought all the "paper" cups were recyclable, like newspaper. Productive discussion.)
I started taking photographs in August...
Then I joined this class, Research for Environmental Agencies and Organizations, in September.

My project, from start to finish, has always been about the rivers—
the Mystic, the Charles, and everyone they touch.

My objectives were:

- Highlight the issue of coffee cup waste with poetry.
- Document the issue with photographs.
- Ground the story with facts.
- Offer solutions, like reusable cups.
- Share the project to benefit the rivers.

I have since learned that littered coffee cups are merely the sunlit tip of the plastic waste iceberg...

The entire planet is touched by plastic waste—microscopic plastic fragments, or microplastics and
nanoplastics, in particular.

It's in all the air we breathe, all the tap water we drink, and all the food we eat.
It's lurking in our organs, in our brains, and passing on to children via the placenta...

More frightening, new research is starting to establish a causal link between an animal's or person's
plastic exposure and illnesses—gastrointestinal issues, cancers, even miscarriages and infertility.

The gross overabundance of plastic has created an existential threat...
One that very well may kill us before climate change can.

We, *Homo sapiens*, need to stop producing plastic—which means we, *Homo sapiens*, need to stop
demanding plastic.

You and I can start *now* by choosing reusable
CUPS.

Accomplishments

what we do on Earth

today won't matter
in about 5,000,000,000 years—
after the sun dies.

what we do on Earth

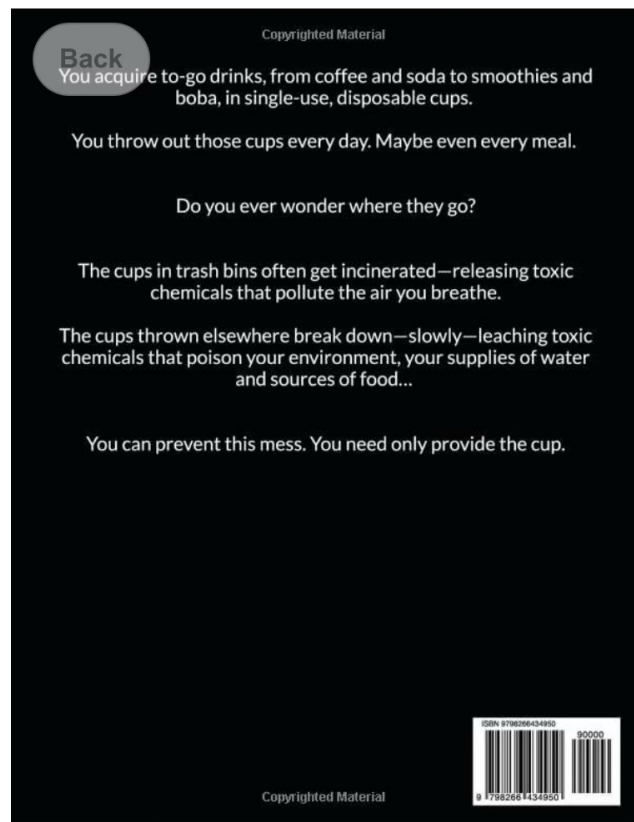
today will matter
tomorrow, this next decade,
this millennium...

1. Self-Published Book

CUPS, a Treatise in Verse, was published to Amazon on October 10th, 2025.
The book contains ~200 photographs of discarded coffee cups.



The Book's Front Cover



The Book's Back Cover

<https://www.amazon.com/CUPS-Treatise-Verse-v-l/dp/B0FVSN8XJW>

2. Artwork

Two digital art pieces were produced to promote the idea of reusable cups.

The first design was a play on commercialized biblical personifications of evil and good—devils and angels.

Plastic and waste are evil, so the disposable cups all have red horns and tails. Reuse is good, so the one reusable cup has a golden halo instead.

The next design was a play on Echosmith's song "Cool Kids," a top-10 hit in 2014¹.

The idea of the song is people secretly desire "to be like the cool kids."

Today's cool kids live lavish and wasteful lives filled with disposable stuff.

But if you knew they all used reusable cups, you'd want to use one, too.



First Design: Devils Versus Angel

**THE
COOL
KIDS
ALWAYS
BRING
THEIR
OWN**



ZERO WASTE ZERO WASTE ZERO WASTE

Second Design: "Cool Kids"

¹ Keith Caulfield, "NUMBERS: ECHOSMITH'S "COOL KIDS" CLIMB," Billboard Music News, September 26, 2014, <https://www.billboard.com/music/music-news/numbers-echosmiths-cool-kids-climb-6266384/>

3. Merch

Stickers were printed to share with people on campus.



Shirts were designed, as well.



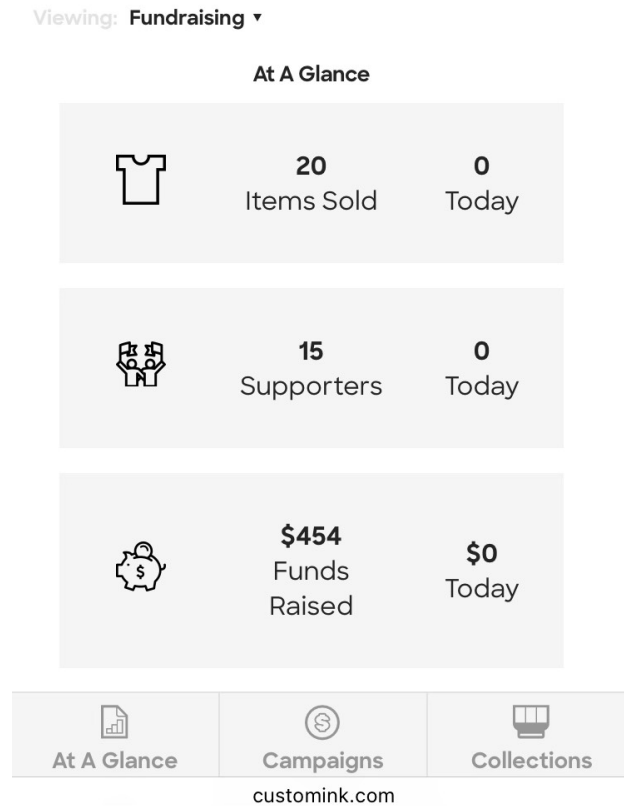
4. Fundraiser

A Custom Ink Fundraiser was used to sell the shirts and raise some money for Boston-area organizations that serve the rivers:

The Mystic River Watershed Association (<https://mysticriver.org>).

The Charles River Watershed Association (<https://www.crwa.org>).

A total of \$454 was donated, half to each organization.



Fundraiser's Final Statistics



November 13, 2025

Victoria Loehle
115 Highland Ave. Apt 18
Somerville, MA 02143

Dear Victoria,

Thank you so much for your generous donation of \$246.60 to the Mystic River Watershed Association! We are so grateful to have your support this year.

With your donation we are working to ensure that everyone in our watershed—no matter where they live—has access to clean water in our rivers, lakes and ponds. Your donation is a lifeline that ensures this work continues, regardless of the decisions made in Washington D.C.

Your gift has a real impact— it will help us open **100 more acres of protected wildlife habitat** at Horn Pond, install **five new constructed wetlands in three communities**, and provide **hands-on programs that engage young people** as active advocates for climate change and stormwater runoff solutions. Together we are protecting the places we love.

If you have any questions or would like to see firsthand the impact of your donation, please feel free to reach out to me at Patrick.Herron@MysticRiver.org or 860-933-0282.

Thank you!

Patrick Herron
Executive Director

The Mystic River Watershed Association has been determined by the Internal Revenue Service to be exempt under Section 501(c)(3) of the Internal Revenue Code as a charitable organization and to be a public charity described by Section 509(a)(2) of the Code. As no goods or services were provided in return for this contribution, your donation was tax-deductible in full.



Thank-You Letter From MyRWA.

5. Freed the Caged Blog Posts

A blog was used to promote the book and reusable cups. Posts are below...

<https://freedthecaged.wordpress.com/2025/08/26/a-musings-on-a-musing/>

This is EXACTLY why Americans are doing so little to slow climate change. We cling to the negativity. We think it's not a real problem (even though it totally is) or it's too big of a problem for one person to make a difference (even though it's really not).

Imagine a future in which the crisis is averted:

The air looks clear and smells clean and feels comfortable. The oceans and rivers and streams, along with their shores, are devoid of litter—from objects as large as shipping containers to debris as small as microplastics. The buildings support fruit and vegetable gardens on their sides, solar panels and rainwater collectors on their roofs. Their dumpsters say “compost” and “recycling”—everything that goes into them gets used again. Their car parks are filled with bicycles. The surrounding streets and sidewalks meander through native trees, shrubs, and wildflowers. Critters and creatures dart between the trunks and leaves. The flora and fauna are regarded as equals to humans, not things we can slaughter at will, but beings we respect and consider as we go.

Imagine yourself existing in this world... Think of which habits you broke and which habits you made to get there. *You* were the change you wished to see in the world. *You* made a difference, and thus *you* helped to heal the planet.

That's the positivity we need to replace the negativity around climate change.

<https://freedthecaged.wordpress.com/2025/08/26/cups/>

an excerpt from the next book I'll self-publish...

*you crave your caffeine
to start your whole day,
to finish your tasks,
to feel more okay...*

you thus lap it up.

*there's no fault in that,
I wish I could say,
but nobody asks
as they throw away...*

what's next for this cup?

*where will it end up
by end of today?
how will our dear Earth,
from then, come to pay?*

choose to reuse!

<https://freedthecaged.wordpress.com/2025/09/20/cups-a-treatise-in-verse/>

My book, CUPS, a treatise in verse, will be released soon!

I want this book to inspire a movement that eliminates cup litter from our streets, parks, and rivers. Everyone can help by replacing disposable to-go cups with reusable (personal) to-go cups—and encouraging others to do the same.

Fun fact: Many coffee shops (except Dunkin') already accept clean personal cups and give a discount to customers who use one. Just ask!

I just started two fundraisers for the Mystic River Watershed Association and the Charles River Watershed Association through Custom Ink. The shirts feature my artwork and a stanza from the book:

Short sleeve shirt (for the MRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups>

Long sleeve shirt (for the CRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

If you like the design, please buy a shirt and spread the word!

TLDR: Stop accepting your drinks in disposable cups. Choose to bring your own clean, reusable cup instead.

<https://freedthecaged.wordpress.com/2025/09/20/the-2nd-law-by-muse/>

Song you need to hear: Unsustainable.

I have a book in progress that illustrates the cups issue, and I just started two fundraisers for the Mystic River Watershed Association and the Charles River Watershed Association through Custom Ink:

– Short sleeve shirt (for the MRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups>

– Long sleeve shirt (for the CRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

Please buy a shirt and spread the word to live sustainably!

<https://freedthecaged.wordpress.com/2025/09/21/passion-projects/>

*both mind and hand race—
homestretch we see the finish!!!
can't rest 'til we're done.*

My manuscript is complete! (I slept really well last night, haha...)

CUPS, a Treatise in Verse, will be released 10 October, 2025!

Print book (full color!) will cost \$10 on Amazon. Ebook will be free from all ebook vendors. (Links to come!)

To support this project, please consider making a donation to the Mystic River Watershed Association or the Charles River Watershed Association. Both organizations do a lot of

amazing work to keep the Boston area's water clean so everyone here can drink, cook, bathe, wash clothes, row, sail, paddle, and windsurf safely.

Short sleeve shirt (for the MRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups>

Long sleeve shirt (for the CRWA): <https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

<https://freedthecaged.wordpress.com/2025/10/13/belated-book-announcement/>

CUPS, a Treatise in Verse, is live:

<https://www.amazon.com/CUPS-Treatise-Verse-v-l/dp/B0FVSN8XJW>

Read to challenge things you've heard.
Wear a shirt to spread the word!

Mystic River Watershed Association Fundraiser Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

Charles River Watershed Association Fundraiser Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8545>

<https://freedthecaged.wordpress.com/2025/10/13/caring/>

*you tell me sharing
is caring; what shall I share?
all I have's my life.*

*though is it living,
to swear that I'd never dare
to risk all I have?*

*you tell me sharing
is caring because it's fair;
all life wants to live.*

*but things now living
are faring ill everywhere...
how long 'til they die?*

*you tell me sharing
is caring—enough can spare
the planet Earth's life.*

and so I share with you my latest work...

<https://www.amazon.com/CUPS-Treatise-Verse-v-l/dp/B0FVSN8XJW>

Mystic River Watershed Association Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

Charles River Watershed Association Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8545>

<https://freedthecaged.wordpress.com/2025/10/15/good-neighbors-dont-litter-they-respect-the-environment/>

*mid-walk, glimpse a cup?
if you're good, you'll pick it up!
the Earth will thank you.*

Read the book to learn what's wrong. Wear the shirt to teach what's right.

<https://www.amazon.com/CUPS-Treatise-Verse-v-l/dp/B0FVSN8XJW>

Charles River Watershed Association Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8776>

Mystic River Watershed Association Shirts:

<https://www.customink.com/fundraising/reduce-river-litter-choose-reusable-cups-8545>

<https://freedthecaged.wordpress.com/2025/12/17/plastic/>

Plastic is the worst, the enemy of all people...

Peer-reviewed scientific research has proven that plastics, *all* plastics, release additives in addition to fragments five millimeters or smaller called “microplastics” into everything they contact. More importantly, peer-reviewed scientific research has proven that microplastics are impacting our health—accumulating in organs (including the brain) and causing gastrointestinal problems, chronic diseases, miscarriages, infertility... The list just goes on. Microplastics are rapidly becoming an existential threat to humanity. The solution? Cut plastic. Choose clothing made with natural fibers. Choose cups, plates, to-go containers, and utensils made from glass or ceramic or metal or bamboo. Choose sponges made from coconut husks. And tell your lawmakers to ban all plastics.

<https://pirg.org/take-action/tell-trader-joes-cut-out-unnecessary-plastic/>

<https://pirg.org/take-action/tell-amazon-reduce-plastic-packaging/>

<https://pirg.org/take-action/tell-your-u-s-house-representative-support-the-microplastic-safety-act/>

SOURCES:

“Microplastics — plastic fragments up to 5 millimeters long — are inescapable. An estimated 10 to 40 million metric tons of these particles are released into the environment every year, and if current trends continue, that number could double by 2040.” (1)

Desiree LaBeaud, MD, a pediatric infectious diseases physician at Stanford Medicine, warns, **“All of us need to stop using plastic as much as we can to protect our health.”** (1)

1. Katia Savchuk, “Microplastics and Our Health: What the Science Says,” Stanford Medicine News Center, January 29, 2025, <https://med.stanford.edu/news/insights/2025/01/microplastics-in-body-polluted-tiny-plastic-fragments.html>.
2. John N. Hahladakis, Costas A. Velis, Roland Weber, Eleni Iacovidou, Phil Purnell, **An overview of chemical additives present in plastics: Migration, release, fate and environmental impact during their use, disposal and recycling**, *Journal of Hazardous Materials*, Volume 344, 2018, Pages 179-199, ISSN 0304-3894, <https://>

- doi.org/10.1016/j.jhazmat.2017.10.014. (<https://www.sciencedirect.com/science/article/pii/S030438941730763X>)
3. Ekta B. Jadhav, Mahipal Singh Sankhla, Rouf Ahmad Bhat, D.S. Bhagat, **Microplastics from food packaging: An overview of human consumption**, health threats, and alternative solutions, *Environmental Nanotechnology, Monitoring & Management*, Volume 16, 2021, 100608, ISSN 2215-1532, <https://doi.org/10.1016/j.enmm.2021.100608>. (<https://www.sciencedirect.com/science/article/pii/S2215153221001835>)
 4. Thomas Horvatits, Matthias Tamminga, Beibei Liu, Marcial Sebode, Antonella Carambia, Lutz Fischer, Klaus Püschel, Samuel Huber, Elke Kerstin Fischer, **Microplastics detected in cirrhotic liver tissue**, *eBioMedicine*, Volume 82, 2022, 104147, ISSN 2352-3964, <https://doi.org/10.1016/j.ebiom.2022.104147>. (<https://www.sciencedirect.com/science/article/pii/S2352396422003280>)
 5. Siyuan Bu, Yuhan Xu, Yuwen Fu, Yijing Guo, Di Wu, Yuan Zhang, Jian Xie, Qualitative and quantitative analysis of microplastics and nanoplastics in healthy human central nervous system and its blood-brain barrier transmission efficiency-A pilot study, *Environmental Pollution*, Volume 388, 2026, 127392, ISSN 0269-7491, <https://doi.org/10.1016/j.envpol.2025.127392>. (<https://www.sciencedirect.com/science/article/pii/S026974912501766X>)
 6. Ieshita Pan, Suganiya Umapathy, **Probiotics an emerging therapeutic approach towards gut-brain-axis oriented chronic health issues induced by microplastics: A comprehensive review**, *Heliyon*, Volume 10, Issue 11, 2024, e32004, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2024.e32004>. (<https://www.sciencedirect.com/science/article/pii/S2405844024080356>)
 7. Sarah Sajedi, Chunjiang An, Zhi Chen, **Unveiling the hidden chronic health risks of nano- and microplastics in single-use plastic water bottles: A review**, *Journal of Hazardous Materials*, Volume 495, 2025, 138948, ISSN 0304-3894, <https://doi.org/10.1016/j.jhazmat.2025.138948>. (<https://www.sciencedirect.com/science/article/pii/S0304389425018643>)
 8. Peixin Wang, Guangxiao Li, Huafeng Shou, Xiaona Huang, Hubin Xu, Songying Zhang, Haiyan Zhu, **Microplastic abundance in placental chorionic villi detected by pyrolysis-gas chromatography/mass spectrometry in cases of spontaneous miscarriage during early pregnancy**, *eBioMedicine*, Volume 120, 2025, 105918, ISSN 2352-3964, <https://doi.org/10.1016/j.ebiom.2025.105918>. (<https://www.sciencedirect.com/science/article/pii/S2352396425003627>)
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 10. Mohd Fazal Ur Rehman, Mohammad Muaz Khan, Mohammad Mansoob Khan, **Impact of microplastics and nanoplastics on human health: Mechanistic insights and exposure pathways**, *Toxicology Letters*, Volume 414, 2025, 111769, ISSN 0378-4274, <https://doi.org/10.1016/j.toxlet.2025.111769>. (<https://www.sciencedirect.com/science/article/pii/S0378427425027158>)

Lessons

we say, “throw it out.”
do we wonder, “where’s it go?”
or “why’s it exist?”

Consumerism

Consumerism -> waste.²

Companies want us all to constantly replace old with new; that’s how they sell enough product to make a profit nowadays.

e.g., Apple. Microsoft. “Big Tech.”

Obsolescence is inherent in electronics

by *design*...

Everyday devices are *made* to self-destruct when the warrant expires.

Some companies even want us to throw their products away after **1** use.

Drink bottles? Food packages? To-go cups, containers, and utensils? Straws?
Disposability is their selling point, our requirement.

Notice how they are all made of plastic.

Nowadays, the fossil fuels industry is under fire because of climate change. (Because the climate has changed.) Its excuse to continue production, unabated isn’t energy... We’ve got renewables for that—powering a host of countries in full.³
Its excuse is plastic...

Plastics Production Problems

By 2030, the plastic industry will be contributing more to global climate change than dirty coal.⁴

The plastic we know is derived from fossil fuels: natural gas, oil, and coal...

² Sustainability Directory, “How Does Consumerism Affect Waste Generation?,” Sustainability Directory, November 26, 2025, <https://pollution.sustainability-directory.com/question/how-does-consumerism-affect-waste-generation/>.

³ “Albania, Bhutan, Nepal, Paraguay, Iceland, Ethiopia, and the Democratic Republic of the Congo generate 100% renewable energy.”

Jeremy Vickerman, “Renewable success stories: the countries with 100% renewable generation,” RatedPower, a part of Enverus, October 29, 2024, <https://ratedpower.com/blog/renewable-success-stories/>.

⁴ Jim Vallette, report, edited by Megan Wolff, Judith Enck, Caroline Pryor, Andre Carothers, Jennifer Congdon, Eve Fox, Alexis Goldsmith, and Lane Epps, *The New Coal: Plastics & Climate Change* (Bennington, Vermont: Beyond Plastics at Bennington College, October 2021). https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/616ef29221985319611a64e0/1634661022294/REPORT_The_New-Coal_Plastics_and_Climate-Change_10-21-2021.pdf

These substances are responsible for tons of greenhouse gas emissions—throughout their lifecycle, from discovery to combustion. Moreover, their recovery operations—fracking and mining—result in irreversible environmental harm.

The plastics production process only releases more pollutants....

Plastic doesn't work without additives.

These are chemicals that give plastics their attributes: color, stiffness or flexibility, UV resistance...

They serve as fungicides, bactericides, fragrances, fire-retardants...

What are additives made of? Typically P-F-A-S, toxic forever chemicals.

(Safe for coffee? Maybe not.)

The Organisation for Economic Cooperation and Development, or OECD, has projected that, without policy changes, the following could happen by 2060:⁵

- Global usage of plastic triples.
- Global tonnage of plastic waste triples, with 50% still being landfilled, 18% being incinerated, and just 17% being recycled.
- Global tonnage of plastic accumulated in aquatic environments—streams, rivers, lakes, seas, oceans—more than triples.
- Greenhouse gas emissions from plastics, from production to disposal and disintegration, more than doubles.

This prediction isn't a prophecy; we can avoid it by choosing non-plastic, reusable *stuff*.

For example, cups.

⁵ Organisation for Economic Cooperation and Development, *Global Plastics Outlook: Policy Scenarios to 2060*, OECD Publishing, Paris, 2022, <https://doi.org/10.1787/aa1edf33-en>.

Plastics Use Problems

During use, plastics release additives like BPA, in addition to microplastics.⁶ These releases are even worse when the plastics are heated.⁷ The additives and microplastics are hazardous to health, causing cancer, even resulting in miscarriages and infertility.⁸

Thus, a reusable cup made of metal does more than keep fluid hot; that cup prolongs its user's life.

Plastics Disposal Problems

After use, plastics degrade, continuing to release additives and microplastics... in addition to methane, a greenhouse gas significantly more potent than carbon dioxide.⁹

Recycling is really *not* solution; it never was.¹⁰

(Despite its name, “chemical recycling” is just incineration in a reputable waste-to-energy facility. It squanders energy, increases air pollution, and doesn't do anything to decrease plastic production. It doesn't count as recycling.)

⁶ John N. Hahladakis, Costas A. Velis, Roland Weber, Eleni Iacovidou, Phil Purnell, An overview of chemical additives present in plastics: Migration, release, fate and environmental impact during their use, disposal and recycling, *Journal of Hazardous Materials*, Volume 344, 2018, Pages 179-199, ISSN 0304-3894, <https://doi.org/10.1016/j.jhazmat.2017.10.014>.

Kazi Albab Hussain, Svetlana Romanova, Ilhami Okur, Dong Zhang, Jesse Kuebler, Xi Huang, Bing Wang, Lucia Fernandez-Ballester, Yongfeng Lu, Mathias Schubert, and Yusong Li, Assessing the Release of Microplastics and Nanoplastics from Plastic Containers and Reusable Food Pouches: Implications for Human Health, *Environmental Science & Technology* 57 (26), 9782-9792 (2023), <https://doi.org/10.1021/acs.est.3c01942>.

Ekta B. Jadhav, Mahipal Singh Sankhla, Rouf Ahmad Bhat, D.S. Bhagat, Microplastics from food packaging: An overview of human consumption, health threats, and alternative solutions, *Environmental Nanotechnology, Monitoring & Management*, Volume 16, 2021, 100608, ISSN 2215-1532, <https://doi.org/10.1016/j.enmm.2021.100608>.

⁷ Dunzhu Li, Yunhong Shi, Luming Yang, Liwen Xiao, Daniel K. Kehoe, Yurii K. Gun'ko, John J. Boland, and Jing Jing Wang, Microplastic release from the degradation of polypropylene feeding bottles during infant formula preparation, *Nature Food* 1, 746–754 (2020), <https://doi.org/10.1038/s43016-020-00171-y>

⁸ Sarah Sajedi, Chunjiang An, Zhi Chen, Unveiling the hidden chronic health risks of nano- and microplastics in single-use plastic water bottles: A review, *Journal of Hazardous Materials*, Volume 495, 2025, 138948, ISSN 0304-3894, <https://doi.org/10.1016/j.jhazmat.2025.138948>.

Peixin Wang, Guangxiao Li, Huafeng Shou, Xiaona Huang, Hubin Xu, Songying Zhang, Haiyan Zhu, Microplastic abundance in placental chorionic villi detected by pyrolysis-gas chromatography/mass spectrometry in cases of spontaneous miscarriage during early pregnancy, *eBioMedicine*, Volume 120, 2025, 105918, ISSN 2352-3964, <https://doi.org/10.1016/j.ebiom.2025.105918>.)

Bogdan Doroftei, Alexandra Savuca, Ana-Maria Cretu, Radu Maftai, Nicoleta Anton, Ciprian Ilea, Mara Doroftei, Bogdan Puha, Microplastics and human fertility: A comprehensive review of their presence in human samples and reproductive implication, *Ecotoxicology and Environmental Safety*, Volume 303, 2025, 118939, ISSN 0147-6513, <https://doi.org/10.1016/j.ecoenv.2025.118939>.

⁹ Jim Vallette, report, edited by Megan Wolff, Judith Enck, Caroline Pryor, Andre Carothers, Jennifer Congdon, Eve Fox, Alexis Goldsmith, and Lane Epps, *The New Coal: Plastics & Climate Change* (Bennington, Vermont: Beyond Plastics at Bennington College, October 2021). https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/616ef29221985319611a64e0/1634661022294/REPORT_The_New-Coal_Plastics_and_Climate-Change_10-21-2021.pdf

¹⁰ Davis Allen, Chelsea Linsley, Naomi Spoelman, and Alyssa Johl, *The Fraud of Plastic Recycling: How Big Oil and the plastics industry deceived the public for decades and caused the plastic waste crisis*, Center for Climate Integrity, February 2024, <https://climateintegrity.org/uploads/media/Fraud-of-Plastic-Recycling-2024.pdf>.

Per the FTC's Green Guides, most plastics aren't even recyclable.¹¹

In the U. S.:¹²

4% of plastic is recycled.

The fossil fuels industry only profits from virgin (primary) plastic, not post-consumer recycled (secondary) plastic. Why? "Making new plastic is relatively cheap. But recycling generally costs as much as or more than the material is worth."¹³

73% of plastic is landfilled.

Many landfills allow microplastics and additives to leach into groundwater and contaminate the environment.

19% of plastic is incinerated.

Incinerators fill the air we breathe with microplastics and other toxic pollutants.

4% of plastic is mismanaged.

Litter pollutes our streets, storm drains, and rivers.

Litter contaminates our oceans with microplastics and degrades shores throughout the globe.

Worse, litter kills.¹⁴

Research shows microplastics now contaminate the air we breathe, the tap water we drink, and the plants and animals we eat.¹⁵

Scientists say we ingest a credit card's worth of them every week.¹⁶

It's honestly no wonder our health is suffering...

The simple solution? Stop using plastic.

How?

- Start bringing your own metal or glass reusable cup.
- Use glass containers to store leftovers.
- Buy produce that isn't wrapped up.
- Wear clothing made with natural fibers.
- Clean dishes, etc., with sponges made from coconut husks.

Even in this age of plastic, we can make a difference one eco-swap at a time.

¹¹ A product is recyclable if recycling facilities that accept it are available to at least 60% of consumers or communities where the product it's sold...

Federal Trade Commission, "Guides for the Use of Environmental Marketing Claims - 16 CFR Part 260," Federal Register, Vol. 77, No. 197, October 11, 2012, https://www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-use-environmental-marketing-claims-green-guides/greenguidesfrn.pdf.

¹² Organisation for Economic Cooperation and Development, *Global Plastics Outlook: Policy Scenarios to 2060*, OECD Publishing, Paris, 2022, <https://doi.org/10.1787/aa1edf33-en>.

¹³ Michael Copley, "Reduce, reuse, redirect outrage: How plastic-makers used recycling as a fig leaf," npr, February 15, 2025, <https://www.npr.org/2024/02/15/1231690415/plastic-recycling-waste-oil-fossil-fuels-climate-change>.

¹⁴ Bethanie Carney Almroth, Alice Carle, Marion Blanchard, Francesca Molinari, Agathe Bour, Single-use take-away cups of paper are as toxic to aquatic midge larvae as plastic cups, *Environmental Pollution*, Volume 330, 2023, 121836, ISSN 0269-7491, <https://doi.org/10.1016/j.envpol.2023.121836>.

¹⁵ Robert W. Adler and Carina E. Wells, "Plastics and the Limits of U.S. Environmental Law," *Harvard Environmental Law Review* 47 (2023). <https://journals.law.harvard.edu/elr/wp-content/uploads/sites/79/2023/04/HELR-Vol.-47.1-AdlerWells.pdf>

¹⁶ Katia Savchuk, "Microplastics and Our Health: What the Science Says," Stanford Medicine News Center, January 29, 2025, <https://med.stanford.edu/news/insights/2025/01/microplastics-in-body-polluted-tiny-plastic-fragments.html>

The Zero-Waste Plan...

What if nothing
were considered waste?

- The side of a WM truck

The definition of zero waste is:

*The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.*¹⁷

The switch from disposable to reusable cups helps to achieve this vision.

The motivation for zero waste is:

Firstly, waste is horribly, irreparably damaging to the environment. It drains our limited supply of natural resources for nothing—

People get nothing but harm from our excess of waste.

Secondly, it keeps our landfills and incinerators in operation.

*Landfills and incinerators will never solve the waste crisis. They only make it worse by damaging our climate, polluting our water, poisoning our air, and disproportionately burdening the communities forced to live near these toxic facilities.*¹⁸

In theory, landfills and incinerators needn't exist.

According to the Second Law of Thermodynamics, yes, “waste” is inevitable—entropy *must* increase. But waste products needn't be *useless*, like singly-used coffee cups. Natural waste products (e.g., feces) can help to form and enrich soil, improving plant health (and, resultantly, carbon sequestration). So, “disposable” items should be compostable, not plastic.

Thirdly, less waste, more savings.

Waste costs money but doesn't help profits. The less we waste, the less we spend, the more we pocket for keeps...

Why *wouldn't* we choose zero-waste?

¹⁷ Zero Waste International Alliance, “Zero Waste Definition,” ZWIA.org, December 20, 2018, <https://zwia.org/zero-waste-definition/>.

¹⁸ Kevin Budris, “The False Choice Standing in the Way of Zero Waste,” Just-Zero.org, July 31, 2023, <https://just-zero.org/our-stories/explainer/false-choice-in-the-way-of-zero-waste/>.

Solutions

To change everything, we need everyone.

Cut Waste: Pledge To Reuse

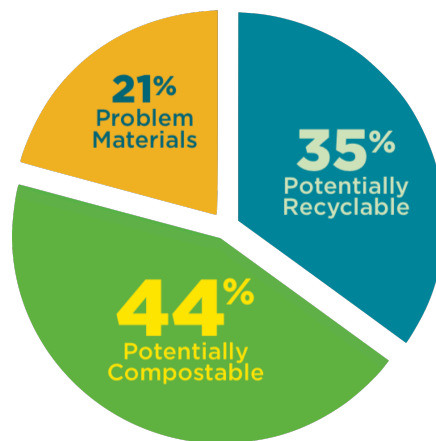
You must *be*
the change you wish to see.

- Gandhi

According to leading ethics research, moral integrity is defined as “congruence between one’s actions and positions at the personal and political levels” or “consistent expression of one’s commitments at the personal and political level.”¹⁹ This concept essentially implies that everyone has a “personal obligation to control [their] own emissions” and a “broad responsibility to promote good social decisions.”²⁰ We can’t do nothing about plastic. We are *obligated* to act.

To make it easy, start local:

BU has a goal to achieve carbon neutrality, which includes zero waste, by 2040. According to research by Stanford, “problem materials” account for 21% of all the materials we dispose of in trash bins, thus landfills and incinerators.²¹



The Typical Composition of
Trash

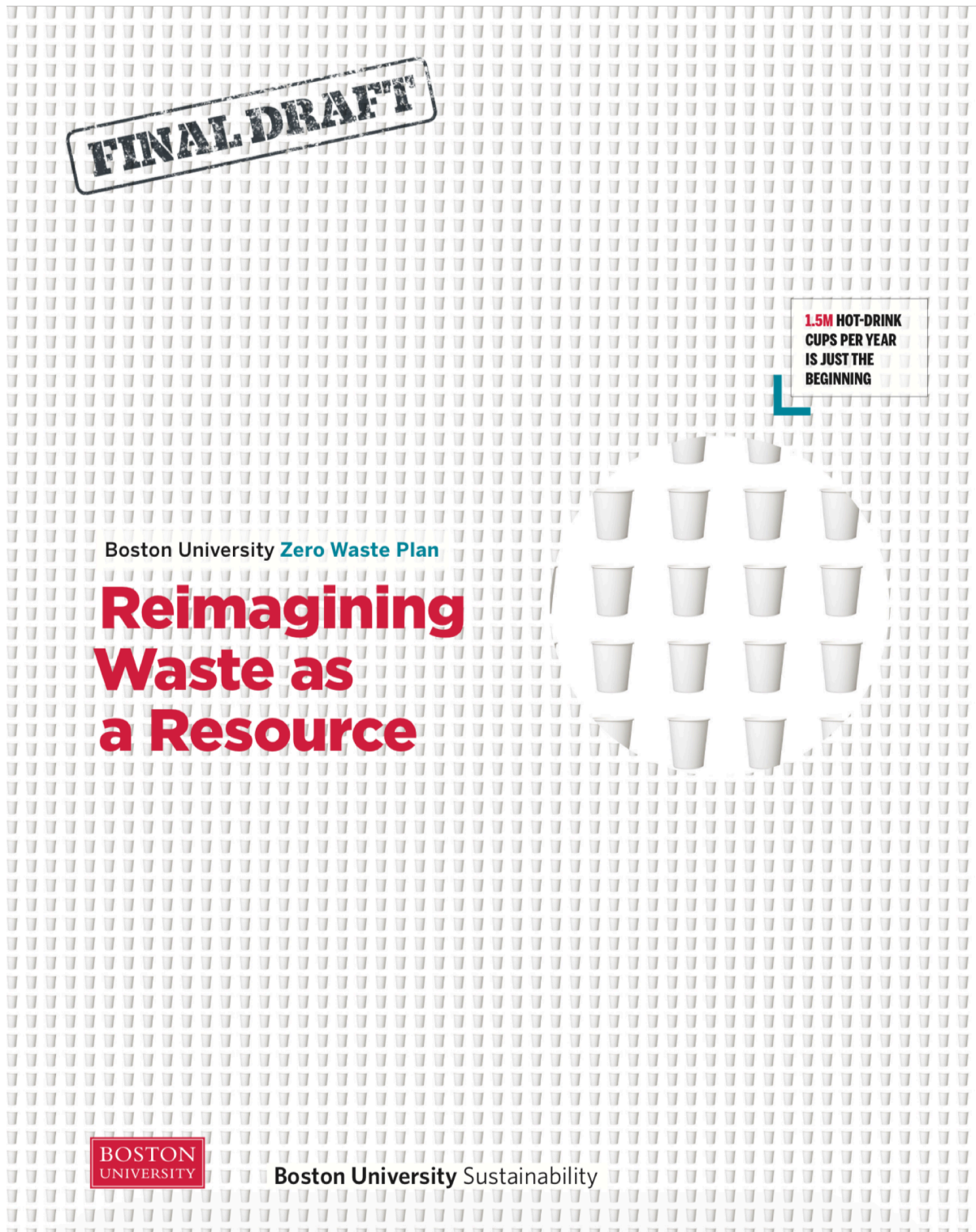
To keep it easy, start small:

¹⁹ Marion Hourdequin, Climate, Collective Action and Individual Ethical Obligations, Environmental Values, Volume 19, 2010, Pages 443-465, DOI: 10.3197/096327110X531552.

²⁰ *Ibid.*

²¹ Boston University Sustainability, *Boston University Zero-Waste Plan: Reimagining Waste as a Resource*, Boston University, March 3, 2021, <https://www.bu.edu/sustainability/files/2021/03/BU-Zero-Waste-Plan-web.pdf>.

According to BU's zero-waste plan, "single-use non-compostable coffee cups" are problem materials. So big a problem, with so simple a solution, they cover our zero-waste plan's cover.



A Cover Covered In Cups

How might the fraction of problem materials change if everyone used reusable **cups**? We all can pledge to find out.

BU Sustainability Pledge With Purpose:
<https://mailchi.mp/bu.edu/pledge-with-purpose>

I pledge to actively participate in advancing Boston University's Zero Waste Plan. By taking this pledge, I commit to:

1. Reuse and Rehydrate: I pledge to carry a reusable water bottle and not buy disposable water bottles.
2. 'Choose to Reuse': When ordering to-go, I commit to participating in the "Choose to Reuse" program. When not available, I will bring reusable containers.
3. Recycle Right: I will clean food containers before placing them in the appropriate bin to eliminate contamination.

BU Dining's Choose to Reuse Container Program:
<https://www.bu.edu/dining/choose-to-reuse/>

Clean Water Action “Rethink Disposable” Pledge:



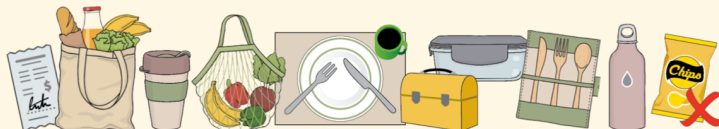
TAKE THE RETHINK DISPOSABLE PLEDGE

Check out the 11 personal actions you can take to commit to reducing single-use plastic trash: cleanwater.org/rethink-pledge

- ✓ Get an electronic copy of your receipt
- ✓ Bring your own shopping bag
- ✓ Bring your own cup
- ✓ Reduce the use of plastic bags for produce and bulk items
- ✓ Cut carry-out: Slow down and dine in
- ✓ Pack a waste-free lunch
- ✓ Bring your own food containers and utensils
- ✓ Carry a reusable water bottle
- ✓ Avoid heavily packaged foods
- ✓ Share tips with friends
- ✓ Nominate a business, organization, school or event to become a ReThink Disposable partner!

cleanwater.org/ReThinkDisposable

 Save Operating Costs  Reduce Waste  Improve Food Service



Spread The Pledge

Encourage your go-to café to implement a reusable cup program. If they already have one, encourage them to talk it up at the register. (If people don't know about it, it might as well not exist.)

Sustainable café example:

<https://www.ixvcoffee.com>

Encourage your go-to restaurant to implement a reusable container program. (These programs are not just for big universities; they work well with food chains, too.)

Reusable container program example:

<https://www.usefull.us>

Support New Policies

Petition your government, city and state, to ban single-use plastics.

Moreover, petition your state government to regulate plastics as water pollutants.

Petition your federal representatives to challenge Food and Drug Administration (FDA) regulations on plastic.

Microplastics are hazardous to people's health; therefore, plastic shouldn't be allowed to contact food. Until FDA comes to agree, we'll continue being poisoned by packaging.

Relevant legislative toolkits:

<https://just-zero.org/single-use-plastic-legislative-toolkit/>

<https://just-zero.org/beverage-container-legislative-toolkit/>

<https://just-zero.org/packaging-waste-legislative-toolkit/>

<https://just-zero.org/greenwashing-legislative-toolkit/>

Contacts

Thank you to everyone who contributed to this project!

Just-Zero

Mission: Advance Zero Waste solutions that put people and planet first.

Point of Contact: Kirstie Pecci kpecci@just-zero.org

Contribution: Kirstie provided the following valuable feedback on “cups”:

“One suggestion... [is] to lean more into the human and environmental impacts when plastic is littered or sent to a landfill or incinerator. [“cups”] doesn’t really touch on that, and I imagine most people won’t know the true cost.”

This comment inspired a wave of research into plastic’s lifecycle...

More Info: <https://just-zero.org>

BU Dining - Sustainability

Mission: Be good to your taste buds and good to your planet.

Point of Contact: Lexie Raczka araczka@bu.edu

Contribution: Lexie attended the Reasonable Expectations event on December 8th, presenting on Choose to Reuse, the reusable container program at BU. This program is piloting a reusable cup option at Saxby’s now. Try it out!

More Info: <https://www.bu.edu/dining/sustainability/>

Clean Water Action

Mission: Protect clean water to protect us all.

Point of Contact: Amber Schmidt aschmidt@cleanwater.org

Contribution: Amber attended the Reasonable Expectations event on December 8th, presenting on ReThink Disposable and zero-waste achievements made throughout New England. ReThink Disposable has helped a school lunch program, a soup kitchen, a restaurant chain, and several road races cut waste *and* costs—win-win.

More Info: <https://cleanwater.org/campaign/rethink-disposable>

Mystic River Watershed Association (MyRWA)

Mission: *Together for the Mystic River.*

Point of Contact: Sushant Bajracharya sushant.bajracharya@mysticriver.org

Contribution: Sushant attended the Reasonable Expectations event on December 8th, presenting on Trash Free Mystic. He highlighted single-use plastic pollution as a major problem: Plastic is everywhere, very difficult to clean up (particularly after disintegrates into microplastics). However, plastic isn’t considered a water pollutant in any state or federal laws, so plastic levels aren’t regulated, and clean up efforts aren’t funded.

More Info: <https://mysticriver.org/trashfree-mystic>

Work To Come

DON'T
QUIT

Experiments In Communication

Which art forms make people take pause, re-think?

Which stories keep people reading?

Which messages spur people to change their habits and behaviors most?

The Devil You Know

A choose-your-own-adventure story.

Possibly a mystery. (The culprit is plastic.)

TBD

A poetry chapbook about...

TBD.

("cups" was not the only poem written to support this project...)