

Hawaii Plastic Reduction Advocacy Toolkit
Last Updated August 2018

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Background

This document was started by Sacha Lin in August 2018 while she worked as an intern with the Kokua Hawaii Foundation under Doorae Shin, the program supervisor for Plastic Free Hawaii. While most of what's written right now centers around advocacy for a polystyrene ban on Oahu, the hope is that this document will be expanded to cover all different aspects of plastic reduction efforts.

The section on polystyrene is the product of interviews and emails with the individuals listed below:

Genevieve Abedon (Ecoconsult)

Lauren Blickley (Swell Consulting)

Craig Cadwallader (Surfrider Foundation: South Bay Chapter)

Stuart Coleman (Surfrider Foundation)

Elizabeth Elkjer (Sustainable Island Products)

Graham Hamilton (Surfrider Foundation: Los Angeles Chapter)

Megan Lamson (Hawaii Wildlife Fund)

Jennifer Milhoen (Kokua Hawaii Foundation)

Ari Patz (Sustainable Island Products)

Sarah Rafferty (Hawaii Island)

Samantha Sommer (Clean Water Action: Rethink Disposable)

General Resources

Resources followed by a number in parentheses can be found in the Resources Folder. Resources in blue are hyperlinked to their location on the web.

- Consumer Attitudes Survey (1)
- [5 Gyres Institute](#)
 - Better Alternatives Now List 2.0 (2)
- GAIA / Zero Waste Europe: "Recycling Is Not Enough" (3)
 - This document explains why the most effective solution to the plastic pollution problem is simply to make produce less plastic.
- [Plastic Pollution Coalition](#)
 - Global Plastic Reduction Toolkit
 - Doorae Shin contacted Sandra Curtis from the Plastic Pollution Coalition in July 2018 to check on the status of this resource. She learned that the toolkit wasn't yet ready and was so far focused primarily on plastic bags.
- Marine Debris Listserv
 - International listserv for advocates.

For a Polystyrene Ban

Arguments in Favor

Data to support these arguments might be found in the Resources Section.

1. **Continued Harm of Single-Use Plastics on the Environment:** Both locally and globally. In Maui, beaches have experienced an increase in plastic pollution even though litter laws have been on the books for over 40 years.
2. **Plastic Pollution Cleanup Costs the Government:** See the resources listed under the section titled “Economic Benefits to the Government.”
3. **Left Unchecked, Plastic Pollution Poses a Threat to the Tourism Industry**
4. **The Most Littered and Least Recycled Plastic**
5. **Detrimental to Worker Health**
6. **Polystyrene Bans Are Tried and True:** As of August 2018, California has already adopted 117 polystyrene food service ware bans at the city or county level. For a complete list, see the resources section.
7. **Compostables Can Work for Small Businesses:** Sustainable Island Products works with a wide variety of over 400 businesses and have observed firsthand the growth of small businesses that use compostable products and have increased their order sizes over time. Sustainable Island Products sells by the pack and by the case because they want businesses of all sizes to be able to use them. Not only do they offer volume discounts, but they offer all customers a five percent first-time order discount to help alleviate potential stress from making the switch to compostables.
8. **Making the Switch Doesn’t Have to Hurt the Bottom Line:** Restaurants can require a 25 or 50 cent additional charge for take-out food or fold the costs into menu prices. They can even view the switch as a positive marketing opportunity to attract a few more customers. The important thing to remember is that restaurants have options and deal with price fluctuations all the time.
9. **Real Cost of Compostables:** A contact from Sustainable Island Products said that she has come across numerous instances where compostable products were not actually more expensive than other products, and in some instances, were in fact cheaper. (Lauren Blickley, meanwhile, said that in the case that a compostable product *is* more expensive, the price difference can range from 10 to 25 cents.) While compostable products *were* quite expensive when they first came out, prices have since come down. The contact believes that many of the perceptions about the unaffordability of compostable products are preconceived notions, based on past prices of compostables rather than current ones.
10. **Lack of Exemptions Granted:** A contact from the South Bay Chapter of the Surfrider Foundation said that he is unaware of any exemptions that have been granted on grounds of undue hardships and believe that this is evidence that the fears of serious business impacts have been greatly overstated by industry sources. In July 2018, he said that he did not know of any

exemptions that have been granted among the 116 cities or counties in California that have passed a polystyrene food service ware ban, nor was he aware of any real world example of a business that has failed due to adoption of polystyrene ban requirements. The Surfrider contact mentioned that the San Francisco City/County may have been approached by three businesses, none of which were restaurants, who initially sought to obtain exemptions, but ultimately retracted their requests after officials worked with them on alternatives.

11. Despite Drawbacks, Alternatives Are Still Better: Alternatives to polystyrene products may have negative environmental impacts, but these are still significantly less than those of polystyrene. They can even be worse by some measures, but better by others. For example, while some compostable products might be worse in terms of carbon footprint (this is not something I have confirmed), they are definitely better in terms of toxicity and time to degrade.

Arguments by the Opposition and Our Responses

The arguments in opposition to a foam ban were compiled from testimonies for SB 2498 and arguments presented by [Go Foam Hawaii](#). All responses are based on an interview with Jennifer Milhoen, unless noted otherwise.

Myth 1: The production and consumption of polystyrene is safe.

Opposition’s Argument	Our Response
Styrene should not be a concern because it occurs naturally in common foods and beverages.	The styrene in food and the styrene used in manufacturing interact with the body in different ways. The quantity of styrene in food versus in manufactured products is also not the same.
The FDA, Health Canada, and Environment Canada designate styrene as “non-toxic.” They report that styrene “does not constitute a danger to human life and health” and “does not constitute a danger to the environment on which human life depends.”	The designation by the FDA hasn’t been revisited since its initial approval in 1995. More recently, the National Toxicology Program of the US Department of Health and Human Services listed styrene as “reasonably anticipated to be a human carcinogen.” It’s also worth considering that the EPA ranks polystyrene manufacturing as the fifth worst global industry in terms of <i>hazardous waste</i> creation.

Polystyrene is not the same as styrene. Therefore, any supposed harmful effects of styrene cannot be automatically associated with polystyrene consumption.	It is true that polystyrene is not the same as styrene. However, that doesn't mean that the two aren't related. Styrene is a chemical that leaches out of polystyrene products.
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Myth 2: Polystyrene is more environmentally-friendly than its alternatives.

Opposition's Argument	Our Response
Because foam products are locally produced, they have a smaller carbon footprint than imported alternatives.	Only KYD's polystyrene products are locally manufactured, and not all of the polystyrene used on Oahu is made by KYD. Moreover, the <i>base product</i> that KYD uses to make its styrofoam is imported, not locally produced.
Polystyrene cups weigh anywhere from two to five times less than comparable paper products, which means less carbon emissions from transport.	While alternatives like certified compostable clamshells may weigh more, they stack twice as tightly as foam in a shipping container. In that sense, the transport-related carbon emissions for alternatives aren't necessarily higher than they are for polystyrene products.
Studies conducted for Seattle Public Utilities (SPU) showed that banning polystyrene foam food take-out containers would dramatically increase environmental impacts due to the doubled quantities of greenhouse gas emissions, energy use, and waste associated with the use of alternative products. Relative to the production of other types of food service containers, the production of polystyrene containers is very efficient in minimizing air emissions, energy consumption, and waterborne waste.	This may be true for some alternative products, but it is not true across the board. The amount of carbon emitted, energy consumed, and waste produced depends on the product. Many products actually require <i>less</i> energy and water to produce. For example, while the environmental impact of PLA products can be quite high, making bagasse containers utilizes the waste from the production process of other products.
Many biodegradable options are produced in China where labor, quality, and environmental standards are known to be well below the standards in Oahu.	That's true, but the same is true for a lot of other markets as well. On Oahu, World Centric and Sustainable Island Products are two distributors of certified compostable products with high standards.

Compostable alternatives have considerable drawbacks that have not been well-publicized.	It depends on the product. Not all compostable products have considerable drawbacks.
Recycling rates of polystyrene are increasing.	This may be true, but the fact remains that the lightweight and bulky nature of EPS makes it extremely difficult to recycle. Polystyrene has also been banned from many recycling programs due to issues of contamination.
Operations at H-POWER benefit from the high BTU value of polystyrene.	By <i>mass</i> , the BTU value of polystyrene is quite high. In other words, you can produce a lot of energy when you burn it in sizable quantities. However, the mass of your typical EPS container is extremely small. Because of this, burning EPS containers doesn't actually produce much energy. By <i>volume</i> , burning a plant fiber like bagasse produces nearly twice as much energy as burning polystyrene. Additionally, the ash from burning bagasse is much less toxic.

Myth 3: A polystyrene ban will cause undue harm to the local economy.

Opposition's Argument	Our Response
A polystyrene foam ban could cost some of Hawaii restaurant owners up to tens of thousands of dollars per year.	Costs for businesses will increase, but the amount will be far more manageable than tens of thousands of dollars. This statement likely assumes that alternatives will cost 25 cents more per container, when in reality, they are rarely that high. Through distributors, alternatives probably cost between 5 and 10 cents more, though again, this depends on the size and quality of the container. There are even cases in which compostables are the same price as styrofoam or plastic, if not cheaper. In any case, there are ways that restaurants can mitigate increased costs. For example, marketing that they have "gone green" to bring in a few more

	customers.
Food-grade polystyrene containers are generally two to three times less expensive than disposable paperboard products and reusable foodservice items.	This could be true, but the actual difference may just be a few cents per product.
The safety and performance of cost-competitive and alternative materials cannot meet the needs of many small businesses. Polystyrene products are sturdy and keep food hot or cold.	Not true across the board. It may be true of some alternative products, but certainly not all of them. It's possible that there are a handful of specialty products that do not match the performance of their foam counterparts, but even so, the restaurants that depend on these could apply for an exemption.
Manufactured in Hawaii by a family-run business, foam supports the local economy. A ban could mean the elimination of hundreds of Kalihi jobs.	A gross exaggeration. At the last hearing, it was revealed that only 12 people work directly in foam manufacturing at KYD. Regarding the loss of foam distribution jobs at KYD, it should be noted that the company already distributes alternative products.

Myth 4: A ban will not help solve our environmental problems.

Opposition's Argument	Our Response
A ban on styrofoam will not solve the litter problem because it will only change the type of material being littered. Moreover, the amount of polystyrene foam food service that makes up litter is very small, measured at 1.5 percent of the overall litter stream in surveys conducted in the US and Canada. Instead of a ban, we should focus on litter control programs and education.	People who intentionally litter is a small part of the plastic pollution problem. Litter is also created when trash flies out of garbage cans and trucks. Therefore, styrofoam products, being much lighter than compostable alternatives, are more likely to become litter. With respect to the litter stream surveys, these should not be taken as accurate measures of the amount of polystyrene in the environment. Styrofoam fractures very quickly, so it is often not found in collection studies.

<p>Whether restaurants use polystyrene or compostable products makes little difference in terms of environmental benefits because both materials will meet the same end under our current waste system. Without commercial composting facilities available on the island, the environmental benefits of compostable products are negligible.</p>	<p>Contrary to what the opposition claims, there are downstream environmental benefits to using compostable products. They are less likely to enter the environment due to their weight, and when they are burned, the ash that is produced is less toxic. If they <i>do</i> enter the aquatic environment, they take much less time to degrade than plastic. This argument also completely ignores the <i>upstream</i> benefits of using compostable products. By the time that a high-quality compostable product reaches the consumer, both people and the environment have benefited from better worker safety and lower levels of water and energy consumption.</p>
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Best Practices for Polystyrene Ban Advocacy

1. **Form a core group** of six to eight people from diverse backgrounds who can really stick with it and be persistent. Make sure that it includes someone who can communicate with the legislative body.
2. Demonstrate **public support** for the bill.
 - a. **Make it easy for people to write testimonies** so that you can get as many people to send in testimonies as possible. The sheer number of testimonies were key in the foam ban effort on the Big Island.
 - b. **Obtain testimonies from as many different sources as possible:** business owners, scientists, non-profits, keiki, kupuna, the tourism industry, and any other industries whose revenue depends on a clean and healthy ocean. Sarah Rafferty said that knows some dive operators on Oahu that she could connect us with.
 - i. **The really key group is business owners.** Lauren Blickley said that “the most powerful testimonies came from restaurant owners themselves who had made the switch to alternatives!”
 - c. **Circulate a petition.** The resources section includes a link to the Petition to Pass Bill 13: Ban Single-Use EPS Containers in Hawaii County.
3. **Tell stories backed by data** from cleanup events and marine debris research.
 - a. To tell the story of local debris sources and the county’s ability to be part of the solution, Megan Lamson used HWF and ICC data specific to the island, a peer-reviewed debris study, and a local peer-reviewed red block study.

4. **Crowdsource a list of food establishments** in the county that do not use polystyrene food service ware. When you mention to lawmakers that many businesses have already voluntarily switched to alternative products, **point out that local policy is still needed because of all the businesses who won't voluntarily take that step**, otherwise the opposition will try to counter that there's no need for policy because restaurants will just start to do it on their own.
5. **Bring in samples of reasonable alternatives** to foam products and talk about how they compare to foam in terms of cost and performance. Create a price comparison list if it makes sense to do that.
 - a. With the Hawaii County effort, it was Elizabeth Elkjer from Sustainable Island Products who came up with good numbers on compostable products.
6. **Work with manufacturers and retailers of alternative products to create wholesale discounts** for restaurants that bundle their orders together. The Los Angeles Chapter of the Surfrider Foundation did this in Malibu, CA.
7. **Highlight the success of the plastic bag bill!** Lauren Blickley said that she has great before/after pictures from Maui.
8. **Arrange private meetings with the decision-makers if it's possible.** In Maui County, allies from UC Santa Barbara helped the advocates set up meetings where eco-industry representatives, NGOs, and scientists presented their case. "And when that didn't work, we got through to them with pressure via family and friends."
9. Try to ensure that **whoever writes the bill is very thorough.** Eileen O'Hara from Hawaii County did a great job in this respect.
10. If a key position is up for election, **take advantage of candidate forums.** Ask the candidate how he/she/they would vote on the bill.
11. **Engage the youth in creative projects!** Robert Parsons said that the youth from the Maui Huliau Foundation rocked it.

Possible Next Steps

1. Crowdsource a list of food establishments on Oahu that do not use polystyrene food service ware, starting with OFR certified establishments.
2. Reach out to Craig Cadwallader for a list of all the exemptions included in California ordinances.
3. Look into plastic pollution trends on Oahu.
 - a. Perhaps you can show that plastic pollution from local sources has increased even though litter laws have existed for decades.
4. Find out the tourism industry's total revenue on Oahu, and how much of that goes to the government.
5. Conduct an intercept survey in Downtown Honolulu and Waikiki to measure consumer willingness to pay more for compostable products among both locals and tourists. The results

could function as a useful complement the comprehensive study on consumer preference and willingness to pay for non-plastic containers, which was conducted by UH Manoa in 2011.

6. Look into additional studies on consumer attitudes toward restaurants with environmentally-friendly practices. Articles with promising titles include
 - a. [“Are Consumers Willing to Pay More for Green Practices at Restaurants?”](#)
 - b. [“Green Attributes of Restaurants: What Really Matters to Consumers?”](#)
 - c. [“U.S. Consumer Attitudes toward ‘Green’ Restaurants”](#)

Resources

Resources followed by a number in parentheses can be found in the Resources Folder. Resources in blue are hyperlinked to their location on the web.

Impact on Environment

- [5 Gyres Institute: Polystyrene](#)
- [“Why Small Plastic Particles May Pose a Big Problem in the Ocean”](#) (4)

Impact on Public Health

- [5 Gyres Institute: Polystyrene](#)
- [On the Combustion of Polystyrene Foam](#)
 - “The National Bureau of Standards Center for Fire Research identified 57 chemical byproducts released during the combustion of polystyrene foam”
 - Given that the majority of waste in Oahu is burned, it might be worthwhile to conduct further research on this topic
- [“Migration of Styrene from Polystyrene Foam Food-Contact Articles”](#)
- Institute for Local Self-Reliance: [“Health Implications of Polystyrene”](#)
- Institute for Local Self-Reliance: [“Reasons to Restrict Polystyrene for Foodservice Ware in Washington, DC”](#)
- Institute for Self-Reliance: [“Are Polystyrene Food and Beverage Containers a Health Hazard?”](#) (5)
- Institute for Self-Reliance: [“George Baggett’s Response to the Polystyrene Industry’s Review of ‘Styrene Migration into Human Adipose Tissue’”](#) (6)
- Environmental Justice Network: [“Polystyrene and Health Homepage”](#)
 - A non-scholarly site, but it references academic studies
- TheWayToGo: [“Polystyrene Fact Sheet”](#)
 - More on the informal side, but it has some good content and references
- [Sierra Club Formal Testimony for the MA EPS Ban](#)
 - References a fair bit of pertinent research in one place
- National Academy of Sciences: [“Review of the Styrene Profile in the National Toxicology Program 12th Report on Carcinogens”](#)

- International Programme on Chemical Safety on Styrene: “[Environmental Health Criteria](#)”
 - Section 4.1.3. “Polystyrene and its copolymers such as acrylonitrile-butadiene-styrene (ABS), have been widely used as food packaging materials. **Currently available analytical surveys of food and food packaging have shown that the styrene monomer migrates into food from both rigid and expanded polystyrene foam containers.** According to **Withey & Collins (1978)**, the lowest concentration of monomer in rigid containers was 700 ppm and the highest was 3300 ppm. Other studies give figures of a similar order of magnitude (**Hamidullin et al., 1968**). The lowest concentration of monomer in expanded polystyrene foam was 87 ppm (Withey, 1976). The highest migration figure (245.5 ppb) was found in samples of sour cream contained in rigid polystyrene containers (**Withey & Collins, 1978**). Styrene leached from containers at 0.2 - 0.5 ppm conveyed a disagreeable odour and taste to dairy products (Jensen, 1972). However, styrene was not detected in milk stored in polystyrene containers for up to 8 days (detection limit 50 ppb) (**Finley & White, 1967**). In another study, styrene rates of leaching ranged from 0.0077, 0.0078, and 0.0078 $\mu\text{g}/\text{cm}^2$ respectively, for foam cups containing water, tea, and coffee, to 0.036, 0.064, and 0.210 $\mu\text{g}/\text{cm}^2$, respectively for foam, impact, and crystal polystyrene cups containing 8% ethanol (**Varner & Breder, 1981a,b**).”
 - [EPA’s Health Effects Notebook for Hazardous Air Pollutants: Styrene](#)
 - Mutti, Mazzucchi, Rustichelli et al. “Exposure-Effect and Exposure-Response Relationships between Occupational Exposure to Styrene and Neuropsychological Functions.” *Am. J. Ind. Med.* 5: 275-286. 1984.
 - Benignus, Geller, Boyes et al. “Human Neurobehavioral Effects of Long-Term Exposure to Styrene: A Meta-Analysis.” *Environ Health Perspectives* 113(5): 532-538. 2005.
 - Institute for Agriculture and Trade Policy: “[Smart Plastics Guide](#)”

Impact on Business

- Barnes, Chan-Halbrendt, Zhang et al. “[Consumer Preference and Willingness to Pay for Non-Plastic Food Containers in Honolulu, USA.](#)” *Journal of Environmental Protection* 2: 1264-1273. 2011.
- [List of Foam-Free Restaurants on Hawaii Island](#)
 - Compiled by Hawaii Wildlife Fund, Surfrider Foundation, and Sustainable Island Products after the loss of the foam reduction bill in June 2016.
- [List of Ocean Friendly Restaurants on Oahu](#)
- Maui County Polystyrene Alternatives Price Sheet Comparison (7 and 8)
 - Lauren Blickley: “Note that it is a few years old and likely outdated. It was very difficult to get a hold of this price list and we had to go directly to the product supplier on Maui.”
- Pacific Business News Survey (9)

- 65 percent of respondents said that Hawaii should ban plastic bags and styrofoam containers.
- San Jose Economic Impact Analysis of EPS Foodware Costs (10)
- Interviews with Oahu Food Establishments with Compostables

Economic Benefits to the Government

- Valuing the Cost of Plastic and Expanded Polystyrene Foam (11)
 - Details the potential economic benefits of an EPS foam ban in Hawaii
- Natural Resources Defense Council: “Waste in Our Water: The Annual Cost to California Communities of Reducing Litter that Pollutes Our Waterways” (12)
- United Nations Environment Program: “Valuing Plastics: The Business Case for Measuring, Managing, and Disclosing Plastic Use in the Consumer Goods Industry” (13)

Recyclability of Polystyrene

- Edgar & Associates, Inc: “Analysis of Recyclability of Expanded Polystyrene Food Service Packaging as an Alternative to a Ban” (14)

Relevant Public Documents

- Draft and Final Letter from the Renewable Resources Advocates of the Polystyrene Food Service Containers Task Force to Jordan Molina on September 11, 2015 (15 and 16)
 - Sections II and III outline some of the statements made by the opposition and the subsequent responses of pro-ban advocates
 - Sections IV, V, and VI highlight a few considerations that you may want to think about while the policy is in the process of being shaped
- [Petition to Pass Bill 13: Ban Single-Use EPS Containers in Hawaii County](#)
- [Powerpoint Presentations Used for Advocacy on Maui](#)
- [Press Release: Over 130 Food Vendors on Hawaii Island Are Foam-Free](#)
- State of Hawaii Department of Transportation: Trash Reduction Plan (17)
- [Testimonies on SB 1109](#)

Legislative Action Outside of Hawaii

- [List of Polystyrene Ordinances Passed in California](#)

News Links

- [“Scaled Back Styrofoam Ban Proposed”](#)
- [“Proposed Polystyrene Container Ban Advances”](#)
- [“County Council Kills Bill Banning Foam Food Containers”](#)
- [“Ban on Foam Food Containers Coming to Big Island in 2019”](#)

Compostables

Resources

- “Top Ten FAQ’s on Styrophobia Products” (18)

Reusables

Resources

- Life Cycle Assessment of Reusable and Single-Use Coffee Cups (19)
- ReThink Disposable Case Studies, Fact Sheet, and Guide (20)
- [Vancouver Single-Use Item Reduction Strategy](#)
 - If we come to the point where we can consider the elimination of single-use items, Vancouver may serve as a useful model