



Get rid of foam once and for all

The problem with foam packaging and the alternative solution that is bringing sustainability and cost savings to seafood supply chains.

EPS foam is a controversial topic. On one hand, it is widely understood to be damaging to the environment due to its chemical makeup and the fact that it is difficult to recycle. On the other hand, it is the industry standard for transporting seafood, as it is insulated enough to maintain temperature for hours of travel and offers a soft, protective exterior that keeps product safe from heavy drops, bumps in the road, and anything else that may cause damage in the supply chain. As many suppliers and sellers in the seafood industry see it, EPS foam is regarded as necessary and unfortunate. They must continue using foam while wishing they didn't have to.

What is foam anyway?

Invented by Dow Chemical Scientist Otis Ray Macintire in 1941, EPS Foam, is "small beads of the polymer polystyrene [that] are steamed with chemicals until they [expand] to 50 times their original volume" then molded into a functional shape¹. The outcome is a lightweight material made up of about 95% air that is highly popular for use as packaging as well as disposable take-out trays, plates, cups, and more. The lightweight nature of foam is simultaneously what makes foam so great and so bad. Because foam is basically plastic blown out into millions of tiny bubbles, it is incredibly difficult to recycle and is rarely done². This has led to foam filling landfills all over the world and adding to the environmental crisis we all find ourselves in.

In this whitepaper we discuss why foam is so bad for the environment, why suppliers are hesitant to switch away from foam and introduce a packaging alternative that may make all the difference in the seafood supply chain.

Foam is unsustainable

Consumers realized the harmful nature of foam a long time ago, and governments are responding to the environmental crisis by banning foam. Statewide foam bans are already in effect in Maine³, Maryland⁴, and New York⁵, with more to follow soon in Vermont, Colorado, Oregon and New Jersey⁶. In most cases, these foam bans are aimed at all EPS foam, including single use products like take-out containers and cups, as well as the foam used in seafood supply chains⁷.

From an environmental standpoint, what is so bad about foam? Foam is estimated to take 500 years to decompose, and take up 30% of landfill space⁸. When breaking down over time, foam collapses into highly toxic microplastics that can pollute bodies of water. These microplastics harm wildlife in many different ecosystems. According to Douglas McCauley, a marine biology professor at the University of California, Santa Barbara, the harm to wildlife that foam causes is both mechanical and chemical. Fish and other wildlife have the tendency to eat discarded foam, causing blockages that often lead to starvation. If a creature can digest the foam and survive until it is caught, the contaminants end up in the creature's chemical makeup and eventually to our plates⁹. Naturally, both outcomes of foam pollution are concerning on multiple levels and should be addressed.

Like many single use packaging products,

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foam is only somewhat sustainable, even when it is recycled. Unfortunately, foam is incredibly difficult and expensive to recycle. As a result, there is barely a market for foam recycling. Because of this, it is rarely done, and foam products overpopulate landfills in increasingly discouraging rates¹⁰.

In addition to all of this, sustainability has recently become a major focus for grocery retailers. Outside of the inherent value of protecting the environment, a strong stance in favor of sustainability is important to end consumers¹¹. According to a study from Nielsen in 2018, almost half of U.S. consumers are likely to change what they buy to align with environmental standards¹². This shift in consumer values over the last decade, among other things, has led retailers to create aggressive sustainability goals.

In 2021 several retailers have launched new sustainability initiatives to help combat environmental decline. Aldi, for example, has pledged to reduce greenhouse gas emissions

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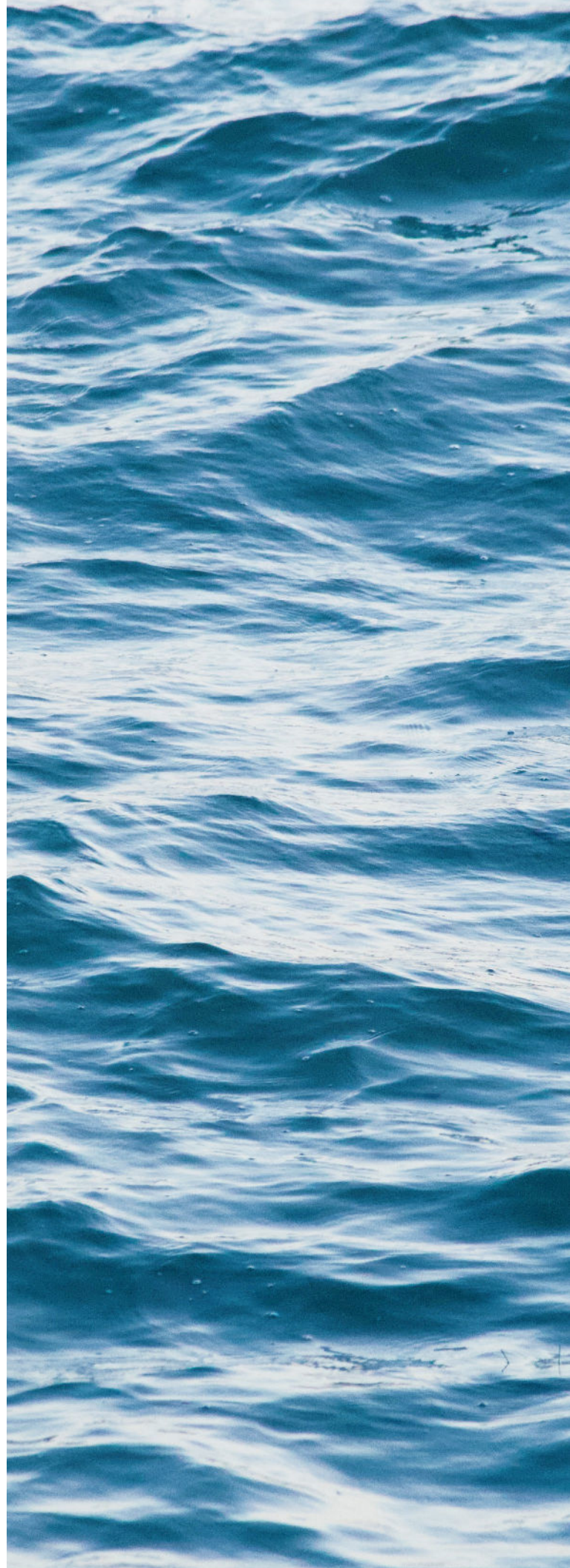
by 25% by 2025. They also plan to “divert 90% of operational waste by 2025 and strive to reduce food waste by 50% by 2030”¹³.

Ahold Delhaize is another retailer that has taken a strong stance for sustainability this year. In finding that 43% of its customers consider sustainability to be extremely important, up from 28% pre pandemic, the company is dedicated to creating a more sustainable supply chain. This includes reducing food waste by 25% by 2025 and 50% by 2030. It also involves cutting out the use of single-use plastics and reducing carbon emissions by 50% by 2030¹⁴.

Aldi and Ahold Delhaize are only two of many retailers committed to reducing their environmental impact and supporting a more sustainable supply chain. Naturally, retailers will choose partnerships that support these goals with efforts towards sustainability. Suppliers and service providers will need to follow suit in order to see much-needed improvements in the seafood industry.

What will this look like for seafood suppliers?

Suppliers will need to align their focus and create more sustainable supply chains in order for their retail and food service partners to be confident that their supply chains are sustainable from ship to store. One of the easiest and most significant ways seafood suppliers and processors can create more sustainable supply chains is by reducing the use of single-use packaging like foam. Foam is simply not compatible with a modern supply chain working toward sustainability goals.





Foam works

If EPS foam is so bad for the environment, why do seafood suppliers still use it to ship their products? There are three main reasons for this. Most importantly, foam insulates product and maintains the cold chain. Fish and other seafood products are highly perishable, and the health and safety of consumers depends on the ability of suppliers to ship product at a safe temperature. This ability to insulate product is the main reason suppliers and processors still use it heavily.

Additionally, foam is impermeable, holding up against liquids, a property that is critical for wet seafood and the melting ice that often travels along with it. Foam does not allow the contents inside its packaging to leak, while also not allowing unknown liquids from

outside to seep in. This is another food safety issue that seems to require the use of foam, regardless of its unsustainable nature.

Finally, foam works well for shipping seafood because it is protective, keeping delicate products safe from damage throughout the supply chain. Foam insulates from bumps in the road while also insulating temperature, offering a strong outside wall that is unaffected by the heavy stack above it. This feature is critical in a supply chain that stretches for miles as well as during storage that lasts for days.

Introducing a more sustainable alternative to foam



Undeniably, foam is a problem and it is clear that an alternative is needed. Large grocery retailers committed to sustainability, such as North East retailer Wegmans, have begun to embrace alternatives. Regarding sustainable packaging specifically, Wegmans says "Our goal is to make sure packaging is functional, performs as expected, and uses materials efficiently and responsibly."

Wegmans embraces sustainability, and like every other grocer, also has an obligation to manage operating costs. To that end, Wegmans has adopted a new shipping solution within their seafood category by using pooled Reusable Plastic Containers (RPCs). Implementing RPCs eliminates one-way packaging, therefore eliminating packaging material waste.

How does this solution work? RPCs are foldable crates made of high quality, food grade polypropylene. A solid bottom keeps necessary liquid inside the container and

contaminants outside the container. These crates are generally used within a pooled, pay-per-use system that provides the suppliers and retailers access to an enormous pool of RPCs that can be ordered based on current need, leaving all the servicing, sanitizing, and maintenance of the actual crates up to the pooling provider.

The RPC way of packaging is more sustainable, more cost effective, more efficient, and maintains product quality.



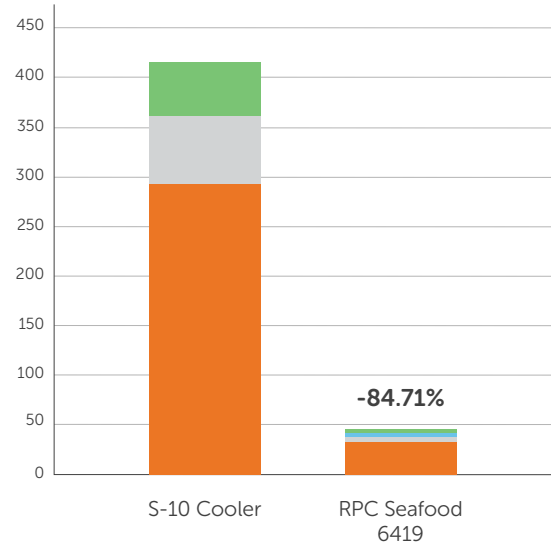
RPCs are more sustainable

Among many reasons, top retailers like Wegmans are implementing RPCs in lieu of EPS packaging because RPCs are proven to be more sustainable than foam. They can be reused for years, generating zero waste headed for a landfill. All parts of RPCs, each of the sides and the bottom, are replaceable. If one part becomes unusable, it is transformed into raw material and reused in the creation of new RPCs. The original RPC then receives a replacement part and is put back into circulation.

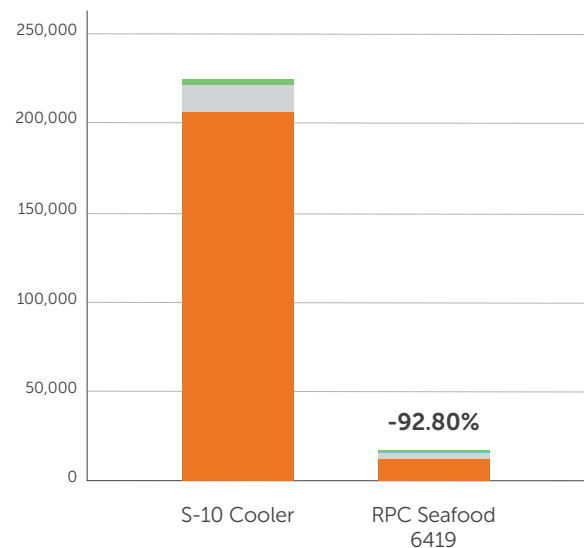
When assessing the sustainability of RPCs compared to foam, RPCs show significantly less environmental impact than foam. Using Trayak's COMPASS Life Cycle Analysis tool, a sustainability model that is endorsed by the Sustainable Packaging Coalition, this comparison can be made in real supply chains based on the true distances and product counts used today.

In the supply chain of one major retailer, by simply replacing foam, seafood RPCs were estimated to reduce GHG Emissions by 88.7%, water use by 89.63%, and human impact by 85.09%. This massive improvement shows the true scale at which RPCs can reduce the environmental impact of your supply chain, simply by switching to reusable packaging from foam.

GHG Emissions (Ton CO2 eq.)



Water Use (Kiloliter)



RPCs maintain the cold chain

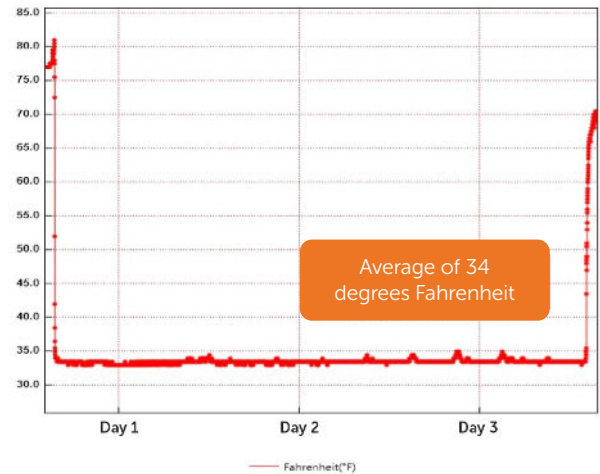
Additionally, RPCs work well to maintain the cold chain for seafood products. In a study of the efficacy of seafood crates in the supply chain, Tosca was able to determine that the product inside RPCs maintained temperature the entire time and reported little to no ice melt at the end of the trip.

In this trial, the containers carrying seafood were in transport for an average of 41 hours and 21 minutes, travelling for an average total of 72 miles, sometimes during the summer months. As shown in the graph to the right depicting data taken from the temp trials, throughout each trip, the inside of the RPCs and the seafood they carried maintained an average temperature of 34.86 degrees, never going above 35 degrees while in transit. These results clearly show that RPCs can maintain the cold chain throughout transport and keep temperature sensitive seafood products in ideal conditions.

RPCs can be tracked and traced

Reusable containers and pallets can be outfitted with IoT-enabled devices. According to the NRDC, one third of wild-caught U.S. seafood imports are harvested using illegal, unreported, and unregulated fishing practices. This ability to track product from ship to store offers a strong benefit to both retailers and suppliers. Suppliers are able to prove the origin of their products, while a traceability program enables retailers to verify the origin of products, giving consumers confidence in the products they purchase.

Store 363

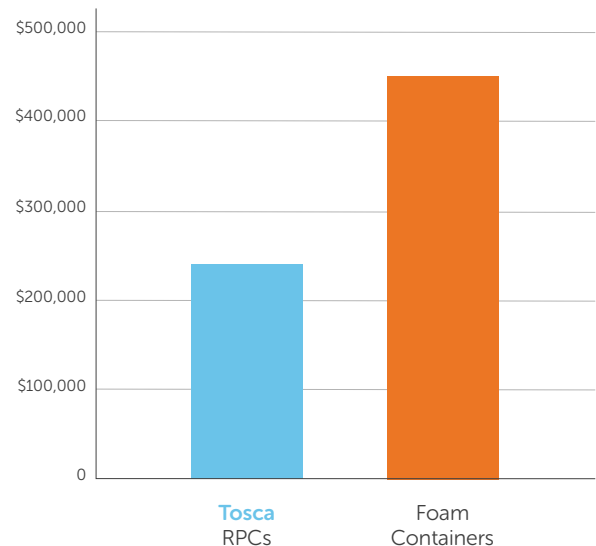


RPCs cost less than EPS foam

RPCs are also more affordable than EPS foam containers. It is not often that sustainability measures are also cost saving actions, however in the case of RPCs, the cost savings are impressive. By switching to RPCs from foam in seafood supply chains, most programs receive an estimated 40-50% reduction in their packaging costs, usually saving a dollar a box.

For one seafood supplier on the East Coast shipping salmon in about 200,000 boxes, the switch to RPCs saved them \$220,000 a year in just packaging costs. Another supplier, shipping 140,000 boxes, was able to save \$126,000 in their supply chain by switching to RPCs. Every program is different, but all of them benefit from cost efficiency. Switching to RPCs is an easy, sustainable way to cut costs.

RPC vs. Foam
Container Cost Comparison
(avg. per 200k boxes)

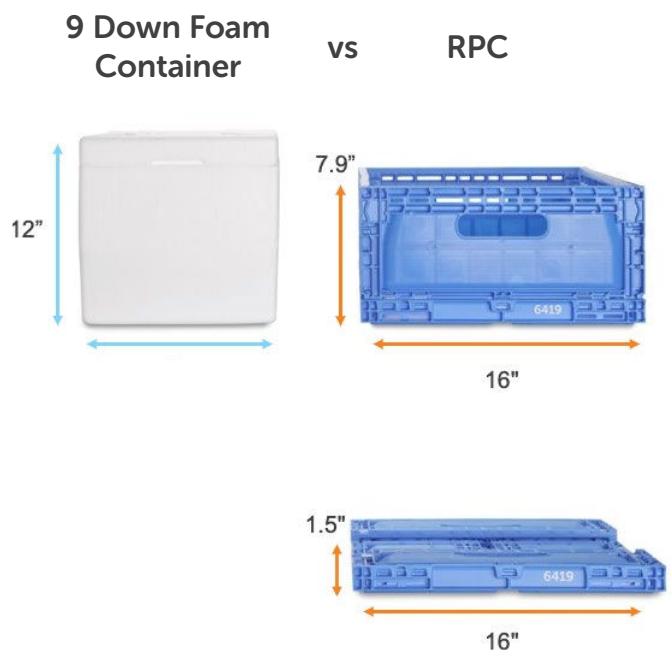


40-50%
savings with
RPCs

~\$1
savings
per box

RPCs are more space efficient

In some cases, because foam containers are so big, many suppliers need daily deliveries of new foam containers because they cannot store all the foam that is waiting to be filled with product. This inefficiency is costly. Unlike EPS foam containers, RPCs are foldable, saving valuable space in the warehouse, and enabling you to consider more efficient transportation options. Folding to 1.5" tall, RPCs open up valuable warehouse space before and after they carry products.





For the Betterment of the Environment and Your Efficiency, Choose RPCs for Seafood

Foam causes major problems for the environment and affects the way customers interact with brands who use it. Unsustainable foam is also costly, inefficient to store, and nearly impossible to recycle.

Fortunately, RPCs are a great alternative. They offer the benefits of foam – maintaining the cold chain and protecting product – without the extra cost and damage to the environment. RPCs are truly one of those rare cases in which the decision in favor of sustainability is also a cost-saving one.

Tosca, a leader in reusable packaging solutions, is pioneering the movement to remove unsustainable foam from seafood supply chains in favor of more sustainable RPCs. Operating with 100 years of combined experience after the acquisition of Polymer Logistics in 2019 and the European Plastic Pallet leader Contraload NV in 2020, Tosca is the one to turn to for reusable packaging solutions. Tosca takes bringing efficiency to your supply chain seriously, offering packaging solutions that help reduce costs and improve sustainability in one simple switch.



Besides sustainability and the ability for Tosca RPCs to maintain the cold chain, there are many more benefits to using Tosca RPCs in your supply chain. Tosca washes its pooled containers after every use, operating all its wash facilities in the United States according to the ISO-22000 food safety standard, the highest standard available in the food industry. Tosca is also the largest pooler of reusable packaging in North America. This breadth offers scalability and the ability for our operations to scale with yours when they need to. Tosca offers custom solutions and is willing to work with you to provide a container solution that fits your needs. Whether this means a container with a distinct size or a new service center to support your operations, Tosca is available to supply the best packaging solution for your products.

[Tosca makes trying a new packaging solution as easy as possible. Sign up for a cost model to see the impact of RPCs in your supply chain. Or you can sign up to receive a free RPC so you can see the packaging that is replacing foam in seafood supply chains.](#)

Appendix

¹ [Why New York banned polystyrene foam - BBC News](#)

² [Styrofoam ban: States declare war on Styrofoam -- "People think it breaks down" - CBS News](#)

³ [Maine becomes the first state to ban styrofoam - CNN](#)

⁴ [Maryland Will Ban Styrofoam Starting Oct. 1 : NPR](#)

⁵ [Polystyrene Foam Ban - NYS Dept. of Environmental Conservation](#)

⁶ [Styrofoam ban: States declare war on Styrofoam -- "People think it breaks down" - CBS News](#)

⁷ [Maryland Will Ban Styrofoam Starting Oct. 1 : NPR](#)

⁸ [The real cost of recycling foam plastic – Sedona Recycles](#)

⁹ [Why New York banned polystyrene foam - BBC News](#)

¹⁰ [Styrofoam ban: States declare war on Styrofoam -- "People think it breaks down" - CBS News](#)

¹¹ [Consumers still care about sustainability amid pandemic, report finds | Food Dive](#)

¹² [2018 was the year of the 'sustainable shopper,' Nielsen says | Food Dive](#)

¹³ [ALDI defines 2030 sustainability goals | 2021-03-15 | MEAT+POULTRY](#)

¹⁴ [Ahold Delhaize USA Announces Sustainability Goals to Drive Local Impact, Greater Purpose | Ahold Delhaize](#)