



# Final Report

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## Reducing Plastic Aquatic Trash from Waterfront Businesses in Eastern Long Island

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## **Executive Summary**

7 of the top 10 contributors to aquatic trash are single-use plastics like bags, bottles, cups and lids, straws, and containers. In eastern Long Island, aquatic trash is a nuisance and hazard to boaters, litters beaches, and is harmful to wildlife. Decreasing the use of disposable plastic products prevents aquatic trash at the source, reducing the need for costly cleanups and protecting coastal ecosystems and economies. This project, which occurred from September 2016 through June 2018, reduced single-use plastics that waterfront businesses purchase and distribute to guests and customers in Greenport, NY, by:

1. Measuring the “plastic footprint” of each participating business to determine the amount and types of single-use plastic products they procure and use;
2. Identifying reusable, compostable, or recyclable alternatives to the plastics they use and conducting a financial and environmental cost benefit analysis of switching to alternatives;
3. Developing a source reduction plan for each business that ensures adequate collection infrastructure and public/employee education, and pilot the procurement changes;
4. Creating business procurement policies that minimize or eliminate disposable plastics;
5. Developing model policies that encourage or compel waterfront businesses to reduce or eliminate disposable plastic product use; and
6. Developing a Marine Debris Prevention Toolkit for Restaurants & Eateries that provides step-by-step guidance to help other businesses reduce their single-use plastic use.

PSI achieved all of the original project objectives and expected outcomes:

- Reduced by 40 percent the amount of single-use plastics procured by pilot businesses;
- Fewer pieces of plastic aquatic trash identified during visual surveys of the area;
- Increased community awareness of source reduction for plastic aquatic trash prevention;
- Established partnerships among key community organizations that will support ongoing aquatic trash prevention initiatives; and
- NEIWPCC and EPA have a new educational tool to support their trash reduction goals.

### **Summary of Project Results & Findings**

Standing stock surveys of Mitchell Park Beach in Greenport, NY revealed reduction in key foodservice litter items: food wrappers, beverage bottles, beverage/container caps, bags, cups, utensils, and straws. From the first survey conducted February 28, 2017 to the final survey conducted February 24, 2018, PSI measured a 74% reduction in plastic foodware debris overall, and an 85% reduction in the debris density of plastic foodware on the beach. Furthermore, PSI measured a 76% reduction in all foodware on the beach, regardless of material type, including 86% reduction in overall foodware debris density. Although uncertainty exists due to the limited number of surveys conducted, these data indicate that the project was successful at reducing the flow of plastic foodservice ware onto the local beach, and hence into the ocean. PSI recommends future follow-up surveys to confirm and evaluate long-term changes.

In total, the participating businesses achieved:

- 956,488 plastic items prevented per year
- \$12,308 annual cost savings
- \$302 additional savings in reduced commercial waste hauling fees
- 7,860 pounds of plastic waste reduced annually

Other reported benefits:

- At least one business noticed increased business – plastic reduction attracted new customers
- Customers enjoy the enhanced atmosphere and dining experience
- Increased operational efficiency and saved staff time
- Don't have to order disposables as often or worry about inventory
- No straws = clog-free sinks
- Competitive branding advantage due to unique plastic-free take-out products

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## 1 Project Synopsis

According to the Ocean Conservancy, 7 of the top 10 contributors to aquatic trash are single-use plastics like bags, bottles, cups and lids, straws, and plates.<sup>1</sup> In eastern Long Island—along Long Island Sound, the Peconic Bay system, and Orient Harbor—aquatic trash is a nuisance and hazard to boaters, wrapping around propellers and clogging engine cooling water intakes. It also washes ashore, marring the beaches on which the tourist industry is based—in fact, in 1998 panic over floatable debris cost the region between \$1-2 billion in tourist revenue.<sup>2</sup> In addition, plastic debris is harmful to wildlife that thrives in the unique habitats of eastern Long Island. For example, Orient Harbor is home to the endangered Piping Plover, osprey, and several rare turtle species, and is one of the most significant bay scallop commercial fisheries in the northeast.<sup>3</sup> Birds, turtles, and other animals can become deformed, wounded, or killed if they consume or are entangled in plastic debris; when sea birds and fish swallow small plastic pieces and bags (which look like food to them), they suffocate or starve. Decreasing the use of disposable plastic products reduces aquatic trash at the source, reducing the need for costly coastal cleanups and helping protect coastal ecosystems and economies.

Figure 1. Map of North Fork, Long Island, NY



## 2 Tasks Completed

This project aimed to reduce the single-use plastics that waterfront businesses purchase and distribute to guests and customers along Long Island’s North Fork (see Figure 1), thereby reducing the amount of aquatic trash that enters eastern Long Island waters. To achieve this goal, PSI worked with a group of waterfront businesses, local tourism boards, departments of commerce, and solid waste districts to:

1. Measure the “plastic footprint” of each participating business to determine the amount and types of single-use plastic products they procure and use;

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2. Identify reusable, compostable, or recyclable alternatives to the plastics they use and conduct a financial and environmental cost benefit analysis of switching to alternatives;
3. Develop source reduction plans for each business that ensure adequate collection infrastructure and public/employee education, and pilot the procurement changes;
4. Create business procurement policies that minimize or eliminate disposable plastics;
5. Develop model municipal and tourism board policies that encourage or compel waterfront businesses to reduce or eliminate disposable plastic product use; and
6. Develop a Marine Debris Prevention Toolkit for Commercial Properties that provides step-by-step guidance to help other businesses reduce their single-use plastic use.

### 3 Methodology

#### **Task 1: Develop Project Summary and Gain Commitment from Local Businesses**

- Develop a Project Summary that explains why aquatic trash is a problem, project goals and deliverables, and what is required of participants.
- Gain commitment from up to 4 businesses to participate.

**Outputs:** Project Summary, *Letters of Commitment*; **Personnel:** PSI Staff

#### **Task 2: Prepare a Quality Assurance Project Plan (QAPP) for Data Collection**

- Identify data sources on plastics use by target businesses and in the target area
- Develop work plan, footprinting tools, and forms for data gathering
- Develop draft QAPP and submit to NEIWPC, EPA, and other stakeholders, as appropriate, for review
- Integrate comments from NEIWPC and EPA into final draft QAPP; submit for approval

**Outputs:** *Approved QAPP document* **Personnel:** PSI Staff; NEIWPC, EPA, stakeholders as appropriate

#### **Task 3: Conduct Kick-off Meeting and Visual Survey of Aquatic Trash in the Area**

- Prepare background information, a project contact list, and a PowerPoint presentation that lays out the project goals, participants, timeline, roles and responsibilities of each participant, and next steps. Hold an in-person kick-off meeting.
- While in the North Fork, conduct a visual survey of plastic aquatic trash in the pilot area.

**Outputs:** *PowerPoint Presentation; Background Information; Contact List; Visual Survey Data*  
**Personnel:** PSI Staff, All Project and Pilot Participants

#### **Task 4: Modify PSI's Plastic Footprint Tool for Commercial Business Use; Measure the Plastic Footprint of Each Pilot Business; Understand Operations**

- With input from pilot businesses, modify the [plastic footprint tool](#) (page 5) that PSI developed for U.S. EPA in 2015 to meet commercial business needs. Incorporate feedback from NEIWPC and EPA.
- Using the revised plastic footprint tool, identify the types, amounts, and uses of plastic products procured by participating businesses, which plastics leave the business premises with a customer, operational protocols in place for collecting and composting/recycling plastics, and the municipal recycling infrastructure in the area.

**Outputs:** *Plastic Footprint Tool for Commercial Properties; Plastic Footprint Data* **Personnel:** PSI Staff, Pilot Participants

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### **Task 5: Develop a Source Reduction Plan for Each Pilot Participant**

- For as many disposable plastic products as possible, identify alternative products that would minimize or eliminate that plastic product.
- For each alternative, identify procurement sources and costs and analyze the budgetary, service, operational, and environmental impacts of switching to the alternative product.
- With the pilot businesses, review the pros and cons of each option, and develop short-term and long-term plans for implementing the options that work best for each business.
- Design customer education and incentive plans to support procurement changes.

**Outputs:** *Source Reduction Plans; Personnel:* *PSI Staff, Pilot Participants*

### **Task 6: Pilot the Source Reduction Plans; Collect Data and Feedback**

Assist the pilot businesses to implement the source reduction plans, providing ongoing technical support and trouble-shooting. Quantify the amount of plastic reduced and gather practical operational feedback.

**Outputs:** *Lessons Learned; Best Practices; Plastic Reduction Data and Qualitative Feedback*

**Personnel:** *Pilot Participant Businesses; PSI Staff*

### **Task 7: Develop Procurement Policies for Businesses**

Based on the source reduction plans, develop model procurement policies for each pilot business that include elements such as environmentally preferable purchasing language.

**Outputs:** *Procurement Policies; Personnel:* *PSI Staff*

### **Task 8: Develop Model Source Reduction Policies for Organizations and Government and Conduct Mid-point Visual Survey**

- Convene a PSI-facilitated meeting of pilot businesses, chambers of commerce, business improvement districts, tourism boards, and local solid waste officials to discuss pilot program status, results to date, and challenges encountered.
- Discuss policies and community programs that may enhance and support private plastic source reduction initiatives (e.g., plastic bag bans; cooperative purchasing agreements).
- Develop model plastic source reduction policies for local governments and business organizations, incorporating feedback from project participants, NEIWPC, and EPA.
- While in the North Fork, conduct a visual survey of aquatic trash in the pilot area.

**Outputs:** *Model Plastic Source Reduction Policies Personnel:* *All Project Participants; PSI Staff*

### **Task 9: Develop the Marine Debris Prevention Toolkit for Commercial Properties and Conduct Final Visual Survey**

- Incorporate the plastic footprint tool for businesses, source reduction plans, and procurement and municipal source reduction policies into a comprehensive toolkit. Include short case studies based on the experience of pilot businesses to illustrate how the steps in the toolkit can be used to reduce plastic use.
- Incorporate feedback from participants, NEIWPC, and EPA; send to graphic designer.

**Outputs:** *Marine Debris Reduction Toolkit for Restaurants and Eateries Personnel:* *PSI Staff; All Project Participants*

### **Task 10: Publish and Promote the Toolkit**

- In collaboration with NEIWPC and EPA, issue a press release to introduce the toolkit and publish the toolkit online.
- Promote the toolkit to PSI's extensive network of government members, private and nonprofit partners and social media following. Conduct media outreach.

**Outputs:** *Press Release, Media Coverage; Personnel:* *PSI Staff; All Project Participants*

## **4 Quality Assurance Tasks Completed**

**Standing stock survey:** To assess the effects of this project, PSI conducted a visual survey to evaluate the quantity of marine debris in proximity to each business before, during, and after the intervention. Quantitative primary data were collected following [NOAA methodology for implementing a standing stock survey](#), which provided a protocol to systematically record information on the amount and nature of aquatic trash in the target area based on a representative sample.

**Footprinting:** Quantitative and qualitative data on the plastic footprint of each participating business were gathered to benchmark the respective and relative impacts of their operations. To collect this data, PSI used a [modified version](#) of its pre-existing Footprinting Tool, designed for college campuses (see pages 5-14 in [Marine Debris & Plastic Source Reduction Toolkit for Colleges & Universities](#)). The Tool was tailored to assess plastics use among the participating commercial businesses. The Footprinting Tool is a survey, or a series of questions, that helps businesses collect data from across their operations (both internal and consumer-facing). It centralizes information about the businesses' current waste management infrastructure/system, and inventories the disposable plastics purchased and used on-site to provide a broader context for the plastics use data.

Quality control measures for these tasks were taken in accordance with the procedures outlined in the Quality Assurance Project Plan.

In accordance with the QAPP, PSI had intended to evaluate shorelines spanning 1km parallel to each business, with the business as the center point. Instead, PSI surveyed only the Mitchell Park Beach in Greenport, NY. All four of the businesses participating in the project were located near the waterfront in Greenport, NY. Given that the site is a popular recreational area located within a short walking distance of the participating businesses, PSI believed the park to be the best site to document any potential impacts of the businesses' plastics source reduction efforts.

## **5 Deliverables Completed**

### **Task 1: Develop Project Summary and Gain Commitment from Local Businesses**

*Project Summary – Completed November 2016*

In October 2016, PSI drafted a project summary that will serve as a tool for soliciting businesses for to join the project. The project summary explains the problem of marine debris, the project goals and deliverables, what is required of participants, and the benefits of participation. On October 31, 2016, PSI submitted the project summary to NEIWPC for review. On November 1, 2016, NEIWPC approved the project summary.

*Letters of Commitment – Completed January 2017*

PSI's Project Team conducted recruitment of targeted businesses and provided model letters of commitment to the business owners. By January 31, 2017, the Project Team confirmed project participation by the following four businesses in Greenport, NY to participate in the project: Alice's Fish Market, Bruce & Son, Lucharitos, and Tikal.1. PSI focused recruitment outreach on disadvantaged business enterprises. Alice's Fish Market is woman-owned and managed, Bruce & Son is co-owned by a woman, and Lucharitos and Tikal.1 are both minority-owned.



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Alice's Fish Market was unable to consider their options for plastic source reduction in a timely manner, and was dropped from the project. PSI recruited a new business, Little Creek Oysters, which committed to the project on August 20, 2017. Little Creek Oysters is co-owned by a woman.

### **Task 2: Prepare a Quality Assurance Project Plan (QAPP) for Data Collection**

*Approved QAPP document – Completed February 2017*

PSI drafted the first version of the QAPP during October 2016. The Project Team developed the QAPP and associated materials including key information such as: (1) data sources, (2) measurement tools and protocols for visual surveys, (3) data collection forms (4) protocol for quality assurance. On November 14, 2016, PSI submitted the QAPP Version 1 to New England Interstate Water Pollution Control Commission (NEIWPCCC). PSI worked with NEIWPCCC and the U.S. Environmental Protection Agency Region 2 (EPA) to finalize the QAPP. On February 21, 2017, PSI provided the Product Stewardship Institute's final Quality Assurance Project Plan, signed by all parties, to everyone on the official distribution list.

### **Task 3: Conduct Kick-off Meeting and Visual Survey of Aquatic Trash in the Area**

*PowerPoint Presentation; Background Information; Contact List – Completed February 2017*

On February 28, 2017, PSI conducted a Kickoff Meeting for participating businesses to lay the groundwork for the project. PSI staff traveled to Long Island's North Fork, visited each of the participating businesses to document their general operations, and held the Kickoff Meeting in the Greenport School. At the meeting, PSI allowed for introductions and then gave a PowerPoint presentation which laid out the project background, goals, participants, timeline, roles and responsibilities of each participant, and next steps. PSI also distributed a handout which included the project summary, project goal, list of participating businesses, PSI's contact information, project timeline, and draft Plastic Footprint Tool for Eateries & Restaurants to the business owners.

Thanks to the Kickoff Meeting location in the Greenport School, teachers Stephanie Pawlik and Brady Wilkins joined the meeting and volunteered to have their students design the "Trash Free Waters" emblem as part of an environmental unit in class. A local artist, Cindy Roe, later contacted PSI and offered to advise the students and judge the submissions. PSI connected these volunteers.

*First Visual Survey Data – Completed February 2017*

After the Kickoff Meeting, PSI conducted the first visual survey of aquatic trash in accordance with the procedures detailed in the approved QAPP. PSI submitted the visual survey data to NEIWPCCC on March 15, 2017. The data is available on [Dropbox](#).

### **Task 4: Modify PSI's Plastic Footprint Tool for Commercial Business Use; Measure the Plastic Footprint of Each Pilot Business; Understand Operations**

*Plastic Footprint Tool for Commercial Properties – Completed June 2017*

In February 2017, the Project Team modified PSI's existing "Plastic Footprint Tool for Colleges and Universities" developed for U.S. EPA in 2015. We customized it for commercial businesses, with an emphasis on the food service industry. The draft Plastic Footprint Tool for Eateries & Restaurants was completed on February 21, 2017 and distributed to the participating businesses at the project Kickoff Meeting.

PSI solicited additional feedback from the participating businesses regarding the ease of use and relevance of content in the Plastic Footprint Tool for Eateries & Restaurants. The Project Team

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revised the tool according to the businesses' feedback. On April 6, 2017, PSI solicited feedback from NEIWPC and EPA. The final [Plastic Footprint Tool for Restaurants & Eateries](#) is a component of the Marine Debris Prevention Toolkit for Commercial Properties.

### *Plastic Footprint Data – Completed March 2017*

In March 2017, the participating businesses used the draft Plastic Footprint Tool for Eateries & Restaurants to measure their plastic footprint. Using this revised footprint tool, PSI identified types, amounts, and uses of plastic products procured by participating businesses, which plastics leave the business premises with a customer, and operational protocols in place for collecting and composting/recycling plastics. Businesses submitted their completed plastic footprints to PSI by March 31, 2017.

Little Creek Oysters submitted its completed plastic footprint tool in August 2017.

### **Task 5: Develop a Source Reduction Plan for Each Pilot Participant**

#### *Source Reduction Plans – Completed February 2018*

The Project Team reviewed the participating businesses' plastic footprint data and collected data on reusable, compostable, and recyclable alternatives to single-use plastics available in the North Fork. PSI identified financially feasible business procedures and alternative products that would minimize or eliminate the use of each type of plastic product. For each alternative product a business owner decided to pursue, PSI identified procurement sources and costs. PSI also analyzed the budgetary, service, operational, and environmental impacts of switching to the alternative product.

Using this information, PSI developed for each business a customized menu of options to reduce or eliminate each disposable plastic product. PSI called each business to review the pros and cons of relevant options, and discussed plans for implementing the options that would work best for each business. PSI developed the source reduction menu of options and final source reduction plans in accordance with municipal recycling infrastructure in the area. PSI also designed customer education and incentive plans to support the procurement changes through marketing. Notably, local Greenport schoolteachers Stephanie Pawlik and Brady Wilkins worked with PSI to hold a contest for their students to design a "Trash Free Waters" emblem for participating businesses to display in their windows or on their menus to promote their marine debris reduction efforts. PSI submitted the winning logo design to NEIWPC on June 15, 2017 (see Figure 2). A local artist, Cindy Roe, also assisted by advising the students and judging their submissions. PSI connected these volunteers, and oversaw the coordination of a school ceremony during which the students presented the printed window decals to the business owners on June 23, 2017.



**Figure 2. Student-designed "Trash Free Waters" emblem**

### **Tikal.1**

Tikal.1 chose to break up their source reduction plan into two phases. The restaurant's first phase source reduction plan consisted of no-cost business procedures to reduce disposable plastic items, reducing the number of disposable straws and utensils they gave to customers and

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asking before handing them out, and moving condiment packets from tables to a separate self-serve station.

The second phase of source reduction initiatives included replacing polystyrene foam cups with paper cups, replacing polystyrene foam plates and containers with unlined paper plates and aluminum containers. Tikal.1 also purchased authentic Guatemalan table cloths to replace disposable plastic table covers. The staff report that the new table cloths have improved the atmosphere the restaurant and are enjoyed by customers. Washing the table cloths has become a seamless part of routine for restaurant staff.

### ***Little Creek Oysters***

Little Creek Oysters decided to offer plastic only when requested or in emergency situations when they cannot keep up with the dishwashing on busy days like the 4th of July. As a result, they increased their stock of reusable cups, pint glasses, and mugs. The biggest challenge for increasing reusable inventory was space. Stackable products like cups aren't a problem, but mugs are a challenge. After looking for a nearby storage rental, they decided to reconfigure their space to make it work.

Because their business is at once oyster farm, restaurant, and retail market, the owners took their efforts to the next level by reducing disposables across the production chain. PSI helped research alternatives to their disposable plastic mesh oyster bags, which can be easily lost at sea during harvest. Little Creek Oysters is now switching from the flimsy bags to durable plastic boxes that are reusable, stackable, less likely to get lost, and printed with their logo for enhanced brand recognition. And, unlike the bags, the polypropylene boxes are recyclable at their end of life.

### ***Lucharitos***

Lucharitos implemented a combination of business procedures to reduce plastic and biodegradable non-plastic substitutions for various products. Lucharitos switched to paper carryout bags and unlined plant-based compostable take-out containers. Lucharitos has also discontinued the sale of plastic bottled water, and now only sells water in glass bottles. Lucharitos has also stopped offering straws in water cups brought to the tables, and reports a reduction in plumbing clogs in the waste disposal sinks. After this success, Lucharitos expanded on this effort by phasing out all plastic straws and plastic bottles. They are now using paper straws by request only.

In fall of 2017, Lucharitos opened a new, mostly take-out, location in Aquebogue, NY, and immediately applied its source reduction strategies.

Finally, Lucharitos has decided to install a filtered water station for customers to refill their reusable water bottles in its Greenport location in late spring of 2018. To complement the new refill station, Lucharitos will sell reusable water bottles in the restaurant.

### ***Bruce & Son***

Bruce & Son uses only reusable foodservice ware for dine-in customers. They switched to compostable paper and Forest Stewardship Council-certified wood options for disposable take-out products, including: paper straws, birch cutlery, and bagasse condiment cups with PET plastic lids. With the exception of plastic-lined paper hot cups, PET lids, and PET cold cups, which are recyclable, all of Bruce & Son's new disposable take-out products are made of natural materials with no synthetic coatings or linings, and will therefore biodegrade naturally in both terrestrial and marine environments.

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Bruce & Son considered switching to wax-lined paper cold cups instead of plastic-lined cups, but all options currently available on the market are printed with designs that are not compatible with Bruce & Son's branding. This development is a function of the current limited market for sustainable packaging, and underscores the need for sustainable products that are branded in a universally-appealing manner. Although paper hot cup lids are prevalent in other parts of the world, only plastic lids were readily available on the U.S. market for foodservice products. For cold cups, rather than use plastic-lined paper cups, which are not recyclable, they are sticking with recyclable plastic cups. They will continue to monitor their supplier for alternatives.

### **Task 6: Pilot the Source Reduction Plans; Collect Data and Feedback**

*Lessons Learned; Best Practices – Completed March 2018*

#### **Smaller restaurants feel less need for a formal procurement policy**

Feedback from the four participating restaurants indicates that businesses as small as those in the pilot feel less need for a procurement policy than do larger establishments. The reduced need for an official policy is likely due to the fact that the owner and person establishing the policy is also the person who most often orders supplies. Still, PSI viewed a model procurement policy as an essential element in the toolkit. The model policy will ensure the toolkit is applicable to the largest number of eateries, including small local chains, growing businesses, and restaurants whose owners delegate supply ordering to managers and other staff. PSI hopes that once the participating restaurants see the simplicity of the model procurement policy, they will also see its utility for their businesses, especially Lucharitos, which recently opened its second location.

#### **Storage space and stealing can be a challenge for some reusable items**

Most of Little Creek Oysters' reusables are branded. That makes them desirable. Sometimes, people swipe a few spoons, glasses, or shot glasses, especially in the outside seating area and on a big holiday weekend. Both owners agree that it's not a huge financial impact, and see it as a sort of advertising benefit. They admit that you can run out of inventory quicker than expected on a busy day when people steal things, but in the end, it's worth it to provide an excellent dining experience and to stop serving plastic outside. They still keep a small supply of disposables for overwhelming days like the 4th of July when it's hard to keep up with the washing.

The biggest challenge for increasing Little Creek Oysters's reusable inventory was space. After looking for a nearby storage rental, they reconfigured their space to make it work. Stackable products like cups aren't a problem, but mugs are a challenge. Future initiatives should consider how to encourage design of reusable products that are space-efficient and easy to store.

#### **In-person communication is the most reliable communication – a local contact is imperative**

Food business owners are very busy people, and many do not spend all day physically in the store. If the business is seasonal, the owners may not even be in the area during the off-season. Some also do not use email regularly. Especially in more remote areas, in person contact is simply the best way to communicate. We have relied on our primary contact in Long Island to visit one of the businesses in person several times. If we do future projects in areas where PSI staff are not located in person, we could have a small group of contacts who are able to visit the businesses in person so the burden doesn't fall on one contact.

#### **Plastic source reduction plans evolve iteratively**

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Plastic source reduction plans come about slowly over time. It can be overwhelming for a business owner to think about making all possible changes at once. It is easier to implement plans in phases, with each iteration building on the previous phase.

### **We must dispel misinformation around unregulated marketing terms and greenwashed products, and build the market for appealing, truly environmentally friendly alternatives**

Many restaurant owners see “eco” marketing terms and believe that the product is environmentally friendly. However, “environmentally friendly” claims, especially claims around compostable/biodegradable products, can be misleading, or simply not true for restaurants in areas where composting is not available. There is a need for tools to help restaurant owners and procurement staff sift through product marketing claims and choose products that are both truly compatible with their goals and consistent with local solid waste infrastructure. PSI’s toolkit addresses these concerns, but policies should be considered to regulate product marketing terms for foodware, preferably nationally.

Through this project, we also learned that some businesses may turn down eco-friendly alternatives because these products do not match their branding. For instance, Bruce & Son kept using PET cold cups because the wax-lined paper cold cup options had designs on them. Bruce & Son simply sought a plain white cup, to no avail. Bruce & Son also had no alternative for their plastic-lined hot cups or plastic hot cup lids, even though paper lids are readily available in other parts of the world. As more businesses embrace plastic reduction and sustainability initiatives, the market will grow. Future initiatives should consider how to encourage market growth toward truly sustainable alternatives and universally-appealing designs that do not confine restaurants to a particular look and feel.

### **Forms are not the best way to get information from busy business owners**

Forms, calculations, and paperwork can be daunting. Try more interactive ways of gathering information – ex. a conversation, a web survey they can click through on their phone on the go.

As a result, PSI made the Plastic Footprint Tool and a Foodware Cost Calculator available online as part of the toolkit. These tools calculate restaurants’ plastic footprint and potential costs and savings automatically, making plastic reduction as easy and convenient as possible.

### *Plastic Reduction Data and Qualitative Feedback – Completed April 2018*

All participating restaurants expressed that the process we went through with this project was easy and helpful. For some of them, the draft plastic footprint tool was difficult to fill out, as they needed to print the form and carve out time to gather their procurement data and complete it. However, they appreciated the ability to implement plastic reduction strategies over time and build upon their early successes. All of them expressed gratitude and delight for the opportunity to participate, and were satisfied with their achievements:

#### ***Tikal.1***

- Increased business – plastic reduction attracted new customers
- \$3,578 annual cost savings
- \$90 additional savings in reduced annual commercial waste hauling fees
- 52,008 plastic items prevented per year
- 2,003 pounds of plastic waste reduced annually
- Improved atmosphere and customer enjoyment with authentic table cloths. Washing them is a seamless part of the staff routine. No additional labor needed.
- Don’t have to order disposables as often

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### **Little Creek Oysters**

- \$5,507 annual cost savings
- \$113 additional savings in reduced annual commercial waste hauling fees
- 233,400 plastic items prevented per year
- 2,509 pounds of waste reduced annually
- Reduced plastic waste from production to retail
- Don't have to order disposables as often
- Customers enjoy the enhanced dining experience -- only 1 in 10 ask for a straw

### **Lucharitos**

- \$3,223 annual cost savings
- \$99 additional savings in reduced annual commercial waste hauling fees
- 632,080 plastic items prevented per year
- 2,203 pounds of plastic waste prevented annually
- Increased operational efficiency and saved staff time
- Don't have to order disposables as often
- No straws = clog-free sinks

### **Bruce & Son**

- 39,000 plastic items prevented per year
- 1,145 pounds of waste reduced annually
- Increased operational efficiency by streamlining cup sizes
- Don't have to order disposables as often
- Competitive branding advantage due to unique wooden take-out products

### **Totals:**

- 956,488 plastic items prevented per year
- \$12,308 annual cost savings
- \$302 additional savings in reduced annual commercial waste hauling fees
- 7,860 pounds of plastic waste reduced annually

### **Task 7: Develop Procurement Policies for Businesses**

#### *Procurement Policies – Completed March 2018*

PSI developed a [model procurement policy](#) based on the source reduction initiatives pursued at each of the four participating restaurants. The model procurement policy includes plug-and-play options, and recommended combinations of options, that restaurants can pick and choose from to quickly develop their own procurement policies. PSI adapted the model policy for each of the pilot businesses and advised them to update the policy as their business needs and the availability of non-plastic alternatives evolves.

### **Task 8: Develop Model Source Reduction Policies for Organizations and Government and Conduct Mid-point Visual Survey**

#### *Model Plastic Source Reduction Policies – Completed April 2018*

On November 30, 2017, PSI's Scott Cassel and Megan Byers traveled to Greenport to hold a multi-stakeholder meeting with the participating businesses, Village of Greenport Trustees, Southold Town Board Members, local solid waste officials, a teacher from the Greenport School, and several local environmental groups. At the meeting, PSI and stakeholders discussed the pilot program status, results to date, challenges encountered, and brainstormed innovative ideas to reduce foodservice plastic marine debris community-wide.

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Below is a summary of the most feasible ideas generated at the meeting to reduce single-use foodservice plastics at the source:

- Through the Greenport Business Improvement District, educate business owners about plastic-reducing business practices and incentivize the switch to more sustainable products (e.g., paper bags, paper straws, wood cutlery).
- Implement a “Trash Free Waters” certification program or ranking system (e.g., Gold, Silver, Bronze) to recognize businesses that are reducing plastic and to help consumers identify eco-friendly dining options in Greenport.
- Develop a cooperative purchasing program for eco-friendly products (e.g., durable, wrapped paper straws), which would make these products more accessible to business owners through shared, lower prices
- Public education:
  - Start a public education campaign on plastic film recycling, using existing resources and guidance from the national Wrap Recycling Action Program.
  - Conduct public education on how individuals can reduce and refuse disposable plastic products, including straws, cutlery, bottles, bags, and polystyrene.
  - Educate children in the Greenport School

The following strategies were also considered at the meeting, but may be better suited for action in this community in a longer term:

- Remove County and/or state tax on eco-friendly products to make these products more price competitive and incentivize businesses to use them
- Evaluate efficacy of Suffolk County’s carryout bag fee (effective January 1, 2018). Based on the evaluation, consider banning plastic bags or extending the mandatory fee to independent foodservice establishments
- Ban polystyrene products
- Ban the sale of bottled water in plastic under 1 liter
- Prohibit the use of municipal funds for the purchase of bottled water

After the meeting, PSI followed up with various stakeholders to pursue the most promising ideas generated at the meeting and bolster partnerships among key community organizations that will support ongoing aquatic trash prevention initiatives. PSI also connected the Greenport School teacher who attended the meeting with local environmental groups that expressed interest in providing educational materials on marine debris and the impacts of polluted storm water on local water bodies.

The ideas generated at the multi-stakeholder meeting served as the basis for the development of model municipal and organizational policies to address marine debris. PSI followed up with various stakeholders to obtain input into specific elements of the model policies. Although the Village of Greenport was not interested in pursuing legislation itself at this time, hundreds of other communities around the United States have started regulating single-use plastic products. For the purposes of the Toolkit, PSI identified successful model policies from around the United States that communities across the country can pursue. PSI identified and developed [model policies](#) targeting these foodservice products: straws, stirrers, and utensils; polystyrene (foam and rigid); polyvinyl chloride; polyethylene terephthalate; bottled water; and plastic bags.

The policies selected are strong examples of what state and local governments around the country are enacting to reduce packaging waste, particularly plastics. PSI developed these potential models based on actual legislation (noted in each case). **The specific language used may not necessarily**

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**reflect the views of PSI, and no official endorsement should be inferred.** Over time, best practices will emerge, and PSI will monitor and promote them.

PSI is also working with several stakeholders to implement the most promising policy ideas so they can be implemented in Greenport either within or shortly after the project period. The Board of the North Fork Environmental Council approved the pursuit of a “Trash Free Waters” Restaurant Certification Program. In addition, the Group for the East End decided to host a public screening of the documentary STRAWS at the Greenport public library in April 2018. In promoting the film, they targeted restaurant owners as well as the general public.

### *Mid-point Visual Survey Data – Completed November 2017*

While in Greenport, NY for the multi-stakeholder meeting, PSI conducted the mid-point visual survey of aquatic trash in accordance with the procedures detailed in the QAPP. PSI submitted the visual survey data to NEIWPC on December 8, 2017. The data is available on [Dropbox](#).

### **Task 9: Develop the Marine Debris Prevention Toolkit for Commercial Properties and Conduct Final Visual Survey**

#### *Marine Debris Reduction Toolkit for Commercial Properties – Completed May 2018*

PSI incorporated the plastic footprint tool for businesses, source reduction plans, lessons learned, best practices, and model procurement and community plastic reduction policies into a [comprehensive toolkit](#). The toolkit includes short case studies based on the experience of pilot businesses to illustrate how the steps in the toolkit can be used to reduce plastic at the source.

PSI submitted the first draft of the toolkit and model source reduction policies to NEIWPC and EPA for review on April 26, 2018. Upon approval, PSI designed and finalized the toolkit. The toolkit is available on [Dropbox](#).

### *Final Visual Survey Data – Completed February 2018*

On February 24, 2018, PSI conducted the final visual survey of aquatic trash in accordance with the procedures detailed in the QAPP. PSI analyzed and submitted the visual survey data to NEIWPC on March 2, 2018. The data is available on [Dropbox](#).

PSI found notably less take-out ware on the beach at the end of the project, particularly in the number of the following items: food wrappers, beverage bottles, beverage/container caps, bags, cups, utensils, and straws. PSI measured a 74% reduction in plastic foodware debris overall, and an 85% reduction in the debris density of plastic foodware on the beach. Furthermore, PSI measured a 76% reduction in all foodware on the beach, regardless of material type, including 86% reduction in overall foodware debris density.

These data indicate that the project was successful at reducing the flow of plastic foodservice ware onto the local beach, and hence into the ocean. These items reflect the same types of products that the participating businesses reduced and that were discussed at the multi-stakeholder meeting. It must be noted that only a limited number of surveys (three in total) were conducted, so environmental variables introduce uncertainty into the data. Nevertheless, the data show less take-out ware on the beach. Because all surveys were conducted during a similar time of year during the tourism “off season,” this lends credibility to the survey results, and ensures that the reduction was not simply correlated with reduction in human activity during the “off season”.

### **Task 10: Publish and Promote the Toolkit**

#### *Press Release – Completed June 2018*



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To announce the release of the toolkit, PSI issued a [press release](#), co-branded with NEIWPC, to its media contacts and conduct media outreach. PSI will then promote the toolkit to its extensive network of 10,000+ government members, private and nonprofit partners and social media following.

### *Media Coverage – Completed June 2018*

During PSI's visit to the North Fork to conduct the project Kickoff Meeting on February 28, 2017, PSI presented the project to the Southold Town Board at its regularly scheduled town board meeting—an opportunity made possible thanks to the town's Solid Waste Coordinator, Jim Bunchuck. The Project Team gave a PowerPoint presentation, took questions from the Board, and laid the groundwork for developing model municipal policies to reduce marine debris on a community level. During the discussion, the Board suggested we create a "Trash Free Waters" emblem that the businesses can display in their windows or on their menus to market their marine debris reduction efforts.

The town board meeting was also attended by Southold Local, a local news source. The reporter was so impressed by the project that she attended the Kickoff Meeting and interviewed all the businesses for [an article](#) about their plastics reduction efforts through the project. The [Suffolk Times](#) and [North Fork Patch](#) also reported on the project.

Upon the release of the final toolkit, PSI conducted outreach to newspapers in Long Island, including the local newspapers which had originally covered the project, as well as major news sources in the waste industry. At the date of the submission of this report, the media had not yet covered the release of the final toolkit.

## 6 Conclusions

### **Summary of Project Accomplishments**

Standing stock surveys of Mitchell Park Beach in Greenport, NY revealed reduction in key foodservice litter items: food wrappers, beverage bottles, beverage/container caps, bags, cups, utensils, and straws. PSI measured a 74% reduction in plastic foodware debris overall, and an 85% reduction in the debris density of plastic foodware on the beach. Furthermore, PSI measured a 76% reduction in all foodware on the beach, regardless of material type, including 86% reduction in overall foodware debris density.

Source reduction policies implemented:

- Ask first, or serve straws and utensils on request
- Move condiment packets from tables to a separate self-serve station.
- Switch from disposable products to reusable products
- Switch from disposable plastic to biodegradable non-plastic alternatives
- Discontinue the sale of plastic bottled water
- Install a water bottle refill station and sell reusable bottles

In total, the participating businesses achieved:

- 956,488 plastic items prevented per year
- \$12,308 annual cost savings
- \$302 additional savings in reduced commercial waste hauling fees
- 7,860 pounds of plastic waste reduced annually

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Other reported benefits:

- At least one business noticed increased business – plastic reduction attracted new customers
- Customers enjoy the enhanced atmosphere and dining experience
- Increased operational efficiency and saved staff time
- Don't have to order disposables as often or worry about inventory
- No straws = clog-free sinks
- Competitive branding advantage due to unique non-plastic take-out products

### Lessons Learned and Opportunities for Action

#### 1. Smaller restaurants feel less need for a formal procurement policy

#### 2. Storage space and stealing can be a challenge for some reusable items

Future initiatives should consider how to encourage design of reusable products that are space-efficient and easy to store.

#### 3. In-person communication is the most reliable communication – a local contact is imperative

Future projects in areas where PSI staff are not located in person could have a small group of contacts who are able to visit the businesses in person so the burden doesn't fall on one contact.

#### 4. Plastic source reduction plans evolve iteratively

Future initiatives should plan to implement plans in phases over time, with each iteration building on the previous.

#### 5. We must dispel misinformation around unregulated marketing terms and greenwashed products, and build the market for appealing, truly environmentally friendly alternatives

Policies should be considered to regulate product marketing terms and ensure the use of truly sustainable materials and recycled content, preferably nationally.

Future initiatives should consider how to encourage market growth toward truly sustainable alternatives and universally-appealing designs that do not confine restaurants to a particular look and feel.

#### 6. Forms are not the best way to get information from busy business owners

Future initiatives should try more interactive ways of gathering information – ex. a web survey they can click through on their phone while on the go.

## 7 References

<sup>1</sup> Ocean Conservancy, International Coastal Cleanup 2015 Ocean Trash Index, page 16. Accessed May 8, 2016. <http://www.oceanconservancy.org/our-work/international-coastal-cleanup/2015-ocean-trash-index.html?>

<sup>2</sup> Long Island Sound Study, Floatable Debris. Accessed May 8, 2016. <http://longislandsoundstudy.net/about/our-mission/management-plan/floatable-debris/>

<sup>3</sup> New York Department of State Office of Planning & Development, Coastal Fish & Wildlife Assessment Form, Orient Harbor. [http://www.dos.ny.gov/opd/programs/consistency/Habitats/LongIsland/Orient\\_Harbor.pdf](http://www.dos.ny.gov/opd/programs/consistency/Habitats/LongIsland/Orient_Harbor.pdf). Accessed May 8, 2016.

## 8 Appendices

**Documents:**

- [Project Summary](#)
- [Model Procurement Policy](#)
- [Model Plastic Source Reduction Policies](#)
- [Marine Debris Reduction Toolkit for Restaurants & Eateries](#)
- [Press Release](#)

**Photos:** Photos taken during the standing stock surveys of aquatic trash, in accordance with the project QAPP, can be found [on Dropbox](#).

**Electronic Data:** PSI uploaded electronic marine debris survey datasets generated through this project and the final data analysis [to Dropbox](#).