



# The ways in which plastic is harming us

The "Choose Reusable" Campaign



# Single use plastic consumption drives fossil fuel production

"The ways in which plastic is harming us" is the work of Sustainable Plymouth.

Oil demand for transport is expected to slow by 2050 due to the rise of electric vehicles and more-efficient combustion engines, but that would be offset by rising demand for petrochemicals, the IEA said in a report.

“The petrochemical sector is one of the blind spots of the global energy debate and there is no question that it will be the key driver of oil demand growth for many years to come,” IEA Executive Director Fatih Birol told Reuters.

Petrochemicals are expected to account for more than a third of global oil demand growth by 2030 and nearly half of demand growth by 2050, according to the world’s energy watchdog [International Energy Agency]

Source Credit: Reuters

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# Carbon emissions from manufacturing single use products

## Why reusable dishware is the greenest option

The biggest environmental impact of disposables happens before you buy the product. The majority of a product's impact—energy, resources, carbon emissions—come from sourcing the materials, manufacturing and transportation.

Because reusable cups, cutlery and dishware are used thousands of times in a typical restaurant setting, even when factoring in dishwashing, they use far less energy, water and resources over their lifetime than would be needed to make, transport and dispose of thousands of their disposable counterparts.

Reusable dishware, even if only offered to customers for on-site use, is the best environmental choice.

Source: [www.portlandoregon.gov/sustainabilityatwork](http://www.portlandoregon.gov/sustainabilityatwork)

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Image credit: Jovana Milanko

# Plastic releases greenhouse gases

According to a study by the University of Hawaii, plastic in sunlight emits greenhouse gases

Amid all the unsettling news about how plastic degrades into tiny microscopic bits and gets into the fish we eat and the water we drink, one study from the University of Hawaii at Manoa really stuck out for people who follow climate change news. It found that plastics emit greenhouse gases as they degrade in sunlight – in particular methane and ethylene.

That's no great surprise given that plastic is derived from fossil fuels. But it's worth noting that methane is roughly 30 times more potent a heat-trapping gas than carbon dioxide. The University of Hawaii researchers tested seven types of plastics as they degraded: polyethylene terephthalate, polycarbonate, high-density polyethylene and low-density polyethylene, acrylic, polypropylene, and polystyrene. "All gave off methane and ethylene in the days after being exposed to sunlight, they found, but polyethylene, which is used to make plastic bags, was the worst offender," *The Scientist* reported.

Link to study:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0200574>

Source: Yale Climate Connections via The Scientist

# Microplastics could disrupt the food chain

Plastic pollution can alter the behavior of marine creatures, researchers say.

The new study, which looked at the interactions between prey and predator and is the first of its kind, found that the behavior of the common periwinkle towards its natural predator the crab, changed when placed in water that contained tiny plastic pellets.


Instead of withdrawing into their shells, as they normally would when picking up the crab's chemical cues, the periwinkles remained passive.

The findings, published in the journal *Biology Letters*, have implications not only for this species, leaving it vulnerable to predation in the wild, but for other marine creatures.

Professor Laurent Seuront from the National Centre for Scientific Research in France said: "If the periwinkles are not able to sense and escape from the predator, they are more likely to disappear and then to disturb the whole food chain."

This could, in turn, be disastrous for whales and dolphins, who play a vital role in maintaining a healthy marine ecosystem by moving nutrients throughout the oceans.

Source: Whale and Dolphin Conservation




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# Microplastics have been found in human stool

Philipp Schwabl, the physician-scientist who conducted the human stool experiment, says he hopes his findings will hasten research into the effects of microplastics on human health. "Based on the research, it was highly likely that microplastics would be present in humans," he says. "But nobody ever investigated if microplastics also reach the human gut. Now this discussion can be taken up in humans."

Source: National Geographic \_\_OCTOBER 22, 2018



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# What do we plan to do about it?

## What is the “Choose Reusable” Campaign?

“Choose Reusable” is an educational component to the Sustainable Restaurant program, an initiative of Sustainable Plymouth

The “Choose Reusable” campaign aims to raise awareness of waste and pollution caused by single use “disposable” food service products, such as straws, take-out containers, plastic utensils, bags, receipts, etc.

Our goal is to educate, inform and compel restaurant management in Plymouth to be more mindful of their practices concerning disposable take-out and dine-in food ware.

In addition to the “Choose Reusable” campaign, Sustainable Plymouth focuses on tackling many of the issues facing our environment.

Together we can achieve sustainable solutions.



Photo by: James Watt

## 500 million plastic straws are thrown away daily in the USA

Plastic litter from takeout orders — including cups, plates, cutlery, and straws — is a prime source of the estimated 269,000 tons of plastic pollution swept into waterways and oceans, where they partially degrade, harming marine life and affecting human health;

More than 100 million pieces of plastic utensils are used by Americans every day. They can take up to 1,000 years to decompose, leaking harmful substances into the earth while they are breaking down; 500 million plastic straws are thrown away in the U.S. alone every day.

Source: Plastic Pollution Coalition

74% of plastics tested contained toxins  
According to an article published by Consumer Reports 10/2/19 regarding a study published in the Journal of Environmental Science and Technology

## What can you do right now?

- Only give out straws and disposable flatware when necessary
- Ask “Did you bring your own container today?”
- Offer discounts or promotions to encourage customers to bring their own food ware
- Post signage stating that you accept reusable containers
- Switch to reusable for in-house eating
- Switch to PFAS free certified compostable food ware when disposable is required
- Compost your food waste and compostable food ware
- Offer recycle bins on site if you must use plastic
- Mark your bins clearly with what is compostable and recyclable



Photo by: Andrew Sutton

## It is estimated that by 2050 there will be more plastic by weight than fish in the ocean

Source: Forbes “Plastic In The Ocean”

In the US 91% of plastic is NOT recycled Source: National Geographic

When a casual dining restaurant switches from disposable to reusable products, the average annual savings is \$5,175.

Source: Clean Water Action “Rethink Disposable” via MassGreen.Org

According to Whale and Dolphin Conservation 56% of observed marine mammals have been witnessed attempting to eat plastic.

### 450 years

A single use plastic bottle that makes its way into the ocean can take 450 years to break down. Source: Whale and Dolphin Conservation

Notwhalefood.com

# Public Policy as a protection to Plymouth's residents

We must take drastic action for a sustainable future now.

It is estimated that by 2050 there will be more plastic by weight than fish in the ocean.

Source: Forbes

Recycling is not the solution.

Only 9% of plastic is being recycled.

Source: National Geographic



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# Plastic is not disposable

There is no good reason to have single use “disposable” plastic, which takes **HUNDREDS** or **THOUSANDS** of years to degrade, in our food service industry.

There should not be single use/ disposable plastic unless it is being recycled.

We must change our thinking and work towards sustainable solutions.



Image Credit: Bob Daemrich

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**THANK YOU**