

Scientists and engineers turn ocean plastic into new products

March 3 2017, by Terry Hastings



Each pair of sunglasses manufactured by Norton Point bears the latitude and longitude of its ocean plastic's origin. In addition to Haiti, the company has identified ocean plastics from Indonesia and Hong Kong as potential collection streams. Credit: Amy Ware

Two years ago, socially conscious entrepreneurs Rob Ianelli and Ryan

Schoenike founded their company, Norton Point, to manufacture sunglasses made from the huge amounts of plastic cleaned up from ocean coastlines.

Their goal was to be a part of the solution to one of the planet's greatest challenges: the 8 million tons of plastic entering Earth's oceans each year. Moreover, they wanted to reinvest their profits in research, education and development efforts that help reduce the impact of [ocean plastic](#).

Now, engineers and polymer scientists with the University of Georgia's New Materials Institute are helping Norton Point, which is based in Martha's Vineyard, Massachusetts, with testing of its "ocean plastics" products and finding new product applications.

"Packaging represents about half of all plastics produced, and single-use plastic items make up the majority of what is found on beaches," said Jenna Jambeck, associate professor of engineering and director of Center for Circular Materials Management in the New Materials Institute.

Her study of ocean plastics, published in the journal *Science* in 2015, quantified for the first time the amount of plastics flowing into the earth's oceans, drawing worldwide attention to the issue.

Jambeck's study was published at an opportune time for the Norton Point founders, who had been exploring the idea of manufacturing sunglasses from ocean plastics. "But we were concerned about doing it right," said Schoenike.

They connected for the first time with Jambeck last year at an Oceans conference, and since then, Schoenike said, the New Materials Institute has "moved our goals and the issue forward" together.



Jenna Jambeck and Jason Locklin of UGA's New Materials Institute help companies develop sustainable materials and practices based on green engineering principles. Credit: Amy Ware

Jambeck explained that one of the plastics used in single-use [plastic](#) products is high-density polyethylene, or HDPE, which doesn't biodegrade. "It only breaks down in the environment by creating smaller and smaller fragments," she said.

Jambeck said we need to ask how we can recapture the valuable resources in materials like littered plastics-that is, repurpose them into new products.

"By changing the way we think about waste," she said, "valuing the management of it, collecting, capturing and containing it, we can open up new jobs and opportunities for economic innovation, and in addition, improve the living conditions and health for millions of people around the world and protect our oceans."

New Materials Institute researchers will work with Norton Point to help make "green" products from re-purposed plastics obtained from locations around the globe.

"Norton Point wants to know how the recycled materials respond to different manufacturing processes like extrusion and injection molding, and how they compare with virgin petroleum-based high-density polyethylene in terms of qualities like impact-resistance, toughness and durability," said Jason Locklin, director of UGA's New Materials Institute and associate professor of chemistry and engineering at UGA.

The institute also is looking to help Norton Point identify new types of products that make the best use of the material properties of ocean plastics.

In the same way that claims on other types of post-consumer waste are regulated, the New Materials Institute plans to explore the potential for certification and labeling of ocean plastics.

Provided by University of Georgia

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