

OCEAN

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OUTER CAPE ENVIRONMENTAL AWARENESS NEWSLETTER



Editor's Comments: The scale of our unprecedented, Worldwide Viral event may reach every one of us. I wanted **OCEAN 51** to include some thoughts for consideration, under a new topic, "STAYING SAFE" which we will be continuing in future issues. As we move beyond our Hallmark 50th Issue, I am proud of the team of researchers who write up our various topics. In future issues we will be recognizing some of them individually. In this issue, I recommend Rae Taylor-Burn's insightfully researched article exploring a mysterious, Northern Africa Locust plague. My other favorite topic in this issue: Lindsey Stanton's "A 2nd Cup of Coffee", a very unique recycling concept.

Thank you for reading and sharing **OCEAN**. Gordon Peabody, Editor

May 2020 Issue No. 51

STAYING SAFE

This Spring has brought many changes to everyone's daily life. There is a global pandemic, COVID-19, and we are all working hard as a community to try to prevent the spread. We wanted to include a few safety tips and resources to help you keep yourself and others safe.

Cape Cod residents can access various local resources and information to stay informed with the Barnstable County Department of Health and Environment: <https://www.barnstablecountyhealth.org/>

Massachusetts has put a Stay-at-Home Advisory in place asking people to stay home whenever possible and the CDC recommends using cloth facemasks (or any easy face coverings).

You can read an easy [DIY guide to make a face covering at home](#).

During these times it is important to remember to heed health advice like staying 6 feet away from people outside your household and washing your hands with soap for at least 20 seconds.

It is also important to remember to stay in touch with your loved ones through phone calls, skype, zoom, or whatever method works best for you.

Sometimes watching the news can be hard but you can stay up to date with current information by viewing [CDC information](#), [local information](#) and [COVID-19 prediction models](#).

You can also call 2-1-1 for a 24-hour state-supported telephone hotline for information on COVID-19 or call 1-800-985-5990 for the national Disaster Distress Helpline for immediate crisis counseling.

If you are looking for ways to help the Cape Cod community remember you can [donate blood](#), volunteer for the [Cape Cod Medical Reserve Corps](#), donate to nonprofits or food banks and support local businesses.

Further information:

www.barnstablecountyhealth.org

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

<https://covid19.healthdata.org/united-states-of-america>

<https://www.cdc.gov/coronavirus/2019-ncov/index.html>

<https://www.barnstablecounty.org/2020/04/20/send-a-message-of-thanks-to-workers-on-the-frontline-during-covid-19/>



Closer Look Department: INTERRUPTIONS IN RECYCLING

As we are all consumers of goods, it is easy to lose sight of the environmental cost our consumption creates. While we may dutifully have a separate bin for recyclables, we pay little attention to the fate of our consumed materials once they travel from our hands to our bins, and especially once they are scooped by local waste collection services. Where do they go?

Until 2018, much of the United States' recycling was shipped to China, where low-wage laborers picked through our waste, sorting the usable materials from flimsy polyethylene and dirty or damp paper and cardboard. According to David Allaway, a senior policy analyst in Oregon's Department of Environmental Quality,



Photo Credit: U.S. EPA

China's acceptance of our castoff plastic enabled U.S. consumers and waste management companies to be careless, tossing recyclable (clean paper, plastic, metal, glass) and non-recyclable (straws, grocery bags, takeout containers) materials in together. This fed our perception that we were acting in an environmentally friendly manner, when in reality we may have been feeding a system that processed recycled materials in an environmentally detrimental way. In 2018 China placed restrictions on the import of polyethylene waste products, forcing countries that historically exported their recycling to reconsider processing options.

China's restriction of imported plastic recycling prompted a few different responses, including the construction of expensive but successful sorting and processing facilities in Japan, and a turn towards burning waste for energy in England. In addition to a national effort from the EPA to promote recycling in November of 2019, the U.S. response has come on a more localized scale. Some towns charge residents to recycle, money that will go toward the expensive sorting process, while some towns have abandoned curbside recycling altogether, deeming it unworthy of the cost and effort. In Berkeley, California residents are asked to sort paper from everything else, which prevents paper from becoming contaminated and clogging the sorting system.

The Closed Loop Fund, created by organizations wishing to promote recycling, provides \$100 million for municipalities to invest in upgrading recycling facilities to cope with increased demand, and many states are turning toward consumer education to manage material input into the recycling system. Some states, including Washington and California, are considering legislation that would mandate manufacturers to manage the "end-of-life" for all generated plastics, and some companies, including bottle manufacturer CarbonLite Industries, are making significant efforts to use recycled plastic pellets in new material production, closing the loop of consumed novel resources.

What can you, as a consumer do to assuage this issue? The simplest tactic is to reduce household waste as a whole, but it is also important to remain attentive to the materials that end up in your bins, ensuring that those with food scraps are cleaned, and that you follow the guidelines set out by your local waste company, separating materials when necessary, or leaving out flimsy plastics if they are not accepted. Follow the well-known phrase: reduce, reuse, recycle.

Further information:

<https://www.sierraclub.org/sierra/2019-4-july-august/feature/us-recycling-system-garbage>, <https://www.epa.gov/amicarecycles/us-recycling-system>

Thank you to **OCEAN** Researcher Dana Bloch

UNDERSTANDING REEF SAFE SUNSCREEN

In our 44th issue of **OCEAN** newsletter, we discussed the potential dangers of many sunscreens based on the chemicals they contain. Countries are now taking precautions into consideration and in 2018 Palau became the first country to ban sunscreens containing harmful ingredients such as oxybenzone. Harsh chemicals from sunscreens have been found throughout Palau habitats and in the tissues of living organisms. Following this ban in 2018, Hawaii has decided to implement a similar ban that will take effect next year. These islands are doing their best to protect the surrounding ocean environment, and we will likely see many other states and nations to follow in their steps.

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UNDERSTANDING REEF SAFE SUNSCREEN (cont.)

Some good news occurring after recent bans is that the market for reef safe sunscreens is increasing, these lack many of the chemicals known to have detrimental effects such as oxybenzone. Some of these alternatives to look for on reef safe sunscreens include zinc oxide and titanium oxide as the active ingredients. Research still has mixed results on how detrimental impacts are, the concentration needed to cause negative impacts, and what all chemicals are labeled as “bad”. Many are buying reef safe sunscreens to limit any potential negative chemical exposure, and these can be purchased almost anywhere from brands such as Australian Gold, Sunbutter Suncare, and Surfdurt.

Further information:

<https://www.bbc.com/news/world-asia-50963080>, http://www.beachapedia.org/Reef_Friendly_Sunscreens

Thank you to **OCEAN** Researcher Abigail Eilar



Photo Credit: eturbonews.com

BUILDING WITH TRASH

China was the biggest plastic recycling capital until 2017 when Chinese government began banning plastic import. Since 2017, China had substantially decreased plastic import forcing big and wealthy countries such as United States and Canada to find other ways to get rid of plastic waste.



Photo Credit: Mike Chassie

China as well as other countries that imported plastic to be recycled became overwhelmed with the amount of plastic that could not be recycled thus ended up polluting their land and water.

To answer the issue of plastic waste one company in Halifax began to recycle plastic waste and turn it into synthetic lumber. It is estimated that about 80 percent of the Halifax municipal plastic is recycled at Goodwood Plastic Products Ltd. The remaining 20 percent of plastic is shipped to other markets in Canada to be recycled into other plastic products. Goodwood Plastic Products Ltd. takes in plastic such as shopping bags, food containers, and plastic jars and turns them into synthetic lumber, guardrail posts to name a few. Other companies use this lumber to create outdoor furniture. Even the municipality purchased picnic tables from them for public parks and beaches. This is a perfect example of how plastic can be recycled and utilized in other plastic forms locally without the hassle of having it be shipped overseas. Goodwood company also worked with another company to create parking lot made entirely from recycled plastic.

Many countries are facing similar challenges in recycling plastic. One solution for the time being could be to send plastic to Goodwood. Countries could also potentially create similar companies to Goodwood to recycle their own plastic waste. With other countries not accepting plastic waste at capacities they used to it is time to think outside the box and turn plastic waste into a resource instead of garbage.

Further information:

www.cbc.ca/news/canada/nova-scotia/goodwood-plastics-halifax-municipality-plastics-recycling-1.5421166?fbclid=IwAR1Reth3y21AypgI0Tn-GJ_y3eIYoMclQvr3PsGpRrQcsCUA7ReHtuz_fFY, <https://www.npr.org/sections/goatsandsoda/2019/03/13/702501726/where-will-your-plastic-trash-go-now-that-china-doesnt-want-it>

Thank you to **OCEAN** Researcher Darya Lilie

FLOWERS HINDER BUGS, HELP CROPS



Photo Credit: Getty Images

The use of pesticides is a common practice that has come under fire in recent years with public outcry for a more sustainable and eco-friendly solution. In the United States alone billions of pounds of pesticides are used on a yearly basis which end up being detrimental to bee populations, the environment, and even people, when they enter our drinking water. This is why there has been a mandate to reconsider the basic of farming practices.

Several farmers have begun changing their farming practices to reduce the amount of pesticides necessary to protect the crops. Initially wildflowers were planted around the perimeter of the crops which in turn increases the number of natural predators for bugs that eat the crops. However, with this method many of the beneficial insects such as ladybugs and lacewings may not be able to get close enough to the crops to adequately protect them.

Recently a slightly modified technique has emerged, exploring rows of wildflowers planted in between the rows of crops. This allows the beneficial insects to protect the crops more readily. The use of wildflowers is not only a more natural way to protect the crops, but some studies have shown that planting rows of wildflowers increases the number of beneficial pollinators which in turns helps the crop yield.

Further information:

www.theguardian.com/environment/2018/jan/31/stripes-of-wildflowers-across-farm-fields-could-cut-pesticide-spraying_, www.elitereaders.com/farmers-fight-pests-using-flowers-instead-of-chemicals/?fbclid=IwAR2f4tYrAnm9H_N2BrZ1Qow6y8k7qc_Xz-b-SzzyhEz6kGzauairwQscCke

Thank you to **OCEAN** Researcher Lindsey Stanton

Editor's Recommendation 2nd CUP OF COFFEE

For decades food waste has been a blight across the globe with countless pounds of waste being produced on a yearly basis. Although strides have been taken, more work needs to be done. One recent innovation includes a Berlin based start-up; Kaffeeform, that has taken the unique approach to turn coffee grounds into reusable mugs. On a daily basis a team of cyclists travel to local

coffee shops in order to collect the coffee grounds which are then sorted and cleaned at Kaffeeform. Once the cleaning process is complete the grounds are then blended with a mixture of plant fibers, beechwood grains and natural resins. The end product is roughly 40% coffee grounds and completely biodegradable. These mugs are long lasting and even dishwasher friendly. Kaffeeform's founder Julian Lechner hopes to one day expand into both lifestyle products and even furniture pieces. Other companies have also expanded their use of coffee grounds with uses including sneakers, art, various household objects, and 3D printing material. Hopefully in the coming years the uses for coffee grounds will continue to expand reducing the waste from the daily cup of coffee.



Photo Credit: sprudge.com

Further information: <https://www.baristainstitute.com/blog/ella-takalainen/march-2019/second-life-coffee-recycling-coffee-g%20rounds-something-new>, https://www.insider.com/berlin-based-kaffeeform-makes-cups-from-recycled-coffee-grounds-2019-6?utm%2520m_source=facebook.com&utm_medium=social&utm_campaign=sf-insider-food&fbclid=IwAR1%2520ShuXtTtqYGy1hmGC6KlzcKhVcFwZK80DZ2WvL9rHzYV4NIVy_Cs5mw24, <https://www.designboom.com/design/kaffeeform-reusable-coffee-cups-made-old-recyclable-coffee-grounds-07-20-2018/>

Thank you to **OCEAN** Researcher Lindsey Stanton

Editor's Recommendation TRAVELING LOCUSTS LINK NATIONS

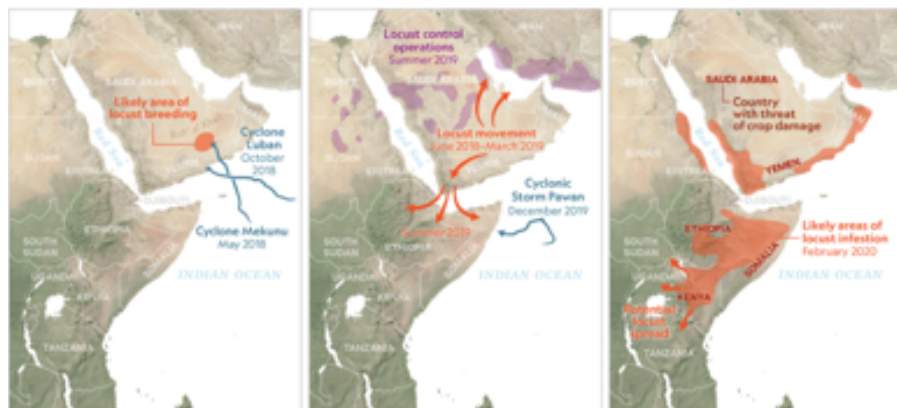


Photo Credit: LA Times

Over the past several months, the Horn of Africa region, encompassing the nations of Somalia, Eritrea, Ethiopia and Djibouti, has been suffering a plague of locusts more severe than the region has seen in decades. Locust populations bloom after heavy rain, and scientists think that the current plague came from a breeding ground on the Oman/Yemen border, where a series of cyclones landed in 2018. Desert locusts only live for about 3 months, but each time they reproduce their population can increase by a factor of 20. As the next generation of

locusts moved north and south from the initial breeding ground over the course of 2019, another rare storm kept the population alive to breed a successful third generation. This third generation, which is estimated to be 8,000 times larger than the original generation, is currently causing devastation in Somalia and Ethiopia, with locusts also moving south into Kenya, Tanzania, and Uganda.

The current locust plague poses an enormous threat to food security in the region, which already has high rates of food insecurity. Each locust eats its own weight in food every day - meaning that in a single day a swarm can eat the food that 35,000 people would eat. The best practice for stopping locust plagues is spraying insecticide from airplanes, but governments in the region do not have the resources to execute this large-scale operation, leaving farmers to fend for themselves. Researchers have also developed a biopesticide which is made from fungal spores, but the challenge of spraying remains. Locusts are eaten as food in some places, and though this may mitigate famine, it is not a viable path towards locust population control, as a single swarm may contain up to 40 million insects. With no path for eradication identified, concern remains on how the Locust population could continue to grow and move over the coming months.



Photo Credit: National Geographic

Further information:

<https://www.latimes.com/world-nation/story/2020-03-26/east-africa-somalia-locusts-devastate-crops-threaten-famine>, <https://www.nationalgeographic.com/science/2020/02/locust-plague-climate-science-east-africa/#close>, <https://www.sciencemag.org/news/2020/02/somalia-unprecedented-effort-kill-massive-locust-swarms-biocontrol>

Thank you to **OCEAN** Researcher Rae Taylor-Burns

PACIFIC OCEAN SYSTEMS AFFECT HURRICANES

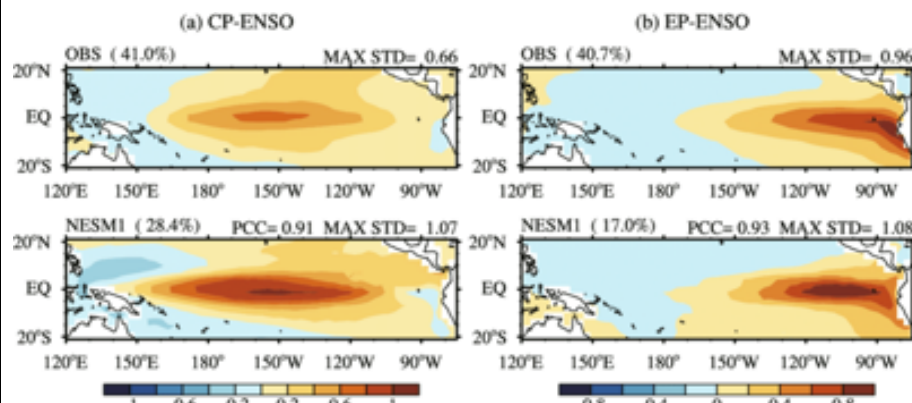


Photo Credit: Joshua Xiouhua Fu

The El Niño Southern Oscillation (or ENSO) is a climatological phenomenon in which the typical trade winds (which flow from East to West across the tropical latitudes) relax. The typical trade winds cause a pool of warm surface water to accumulate over the Western Pacific Ocean, resulting in warmer sea surface temperature near Australia as compared to South America. When the typical trade winds relax, the warm pool of water travels to the East Pacific, causing sea surface temperatures off South America to warm.

This shift causes a change in precipitation patterns across the globe, and it also causes the typically productive Eastern Pacific fisheries to collapse, as warm and buoyant surface waters prevent delivery of nutrients from the deep ocean.

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PACIFIC OCEAN SYSTEMS AFFECT HURRICANES (cont.)

Typical El Nino's also reduce hurricane activity in the Atlantic Ocean, because they cause wind patterns in the upper atmosphere that prevent cyclonic storms from forming. However, scientists have also identified a variation on the typical El Nino that increases hurricane activity instead. Known as the El Nino Modoki (the Japanese word for 'similar but different'), this variation on El Nino causes warming in the Central Pacific Ocean rather than the Eastern Pacific. As the location of ocean warming shifts west, so do the wind patterns that prevent cyclones from forming, allowing hurricanes to form unobstructed over the Atlantic Ocean. Research shows that since 1960, and especially since 1990, El Nino Modokis have become more prevalent than typical El Nino's, raising the question of whether climate change plays a role in El Nino Modoki. This is an active area of research, and scientists are still working to understand what drives the formation of these variations of El Nino.

Further information:

<http://web-static-aws.seas.harvard.edu/climate/seminars/pdfs/kim.etal.sci.2009.pdf>, <https://www.nytimes.com/2009/07/03/science/earth/03hurricane.html>

Thank you to **OCEAN** Researcher Rae Taylor-Burns

CLOSE TO HOME



Photo Credit: capecodlife.com

When Dr. Charles "Stormy" Mayo helped found the Center for Coastal Studies (CCS) in 1976, along with Dr. Graham Geise and Dr. Barbara Mayo, it was a small and humble organization run out of a storage room in the Provincetown Chamber of Commerce attic. Now it is an internationally recognized, non-profit organization and Mayo is the Director of the North Atlantic Right Whale Ecology program at the Center.

There are only approximately 411 Right Whales found in the North Atlantic today. In 2017 and 2018, 21 right whale lives were lost due to entanglement and ship strikes. Meanwhile, only five calves were born during those years. Therefore, conservation efforts for the Right Whale are crucial to

the preservation of the species. One of the deadliest threats to whales is entanglement in fishing gear. In fact, entanglement and ship strikes are responsible for half of known whale deaths.

Mayo attempted to rescue his first entangled whale in 1984, Ibis, with little success, until his father, an experienced fisherman, recommended an old whaling technique called "kegging". This modified technique includes attaching kegs, or large floating devices, to the tangled fishing gear. This exhausts the animal by making it difficult to dive into the water. By slowing down and tiring out the animal, it becomes safer to cut it free. Mayo finally rescued Ibis on Thanksgiving Day. Although Mayo no longer does disentanglements himself, CCS has a Marine Animal Entanglement Response program that has rescued over 200 whales and other marine wildlife.

In 1992, Stellwagen Bank, north of Cape Cod, was designated as New England's first and only, under water National Marine Sanctuary. This Sanctuary is not only important for protecting whales such as the Right Whale, but also for protecting the marine life that these whales depend on for food sources. This holistic approach to whale conservation, according to Mayo, is essential to protecting endangered whale species.

The Center for Coastal Studies is a rich, local source of Whale related information and we encourage exploring the links below. Thank you to our friend Stormy Mayo and the folks at the Center for their extraordinary commitment.

Further information:

<https://coastalstudies.org/rescue/>, <http://coastalstudies.org/event/protecting-stellwagen-bank-a-history-of-the-sanctuary-25-years-and-moving-forward/>, <http://coastalstudies.org/right-whale-research/>, <https://www.theguardian.com/lifeandstyle/2018/jun/20/how-one-man-died-so-a-whale-might-live>, <https://www.facebook.com/watch/?v=631337581024454>

WHAT ARE BOOMERANG BAGS?

When it comes to tackling Community environmental issues, Cape Cod librarian Gabrielle Griffis wants to make a difference. Through the various environmental groups she has been involved with, Climate Change Conversations in Libraries, Communities Responding to Extreme Weather (CREW) and the Wellfleet Recycling Committee, she's taken action in many initiatives including Climate Prep Week, "fix-it clinics" and zero waste PSAs (<https://www.youtube.com/watch?v= 0IwqzLgbyk>).

While working at Wellfleet public library, Gabrielle became involved with Boomerang Bags. Every minute, we use one million plastic bags. Furthermore, 85% of textiles and fabrics end up in landfills. Boomerang Bags is a global grassroots movement that began in Australia after a group of women got together with the goals of reducing plastic pollution and textile waste. Through this movement, groups of volunteers all over the world get together to create upcycled reusable bags out of fabric that would have otherwise gone to waste. At the Wellfleet public library, these volunteers get together twice a month, and more frequently during the summer months, to sew these bags. The library also offers free bags sewn by volunteers to take home and pre-made kits for sewing your own Boomerang bags.

Gabrielle recommends a couple of different ways to get involved in Boomerang Bags. First, she suggests looking at the Boomerang Bags website at boomerangbags.org (link below) which offers an online toolkit for getting started in your community. She also recommends finding a good meeting space for hosting events. Finally, she invites anyone with questions or needing additional help to get in touch with her at gabriellegriffis@gmail.com.

When asked about her favorite part of being involved with Boomerang Bags, Gabrielle focused on Community. The volunteers are people with a shared passion for trying to make a world a better place and caring for Earth's resources. "For people who have the ability to volunteer, Boomerang Bags is a great place to start," Gabrielle says, "It's an amazing seed that will blossom, grow and lead to conversations, relationships and connections."

Further information:

<https://boomerangbags.org/listings/wellfleet-public-library-55-w-main-street-wellfleet-ma-02667-boomerang-bags-cape-cod/>, <https://www.youtube.com/watch?v=y9NloOwaTn0>

*Thank you to **OCEAN** Researcher Isabella Backman*



Photo Credit: Gabrielle Griffis

OCEAN has been consistent with our support of restoring our Natural Resources. One of the most important restoration efforts are in place close to home on Cape Cod, in Wellfleet.

You can catch up with current efforts which can use your support.

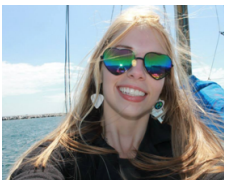
Martha Craig, M.S., P.W. S.; Executive Director, Friends of Herring River;

P.O. Box 565, South Wellfleet, MA 02663, 508-214-0656 (office), 508-439-9980 (cell)

For more information: <http://www.friendsofherringriver.org/>

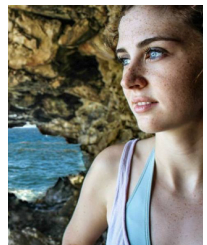


Image of Wellfleet Oysters by Joy Cuming, Anne Architects, Orleans, MA.



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and tracking the various articles for each issue.



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