Solutions To Plastic Pollution

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Technologies and Solutions to Manage Plastic Waste in Small and Remote Islands

Beacon Press Management of Marine Plastic Debris gives a thorough and detailed presentation of the global problem of marine plastics debris, covering every aspect of its management from tracking, collecting, treating and commercial exploitation for handing this anthropogenic waste. The book is a

unique, essential source of information on current and future technologies aimed at reducing the impact of plastics waste in the oceans. This is a practical book designed to enable engineers to tackle this problem—both in stopping plastics from getting into the ocean in the first place, as well as providing viable options for the reuse and recycling of plastics debris once it has been recovered. The book is essential reading not only for materials scientists and engineers, but also other scientists involved in this area seeking to know more about the impact of marine plastics debris on the environment, the mechanisms by which plastics degrade in water and potential solutions. While much research has been undertaken into the different approaches to the increasing problem of plastics marine debris, this is the first book to present, evaluate and compare all of the available techniques and practices, and then make suggestions

for future developments. The book also includes a detailed discussion of the regulatory environment, including international conventions and standards and national policies. Reviews all available processes and techniques for recovering, cleaning and recycling marine plastic debris Presents and evaluates viable options for engineers to tackle this growing problem, including the use of alternative polymers Investigates a wide range of possible applications of marine plastics debris and opportunities for businesses to make a positive environmental impact Includes a detailed discussion of the regulatory environment, including international conventions and standards and national policies

Where Is the Value in the Chain? Frontiers Media SA

The rising production and consumption of plastic combined with mismanagement of plastic waste is leading to significant pollution of marine and coastal areas. Addressing plastic waste on islands is crucial because of their roles as both receptors and contributors. While there is no single solution to turn the tide on plastic pollution for small and remote islands, a combination of technologies and

other upstream and downstream solutions can help these communities effectively manage plastic waste, safeguarding their valuable ecosystems and livelihoods. New innovative technologies to treat plastic waste only work effectively in specific island contexts with viability impacted by many different aspects including the volumes and type of plastic waste, existing solid waste management systems, infrastructure, and community awareness. In addition to treatment technologies, other solutions need to be considered such as reducing the plastic input to islands upstream, before it becomes plastic waste, as well as sorting and then transporting plastic waste to a viable recycling market. This study combines a global assessment of plastic waste management on islands with a review of existing technologies and their viability in island contexts to develop the Technology Options for Plastic waste for Island Contexts (TOPIC) Toolbox which was then piloted on five islands in Malaysia. The TOPIC Toolbox supports island decision-makers in identifying technologies and a potential mix of technologies and other solutions to treat plastic waste for their island.

Say Goodbye to Plastic Penguin

In 1907, a chemist named Leo Baekeland invented the first synthetic plastic. In the little more than 100 years since, plastic has benefited humanity even while we polluted Earth with it. During the 1950s, plastic production rapidly increased and since then, people have created billions of tons of plastic. Millions of tons of plastic enter the world's fragile oceans and ecosystems every

year. This informative book examines the globally significant plastic pollution problem, how it became so bad, and the steps that governments, activists, and young people are taking to demand change.

One Plastic Bag **World Bank Publications**

The objective of this guide is to raise awareness about the oceans' crucial importance to us and to the planet, and the growing threats posed by plastics discharged into and accumulating in the oceans. The guide outlines the key problems and challenges and how these can be addressed. The guide is promoting circular solutions to the ocean plastic pollution, and intends to inspire impactful action and change.

The Zero-Waste Chef Microplastic in the Environment: Pattern and Process Plastics have transformed every aspect of our lives. Yet the very properties that make them attractive--they are cheap to make, light, and durable--spell disaster when trash makes its way into the environment. Plastic Soup: An Atlas of Ocean Pollution is a beautifully-illustrated survey of the plastics clogging our seas, their impacts on wildlife and people around the world, and inspirational initiatives designed to tackle the problem. With striking photography and graphics, Plastic Soup brings plastic pollution to brilliant life for readers. According to some estimates, if we continue on our current path, the oceans will contain more plastic than fish by the year 2050. Created to inform and inspire readers, Plastic Soup is a critical tool in the fight to reverse this

trend.

Plastics in the Environment: Understanding Impacts and Identifying Solutions

Academic Press

Marine debris is a global pollution problem affecting marine life, maritime commerce and environmental quality. Scientists, policymakers and the public must be knowledgeable about the source, impact and control efforts if effective solutions are to be developed. Marine Debris addresses the origin of persistent solid waste in the ocean, from urban and rural discharges to waste from ships and the recreational use of oceans. The book identifies key issues from biological, technological, economic and legal perspectives, and gives a framework for controlling each of the main sources of marine debris.

Say Goodbye to Plastic

Capstone

An estimated 8 million metric tons (MMT) of plastic waste enters the world's ocean each year - the equivalent of dumping a garbage truck of plastic waste into the ocean every minute. Plastic waste is now found in almost every marine habitat, from the ocean surface to deep sea sediments to the ocean's vast mid-water region, as well as the Great Lakes. This report responds to a request in the bipartisan Save Our Seas 2.0 Act for a scientific synthesis of the role of the United States both in contributing to and responding

to global ocean plastic waste. The United States is a major producer of plastics and in 2016, generated more plastic waste by weight and per capita than any other nation. Although the U.S. solid waste management system is advanced, it is not sufficient to deter leakage into the environment. Reckoning with the U.S. Role in Global Ocean Plastic Waste calls for a national strategy by the end of 2022 to reduce the nation's contribution to global ocean plastic waste at every step - from production to its entry into the environment - including by substantially reducing U.S. solid waste generation. This report also recommends a nationally-coordinated and expanded monitoring system to track plastic pollution in order to understand the scales and sources of U.S. plastic waste, set reduction and management priorities, and measure progress.

Plastic-Free

John Wiley & Sons

This book, written by a multidisciplinary team of authors comprising scientists, artists and communicators, explores one of the most pressing issues of our time – the menace plastics pose to marine environments

and organisms. It takes readers on a journey that begins on the beaches of Galicia, where the beach litter formed the starting point for an exhibition that combines art and science to alert the audience to the urgent need for action. The journey culminates with a short "plastic story", which reveals a disturbing vision of the future significance of plastics for humans, and an example of how comics can deliver information to a younger audience. Along the way there is plenty of fascinating science, such as insights into the impacts of plastics and microplastics; the new marine ecosystem, known as the "plastisphere"; and the current status of the oceans, from the Arctic to the Mediterranean. The book also explores the historical developments; sustainable solutions, including the use of circular economy methodologies; and protective measures, like those being tried in China and the Far East. Lastly, it describes the role played by rivers as transport vectors for plastic, with special reference to the Danube, and to complete the picture, since most of the plastic is of terrestrial origin, it investigates problems related to microplastics in soils.

Marine Debris Springer Nature

Plastic has become a ubiquitous part of modern life. A cheap,

lightweight material, it is used in everything from food packaging to consumer electronics and microbeads in cosmetic products. However, we are becoming increasingly aware of the problems our reliance on plastic is causing in the environment. For example, recent campaigns have highlighted the build-up of microbeads in the marine environment and the damage this is doing to wildlife, and the problem of marine litter, often in very remote locations. There are also concerns over exposure to plasticisers and their possible consequences for health. The plastics industry is under increasing pressure, not only from the government and environmental groups, but also from consumers, to improve the environmental impact of their products. This book presents an introduction to the uses of plastics and an overview of how they interact with the environment. It is a valuable resource for students studying environmental science as well as researchers working in the plastics industry, and policy makers and regulators concerned with waste disposal and environmental planning and conservation.

Junk Raft 'The Rosen Publishing Group, Inc' Millions of tons of plastic slip into oceans every year. Some floats and

travels slowly with the currents, endangering the health of marine animals. The rest is hardly visible but is far more dangerous. Tiny bits of plastic sprinkle the ocean's surface or mix into the sandy seafloor and beaches. It ends up inside birds, fish, and other animals, harming them-and ultimately humans. Experts struggle with fear and hope as they work to stop the flood of plastic threatening living organisms across the globe.

Handbook of Research on Environmental and Human Health Impacts of Plastic Pollution Island Press

A simple and powerful book educating people about the epidemic of plastic use and solutions for a plastic-free future. If you've heard of the plastic-free lifestyle, but think you don't have time for it in your busy life, prepare to be delightfully wrong. Goodbye Plastic shows you how, whether you're seeking to knock plastic out of your life or just try out a few novel eco-hacks in your kitchen, bathroom, office or dining room. Plastic pollution activist and entrepreneur Sandra Ann Harris invites us to say goodbye to plastic, room by room. Opportunities abound to simplify our lives by re-thinking our wasteful habits--we just need to learn to recognize them.

Plastic Pollution Lerner Digital ™

Research Paper (postgraduate) from the year 2010 in the subject Environmental Sciences, grade: A, Central European University Budapest (-),

course: -, language: English, abstract: Rapid population growth and enormous urban and coastal developments have increased the anthropogenic pollution into the oceans. Human activities may responsible for the decline in biodiversity and productivity of marine ecosystems, resulting in the depletion of human marine food resources (Jenssen, 2003). Furthermore, the marine environment is an important resource for human welfare and health and fortunately in recent years awareness of its intrinsic value has increased (Derraik, 2002). One particular type of threat to marine ecosystems is the pollution from plastics. These particles are a serious treat to the marine biota and human life and entail significant economic and social costs. Further, they reduce the aesthetic and perhaps intrinsic value of the marine environment (Jenssen, 2003). The aim of this paper is to examine the threats from plastic pollution and introduce an interesting case study from the North Pacific Ocean. The paper will describe the current policies and propose market based instruments which can provide solution to the issue.

The Last Plastic Straw

Hatherleigh Press

Due to the non-biodegradability of plastic substances, coupled with

poor waste management practices, plastic pollution has become a major environmental issue within the past decade. However, the negative effects of plastic pollution are rarely opposed, or the solutions proposed are costly or still damaging to the environment. New strategies must be undertaken to prevent irreparable environmental damage from disposable plastic products while maintaining and maximizing the benefits of plastics in specialized cases, such as medicine and public health. The Handbook of Research on Environmental and Human Health Impacts of Plastic Pollution is a collection of innovative research that assesses the negative impacts of plastic on the environment, human health, and ecosystems, and explores biotechnological approaches to solve plastic pollution. While highlighting topics including medical wastes, biodegradability, and phthalate exposure, this publication intends to provide readers with the latest solutions for reducing the burden of plastic on the environment. It is ideally designed for environmentalists, policymakers, instructors, researchers, graduate-level students,

industrialists, and non-governmental organization professionals seeking current research on health and ecosystem concerns from the overconsumption of plastics.

Thicker Than Water Springer Science & Business Media The rising production and consumption of plastic combined with mismanagement of plastic waste is leading to significant pollution of marine and coastal areas. Addressing plastic waste on islands is crucial because of their roles as both receptors and contributors. While there is no single solution to turn the tide on plastic pollution for small and remote islands, a combination of technologies and other upstream and downstream solutions can help these communities effectively manage plastic waste, safeguarding their valuable ecosystems and livelihoods. New innovative technologies to treat plastic waste only work effectively in specific island contexts with viability impacted by many different aspects including the volumes and type of plastic waste, existing solid waste management systems, infrastructure, and community awareness. In addition to treatment technologies, other solutions need to be considered such as reducing the plastic input to islands upstream, before it becomes plastic waste, as

well as sorting and then transporting plastic waste to a viable recycling market. This study combines a global assessment of plastic waste management on islands with a review of existing technologies and their viability in island contexts to develop the Technology Options for Plastic waste for Island Contexts (TOPIC) Toolbox which was then piloted on five islands in Malaysia. The TOPIC Toolbox supports island decision-makers in identifying technologies and a potential mix of technologies and other solutions to treat plastic waste for their island.

Earth's Plastic Problem Springer A sustainable lifestyle starts in the kitchen with these use-what-you-have, spend-less-money recipes and tips, from the friendly voice behind @ZeroWasteChef . In her decade of living with as little plastic, food waste, and stuff as possible, Anne-Marie Bonneau, who blogs under the moniker Zero-Waste Chef, has learned that "zero-waste" is above all an intention, not a hard-and-fast rule. Because, while one person eliminating all their waste is great, if thousands of people do 20 percent better it will have a much bigger impact on the planet. The good news is you likely already have all the tools you need to begin to create your own change at home, especially in the kitchen. In her debut book, Bonneau gives readers the facts to motivate them to do better, the simple (and usually free) fixes to ease them into wasting less--you can, for example, banish plastic

wrap by simply inverting a plate over your leftovers--and, finally, the recipes and strategies to turn them into more sustainable, money-saving cooks. Rescue a loaf from the landfill by making Mexican Hot Chocolate Bread Pudding, or revive some sad greens to make a pesto. Save five bucks (and the plastic tub) at the supermarket with Yes Whey, You Can Make Ricotta Cheese, then use the cheese in a galette and the leftover whey to make sourdough tortillas. With 75 vegan and vegetarian recipes for cooking with scraps, creating fermented staples, and using up all your groceries before they become waste--including end-of-recipe tips on what to do with your ingredients next--Bonneau lays out an attainable vision of a zero-waste kitchen.

Plastics and the Environment Capstone

Plastic Waste and Recycling: Environmental Impact, Societal Issues, Prevention, and Solutions begins with an introduction to the different types of plastic materials, their uses, and the concepts of reduce, reuse and recycle before examining plastic types, chemistry and degradation patterns that are organized by non-degradable plastic, degradable and biodegradable plastics, biopolymers and bioplastics. Other sections cover current challenges relating to plastic waste, explain the sources of waste and their routes into the environment, and provide systematic coverage of

plastic waste treatment methods, including mechanical processing, monomerization, blast furnace feedstocks, gasification, thermal recycling, and conversion to fuel. This is an essential guide for anyone involved in plastic waste or recycling, including researchers and advanced students across plastics engineering, polymer science, polymer chemistry, environmental science, and sustainable materials. Presents actionable solutions for reducing plastic waste, with a focus on the concepts of collection, re-use, recycling and replacement Considers major societal and environmental issues, providing the reader with a broader understanding and supporting effective implementation Includes detailed case studies from across the globe, offering unique insights into different solutions and approaches

Plastic Pollution Royal Society of Chemistry Where Is the Value in the Chain? Pathways out of Plastic Pollution aims to support policy makers in their efforts to address plastic pollution. By examining the economic and financial implications of plastic management, the report provides key r ecommendatio ns on how to create a comprehensive approach to

addressing plastic pollution and to help policy makers make informed decisions for plastic pollution management. The report brings together new evidence from three analytical undertakings: • Tackling Plastic Pollution: Toward Experience-Based Policy Guidance—A review of existing literature and a summary of findings from the ex post analysis of the effectiveness of plastics policies in 10 countries and states and an evidence-based policy guidance aimed at policy makers and stakeholders involved in design, implementation, and evaluation of policies to manage plastic pollution. • The Plastic Substitution Tradeoff Estimator (the Estimator)—An innovative model that estimates the external costs of 10 plastic products and their alternatives along their entire life cycle, developed and piloted in five countries. The Estimator can be applied in any country to identify what substitution materials, or what combination of them, would perform best in a given scenario and to examine tradeoffs between plastics and alternatives to help establish targets for reduction and

substitution. • The Plastic Policy Simulator (PPS)—A country-level, data-driven model for policy analysis to better describe the impacts of different policy instruments and policy packages on individual economic agents and on the plastic value chain at large. The PPS has been developed as a universal model and piloted in Indonesia. Its objective is to support policy makers and others in government, industry, and civil society in search of policy solutions to stem the flow of plastics by bringing an evidence-based approach to policy.

Plastic Waste and Recycling

National Geographic Children's Books

An exciting account of a scientist ' s expedition across the Pacific on a home-made " junk raft " in order to learn more about plastic marine pollution A scientist, activist, and inveterate adventurer, Eriksen and his co-navigator, Joel Paschal, construct a " junk raft " made of plastic trash and set themselves adrift from Los Angeles to Hawaii, with no motor or support vessel, confronting perilous cyclones, food shortages, and a fast decaying raft. As Eriksen recounts his struggles to keep afloat, he immerses

readers in the deep history of the plastic pollution crisis and the movement that has arisen to combat it. The proliferation of cheap plastic products during the twentieth century has left the world awash in trash. Meanwhile, the plastics industry, with its lobbying muscle, fights tooth and nail against any changes that would affect its lucrative status quo, instead defending poorly designed products and deflecting responsibility for the harm they cause. But, as Eriksen shows, the tide is turning in the battle to save the world ' s oceans. He recounts the successful efforts that he and many other activists are waging to fight corporate influence and demand that plastics producers be held accountable. Junk Raft provides concrete, actionable solutions and an empowering message: it ' s within our power to change the throw-away culture for the sake of our planet.

Springer

Much of what you ' ve heard about plastic pollution may be wrong. Instead of a great island of trash, the infamous Great Pacific Garbage Patch is made up of manmade debris spread over hundreds of miles of sea—more like a soup than a floating garbage dump. Recycling is more complicated

than we were taught: less than nine percent of the plastic we create is reused, and the majority ends up in the ocean. And plastic pollution isn ' t confined to the open ocean: it ' s in much of the air we breathe and the food we eat. In Thicker Than Water: The Quest for Solutions to the Plastic Crisis, journalist Erica Cirino brings readers on a globe-hopping journey to meet the scientists and activists telling the real story of the plastic crisis. From the deck of a plastic-hunting sailboat with a disabled engine, to the labs doing cutting-edge research on microplastics and the chemicals we ingest, Cirino paints a full picture of how plastic pollution is threatening wildlife and human health. Thicker Than Water reveals that the plastic crisis is also a tale of environmental injustice, as poorer nations take in a larger share of the world ' s trash, and manufacturing chemicals threaten predominantly Black and low-income communities. There is some hope on the horizon, with new laws banning single-use items and technological innovations to replace plastic in our lives. But Cirino shows that we can only fix the problem if we

face its full scope and begin to repair our throwaway culture. Thicker Than Water is an eloquent call to reexamine the systems churning out waves of plastic waste. Think. Breathe. Act. William Andrew ORGANIC REACTIONS Th ought-provoking discussions of the challenges posed by—and potential solutions to—plastic and microplastic pollution In Plastic and Microplastic in the Environment: Management and Health Risks, a team of distinguished environmental researchers delivers an up-to-date exploration of plastic and microplastic environmental contamination, conventional and advanced plastics management techniques, and the policies adopted across the globe to combat the phenomenon of plastics contamination. Containing a balanced focus on both conventional plastics and microplastics, this book discusses the potential health issues related to plastic and microplastic infiltration in a variety of global environments and environmental media, including freshwater environments, oceanic environments, soil and sediment, and air. Insightful treatments of commercial and social issues, including the roles of corporate social responsibility initiatives and general education in the

fight against plastic and microplastic pollution, are provided as well. Plastic and Microplastic in the Environment also includes: A thorough introduction to plastic debris in global environments, including its accumulation and disintegration Comprehensive explorations of policies for strengthening recyclable markets around the world Practical discussions of the prevalence of microplastics in the marine environment, air, soil, and other environmental media In-depth examinations of wastewater treatment plants as a potential source point of microplastics, as well as conventional and advanced microplastic particle removal technologies Perfect for academics, postgraduates and advanced undergraduates in fields related to environmental science and plastics, Plastic and Microplastic in the Environment: Management and Health Risks will also earn a place in the libraries of professionals working in the plastics industries and environmental policymakers.