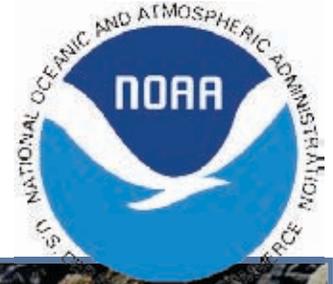


Marine Debris

OFFICE OF RESPONSE AND RESTORATION • NOAA'S NATIONAL OCEAN SERVICE

Online Education Resources on Marine Debris

<http://marinedebris.noaa.gov/outreach/otherres.html>



Alliance for the Great Lakes

Great Lakes in My World: This is an educator resource for kindergarten through eighth grade that addresses Great Lakes state learning standards, the Adopt-A-Beach program, and a service learning and citizen science program tailored to all ages. The Alliance for the Great Lakes works to conserve and restore the world's largest freshwater resource using policy, education and local efforts, ensuring a healthy Great Lakes and clean water for generations of people and wildlife. The Alliance is dedicated to fostering an ethic of learning, appreciation and care for the Great Lakes. <http://www.greatlakes.org/Page.aspx?pid=340>

American Plastics Council

Plastic Bag Recycling: This web resource provides access to a free resource on plastic bag recycling for consumers, businesses, recycling coordinators, and retailers. Learn how to implement a recycling program, connect with a market, or find a location in your state to recycle plastic bags. www.plasticbagrecycling.org

California Coastal Commission

Waves, Wetlands, and Watersheds: This is a classroom and community activity guide for teachers that addresses issues such as endangered species, marine debris, coastal geology, water use, and much more. It is carefully aligned to the California State Science Content Standards for grades 3 through 8, but can be adapted for use in other parts of the United States. It also includes "Community Action" lessons adaptable for all ages up to and beyond 12th grade. The guide is available to California educators for free from the California Coastal Commission, or it can be downloaded as a PDF.

<http://www.coastal.ca.gov/publiced/waves/waves1.html>

Marine debris is any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes.

**Center for Ocean Sciences
Education Excellence-Southeast**



(COSEE-SE)

Online Educator's Guide to Marine Debris - Southeast and Gulf of Mexico: An educator's guide that is full of great activities that teach about marine debris, abandoned fishing gear, derelict boats, stewardship, and responsibility. http://issuu.com/bgirsh/docs/sea_grant_pages/1?mode=a_p

Center for Microbial Oceanography: Research and Education

C-MORE Science Kits - Marine Debris: "To introduce 8th to 12th grade students to the sources, distribution, fate, and consequences of plastics and other trash in the ocean. By examining the diversity of plastic consumer products and their disposal, students gain an appreciation for how humans are fundamentally altering the global environment." http://cmore.soest.hawaii.edu/education/teachers/science_kits/marine_debris_kit.htm



Many creatures are entangled in derelict fishing gear each year, from large humpback whales to small crabs. *Photo courtesy of NOAA PIFSC.*

City of Oceanside's Clean Water Program

Clean Water, Stormwater, Litter: Just for Kids
This is an interactive website for kids to help them learn how pollution enters our creeks, rivers, bays and beaches. <http://www.oceansidecleanwaterprogram.org/kids.asp>

City of Phoenix, AZ

Storm Drain Dan Coloring Books, Episode 2 and 3: Children learn through the "Storm Drain Dan" coloring and activity books about stormwater pollution and what they can do at home and in their neighborhoods to help

keep their environment clean. <http://phoenix.gov/menu/kidgames.html>

Clean Virginia Waterways/Longwood University

Litter and Debris in our Waterways: This web resource was developed by Clean Virginia Waterways and provides teachers and students with a summary of sources, types, impacts of litter and debris in rivers, streams, bays, oceans and other bodies of water. Solutions to this problem are also discussed. For teachers, there is a discussion on "Litter as a Teaching Tool" and a list of resources. <http://www.longwood.edu/cleanva/litter.htm>

Water Resources-Lesson Plans: These lesson plans support interdisciplinary and problem-based teaching about watersheds, water quality, stewardship, and management issues. Classification skills, data analysis, and experiment design are presented to promote a meaningful outdoor experience for students. Each lesson offers extensions and suggestions on how teachers can modify the lessons for older or younger students.

- Classifying Aquatic Debris (Grade 3)
- Helping Cleanup a Waterway (Grade 6)
- A Scientific Cleanup (Grade 10)

<http://www.longwood.edu/cleanva/teachersvawatercurriculum.htm>

Environmental Protection Agency - Office of Wetlands, Oceans & Watersheds

Marine Debris Abatement: This EPA website provides an overview of the marine debris issue plaguing the waters of the United States. Background information on the sources and impacts of debris, relevant legislation addressing this issue, suggestions on what citizens can do, and what the EPA and its partners are doing to reduce the presence of marine debris are posted with access to additional resources of information. <http://www.epa.gov/owow/oceans/debris/>

Assessing and Monitoring Floatable Debris: This document provides examples of monitoring and assessment programs that have been established in the United States to address the impact of floatable debris, as well as examples of mitigation activities to address floatable debris, and contact information. It is designed to assist states, tribes, and local governments in developing their own assessment and monitoring programs for floatable debris in coastal recreation waters. <http://www.epa.gov/owow/oceans/debris/floatingdebris/>

Plastic Pellets in the Aquatic Environment Sources and Recommendations-A Summary: This report presents the goals of a study of plastic pellets in aquatic environments conducted by the U.S. EPA Oceans and Coastal Protection Division. This report summarizes what is known about the presence and impact of pellets in aquatic environments. It identifies and evaluates how pellets escape into the environment and suggests recommendations to control the problem. The study promotes EPA's national policy on pollution prevention, which is based on the Pollution Prevention Act of 1990. <http://www.epa.gov/owow/oceans/debris/plasticpellets/index.html>

Factsheet: Marine Debris EPA's fact sheet on marine debris provides a summary of the marine debris issue in the United States, information about the programs and other initiatives being conducted EPA and its partners on the abatement of marine debris. http://www.epa.gov/owow/oceans/debris/factsheet_marinedebris.html

ITW Hi-Cone

Quest of the Ring Leaders Quest of the Ring Leaders is an environmental education program set in an adventure game format. By completing the game, you will gain an understanding about current environmental problems as well as methods to decrease environmental degradation. In coordination with traditional classroom activities, students will learn how they can personally protect the environment. This web-based program introduces students to a recycling program specifically for ring carriers, which produced from non-toxic, LDPE photodegradable plastic. If littered or disposed of improperly and exposed to ultraviolet light (such as sunlight), the ring carriers become brittle and break down into smaller and smaller pieces.



Marine debris is also a navigation and safety hazard. In 2008 the propeller of the NOAA vessel Hi'ialakai became entangled in debris off of Hawaii. *Photo courtesy of NOAA OMAO.*



A ghostnet (derelict fishing net) continues to entangle marine life long after it was discarded. Photo: NOAA

ITW Hi-Cone sponsors Ring Leader, a free school ring recycling program. Since its inception in 1992, over 10,000 schools in the US, England, Ireland, Spain, and Australia have participated recycling rings. To learn more about Ring Leader and how your school can participate, visit www.ringleader.com

Jean-Michel Cousteau, Ocean Adventures, PBS

Kure Waste Chase: In this web-based game, students take on the part of an Ocean Adventures expedition member volunteering for the U.S. Fish and Wildlife Service and explore various habitats (beach, water surface and underwater) to collect as much harmful marine debris as possible in a limited amount of time. Use the tips and handouts below to turn the 'Kure Waste Chase' game into a structured learning activity for students. <http://www.pbs.org/kqed/oceanadventures/educators/kure/gamelesson.html>

Mississippi Department of Marine Resources

Coastworks Coastworks: This is an activity book about Mississippi's coastal resources, such as plants, animals and habitats that targets students in upper elementary grades. Each book includes an answer key in the back. It is available in hardcopy format or as a downloadable PDF. <http://www.dmr.state.ms.us/Kids/>

[coastworks.pdf](#)

North Carolina Big Sweep

SPLISH SPLASH: This is an activity book for teachers of children ages five to seven. It contains twelve activities concerning litter in aquatic and marine environments. Select activities can be modified for older children. <http://www.ncbigssweep.org/Splish%20Splash.html>

RIPPLES: This is an activity book for teachers of children ages eight to eleven. RIPPLES is composed of 16 activities to help students learn the importance of environmental stewardship and the harmful effects of marine debris. <http://www.ncbigssweep.org/Ripples.html>

Northwestern Hawaiian Islands Multi-Agency Education Project

Lesson Plan: Marine Debris - Grades 3-6: Students will perform experiments to examine if debris will float, or blow in the wind. The effects of these characteristics on the marine debris are then discussed. Students will be able to define marine debris, categorize different types of debris and determine how a material can influence what becomes marine debris. http://www.hawaiiatolls.org/teachers/lesson_marine_debris.php

Module: Marine Debris - Grades 4-12: This module is a 'toolkit' for teachers who want to teach their students about marine debris by looking at its impact on the Northwestern and Main

Hawaiian Islands and performing related scientific investigations. It is designed for grades 4-12 and it is my sincere hope that this collection of 'tools' will make it easy for teachers to inspire their students to become 'student scientists' and stewards of the 'aina! <http://www.hawaiiatolls.org/research/NWHIED2005/resources/MarineDebrisModule.php>

Navigating Change The Teacher's Guide to Navigating Change: This is a five part, Hawai'i DOE Standards (HCPS 3) aligned curriculum for grades 4-5. The guide includes five units that are designed to help students explore their relationships to the environment and ways that they can "navigate change" in their own communities.

The instructional activities focus on Hawai'i DOE science, social studies, and language arts standards as well as Na Honua Maui Ola, guidelines for culturally healthy and responsive learning environments in Hawai'i that were developed by the Native Hawaiian Education Council in partnership with the Ka Haka 'Ula O Ke'elikolani, College of Hawaiian Language, UH-Hilo. <http://www.hawaiianatolls.org/teachers/NavChange.php>

Ocean Conservancy

Sea Turtles Coloring Book: The "Sea Turtles" coloring book is fun, educational, and free! Kids will discover where sea turtles live and how they nest. They will also learn about the dangers to turtles, and what can be done to help them. This publication contains both English and Spanish translations.

http://www.oceanconservancy.org/site/PageServer?pagename=fw_turtles

Oikonos

Ocean Stewardship: This site offers free resources for educators and the community, including "Seabirds and Marine Debris, Diet/Bolus Investigations, Migration Mapping" and "Prevent Plastic Pollution."

<http://www.oikonos.org/projects/oceanstewardship.htm>

Storybooks

"All the Way to the Ocean" (2006) by Joel Harper: Printed in three languages (English,



Port reception bin for derelict fishing nets. All nets are used to create electricity in Hawai'i's Nets to Energy program.



Much like Hawai'i's Nets to Energy program, the northeast coast of the US implemented Fishing for Energy. Photo courtesy of B. Haskell.



Volunteers help clean up marine debris.

Spanish, and Mandarin) this children's book helps to remind us all how connected our land is to the ocean -- no matter where you live. <http://www.allthewaytotheocean.com/>

U.S. Dept. of Transportation, US Coast Guard & Ocean Conservancy

The Adventures of Captain Cleanwater: This is an activity book for kids about clean and safe boating. It is designed to show you how people who use boats can help keep the waterways in the United States clean. http://www.uscg.mil/top/downloads/coloring_books/cptnclen/slides/cover.asp

U.S. Coast Guard

Inky the Whale: This is the story of Inky, a female pygmy sperm whale who was found stranded on a New Jersey coast on Thanksgiving Day in 1993. She was rescued with the help of volunteers from the Marine Mammal Stranding Network and a U.S. Coast Guard helicopter. Scientists at the National Aquarium in Baltimore, MD discovered her stomach was full of plastic debris, which was preventing her from getting the nutrition she needed. The purpose of this activity book is to teach children about the problem of trash and marine debris through the true story of Inky. To strengthen the message of Inky's story, teach your children about conservation methods and demonstrate to them how to reuse and recycle products and how to reduce the amount of trash that is produced at home and in the community. Another good way of helping is to participate in a beach or shoreline cleanup as a family, group or class. http://www.uscg.mil/top/downloads/coloring_books/inky/

Officer Snook Water Pollution Program

Officer Snook Coloring and Activity Book: This coloring and activity book discusses how pollution can affect the environment and how young people can make a difference in pollution prevention. It also contains the original Officer Snook story as well as games and activities. The Officer Snook Coloring and Activity Book is geared for elementary age students in the 2nd through 5th grades.

Officer Snook Hands On/Minds On Activity Book: Designed for teachers and educators, the Officer Snook Hands On/Minds On Activity Book provides many water pollution-related activities that can be used in classrooms, workshops, school presentations and community events. Several pollution demonstrations are also provided in the book. Activities and demonstrations can be adapted for any age group.





Derelict vessels, along with derelict fishing gear, are types of marine debris.

Officer Snook And Friends: This coloring book is designed as an early-childhood educational tool. It introduces children to the Officer Snook character and gives a few simple ideas about preventing water pollution. These books are for children in Pre-school, Kindergarten and 1st Grade. This version contains English and Spanish. https://www.kattare.com/secure/7-dippity.com/store/st_list.jsp?catid=6

University of Georgia, Marine Extension Service

Marine Debris and Me - Marine Debris Curriculum: "The purpose of the curriculum is to provide basic knowledge and understanding of marine debris and its hazardous impact on the marine and coastal ecosystems as well as

human health and safety. The primary goal of the curriculum is to provide activities, which help students understand the impact of their actions on the marine environment and themselves."

<http://www.marex.uga.edu/aquarium/TchrRes.html>

University of South Florida, College of Marine Science

Lesson Plans: Marine Debris Summary and Four Lessons

- Talking Trash: To define "marine debris" and to learn the types and amounts of marine debris found each year in national beach cleanups in the United States.
- Trash Traits: To learn about certain characteristics of marine debris and how these characteristics affect where marine debris is found in the environment.
- How Harmful Is It?: To explore the effects of marine debris on people, animals, vessels and communities.
- Clean Sweep: To experience how marine debris can affect a community and to discover that by taking action people can make a difference.

<http://www.marine.usf.edu/beachbuddies/background.html>

Virginia Department of Environmental Quality - Office of Environmental Education

Pollution Solutions-Litter Prevention Activities for Virginia Teachers: This is a curriculum supplement about litter and pollution prevention based on the Standards of Learning for grades K-12. It was developed by the Virginia Resource Education Council and funded by the Litter Control and Recycling Fund. <http://www.deq.virginia.gov/education/polsol.html>