

FAST FACTS:

Marine Debris on Midway Atoll

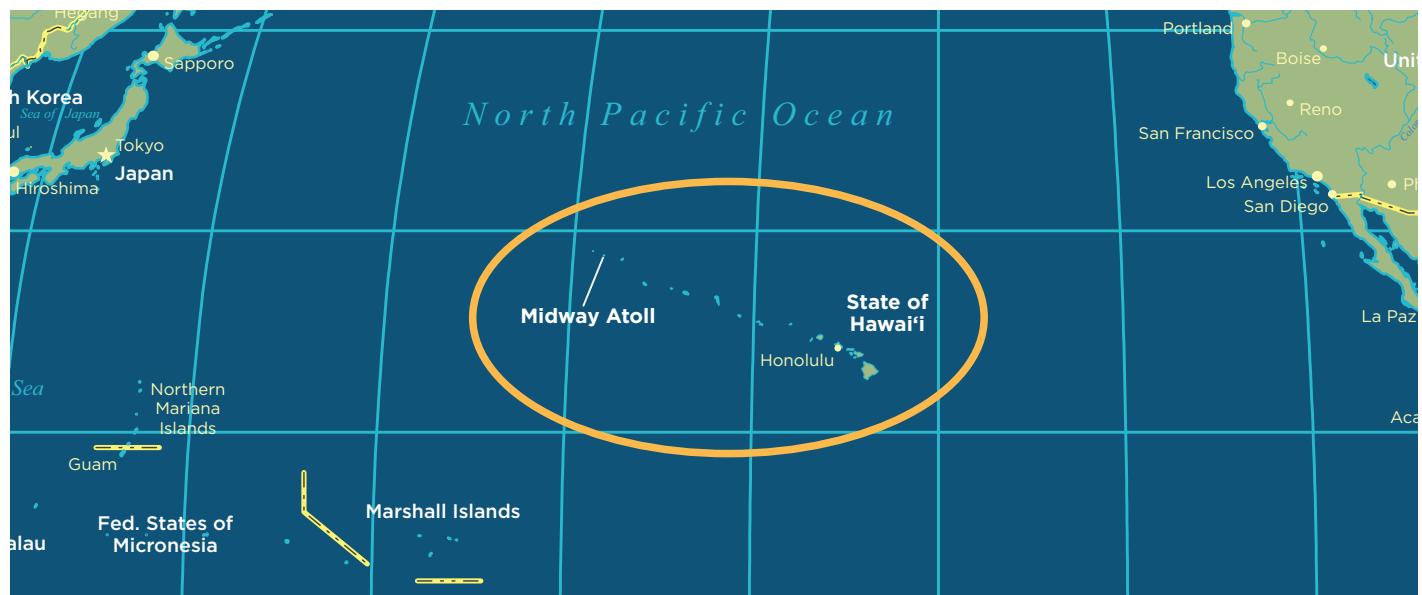


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As its name suggests, Midway lies nearly halfway between North America and Asia, and halfway around the world from Greenwich, England. Located more than 2,550 miles east of Tokyo, Japan and over 3,150 miles west of San Francisco, California, Midway was the site of a decisive World War II battle, making it the most famous of the Northwestern Hawaiian Islands.

However, scores of marine species also call the atoll home. Millions of birds—including albatross, terns, shearwaters, boobies and noddies—use these islands for nesting¹ and species such as the green sea turtle, Hawaiian monk seals and spinner dolphins rely on the islands and their surrounding waters for survival.² More than 250 fish species swim in the waters of this Pacific atoll.³

Sadly, Midway has also become a repository for tons of unsightly marine debris that washes ashore each year, cluttering the beaches, catching on coral reefs and entangling local wildlife.



WHAT IS MARINE DEBRIS?

The U.S. federal government defines marine debris as “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.”⁴ Marine debris is composed of many types of materials including cloth, glass, metal, paper, plastic, rubber and wood.

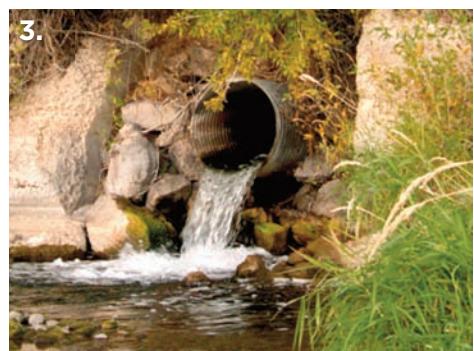
WHERE DOES MARINE DEBRIS COME FROM?

While people are the cause of marine debris, it comes from a variety of sources. Marine debris researchers typically classify debris as coming from either land-based or ocean-based sources or activities.

Land-based debris is created when people mishandle materials and when debris is blown into the water or travels along rivers, storm drains and sewers to the inland waterways and the ocean. Most land-based debris comes from sources and activities related to:

- 1.** Improper disposal of trash and waste from recreational, fishing and waterside activities;
- 2.** Trash being washed, swept or blown into storm drains, which can eventually lead to the ocean;
- 3.** Sewage treatment and combined sewer overflows accidentally or intentionally releasing debris and wastes into local waterways;
- 4.** Inappropriate disposal of packaging and other materials by manufacturers, processors and transporters; and
- 5.** Illegal dumping.

People also generate debris while on the ocean. Ocean-based marine debris is typically caused when people fail to correctly dispose of or stow their trash while on boats, vessels and oil/gas platforms at sea. It can also occur when cargo is not secured properly and is swept off the deck of ships during storms and is produced during aquaculture operations involving shellfish production.



HOW MARINE DEBRIS HARMS THE ENVIRONMENT

Marine debris is more than just an unsightly mess. It also poses real dangers to our environment—and to us.

Effects on Marine Habitat

- Derelict fishing nets, rope and gear—some weighing up to a ton—can crush and break sensitive marine habitats such as coral reefs and seagrass beds and pose hazards to the many species that live in these habitats. Many of these objects do not float and will sink, impacting the organisms and habitats that live on or near the bottom.



TOM ORDWAY

Effects on Wildlife

- Marine wildlife can be injured, maimed or even drown when they become entangled in marine debris and cannot surface to breathe.
- Many forms of debris—such as cigarette lighters, bottle caps and fishing gear—can look like food to marine animals when they forage. When these species swallow this debris, it can block or tear portions of the animals' digestive tracts or create a false sense of fullness, which prevents the animals from eating enough and can lead to starvation.

MARINE DEBRIS AND MIDWAY ATOLL

The debris found on Midway is not generated by activities on the island. Instead, marine debris originates thousands of miles away, carried by winds, storms and powerful currents onto the atoll's beaches, shores and reefs.

Unfortunately, debris continues to be deposited on Midway. In 2008, U.S. Fish and Wildlife Service staff—along with the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA)—collected and removed nearly 20,000 pounds of marine debris from Midway Atoll.⁵

Debris can have detrimental effects on many marine species, especially ones that are only found inhabiting the Northwestern Hawaiian Islands. Hawaiian monk seals (*Monachus schauinslandi*) are one of these endemic (native) species. With an estimated 1,100 to 1,200 Hawaiian monk seals left in the world, the species is in serious danger of extinction.⁶ Midway Atoll provides critical habitat for about 60 of these endangered creatures.

The marine debris that washes ashore and floats in Midway's waters poses a serious threat to their survival. Monk seals have been seriously injured and died after becoming entangled in lost or discarded fishing gear, nets, rope and other debris.⁷



RAY BOLAND / NOAA

MARINE DEBRIS AND MIDWAY ATOLL

In addition to entanglement, sea turtles can also be harmed if they ingest debris. When floating in the water, food wrappers and trash bags look a lot like one of the juvenile green sea turtle's foods—jellyfish. The turtles can mistakenly eat the debris, causing them to choke, suffocate or even starve to death.

Seabirds like the Laysan albatross can also accidentally swallow debris when they're foraging for food. They commonly ingest buoyant plastic items such as cigarette lighters, toothbrushes and bottle caps that mix with fish eggs floating on the water's surface. Adult albatross can then unintentionally feed the debris to their chicks, which can make them feel full, preventing them from eating enough real food for adequate nourishment. It can also block or tear the birds' digestive tracts and damage internal organs.⁸ Laysan albatross can become entangled in derelict or active commercial fishing nets and longline fishing hooks, which can injure and even drown the birds. Other serious hazards for the albatross during flight include building lights, electric wires and airplanes.



WHAT YOU CAN DO

Here are some important steps you can take to help stop the threat of marine debris and protect Midway Atoll, wherever you live.

- Reduce, reuse and recycle.
- While on land, carefully dispose of any trash in the appropriate receptacles and pick up any trash and litter you see.
- Keep storm drains and sewers trash-free as these can lead directly to the ocean and other waterways.
- While at sea, be sure to bring all of your trash back with you for proper disposal on land.
- Start a local recycling program. If your community already has a program in place, encourage your friends and family to get involved.
- Participate in a beach cleanup with your friends and family.
- Become more aware of the sources of marine debris and the threats it poses—and share this knowledge with others.
- Serve as an example to others. Encourage friends and family to keep trash and litter out of the oceans and local waterways.
- Remember that you are responsible for how you dispose of your trash and recyclables.

REFERENCES

- ¹ U.S. Fish and Wildlife Service: Midway Atoll National Wildlife Refuge. Birds of Midway Atoll. <http://www.fws.gov/midway/midwaywildlifebirds.html>, March 22, 2010 (accessed May 19, 2010).
- ² U.S. Fish and Wildlife Service: Midway Atoll National Wildlife Refuge. "Wildlife and Habitat." <http://www.fws.gov/midway/wildlife.html>, March 22, 2010 (accessed May 19, 2010).
- ³ Northwestern Hawaiian Islands Multi-Agency Education Project. "Midway Atoll (Pihemanu)." www.hawaiianatolls.org/about/midway.php (accessed April 26, 2010).
- ⁴ §151.3000 Definition of Marine Debris for the Purposes of the Marine Debris Research, Prevention, and Reduction Act [33U.S.C. 1951-1958 (2006)]
- ⁵ U.S. Fish and Wildlife Service: Midway Atoll National Wildlife Refuge. "Research Projects on Midway." www.fws.gov/midway/research.html, March 22, 2010 (accessed May 3, 2010).
- ⁶ U.S. Fish and Wildlife Service: Midway Atoll National Wildlife Refuge. "Marine Life of Midway Atoll: Hawaiian monk seal." www.fws.gov/midway/monk.html, March 22, 2010 (accessed April 26, 2010).
- ⁷ *Ibid*
- ⁸ Ryan, P. G. and Jackson, S., 1987. The lifespan of ingested plastic particles in seabirds and their effect on digestive efficiency. *Marine Pollution Bulletin* 18: 217-219.