



Photo: NOAA

Marine Debris Research

Marine debris is a globally pervasive issue that poses a significant threat to the marine environment. Research on the issue is multidisciplinary, including but not limited to the fields of chemistry, oceanography, limnology, ecology, toxicology, and economics. Marine debris research is on the rise, with the number of peer-reviewed articles published increasing exponentially over the last decade. However, there are still significant gaps in our understanding of this multi-faceted issue.

The NOAA Marine Debris Program (MDP) partners with academia, state and federal agencies, and non-governmental organizations in order to help close these gaps and advance the state of marine debris science.

Current Research Priorities

Ecological Risk Assessment

How likely is it that an individual species, a population, or a community may be impacted as a result of exposure to marine debris?

Exposure/Response Analysis

To what degree are wildlife and/or habitats exposed to marine debris and is that level of exposure likely to cause harmful biological, toxicological, or ecological effects?

Fate and Transport

How do local processes (i.e., tides, wind, currents) influence nearshore and coastal marine debris movement?

Economic Impacts

Does the presence of marine debris on beaches influence local beach recreation activities and subsequently affect associated tourism economies?

Research Highlights

Following are research projects funded by the MDP. For more, visit <https://marinedebris.noaa.gov/current-efforts/research>.

Microplastic Risks to Sea Scallop Fisheries of the Mid-Atlantic Bight

Woods Hole Oceanographic Institution is conducting fieldwork and laboratory experiments to calculate the risk of microplastic ingestion to scallop populations.

Microplastic Ingestion by the Black Sea Bass

The University of North Carolina Wilmington is investigating if black sea bass consume contaminated microplastics and if they are transferred from prey to larval and juvenile sea bass.

Selective Ingestion of Microplastics by Oysters

The University of Connecticut is conducting research to determine the types and concentrations of microplastics ingested by oysters, how the plastic characteristics influence ingestion of the particles, and the effects of microplastic ingestion on the digestive processes of oysters.

An Ecological Risk Assessment for Microplastics in Seafood American Samoa

Arizona State University is quantifying microplastics and contaminants in water, sediment, fish, and bivalves in American Samoa. They are using a risk assessment framework to assess if there is concern for marine organisms ingesting microplastics and humans ingesting the seafood.

Case Study: Bivalves as Biomonitors for Microplastics in the Great Lakes

The MDP, the NOAA Mussel Watch Program and Loyola University Chicago are collaborating to understand the distribution and abundance of microplastic pollution across the Milwaukee Estuary, WI by using bivalves as a way to monitor for microplastic pollution in the Great Lakes.



Photo: NOAA

Mussels removed from the Milwaukee Estuary are prepared for microplastic analysis.



A researcher holds a juvenile black sea bass.



Chief Scientist

Amy Uhrin

amy.uhrin@noaa.gov



Research Coordinator

Carlie Herring

carlie.herring@noaa.gov

The Economic Impacts of Marine Debris on Tourism-Dependent Communities

Abt Associates, in collaboration with the MDP, are conducting an economic study to understand how marine debris affects the economies of tourism-dependent coastal communities.

Examining Observer Bias in Marine Debris Data Collected by Citizen Scientists

The University of Washington's Coastal Observation and Seabird Survey Team (COASST), is collaborating with the MDP to evaluate and identify mitigation measures for recently identified sources of observer bias, in estimating debris densities using the MDMAP shoreline monitoring protocol.