



## Objective

This focus sheet provides a list of recommended approaches for environmental professionals who work with agency management and legislators on the decision-making process to address microplastics pollution and exposure. The focus sheet also provides a summary of current actions underway or planned to reduce or eliminate plastic and microplastics pollution at the state, tribal, federal, and international levels.

## Introduction

Plastics have become pervasive in modern life and are now used in a wide range of commercial and industrial applications. As a result, microplastics have become one of the most ubiquitous emerging concerns to the global environmental community. Although there is no universally accepted definition of microplastics, there is a consensus that microplastics are solid polymeric materials that are greater than 1 nanometer (nm) and less than 5 millimeters (mm) in size (e.g., smaller than a strand of DNA up to the diameter of a drinking straw) to which chemical additives or other substances may have been added during production. Microplastics may be intentionally produced for specific applications and products or may result from the degradation and fragmentation of larger plastics. Regardless of their origin, microplastics are now ubiquitous in our environment—they have been found on the top of the highest mountain peaks, at the bottom of the Mariana Trench in the Pacific Ocean, and everywhere in between. Microplastics are detected in air, soil, water, and the food humans and animals consume.

Microplastics are broadly divided into two categories:

**a) Primary microplastics** are intentionally manufactured as microplastic particles for commercial application or use in products (e.g., nurdles—small plastic resin pellets that are designed specifically for in plastic product manufacturing—and microbeads in personal care products and household cleaning products).

**b) Secondary microplastics** result from the breakdown of larger plastics (e.g., breakdown of plastic water bottles and tire wear particles from tire use).

Microplastics are a contaminant of emerging concern, and the state of the science is rapidly evolving. While research is ongoing to better understand the effects of microplastics on humans, fish, wildlife, and other organisms, many decision-makers are taking actions to reduce the amount of microplastics that are released to the environment to protect food and drinking water supplies.

Below is a non-exhaustive list of concerns regarding microplastics pollution in the environment and exposure of humans and wildlife to microplastics:

- Plastic production is expected to increase globally in the future. Therefore, the amount of microplastic pollution in the environment is also expected to increase substantially over the next decades.
- Microplastics are persistent and mobile in the environment. As a result, there is concern about microplastics causing harm to ecosystems and humans.
- Chemicals intentionally added to microplastics during the manufacturing process can later leach into the environment and become biologically available.
- Environmental contaminants (such as PFAS, PCBs, and pesticides) can adsorb to the surface of microplastics and then can be consumed by humans and wildlife.
- Humans are exposed to microplastics via inhalation, ingestion, and dermal routes.
- Humans and wildlife can ingest microplastics throughout the food web.
- Microplastics have been reported in human blood, in the deep lung, and in placenta, meconium, and human excrement.



- Vulnerable communities, including those who depend on wild fish and shellfish for their diet, face greater risks to their health and livelihoods from litter and microplastics in marine and freshwater environments.

## Recommendations for State Agencies to Address Microplastics Pollution and Exposure

It is recommended that state agencies develop strategies to reduce microplastics pollution and exposure and improve the plastics circular economy. Here's a summary of recommended strategies:

- Implement programs and support legislation to reduce plastic containers and packaging and increase reuse.
- Reduce consumption of plastic products by reducing their appeal to consumers through the development of educational resources and public outreach.
- Improve strategies to collect waste and to manage materials more sustainably to prevent plastic pollution.
- Develop resources for local government agencies to improve recycling of plastic waste.
- Conduct or support the development of life cycle assessments and alternative analysis of plastic products and materials to prevent regrettable substitutions.
- Support research and development (e.g., at state universities) that address microplastic data gaps, technology developments, and more sustainable alternatives.
- Increase stakeholder engagement and collaboration to address microplastics.
- Where practical, align state goals with federal and global recommendations to prevent plastic pollution.
- Enhance public education and engagement with disproportionately affected communities.

Detailed information on prevention and mitigation of microplastics pollution can be found in the [Mitigation and Abatement](#) section of the ITRC Microplastics Guidance document.

## Summary of Actions Taken to Address Microplastics Pollution and Exposure

### States

In 2021, ITRC surveyed agencies from all states in the United States to determine regulatory status for microplastics. The ITRC survey showed that only four of the 26 states that responded had sampled microplastics and none of the states had established a criterion or standard for microplastics in any environmental and industrial media. See [Section 5.1](#) and [Appendix B](#) of the ITRC Microplastics Guidance Document for more information about the state survey. U.S. EPA programs associated with the Clean Water Act and the Safe Drinking Water Act include tools available to state agencies to assess and mitigate emerging contaminants, including microplastics. As more information becomes available on the effects of microplastics in the future, it is anticipated that states will have increasing interest in developing regulations on microplastics. Currently, California is the leading state to address microplastics; it has a number of legislative bills addressing the issue ([Appendix A.1](#)) The summary of current state-level actions taken on microplastics can be found at [Appendix C](#) of ITRC's Microplastics Guidance document.

### Tribes

No specific tribal microplastics regulations were enacted prior to the publication of ITRC's Microplastics Guidance document. However, in August 2023 three tribes in the Northwest petitioned the U.S. EPA to ban the use of the chemical 6PPD in tires. The chemical is used as a stabilizer to extend the life of the tire but when 6PPD reacts with oxygen/ozone, 6PPD-quinone is created, which is linked to significant impacts to wild salmon populations. Many tribal entities administer their own regulatory programs, which are generally aligned with the U.S. EPA programs, but as is the case with



6PPD-quinone, reduction of this harmful chemical is likely only if mitigated at a federal level. Many tribes have initiated plastic reduction strategies, single-use plastic bans, and marine debris cleanups. These initiatives are important components for mitigating plastic and microplastics pollution. The summary of current tribal-level actions taken on microplastics can be found at [Appendix C](#) of ITRC's Microplastics Guidance document.

## Federal

Although there are limited federal regulations that specifically address microplastics, some initiatives and regulations exist to limit or eliminate intentionally added microplastics in consumer products (e.g., microbeads in personal care products). The summary of current federal-level actions taken on microplastics can be found at [Appendix C](#) of ITRC's Microplastics Guidance document.

## International

The European Commission has a directive to ban certain single-use plastics, and in September 2023 approved regulations to reduce microplastics intentionally added to consumer products. The government of Canada and several countries in Europe and other parts of the world, including India, also have legislative actions or executive orders to reduce or eliminate plastic and microplastics pollution. The summary of current international-level actions taken on microplastics can be found at [Appendix C](#) of ITRC's Microplastics Guidance document.

## Working with Agency Management and Legislators

State agencies can work with state and federal legislators to develop approaches to address the growing problem of mismanaged plastic waste. State agencies often have agency-specific protocols that must be followed when communicating with legislators. Below is a summary of recommendations for state agency staff when engaging with management or elected officials.

- Prepare a briefing document that answers the following questions:
  - What is the problem?
  - Why should the legislator or director/manager care?
  - What action are you asking for?
  - What is the recommended solution?
- During a meeting with legislative staff or agency management, be prepared to define the problem clearly and summarize key messages quickly. It is important to allow time to answer questions from the legislative staff and agency management.
- If there is existing proposed legislation that addresses the issue:
  - review the proposed legislation to ensure there are no concerns with the current proposal
  - note any concerns with the proposed legislation and summarize recommended amendments
  - discuss the proposed legislation with the legislator to gain their support
- If there are existing programs that address the issue, contact those programs—via phone calls, emails, and meetings—to solicit input on your recommended approaches, proposed actions, and implementation plans.
- If a new program implementation is necessary:
  - prepare a one-page document that summarizes the issue, recommended actions, and the implementation plan
  - prepare talking points for a meeting with agency managers or legislators
  - contact agency managers or legislators to brief them on the issue and the proposed program
  - integrate recommendations into long-term state agency planning documents/action plans to highlight the importance of new program needs, and so the recommendations can be referenced in these plans