

# **From Factories to Rivers: Industrial Impacts on Water Quality**

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In the mid-20th century, rivers in the United States were heavily polluted with industrial chemicals, oils, pesticides, sewage, and other refuse. Water quality was so poor that rivers caught on fire and water borne diseases were prevalent. Today, thanks to concerted efforts in stormwater pollution prevention and environmental regulations, the water quality of the United States' rivers has significantly improved.

Although we have come a long way from the days when our rivers could be set ablaze, an estimated 50% of waterbodies still do not meet water quality standards<sup>1</sup>. Waterbodies that do not meet these standards may not be safe for swimming and recreation, aquatic life, fish consumption, or as a drinking water source.

One way the Environmental Protection Agency (EPA) is combatting water pollution is through the National Pollutant Discharge Elimination System (NPDES), established under the Clean Water Act. This program regulates stormwater and wastewater discharges from municipal, industrial, and construction sources.

Stormwater runoff occurs when rainwater flows over land or impervious surfaces like rooftops, paved roads, and parking lots. The runoff picks up pollutants such as trash, chemicals, oils, and dirt/sediments that can harm our rivers, streams, lakes, and coastal waters<sup>2</sup>. Another pollutant of concern is microplastics. Microplastics range in size from 5 millimeters (mm), which is about the size of a pencil eraser, to 1 nanometer (nm), which is invisible to the human eye<sup>3</sup>. As with microplastics, pollutants may be visually undetectable or go unnoticed. Once these pollutants have been mobilized by stormwater

runoff, the polluted (and untreated) water can reach our waterbodies and affect drinking water sources and ecosystems that plants, fish, animals, and humans rely on.

Industrial sites regulated under the NPDES program are required to develop and maintain a Stormwater Pollution Prevention Plan, conduct documented routine inspections, stormwater sampling, employee training, etc. To prevent stormwater pollution, regulated sites must identify stormwater outfalls, implement and maintain Best Management Practices (BMPs), have spill response procedures, conduct regular maintenance, use structural controls, and reduce the exposure of pollution sources wherever possible.

BMPs and other controls that are necessary to prevent stormwater pollution will vary from site to site. If you think your facility could be contributing to stormwater pollution, contact your Regulatory Specialist today to discuss Vanguard Environmental, Inc.'s Stormwater Pollution Prevention Plan services to create a site-specific program and ensure you have the tools needed to comply.

<sup>1</sup> “Environmental Integrity the Clean Water Act at 50.” *Environmental Integrity Project*, 17 Mar. 2022, [environmentalintegrity.org/reports/the-clean-water-act-at-50/](https://environmentalintegrity.org/reports/the-clean-water-act-at-50/).

<sup>2</sup> US EPA. “NPDES Stormwater Program | US EPA.” *US EPA*, 14 Sept. 2018, [www.epa.gov/npdes/npdes-stormwater-program](https://www.epa.gov/npdes/npdes-stormwater-program).

<sup>3</sup> US EPA. “Microplastics Research.” *www.epa.gov*, 22 Apr. 2022, [www.epa.gov/water-research/microplastics-research](https://www.epa.gov/water-research/microplastics-research).