

Annotated Bibliography

Answer the following questions below for each of the 10 sources of evidence you gather.

Research Question: What age range is most negatively affected by microplastics in water

Review Paper 1

- Team member evaluation:
- Citation for the article:Wright, Stephanie L., and Frank J. Kelly. "Plastic and Human Health: A Micro Issue?" *Environmental Science & Technology*, vol. 51, no. 12, 22 May 2017, pp. 6634–6647, pubs.acs.org/doi/10.1021/acs.est.7b00423, <https://doi.org/10.1021/acs.est.7b00423>.
- 1-paragraph summary:
- What information does this source contribute to your research question?
- How does the source relate to other sources in your bibliography?
- What are the strengths and weaknesses of the source?
- How does the source fit into your research topic? Why is it useful?

This article summarizes the effect microplastic have on the human body and specifically what microplastics are. IT also explains the purpose for microplastics and how these get into water. This source contributes information to sources on microplastics for example Wright states"Recently, it was reported that although a wastewater treatment plant (WWTP) reduced the microplastic concentration of effluent by >98%, an estimated 65 million microplastics were still released into the receiving water daily". I believe this source does a good job of using descriptive evidence. This source uses many different graphs and also uses diagrams of the human body to explain microplastics' negative effect inside the body. This source fits into my research topic because it gives me information on what microplastics are,how they get into water,and the health effects it may cause.

Review Paper 2

- Team member evaluation:
- Citation for the articleCampanale, Claudia, et al. "A Detailed Review Study on Potential Effects of Microplastics and Additives of Concern on Human Health." MDPI, Multidisciplinary Digital Publishing Institute, 13 Feb. 2020, www.mdpi.com/1660-4601/17/4/1212. Accessed 20 Sept. 2025.
- 1-paragraph summary:
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This article explores specific locations where microplastic in rivers and other environments. I like how this source's use of images allows the audience to see the microplastic and in many different places. For example people have found microplastic in

a spanish canyon ,southern italy, and more. This source states “Microplastics can contain two types of chemicals: (i) additives and polymeric raw materials (e.g., monomers or oligomers) originating from the plastics, and (ii) chemicals absorbed from the surrounding ambience.”. This quote will help me further explain the negative health effects microplastics may have by including this background information on what kind of chemicals are harming humans.

Research Paper 1

- Team member evaluation: Justin
- Citation for the article: Ji-Kim, Min, et al. “Microplastic Removal in Conventional Drinking Water Treatment Processes: Performance, Mechanism, and Potential Risk - Sciencedirect.” *Science Article*, 16 Apr. 2016, www.sciencedirect.com/science/article/pii/S0043135421006151. Accessed 18 Sept. 2025.
- 1-paragraph summary:
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This was a study regarding the removal of microplastics in water. It detailed what risks that microplastics have on the human body and how they can enter the body through various ways, like inhalation and ingestion. It relates to the other sources in that it details what microplastics are and their effects, particularly, they discovered methods of filtering out the microplastics through water treatment plants by coagulating the plastic or filtering it out using sand. Its strength is that it tells me that sand is a reliable source for minor filtration, which relates to another topic I am doing in my research team; this is also how it fits into my research topic.

Research Paper 2

- Team member evaluation: Justin
- Citation for the article: Talvite, Julia, et al. “Solutions to Microplastic Pollution – Removal of Microplastics from Wastewater Effluent with Advanced Wastewater Treatment Technologies - Sciencedirect.” *E/sevier*, 3 May 2017, www.sciencedirect.com/science/article/abs/pii/S0043135417305687. Accessed 20 Sept. 2025.
- 1-paragraph summary:
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This source also details about the usage of microplastics in water, it also states near the beginning that the two main types of microplastics are polyester and polyethylene, and also

states that these are just two of 13 different polymers. It relates to the other sources, again by detailing the nature of microplastics, and also detailing the experiment of the removal of said microplastics. It also discussed a bioreactor, which is a vessel that can degrade several types of pollutants, such as microplastics. The strengths of this source are that it states most of the important information within the abstract near the top, so I didn't have to read through the long and drawn-out research bits; this was the weakness of the paper.

Research Paper 3

- Team member evaluation:
- Citation for the article: Osman, Ahmed I, et al. "Microplastic Sources, Formation, Toxicity and Remediation: A Review." *Environmental Chemistry Letters*, U.S. National Library of Medicine, 4 Apr. 2023, [pmc.ncbi.nlm.nih.gov/articles/PMC10072287/](https://pubmed.ncbi.nlm.nih.gov/articles/PMC10072287/). Accessed 10 Oct. 2025.
- 1-paragraph summary:
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This article analyzes microplastics from a scientific and health perspective. It explores toxicity and remediation methods of microplastics. While focusing less on specifically microplastic water, I believe it gives credible information with many statistics. For example Osman states "Global plastic production has risen dramatically over the past 70 years to reach 359 million tonnes.". Osman also talks about the bioaccumulation of microplastics and behaviors we can implement to prevent the accumulation of microplastics such as recycling and reusing. This source is extremely useful to me because it gives me a different perspective and analysis on microplastics than other sources, this source being more health-focused and statistically supported.

Research Paper 4

- Team member evaluation: Justin
- Citation for the article: Ma, Baiwen, et al. "Characteristics of Microplastic Removal via Coagulation and Ultrafiltration during Drinking Water Treatment." *Science Direct*, 18 Sept. 2015, www.sciencedirect.com/science/article/pii/S1385894718323908?casa_token=MwcTccMI_DUAAAAA:FwZp-f_aP5HufGMn9s3BrwL2BgUi7BH0KjeDYeZAWHzjxdNAwJ-QvMWir_XDX1Nsxs3ixmLwQhU. Accessed 20 Sept. 2025.
- 1-paragraph summary:
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It produced similar results to the last ones, but it provided a behavioral analysis of Microplastics in drinking water. It defined microplastics as a pollutant, and it also described a type of ultrafiltration using aluminum and iron-based salts to coagulate and filter out the microplastics. It's similar to other sources in that it describes microplastics and their inherent dangers. Its major weakness, like all the other, is that it's very wordy and has complicated phrases that I lacked understanding. It is useful in that there are specific and unique ways to combat the microplastic crisis.

Research Paper 5

- Team member evaluation: Justin
- Citation for the article: Sarkar, Dhruva Jyoti. "Microplastics Removal Efficiency of Drinking Water Treatment Plant with Pulse Clarifier." *Science Direct*, 4 Nov. 2020, www.sciencedirect.com/science/article/abs/pii/S0304389421003101. Accessed 20 Sept. 2025.
- 1-paragraph summary:
- What information does this source contribute to your research question?
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This source informed me about a device known as a Pulse Clarifier and a DWTP (Drinking Water Treatment Plant). This is the first time this was used as a handy acronym and its actual name. Like my other sources, it addresses the problem of microplastics in water and offers a researched solution for combating these microplastics. One strength is that it does represent the information in a seemingly easier-to-digest way, but it was still a tad on the complex side. It fits in that it shows an effective way to combat microplastics.

Research Paper 6

- Team member evaluation: Ayiana
- Citation for the article: Blackburn, Kirsty, and Dannielle Green. "The Potential Effects of Microplastics on Human Health: What Is Known and What Is Unknown," U.S. National Library of Medicine, Mar. 2022, [pmc.ncbi.nlm.nih.gov/articles/PMC8800959/](https://pubmed.ncbi.nlm.nih.gov/articles/PMC8800959/). Accessed 20 Sept. 2025.
- 1-paragraph summary:
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The information that this source contributes to my research question is the different ways that microplastics can affect humans. It even explains how there are different ways that humans are exposed to these plastics. This source relates to other sources because it gives a deeper insight about microplastics and how it can affect the human body. The strengths of my source is that

there is a diverse amount of information with lots of credible quantitative data to add to it. However, there is a weakness to my source because it doesn't necessarily talk about how microplastics affect different age groups of humans. Even so, this source still fits into my research topic because it adds to my knowledge of microplastics and is useful in providing more in depth knowledge on how they affect humans chemically and physically.

Science Communication Paper 1

- Team member evaluation: Ayiana
- Citation for the article: "It Doesn't Take Much for Microplastics to Leach into Food, Researchers Warn." NBCNews.Com, NBCUniversal News Group, 3 Apr. 2025, www.nbcnews.com/health/health-news/doesnt-take-much-microplastics-leach-food-researchers-warn-rcna198975. Accessed 27 Sept. 2025.
- 1-paragraph summary:
- What information does this source contribute to your research question?
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This source contributes to my research question because it provides me with information about how prominent microplastics are in our everyday lives, as well as the health risk of those plastics building up in our bodies. This source relates to other sources because it provides more information about microplastics as well as the health risks that come along with them. The strengths of this source is its credibility with it being backed up by scientists and data, but its weakness is its look as it does not look necessarily scholarly right away. However, this source fits into my research topic because it gives a different perspective on microplastics, so it is useful since it gives an additional aspect to our information.

Science Communication Paper 2

- Team member evaluation: Ayiana
- Citation for the article: Cox, David. "How Do the Microplastics in Our Bodies Affect Our Health?" BBC News, BBC, 25 July 2025, www.bbc.com/future/article/20250723-how-do-the-microplastics-in-our-bodies-affect-our-health. Accessed 27 Sept. 2025.
- 1-paragraph summary:
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This source contributes to my research question because it informs me on how microplastics function in the human body as well as how the start of microplastics studies were conducted. This source relates to the other sources because it continues to provide more information about the background of microplastics. The strengths of this source is that it allows for more

information about how microplastics are studied and how they function, but the weakness of this source is that it has the illusion of being an article that doesn't have credibility, which isn't the case. The way that this source fits into my research topic is because it goes deeper into the world of research around microplastics and this is useful because it provides a foundation to microplastics studies.