

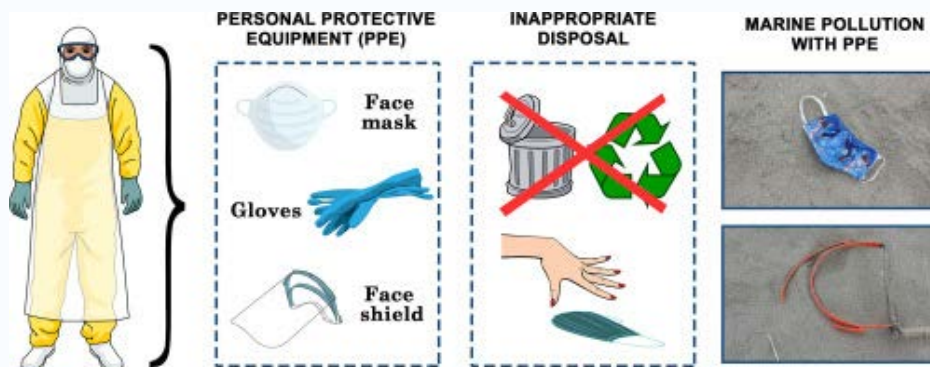
THE PLASTIC PANDEMIC



How has the use of single use plastic shifted throughout the COVID-19 pandemic and what environmental impacts are we now facing?

by Lydia Sellers and Olivia Polemeni

Think back to the start of the pandemic. How much personal protective equipment (PPE) traveled in and out of your household? Then, think about how much of that was single-use plastic. For some, this number may be generally low, but for others such as health care workers, bus drivers, and teachers, and farm workers all on the front line, this number can be very high. In February, the single-use face mask production in China reached 116 million per day, 12 times the average amount pre-pandemic (Adyel, 2020). Due to the rapid demand of PPE items at the start of the pandemic, no clear instructions on sustainable disposal mechanisms were ever communicated to the general public, and now evidence suggests this plastic has reached the marine environment (De-la-Torre et al., 2021).

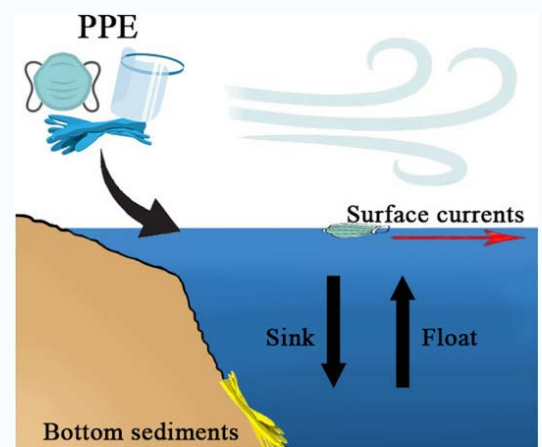


De-la-Torre, G. E., & Aragaw, T. A. (2021)

The growing abundance of plastic waste, especially within the world's waterways, was a major issue before the COVID-19 pandemic emerged. Now, you can find face masks, surgical gloves, splash-proof garments and other PPE items along our beaches, rivers, coastlines, and more. Once PPE items reach the marine

environment, their fates and sinks are determined by their characteristics. Some may sink and reach bottom marine sediments, while others may float near the surface. PPEs can impact the marine environment in numerous ways including by: being ingested by marine megafauna, entangling marine fauna through elastic cords, or breaking down into microplastics which impacts all marine organisms and can be ingested by humans consuming seafood (De-la-Torre et al., 2021).

Throughout the pandemic, our main concern was to protect the vulnerable and ensure front line workers had the necessary tools to perform their jobs in a safe environment. However, our focus now must lie in the long-term impacts facing the entire world, which includes both the environmental and public health risks generate by large amounts of plastic waste.



De-la-Torre, G. E., & Aragaw, T. A. (2021)

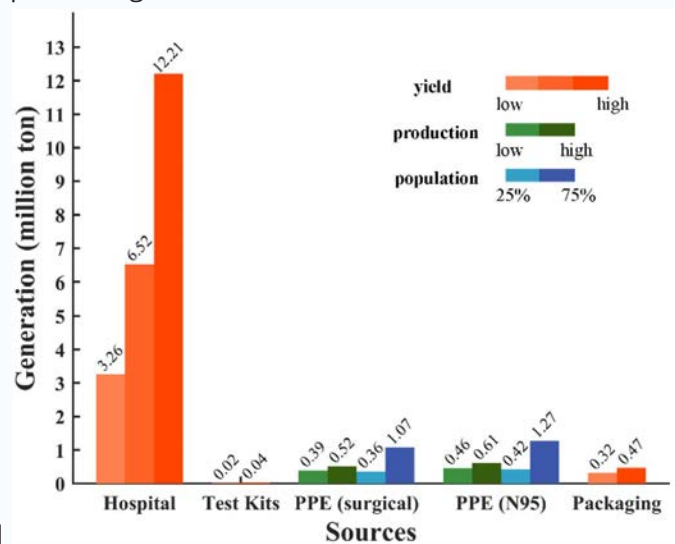
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To continue looking at plastic waste polluting the world's oceans in the time of the pandemic, a new study has come out in which models have demonstrated the magnitude of the plastic pollution crisis that has occurred from the improper disposal of COVID-19 related plastics. The researchers time span is from beginning of the pandemic in which PPE use up-ticked, up until August of 2021.

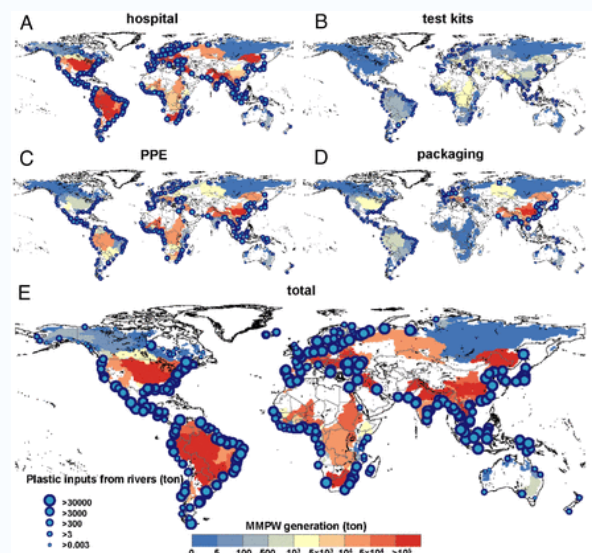
This article dives into the dilemma of processing PPE and other medical plastic and explains why this phenomenon is occurring. PPE are categorized as hazardous waste. Due to this fact, many COVID-19 epicenters have been flooded with PPE due to the increase in hospital patients. The hazardous plastic disposal centers are being overwhelmed and therefore not able to properly dispose of all of the waste. This creates mismanaged plastic waste (MMPW) that will then potentially land in our oceans (Peng et al., 2021).

Here are some statistics that have been collected and/or theorized by the researchers and publishers of this article (Peng et al, 2021)

- 8.4 ± 1.4 million tons pandemic-associated plastic waste such as PPE have been generated which includes 193 countries
- 25.9 ± 3.8 thousand tons of the plastics generated have been released into the global ocean, representing $1.5 \pm 0.2\%$ of the global total riverine plastic discharge
- Most of the plastic waste generated from the pandemic does not come from PPE, rather is comes from the use of single-use plastic inside of hospitals. This can however include special PPE used by medical personal
- An estimated 1.56 million face masks entered the oceans in 2020
- As of August 2021, excess (meaning in addition to the suspected "normal" plastic level) MMPW generated during the pandemic is calculated to be 4.4 to 15.1 million tons .



Peng, Y., Wu, P., Schartup, A., & Zhang, Y. (2021).



Peng, Y., Wu, P., Schartup, A., & Zhang, Y. (2021).

References

- Adyel, T. (2020, September 11). Accumulation of plastic waste during COVID-19. *Science* (New York, N.Y.).
- De-la-Torre, G. E., & Aragaw, T. A. (2021). What we need to know about PPE associated with the COVID-19 pandemic in the marine environment. *Marine pollution bulletin*, 163, 111879.
- Peng, Y., Wu, P., Schartup, A., & Zhang, Y. (2021). (publication). Plastic waste release caused by COVID-19 and its fate in the global ocean.