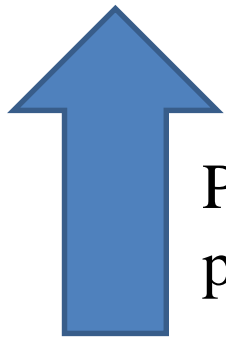


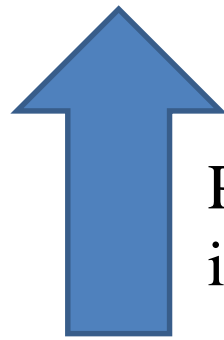
Emerging contaminants in the Raritan River & Bay



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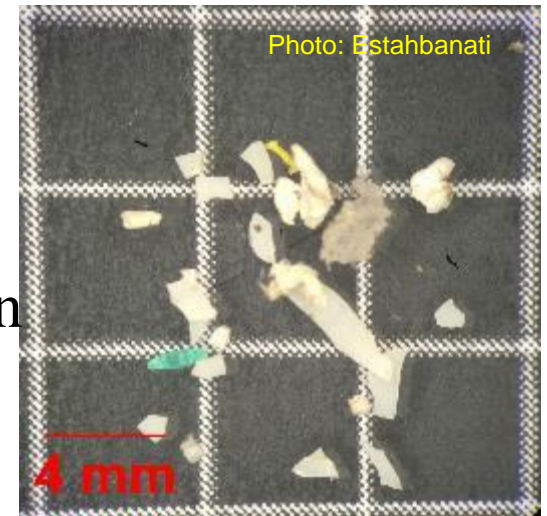
Plastic
production



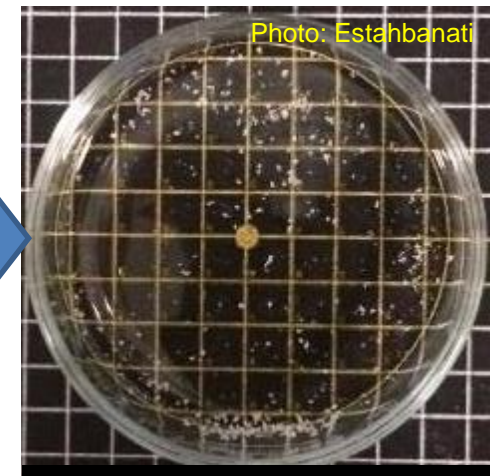
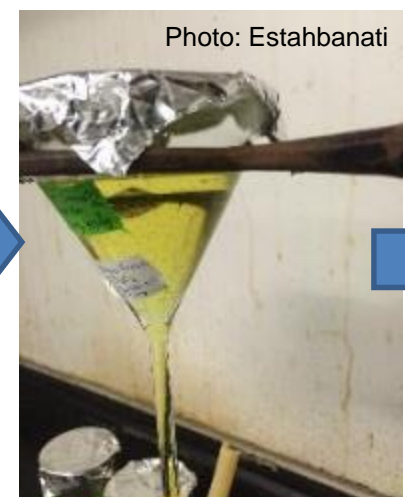
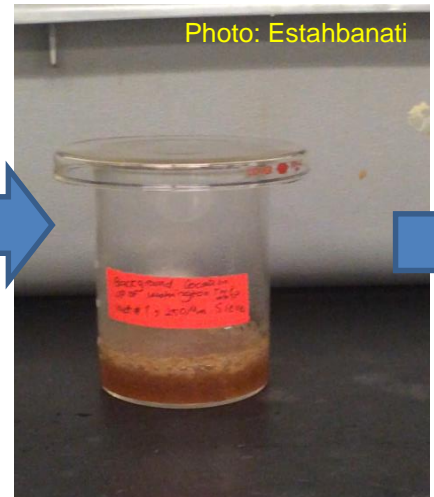
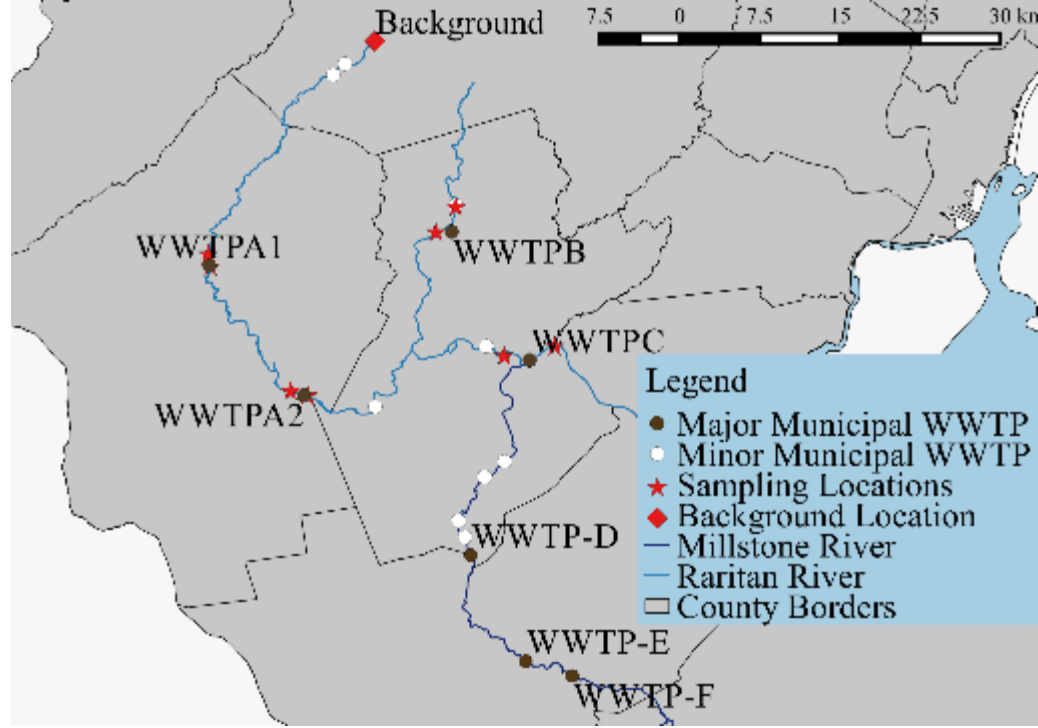
Plastic pollution
in surface waters

Plastic particles < 5 mm are
defined as microplastics.

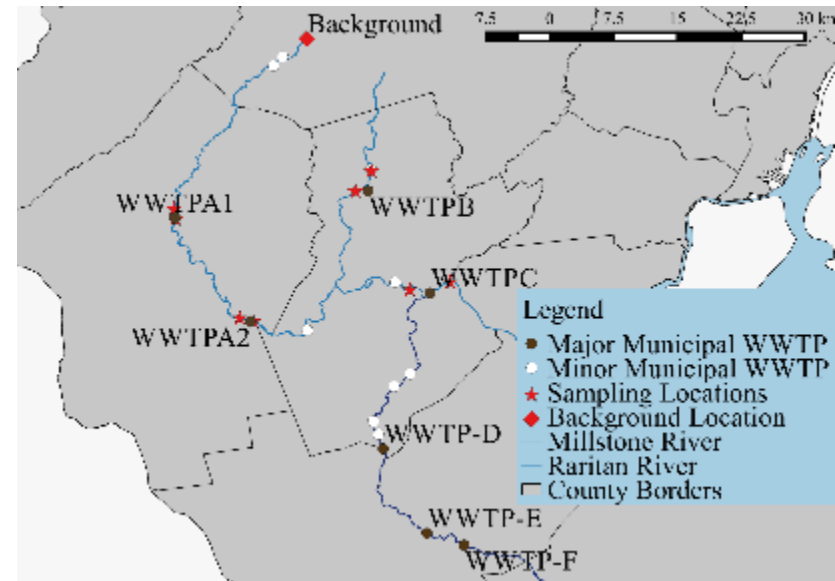
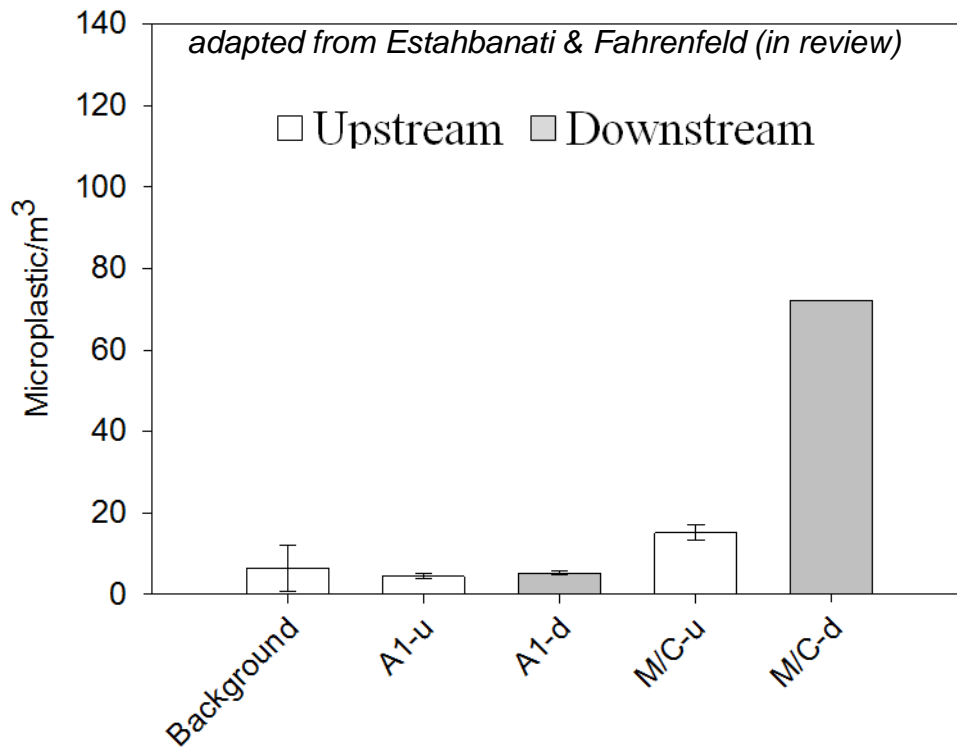
Originate from primary production
and breakdown of macro
plastics



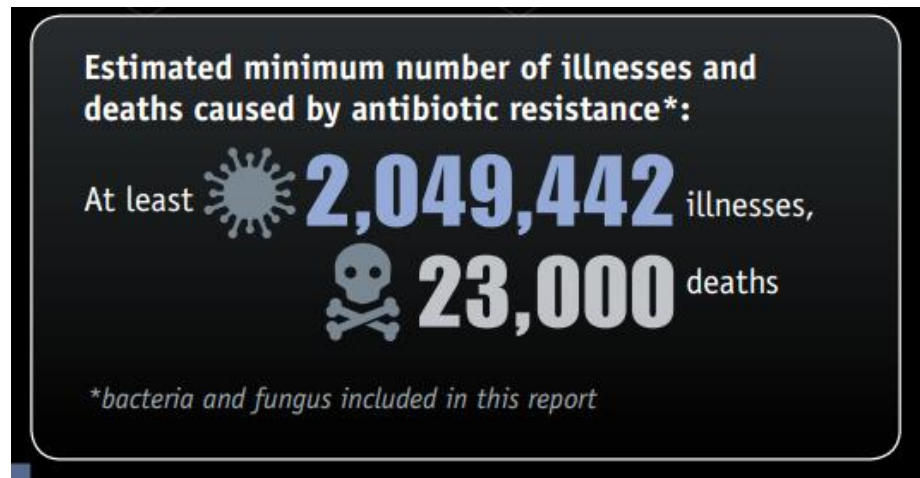
Q1: What is the spatial distribution of microplastics
in the Raritan with respect to waste discharges?



Increases observed downstream for microplastics in select size classes at select sites.



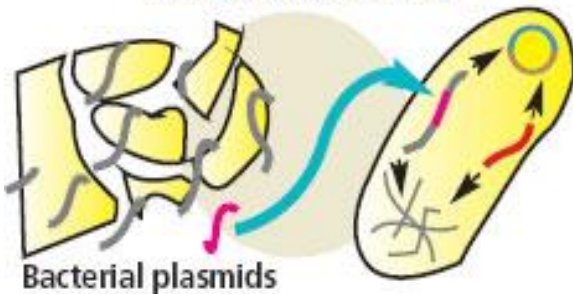
✓ Legislation banning microplastics phased in by 2018.



CDC, AR Threats 2013. Available:
<http://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf>

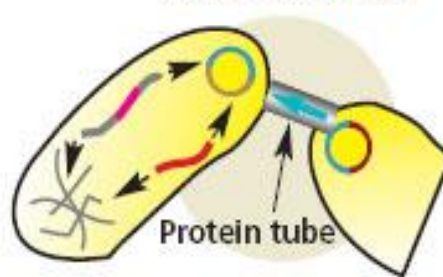
Antibiotic resistance genes (ARG) = DNA

TRANSFORMATION



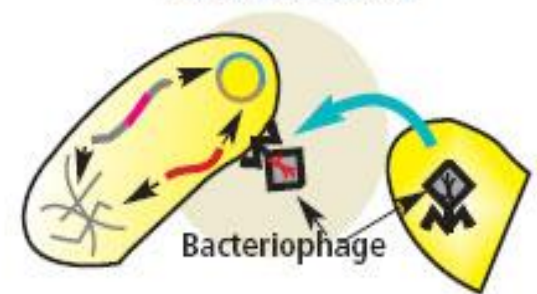
Bacteria acquire new genetic material from the environment

CONJUGATION



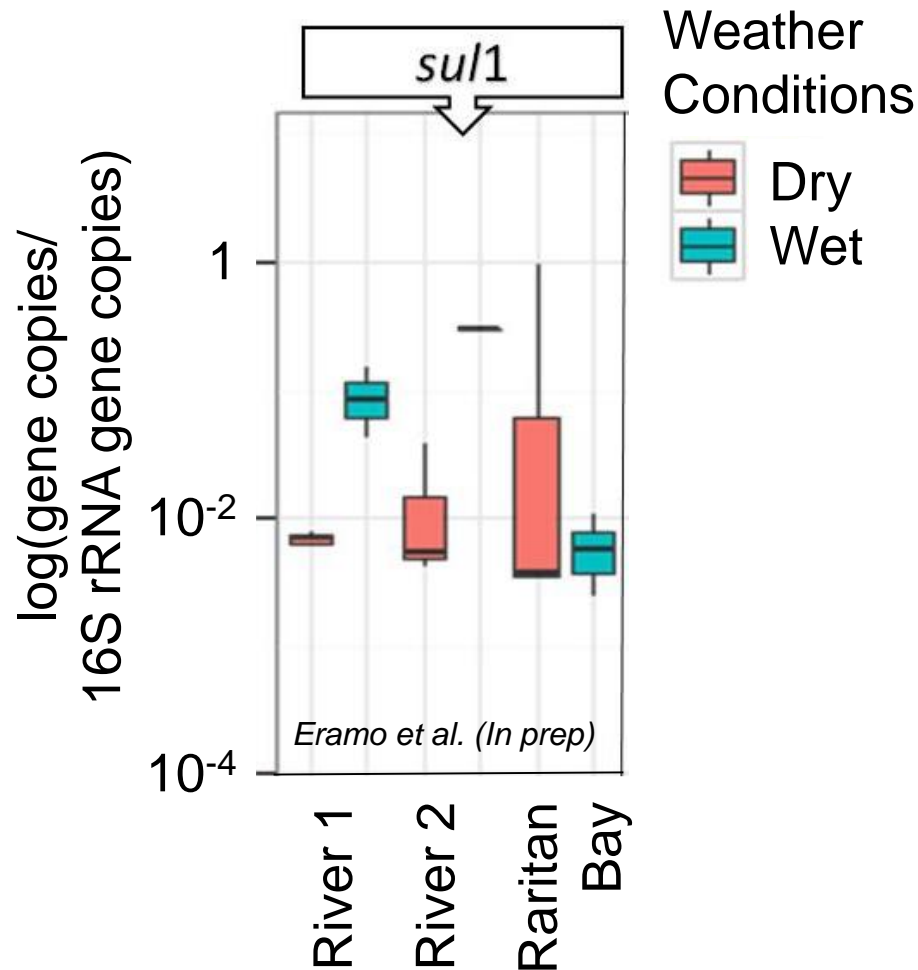
It is the process of direct transfer of DNA from one bacterium to another through a protein tube

TRANSDUCTION



Bacteriophage, viruses that infect bacteria pick up genetic material in the process and pass it on to other bacteria

Q2: What is the role of wet weather flows in contributing to ARG levels in urban watersheds?



Continued study of Raritan River and Bay can improve our understanding of emerging contaminants, especially given the high rates of use and *de facto* reuse in NJ.

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A. Eramo + H.D. Delos Reyes (ARG)

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