



# WPI

## Plastic is forever. Dolphins are not.

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### What causes microplastics to be ingested by bottlenose dolphins in Sarasota Bay and Tampa Bay, Florida?

#### The Problem:

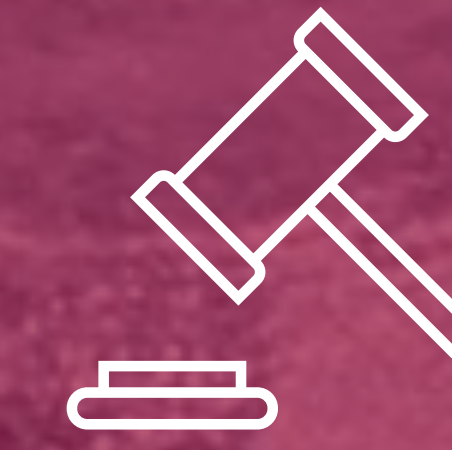
Microplastics have been found in the GI tract of the bottlenose dolphin species. Chemicals found on these microplastics were found in urine of dolphins in Florida.



This could cause harm to the species and harm to the surrounding environment. Possible contributors could be wastewater and leachate.

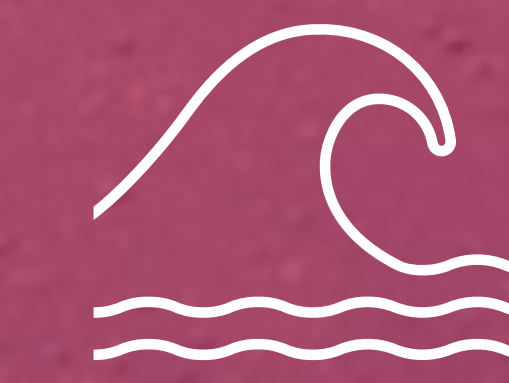
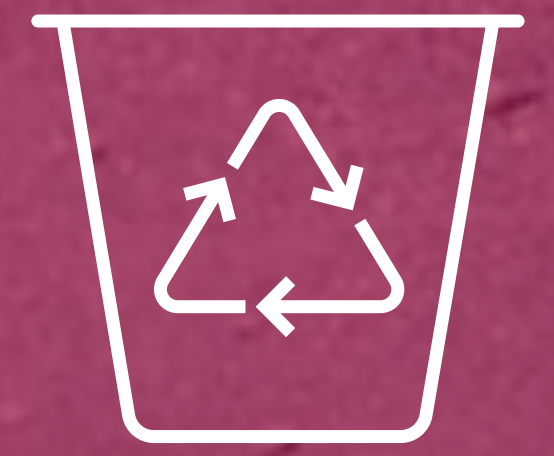


#### The Solution:



Better regulations on wastewater targeting microplastics

Implementing biodegradable products to decrease microplastic levels.



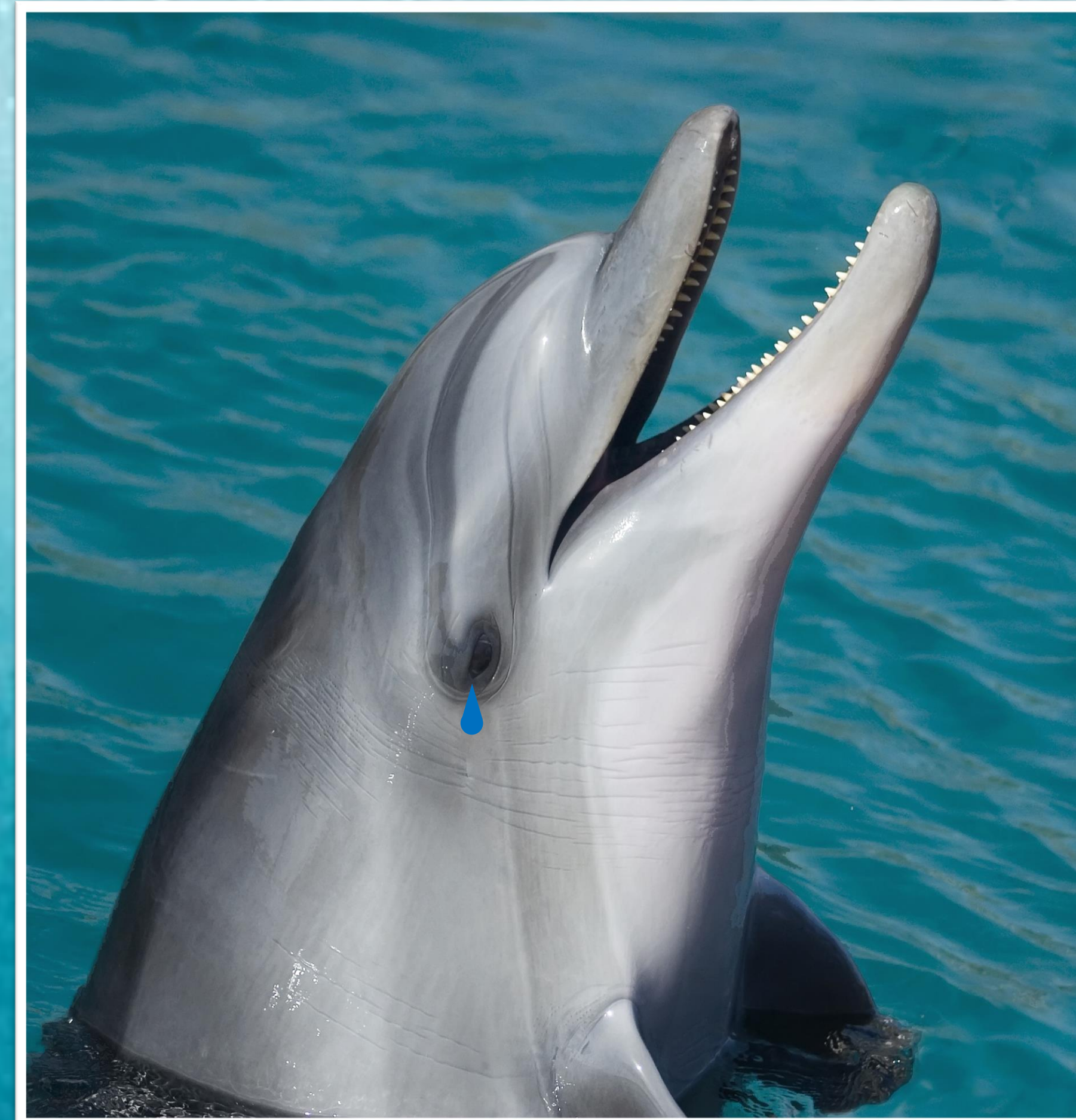
Monitoring bottlenose dolphin population trends in Sarasota and Tampa Bay Florida to understand the long-term effects of microplastics.

#### Human Impacts:

A disruption in the Bottlenose Dolphin species population will impact the whole ecosystem.



Since fishing is a large industry in Florida, an impact to the ecosystem could impact the economy negatively.



#### Acknowledgements/References

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##### Key References:

Hart, L. B., Beckingham, B., Wells, R. S., Alten Flagg, M., Wischusen, K., Moors, A., Kucklick, J., Pisarski, E., & Wirth, E. (2018). Urinary phthalate metabolites in common bottlenose dolphins ( *tursiops truncatus* ) from Sarasota Bay, FL, USA. *GeoHealth*, 2(10), 313-326. <https://doi.org/10.1029/2018gh000146>  
Battaglia, F. M., Beckingham, B. A., & McFee, W. E. (2020). First Report from North America of microplastics in the gastrointestinal tract of stranded bottlenose dolphins (*Tursiops truncatus*). *Marine Pollution Bulletin*, 160, 111677. <https://doi.org/10.1016/j.marpolbul.2020.111677>

The Leah Schad Memorial Ocean Outfall Program is implemented and prohibits the construction of new domestic wastewater ocean outfalls and expansion of existing outfalls.

Revised methods of analyzing chemical and biological components of wastewater



Construction debris landfills must have liners and leachate control systems

Revises max permit term for landfills operating under RD&D permits. Allows EPA to evaluate data from innovative methods.