



## PUERTO RICO & U.S. VIRGIN ISLANDS BIOSOLIDS MANAGEMENT 2018 - STATE SUMMARY

This summary, a dashboard of state statistics, & further data are at [www.biosolidsdata.org](http://www.biosolidsdata.org)

### ***In Puerto Rico....***

Wastewater treatment for most of the island territory is managed by the Puerto Rico Aqueduct and Sewer Authority (PRASA, or La Autoridad de Acueductos y Alcantarillados, which was founded in 1945 and is a governmental organization that owns and operates water and sewer infrastructure, including ~49 water resource recovery facilities (WRRFs) that treat a combined 200 million gallons per day (MGD).

PRASA facilities produce and manage most of the wastewater solids in Puerto Rico. They have a [biosolids composting plant at Mayaguez](#). All of the 2018 PR biosolids data presented here are from PRASA facilities, reported by PRASA to the U.S. EPA ECHO database.

For decades, PRASA has been challenged and, at times, unable to meet some National Pollutant Discharge Elimination System (NPDES) discharge limits and requirements. Permit violations have led to several consent decrees negotiated with U.S. EPA and the U.S. Department of Justice, most recently in 2015. In that agreement, additional investments of more than \$1.5 billion were called for. But, in 2017, two major hurricanes devastated Puerto Rico, crippling infrastructure further. Basic drinking water service was out for months for more than half the island's residents, and a third of the wastewater treatment facilities could not function; they were [finally restored to basic operations](#) only in spring 2018. But pipes and infrastructure still needed attention, and, by 2022, the U.S. Federal Emergency Management Agency (FEMA) was investing nearly \$4 billion to help PRASA rebuild treatment facilities, complete repairs, and build necessary infrastructure throughout the island.

San Juan, the capitol and largest municipality in PR (population ~382,000), is the site of the island's largest WRRF – Puerto Nuevo, which treats an average of 94 MGD. Solids from this facility and the WRRFs at Bayamón (population ~186,000) and Carolina (population ~158,000) were incinerated at the Puerto Nuevo sewage sludge incinerators (SSIs) up until 2017, but that practice has since been abandoned, in part because of new air emissions standards imposed by U.S. EPA in the mid-2010s. In 2018, no PR wastewater solids were incinerated. That year, San Juan and Bayamón solids went to landfill, and Carolina solids went to the Caribbean Composting, Inc. facility in Arecibo.

In 2018, 15 WRRFs sent their solids to Caribbean Composting, which is the one large separate preparer operating in Puerto Rico. Eight other WRRFs report making biosolids into compost, including Mayaguez, the 7<sup>th</sup> largest population center on the island (~70,000), where the PRASA compost facility operates. Some of the Caribbean Compost is bagged and sold under the name “Majestic Garden – Terra Fértil Orgánico.” The composts, bagged or in bulk, are used for agriculture, gardens,

turf, and landscaping. (PR agriculture data:

[https://www.nass.usda.gov/Publications/Highlights/2020/census\\_puertorico.pdf](https://www.nass.usda.gov/Publications/Highlights/2020/census_puertorico.pdf))

There have been several research projects published regarding use of biosolids to improve tropical soil health in Puerto Rico and to enhance local crops, such as cassava and coriander. During the late 2010s, Puerto Rico policies advanced sustainable materials management, including reduction in waste and increased recycling and composting. These have become a major focus in PR because of [limited landfill capacity](#) (as well as other environmental initiatives). (Waste-to-energy [has been proposed](#) as a solution to the landfill capacity problem, but has met numerous challenges from environmental groups and hurricanes.)

The non-hazardous solid waste branch (Manejo de Desperdicios Sólidos No Peligrosos) of the Puerto Rico environment agency (La Junta de Calidad Ambiental) regulates wastewater solids management, in combination with the federal U.S. EPA 40 CFR Part 503 regulations and U.S. EPA Region 2. In general, the WRRFs in Puerto Rico have NPDES permits that indicate that wastewater solids will either be sent to landfill or composted (e.g., for Mayaguez:

[https://www3.epa.gov/region02/water/water\\_permits/DRAFT\\_Mayaguez\\_RWWTP\\_Fact\\_Sheet.pdf](https://www3.epa.gov/region02/water/water_permits/DRAFT_Mayaguez_RWWTP_Fact_Sheet.pdf))

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### ***In the U.S. Virgin Islands...***

There are significant water resource recovery facilities (WRRFs) on the two large islands:

- St. Thomas (island population of ~43,000), which includes the territorial capitol of Charlotte Amalie, is served by the Red Point WRRF, which came online in ~2007, replacing the Airport Lagoon facility.
- St. Croix (island population of ~41,000) is served by the Anguilla WRRF, which had major upgrades in 2007.

There are several additional small WRRFs serving small towns and resorts around the islands.

The Virgin Islands Waste Management Authority ([VIWMA](#)) is responsible for the public sewers and WRRFs throughout the islands, as well as the major landfills. In 2018, the private consulting and operations firm Veolia, which operated the Red Point and Anguilla WRRFs since 2007, [began backing out of its contract](#) because VIWMA owed them nearly \$5 million. Part of the problem was due to the destruction from the same hurricanes that affected Puerto Rico in 2017. In June, 2019, Veolia finished transferring all operations of the two major WRRFs to VIWMA staff.

Based on limited information and news reports, NBDP assumes that all of the wastewater solids produced in the Virgin Islands in 2018 went to landfills. The Anguilla WRRF has sent some of its *effluent* to agricultural uses.

About half of the USVI population relies on on-site septic systems. As in Puerto Rico, there is [growing evidence and concern](#) regarding potential negative environmental and public health impacts from failing and poorly-maintained septic systems, so agencies (including EPA Region 2) and non-profits are working to increase awareness and proper, design, construction, and maintenance of septic systems.

As in Puerto Rico (and all island territories), landfill space is limited and running out, and it's exceptionally costly to transport waste off-island. The Anguilla Landfill on St. Croix and the Bovoni Landfill on St. Thomas are facing issues, including mismanaged liquid sludge disposal at the latter that resulted in public upset as [black liquid was visible running down the side of the landfill](#). Normally, wastewater solids (sludge) are air dried in concrete drying beds before being disposed of.

Even the U.S. National Park Service is challenged by management of wastewater solids. In 2021, they were investigating ~8 acres of the picturesque Caneel Bay park area because the operators of the small wastewater treatment facility there had disposed of solids (sludge) in an on-site landfill that [may not have been adequate](#).

Wastewater and solids infrastructure and management are challenging and underfunded in paradise.

### References:

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Mayaguez Composting Facility:

<https://www.acueductospr.com/planta-de-composta>

[https://www3.epa.gov/region02/water/water\\_permits/DRAFT\\_Mayaguez\\_RWWTP\\_Fact\\_Sheet.pdf](https://www3.epa.gov/region02/water/water_permits/DRAFT_Mayaguez_RWWTP_Fact_Sheet.pdf)

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