



HAWAII

BIOSOLIDS MANAGEMENT 2018 – SUMMARY

This summary, a dashboard of statistics, & further data are at www.biosolidsdata.org

In Hawaii...

- *Space and arable land are limited. Bulk land application is challenging; there is no Class B land application. Most biosolids – 52% – are treated to Class A EQ standards, of which, in 2018, about 60% were used for landscaping, horticulture, and home gardens; 30% for reclamation of abandoned sugar plantation land; and 10% for agriculture.*
- *In 2018, about one quarter HI biosolids went to incineration at the H-POWER energy recovery facility on Oahu.*
- *Honolulu biosolids are treated at a new heat-drying facility operated by Synagro, producing Class A EQ pellets distributed for general use. In 2018, two compost facilities produced additional Class A EQ biosolids, but one – EKO compost on Maui – has since closed.*
- *By 2021, less biosolids was being recycled to soils. More is now going to landfill.*

Biosolids Management in Hawaii

As an island state, land in Hawaii is at a premium. This means that recycling biosolids to soils can be challenging, even when the product is high quality (Class A EQ). In 2018, more than half of Hawaii's biosolids were beneficially reused; as of 2021, the majority of Hawaii's biosolids are incinerated or buried in landfills. But while beneficial use is decreasing, interest in alternatives for biosolids management is increasing: the goal of reducing waste volumes is driving many technological upgrades.

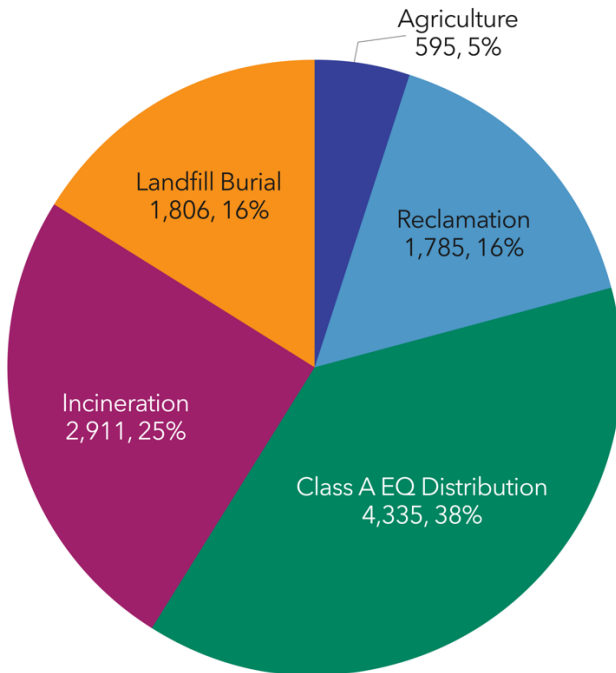
Hawaii's biggest water resource recovery facility (WRRF) is Sand Island, in Honolulu. The city and county of Honolulu contracts with Synagro to manage the solids generated at Sand Island (more information below). In 2018, Sand Island was one of three Hawaii WRRFs processing biosolids for beneficial use. Laie WRF in Honolulu and Maui EKO Compost were the other two (more information below). All biosolids that go to beneficial use are Class A EQ; there is currently no land application of Class B biosolids in Hawaii (nor was there in 2018), though state rules do allow for it.

As of 2021, Kauai County, Hawaii County, and Maui County all landfilled dewatered biosolids cake. Landfill space is also limited and carefully managed. As of mid-2018, privately-owned or -operated WRRFs are no longer allowed to dispose of dewatered biosolids in the municipal landfill on Oahu.

Several WRRFs in and around Honolulu - Honouliuli, Waianae, Kailua, and the privately-owned East Honolulu - send some or all of their biosolids for incineration at H-POWER, a waste-to-energy incinerator. H-POWER, or Honolulu Program of Waste Energy Recovery, is owned by the City and County of Honolulu, and operated by Covanta. Biosolids are co-incinerated with municipal solid waste. The total waste is reduced by 90% before being landfilled, and electricity produced is sold to Hawaiian Electric.

An estimated 90% of HI’s biosolids are managed by private contractors.

Hawaii Biosolids Use & Disposal 2018
(dry metric tons, %)
Total: 11,400



Agency/Department Oversight

The Department of Health (DOH) Wastewater Branch oversees biosolids in Hawaii. Hawaii Administrative Rules 11-62 cover biosolids, wastewater treatment plants, and septic systems. The Rules cover the transportation of septage, but only until it reaches the discharge point of a WRRF. The biosolids program was set up in the early 2000s with the intent to seek delegation from EPA to administer 40 CFR Part 503. After successfully implementing a state level program, seeking delegation is no longer a priority at this time. The DOH Clean Water Branch has primacy of delegation for NPDES permits. Permits last up to five years. WRRFs

that discharge treated effluent to state waters are permitted by the Clean Water Branch (NPDES); unless they ground discharge, in which case they fall under the Wastewater Branch and the Underground Injection Control program of the Safe Drinking Water Branch (if injection well is utilized for final disposal). Biosolids permit holders must report annually to the state.

State Regulations and Permitting

Hawaii follows the federal biosolids rule, 40 CFR Part 503 closely, but has removed some treatment options to better suit local needs and the uniquely challenging island context. The state encourages treating to Class A standards whenever possible, no matter the end use or disposal method.

Additional requirements beyond 40 CFR Part 503 include:

- EQ biosolids for distribution must be moved off site within 60 days of pathogen sampling (fecal testing). This was initiated to avoid excessive stockpiling.
- More stringent pollutant limits. Chromium (not in 40 CFR Part 503) is also included on the list of pollutants that must be tested.
- For Class B land application: sites must be registered with DOH.
- The Wastewater Branch must provide a permit for biosolids management in addition to the WRRF's NPDES permit.

If biosolids meet EQ standards - as most recycled biosolids in HI do - there is no regulation of land application sites. However, preparers and land appliers must follow best practices and keep accurate records to ensure that annual and cumulative pollutant loading rates are not being exceeded. State rules require that records must be retained for five years. Nutrient management plans are not required for biosolids management, but are required for CAFOs and manure management. Land appliers calculate their own agronomic rate, usually based on nitrogen (N). Hawaii topography and surface waters are such that phosphorus (P) is not a major issue at this time - all fresh water moves quickly to the Pacific Ocean. (N is the more significant concern for marine ecosystems.)

The last update to state biosolids rules (HAR 11-62) took place in 2016. Mostly notably, surface disposal was no longer allowed.

Pressures on Biosolids Management and Land Application

Pressures on biosolids in HI as of 2018, as identified by the state biosolids coordinator, include...

- 1) MANAGEMENT ISSUES - the hassle of biosolids recycling/land application
- 2) AGRICULTURAL ISSUES - declining farmland due to less agriculture or due to development, sprawl, seasonal restrictions, or competition with manures, etc.

- 3) ENVIRONMENTAL ISSUES - impacts to soils, organisms, public health, contaminants (pathogens, metals, organic chemicals, etc.)
- 4) PUBLIC INVOLVEMENT - concerns of neighbors, environmental groups, and others
- 5) TRADITION - it's difficult to change from long-standing practices or existing and known infrastructure

Overall, beneficial use of biosolids is decreasing in Hawaii (and has been for several years). Even for Class A EQ biosolids, demand is low and public attitudes are less than enthusiastic. For compost, the general public seems to prefer certified organic products. Many sugarcane plantations, big destinations for biosolids compost, shut down in the early 2000s. Maui EKO Compost Systems, located beside a municipal landfill, had to shut down to make space for the landfill to expand. In 2018, some EQ biosolids ended up going to landfills. The initial capital costs and lengthy payback period on new biosolids technology has often been inhibiting. But, in 2021, with limited landfill space, many larger WRRFs are looking into alternatives for biosolids management. For example, Honouliuli, which serves western Oahu and is the second-largest WRRF in Hawaii, plans to switch from incineration and landfilling to a heat-dried pelletized EQ biosolids in the next few years.

The U.S. EPA recently provided Hawaii DOH a grant for reconnaissance testing for PFAS and other emerging contaminants.

Septage Management

Hawaii DOH regulates pumping/removal and transportation of septage to the receiving facility, but doesn't get involved in day-to-day operations and processing of septage. Additional septage oversight happens at county wastewater divisions, and septage fees vary between counties. In 2018, Hawaii County's wastewater facility charged 6 cents/gal for residential and 10 cents/gal for commercial septage haulers.

Land application of septage is prohibited (too much rain and not enough land). All septage goes to WRRFs.

Hawaii Septage Management

Quality of state septage data	None
Septage haulers based in state:	65 estimated in 2004
In-state separate preparers (not WRRFs) taking septage:	0
WRRFs required to take septage?	no
WRRFs that accept septage:	several
Septage received at WRRFs in 2018 (gallons):	NBDP estimates ~10 million gals of septage are generated in HI annually, and 100% is disposed at WRRFs.
Other outside wastes accepted at WRRFs:	no data

Is fats/oil/grease (FOG) a significant issue?	somewhat
Is it regulated?	some at the local level
How?	local regulation
Is there a proactive program to collect FOG?	generally not
Can septage be land applied in state?	no
If yes, what treatment is required?	N/A
Most recent septage regulations update:	no data
Full-time equivalent (FTE) at state agency for septage:	no data
Notes:	Data and information on septage management were not available. Counties & municipalities may have data. 100% of septage goes to WRRFs for disposal.

Major WWTPs, Separate Preparers, and Notable Projects

- The City and County of Honolulu own and operate WRRFs all around the island of Oahu. Solids from some smaller facilities are pumped to larger ones, such as Kailua or Sand Island. Some have drying beds from which solids go to the single municipal landfill, Waimanolo Gulch. One of Honolulu’s smaller WRRFs, Laie Wastewater Reclamation Facility (WRF), does windrow composting. The finished compost goes to municipal golf courses or city parks nearby; it’s not publicly distributed or sold.
- Synagro designed, built, and operates the biosolids drying facility at Sand Island WRRF in Honolulu, the state’s largest WRRF. Solids are anaerobically digested and dewatered in a centrifuge before being dried and pelletized. The final product is distributed to a local landscaping company who bags and sells some of it to the general public.
- Maui EKO was a privately-owned biosolids compost facility. They composted all of Maui County’s wastewater solids (from four WRRFs) at a facility located beside the municipal landfill. In 2018, most of the compost produced at Maui EKO was applied on fallow sugarcane fields that were in the process of being reclaimed, their soil restored. Some of the compost was sold to the general public in bags or bulk. Maui EKO closed in 2020 to make space for the municipal landfill to expand. Since then, Maui County’s biosolids go to that landfill.

- Barbers Point Compost is permitted through DOH, Solid and Hazardous Waste Branch, and composts biosolids from the naval base. It's owned and operated by the U.S. Navy, and distributes compost only to DOD properties.

References

The state biosolids coordinator provided much of the information in this summary report. Additional information was obtained from:

H-POWER:

<https://www.covanta.com/where-we-are/our-facilities/honolulu>

<https://www.hawaiianelectric.com/clean-energy-hawaii/our-clean-energy-portfolio/renewable-energy-sources/biomass/h-power>

Synagro:

<https://www.synagro.com/locations/honolulu-in-vessel-bioconversion-facility/>

Maui EKO Compost:

<https://www.wastedive.com/news/anaerobic-digestion-facility-Anaergia-Kahului-EKO-Systems/515698/>

<https://www.mauinews.com/news/local-news/2018/01/sewage-plant-project-would-end-landfill-green-waste-composting/>

City & County of Honolulu:

https://www.honolulu.gov/cms-env-menu/site-env-sitearticles/1150-wwm_about_our_ww_plants.html