DASHBOARD

North Carolina State Biosolids Statistics

NATIONAL BIOSOLIDS DATA PROJECT
biosolidsdata.org

Data Quality & Methods

	2018	explanations & sources
Quality & Confidence in this state's data:	**Moderately High**	ranking by survey team based on information provided in survey (options: High, Moderate, Low, None)
Data sources & methods:	*Data presented here are from the U.S. EPA's ECHO database, with some additional data from the NBDP survey of WRRFs and from online sources; they account for 115 water resource recovery facilities (WRRFs) in North Carolina that reported managing solids in 2018. Together, these 115 WRRFs treat ~85% of the average daily wastewater flow in NC.*	
State biosolids included in 2018 EPA ECHO data	80% % in ECHO vs. the total presented here	https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual

Demographics & Wastewater

State population:	10,383,620	U.S. Census estimate for July 1, 2018 https://www.census.gov/newsroom/press-kits/2018/pop-estimates-national-state.html
Total land area in state (acres):	31,115,520	
Population density (persons/square mile):	213.6	calculated
Total number of WRRFs reported in state survey:	115	ECHO & NBDP survey data
total number of WRRFs permitted/reported elsewhere:	309	Seiple et al., 2020; state experts, etc.
number of WRRFs in EPA ECHO reports for 2018:	107	https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual
Average population served per WRRF:	**20,162**	calculated
Average wastewater flow statewide (MGD, NBDP):	**653**	Seiple et al., 2020 https://doi.org/10.1016/j.jenvman.2020.110852
avg.wastewater flow statewide (MGD, Seiple):	653	Seiple et al., 2020 https://doi.org/10.1016/j.jenvman.2020.110852
Number of WRRFs that treat >75% of state flow:	**55**	Seiple et al., 2020 https://doi.org/10.1016/j.jenvman.2020.110853
% of population served by on-site (septic) systems:	**40%**	survey response by state expert
Biosolids used or disposed / person in 2018 (lbs):	**25**	calculated

Biosolids Application

Agricultural land cropland (acres):	5,000,685	https://quickstats.nass.usda.gov/results/0CBBAD84-6032-3776-AFBB-624DB8825822
% of state area in cropland:	**16%**	calculated
Number of farms with that cropland:	34,563	https://quickstats.nass.usda.gov/results/F56563D1-C9CD-30EF-9774-2F91CC0640EC
% cropland to which biosolids were applied:	**no data**	calculated
Application rate if all state biosolids were applied to cropland (dry U.S. tons/ac.):	**0.03**	calculated
% cropland needed if all state biosolids were applied at typical rate (~3 dt/ac):	**0.9%**	calculated

Nutrient Sources - Comparison

Nitrogen (N) in all this state's biosolids (metric tonnes, 2018):	6,201	calculated assuming avg. 4.8% biosolids N
N in this state's animal manures (metric tonnes):	215,818	https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure
N in this state's purchased fertilizer (metric tonnes, 2011):	155,102	https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased

If all state's biosolids applied, what % of state's applied N would come from biosolids?	**1.6%**		calculated
Phosphorus (P) in this state's biosolids (metric tonnes, 2018):	2,584		calculated assuming avg. 2% biosolids P
P in this state's animal manures (metric tonnes):	80,115		https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure
P in this state's purchased fertilizer (metric tonnes, 2011):	40,905		https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased
If all state's biosolids applied, what % of state's applied P would come from biosolids?	**2.1%**		calculated

State Regulatory Involvement

Biosolids oversight agency / division:		**Environment agency - water / wastewater program**	
Permitting.... of biosolids programs:		thru WWTP's NPDES permit	
...of land application sites:		plan required by NPDES permit; permit from solid waste division	
FTEs: state biosolids regulatory program:	1		NBDP estimate
Biosolids program FTEs per million population:	**0.10**		calculated
Enforcement: Inspections of biosolids facilities & field sites in 2018:	**0**		NC DEQ provided no assistance to NBDP.
Formal violations issued:	**0**		NC DEQ provided no assistance to NBDP.
Amount of state regulations beyond Part 503:		**Moderate**	
Amount of state regulation of nutrient management & phosphorus:		**Low**	rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)
Accessibility of biosolids data to public:		**Low**	
State encouragement of biosolids recycling to soils:		**Moderate**	
Voluntary additional protections by land appliers known & reported by state coordinator:		None	

Trends

New land application activity, 2018 - new permits & acreage, acres applied:		**Low**	
acres applied in 2018:		no data	rankings by NBDP survey team based on information provided in survey (options: High, Moderate, Low, None)...
Local regulations & their impacts?:		**Low**	
details...			
Legislative & state regulatory actions in 2018 & their impacts?:		**None**	
details...			
Biosolids beneficial use increasing...in 2018?:		**no data**	NC DEQ provided limited assistance to NBDP.
...in 2020?:		**no data**	NC DEQ provided limited assistance to NBDP.
details...			

Changes in Biosolids Use & Disposal, 2004 - 2018

Change* in solids reported used or disposed (in units used by state):	6,803	dry metric tons	*Change may be due to population increase/decrease, change in treatment at a large WWTP, and/or different systems of data tracking and reporting.
Beneficial Use - percentage point increase or decrease (-):	20%		
Landfill & surface disposal - % point increase or decrease (-):	-15%		
Incineration - percentage point increase or decrease (-):	-5%		calculated comparing these 2018 data to 2004 data compiled by the same survey team (NEBRA, 2007)
Class A - percentage point increase or decrease (-):	12%		
Class B - percentage point increase or decrease (-):	4%		
No class or not known - percentage point increase or decrease (-):	-16%		