



*Hog waste lagoon at a farm in Chocowinity, NC*

## Hog Waste Lagoons in the Path of Hurricane Florence

*Lagoons containing animal manure are common in states potentially affected by Hurricane Florence. Hurricane conditions can cause lagoons to leak or fail, posing a threat to water quality and wildlife.*

North Carolina is the nation's second-largest pork producer, with much of that production taking place at industrial-scale farms.<sup>1</sup> Waste at these farms is often stored in lagoons, which are ponds filled with waste that has been mixed with water.<sup>2</sup> These lagoons are often just simple pits separated from waterways by an embankment.<sup>3</sup> Spills can occur when lagoons fail or overflow, or when hoses or pipes carrying waste leak.<sup>4</sup>

Waste lagoons are at greater risk of spilling during extreme weather events such as hurricanes. Hurricane Florence is projected to affect major agricultural regions of North Carolina and neighboring states, where manure storage in lagoons is common. Leakage from or failure of animal waste lagoons can pose a significant risk to water quality and wildlife, as animal waste contains an array of dangerous bacteria and other pollutants.<sup>5</sup>

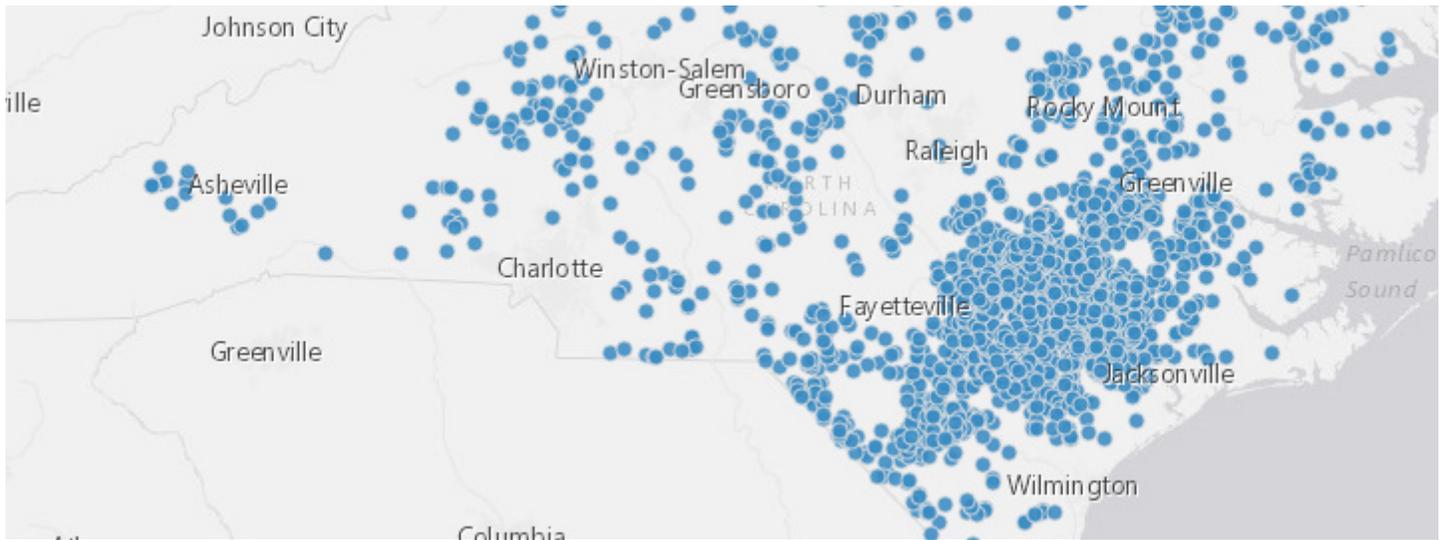
### ***Hurricanes Increase the Risk of Hog Waste Lagoon Spills***

There is a high concentration of large livestock operations in eastern North Carolina, as well as parts of South Carolina and Georgia.<sup>6</sup> Many of these operations lie in Hurricane Florence's potential zone of impact.<sup>7</sup> Extreme weather events like hurricanes increase the risk of waste lagoon overflows. In 1999, Hurricane Floyd resulted in the failure of at least 46 waste lagoons in North Carolina, resulting in the release of millions of gallons of waste that contaminated tributaries of the Cape Fear, Neuse and Tar rivers.<sup>8</sup> In 2016, Hurricane Matthew caused the failure of at least 14 waste lagoons, also in North Carolina.<sup>9</sup>

An Environmental Working Group analysis of satellite imagery in North Carolina found 4,145 waste lagoons in the state, covering nearly 7,000 acres.<sup>10</sup> According to EWG's analysis, 170 of those waste lagoons were within a 100-year floodplain (from the North Carolina Flood Risk Information System). 136 waste lagoons were also within a half-mile of a public water well.<sup>11</sup>

### ***Manure Overflows Harm Wildlife and Human Health***

While the regular spreading of manure on cropland often pollutes nearby rivers and streams, the massive volume of manure that lagoon overflows release into waterways all at once can have catastrophic impacts on wildlife. Ammonia present in manure, as well as oxygen depletion resulting from discharges of large volumes of manure into waterways, can kill fish rapidly.<sup>12</sup> The waste stored in these lagoons can also contain pollutants that threaten human health - including dangerous bacteria like *E. coli*, as well as additional pollutants such as growth hormones used on livestock; antibiotics; chemical additives to manure; and animal blood.<sup>13</sup>



North Carolina has hundreds of large animal feeding operations. Failure of manure lagoons at factory farms can put waterways at risk. Credit: North Carolina Department of Environmental Quality

## Responding to Threats from Manure Lagoon Overflows

As Hurricane Florence approaches the Southeast, public officials should carefully monitor hog waste lagoons, and be prepared to alert residents in the case of spills or risks to clean water. Residents who live near these lagoons should immediately report any potentially contaminated drinking water, or any other evidence of overflows or leaks. In the long run, the region should minimize the threat to clean water by shifting away from factory farming and imposing tighter regulations on the storage and spreading of manure.

### Notes

- 1 Pork Checkoff, *State Rankings by Hogs and Pigs Inventory*, accessed at <https://www.pork.org/facts/stats/structure-and-productivity/state-rankings-by-hogs-and-pigs-inventory/>, 14 June 2018.
- 2 Carrie Hribar, National Association of Local Boards of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities*, 2010.
- 3 United States Department of Agriculture, *Conservation Practice Standard Waste Storage Facility*, June 2017.
- 4 David Jackson and Gary Marx, "Spills of Pig Waste Kill Hundreds of Thousands of Fish in Illinois," *Chicago Tribune*, 5 August 2016.
- 5 See note 2
- 6 Food & Water Watch, *Factory Farm Map*, accessed at <https://www.factoryfarmmap.org/>, 13 September 2018.
- 7 National Oceanic and Atmospheric Administration: National Hurricane Center, *Hurricane Florence*, accessed at [https://www.nhc.noaa.gov/refresh/graphics\\_at1+shtml/152311.shtml?gm\\_track](https://www.nhc.noaa.gov/refresh/graphics_at1+shtml/152311.shtml?gm_track), 12 September 2018.
- 8 Barry Goodwin and Daniel Hallstrom, Agricultural and Applied Economics Association, *Modeling Catastrophic Weather Events and the Risks of Animal Waste Spills in the Coastal Plain of North Carolina*, August 2004.
- 9 Soren Rundquist, Environmental Working Group, *Exposing Fields of Filth*, 4 November 2016.
- 10 Environmental Working Group, *Exposing Fields of Filth (press release)*, 21 June 2016.
- 11 Ibid.
- 12 Iowa State University Extension, *Manure Confinement Manual: Water Quality*, December 1999, accessed at <https://store.extension.iastate.edu/Product/Confinement-Site-Manure-Applicator-Study-Guide-Chapter-2-Water-Quality-PDF>.
- 13 See note 2.

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