Shapiro Environmental Law Symposium:
Advanced Monitoring, Remote Sensing, and Data Gathering, Analysis and Disclosure in Compliance and Enforcement

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Case Study:
Citizen Monitoring of Industrial Animal Farms on Maryland’s Eastern Shore
Chicken Waste

- Maryland produces over 300 million chickens per year at ~600 CAFOs clustered on Eastern Shore.
- Stored and applied to cropland, often untreated and at levels that far exceed the fertilization needs of crops.
Limited State Oversight

- Maryland Department of the Environment (MDE) has faced yearly funding cuts
- State waiving CAFO permit fees to “encourage” participation = ~$500,000/year
- 3 employees to inspect the nearly 600 CAFOs.
Lots of Data on Performance…

- CAFOs submit sufficient data to the state to enable more efficient compliance monitoring with fewer on-the-ground inspections.
  - Nutrient management plans
  - Annual implementation reports

…Not Enough Resources to Process Data

- Forms are on paper. It takes the agency 3 years to enter information into Excel.
Citizen Monitoring

• Submitted public-information requests for plans and reports from all CAFOs in Maryland.

• Do what state can’t do—use information to ensure Maryland CAFOs are following law.
Findings
Underreporting

• Reports were not available for 14% (58 of 407) of the poultry facilities operating in 2012

Enforcement

• Letter to MDE on July 4; MDE started sending out notices of violation a week later for the very first time.
Oversaturation

- Plans contain soil phosphorus levels at field-level
- Found “excessive” soil P levels at all but one of 60 CAFOs in 6 counties due to manure usage.
  - Excessive tells farmers to stop applying manure
- Mapped fields
The 60 CAFOs took soil samples from 1,022 fields to help plan their fertilization needs over the plan's five-year term. Of those fields, 62 percent (623 fields) had soil phosphorus levels in the excessive range.

Look at Worcester County...

Field Level Fertility Index Value for Phosphorus (PFIV)

- 450 - 1460 Excessive (High Priority PMT Phase-in)
- 300 - 449 Excessive (Med. Priority PMT Phase-in)
- 150 - 299 Excessive (Low Priority PMT Phase-in)
- 101 - 149 Excessive (Excluded from PMT Phase-in)
- 51 - 100 Optimum
- 26 - 50 Medium
- 0 - 25 Low
- Phosphorus Impaired Surface Water
Overapplication

- We also analyzed annual reports to look at application of manure on these fields.
- Poultry farmers spread three times more P on their fields in 2012 than their crops needed
Results
Enforcement

• MDE started fining CAFOs for failure to report

Regulation

• We timed our findings to coincide with release of a new regulation in Maryland to better manage phosphorus application.

Litigation

• Potential if manure application exceeds plan/permit requirements