


# CAFO Rule and Future Research Needs

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- Clean Water Act and animal agriculture
- 2003 CAFO rule
- “Waterkeeper” court decision
- 2006 proposed CAFO rule
- Research impacts and needs



# Clean Water Act and Agriculture

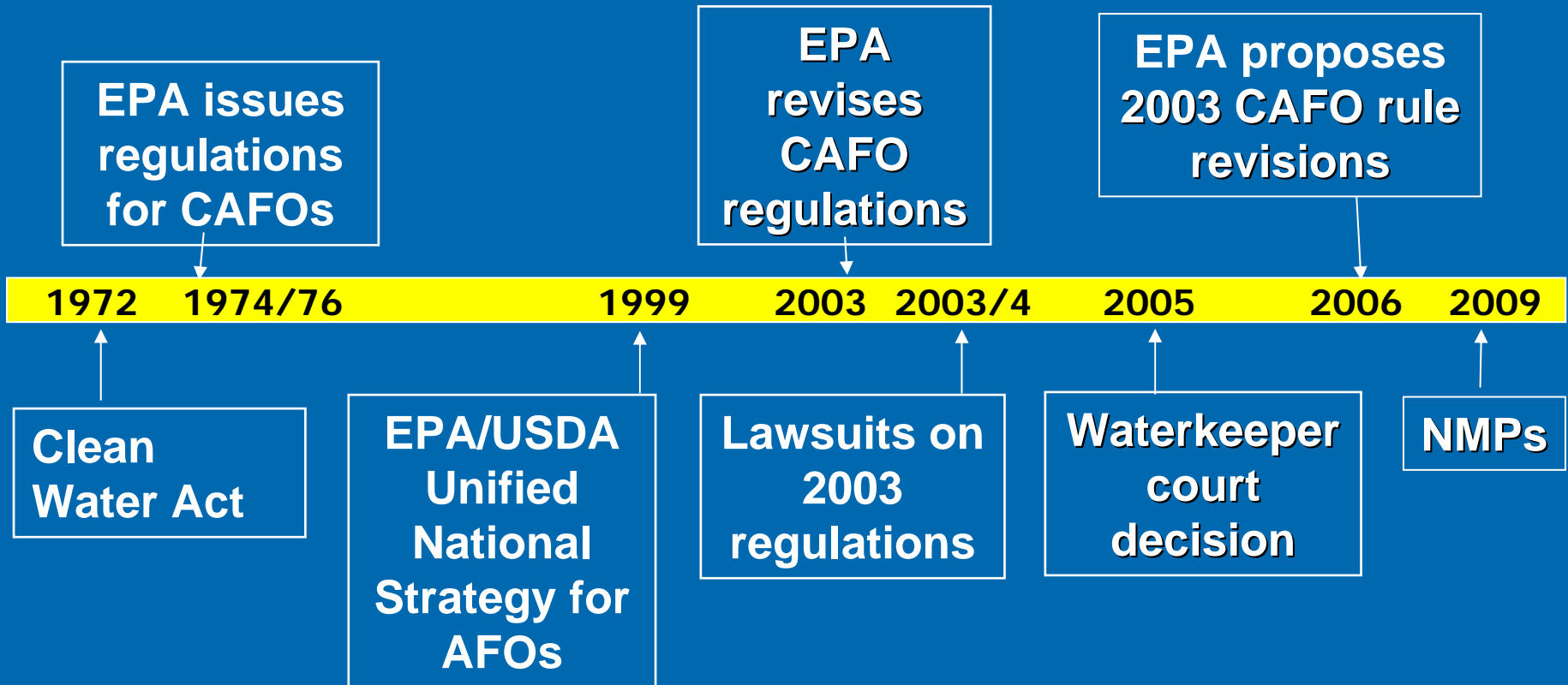
## Point Sources

- Concentrated Animal Feeding Operations (CAFOs)
- Conveyances from farm fields carrying discharges not specifically exempted

## Nonpoint Sources

- Animal Feeding Operations (AFOs)
- Point source exemptions
  - Agriculture stormwater discharge
  - Irrigation return flows

# Regulatory History of CAFOs





# CAFO Rule Overview

- CAFO Definition
- NPDES permit requirements
  - Production area
  - Land application area
- Duty to apply for a permit
  - Agriculture Stormwater Exemption
- State roles



# Definitions

## Animal Feeding Operation

- Animals confined for 45 days in 12 months
- No vegetation in confinement area

## Concentrated Animal Feeding Operation

- Size thresholds and
  - Large -- size alone
  - Medium
    - Stream running through confinement area
    - Man-made conveyance to surface water
  - Small (designation)
    - Same criteria as Medium
    - Significant contributor of pollutants
- On-site inspection

Animal Sector	CAFO Thresholds (number of animals)		
	Large	Medium	Small
cattle or cow/calf pairs, veal calves	1,000 +	300 - 999	< 300
mature dairy cattle	700 +	200 - 699	< 200
swine (55 pounds +)	2,500 +	750 - 2,499	< 750
swine (< 55 pounds)	10,000 +	3,000 - 9,999	< 3,000
horses	500 +	150 - 499	< 150
sheep or lambs	10,000 +	3,000 - 9,999	< 3,000
turkeys	55,000 +	16,500 - 54,999	< 16,500
laying hens/ broilers (liquid systems)	30,000 +	9,000 - 29,999	< 9,000
chickens other than laying hens (dry systems)	125,000 +	37,500 - 124,999	< 37,500
laying hens (dry systems)	82,000 +	25,000 - 81,999	< 25,000
ducks (dry systems)	30,000 +	10,000 - 29,999	< 10,000
ducks (liquid systems)	5,000 +	1,500 - 4,999	< 1,500



# Estimated Number of CAFOs

- Total
  - 19,000
  - 60 % of all AFO manure
  - 5% of all AFOs
- Large: 13,358
- Medium: 5,643 defined as CAFOs
- Small
  - A limited number may be designated





# Permit Requirements

- Production area
  - Animal confinement
  - Raw materials storage
  - Manure storage
  - Waste containment areas
- Land application
- Nutrient Management Plan (NMP)
- Recordkeeping
- Annual reports



# Nutrient Management Plan

- Adequate storage
- Mortality management
- Divert clean water
- Prevent direct contact
- Proper chemical handling
- Site-specific conservation practices
- Manure/soil testing
- Land application
- Records and documentation



# Annual Reports

- Number/type of animals
- Amount of manure/wastewater
  - generated
  - transferred off-site
- Land application acres covered by nutrient management plan
- Land application acres used in previous 12 months
- Summary of production area discharges



# Large CAFO Permit Requirements (Effluent Guidelines)

- **Existing and New Beef and Dairy**  
**Existing Swine, Veal Calf, and Poultry**
  - Production area
    - Design for no discharge except if storage contains 25 yr/24hr storm event
  - Land application area
    - Setback requirements
    - Minimize transport of N and P to surface water
    - Manure and soil sampling
- **New Swine, Veal Calf, and Poultry**
  - Design production area for **no discharge**





# CAFO Rule and Hormones

- Hormones not mentioned in rule itself.
- Background documents
  - Hormones present in manure.
  - Linked to endocrine disruption.
  - Setback requirements will minimize potential runoff
  - Little to no information on how manure handling technologies, management practices effect hormones.
  - Could not monetize benefits.



# State Roles

- Most states implement program.
- Federal requirements are minimum.
- Develop State Technical Standards for nutrient management.
- Permitting Approach
  - Individual, General, Watershed-based





# What CAFOs are Required to Apply for a Permit?

- “Duty to Apply” 2003 rule
  - All CAFOs that discharge or have the potential to discharge
- Challenged in litigation.



# “Waterkeeper Alliance, et al. v. EPA”

## Court Vacated

- Duty to Apply for a permit
  - Based on “potential to discharge”
  - Must be an actual discharge to waters of the U.S.
- Nutrient Management Plans
  - Without permitting authority and public review
  - Must be incorporated into the permit



# “Waterkeeper Alliance, et al. v. EPA”

- Court remanded (sent back to EPA for further explanation)
  - Best Conventional Technology (BCT) for pathogens
  - Applicability of Water Quality Standards for production area
  - Standard for new veal, pork, and poultry CAFOs



# 2003 CAFO Rule Status

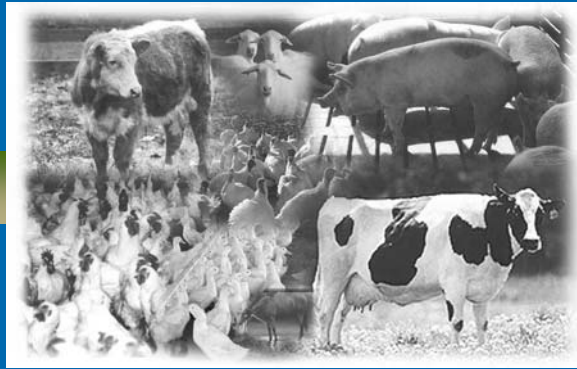
- Most provisions were not affected by the Court's decision, remain in effect
- States and EPA Regions will continue CAFO program development and implementation, incorporating the Court decision where appropriate
- *Any* discharge from a CAFO, no matter what size storm event, or whether it is accidental, is illegal and must have an NPDES permit.
- NPDES permits serve as a shield from litigation when discharges occur under the terms of the permit.





# CAFO Program Implementation Status

- ~ 23 states have revised CAFO programs aligned with the 2003 rule
  - many include final general permits
- ~ 44% of the 19,000 CAFOs are currently permitted.
- EPA is working with USDA on a strategy to get NMPs developed on time



# Overview of 2006 CAFO Proposed Rule





## 2006 CAFO Proposal: Duty to Apply

- CAFOS that *discharge or propose to discharge* must apply.
- No unpermitted discharges from the production area.
- No permit needed if only discharge is agricultural stormwater.
  - Nutrient management planning and documentation needed to support a CAFO's claim



# 2006 CAFO Proposal: Nutrient Management Plans

- NMP public review process.
- Permitting authority receipt and review of NMP.
- Process to incorporate terms of the NMP into the permit.
- Permit modification process when a CAFO's NMP changes



# 2006 CAFO Proposal: NMP Changes

## ■ Minor Changes

- NMP and permit modified without public notice
  - Changes in crops, where managed consistent with the NMP.

## ■ Substantial Changes

- Public review
- 180 day grace period to implement

## ■ Substantial Change examples

- Increased runoff, nutrient application rate
- Significant change in the nutrient balance
- Changes in handling, storage, treatment, or land application
- Significant increase in number of animals
- Significant reduction of nutrients transferred off-site
- Addition of land application areas



# 2006 CAFO Proposal: Pathogens

- Court directed EPA
  - Evaluate pathogens for Best Conventional Pollutant Control Technology (BCT)
- EPA's BCT methodology
  - Is it “**cost reasonable**” to control conventional pollutants more than Best Practicable Technology already requires?
- All technologies failed the Cost Reasonableness Test.
- No new requirements for pathogens.



# CAFO Rule Schedules



STEP	TIMEFRAME
60-day comment period	Ended August 2006
Final rule published	Winter 2007
NMPs developed and implemented	February 27, 2009



# Role of Research in CAFO Rule

- Strong role
  - Nutrients as key pollutants of concern
  - NMP components
  - NMPs based on phosphorus and nitrogen
  - Technology floor
- Weaker role
  - “Other pollutants” hormones, metals, pesticides, antibiotics
  - Air quality impacts





# Effective Research for Policy

- Applicable to EPA statutory authority.
- Pollutant sources
- Environmental impacts
- On-farm effectiveness of control technologies, management practices
- Control costs, feasibility



# Needed Hormone Research

- Fate and effects
  - natural and synthetic hormones
  - field/farm level
  - watershed scale
- Technology/management practices
  - production and land application areas
  - effects on hormones
  - effects on sediment, nutrients, pathogens
  - costs/benefits



# For more information

EPA CAFO home page

[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=7](http://cfpub.epa.gov/npdes/home.cfm?program_id=7)

CAFO Effluent Guidelines

<http://www.epa.gov/waterscience/guide/cafo/>