



**“Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the commonwealth shall conserve and maintain them for the benefit of all people.”**

-The Constitution of the Commonwealth of Pennsylvania, Article I, Section 27

*Penn State "Lessons from the Land" Webinar*

*April 28, 2011*



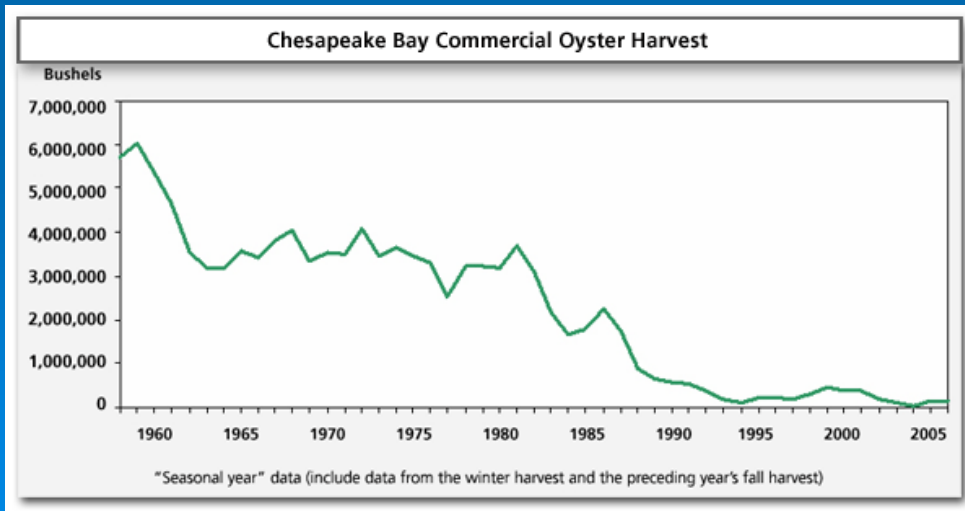
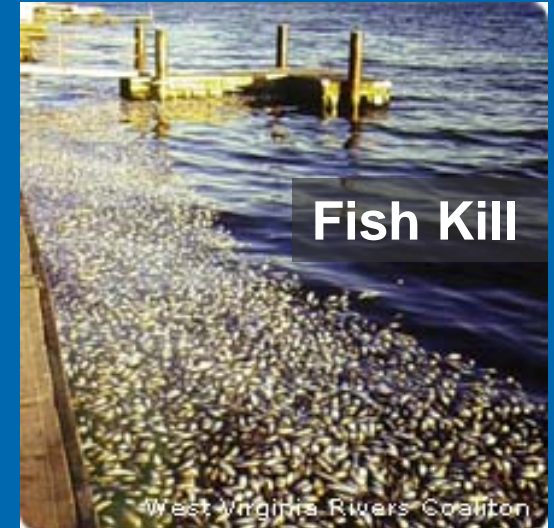
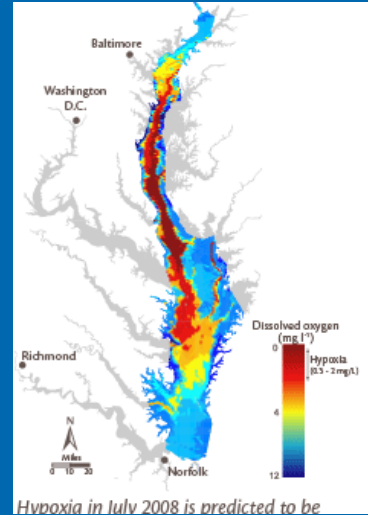
**LYCOMING COUNTY  
CHESAPEAKE  
BAY  
TRIBUTARY  
STRATEGY**

A collaborative, County-based approach  
to minimize costs and promote  
environmental stewardship

# Long History of Bay Cleanup

- 1972: Clean Water Act passed; Section 117 concerns Bay
- 1983-2001: Series of multi-state agreements signed; all fail to achieve voluntary cleanup
- 2005: Maryland water quality standards force action by headwater states
- 2009: CBF sues EPA to force federal action; President's Executive Order prioritizes Bay cleanup
- 2010: Bay TMDL, state WIPs finalized

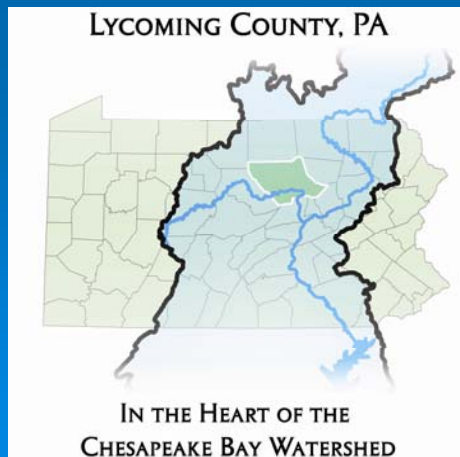
# Chesapeake Bay Pollution



# Current Status of Bay Cleanup

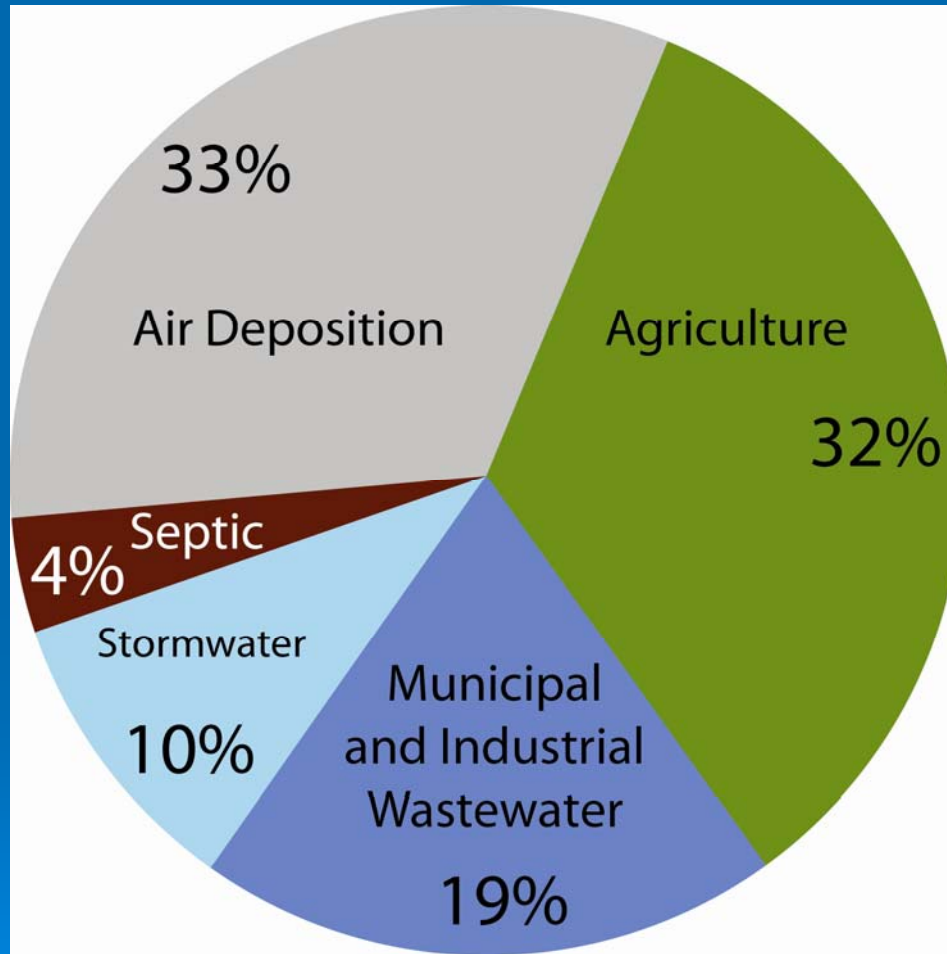


- PA's Phase I Watershed Implementation Plan (WIP) requires reductions from all sectors
- Two-year milestones; federal enforcement actions if unmet
- Controversy over federal vs. state roles
- Lack of clarity about local role (awaiting Phase II WIPs)





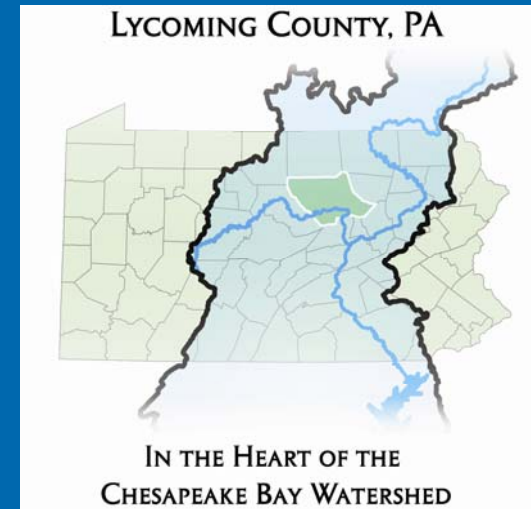
# Sources of Nitrogen to the Bay



*Source: Chesapeake Bay Program, 2008*

# Why is Lycoming County involved in the Bay cleanup?

- Community/stakeholder demand for help
- Sewer infrastructure upgrades estimated at \$225 million in Lycoming County alone
- Unique ability to offer leadership and advocacy



# Goals and Objectives

- Quality of our local waterways
- Chesapeake Bay recovery
- Flexibility for WWTPs
- Preserve economic development opportunities
- Integrate all sources of pollution into the solution



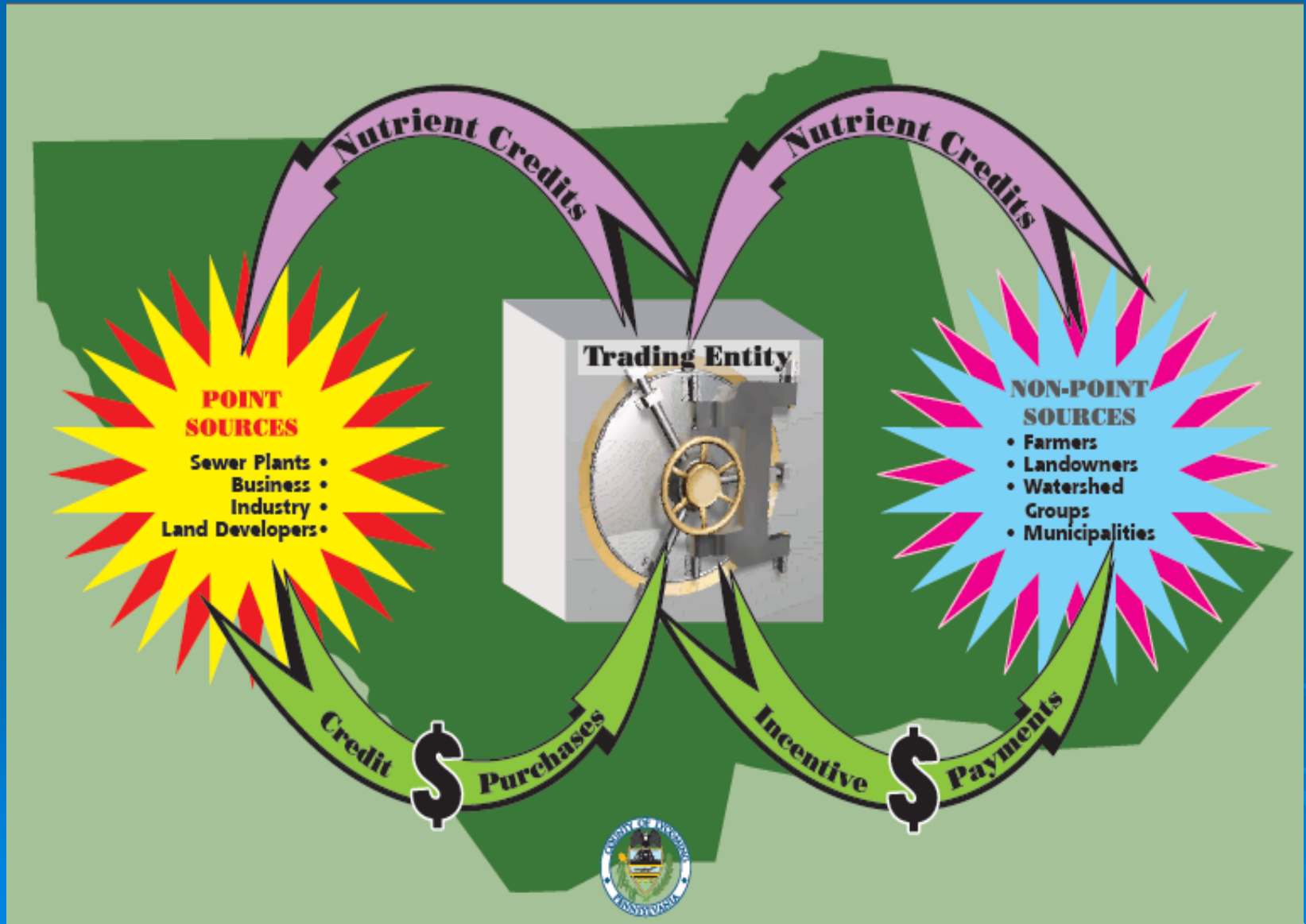


# Who is working on the strategy?

- County staff (CD and Planning) conduct day-to-day work
- Consultant assistance
- Commissioner Jeff Wheeland oversight
- Stakeholder and community input through committee structure



# The Big Idea: Nutrient Credit Trading



# Credit Trading 101

- **Market-based mechanism:** intended to drive costs down and increase efficiency
- Addresses **externality problem:** assigns dollar value to actions that impact the environment
- SO<sub>2</sub> trading for air quality was successful in tackling acid rain
- Nutrient trading for water quality is NOT carbon trading



# COUNTY-WIDE APPROACH



**STREAMBANK  
& FLOODPLAIN  
RESTORATION**

**AGRICULTURE**

**URBAN STORMWATER**

**AGRICULTURE**

**Wastewater  
Treatment Plant** 



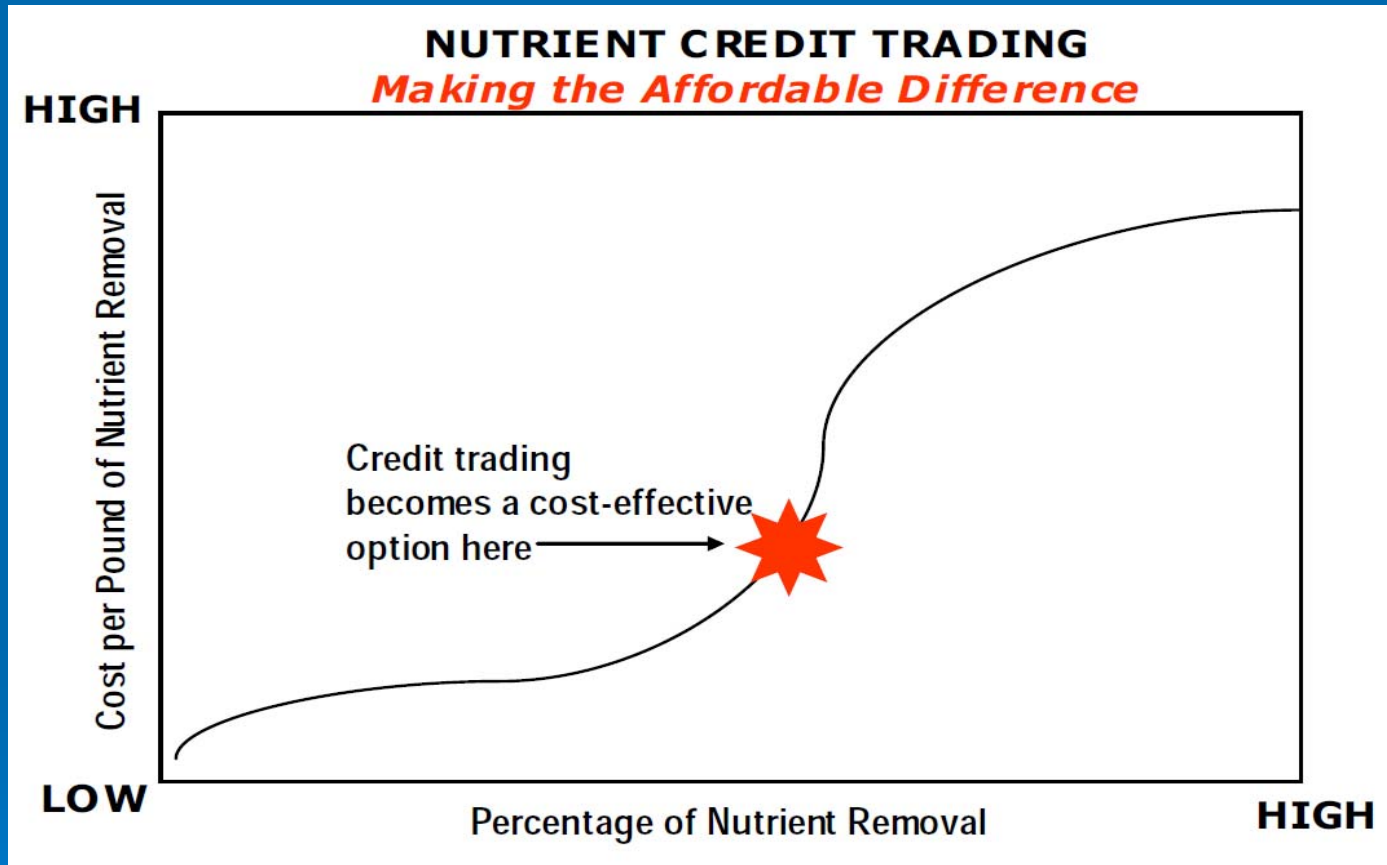
# Credits Offer Flexibility & Savings

- WWTPs can purchase credits to...
  - Avoid capital upgrades entirely, allowing time to:
    - Delay construction
    - Secure capital funding
    - Evaluate new technology
  - Evaluate growth & development needs
  - Partially upgrade
  - “True-up” at end of year





# Credit Trading Advantage



“Knee of the Curve”: Incremental reduction in nutrient removal becomes exponentially more expensive

# Hughesville-Wolf Example

- Cost of upgrade for nutrient treatment: \$1.45 million
- Cost of purchasing credits: \$157,001
- Credits offer \$1.29 million savings over 20 years
- Nutrient trading provides an 89% “discount” on the cost of Bay compliance
- Required nutrient reduction to the Bay is achieved cost-effectively
- Ratepayers, credit generators, local waters, and the Bay all win by trading
- Who wins by upgrading?



# Nuts & Bolts of Trading

- Trading is 100% voluntary
- DEP sets the rules of the game statewide
- A credit equals one pound of nitrogen (N) or phosphorus (P) delivered to the Bay per year
- BMPs generate credits by creating nutrient reductions
- LCCD prepares credit certification proposal
- DEP certifies credits (5-year renewal)
- LCCD verifies credit-generating practices annually
- Credits expire at the end of the water year (Oct-Sept)

# Credit-Eligible BMPs

- Not all practices can generate credits now
- Pilot projects must be done first to determine credit-reduction efficiencies
- Practices must have been installed 2005 or later
- Agriculture: “credit-ready” BMPs available
- Point Source: WWTPs that exceed their mandatory reductions can generate credits
- Watershed and Stormwater: To be determined

# Conservation District Role Is Essential

- Credit certification and verification
  - Over 14,000 credits certified to date
  - Long list of interested farm operators
- Ag outreach
  - Baseline compliance a minimum goal
  - Direct outreach to plain sect farmers
  - Targeted watershed outreach
- Executing grant-funded projects
  - No-till drill rental program
  - BMP incentive programs





# Ag BMPs at Work on Lycoming County Farms





# Rotational Grazing and Streambank Fencing





# No-Till Planting/Cover Crops



# Riparian Buffer





# Off-Stream Watering





# PENNVEST Credit Exchange

- Intermediary “banking” function absent
- Market participants requested PENNVEST to step in
  - Lend credibility, surety to trading program
  - Provide central clearinghouse and auction service
  - Help establish market-clearing price
  - Enhance trading market functionality
- PENNVEST exchange and rulebook developed through stakeholder input



# Auction Overview



- Two-round auction of N and P credits held in October/November 2010
- Clearinghouse Service: PENNVEST becomes counterparty to all participants (“buyer to all sellers, seller to all buyers”)
- Uniform price, single round, sealed bid, virtual auction
  - \$3.04 per N credit for 3-year contract
  - \$2.75 per N credit for 1-year contract
  - No P credits sold this round
- Supply offered = 10 times the demand (WWTPs waiting?)

# Winning Participants



## Round 1

- Buyer:  
PPL EnergyPlus, LLC:  
21,000 credits
  
- Sellers:
  - City of Lancaster  
11,835 credits
  - **Lycoming County**  
**9,153 credits**
  - ElectroCell Technologies  
12 credits

## Round 2

- Buyer:  
PPL EnergyPlus, LLC:  
41,000 credits
  
- Sellers:
  - City of Lancaster  
29,909 credits
  - Elizabethtown Borough  
7,369 credits
  - **Lycoming County**  
**3,722 credits**

# Lycoming County Results

- Lycoming County will provide 31,181 credits (approximately 1/3 of total credits sold)
- Revenue of \$93,710.86 to be shared by six farmers and Lycoming County
  - County's 25% share recoups some of our program costs
- Success story and program credibility: Priceless!





# Next Steps

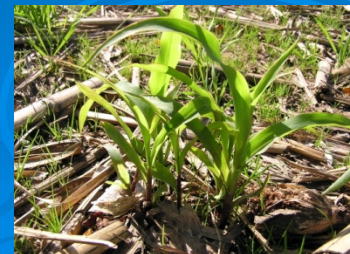
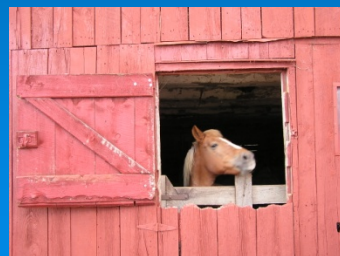
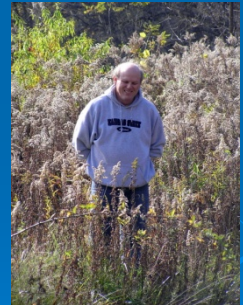
- County program is dependent on state and federal decisions that “roll downhill”
- Forging ahead with our innovative program
  - Facilitate local trades
  - Participate in future auctions
  - Pilot project for floodplain restoration
  - Water quality monitoring project
- Long-term goal: Achieve program sustainability through credit revenues







# Questions?



# Contact Information

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