



**Department of the Environment**

---



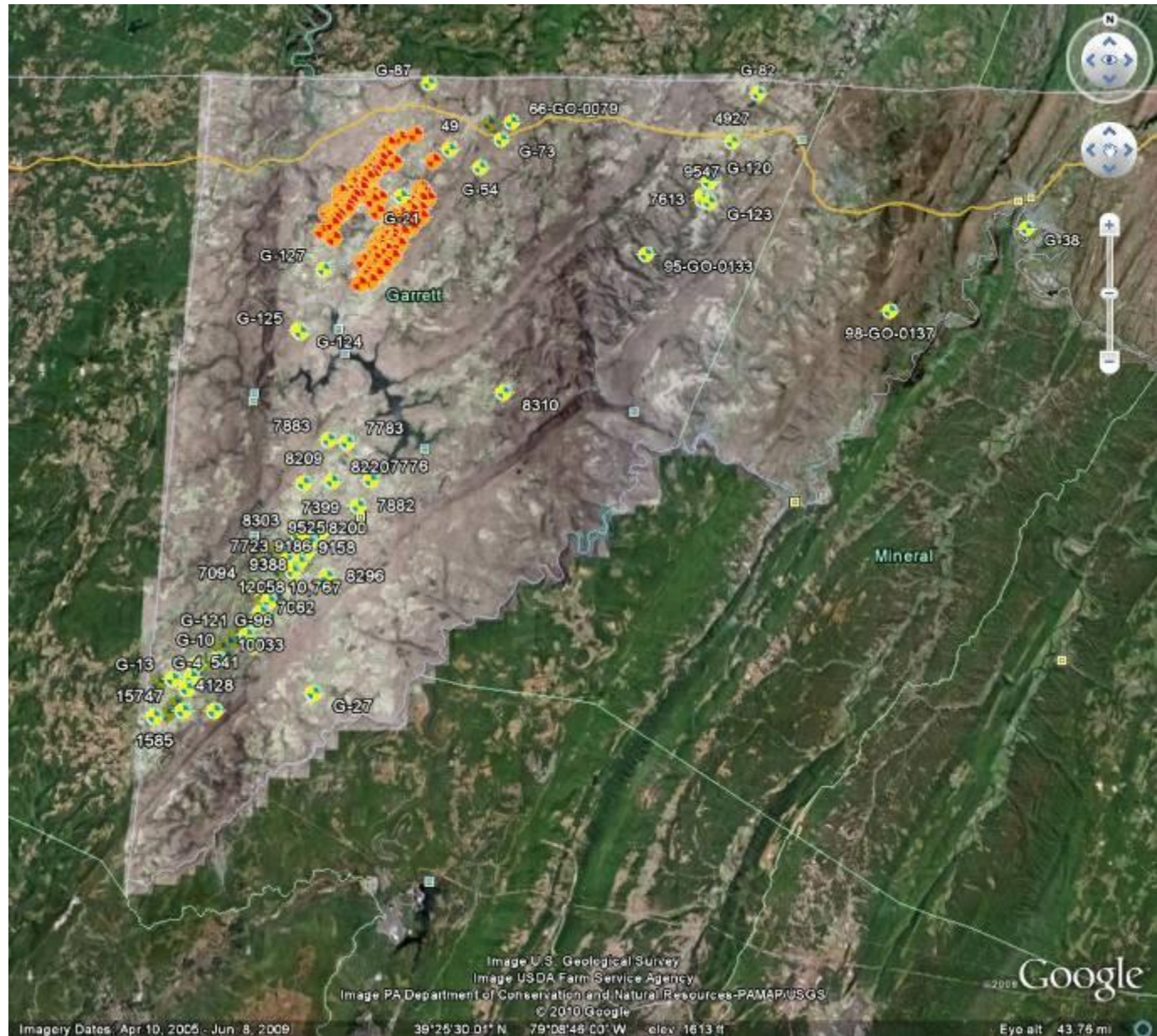
# **The Marcellus Shale Safe Drilling Initiative: The Process The Results The Future**

**Brigid Kenney  
Maryland Department of the Environment  
Potomac River Basin Drinking Water Source  
Protection Partnership  
November 20, 2014**

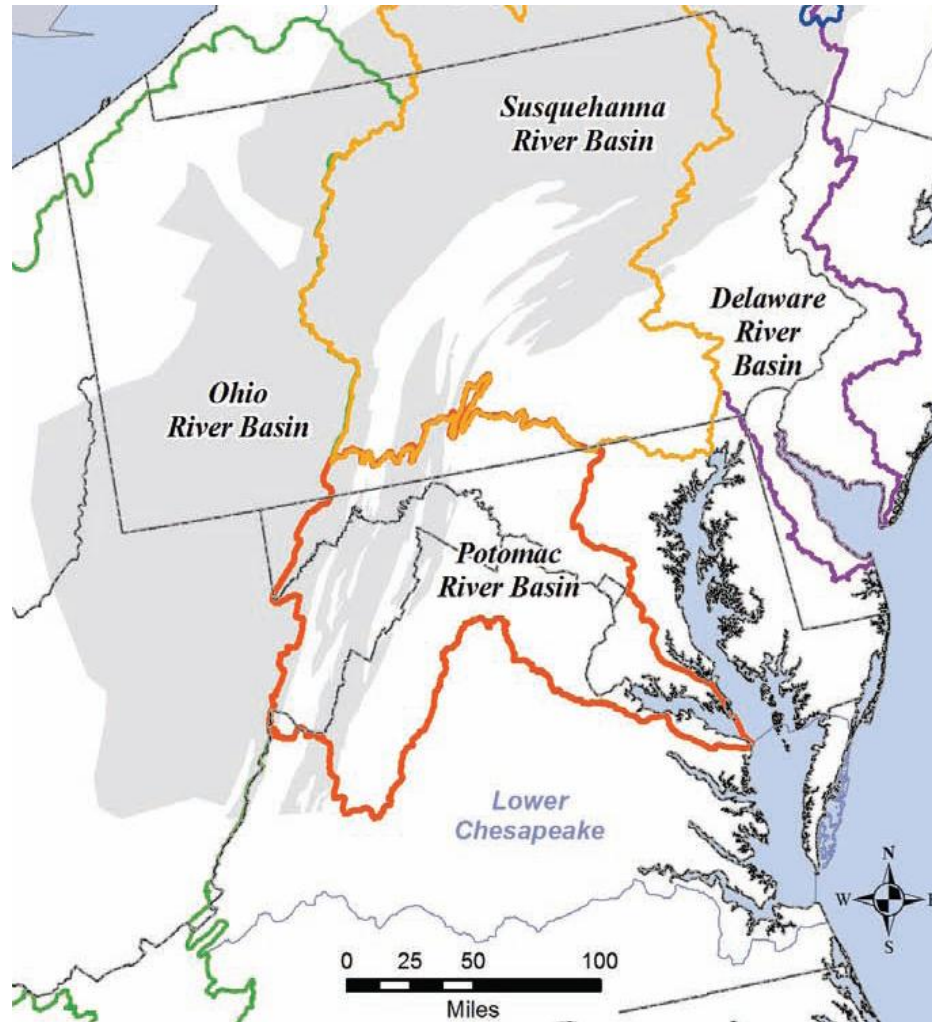


# Drilling Activity in Maryland

- Gas drilling in Maryland is not a new activity
- Several hundred producing wells were drilled in Western Maryland in the 1950's and 60's (yellow)
- 7 Gas production wells are currently permitted
- Approximately 90 permitted sites are being used for gas storage (orange)



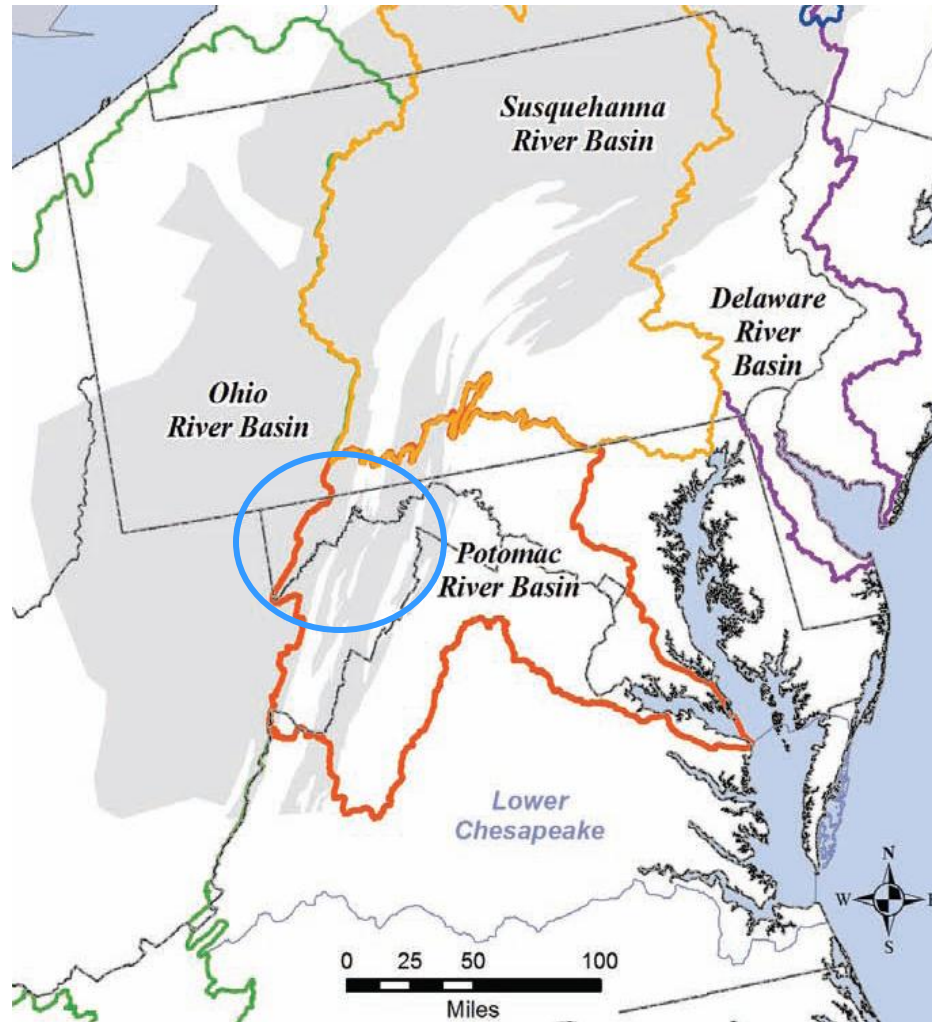
# Marcellus and River Basins



From E&P Focus, Summer 2010; Source: All Consulting



# Marcellus and River Basins

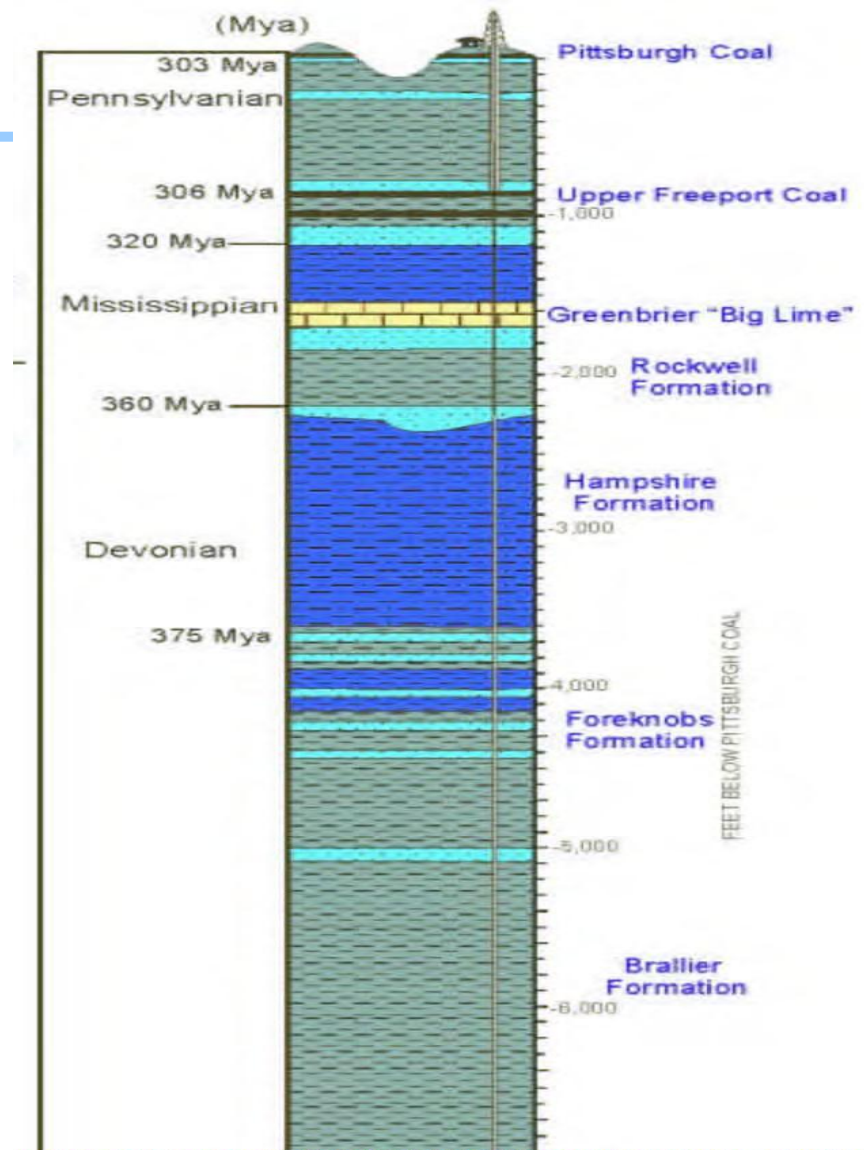


From E&P Focus, Summer 2010; Source: All Consulting

# Marcellus Shale in Maryland

Depth in MD-

Anticipated at 5,000– 8,000 ft.



# Opportunities and Challenges

---

- Opportunities
  - Improved energy security/trade balance
  - Lower greenhouse gas emissions from production of electricity
  - Economic development in Garrett and Allegany Counties
- Challenges
  - Operations pose a potential risk of harm to public health and safety and the environment
  - Community and Social Impacts



# MDE Gas Well Permit

---

- A permit is required before the drilling of any gas well
- MDE has broad statutory authority to impose reasonable and appropriate permit conditions to protect public safety and the State's natural resources
- Regulations establish application requirements and the criteria for constructing and operating gas wells
  - Have not been amended since 1993
  - Not specific to Marcellus Shale, horizontal drilling or high volume hydraulic fracturing



# Issues of Concern

---

- Contamination of groundwater from migrating gas and fracturing fluid
- Contamination of soil, surface water and groundwater from spills, leaks or improper disposal of fuel, fracturing fluids, flowback, cuttings
- Damage to aquatic living resources
- Fragmentation of forest and habitat
- Air pollution
- Impact on traffic, roads and bridges
- Community impacts



# Drill Site





# Drill Site



# Aerial Photo of Fracing

Source: USGS fact Sheet 2009-3032 (May 2009)





# Truck Carrying Surfactant





# Completed Well Site, PA







# Equipment at Production Well Site



# Tanks at Production Well Site







# Getting the Gas to Market

---

- Gathering lines
- Pipelines
- Compressors
- Processing



# Pipeline Construction



# Pipeline Construction





# Completed Pipeline





# Executive Order June 2011

---

- Purpose: help State policymakers and regulators determine whether and how gas production from the Marcellus shale in Maryland can be accomplished without unacceptable risks
- Studies and reports to be done by MDE and DNR in consultation with an Advisory Commission
- Charge: Look at long-term, short-term and cumulative impacts of shale gas development

# The Players

---

- The Governor's Office
- The Legislature
- The Counties
- The Public: “Drill, Baby, Drill”; “No Fracking Way”; and everything in between
- The Advisory Commission
- NGOs
- Academics
- The Industry
- Contractors



# Advisory Commission

---

- Fifteen members
- Broad range of stakeholders
- Met 33 times (and we're not done yet)
- All meetings open to the public; agendas and minutes posted
- Several reports were issued in draft for public comment
- Sunsets May 1, 2015



# The Results

---

- The Departments
  - Findings: Risks can be reduced but not eliminated
  - Recommendations: Proceed with best practices, close monitoring, rigorous inspection and enforcement, adaptive management
  - Proposed regulations being drafted
  - Suggestions for legislation
    - Surface owners protection act
    - State-level severance tax for Impact Fund
    - Increase penalties for violations



# Examples of Location Restrictions

---

- At least 2,000 vertical feet between the deepest fresh water aquifer and the target formation
- Restrictions on locating drilling pads
  - None in watersheds of the three local drinking water reservoirs
  - None within 1,000 feet of a wellhead protection area or a source water assessment area of a public water supply
  - Setback of 2,000 feet from private drinking water wells

# Examples of Best Practices

---

- Well pad must be lined with secondary containment for 24-hour 25-year storm
- All drilling fluids and cuttings must be managed on the well pad in a closed loop system
- Flowback and produced water must be managed in a closed loop system of tanks or containers at the pad site
- Only fresh water may be stored in impoundments

# CGDP

---

- A Comprehensive Gas Development Plan (CGDP) must be approved for a company before it can apply for a permit to drill a well
  - Covering development over at least 5 years
  - Addressing location of all pads, pipelines, roads
  - Observing the regulatory setbacks
  - Minimizing impact to sensitive resources – forests, brook trout streams, habitats, recreational areas, viewsheds, etc.
  - Minimizing cumulative impact



# Chemicals and Trade Secrets

---

- Balance the public's right to know with legitimate commercial interests
- Disclosure of all chemicals used
- Need not link chemicals to trade secret formulations
- Provisions for disclosure to treating physicians and public health officials



# The Reactions

---

- The Advisory Commission divided
- Examples of dissenting NGO / public / industry positions
  - Hydraulic fracturing should be banned
  - Trade secrets and confidentiality agreements should be outlawed
  - Recommendations would put Maryland at a competitive disadvantage
  - Recommendations are so unreasonably stringent they amount to a *de facto* ban

# During the Campaign

---

## Lieutenant Governor Anthony Brown

- I will not support the development of natural gas in the Marcellus Shale unless we have a safe way to do it....

We will carefully consider the results of this study before we take any steps toward fracking. While the energy potential of the Marcellus Shale represents an enticing economic opportunity, we will not accept a process that jeopardizes our families or environment.

# During the Campaign

---

Republican Candidate Larry Hogan:

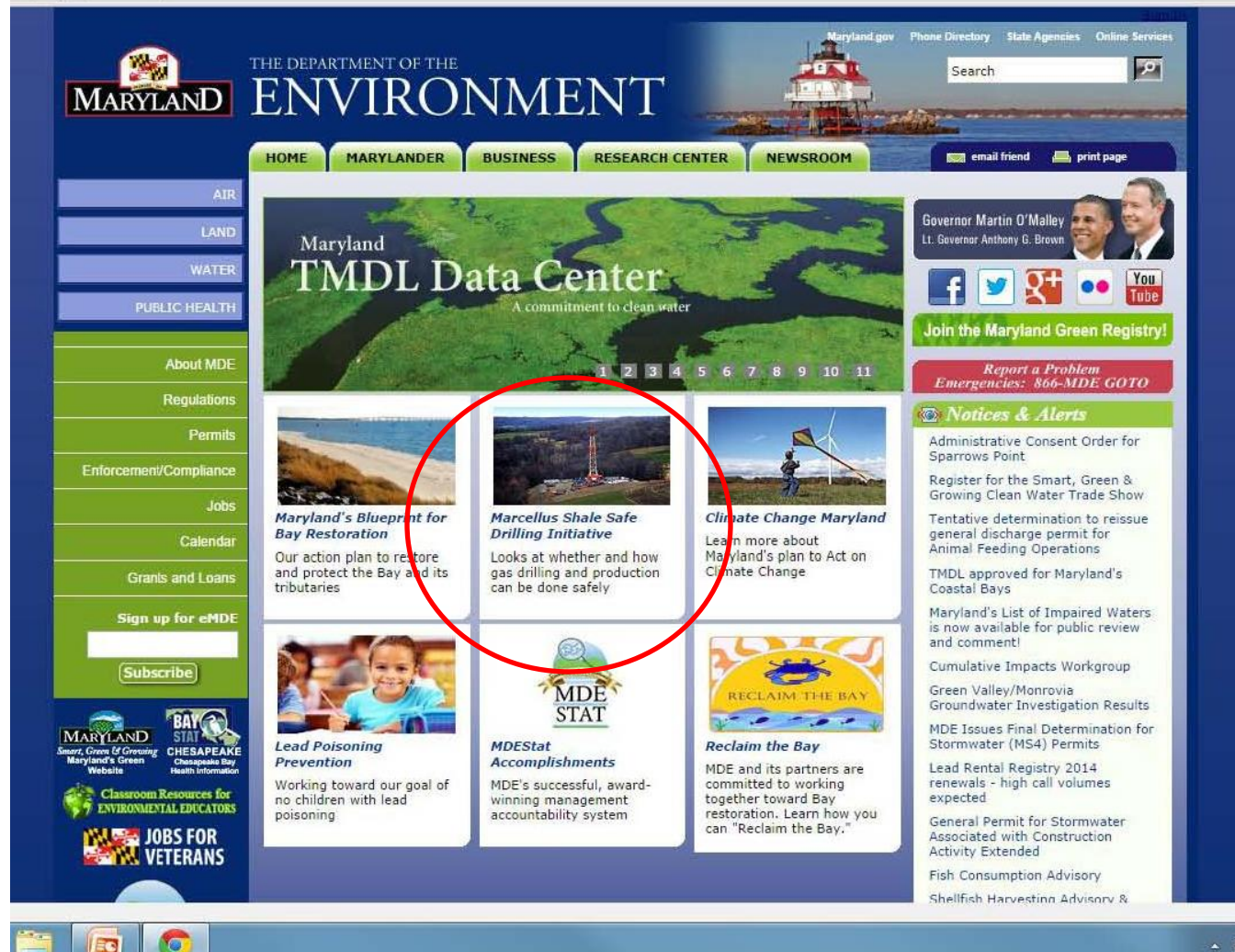
- I am concerned that there has been a knee-jerk reaction against affordable energy production in our state. Maryland is definitely behind the curve because this administration has decided to politicize the issue rather than take a balanced approach to ensuring we have access to clean and affordable energy sources to power our homes and businesses and grow our economy.



**Governor-Elect Larry Hogan**  
**will be inaugurated**  
**January 21, 2015.**

# For more information www.mde.state.md.us

us/Pages/Home.aspx



us/Pages/Home.aspx

Maryland.gov Phone Directory State Agencies Online Services

Search

HOME MARYLANDER BUSINESS RESEARCH CENTER NEWSROOM

email friend print page

**MARYLAND** THE DEPARTMENT OF THE ENVIRONMENT

AIR  
LAND  
WATER  
PUBLIC HEALTH

About MDE  
Regulations  
Permits  
Enforcement/Compliance  
Jobs  
Calendar  
Grants and Loans  
Sign up for eMDE  
Subscribe

**MARYLAND** Smart, Green & Growing  
**BAY STAT** Chesapeake Bay Health Information  
Classroom Resources for ENVIRONMENTAL EDUCATORS  
JOBS FOR VETERANS

**Maryland TMDL Data Center**  
A commitment to clean water

1 2 3 4 5 6 7 8 9 10 11

**Maryland's Blueprint for Bay Restoration**  
Our action plan to restore and protect the Bay and its tributaries

**Marcellus Shale Safe Drilling Initiative**  
Looks at whether and how gas drilling and production can be done safely

**Climate Change Maryland**  
Learn more about Maryland's plan to Act on Climate Change

**Lead Poisoning Prevention**  
Working toward our goal of no children with lead poisoning

**MDEStat Accomplishments**  
MDE's successful, award-winning management accountability system

**Reclaim the Bay**  
MDE and its partners are committed to working together toward Bay restoration. Learn how you can "Reclaim the Bay."

Governor Martin O'Malley  
Lt. Governor Anthony G. Brown

Join the Maryland Green Registry!

Report a Problem  
Emergencies: 866-MDE-GOTO

**Notices & Alerts**

- Administrative Consent Order for Sparrows Point
- Register for the Smart, Green & Growing Clean Water Trade Show
- Tentative determination to reissue general discharge permit for Animal Feeding Operations
- TMDL approved for Maryland's Coastal Bays
- Maryland's List of Impaired Waters is now available for public review and comment!
- Cumulative Impacts Workgroup
- Green Valley/Monrovia Groundwater Investigation Results
- MDE Issues Final Determination for Stormwater (MS4) Permits
- Lead Rental Registry 2014 renewals - high call volumes expected
- General Permit for Stormwater Associated with Construction Activity Extended
- Fish Consumption Advisory
- Shellfish Harvesting Advisory &

**MARYLAND**

# Thank you

