Presentation to the State Water Commission

"Reducing Nonpoint Source Pollution"

January 12 , 2009

Joseph H. Maroon, Director
Virginia Department of Conservation and Recreation

***State Parks * Soil and Water Conservation * Natural Heritage**
*** Outdoor Recreation Planning * Land Conservation**
*** Dam Safety and Floodplain Management**
*** Chesapeake Bay Local Assistance**

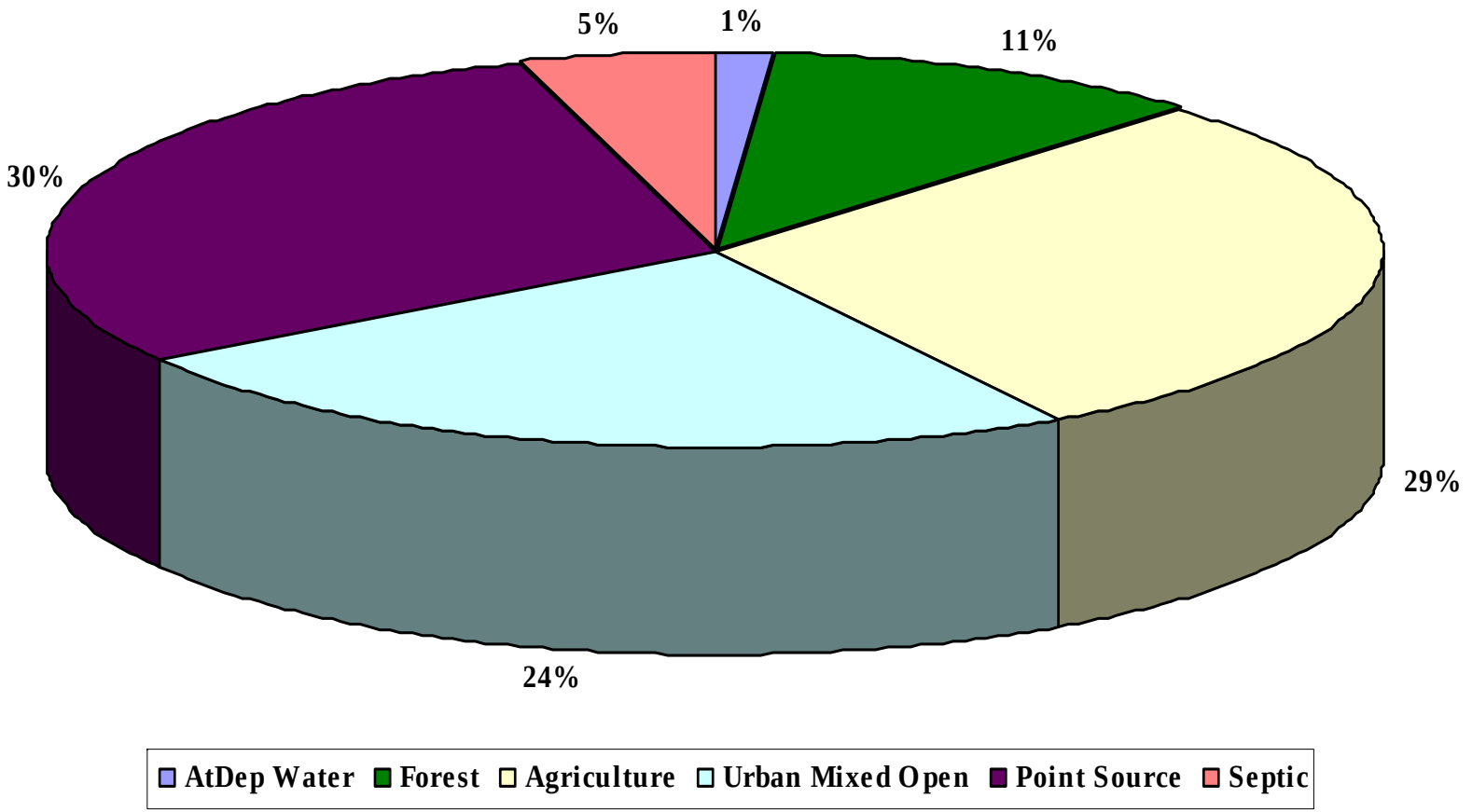
DCR
Virginia Department of Conservation & Recreation

Presentation Overview

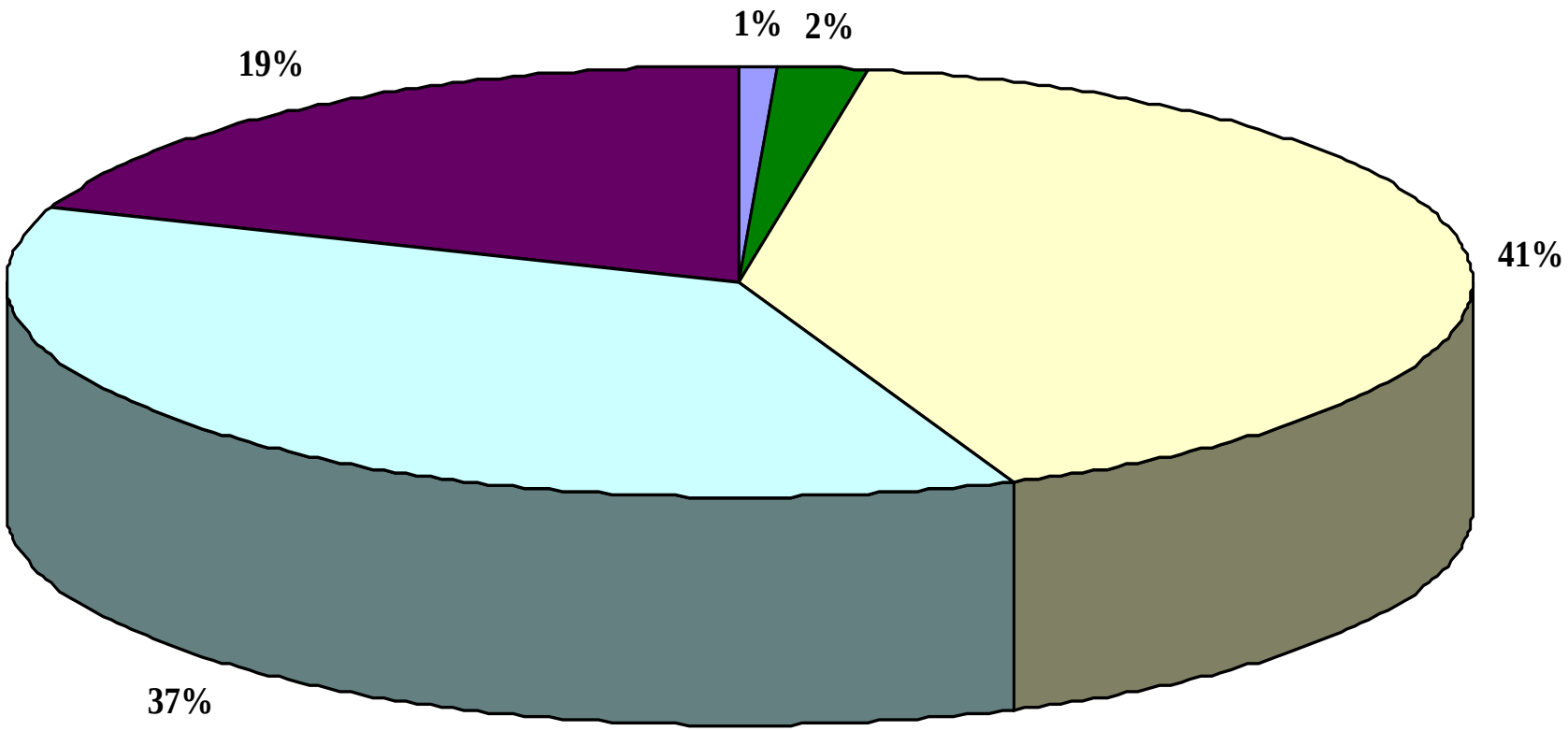
- Nonpoint Source Pollution Loads by Source
- Tributary Strategies Overview
- Nonpoint Source Implementation
  - Agricultural Sources
  - Developed and Developing Lands
- Nonpoint Source Innovations
- Nonpoint Challenges and Future Directions

DCR
Virginia Department of Conservation & Recreation

2007 Virginia Total Nitrogen Relative Loadings by Source (point and nonpoint)



2007 Virginia Total Phosphorus Relative Loadings by Source (point and nonpoint)



Summary of Nonpoint Loadings

(Loading Estimates from Chesapeake Bay Program Watershed Model)

Nitrogen:

- Agriculture Sources: 46%
- Urban or Suburban Sources: 38%
- Forest: 16%

Phosphorus:

- Agriculture Sources: 52%
- Urban or Suburban Sources: 46%
- Forest: 3%

Sediment

- Agriculture Sources: 40%
- Forest: 28% (Note: Watershed is still predominately forested, however on a per acre basis forest loads are the smallest)
- Urban or Suburban Sources: 23%

DCR
Virginia Department of Conservation & Recreation

STATE OF THE
CHESAPEAKE BAY PROGRAM
Summary Report to the Chesapeake Executive Council
November 20, 2008

"The pressures of population growth and development are the greatest challenge to restoring and protecting the Chesapeake Bay and its watershed. Suburban and urban stormwater runoff is the only source of pollution that is increasing. From 1990 to 2000, the watershed population grew 8 percent, while impervious surface rose by 41 percent."

Chesapeake Bay Program
A Watershed Partnership

DCR
Virginia Department of Conservation & Recreation

Virginia's Tributary Strategies

- **Published in 2003 for Virginia's Chesapeake Bay tributaries:** Shenandoah/Potomac, Rappahannock, York, James and Eastern Shore
- **Includes point and nonpoint source provisions** expressed as "input decks" of treatment levels and BMPs for evaluation by the Ches. Bay Program model
- **Designed to meet loading limits (allocations)** assigned through the Chesapeake Bay Program (6 states, DC and EPA) to meet water quality standards in tidal waters (dissolved oxygen, water clarity and chlorophyll "a")
- **Next Generation** of "strategies" (implementation plans) will be designed to meet allocations assigned in bay-wide TMDL

DCR
Virginia Department of Conservation & Recreation

Tributary Strategies (con't)

- Current Tributary Strategy implementation guided by Chesapeake Bay and Virginia Waters Clean-up Plan ("HB 1150")

  Plan Elements:
  - Land Conservation
  - Wastewater Treatment Plants
  - Agriculture
  - Developed and Developing Lands
  - Air

DCR
Virginia Department of Conservation & Recreation

Clean-up Plan Implementation - Agricultural Programs

- **Voluntary BMP Cost-Share Programs (Financial Incentives)** Funded by the WQIF "Natural Resources Commitment Fund" - Chesapeake Bay (57%); Southern Rivers (38%); Soil and Water Conservation Districts (5%) ($20 million proposed in FY 2010 by Governor with 8% to Districts)
- **Targeted 5 Priority Practices:** Cover Crops, Riparian Buffers, Conservation Tillage, Nutrient Management, Livestock Exclusion (Fencing livestock out of streams and installation of watering systems)
- **Existing Nutrient Management Requirements**: CAFO; Poultry Operations; Biosolids Application sites; State owned lands.
- **Strategic livestock initiatives**: Voluntary poultry litter transport program; use of feed additives ("phytase") to reduce nutrients at beef/dairy operations and poultry farms
- **Implementation of TMDL** (impaired waters) clean-up plans in Southern Rivers watersheds

DCR
Virginia Department of Conservation & Recreation

Developed and Developing Lands

- **Erosion and Sediment Control (statewide)**
  - DCR oversees 165 locally administered programs (82% are currently consistent with State Law & Regulations).
- **Stormwater Management (statewide)**
  - Reduce long-term impacts to water quality & quantity resulting from land development & prevent downstream flooding
  - Significant regulatory changes underway that will establish technical standards and local administration
- **Chesapeake Bay Preservation Act (applies only to 84 "Tidewater"/coastal plain jurisdictions)**
  - Key elements: bmp inspection and maintenance, septic pumpout, code and ordinance review

DCR
Virginia Department of Conservation & Recreation

Nonpoint Source – New Technologies and Innovation

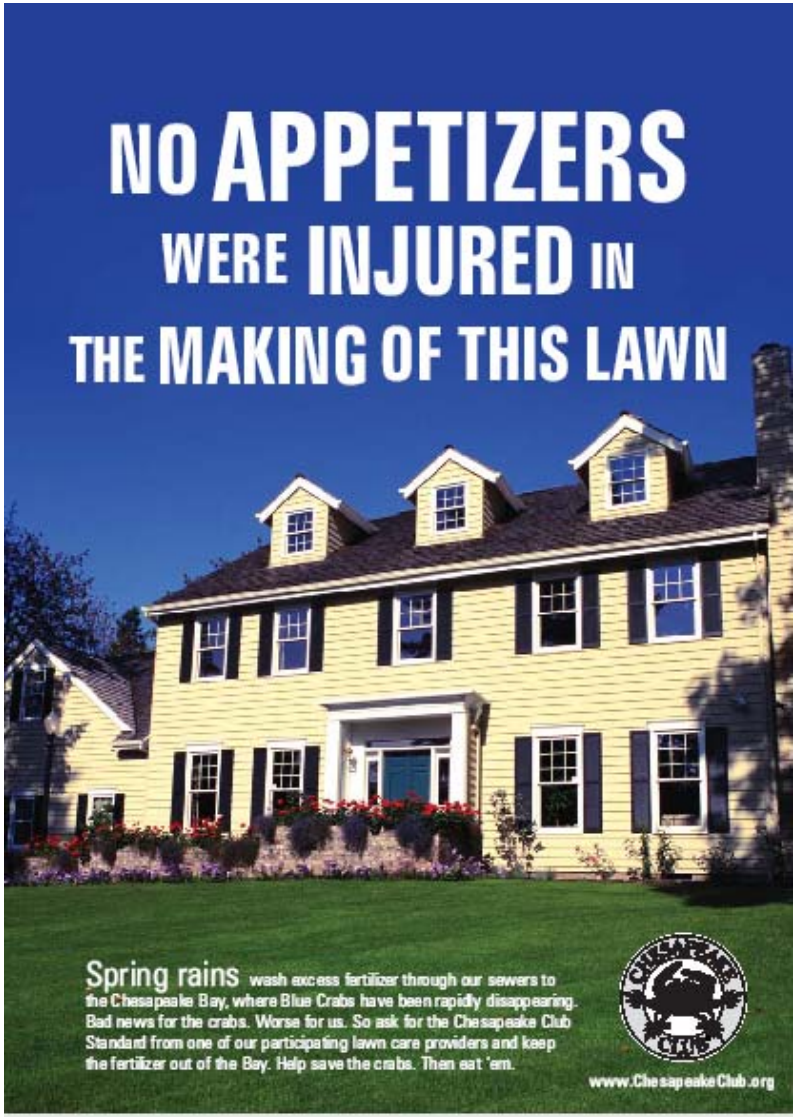
- Innovative Market research and outreach

“Chesapeake Club”

  - Focused on lawn care in suburban areas
  - Sought to change fertilizing behavior through “social marketing campaign” first in NoVA, then Richmond and Hampton Roads
  - Pre and post campaign surveys show it to be an effective methods of reaching consumers and homeowners

DCR
Virginia Department of Conservation & Recreation

NO APPETIZERS WERE INJURED IN THE MAKING OF THIS LAWN



Participating providers in the Greater Richmond area:

Rio Grande Landscape Management, Mechanicsville (804) 569-1935 • R.J. Davis Lawn Care, Glen Allen, (804) 798-0492 • Lin's Landscaping Service, Mechanicsville (804) 746-3737 • Mike's Services, Bumpass, (540) 872-7232 • Maroon's Mowing, Bon Air (804) 555-2121 • Hokie Hi-Grass Services, Short Pump (804) 555-1212 Jack's Lawn Care, Hanover (804) 555-2222 • Blue-Green Lawns, Ashland (804) 555-5454 • Lawns-R-Us, Chesterfield (804) 555-3232 • Evergreen Lawn and Landscape, Sandston (804) 555-4141

DCR
Virginia Department of Conservation & Recreation

Nonpoint Innovation - Agriculture

- **Agricultural Marketing**
  - Strategies based on direct research with farmers and others in the agricultural community
  - Developed marketing methods based on “trusted” sources and need to emphasize production
  - Pilot in Shenandoah Valley Soil and Water Conservation Districts aimed at reaching more farmers and increasing participation
  - Marketing materials made available to all Soil and Water Conservation Districts
  - Results: Increased use of cost share dollars in targeted districts

DCR
Virginia Department of Conservation & Recreation

DCR
Virginia Department of Conservation & Recreation

Nonpoint Innovation - Stormwater

- Developing the web-based Stormwater BMP “clearinghouse” (with VT Water Resources Center and expert committee).
- Promotion of “LID” (Low Impact Development) methods as part of proposed stormwater regulations.
- Regional approach (with Chesapeake Bay states and EPA) to evaluate of BMP effectiveness and innovative approaches.

DCR
Virginia Department of Conservation & Recreation

Virginia Stormwater BMP Clearinghouse

VWRRC Pages
Search VWRRC GO

Search World Wide Web

- Virginia Stormwater BMP Clearinghouse
- Virginia Stormwater Management Program
- Virginia Department of Conservation and Recreation

- **Virginia Stormwater Regulatory Programs**
- **Stormwater BMP Selection**
- **BMP Standards and Specifications**
- **BMP Costs**
- **Operation Inspection and Maintenance**
- **BMP Evaluation and Certification**
- **References and Tools**
- **FAQ's**

DCR Department of Conservation & Recreation

Virginia WATER RESOURCES Research Center

References and Tools

References:

- **Relevant articles, papers, handbook, etc (.pdf)**
- **Useful Web Sites**
  - **List of web links**

Useful tools:

- **BMP cost calculator tool**
- **BMP selection tool (Kibler/Young)**
- **BMP performance bond calculator (cwf)**
- **Other (?)**

Nonpoint Innovation

Rainwater “Harvesting” is a form of reuse that collects and stores water for nonpotable uses.

Legislative Authority: 10.1-603.4. 9. *Promote the reclamation and reuse of stormwater for uses other than potable water in order to protect state waters and the public health and to minimize the direct discharge of pollutants into state waters;* **(adopted by 2008 GA)**

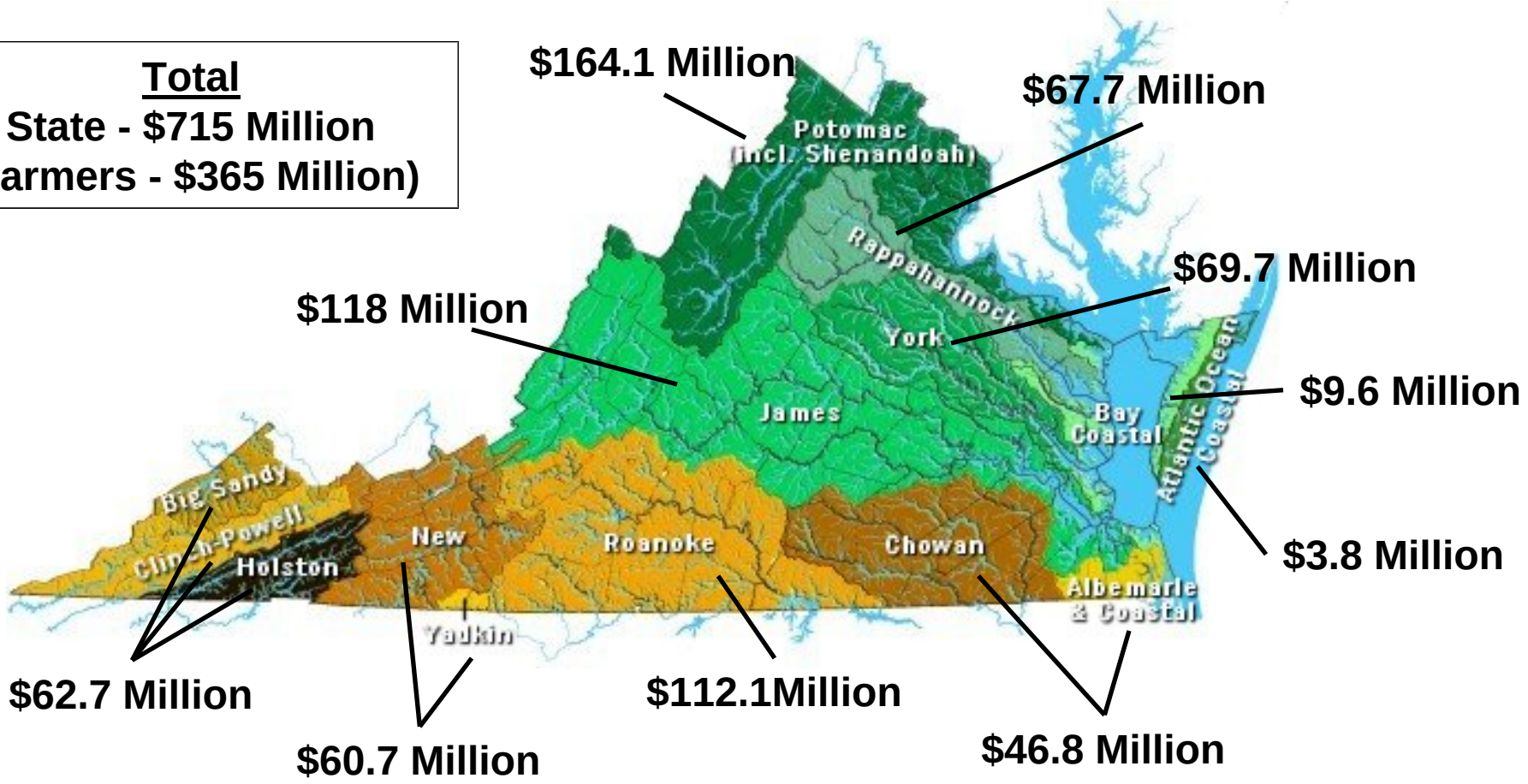
DCR
Virginia Department of Conservation & Recreation

Nonpoint Source Challenges and Future Directions

- Nonpoint sources difficult to address: Thousands of diffuse sources; impacts of a changing climate; ongoing maintenance
- Determining the appropriate mix of incentive and regulatory programs
- Need for on-the-ground technical assistance system (Soil and Water Conservation Districts and DCR staff)
- Stormwater runoff from developed and developing lands is increasing while pollution from wastewater and agriculture have declined.
- Baywide TMDL – Establishing and meeting interim goals, need for "reasonable assurance" for nonpoint reductions, high levels of reductions (likely beyond tributary strategy levels")
- Agriculture "Champion" – Governor Kaine, in cooperation with the Chesapeake Bay Program partners has committed to accelerating agriculture reductions
- Working with Federal partner (NRCS) to target Ches. Bay. Farm Bill funds to Virginia priorities (areas and practices).
- Lack of sustained and reliable funding for incentive-based programs

6-Year State Funding Needs for Agricultural BMPs

Total
State - $715 Million
(Farmers - $365 Million)



10/10/2008

History of WQIF Funding - Nonpoint Source

Funding has been unpredictable and dependent upon state surpluses and year-end contributions to the Water Quality Improvement Fund – Nonpoint account.

- FY 02 – No funding
- FY 03 – No funding
- FY 04 – No funding
- FY 05 – $ 9.4 M
- FY 06 – $ 69.7 M
- FY 07 – $ 3.8 M (added in caboose bill during 2007 session)
- FY 08 – No funding
- FY 09 - $ 20 M (Ag. BMPs only 5% to districts for technical assistance)
- FY 10 - $ 20 M (Ag. BMPs proposed in Governor's Budget – 8% to districts for technical assistance)