VIRGINIA ROANOKE RIVER BASIN ADVISORY COMMITTEE

2013 ANNUAL REPORT

A REPORT TO

THE HONORABLE ROBERT F. McDONNELL, GOVERNOR,

AND

THE GENERAL ASSEMBLY OF VIRGINIA

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Virginia Roanoke River Basin Advisory Committee

Executive Summary

The Virginia Roanoke River Basin Advisory Committee (VRRBAC) was established in the executive branch of state government as an advisory committee to the Virginia delegation to the Roanoke River Basin Bi-State Commission. VRRBAC assists the delegation in fulfilling its duties and carrying out the objectives of the Commission pursuant to Virginia Code § 62.1-69.39.

VRRBAC held two meetings in 2013 and heard presentations on North Carolina's modeling of the Roanoke River Basin and Stormwater Regulations in Virginia.

This report provides information regarding VRRBAC's activities during the 2013 calendar year.

Introduction

The Virginia Roanoke River Basin Advisory Committee (VRRBAC) was established as an advisory committee to the Virginia delegation to the Roanoke River Basin Bi-State Commission. VRRBAC assists the Virginia delegation in fulfilling its duties and carrying out the objectives of the Commission pursuant to Va. Code § 62.1-69.39. VRRBAC is composed of 23 members that include one ex-officio U. S. Representative, six ex-officio Virginia legislative members, 13 non-legislative citizen members, and three ex-officio members from North Carolina. The planning district commissions (PDCs) located in the Roanoke River Basin (Basin) recommended 11 of the non-legislative citizen members of the advisory committee, while the Senate Committee on Rules and the Speaker of the House each appointed one non-legislative citizen member. These non-legislative citizen members reside within the Basin's watershed, represent the diversity of interests within the Basin area, and have demonstrated interest, experience, or expertise in water-related Basin issues.

The Roanoke River Basin Bi-State Commission was established as a bi-state commission composed of members from the Commonwealth of Virginia and the State of North Carolina. The purpose of the Commission is to:

1. Provide guidance, conduct joint meetings, and make recommendations to local, state and federal legislative and administrative bodies, and to others as it deems necessary and appropriate, regarding the use, stewardship, and enhancement of the Basin's water and other natural resources;

2. Provide a forum for discussion of issues affecting the Basin's water quantity, water quality, and other natural resources;

3. Promote communication, coordination, and education among stakeholders within the Basin;

4. Identify Basin-related problems and recommend appropriate solutions; and

5. Undertake studies and prepare, publish, and disseminate information through reports and other communications related to water quantity, water quality, and other natural resources of the Basin.

Meetings and Locations

VRRBAC generally meets throughout the Basin in an effort to make the meetings available to all Basin constituents. The two meetings held in 2013 were in Boydton at the Kerr Reservoir Visitors Center and Bassett at the Lake Philpott Visitors Center.

Organization

Read Charlton of Charlotte Court House was elected by the membership to serve as Chairman of the Virginia Roanoke River Basin Advisory Committee. Tim Pace of Collinsville and Billy Martin of Botetourt County were elected by the membership to serve as Vice Chairmen of the Advisory Committee. These elections were held at the August 21, 2013 meeting.

Current Membership of VRRBAC

There are currently 20 members on the VRRBAC. Due to the resignation of Mike McEvoy in August 2013 from the VRRBAC and Roanoke River Basin Bi-State Commission, there is a vacant position to represent the Roanoke Valley-Alleghany Regional Commission. The Commission has been notified that they need to make a recommendation to fill this vacancy.

North Carolina is permitted by Virginia statute to provide three ex-officio members to the VRRBAC. To date, these members have not been appointed.

A list of current members is provided below.

Senator William Stanley
Senator Frank M. Ruff
Delegate James Edmunds, II
Delegate Thomas C. Wright, Jr.
Delegate Charles Poindexter
Delegate Onzlee Ware
Representative Robert Hurt
Billy Martin, Blue Ridge, 2nd Vice Chair
Tim Pace, 1st Vice Chair, Collinsville
Read Charlton, Chair, Charlotte Court House
Al Zimmerman, South Boston
John H. Feild, Mecklenburg
Haywood J. Hamlet, Phenix
Evelyn Janney, Floyd
Bob Jean, Brookneal
Russell Johnson, Wirtz
John Lindsey, Penhook
Mark Wagner, Huddleston
Bill Lindenmuth, Bracey

Non-legislative Delegates to the Roanoke River Basin Bi-State Commission

John Feild and Haywood Hamlet were recommended by the Advisory Committee to serve as the non-legislative delegates to the Roanoke River Basin Bi-State Commission and were appointed by the Governor.

At the October 23, 2013 meeting, the VRRBAC recommended that Tim Pace serve as one of the non-legislative delegates to the Commission. Once confirmed by the Governor of Virginia, he will replace Mike McEvoy.

Subcommittees

The VRRBAC has six sub-committees that mirror those established by the Roanoke River Basin Bi-State Commission: Agriculture, Forestry, and Soil and Water Conservation Districts; Lake Interests; Public Officials and Government Entities; Permit Holders; River Interests; and Basin Interests. These subcommittees are set up to parallel the structure of the North Carolina counterpart so that the groups can easily interface. The sub-committees are designed to bring together the most knowledgeable people on an issue to accomplish the work of VRRBAC. An effort is made to maintain a geographical and urban/rural balance. VRRBAC members serve as the chairs and vice-chairs of these subcommittees. Other members may serve as their particular skills are needed. No sub-committee met in 2013.

The current composition of the sub-committees is listed below.

Agriculture, Forestry Sub-Committee
Members: Haywood Hamlet - Chairman; Evelyn Janney - Vice-Chairman; Walter Coles, Robert Conner, Mark Wagner, and Billy Martin.
Responsibility: Farm, livestock, and silviculture practices; pesticide / herbicide management; land conservation programs; biosolids, manure, and nutrient management; bio-fuels development; dam and impoundment safety; soil conservation, economic development and agricultural tourism.
Sub-Committee Member Criteria: Agricultural and forestry interests throughout the Basin and representatives from the soil and water conservation districts. Examples: farmers, ranchers, wood products producers, state and federal forestry managers, agricultural agency representatives, dam safety engineers, extension agents, soil and water conservation officials; land conservation agencies; and trusts.

Lake Interests Sub-Committee
Members: Russ Johnson - Chairman; Bob Conner; Mark Wagner; Bill Lindenmuth; Olga Kolotushkina; Tim Pace.
Responsibility: Swimming standards; lake recreational uses, fishing and tourism; debris and sedimentation management; invasive species control; lake water quality standards and monitoring; water level management; marina, dock, and shoreline regulations; boat waste management; navigational aids; and boating safety.
Sub-Committee Member Criteria: Lake interest groups. Examples: Shoreline property owners, boating organizations, citizen lake association representatives, fishing advocates and fishery managers, environmental organizations, lake management and public safety officials, recreation and tourism officials, environmental protection agencies.

Permit Holders Sub-Committee
Members: John Lindsey - Chairman; Mike McEvoy; Read Charlton; Barry Dunkley, William Johnson, Maureen Castern, C.J. Mitchem, Willie Jones, Mike Ward, and Bill Reidenbach.
Responsibility: Water conservation, water recycling, and wastewater reuse; water quality standards and emerging contaminates; environmental laboratory requirements; water withdrawal rights; construction practices and low impact development; solid and

hazardous waste management; fuel storage; air quality; power generation, mining and renewable energy.
Sub-Committee Member Criteria: Those entities that hold permits issued by a federal, state or local regulatory agency pertaining to the water of the Basin. Examples: Industrial facility representatives; commercial, development, and mining interests; manufacturing advocacy organizations; permitting agency representatives; water and wastewater management agencies; landfill operators; fuel supply and power generation interests; and consulting engineers.

Public Officials and Government Entities Sub-Committee
Members: Tim Pace - Chair; Delegate Charles Poindexter; John Feild; Jean McCarter; Billy Martin; Bob Jean; Andrew Lester; and Brian McCrodden.
Responsibility: Water supply planning; water public health; flood control, flood plain regulation, storm water management, emergency response, and water resource financing; land development planning and use requirements; erosion and sediment programs; waste disposal requirements; transportation impacts to watershed; economic development; and disputes between jurisdictions.
Sub-Committee Member Criteria: Representatives of each county, city, and town and any other governmental entities that the Commission deems appropriate as provided by statute. Examples: Elected officials (local, state, or federal) local government managers, state environmental regulatory representatives, state and local health department representatives, council of governments or planning district commission members, economic development officials, local government advocacy organizations, and federal agency representatives.

Roanoke River Basin Interests Sub-Committee
Members: Read Charlton - Chairman; Bud LaRoche, Virginia Division of Game and Inland Fisheries; Pamela Kent Pettus; Maureen Castern; J. T. Davis; Jerry Lovelace, Tom Stutts, and Bob Jean.
Responsibility: Scenic river designations; river water quality standards and monitoring; species protection and restoration; in-stream recreational uses, greenway development and tourism; stream bank restoration; and minimum in-stream flows.
Sub-Committee Member Criteria: River interest groups. Examples:
Riparian landowners, fishing advocates and fishery managers, environmental organizations, canoeing and kayaking interests, citizen watershed monitoring groups, environmental protection agencies, recreation and tourism officials, game management agencies, watershed managers, and consultants.

Appendix A - Chapters 5.4 and 5.5 of Title 62.1 of the Code of Virginia

Chapter 5.4

§ 62.1-69.34. Virginia Roanoke River Basin Advisory Committee established; purpose; membership; terms; meetings.

A. The Virginia Roanoke River Basin Advisory Committee, hereinafter referred to as the "Committee," is hereby established in the executive branch of state government as an advisory committee to the Virginia delegation to the Roanoke River Basin Bi-State Commission. The Committee shall assist the delegation in fulfilling its duties and carrying out the objectives of the Commission, pursuant to § 62.1-69.39. The advisory committee shall be composed of 23 members as follows: two members of the Senate, whose districts include a part of the Virginia portion of the Roanoke River Basin, to be appointed by the Senate Committee on Rules; four members of the House of Delegates, whose districts include a part of the Virginia portion of the Roanoke River Basin, to be appointed by the Speaker of the House of Delegates in accordance with the principles of proportional representation contained in the Rules of the House of Delegates; one nonlegislative citizen member at large appointed by the Senate Committee on Rules; one nonlegislative citizen member at large appointed by the Speaker of the House of Delegates; 11 nonlegislative citizen members selected by the legislative members of the advisory committee such that two are chosen from recommendations of each of the following: the Central Virginia Planning District Commission, the West Piedmont Planning District Commission, the Southside Planning District Commission, the Piedmont Planning District Commission, and the Roanoke Valley Alleghany Planning District Commission; and one member selected by the legislative members of the advisory committee from among recommendations submitted by the New River Valley Planning District Commission; and the Virginia member of the United States House of Representatives, whose district includes the largest portion of the Basin, or his designee, and three representatives of the State of North Carolina appointed in a manner as the General Assembly of North Carolina may determine appropriate. Except for the representatives of North Carolina, all nonlegislative citizen members shall be citizens of the Commonwealth of Virginia. The Virginia member of the United States House of Representatives, the members of the Virginia General Assembly, and the representatives of North Carolina shall serve ex officio without voting privileges. Of the recommendations submitted by planning district commissions authorized to recommend two members, one member shall be a nonlegislative citizen who resides within the respective planning district. However, the New River Valley Planning District Commission may recommend either one nonlegislative citizen at large who resides within the planning district or one member, who at the time of the recommendation, is serving as an elected member or an employee of a local governing body, or one member of the board of directors or an employee of the planning district commission. All persons recommended by the planning district commissions to serve as members of the advisory committee shall reside within the Basin's watershed, represent the diversity of interests in the jurisdictions comprising the respective planning district commissions, and demonstrate interest, experience, or expertise in water-related Basin issues.

B. State and federal legislative members and local government officials appointed to the advisory committee shall serve terms coincident with their terms of office. Nonlegislative citizen members appointed by the Senate Committee on Rules and the Speaker of the House of Delegates to serve on the advisory committee, and ex officio members representing the State of North Carolina shall serve a term of two years. Initially, planning district commissions authorized to recommend two nonlegislative citizen members to the advisory committee shall recommend one member for a term of two years and one member for a term of one year. However, the nonlegislative citizen member recommended to serve on the advisory committee by the New River Valley Planning District Commission shall serve a term of one year. After the initial staggering of terms, the term of office of nonlegislative citizen members recommended by the planning district commissions shall be for two years. Nonlegislative citizen members recommended by planning district commissions shall be eligible for reappointment, if such members shall have attended at least one-half of all meetings of the Commission during their current term of service. Nonlegislative citizen members shall serve for no more than three consecutive two-year terms. Appointments to fill vacancies, other than by expiration of a term, shall be made for the unexpired terms. Vacancies shall be filled in the same manner as the original appointment. The remainder of any term to which a nonlegislative citizen member is appointed to fill shall not constitute a term in determining the member's eligibility for reappointment.
The advisory committee shall elect a chairman and a vice-chairman from among its voting members. A majority of the voting members shall constitute a quorum. The meetings of the advisory committee shall be held at the call of the chairman or whenever the majority of the voting members so request.

§ 62.1-69.35. Compensation and expenses.
Legislative members of the advisory committee shall receive such compensation as provided in § 30-19.12, and non-legislative members shall receive such compensation for the performance of their duties as provided in § 2.2-2813. All members shall be reimbursed for all reasonable and necessary expenses incurred in the performance of their duties as provided in §§ 2.2-2813 and 2.2-2825. Funding for the costs of compensation and expenses of members shall be paid from such funds as may be provided to the Department of Environmental Quality in the appropriations act for this purpose.

§ 62.1-69.35:1. Staffing.
The Department of Environmental Quality shall provide staff support to the advisory committee. All agencies of the Commonwealth shall provide assistance to the advisory committee, upon request.

§ 62.1-69.35:2. Chairman's executive summary of activity and work of the advisory committee.
The chairman of the advisory committee shall submit to the Governor and the General Assembly an annual executive summary of the interim activity and work of the advisory committee no later than the first day of each regular session of the General Assembly. The executive summary shall be submitted as provided in the procedures of the Division

of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

Chapter 5.5

§ 62.1-69.36. Definitions.
As used in this chapter, unless the context requires a different meaning:
"Basin" means the Roanoke River Basin.
"Roanoke River Basin" means that land area designated as the Roanoke River Basin by the Virginia State Water Control Board, pursuant to § 62.1-44.38, and the North Carolina Department of Environment and Natural Resources.

§ 62.1-69.37. Roanoke River Basin Bi-State Commission established; purpose.
The Roanoke River Basin Bi-State Commission is hereby established as a bi-state commission composed of members from the Commonwealth of Virginia and the State of North Carolina and hereinafter referred to as the Commission. The Commission shall:
1. Provide guidance, conduct joint meetings, and make recommendations to local, state and federal legislative and administrative bodies, and to others as it deems necessary and appropriate, regarding the use, stewardship, and enhancement of the Basin's water and other natural resources;
2. Provide a forum for discussion of issues affecting the Basin's water quantity, water quality, and other natural resources;
3. Promote communication, coordination and education among stakeholders within the Basin;
4. Identify Basin-related problems and recommend appropriate solutions; and
5. Undertake studies and prepare, publish, and disseminate information through reports, and other communications, related to water quantity, water quality and other natural resources of the Basin.

§ 62.1-69.38. Membership; terms.
A. The Commission shall be composed of 18 voting members that include nine members representing the Commonwealth of Virginia and nine members representing the State of North Carolina. The Virginia delegation shall consist of the six legislative members appointed to the Virginia Roanoke River Basin Advisory Committee, and three nonlegislative citizen members appointed to the Virginia Roanoke River Basin Advisory Committee, who represent different geographical areas of the Virginia portion of the Roanoke River Basin, to be appointed by the Governor of Virginia. The North Carolina delegation to the Commission shall be appointed as determined by the State of North Carolina. All members appointed to the Commission by the Commonwealth of Virginia and the State of North Carolina shall reside within the Basin's watershed. Members of the Virginia House of Delegates and the Senate of Virginia, the North Carolina House of Representatives and Senate, and federal legislators, who have not been appointed to the Commission and whose districts include any portion of the Basin, shall serve as nonvoting ex officio members of the Commission.
B. Legislative members of the Virginia delegation, federal legislators, and local government officials, whether appointed or ex officio, shall serve terms coincident with

their terms of office. Nonlegislative citizen members shall be appointed to serve two-year terms, unless the member is reappointed by the appointing authorities of each state. Appointments to fill vacancies, other than by expiration of a term, shall be made for the unexpired terms. Vacancies shall be filled in the same manner as the original appointment.
C. Each state's delegation to the Commission may meet separately to discuss Basin-related issues affecting their state, and may report their findings independently of the Commission. A majority of the voting members shall constitute a quorum.

§ 62.1-69.39. Roanoke River Basin Bi-State Commission powers and duties.
A. The Commission shall have no regulatory authority.
B. To perform its duties and objectives, the Commission shall have the power to:
1. Develop rules and procedures for the conduct of its business or as may be necessary to perform its duties and carry out its objectives, including, but not limited to, selecting a chairman and vice-chairman, rotating chairmanships, calling meetings and establishing voting procedures. Rules and procedures developed pursuant to this subdivision shall be effective upon an affirmative vote by a majority of the Commission members;
2. Establish standing and ad hoc advisory committees, which shall be constituted in a manner to ensure a balance between recognized interests. The purpose of each advisory committee shall be determined by the Commission;
3. Seek, apply for, accept and expend gifts, grants and donations, services and other aid from public or private sources. With the exception of funds provided by the planning district commissions and funds appropriated by the General Assemblies of Virginia and North Carolina, the Commission may accept funds only after an affirmative vote by a majority of the members of the Commission or by following such other procedures as may be established by the Commission for the conduct of its business;
4. Establish a nonprofit corporation to assist in the details of administering its affairs and in raising funds;
5. Enter into contracts and execute all instruments necessary or appropriate; and
6. Perform any lawful acts necessary or appropriate for the furtherance of its work.

§ 62.1-69.40. Standing and ad hoc committees.
To facilitate communication among stakeholders in the Roanoke River Basin, and to maximize participation by all interested parties, the Commission shall establish both standing and ad hoc committees. The Commission shall appoint the members of the standing and ad hoc committees, in accordance with guidelines adopted by the Commission. The standing committees shall include, but not be limited to, the following:
1. Permit holders. The Commission shall identify those entities that hold permits issued by a federal, state or local regulatory agency pertaining to the water of the Basin. Such entities may recommend a representative to be appointed to the committee by the Commission;
2. Roanoke River Basin interest groups. The Commission shall identify interest groups that may recommend a representative to be appointed to the committee by the Commission;
3. Public officials and government entities. The committee shall be composed of representatives of each county, city and town located completely or partially within the

Basin, and any other governmental entities that the Commission deems appropriate may recommend one member to be appointed to the committee by the Commission. The committee may also include the U.S. Senators from Virginia and North Carolina or their designees, and any member of the U.S. House of Representatives or his designee, whose district includes any portion of the Basin, if such members elect to serve on the committee; and

4. Agriculture, forestry and soil and water conservation districts. The Commission shall identify persons who represent agricultural and forestry interests throughout the Basin and representatives from the soil and water conservation districts within the Basin and shall appoint representatives from these groups to the committee.

§ 62.1-69.41. Staffing and support.

The Virginia Department of Environmental Quality and the North Carolina Department of Environment and Natural Resources shall provide staff support to the Commission. Additional staff may be hired or contracted by the Commission through funds raised by or provided to it. The duties and compensation of such additional staff shall be determined and fixed by the Commission, within available resources. All agencies of the Commonwealth of Virginia and the State of North Carolina shall cooperate with the Commission and, upon request, shall assist the Commission in fulfilling its responsibilities. The Virginia Secretary of Natural Resources and the North Carolina Secretary of the Department of Environment and Natural Resources or their designees shall each serve as the liaison between their respective state agencies and the Commission.

§ 62.1-69.42. Funding.

A. The Commission shall annually adopt a budget, which shall include the Commission's estimated expenses. Funding for the Commission shall be shared and apportioned between the Commonwealth of Virginia and the State of North Carolina. The appropriation of public funds to the Commission shall be provided through each state's regular process for appropriating public funds. The Virginia planning district commissions within the Basin shall bear a proportion of Virginia's share of the expenses, which may be in the form of in-kind contributions.

B. The Commission shall designate a fiscal agent.

C. The accounts and records of the Commission showing the receipt and disbursement of funds from whatever source derived shall be in such form as the Virginia Auditor of Public Accounts and the North Carolina State Auditor prescribe, provided that such accounts shall correspond as nearly as possible to the accounts and records for such matters maintained by similar enterprises. The accounts and records of the Commission shall be subject to an annual audit by the Virginia Auditor of Public Accounts and the North Carolina State Auditor or their legal representatives, and the costs of such audit services shall be borne by the Commission. The results of the audits shall be delivered to the appropriate legislative oversight committees in each state.

§ 62.1-69.43. Compensation and expenses.

A. Legislative members of the Virginia delegation to the Commission shall receive such compensation as provided in § 30-19.12, and non-legislative members shall receive such

compensation for the performance of their duties as provided in § 2.2-2813. All voting members shall be reimbursed for all reasonable and necessary expenses incurred in the performance of their duties as provided in § § 2.2-2813 and 2.2-2825. However, all such expenses shall be paid from existing appropriations and funds provided to the Commission or, if unfunded, shall be approved by the Joint Rules Committee.
Members of the Virginia House of Delegates and the Senate of Virginia, and members of the Virginia Congressional delegation, who have not been appointed to the Commission, whose districts include any portion of the Basin, and who serve as nonvoting ex officio members of the Commission shall serve without compensation and expenses.
Nonlegislative citizen members appointed to any standing committees or ad hoc committees shall serve without compensation and expenses.
B. The North Carolina members of the Commission shall receive per diem, subsistence, and travel expenses as follows:
1. Ex officio legislative members who are members of the General Assembly at the rate established in North Carolina G.S. 138-6;
2. Commission members who are officials or employees of the State or of local government agencies at the rate established in North Carolina G.S. 138-6; and
3. All other members at the rate established in North Carolina G.S. 138-5.

§ 62.1-69.44. Annual report required.
The Commission shall submit an annual report, including any recommendations, to the Governor and General Assembly of Virginia and the Governor and General Assembly of North Carolina.

Appendix B – Meeting Agendas and Presentations

VIRGINIA ROANOKE RIVER BASIN ADVISORY COMMITTEE

Meeting Agenda
Wednesday, August 21, 2013
1:00 p.m. – 3:00 p.m.

Visitor's Center at John H. Kerr Dam & Reservoir
1930 Mays Chapel Road
Boydton, VA 23917

A. Call to order

B. Welcome; Recognition of Members and Guests

C. Consider Minutes of August 27, 2012 Meeting

D. Election of Officers

Current Officers:

Chairman – Mike McEvoy
1st Vice-Chair – Read Charlton
2nd Vice-Chair – Tim Pace

E. Presentation

1. Roanoke River Basin Modeling project update –
North Carolina DENR:
Ian McMillan
Daniel Ngandu
Harold Brady

F. Subcommittee Reports

1. Agriculture and Forestry Sub-Committee - Haywood Hamlet, Chair
2. Lake Interests Sub-Committee - Russ Johnson, Chair
3. Permit Holders Sub-Committee - John Lindsey, Chair
4. Public Officials and Government Entities Sub-Committee - Tim Pace, Chair
5. Roanoke River Interests Sub-Committee - Read Charlton, Chair

G. Other Business

H. Next Meeting Date/Topic/Location

I. Adjournment

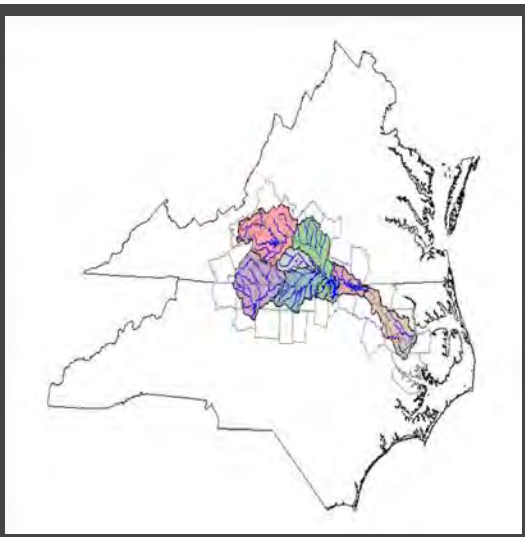
THE ROANOKE RIVER BASIN WATER RESOURCES PLAN: THE RIVER BASIN & THE PLANNING PROCESS

Virginia - Roanoke River Basin Advisory Committee
August 2013

Outline

- Roanoke Basin Description
- Basinwide Planning Process
- Basinwide Planning Objectives
- Report Contents & Purpose

Basin Description



Seven 8-digit HUC units across NC and VA

Five sub-basins in NC

The Roanoke Bi-State Commission and Advisory Committees have been established to consider and address some of the interstate issues.

NC Features

Hydrologic Units (HUCs)

- 03010102 - Middle Roanoke
- 03010103 – Upper Dan
- 03010104 - Lower Dan
- 03010106 - Roanoke Rapids
- 03010107 – Lower Roanoke

Major North Carolina Roanoke Water Features

- Dan River
- Mayo River
- Belews Lake
- Mayo Reservoir
- Hyco Lake
- John H. Kerr Reservoir
- Lake Gaston
- Roanoke Rapids Lake
- Roanoke River

Counties (16)

- Beaufort
- Bertie
- Caswell
- Forsyth
- Granville
- Guilford
- Halifax
- Martin
- Northampton
- Person
- Rockingham
- Stokes
- Surry
- Vance
- Warren
- Washington

Water Resource Planning

Interactive process

Provide needed information

- Assessment of current conditions, resource value positions, and projections

Long Range Planning (50+ years)

Intended to produce information to ensure:

- Sustainability of resources into the future
- A baseline of information to guide future discussions and measuring for continuous monitoring

Basin Planning is **NOT**

Rulemaking

Legislation

Permitting

However, it should provide a scientific information context to adequately answer questions related to potential policy decisions

Planning Objective #1

Identify scenarios in which the anticipated water supply at specific locales might not meet the projected demand for all water users (ex. Energy, Agriculture, Industry, Mining, Recreation)

Methodology

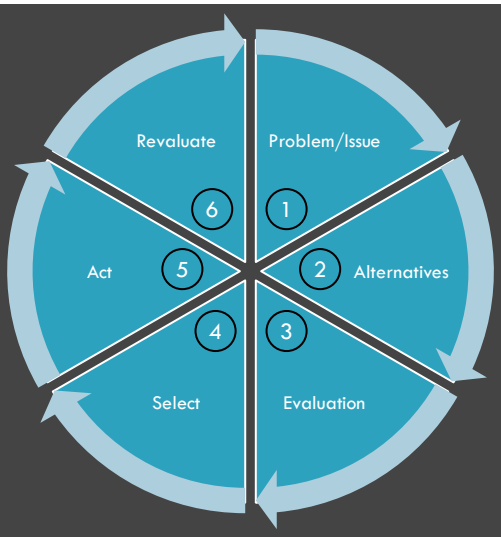
Collection of data to quantify current, historic, and projected conditions

Assessment of current and future values and goals

Identification of legal, logistical, and natural constraints

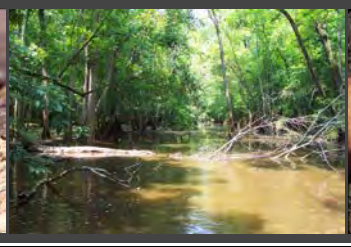
Planning Objective #2

Create a framework by which proposed solutions to water supply issues can be vetted



Planning Objective #3

Evaluate ecological flow parameters



Plan Report Contents

1. Basin Planning Process

2. Roanoke Basin Description

- Topography and Hydrology
- Counties, Municipalities, and Primary Water Sources

3. Existing Water Supply Conditions and Needs

- Short and Long Term Projected Conditions

4. River Basin Hydrologic Model

- Model Details
- Scenarios
- Future Water Supply Alternatives
- Drought Conditions
- Ecological Integrity
- Model Validation
- Changes in Water Availability and Reliability

What the Plan Provides

Resource document that provides baseline data and a means to unveil options to resolve current or anticipated water supply issues

Presents a scientific framework for issue resolution with stakeholders, the public, the Commonwealth of Virginia, and other interested parties.

Contact Information

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Roanoke River Basin Hydrologic Model – OASIS MODEL

Virginia - Roanoke River Basin Advisory Committee August 2013

Daniel Ngandu
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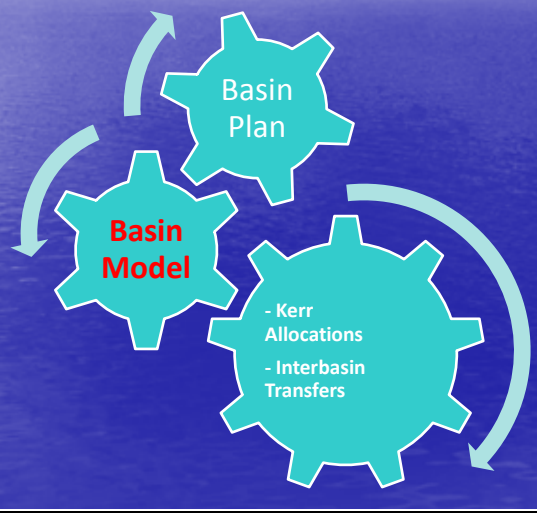
Outline

- **SL 2010-143 Improve River Basin Modeling in NC**
- S.L. 2012-2010 – Amend Environmental Laws 2012: Part II. Study Reallocation of Water Supply in Kerr
- Roanoke OASIS Model Development
- Roanoke River Basin Application
- Roanoke OASIS Model Validation Process
- Modeling Timeline

2

SL 2010-143 Improve River Basin Modeling in NC



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SL 2010-143 Improve River Basin Modeling in NC (cont'd)

3) Model. – Each basinwide hydrologic model shall:

a. Include surface water resources within the river basin, groundwater resources within the river basin to the extent known by the Department, transfers into and out of the river basin that are required to be registered under G.S. 143-215.22H, other withdrawals, ecological flow, instream flow requirements, projections of future withdrawals, an estimate of return flows within the river basin, inflow data, local water supply plans, and other scientific and technical information the Department deems relevant.

b. Be designed to simulate the flows of each surface water resource within the basin that is identified as a source of water for a withdrawal registered under G.S. 143-215.22H in response to different variables, conditions, and scenarios. The model shall specifically be designed to predict the places, times, frequencies, and intervals at which any of the following may occur:
   1. Yield may be inadequate to meet all needs.
   2. Yield may be inadequate to meet all essential water uses.
   3. Ecological flow may be adversely affected.

c. Be based solely on data that is of public record and open to public review and comment.

(6) Approval and modification of hydrologic models.

4

DWR

S.L. 2012-2010 – Amend Environmental Laws 2012:

- SECTION 2.(a) The Department of Environment and Natural Resources shall study the advisability and feasibility of reallocating water supply in John H. Kerr Reservoir from hydropower storage to water supply storage. The study shall identify the projected future water supply needs that could be met by reallocation of the water supply and identify any potential impacts of a water supply reallocation. …
- SECTION 2.(b) in conducting this study, the Department shall consult with the Virginia Department of Environmental Quality, the United States Army Corps of Engineers, and any local government or other entity that receives an allocation from the John H. Kerr Reservoir for water supply or for other purposes as of the effective date of this section. The Department shall report its findings and recommendations to the Environmental Review Commission on or before June 1, 2014.

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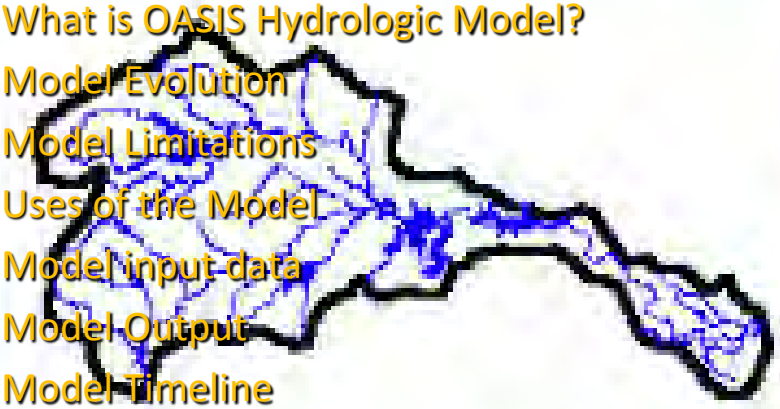
Roanoke OASIS Model Development

- What is OASIS Hydrologic Model?
- Model Evolution
- Model Limitations
- Uses of the Model
- Model input data
- Model Output
- Model Timeline
- Model Validation



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What is OASIS Model?

- A software program that simulates the routing of water through a water resources system.
- A mass balance, water resources simulation and optimization model
- OASIS uses **O**perations **C**ontrol **L**anguage, OCL™ - a computer language that allows the water system operator to express any condition or rule, and enter it into the software.
- OCL also acts as a bridge from OASIS to other computer programs.
- Runs quickly on a long-term hydrologic record
  - Uses any flow prescription or operating policy
  - Uses real-time forecasts for probabilistic operations
- Developed and patented by HydroLogics

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Model Evolution

- Virginia Beach pipeline - Lake Gaston Litigation
- North Carolina and Virginia Hydropower relicensing
- Corps of Engineer's study of Kerr Lake management plan
- Recent updates
  - Inflows updated through 2008
  - Integrated COE's current operations

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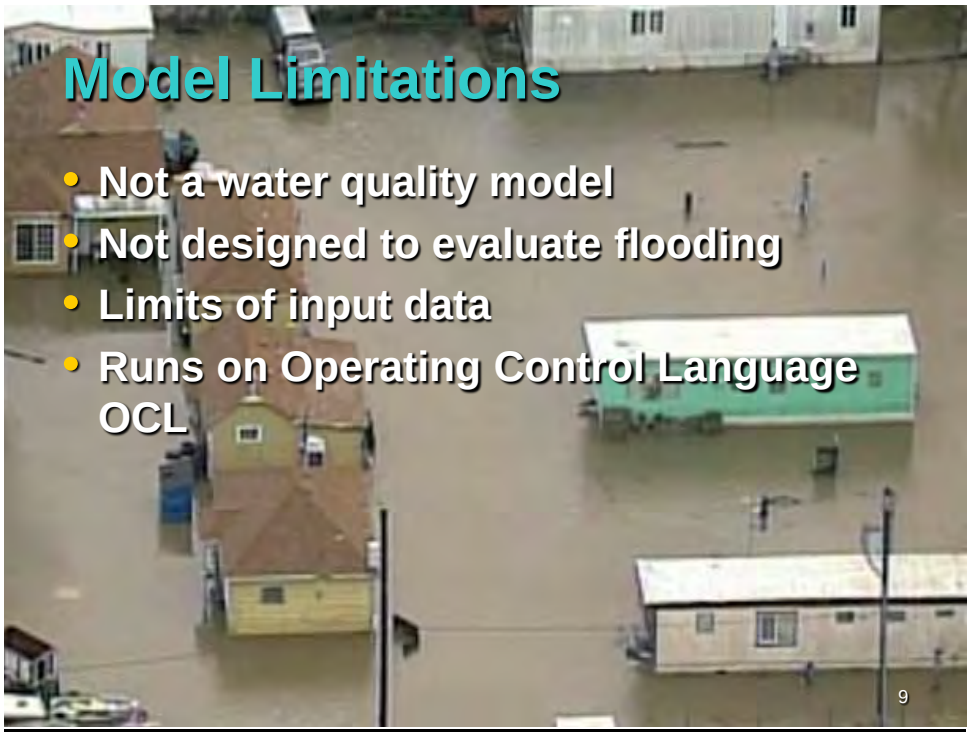
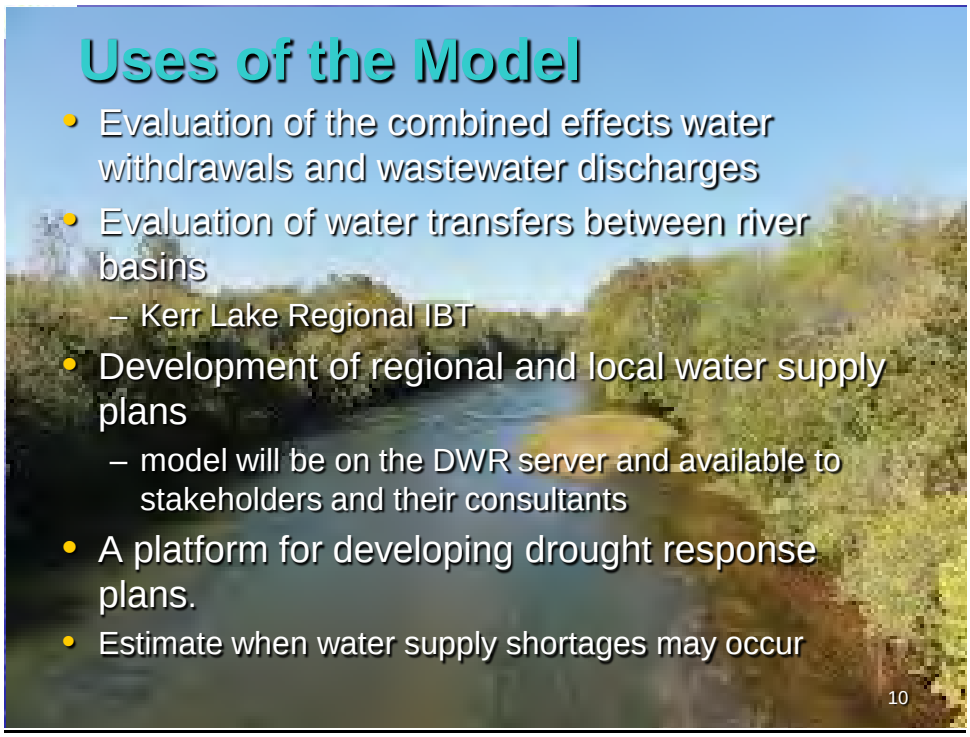
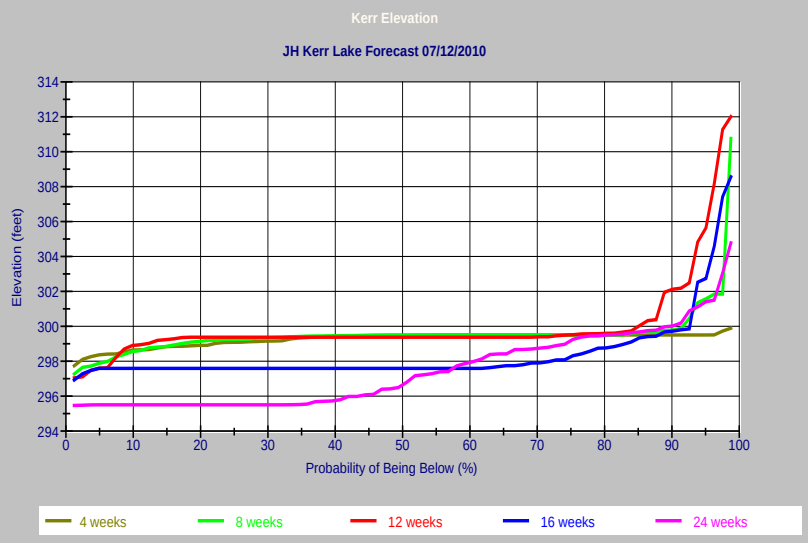

Model Limitations
• Not a water quality model
• Not designed to evaluate flooding
• Limits of input data
• Runs on Operating Control Language OCL
9


Uses of the Model
• Evaluation of the combined effects water withdrawals and wastewater discharges
• Evaluation of water transfers between river basins
– Kerr Lake Regional IBT
• Development of regional and local water supply plans
– model will be on the DWR server and available to stakeholders and their consultants
• A platform for developing drought response plans.
• Estimate when water supply shortages may occur
10

Uses of the Model Cont'd



Initial Elevations on 07/12/10: Smith 973.54ft, Philpott =794.63ft, Kerr = 299.14ft, Gaston = 199.22ft, R. Rapids = 130.00ft.

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Model Input Data

- Unregulated stream flows 1930-2008
- Historical withdrawals and return flows
- Time series of net evaporation
- Physical data:
  - reservoir SAE,
  - turbine characteristics,
  - channel capacities, etc.
- Operating Policies:
  - Rule curves
  - Minimum releases/ecological flows
  - Drought and flood management policies
  - Energy requirements

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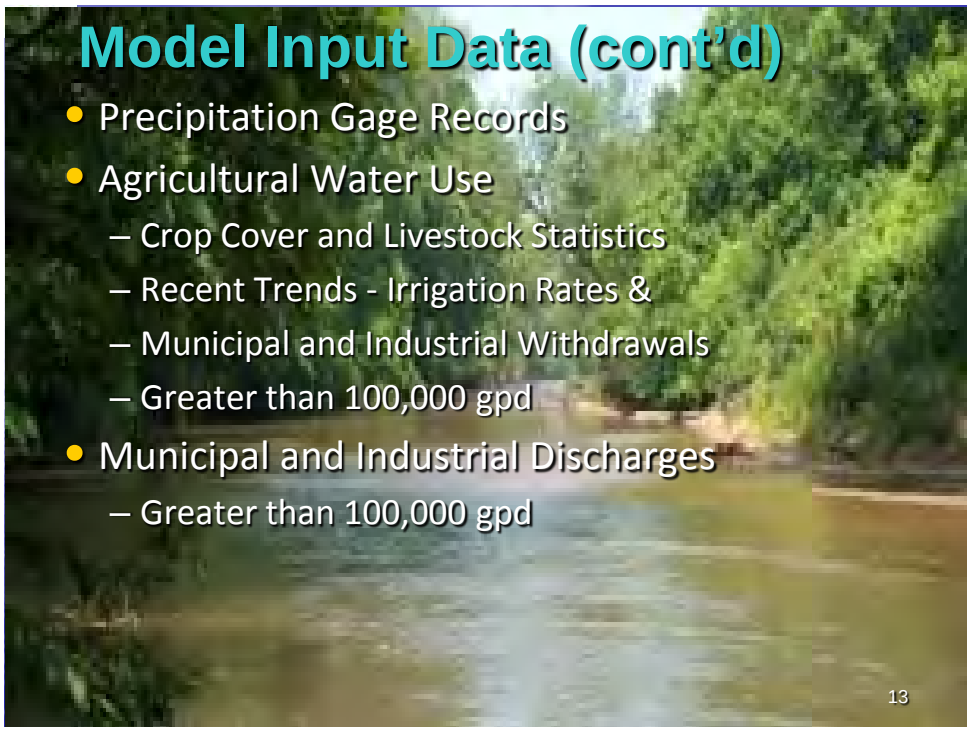
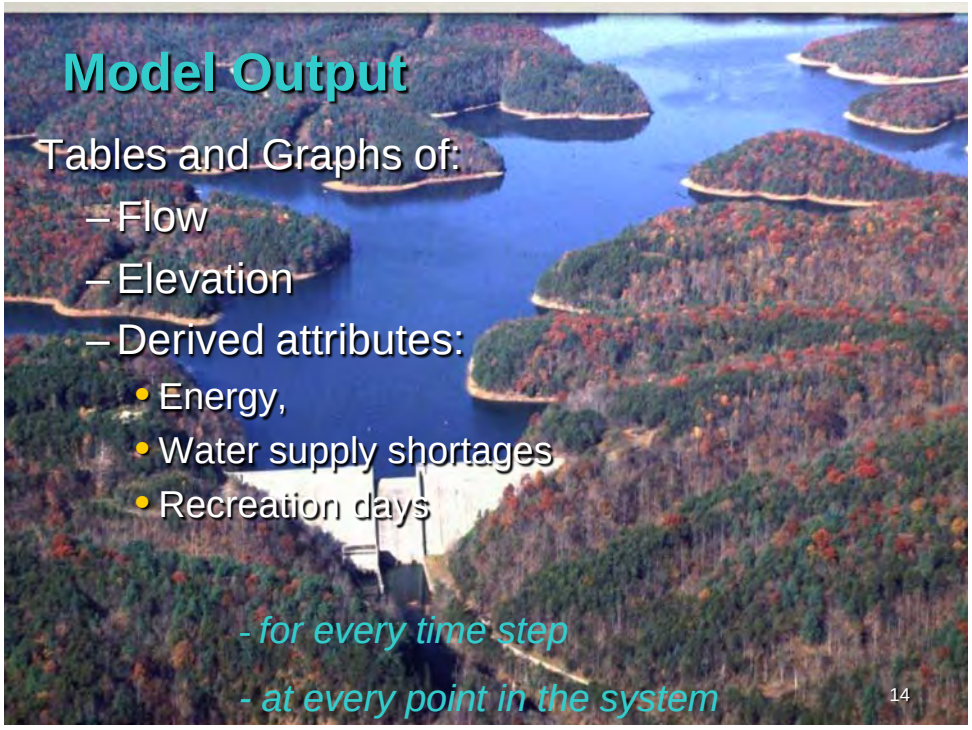

Model Input Data (cont'd)
• Precipitation Gage Records
• Agricultural Water Use
– Crop Cover and Livestock Statistics
– Recent Trends - Irrigation Rates &
– Municipal and Industrial Withdrawals
– Greater than 100,000 gpd
• Municipal and Industrial Discharges
– Greater than 100,000 gpd
13


Model Output
Tables and Graphs of:
– Flow
– Elevation
– Derived attributes:
• Energy,
• Water supply shortages
• Recreation days
- for every time step
- at every point in the system
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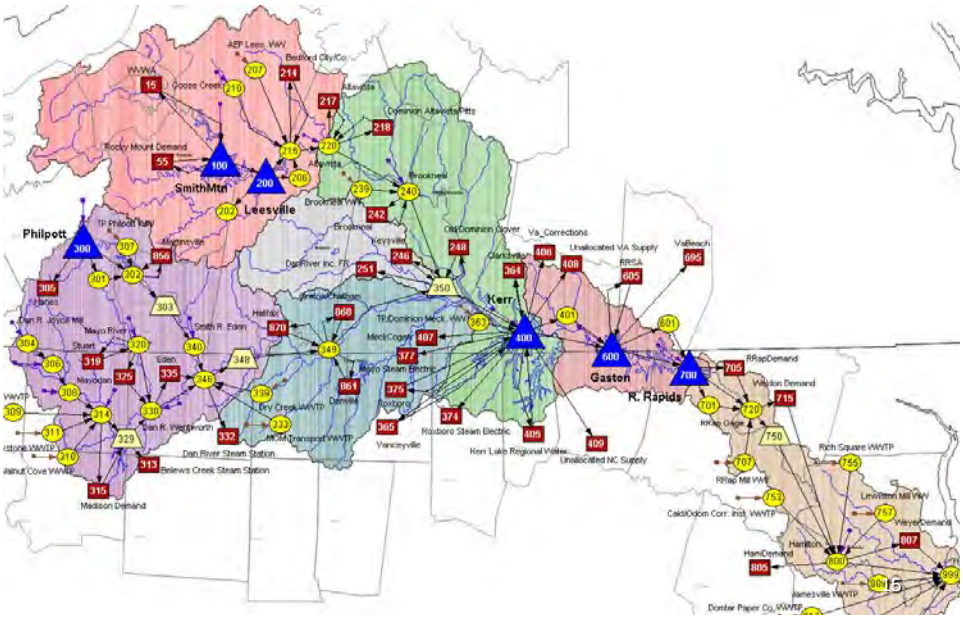
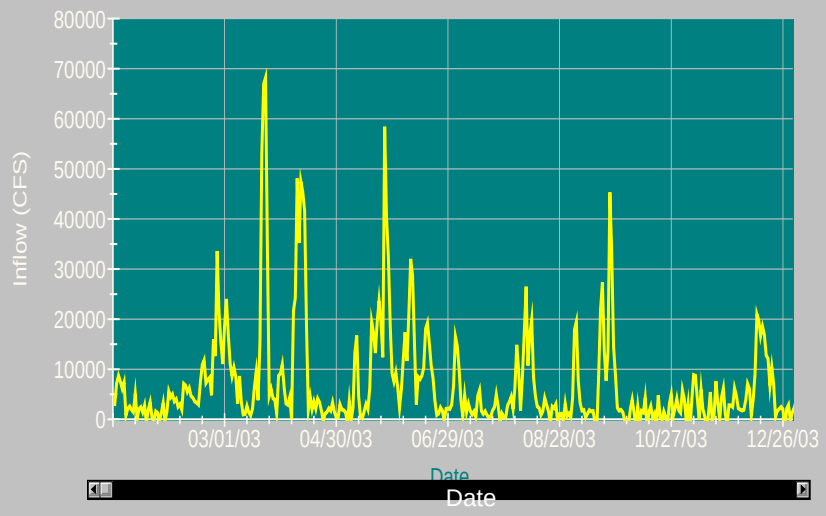
Model Schematic



Model Output Cont'd

Inflow at node 400 -- Kerr



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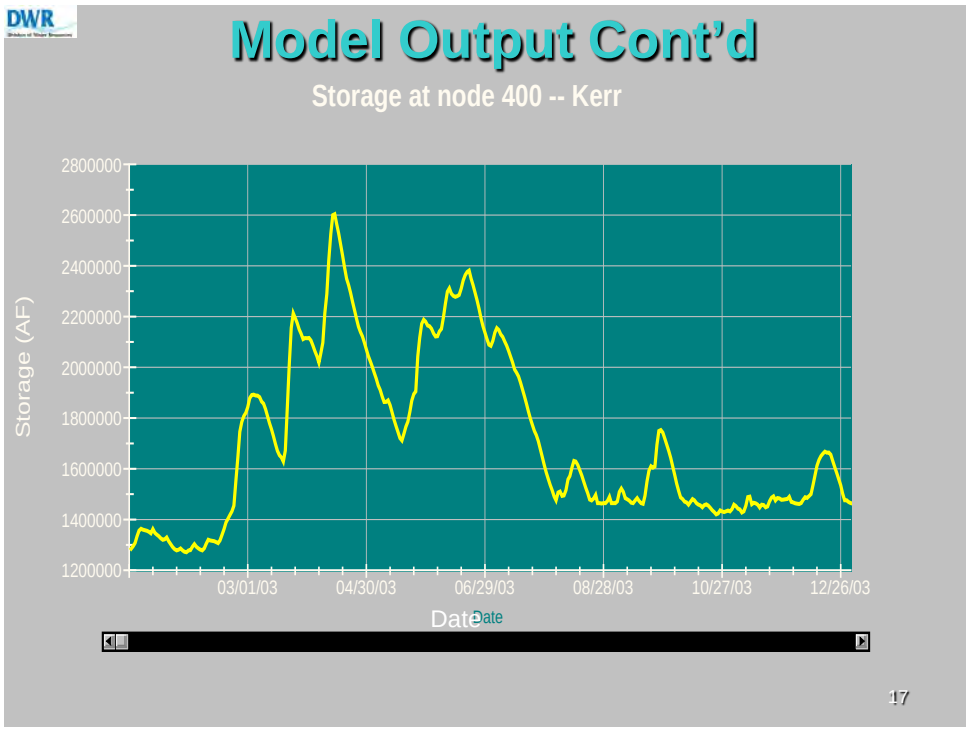
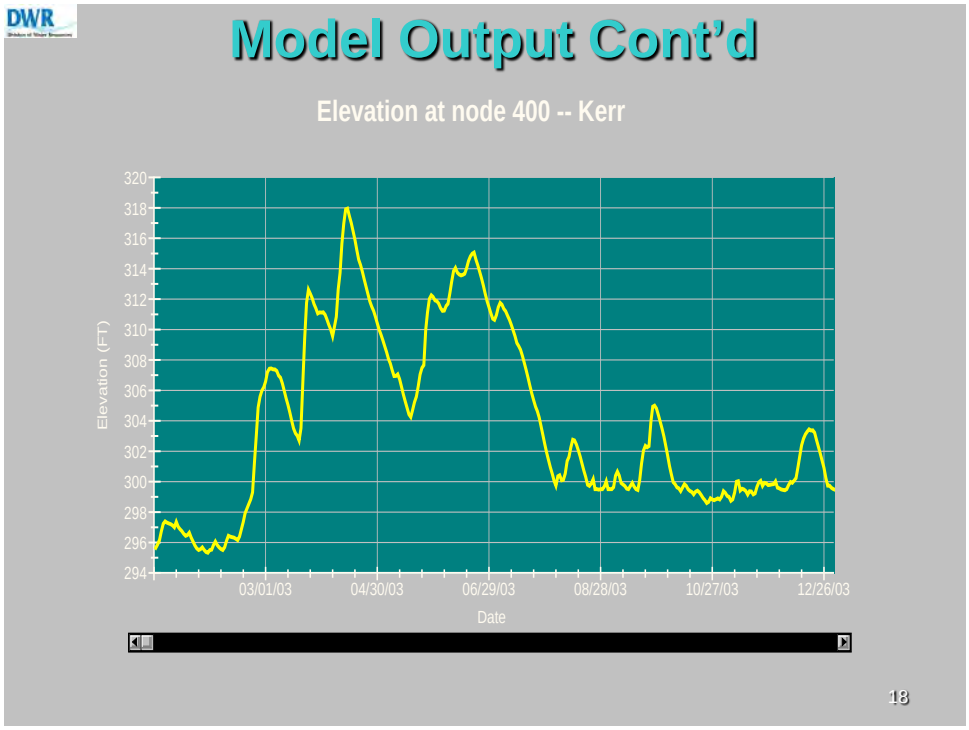

DWR
Model Output Cont'd
Storage at node 400 -- Kerr
Storage (AF)
2800000
2600000
2400000
2200000
2000000
1800000
1600000
1400000
1200000
03/01/03
04/30/03
06/29/03
08/28/03
10/27/03
12/26/03
Date
17


DWR
Model Output Cont'd
Elevation at node 400 -- Kerr
Elevation (FT)
320
318
316
314
312
310
308
306
304
302
300
298
296
294
03/01/03
04/30/03
06/29/03
08/28/03
10/27/03
12/26/03
Date
18

Model Upgrades

- Upgrades required to ensure consistency with other DWR basin models
  - Impairment data collection
  - Inflow development
  - Explicitly account for water withdrawals, wastewater discharges, and agricultural demands
- Upgrades also required to better reflect actual hydropower operations
  - More realistic dispatch of Corp's weekly energy declaration
  - Turbine efficiency upgrades for Kerr reservoir
  - New FERC license minimum release requirements for Roanoke Rapids
  - Low flow operating protocol (forecast-based) for Smith Mountain/Leesville

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Model Validation

- Model Nodes
- Testing of the Model
  - How well does it represent the river system?
    - Kerr Lake
    - Roanoke Rapids

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Model Validation - Kerr

From a weekly run operated to the guide curve

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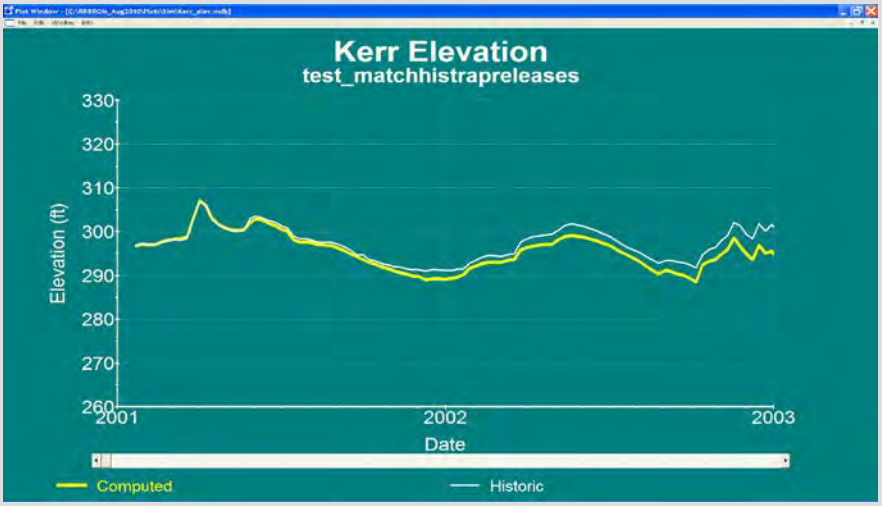
Validation – Matching Historic Rapids Release



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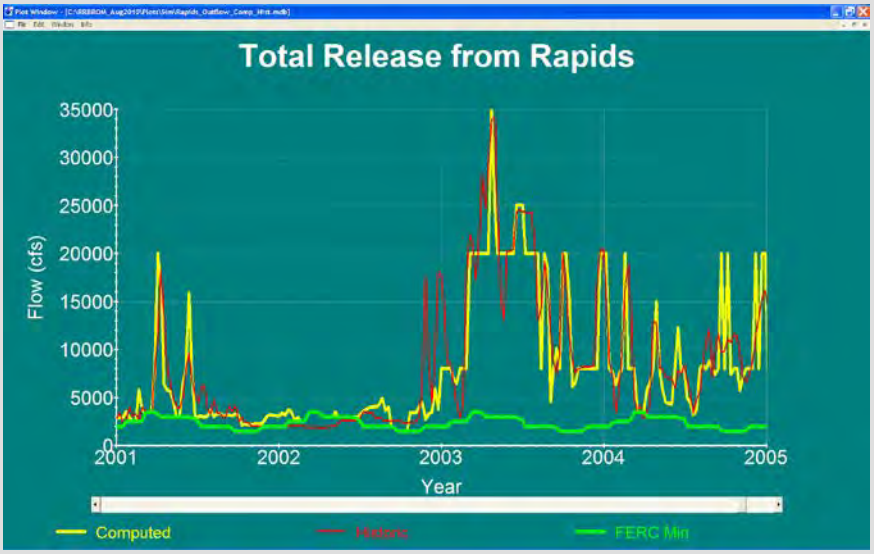
Model Validation – Rapids Total Release



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Upgrade Timeline

- Basin schematic: 1 month
- Data collection (demands and discharges, including agricultural demands): 4 - 6 months
- Inflow development: 6 – 10 months
- Operating rules: 3 months
- Current and future demand model runs: 2 - 4 months
- Documentation and training: 1 month
- **Expected completion date: September 2013**

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Get Involved: Contact Us

E-mail list serve Subscriptions:

- Stakeholders
  - http://lists.ncmail.net/mailman/listinfo/dwr-roanoke
    - Everybody needs to subscribe to this list.
  - Roanoke OASIS Model Users
  - dwr-roanoke-model-subscribe@lists.ncmail.net
    - For Stakeholders interested to have OASIS model accounts

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Get Involved: Contact Us

- Roanoke River Basin Webpage
  - http://www.ncwater.org/basins/Roanoke
- Contacts at NCDWR
  - Model Development Project Lead at DWR
    Daniel Ngandu, Water Resources Engineer
    daniel.ngandu@ncdenr.gov
    (919) 715-0388

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The model will always be subject to revision,
because even experts make mistakes!
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Questions?
Thank you!
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VIRGINIA ROANOKE RIVER BASIN ADVISORY COMMITTEE

Meeting Agenda
Wednesday, October 23, 2013
10:00 a.m. to 12:00 p.m.

Visitor's Center at Lake Philpott

A. Call to order

B. Welcome; Recognition of Members and Guests

C. Consider Minutes of August 21, 2013 Meeting

D. Subcommittee Reports
   1. Agriculture and Forestry Sub-Committee - Haywood Hamlet, Chair
   2. Lake Interests Sub-Committee - Russ Johnson, Chair
   3. Permit Holders Sub-Committee - John Lindsey, Chair
   4. Public Officials and Government Entities Sub-Committee - Tim Pace, Chair
   5. Roanoke River Interests Sub-Committee - Read Charlton, Chair

E. Update on North Carolina's membership on the Bi-State Commission – Tom Fransen, NC DENR

F. Presentation
   1. Virginia's Stormwater Regulations – Ginny Snead, Manager, Office of Stormwater, DEQ

F. Other Business

   1. Resolution to honor Mike McEvoy (draft attached)

   2. Resolution regarding Dam Safety Regulations (Botetourt County resolution attached)

G. Next Meeting Date/Topic/Location

H. Adjournment (Lunch provided by Henry County)

Virginia Stormwater Management Regulations

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

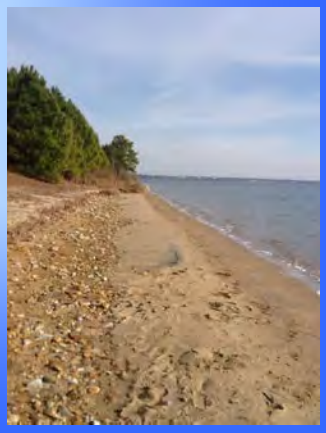
VRRBAC

October 23, 2013

1

STORMWATER REGS IN VA

- Clean Water Act/NPDES
  - Industrial SW GP
  - Construction SW GP
  - MS4: Phase I Ind., Phase II GP
- State Regulatory Programs
  - Va SW Management Permit
    - Statewide
  - Erosion and Sediment Control
    - Statewide
  - Chesapeake Bay Preservation
    - Tidewater



MS4 Regulatory Update

- Arlington
  - Final June 28
- MS4 GP – July 1, 2013
  - Permit Coverage Letters – 2010 Census
- Other MS4 Phase Is
  - Prince William
  - Chesterfield
  - Henrico
  - All in Bay Watershed

2014 VSMP Regulation Changes

- New Construction GP
- Water Quality Criteria
- Water Quantity Criteria
- Local Programs

Stormwater Criteria Address Land Use Changes as a Result of Development

Pre-development – non-regulated land use

Land Disturbance Activity regulated under federal regulation

Post-development – non-regulated land use

The water quality and quantity design criteria are implemented in conjunction with the VSMP General Permit for Stormwater Discharges from Construction Activities. These criteria are based on a State regulation separate from federal requirements.

Water Quality: Key Differences

Existing Rules		Modified Rules
Impervious Surface (IC) only	**Land Use(s)**	IC + Forest/Open Space + Managed Turf
0.5 inches of *Runoff* from the IC only	**Event**	1.0 inches of *Rainfall* from the whole site
Average land condition/ technology based	**New Design Criteria**	0.41 lbs./ac/yr TP
10% reduction TP	**Redevelopment Criteria**	<1 acre = 10% red. TP, >1 acre = 20% red. TP
Simple Method	**Compliance Methodology**	Runoff Reduction Method (RRM)

New Design Criteria
Environmental Site Design

- There is no longer a specified "Average land cover condition" (% Imp. Cover or Poll. Load) below which you are not required to meet any water quality requirements
- "Site" is redefined

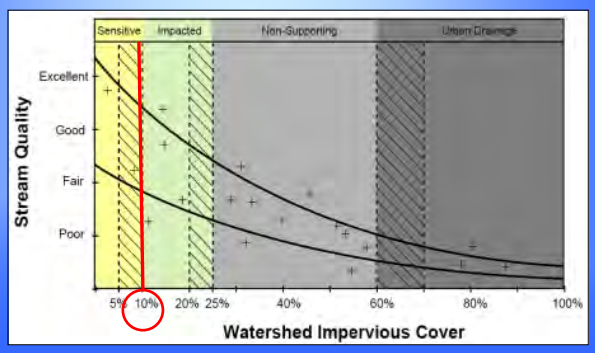
Imagine the site as an area that you can put construction fencing around ,but including undisturbed areas that are going to be protected as part of the plan.

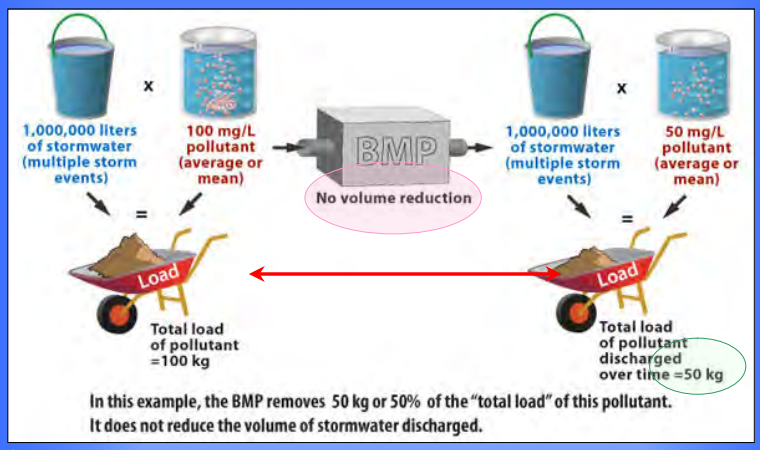
Basis for 0.41 lbs/ac/yr P Threshold

Statewide requirement based on three types of land cover and NRCS hydrologic soil groups of soil on site

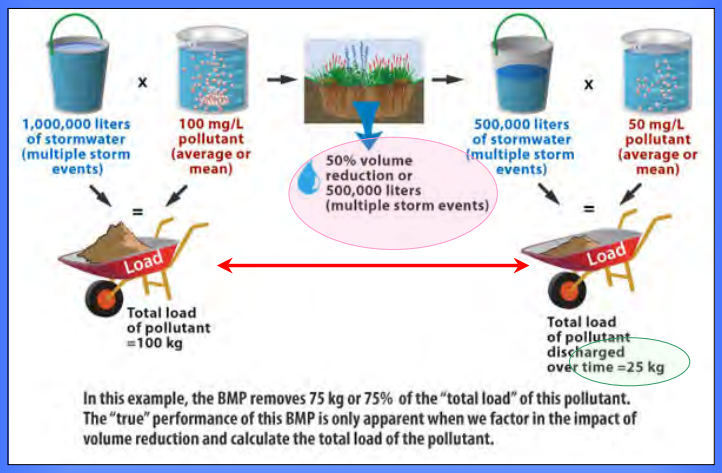
Threshold assumes 10% impervious cover, 30% turf, 60% forest

The Impervious Cover Model focuses on protecting water quality in *local* streams.





- "Traditional" BMP pollutant removal efficiencies do not take into account the removal that occurs when the runoff volume is reduced.
- Many BMPs do not reduce runoff volume at all.



- Using BMPs that also provide volume reduction provides greater overall pollutant (mass load) removal
- This reflects a "Mass Balance" Approach

Stormwater Offsets Program

- Current Program to Offset 0.41 P Requirement Offsite
- Flexibility for Developers
- DEQ Approved Perpetual Credits
  - James, York, Rappahannock, Potomac
- Local Water Quality Limitations
  - Same or Adjacent 8 Digit HUC
  - Same Basin
  - In Bay Watershed Only

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Nutrient Credit Certification RAP Update

- Currently Only Chesapeake Bay
- New Regs Will Include Southern Rivers
- 10 Meetings have been held
  - Baselines
  - Public Involvement/Transparency
  - Local Water Quality
- Next Step: Proposed by Water Control Board
  - December 16, 17

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Water Quantity Criteria

Past approaches in urban stormwater hydrology focused on

Peak Flow

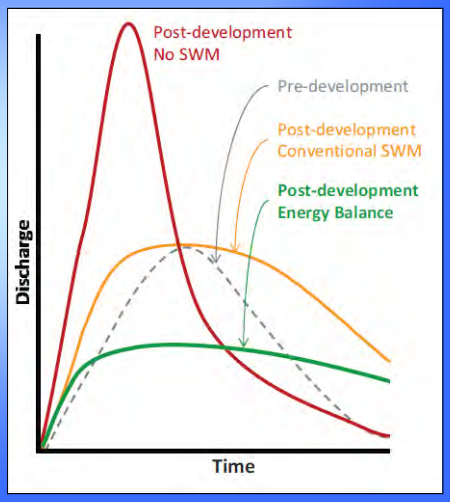
Flooding

Velocity

The new paradigm is Volume-Based Hydrology (VBH)

The Energy Balance Method

- The longer and stronger the force acts, the more sediment is moved.
- The ***ENERGY BALANCE METHOD*** is based on the interaction of both flow volume and peak discharge, which determine the stream channel configuration

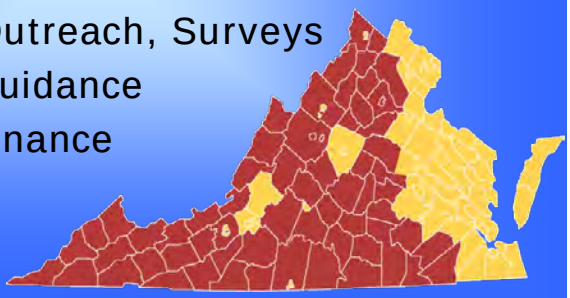


Local SW Program Adoption

- VSMP currently State run by DEQ
  - Plan Review Time/Construction Delays
  - State vs Local Confusion
  - Streamline SW Programs/One Stop Shop
  - Compliance = Water Quality & Flood Control
- Local Programs
  - Local Control/Issues
  - Local Water Quality
  - Localized Flooding
  - Developing Now

VSMP Local Programs

- Effective September 13, 2011
- Implementation Date July 1, 2014
  - State Assistance Efforts
    - SLGAC
    - Regional Outreach, Surveys
    - Tool Kit, Guidance
    - Model Ordinance
    - RFPs



VSMP Training Plan

- Phased Training
- Train the Trainer
- Regional Training
- Certification Program–Summer/Fall 2013
  - Basic Class
  - Plan Reviewer
  - Inspector
  - Program Administrator
  - Dual

Local Program Elements

- Permit Application/Fee Collection
- Plan Review
- Permit Issuance
- Inspections
- Compliance/Enforcement
- DEQ Oversight – Program Compliance Review

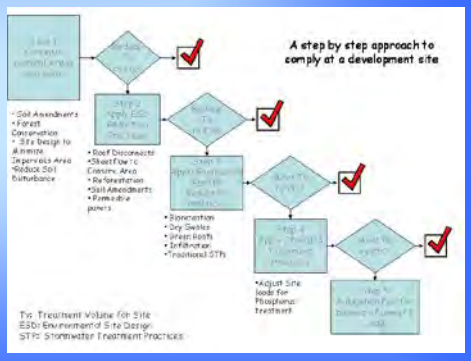
Elements of Erosion and Sediment Control

Revised Stormwater Management Handbook

The draft Revised Stormwater Management Handbook can be found at DEQ's web-site. Public Comment

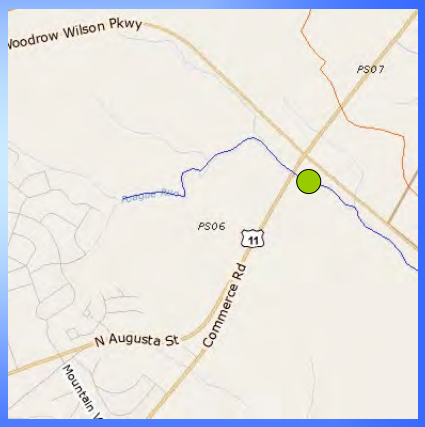
Developed to provide additional guidance to accompany the regulations.

Contains chapters with example problems



Virginia ePermitting System

- Coordination and tracking of plan approval
- Permit issuance
- BMP tracking
- Connector between local program and DCR
- GIS-component
- Termination



Stormwater Local Assistance Fund

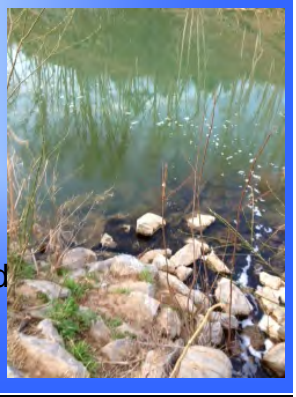
- Guidelines Development – Public Comment Friday
- September 19- Public Notice/Comment period ends
- September 30- SWCB Approves Final Guidelines for Implementation
- October 4- Solicitation of Applications Begins
- November 15- Deadline for Applications
- December- Funding List Approved and Announced by DEQ Director

Construction GP Reissuance

- Accelerated Timeframe – Model Ordinance
  - Held 7 meetings
  - Effective Date July 1, 2014
- Primary Issues
  - Common Plan of Development
  - Specificity of ELGs –buffers, etc.
  - Cross Jurisdictional Issues
  - Address TMDL WLA
  - Simplification
- Public Comment Changes:
  - CPD Single Family Homes: Permit By Rule
  - Admin Contin.: Deadline June 30
  - Clarification – Grandfathering

Grant Information

- Phase II Local Program Development
  - Required Elements: Preliminary Final and Final Submissions to DEQ
  - Match
- Stormwater Local Government Assistance Fund
  - Webinar – working on FAQ
  - Nov 15 Deadline
  - December- Funding List Approved Announced by DEQ Director



Summary of Change

- Simplification
- New Construction GP
  - ELGs
  - TMDL Requirements
- Local Programs
- New Criteria and Methodologies
- ePermitting
- DEQ

Question and Answer

Ginny Snead, PE
Manager, Office of Stormwater
Virginia.Snead@deq.virginia.gov