

## WQMA 2013 Strategy - Selected Revision Highlights

The following is a summary of the major modifications that have been included in the current draft revision of the Virginia Department of Environmental Quality's "Water Quality Monitoring Strategy." The final draft of the revised Strategy document was completed on May 15, 2013. Copies in the form of CDs have been distributed for review by the U.S. Environmental Protection Agency (U.S. EPA) Region 3 and DEQ Management and an electronic copy was made available for public review and comment on the DEQ WebPages in early June 2013. An invitation was extended for comments from the general public through July 15, 2013.

### **Chapter I - Introduction and Purpose**

No significant modification...

### **Chapter II – Virginia's Water Resources**

#### **A. Background Summary**

No significant modification...

#### **B. Identification (Localization) of Water Resources**

No significant modification... although the forthcoming completion of the NHD delineation at the 1:24,000 scale will undoubtedly result in changes in the amount (total stream miles) of Virginia's free-flowing stream resources, and possibly less significant changes in other resource classes.

#### **C. Classification (Description) of Water Resources**

##### **Wetlands:**

A section has been added to expand the description of wetland types and distributions.

##### **Water Body Classification for Water Quality Standards Application:**

Descriptions have been updated of the estuarine 'aquatic life use' habitats newly defined by the Chesapeake Bay Program.

##### **Designated Uses, Use Criteria and Use Attainment of Water Resources**

The current status has been summarized of the developing water quality criteria and assessment methodologies for the Chesapeake Bay 'aquatic life use' habitats. Data transfer and assessment methodologies for bacterial data from the Health Department's BEACH program were developed and have been included in DEQ's 2006 - 2012 Integrated 305(b)/303(d) Reports.

##### **Watershed Monitoring and Assessment under the National Watershed Boundary Dataset (NWBD)**

Integrated 305(b)/303(d) Water Quality Reports from 2002 – 2012 have verified that Virginia has to date (spring 2013) monitored 1,216 (98.38%) of the state's 1236 NWBD sub-watersheds with perennial waters and assessed for at least one designated use in 99.38% of the state's surface area.

### **Chapter III - Design and Implementation**

#### **A. Introduction and Purpose**

No significant modification...

## **B. Ambient Monitoring Program**

### **1. Watershed Monitoring Network**

Significant modification of the Watershed Monitoring Network was introduced in 2013;

- (1) A portion of the Watershed resources (42 sites in 2013) are being associated with freshwater probabilistic sites to monitor temporal variation of water quality variables monthly for a period of one year, with rotation on an annual basis.
- (2) Remaining Watershed resources (145 sites in 2013) are being used to monitor selected watersheds monthly for one year, with rotation on an annual basis.

### **2. Probabilistic Monitoring Program**

Descriptions of the current status and direction of both freshwater and estuarine probabilistic programs have been updated. DEQ's past, present, and future participation in National Aquatic Resource Surveys (rivers and streams, lakes, coastal, and wetlands) has been summarized.

Integrated financial, human, and logistical resources from EPA National and Region 3 Headquarters, the National Aquatic Resources Survey, and DEQ general funds permitted a Near-shore Oceanic Survey at 50 probabilistic sites in August of 2010. A characterization of Virginia's near-shore waters was included in the agency's 2012 305(b)/303(d) Integrated report.

### **3. Trend Monitoring Network**

Recent adaptations of the trend station network and the most recent trend analysis results, presented in the agency's 2012 305(b) Report, have been summarized. Data preprocessing and the statistical analysis methods are described in detail.

### **4. TMDL Support Program**

Updated summaries of TMDL-related activities and of development and implementation schedules have been provided.

### **5. Special Studies Program**

Several deletions of previous studies...

## **C. Program Specific Monitoring**

### **1. The Chesapeake Bay Program**

The recent (2006) developments in the Shallow Water Habitat Monitoring Program, including water quality criteria, and monitoring and assessment methods, have been discussed. Some assessment methodologies are still under development by the Chesapeake Bay Partners.

### **2. Lakes Monitoring Program**

The agency's list of 'significant' lakes has been updated for the next monitoring/assessment cycle. The current status of nutrient criteria for lakes has been summarized. A GIS layer for the delineation of lacustrine zones has been completed.

### **3. Citizens and Other Non-Agency Monitoring**

The responsibilities of the former "Citizens Monitoring Coordinator" position have been amplified and reassigned under the position of "Water Quality Data Liaison"

(WQDL). Recently implemented and developing activities to increase the quantity, quality and uses of non-agency data, and to improve its management, have been summarized.

#### **4. Biological Monitoring Program**

The responsibilities of the position designated as “Biological Monitoring Coordinator” were expanded to include coordination of the Lakes Monitoring Program in the fall of 2006. This position was also transferred from the Water Quality Standards Program to the Ambient Water Quality Monitoring and Assessment Program, within the Office of Water Programs. Summaries of new developments within the ‘BioMon’ Program, including improvements in biological aspects of the Freshwater Probabilistic Monitoring Program and the adoption and application of the Virginia Stream Condition Index (VASCI) for benthic assessment, have been included.

#### **5. Targeted Fish Tissue and Sediment Monitoring Program**

This program has been transferred from the Water Quality Standards Program to the Ambient Water Quality Monitoring and Assessment Program. Following a temporary suspension of the program because of resource limitation, the program has now (since 2012) been resumed on a more limited basis. Emphasis is now placed on TMDL development and/or follow-up monitoring in areas previously classified as impaired for fish consumption.

#### **6. Wetlands Monitoring Program**

Summaries of the continuing development and current status of DEQ’s recently established Wetlands Monitoring Program have been updated. An interactive Web-based wetlands mapping and assessment tool should be available to the public by the end of the year.

#### **7. Surface Water Investigations**

No significant modifications...

#### **8. Ground Water Monitoring and Protection Programs**

The agency has established the Office of Ground Water Characterization. A Ground Water Monitoring Strategy document and Implementation Guidelines are currently in draft form, and current plans are to establish the program by the end of 2013. Currently geophysical and chemical and characterization of a set of State Observation Wells (SOW) is being undertaken to establish ambient background parameters. SOWs have been selected in the physiographic provinces, Coastal Plain, Piedmont, Blue Ridge, and Valley and Ridge.

#### **9. BEACH Monitoring Program**

Recent (2007 - 2013) modifications to Virginia’s BEACH Monitoring Program, administered by the Virginia Department of Health, have been included.

### **C. Water Quality Standards**

Updates through 2012 have been included, relative to nutrient criteria and standards development, the ongoing triennial review process, use designation and attainability analyses, and anti-degradation and the designation of exceptional (Tier III) waters.

## **Chapter IV - Quality Management Program**

Newly approved (2007-2012) updates of the agency's Quality Management Plan, Quality Assurance Project Plan, and Field Standard Operating Procedures have been provided.

## **Chapter V - Data Management**

Developments in data management since 2007 have been described and summarized, including the continued development of a database for non-agency water quality data. Programming for the interface between DEQ's CEDS database and EPA's Water Quality Exchange (WQX) is essentially complete. Trial data uploads to WQX have been successful and the agency will soon upload its legacy data to WQX and begin regularly scheduled uploads of contemporary water quality data.

## **Chapter VI - Data Analysis, Assessment and Reporting**

New 20-year trend analyses employing the Kendall Seasonal Tau procedure were performed for the 2012 305(b)/303(d) Integrated Water Quality Report (IR). As indicated in the previous (2007) strategy document, trend reporting is planned at six-year intervals. This corresponds to the completion of six-year cycles for statewide coverage by the agency's Watershed Monitoring Network, and the completion of another six-year assessment window employed for the IR.

A new trend procedure utilizing an Integrated Water Quality (IWQ) Index was introduced in the 2012 IR. The IWQ employs a nonparametric procedure to integrate water quality measurements from multiple monitoring sites to produce watershed-wide water quality trend characterizations.

## **Chapter VII - Programmatic Evaluation**

No significant modification...

## **Chapter VIII - General Support and Infrastructure Planning**

### **A. Staff and Training**

1. A number of newly authorized staff positions within the Water Quality Monitoring and Assessment Program have been summarized.
2. Lakes and Biological Monitoring Coordinator was moved from Water Quality Standards to Water Quality Monitoring and Assessment Group.
3. The Agency has produced a training film on field Standard Operating Procedures, as well as establishing a series of courses with on-line evaluation tests for the SOP, new Chain of Custody requirements, and for data entry and use of the Agency's CEDS database.

### **B. Laboratory Resources**

No significant modification...

### **C. Logistical Resources**

New long-range plans and schedules for the rotation and replacement of field water quality monitoring instruments were established in 2005.

## **Chapter IX - Plan and Schedule for Implementation**

Recent and current modifications to the overall monitoring program since 2007 have been summarized here. Mid-term milestones, timelines and anticipated resource requirements through 2019 have been updated. These include the modification and synchronization of monitoring rotation schedules, assessment windows and future Water Quality Monitoring and Assessment Strategy revisions.

## **Chapter X - Bibliography**

The Bibliography has been updated with citations of new guidance documents and recent reports. Where appropriate, files in the accompanying folder of linked documents, tables and figures have been updated.