

# **VIRGINIA WATER MONITORING COUNCIL**

## **Vision**

Water resources information of appropriate quantity and quality is available so that the condition of Virginia's waters is known and informed decisions can be made on their preservation, protection, and use.

## **Mission**

The mission of the Virginia Water Monitoring Council is to promote and facilitate coordination, collaboration, and communication of water monitoring programs throughout the Commonwealth of Virginia.

## **Goals**

Major goals of the VWMC are:

- Enhance coordination, collaboration, and communication among government agencies, organizations, and individuals involved in monitoring
- Encourage effective and efficient use of monitoring resources (e.g., labor, finances, and equipment)
- Facilitate the transfer of water monitoring information

## **Major Accomplishments of 2002-2003**

VWMC 3<sup>rd</sup> Annual Meeting, September 2002  
30<sup>th</sup> Anniversary of Clean Water Act and National Water Monitoring Day, October 2002  
Citizens for Water Quality Winter Meeting, QA/QC Forum, February 2003  
Citizens for Water Quality Summit, VWMC Sponsored Sessions, July 2003  
Virginia Association of Conservation District Employees Training, August 2003



## **2002-2003 Steering Committee Officers**

Chair           Lyle Varnell, Virginia Institute of Marine Science  
Vice-chair     Robin Wilder, County of Henrico Department of Public Works  
Secretary      Jessica Schildroth, Citizens for Water Quality

## **2002-2003 Steering Committee Members**

### Representatives of Non-government Organizations

Marvin Booth	Virginia Association of Municipal Wastewater Agencies
Jane Cain	Virginia Water Well Association
Alecia Daves-Johnson	Virginia Association of Soil & Water Conservation   Districts
David Frackelton	Virginia Agribusiness Council
Patti Jackson	James River Association
Steve Klevickis	Virginia Manufacturers Association
Stacey Moulds	Alliance for the Chesapeake Bay
Katie Register	Clean Virginia Waterways
Jessica Schildroth	Citizens for Water Quality
Bruce Schwenneker	American Water Works Association

### Representatives of Government Organizations

Eva Ammentorp	U.S. Environmental Protection Agency <sup>1</sup>
Sam Austin	Virginia Department of Forestry
Ernest Brown	Virginia Department of Conservation and Recreation
David van Gelder	Virginia Association of Counties
John Kauffman	Virginia Department of Game and Inland Fisheries
Michele Monti	Virginia Department of Health
Don Smith	Virginia Department of Environmental Quality
Ward Staubitz	U.S. Geological Survey
Robin Wilder	County of Henrico Department of Public Works

### Representatives of Academic Organizations

Jenn Sgro	Virginia Foundation for Independent Colleges
Leonard Smock	Virginia Commonwealth University
Lyle Varnell	Virginia Institute of Marine Science
Tamim Younos	Virginia Water Resources Research Center

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<sup>1</sup> Serves in an advisory role as a non-voting member.

## Steering Committee

The role of the Steering Committee is to generate ideas of new program areas, help implement the VWMC program activities, provide oversight of the work of committees, and provide leadership for the VWMC annual conference.

The Steering Committee is currently comprised of twenty-two voting members from organizations interested in (or responsible for) water monitoring, including governmental agencies (local, state, and federal); members of the regulated community; academics; nonprofit environmental groups; and trade associations. The VWMC strives to have balanced representation among the government and non-government groups on the Steering Committee. Because of their ongoing responsibilities for monitoring, the United States Geological Survey and the Virginia Department of Environmental Quality are permanent members of the Steering Committee. The United States Environmental Protection Agency has an advisory role and serves as a non-voting member of the Steering Committee.

Since the last annual meeting, the VWMC Steering Committee has met six times. Minutes of the meetings are posted on the VWMC Web Site: <http://www.vwrrc.vt.edu/vwmc>. The Steering Committee has focused this year's program activities in the areas identified by the Needs Assessment Survey and from the June 19, 2002 strategic planning session. In November of 2002, the Steering Committee decided to develop task forces for

- o Finances and
- o Coordination and Education.

Each task force was given the responsibility of planning activities for the upcoming year in their respective area. The two task forces receive support and assistance from VWMC Steering Committee members.

Steering Committee members worked closely with the Operations Committee to develop an educational component to the VWMC 2003 Annual Conference. Presentations at the conference will focus on how monitoring data are used in the TMDL development and implementation processes, how localities are meeting monitoring requirements for Phase I and Phase II storm water permits, and emerging water quality and quantity monitoring technologies.

## Working Committees

### 1) Operations Committee

The Operations Committee is comprised of several Steering Committee members. The mission of the operations committee is to promote the effective operation of the Virginia Water Monitoring Council by providing support in areas such as strategic planning, election of officers, and organization of the annual meeting.

During the past year the Operations Committee:

- o Supported implementation of the strategic plan developed in 2002.
- o Assisted in recommending to the VWMC Steering Committee strategic guidance for 2003.
- o Helped plan bi-monthly steering committee meetings.
- o Developed the VWMC 2003 Annual Work Plan, which notes the past accomplishments of the VWMC and its committees and describes the plans for the current year.
- o Continued the VWMC commitment to the Virginia Water Monitoring Day event as part of National Water Monitor Day.
- o Helped plan and organize a 2003 VWMC Annual Meeting.
- o Nominated four candidates for membership on the Steering Committee (from Annual Meeting 2003-Annual Meeting 2007).

#### Active members:

Samuel Austin, Chair	Virginia Department of Forestry
Jane Cain	Virginia Water Well Association
David Frackelton	Virginia Agribusiness Council
Jessica Shildroth	Aegis Environmental, Inc
Donald Smith	Virginia Department of Environmental Quality
Ward Staubit	U.S. Geological Survey
Lyle Varnell	Virginia Institute of Marine Science
Jane Walker	Virginia Water Resources Research Center
Robin Wilder	County of Henrico Department of Public Works
Tamim Younos	Virginia Water Resources Research Center

## **2) Inventory Committee**

The mission of the Inventory Committee is to create and maintain a dynamic statewide water-monitoring inventory. For the past three years, the committee has worked towards the completion of Phase I of the Inventory:

- o Create a database to hold the information from completed surveys and transfer information from the surveys to the database.
- o Place the inventory and the survey on the VWMC Web Site.
- o Provide an online survey for real-time update of the inventory and for initial entries into the inventory.
- o Identify gaps in the inventory and develop strategies to fill those gaps.

This past year, the committee focused on providing an online electronic version of the survey. The instructions by which water monitors can input data or search for data were first explained and distributed at the Citizens for Water Quality winter meeting (see instructions on the following page). The committee also contacted the water monitoring programs already in the database, provided them with the developed instructions, and requested that they check and update any information.

Plans for the committee in the upcoming year include completing Phase I by identify gaps in the inventory and develop strategies to fill those gaps. “Gaps” include actual respondents (i.e., who are we missing) and gaps in terms of monitoring location (where are they). Gaps also include content: duplicates (i.e., more than one respondent from an organization), insufficient or incorrect information, etc. The committee will work to revise the survey, especially in the section on geographic extent

The committee also intends to begin Phase II, the GIS mapping part of the inventory. The vision is to have an interactive map showing the location of the monitoring programs’ geographical extent, with links to the programs’ information.

### Active Members:

Eva Ammentorp	U.S. Environmental Protection Agency, Region 3
James Beckley	Citizen Monitor
Alecia Daves-Johnson	Piedmont Soil and Water Conservation District
Fran Geissler	Virginia Department of Conservation and Recreation
Jane Lassiter	Eastern Shore Soil and Water Conservation District
Shelly Miller	Virginia Department of Game and Inland Fisheries
Michele Monti	Virginia Department of Health
Stacey Moulds, Chair	Alliance for the Chesapeake Bay
Robert Royall	Royall Pump and Well
Andrea Ryon	American Water Works Association
Roger Stewart II	Virginia Department of Environmental Quality
Wayne Teal	James Madison University
Carolyn Thomas	Ferrum College
Lyle Varnell	Virginia Institute of Marine Science

# Inventory of Water Monitoring Programs in Virginia

**Website Address:** <http://www.vwrrc.vt.edu/vwmc>

TO ADD MONITORING INFORMATION TO THE INVENTORY:

**Click on the “VA Water Monitoring” link to the left of the screen**

**Click on the “Take/Edit Survey” option and go to “Enter a New Survey.”**

**Fill in your email address and a password you will remember.**

**When you are finished filling out the survey, click “Submit Survey.”**

TO EDIT MONITORING INFORMATION ALREADY IN THE INVENTORY:

**If you have already filled out a survey, it is incorporated into the database on the website!**

**Click on the “VA Water Monitoring” link to the left of the screen.**

**Click on the “Take/Edit Survey” option and go to “Edit a Previous Survey.”**

If you filled out your survey with an email address, fill this in for both the “email address” and the “password” prompts. If you did not put an email address on your survey, both the email address and the password are set to [info@vasos.org](mailto:info@vasos.org).

**When you are finished editing the survey, click “Submit Survey.”**

TO SEARCH SURVEY SUBMISSIONS:

**Click on the “VA Water Monitoring” link to the left of the screen**

**Click on the “Water Monitoring Survey Results” option.**

Check all desired criteria: matrices monitored; chemical, physical, and biological parameters; and/or types of organizations desired. May also limit search to only monitoring programs with electrically stored data.

**When you are finished checking criteria, click “Search Surveys.”**

The Inventory is new and may still have some bugs. If you are unable to perform an operation, please contact Jane Walker at [vwmc@vt.edu](mailto:vwmc@vt.edu) or (540) 231-4159.



### **3) Communications Committee**

The Communication Committee provides a means of interaction between the VWMC members, as well as the general community, and provides essential information to interested parties. The VWMC Administrative Assistant, Jane Walker, maintains up-to-date membership records. She also sends e-mails to the VWMC membership about water-related events in Virginia.

An article describing the VWMC was published in the October 2002 edition of the *Virginia Water Central*, the newsletter of the Virginia Water Resources Research Center (see the following page for the article). The purpose of the article was to tell the readers about the VWMC and encourage them to join the organization.

This past year, the Communications Committee worked with personnel from the Department of Environmental Quality to develop handouts for citizen monitors attending the Citizens for Water Quality QA/QC Forum, which was sponsored by the VWMC. During the past year, the committee has also revised the VWMC brochure. The updated version is currently being reviewed by the Steering Committee and should be available before the end of the 2003 calendar year.

#### **Active Members:**

Nicole Bennett, Co-Chair	US Marine Corps, Marine Corps Base Quantico
Stacey Brown, Co-Chair	Virginia Save Our Streams
Steve Klevickis	Virginia Manufacturers Association
Jane Walker	Virginia Water Resource Research Center

## THE VIRGINIA WATER MONITORING COUNCIL

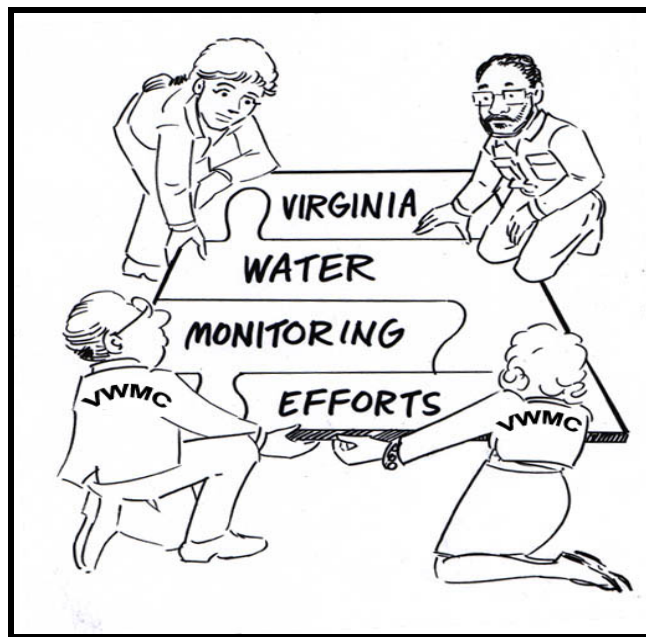
Have you heard of the Virginia Water Monitoring Council? Do you know its purpose? The Virginia Water Monitoring Council was established *to promote and facilitate coordination of water-monitoring programs throughout the Commonwealth of Virginia.*

Each year, many public and private organizations collect large amounts of water-monitoring data of various types (chemical, physical, and biological). The data are being collected for many different reasons and rarely are shared with other water monitors and decision makers. Differences in monitoring design, protocols, data analysis, and data management have made it difficult to exchange water-monitoring data.

Protecting and restoring our waterways and watersheds, however, depend upon having high-quality data that are widely and easily available as well as understandable by non-scientists. The Virginia Water Monitoring Council is working for the goals that adequate and reliable water resources information will be available to Virginians, that they will know the conditions of the states' waters, and that they will be able to make informed decisions on the use and protection of those waters.

The Virginia Water Monitoring Council was formed in November 1999 and is modeled after the National Water Quality Monitoring Council, which was established in 1997. The National Council coordinates efforts and provides guidance for developing consistent and scientifically sound water-quality monitoring methods and strategies nationwide. The National Council promotes collaboration, coordination, and communication among water-quality monitoring agencies and groups.

Membership in the Virginia Water Monitoring Council is open to any person or organization with responsibility for, or interest in, water monitoring in Virginia. Examples of organizations with representation in the Council include Citizens for Water Quality, Virginia Institute of Marine Science, Virginia Agribusiness Council, American Water Works Association, Virginia Department of Health, Virginia Department of Environmental Quality, and the U.S. Geological Survey. In all, approximately 150 members belong to the Council and represent about 100 different organizations.



The activities of the Virginia Water Monitoring Council are primarily implemented through four committees: operations, inventory, needs assessment, and communications. The Council's committees are currently working to develop a **water-monitoring inventory** and complete a **needs-assessment survey**. The inventory is an on-going project, gathering information on each water-monitoring program in the state, including contact information for a person who can address inquiries about the monitoring program. The inventory also requests information on how data are documented and used. The needs-assessment survey will ask groups about their need for information about monitoring protocols, networking opportunities, public education activities, or other services. The inventory and a summary of the needs assessment will be posted on the Council's Web-site later this year.

**Members Wanted!** The Council is always looking to broaden its membership. Please consider becoming an active member. To learn more about the Virginia Water Monitoring Council, visit the Council Web-site at [www.vwrc.vt.edu/vwmc](http://www.vwrc.vt.edu/vwmc), or contact Jane Walker (VWMC Administrative Assistant) at (540) 231-4159, e-mail: [vwmc@vt.edu](mailto:vwmc@vt.edu); or Katie Register (VWMC Steering Committee Chair) at (434) 395-2602, e-mail: [cleanva@longwood.edu](mailto:cleanva@longwood.edu).

—By Jane Walker; illustration by George Wills

#### **4) Needs Assessment Committee**

As part of the initial survey of Virginia water monitoring groups by the VWMC, survey participants were presented with questions asking them to rate their needs within three categories: training and education, technical assistance, and communication and partnership building. Participants were grouped based on their affiliation: local government, state government, federal government, academia or non-profit and community organization.

At the 2002 VWMC Annual Meeting, Fran Geissler, Chair of the Needs Assessment Committee, reported on the survey findings of the needs of local government monitors (representing about 21% of the respondents). The VWMC chose this group, as it was so well represented within the respondents and as this group identified some clear needs, as the main focus during the June 2002 strategic planning meeting.

Once the results from the 133 respondents were analyzed, it became clear that the different monitoring organizations were more similar than dissimilar in their perceived needs. Differences between the groups were in general too small for statistical significance, and respondents showed enthusiasm for all choices.

Within the training and education category, the responses were mostly even for each of the respondent groups. Local government, state government, academia, and nonprofit and community groups showed a slight preference for conferences and training workshops. Although all the responses were very close, these two choices have since been the focus of the VWMC within this category, and have been incorporated into the strategic plan.

Under the technical assistance category, state government respondents showed a preference for quality assurance project plan (QAPP) writing assistance, while showing significantly less interest in monitoring system design, volunteer recruitment/training/and retention, and water monitoring goal setting. Local governments, academia and nonprofit and community groups showed a preference for cost-effective strategies. In response to these results, VWMC has worked with Citizens for Water Quality to hold QAPP writing programs during the annual winter and summer meetings, and continues to work on workshops and programs geared towards identifying cost-effective monitoring strategies.

Responses to choices within the communication and partnership-building category were fairly even throughout the responder groups. Particularly popular were the directory of Virginia water monitoring efforts (the Survey, as presented on the VWMC website) and citizen education efforts. Citizen education efforts continue through various VWMC programs, including the continuing partnership with Citizens for Water Quality and a new partnership with the Virginia Association of Conservation District Employees.

With the completion of the analysis of the needs assessment survey, the Needs Assessment Committee completed its goals. At the November 13, 2002 meeting, the Steering Committee, therefore, decided to place the Needs Assessment Committee *in stasis* until needed.

## **5) VWMC Education and Coordination Task Force**

The purpose of the Education and Coordination Task Force is to meet the following goals outlined in the June 19, 2002 strategic planning session:

- o Engage county level monitoring groups (specifically) by holding at least one educational workshop for them each year.
- o Develop a framework for the exchange of information among all monitoring groups.
- o Cosponsor and partner with other groups to provide educational/training programs for the monitoring community
- o Provide a clearinghouse of data contacts for watershed planning.

The Education and Coordination Task Force participated in the following activities in 2003 to meet these goals:

- o Sponsored a panel discussion on Quality Assurance/Quality Control (QA/QC) at the Citizens for Water Quality Winter Meeting at Randolph-Macon in February. Roger Stewart, Ken Hyer, Willy Reay, and Joanna Arciszewski served as panelists.
- o Sponsored two afternoon sessions at the Citizens for Water Quality Summit at the University of Virginia on July 26. David Buckalew, Stacy Moulds, and Don Smith served as panelists in the first session, and Joyce Brooks led the second session.
- o Virginia Association of Conservation District Employees Annual Training – Graves Mountain Lodge on August 27. Sponsored several “hands-on” workshops on stream assessment, flow monitoring, and physical/chemical/biological methods. Barry Fox, Pete Holden, John Kauffman, and Michelle Titman led the training session.

### **Active Members:**

Nicole Bennett	U.S. Marine Corps, Marine Corps Base, Quantico
Marvin Booth, Chair	Virginia Association of Municipal Wastewater Agencies/City of Bedford
Michele Monti	Virginia Department of Health
Dana Roberts	Virginia Association of Soil and Water Conservation Districts
Jessica Schildroth	Aegis Environmental, Inc
Donald Smith	Virginia Department of Environmental Quality
Lyle Varnell	Virginia Institute of Marine Science
Jane Walker	Virginia Water Resources Research Center
Robin Wilder	County of Henrico Department of Public Works

## **6) Finance Task Force**

The responsibilities of the Finance Task Force include developing a short-term and long-term financial base for the Virginia Water Monitoring Council in order to make its programs sustainable. This year, the Finance Task Force set up an account for the VWMC through the Virginia Tech Foundation so that individuals and corporations can make tax-deductible contributions to the Council. The committee also developed a list of corporations to request funding. Future activities of the task force include requesting a line item for the Council in the state budget.

### **Active Members:**

Sam Austin	Virginia Department of Forestry
David Frackelton	Virginia Agribusiness Council
Katie Register, Chair	Clean Virginia Waterways/Longwood University
Leonard Smock	Virginia Commonwealth University
Ward Staubitz	U.S. Geological Survey
Jane Walker	Virginia Water Resources Research Center
Tamim Younos	Virginia Water Resources Research Center
Carl Zipper	Virginia Tech

## **Major Events and Accomplishments**

### **1) VWMC 3rd Annual Meeting**

The Virginia Water Monitoring Council held its 3<sup>rd</sup> Annual Meeting on September 27, 2002 at the Hotel Roanoke in Roanoke Virginia. Approximately 50 members and prospective members attended. Four Steering Committee members were elected to serve a four-year term (2002-2006). The elected Steering Committee members were:

- o David Frackelton, Virginia Agribusiness Council,
- o John Kauffman, Virginia Department of Game and Inland Fisheries,
- o Jessica Schildroth, Citizens for Water Quality, and
- o Lyle Varnell, Virginia Institute of Marine Science.

The committee chairs for each of the VWMC's four committees: Operations, Inventory, Communications, and Needs Assessment summarized the committee's accomplishments for the year. Stacey Brown, Co-chair of the Communications Committee, introduced the audience to the new VWMC Website, with particular focus given to the interactive water monitoring inventory. Fran Geissler, Chair of the Needs Assessment Committee, summarized the results of the needs assessment survey.

A member of the audience raised the issue of the VWMC's role with the development of water monitoring protocols. After some discussion, the general consensus of the group was that the strength of the VWMC lies in providing the coordination and linking of technical support and protocols between potential "users" of information and "providers/developers" of protocols, not in the development of standardized water monitoring protocols.

Fran Geissler, Chair of the Needs Assessment Committee, briefly summarized the results of the June 2002 VWMC Strategic Planning session. Feedback and responses from the audience included the following:

- o Continue to sponsor water monitoring talks at existing conferences
- o Focus on coordinating rather than creating (protocols, workshops, etc.)
- o Provide a list of volunteer speakers on specific water-related topics
- o Increase coordination and communication with Soil and Water Conservation Districts (as a segment of local government)
- o More fully utilize the website because it is a good tool for communication both within the membership and outside the membership
- o Add an interactive list serve to the website

### **2) 30<sup>th</sup> Anniversary of Clean Water Act, National Water Monitoring Day, and VWMC involvement**

The VWMC co-sponsored a celebration of the 30<sup>th</sup> anniversary of the Clean Water Act on October 18, 2002 at the Tredegar Ironworks in downtown Richmond, Virginia. Local fourth and fifth grade classes watched fish shocking demonstrations and participated in hands-on water monitoring activities. Tayloe Murphy, Secretary of Natural Resources, and others spoke at the event. Other special events to

celebrate the Clean Water Act were held around the state by various organizations participating in the VWMC. With the help of VWMC members, Virginia had the most registered monitoring sites as indicated on the Year of Clean Water website ([www.yearofcleanwater.org](http://www.yearofcleanwater.org)).

### **3) Citizens for Water Quality Winter Meeting; QA/QC Forum**

The VWMC sponsored a session about Quality Assurance/Quality Control as it relates to water monitoring at the Citizens for Water Quality (CWQ) Winter Meeting held on February 1, 2003 at Randolph Macon College. VWMC member, Fran Geissler, moderated the QA/QC forum. Four presenters from different water monitoring groups encouraged monitors to develop and use QA/QC plans, informed the citizen monitors how to get involved in QA/QC, and suggested ways to partner with groups who have established QA/QC plans. The presenters for the winter meeting included:

- o Roger Stewart, Department of Environmental Quality,
- o Ken Hyer, U.S. Geological Survey,
- o Willy Reay, Virginia Institute of Marine Science, and
- o Joanna Arciszewski, Northern Virginia Soil and Water Conservation District.

The VWMC developed and distributed a fact sheet on basic QA/QC concepts (see following page). Evaluations by the attending CWQ members were positive, and they suggested future workshop topics, including monitoring plan designs, elements of QA/QC planning, evaluation of data and trend analysis, funding opportunities, and watershed management plans at a local level.

### **4) Citizens for Water Quality Summit: VWMC Sponsored Sessions**

The VWMC sponsored two sessions on designing a monitoring plan at the July 26, 2003 Citizen for Water Quality Summit at the University of Virginia. At the first session, three panelists from different organizations gave presentations on their respective goals and design of their monitoring program. The panelist were:

- o Don Smith, Virginia Department of Environmental Quality (DEQ),
- o David Buckalew, Longwood University, and
- o Stacey Moulds, Alliance for the Chesapeake Bay.

In the second session, the panelists and audience worked with Joyce Brooks, DEQ's Citizen Monitoring Coordinator, to address a "real world" example of a monitoring plan design. The group worked through worksheets provided in a revised DEQ monitoring manual that was developed for citizen monitors.

## Basic QA/QC Concepts

Modified from *The Volunteer Monitor's Guide to Quality Assurance Project Plans*. EPA 841-B-96-003. September 1996. This guide is recommended for all citizen monitoring organizations in Virginia interested in developing a quality assurance project plan. The guide is available online at [www.epa.gov/owow/monitoring/volunteer/](http://www.epa.gov/owow/monitoring/volunteer/).

### Quality Assurance (QA)

Refers to a broad plan for maintaining quality in all aspects of a program, including all quality control measures, sample collection, sample analysis, data management, documentation, evaluation, *etc.* It is helpful to data users in determining the integrity (soundness) of data.

### Quality Control (QC)

The steps, including measurements, calibrations, and standardization practices, taken to assure the quality of specific sampling and analytical procedures. QC is used to reduce error in the data collection and analysis. For example, the collection of two samples (QC samples) taken at the same time and location should yield the same (or very similar) results; data quality can be determined by evaluating the results of the QC samples and determining precision and accuracy. The decision to accept data, reject it, or accept only a portion of it should be made after analysis of the QC data.

### Quality Assurance Project Plan (QAPP)

The formal written document describing the detailed quality assurance procedures and QC activities that will be used to assure data quality.

### Precision

Degree of agreement among repeated measurements. Reproducible results are precise. Can be calculated using the standard deviation (a statistical way to measure variation around the data set's average value).

### Accuracy

Measures how close your results are to a *true* value. The smaller the difference between the measurement and its "true" value, the more accurate the measurement. Found by analyzing a standard or reference sample (one with a known value).

### Representativeness

The extent to which measurements actually depict the true condition being evaluated. For example, data collected just below a pipe outfall are not representative of the entire stream.

### Completeness

The number of samples and documentation needed to meet the sampling objectives. Volunteers may not be able to collect as many samples as planned so try to take more samples than you expect to need.

### Comparability

The extent to which data from one study can be directly compared to either past data obtained in the study or from data obtained in another study.

**Detection Limit**

In general, the lowest concentration of a given parameter your method or equipment can reliably detect and report as greater than zero. For example, if an instrument has a detection limit of 1 ppb (parts per billion) and a sample contains 0.5 ppb of lead, the sample will be “below the detection limit.” Note, this does not mean the sample is free of lead (0 ppb), simply that the amount of lead is less than the instrument can detect.

**Metadata**

Describes the data information presented in a given dataset and quality criteria associated with their generation. Metadata is all other data collected that is not the actual value of the parameter measured. Metadata is data about the data. Metadata provides information on the procedures used, quality control measures, site locations, sample collectors, quality of the data, etc.

**Standard Operating Procedures (SOPs)**

Written instructions, which describe the step-by-step procedures for a process. For example, the procedures for collecting a water sample are referred to as field SOPs while the procedures for analyzing the sample in a lab are referred to as the lab SOPs.

Information provided by the **Virginia Water Monitoring Council (VWMC)**. To join the VWMC, contact **Jane Walker** at **540-231-4159** or [vwmc@vt.edu](mailto:vwmc@vt.edu). A special thank you to DEQ for assistance with this handout.



## **5) Virginia Association of Conservation District Employees Training**

The Council sponsored a session at the Virginia Association of Conservation District Employees (VACDE) training at Graves Mountain Lodge on August 27, 2003. Barry Fox, with Virginia Cooperative Extension, led the participants through an assessment of the physical condition of a stream, including flow rate, meander and gradient profile, substrate quality, embeddedness, sediment deposition and composition, channel structure, riffle/run sequence, bank stability and riparian condition. His evaluations were based on modified Rapid Bio-assessment Protocols. Stream-related terms and quality assurance controls for data integrity were demonstrated and discussed.

In addition, basic water quality parameters were discussed and investigated, including: pH, dissolved oxygen, alkalinity, hardness, salinity, ammonia/nitrite, nitrate/phosphate, metals, conductivity, total suspended/dissolved solids and bacteria. Michelle Titman, Environmental Specialist for the Virginia Department of Environmental Quality's Valley Regional Office, provided a hands-on demonstration of utilizing portable meters to measure pH, temperature, and dissolved oxygen.

Barry Fox also provided a brief discussion of bio-assessment for toxic chemicals, and John Kauffman, Regional Fisheries Manager with the Virginia Department of Game and Inland Fisheries, demonstrated electro-shocking used when conducting fish biosurveys.

## Financial Statement

The VWMC financial year follows the Virginia State Fiscal Year, July 1-June 30. A summary of the income and expenses for July 1, 2002-June 30, 2003 is below.

<b>Balance as of July 1, 2002</b>	<b>+ \$ 2,608</b>
<b>Administrative Income July 1, 2002 - June 30, 2003</b>	
Virginia Water Resources Research Center	\$13,113 <sup>a</sup>
U.S. Geological Survey	<u>3,000</u>
<b>Total Administrative Income</b>	<b>+ 16,113</b>
<b>Project Income July 1, 2002 - July 30, 2003</b>	
2002 Conference Scholarships:	
Center for Organizational and Technological Advancement	1,000
U.S. Army Corps of Engineers	1,000
Chesapeake Bay Program	1,000
Virginia Department of Environmental Quality (DEQ)	<u>2,500</u>
Citizen Monitoring Grant Program (For CWQ Forum/Session)	
<b>Total Project Income</b>	<b>+ \$ 5,500</b>
<b>TOTAL INCOME</b>	<b>+ \$ 24,221</b>
<b>Administrative Expenses July 1, 2002 - July 30, 2003</b>	
Administrative Assistant Wages (25% time)	\$ 8,250
Administrative Assistant Fringe (25%)	2,063
Administrative Support	5,000 <sup>a</sup>
Long distance phone calls	130
Travel	<u>278</u>
<b>Total Administrative Expenses</b>	<b>- 15,721</b>
<b>Project Expenses July 1, 2002 - July 30, 2003</b>	
2002 Conference Scholarships	3,000
DEQ, 2001 Mini-grant (Website)	3,000
DEQ, 2002 Mini-grant (CWQ Forum/Session)	<u>2,500</u>
<b>Total Project Expenses</b>	<b>- 8,500</b>
<b>TOTAL EXPENSES</b>	<b>- \$ 24,221</b>
<b>TOTAL END OF YEAR BALANCE</b>	<b>\$ 0</b>

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<sup>a</sup> The VWRRC budgeted \$5,000 for the year for office space, utilities, local phone, postage, office supplies, photocopying, website management, etc. It contributed \$13,113 to cover the expenses incurred by the VWMC in 2002-2003.

**Funding obtained since July 1, 2003**

**Administrative Funds:**

U.S. Geological Survey	\$ 2,500
Virginia Department of Forestry	2,002
<b>Total</b>	<b>+ \$ 4,502</b>

## **Administrative Support**

The VWMC receives administrative support from the Virginia Water Resources Research Center. Administrative activities include maintenance of the membership roll, preparation of reports, assistance with committee activities, and fiscal management. Jane Walker served as Administrative Assistant for the year 2002-2003.



For additional information about the VWMC, please contact Jane Walker at

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