

**REPORT OF THE  
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY ON**

**The Feasibility of Establishing  
an Adopt-A-Stream Program  
in the Commonwealth of Virginia**

**TO THE GOVERNOR AND  
THE GENERAL ASSEMBLY OF VIRGINIA**



**HOUSE DOCUMENT NO. 61**

**COMMONWEALTH OF VIRGINIA  
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**REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY  
ON THE FEASIBILITY OF ESTABLISHING AN ADOPT-A-STREAM  
PROGRAM IN THE COMMONWEALTH OF VIRGINIA**

**Department of Environmental Quality**

## **EXECUTIVE SUMMARY**

House Joint Resolution 704 of 1993 directs the Department of Environmental Quality (DEQ) to study the feasibility of establishing an adopt-a-stream program in Virginia (Appendix A). In conducting this study, DEQ examined current citizen volunteer stream-monitoring activities in Virginia, governmental programs for litter control and stream monitoring in Virginia, and stream-monitoring and stewardship programs in other states. The study considered the advantages and disadvantages of state coordination of citizen volunteer stream activities through an adopt-a-stream program in Virginia.

More than thirty states operate "adopt-a-stream" type programs. These programs address a wide array of volunteer activities related to stream/river/lake stewardship, including litter and debris removal, water quality monitoring, education and others. In many states, for instance Ohio and New York, the programs were established to address a single activity such as stream cleanup and were then expanded as citizens became interested in broader issues of stream protection. Some states, including Maryland and North Carolina, have expanded their programs into activities such as stream restoration, wildlife surveys and nonpoint source pollution control. Most programs are administered by a state coordinator. All programs provide a clearinghouse for water resource information and coordination of citizen activities.

These programs bring benefits to their respective states due to public/private partnerships and the time invested by volunteers. Program coordinators in other states cited the following benefits of stream-stewardship programs: improved quality of stream monitoring; better coordination between state agencies and citizens; improved water resource planning; increased citizen education and interest in water quality; and better public relations for state agencies.

A representative of Kentucky Water Watch stated that the main benefit of their program is public education and participation in water resource issues. The Alabama program allows the state agency to educate as well as regulate. The Missouri Stream Team Program, which has enlisted over twenty thousand citizen volunteers in four years, promotes citizen education, stewardship and advocacy as the main benefits of their program. A representative of the Maryland Save Our Streams program views the building of state-local-citizen partnerships as the primary program benefit.

The budgets of these programs range between \$35,000 and \$300,000. In many cases, for instance Texas, the cost to the state (between \$30,000 and \$45,000, including travel) is for a program coordinator who is able to generate additional funding for the program through federal grants (e.g., Environmental Protection Agency - Clean Water Act, Sections 319 and 604(b)).

The program coordinators from other states provided lessons from their experience. The North Carolina coordinator recommended that the program be housed in the same agency which administers state water quality programs so that staff of these programs can oversee, and have confidence in, the methods and quality of volunteer stream monitoring. The Ohio coordinator recommended that the program be designed to work closely with private conservation organizations that conduct similar programs so that these programs can be efficiently administered and grants and gifts can be brought in from numerous sources. The majority of coordinators recommended that the state program should not disrupt the existing network of private conservation organizations and citizen volunteers. Rather, a program should recognize and build upon these various networks and activities.

Citizen stream and river stewardship associations have existed in Virginia for many years. These local citizen associations range from waterway cleanup groups that are formed on an ad hoc basis to permanent river basin groups that are involved in numerous activities related to stream and river stewardship. These activities may include monitoring stream water quality, reporting findings, conducting stream cleanups, improving the conditions of streams, and providing education and advocacy for stream protection.

State agencies have been involved in coordinating and funding a number of these activities. DEQ has channeled federal funds to local stream-monitoring groups. The Department of Conservation and Recreation (DCR) has also channeled federal funds for stream-monitoring and has assisted local Scenic River Advisory Boards under the Scenic Rivers Program. DEQ has supported numerous coastal and Chesapeake Bay programs including Chesapeake Bay River Basin Committees. Both DEQ and the Department of Game and Inland Fisheries (DGIF) have active environmental education programs which address water-resource protection through local action. Using the Litter Control Tax, DEQ funds waterway cleanups and signs and supplies for the Adopt-A-Spot program.

Stream monitoring is widely conducted by volunteers in Virginia. Two private organizations, the Izaak Walton League (IWL) and the Alliance for the Chesapeake Bay (ACB), have organized local groups of volunteers that conduct biological and chemical stream monitoring in Virginia. Under the IWL Save Our Streams program, 150 biological stream monitoring stations are tested quarterly, and under ACB, 91 chemical stream monitoring stations are tested weekly.

This monitoring is sophisticated and well coordinated, compared to many other states due to the partnerships that have developed between state agencies and ACB and IWL and due to the high degree of quality control that has been developed. Monitoring protocols, continued training, and quality control checks have led to a high level of confidence on the part of DEQ staff in the water quality data produced by citizen volunteers. Thus, data from both programs are used for Water Quality Assessment reporting under Section 305(b) of the Clean Water Act.

The development of an adopt-a-stream program in Virginia will provide assistance, coordination and guidance to citizen volunteers in the cleanup, monitoring and protection of Virginia streams. Similar programs in other states perform valuable services for citizens and support state environmental programs.

Through the Adopt-A-Spot Program, administered within the Litter Prevention and Recycling Program of DEQ, the state has a ready-made mechanism that can be broadened to include streams as areas that may be adopted by citizen groups. DEQ Adopt-A-Spot staff have several years of experience in developing and operating a stewardship/adoption program and in coordinating a statewide network of interested citizen groups and local litter control organizations. In addition, since this program is housed in DEQ it is effectively situated to work with water quality monitoring staff to ensure continued quality control of citizen monitoring efforts.

The Department of Environmental Quality is ready and able to operate an adopt-a-stream program. However, to do so will require a full-time coordinator position to assume responsibility for program implementation. This would include activities such as citizen education and volunteer training, assisting groups to conduct stream cleanup activities, coordinating with other state agencies, and procuring grant funding to support other appropriate citizen volunteer activities. The agency will need one new non-general fund position to perform these duties. The funds for a full-time program coordinator can be provided by DEQ through existing non-general fund Litter Tax monies.

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## **INTRODUCTION**

In 1993, the General Assembly passed House Joint Resolution 704, which requests that DEQ study the feasibility of establishing an adopt-a-stream program in Virginia.

In requesting the study, the General Assembly (in HJR 704) noted the emphasis that Virginia and other Chesapeake Bay states have placed on improving the conditions of Bay tributaries in order to enhance the water quality, fisheries and living resources of the Bay. Also noted were benefits that have accrued to other states that administer programs for coordinating local citizen groups that clean, monitor, protect and report on the condition of local streams and watersheds. These include thousands of miles of streams being monitored, increased public awareness of water pollution issues, working relationships between citizens and state officials, long-term citizen commitment to water resource protection, the removal of trash from streams and stream banks, and improvements in the condition of streams.

The General Assembly directed DEQ to include in its study a review of citizen stream-monitoring programs in other states; the feasibility of organizing citizens to monitor, cleanup and protect streams and watersheds in Virginia; the role of citizens in monitoring, in cleanups and in reporting findings; and the organizational structure of such groups.

For this report, DEQ examined the two stream-monitoring programs organized in Virginia by the Izaak Walton League (IWL) and the Alliance for the Chesapeake Bay (ACB). DEQ reviewed the operation and costs of related state programs in Virginia, including waterway-cleanup programs and DEQ's Adopt-A-Spot program, and the Adopt-A-Highway program administered by the Virginia Department of Transportation. DEQ also contacted managers of similar programs in twelve other states

Citizen groups for river and stream conservation have a rich history in Virginia, and many, varied stream-related activities are currently performed by volunteers. The earliest river conservation group in Virginia was the IWL, established in 1926. In 1965, a group called Coastal Canoeists was formed and became involved in river issues. The Cowpasture River Preservation Association was created in 1965, the Lower James River Association in 1976, the Appomattox Scenic Advisory Board in 1977, Save the Ole Piankatank in 1981, Friends of the Rappahannock in 1985, and many others have been formed since then (a list of these groups is provided in Appendix B). There exists a strong network of citizen groups that perform stream monitoring, and Virginia state agencies are involved in funding these activities and assisting with program direction. Waterway-cleanup programs, sponsored by DEQ through the Litter Control Tax and by the Chesapeake Bay Program, have led to the cleanup of hundreds of thousands of pounds of litter from waterways and shorelines.

## **VOLUNTEER STREAM-STEWARDSHIP ACTIVITIES IN VIRGINIA**

### **Overview**

For a number of years, citizens throughout Virginia have been active in volunteer organizations for the purpose of conserving the quality and beauty of rivers, streams and bays. These activities directly represent, or are closely related to, the activities, purposes and program benefits set forth in HJR 704.

Many of these organizations, such as Friends of the Roanoke and Friends of the North Fork of the Shenandoah, were formed through citizen initiative. Others, such as the River Basin Committees formed in Tidewater under the Chesapeake Bay Program, were created to assist the state in forming policies and strategies for managing and protecting aquatic resources. Though most Chesapeake Bay River Basin Committees are no longer active in Virginia, some have remained active as private organizations for river basin conservation. Many other states are now forming similar watershed-wide committees to serve as umbrella organizations for smaller citizen stream watch groups and to serve as liaisons with state programs.

Currently, a number of citizen river groups in Virginia are associated under a private umbrella organization, the Friends of the Rivers of Virginia (FORVA), which was formed in 1987 for the primary purpose of advocating passage of a Virginia Minimum Instream-Flow Law (adopted by the General Assembly in 1988). Since the dissolution of the Chesapeake Bay River Basin Committees, there is no formal state procedure or structure for forming, coordinating or recognizing citizen river groups, other than the Advisory Boards formed for individual Scenic Rivers under the Scenic Rivers Act. These Advisory Boards are administered by at least six different governmental entities and are not coordinated with one another.

However, state agencies provide assistance and coordination for a number of specific stream-stewardship activities performed by these groups. These channels of support, and the public/private partnerships that have developed, provide a strong opportunity for state involvement, coordination and assistance in citizen volunteer activities.

The following sections provide brief summaries of existing private and governmental stream stewardship activities in Virginia related to the stream activities cited in HJR 704.



## Stream-Cleanup Activities and Programs in Virginia

One important element of any adopt-a-stream program in Virginia would be the removal of litter and debris from streams and stream banks. Stream cleanups are a prominent activity of local citizen groups concerned with protecting streams and waterways.

Litter removal is the main purpose behind the two "adopt" programs that already exist in Virginia government: the Adopt-A-Highway program and the Adopt-A-Spot program. Waterway cleanup days are also conducted throughout Virginia for streams, rivers and the shorelines of the Chesapeake Bay. The majority of states which coordinate citizen volunteer stream protection programs include debris cleanup as elements of their programs, or have separate stream cleanup programs.

### **Adopt-A-Highway Program of the Department of Transportation**

The Virginia Department of Transportation established the Adopt-A-Highway program in 1988 without legislative action. While not a stream cleanup program, it is a valuable model for such a program. Currently, it is the nation's second largest adopt-a-highway program, with nearly 6,000 groups, comprised of over 30,000 volunteers. The Department estimates that these volunteers have provided nearly \$3 million worth of litter control since 1988.

The Department of Transportation provides volunteers with safety information and an orange vest (\$0.33 each) for visibility while picking up litter. In addition, the Department provides the adopting groups with two blue Adopt-A-Highway signs (\$50.00 each), two "Cleanup Crew Working" signs (\$15.00 each) and orange garbage bags. In return, groups agree to clean their adopted roadway segment four times per year for at least two years.

The Adopt-A-Highway program is funded through a number of different programs in the Department of Transportation and is coordinated out of the Richmond VDOT office. Coordination of the program requires approximately seventy-five percent of the time of a staff person (personnel cost of approximately \$20,000), in the DOT Public Affairs Division, plus an unquantified amount of staff time in each of the regional offices.

### **Adopt-A-Spot Program of DEQ**

The DEQ Adopt-A-Spot program was established approximately three years ago, as an outgrowth of the very successful Adopt-A-Highway Program, in response to community and volunteer group interest in applying the same approach to areas other than highways. Adopt-A-Spot locations include parks, parking lots, public grounds, walkways, campuses, vacant lots, subdivision streets or other littered areas.

The Program does not now include any streams as adopted "spots", but there is no reason that it could not. Under the current program, Adopt-A-Spot is used as a generic

designation, but the term can be altered to fit local circumstances. For example, signs for subdivision streets which are adopted by local civic groups are printed as "Adopt-A-Street". Signs could also say "Adopt-A-Stream".

Under the Adopt-A-Spot program, volunteers are given materials to help them with the cleanups, and a sign bearing the name of the group to be posted in the area. Group members are required to hold at least two meetings per year to review safety and other guidelines. No participants are allowed to assist in a litter cleanup unless they have attended at least one such safety meeting that year. All participants must sign a liability waiver and written permission must be received from all affected landowners.

The Adopt-A-Spot program is funded under the Litter Tax. Costs of the program have averaged \$8,650 per year over its three year period. These costs include an average of 330 signs per year (annual cost of \$6,070), 6,700 cleanup bags per year (annual cost of \$1,600) and 1,700 safety vests per year (annual cost of \$1,000). In addition, administration of the program requires approximately twenty-five percent of the time of a program coordinator in the DEQ Office of Recycling and Litter Prevention (personnel cost of approximately \$10,000).

### **Waterway Cleanup Events**

Over the past several years, numerous citizen volunteer waterway cleanups have been sponsored in Virginia, particularly along the shores and beaches of the Chesapeake Bay. These events have been organized by local river or stream groups or sponsored as a part of national or Bay-wide cleanup days (or weeks). These initiatives are currently not coordinated by a state agency in Virginia. However, a national organization, the Center for Marine Conservation, tracks most events and summarizes the categories and quantities of litter and debris pulled from streams, rivers and bays.

Through the Litter Tax, DEQ provides funding for local litter control organizations throughout the state. In fiscal year 1992, these local organizations conducted a total of 609 volunteer waterway cleanups. The costs for individual cleanups cannot be directly measured because litter control funds are provided in lump-sum grants to local organizations.

### **Stream-Monitoring Activities and Programs**

Stream monitoring is widely conducted by local citizen volunteer groups in Virginia, and state agencies already play a role in funding and assisting the two private organizations, the Izaak Walton League and the Alliance for the Chesapeake Bay, that have organized local groups for biological and chemical stream and river monitoring. Both IWL and ACB work cooperatively with DEQ and DCR in sponsoring citizen workshops and monitoring programs in areas of Virginia that have been identified as needing water quality monitoring.

This stream monitoring is quite sophisticated compared to many other states due to the partnerships that have developed between state agencies and the two private organizations. DEQ works closely with ACB in developing and applying quality control standards for data collection. The biological monitoring conducted under IWL uses a nationally accepted procedure for stream monitoring, and DGIF regional staff provide assistance to volunteers under this program. Monitoring protocols, continued training and quality control checks have led to a high level of confidence on the part of DEQ staff in the water quality data produced by volunteers in both programs. Data from both IWL and ACB monitoring programs are used for Water Quality Assessment reporting under Section 305(b) of the Clean Water Act.

IWL and ACB have provided numerous educational services for local citizen groups including workshops, continued training classes and packets of educational materials on environmental and water quality programs (developed in cooperation with state agencies).

### **Alliance for the Chesapeake Bay - Virginia Citizen Monitoring Program**

The Virginia Citizen Monitoring Program, administered by the Alliance for the Chesapeake Bay began in 1985 with twelve volunteers testing water quality at twelve sites on the James River. The program has grown to managing over 130 volunteers at ninety-one active monitoring sites in Tidewater, including the James, York, Rappahannock, Potomac, Piankatank, Mattaponi, Pamunkey, Lynnhaven and Elizabeth rivers, as well as on the creeks and embayments of the Eastern Shore. The ACB receives approximately fifty requests per year from citizens who want to begin monitoring a stream or waterway.

Under this program, citizen volunteers test air and water temperature, Secchi disk depth and total depth, salinity, pH and dissolved oxygen. Monitors also record wildlife observations, field observations of water conditions and color, weather, precipitation and general conditions of the site. Nutrient sampling for ammonia, nitrate, nitrite and orthophosphorus began in 1992. Monitors sample weekly throughout the year.

ACB has a quality assurance and control plan that has been approved by DEQ. Under this plan, ACB provides continued citizen training, and each volunteer has to perform a quality control check every six months. The data produced by citizen volunteers is reviewed for accuracy by one of ten regional watershed coordinators who then forward it to the ACB, where it is placed into a data management software program specifically developed for stream water quality data. The processed data is then provided to DEQ and the Chesapeake Bay Program Office in Annapolis.

DEQ has funded ACB monitoring activities through federal grants beginning with the Coastal Zone Management Act and shifting to Section 604(b) of the Clean Water Act (current funding of \$25,000 per year for ACB activities in Virginia). ACB also receives funding from EPA's Chesapeake Bay Program Office (currently \$25,000 per year, for a total program budget of \$50,000). ACB provides each monitoring site (one or two primary

volunteer monitors) with a water quality test kit (cost of approximately \$120) and chemical supplies for weekly testing.

A representative of the ACB program stated that further state involvement could benefit their Citizen Monitoring Program through enhanced involvement and oversight of technical experts in DEQ, an improved perspective on the importance of data from individual sites to the characteristics and changes within a watershed, and further direction for the expansion of citizen volunteer monitoring to new sites and river basins.

### **Izzak Walton League - Virginia Save Our Streams Program**

IWL began the Virginia Save Our Streams program five years ago. Under this program, citizen volunteers conduct biological stream monitoring four times per year at stations located in the piedmont and mountain regions of the state. Since 1988, this program has grown to 150 monitoring stations. Currently, the coordination of the SOS program in Virginia requires one full-time staff (who is a trained biologist) and part of a second staff in the IWL office.

Biological stream data is useful in detecting certain changes to water quality that may not be easily detected from chemical parameters. IWL collects and analyzes all of the water quality data obtained by volunteers. The data is checked for accuracy and entered into a computer database that provides a consistent data format. Equipment and supplies are less expensive for biological monitoring than for chemical monitoring.

The initial costs of developing this program were high compared to current operational costs. The annual budget of the SOS has ranged between \$25,000 and \$50,000. Since 1990, the Department of Conservation and Recreation has channeled Environmental Protection Agency - Nonpoint Source Pollution Control (§ 319, Clean Water Act) funds to the IWL for a series of educational fact sheets, brochures and guidance manuals regarding stream monitoring and other water-resource issues and programs.

As of October 1994, IWL plans to discontinue its coordination of the Virginia Save Our Streams program. The IWL Office in Northern Virginia has become so active in assisting states throughout the nation in establishing Save Our Stream programs that it no longer has the time to administer the state program.

In order to maintain citizen monitoring under the SOS program, IWL is currently working to train regional watershed coordinators who will take over certain functions that are currently performed by IWL, including data checking and citizen volunteer training. However, IWL is uncertain whether these watershed coordinators will be able to maintain the program without a centralized coordinating organization.

A representative of the IWL program expressed the hope that the state will take over its current role of program coordination for the Save Our Streams program to ensure that

the monitoring data is consistent and useful to the state. The IWL representative expressed the view that a state-level program coordinator would be effective in assisting and directing groups interested in becoming water quality monitors as well as coordinating existing groups. In addition, state involvement would bring together the expertise that is housed in a number of state agencies for the operation of the program and for educating interested citizens in water resource issues important to their waterway or region.

### **Environmental Education in Water-Resource Issues**

State agencies, including the Department of Environmental Quality, the Department of Conservation and Recreation and the Department of Game and Inland Fisheries, are involved in a wide array of environmental education activities which are related to water-resource protection and river/stream stewardship. A full description of these activities is beyond the scope of this report; however, a brief summary of these activities is provided in Appendix C.

## **REVIEW OF PROGRAMS IN OTHER STATES**

### **Overview**

To review "adopt-a-stream" programs in other states, DEQ obtained a list of "State Volunteer Water Monitoring Contacts" from the Assessment and Watershed Protection Division of the Environmental Protection Agency. This list contained staff contacts for approximately thirty states which administer stream-monitoring and stewardship programs. DEQ interviewed the program coordinators of twelve states, Alabama, Kentucky, Maryland, Massachusetts, Missouri, New York, North Carolina, Ohio, Pennsylvania, Texas, Washington and Wisconsin.

These programs have names such as "Water Watch," "Stream Watch," "Adopt-A-Waterway," "Riverways Program," "Stream Team" and others. Very few were established by legislation; most were initiated by a natural resource agency. Most programs have one or more full-time coordinators and the rest have a part-time coordinator.

All programs were designed to assist citizen volunteers to become actively involved in cleanup, monitoring or protection activities for their local stream or to educate citizens on stream values. A number of these programs began with a single-activity (such as stream cleanup) and evolved into the full array of stream-stewardship activities in response to the interests of volunteers. As a result of the variety of activities these programs coordinate or assist, the structure of these programs is typically somewhat "loose" to allow flexibility in meeting the needs of volunteers. However, the majority have criteria or guidelines for each type of activity to protect the safety of citizens and to ensure that their activities do not harm streams or affect adjacent landowners.

In a few states, such as Ohio and Pennsylvania, the adopt-a-stream program only oversees citizen volunteer cleanups of stream litter and debris. Other elements of stream-stewardship, such as water quality monitoring, are handled under separate programs.

In addition to water quality monitoring, education, and the removal of litter and debris, the stream-stewardship activities that are coordinated or assisted in other states include conducting wildlife surveys, conducting pollution-source surveys, protecting greenways, abating nonpoint source pollution, restoring natural stream habitats or configurations, restoring wetlands, planting shoreline vegetation, controlling erosion, restoring anadromous fish passages, providing public access and others. Due to the demand for their services, some of these programs only have sufficient staff to provide a network among citizen groups and state agencies and to serve as a clearinghouse for information and training. Others actively organize and sponsor activities conducted by local citizen groups.

To varying degrees, all programs promote partnerships between state agencies and citizens. These partnerships mostly take the form of the state educating citizens on issues

of stream quality and, in turn, citizens using this knowledge to provide the state with information on changes to stream quality. In many states, these partnerships are being manifested through the establishment of "Watershed Coordinators," throughout the state, who are citizens trained to train other volunteers in the stewardship of their stream or waterway. These Watershed Coordinators also coordinate the activities of smaller citizen groups within their watershed and provide quality control for monitoring activities.

Not all programs in other states enjoy the strong relationship that has developed in Virginia between the state water quality agency and citizen volunteer monitors. In Virginia, this relationship includes the acceptance of water quality data by DEQ, and agency confidence in the accuracy of that data, and is an important factor upon which to build public/private partnerships for citizen volunteer stream monitoring.

While issues of liability and interference with private property are sometimes raised, program coordinators indicated that these have not been a problem. In every state, guidance documents and training workshops include a strong emphasis on safety and respect for both private property and the natural values of the stream. A number of states require liability waivers from volunteers and nearly every state requires written permission from all landowners (including governmental) that may be affected by cleanup activities. Most program coordinators found that the local nature of these activities minimize problems of conflict with private landowners.

Program coordinators in other states noted the benefits of a state program for stream stewardship, including improved quality of stream monitoring, better coordination between state agencies and citizens, improved water quality planning, increased citizen education and interest in water quality protection, and better public relations for state agencies.

Descriptions of programs in five other states are included in Appendix D. The following section provides conclusions gained from interviews with the program coordinators in twelve states.

### Conclusions from Programs in Other States

#### **Benefits of State Program Coordination and Involvement**

The program coordinator of the North Carolina Stream Watch Program expressed the opinion that the most important benefit of state involvement in citizen stream programs is citizen education and the development of a local constituency that understands and cares about local water quality issues. He stated that state coordination of stream-stewardship programs is very valuable to citizen education due to the relationship between the Stream Watch Program and the expertise housed in state environmental and natural resource programs. This opinion was also expressed by coordinator of the Missouri Stream Team program who stated that citizen education, stewardship and advocacy were the main benefits

of the state-coordinated Missouri program. State involvement ensures that information provided to citizens is accurate, up-to-date and relevant to other state initiatives.

The coordinator of the Ohio Stream Quality Monitoring program indicated that state involvement through the Ohio program has led to important benefits in the area of stream monitoring. State coordination ensures consistent quality control and leads to confidence in the data on behalf of the state water quality agency. He also expressed the opinion that coordination of stream monitoring and other citizen stewardship activities will have significant value for Ohio as the impending reauthorization of the Clean Water Act codifies the Environmental Protection Agency's initiative to focus federal programs on comprehensive watershed management. Because the state does not have the resources necessary to fund water quality monitoring, planning and improvement activities by individual watersheds, the work of local volunteers will fill an important gap.

The coordinator of the Massachusetts Riverways program indicated that the major benefits of their program are the actual stream-conservation accomplishments of citizen volunteers. She indicated that under the Massachusetts program, volunteers conduct a number of valuable activities, including natural stream restoration, nonpoint source pollution control, anadromous fish passage, public access, greenway protection and others.

The coordinator of the Alabama Water Watch program stated that information flow in both directions is important between state natural resource agencies and local Water Watch groups. Through the Water Watch program, state natural resource agencies better understand citizen goals and objectives for water quality protection and improvement. This opinion was echoed by the director of the Kentucky Water Watch Program who stated that the major benefits of their program accrue to state agencies, which are able to focus certain elements of their water quality program in response to citizen input and involvement. The coordinator of the Alabama program also said that Water Watch gives the state an opportunity to educate as well as regulate the public.

The coordinator of the Texas Watch program indicated that their program provides the state with inexpensive water quality data from citizen volunteers. Through state involvement, the Texas Natural Resources Conservation Commission is able to oversee the locations and quality control of this volunteer stream-monitoring network.

### **Lessons from Programs in Other States**

The North Carolina program coordinator recommended that any adopt-a-stream program be housed in the same agency which administers state water quality program so that staff of these programs can oversee, have confidence in and benefit from citizen volunteer stream monitoring. However, the Missouri Stream Team program is not located in the state agency which administers Missouri's water quality program. Coordination between these two programs is handled by a memorandum of understanding between the two agencies. The coordinator of the Missouri program stated that this strategy can function



effectively if the agencies have strong working relationships.

The coordinator of the Ohio Stream Quality Monitoring program stated that the lack of legislative action in creating the program has led to inter-agency turf battles. He recommended that any state program be given sufficient clout to effectively coordinate the various state programs and activities related to stream conservation. He also recommended that it be designed to work closely with related private organizations so that they can support the efforts of one another.

A representative of the Maryland Save Our Streams program stated that having local citizen groups begin with a survey of their adopted stream was very important in helping the groups to choose the types of activities that will be most beneficial to their stream. In addition, these surveys lend credibility to these activities if the local group seeks grant funding or assistance from state agencies. She also stated that it is very important to not overlook building partnerships between citizen stream groups and local governments.

The director of the Kentucky program recommended that any state program be designed to establish and maintain close ties with private conservation organizations which can perform certain tasks, such as advocating stream and river preservation and receiving certain types of gifts and grants (which are targeted for private groups), that are more appropriate for private organizations.

The Missouri Stream Team director recommended that state stream-stewardship programs should listen to what citizens want from a program and develop program activities in response to those citizen interests.

Representatives of the Texas Watch program and the New York Adopt-A-Waterbody program recommended that state programs should promote partnerships among the state program, citizen volunteer stream-conservation groups, local governments and industries. These partnerships facilitate funding for citizen groups and provide a forum for local consensus on issues of stream protection and improvement.

**CONCLUSION: THE COMMONWEALTH HAS AN EXISTING PROGRAM IN WHICH AN ADOPT-A-STREAM PROGRAM CAN BE ESTABLISHED USING EXISTING, NON-GENERAL FUND SOURCES OF REVENUE**

The strong participation of Virginia citizens in volunteer activities for river and stream conservation provides a solid foundation for developing a state adopt-a-stream program. Currently, when citizen volunteers are interested in cleaning up, monitoring and protecting their local river or stream, they must deal with separate state programs. It will benefit the state, as well as citizens, to offer a unified point of contact and coordination for river and stream conservation activities. Furthermore, the mechanism for establishing an adopt-a-stream program is essentially in place.

The Department of Environmental Quality is ready and able to operate an adopt-a-stream program. This can be done by enhancing the Adopt-A-Spot Program and building on the Water Quality Assessment Program, both already housed in DEQ. Staff in the Adopt-A-Spot program have experience in administering an adoption/stewardship program and in coordinating a network of interested citizens and local litter control organizations. Currently, the Adopt-A-Spot program is administered by existing personnel within the DEQ Office of Recycling and Litter Prevention. Expanding this program to include Adopt-A-Stream will require a full-time coordinator responsible for citizen education and volunteer training, coordinating monitoring sites and activities, assisting groups to conduct stream-cleanup projects, coordinating state-agency activities and procuring grant funding.

The cost of a program, including full-time coordinator, travel, signs and other items will range between \$35,000 and \$50,000. DEQ can meet the costs for this program through funds from the Litter Tax. However, the agency will need one new non-general fund position. Opportunities exist to augment the program through federal grant sources, including the Coastal Resources Management Program and Clean Water Act programs.

The development of an Adopt-A-Stream program in Virginia will offer improved stream and river conservation due to the visibility of the program and the recognition it can provide to citizen groups that adopt a stream. Improved partnerships between state agencies and citizen volunteers will allow for program development in a number of important areas.

Full state involvement and coordination in citizen volunteer stream stewardship would also assist DEQ in performing its water quality monitoring and assessment duties, allowing the agency to redirect staff to other priority tasks. This will be accomplished by providing consistency and guidance (quality assurance and control) to volunteers for collection of water quality data, integrating biological and chemical monitoring at the same monitoring stations, and helping DEQ direct additional water quality monitoring to areas of the state where it is most needed.

Appendix A

LD9040364

HOUSE JOINT RESOLUTION NO. 704

Offered January 26, 1993

*Requesting the Department of Environmental Quality to study the feasibility of establishing an adopt-a-stream program.*

Patrons—Morgan, Abbitt, Almand, Ball, Bloxom, Brickley, Callahan, Christian, Cohen, Connally, Cooper, Copeland, Council, Cox, Crittenden, Crouch, Cunningham, J.W., Cunningham, R.K., Darner, Davies, Deeds, Dillard, Finney, Fisher, Forbes, Forehand, Grayson, Guest, Hall, Hamilton, Hargrove, Harris, Heilig, Howell, Ingram, Jennings, Johnson, Marshall, Mayer, McClure, McDonnell, Melvin, Miller, Mims, Moore, Murphy, Nelms, O'Brien, Parrish, Phillips, Plum, Purkey, Reid, Robinson, Rollison, Scott, Stieffen, Thomas, Van Landingham, Van Yahres, Wagner, Wallace, Way, Wilder, Wilkins and Wood; Senators: Calhoun, Norment and Potts

Referred to the Committee on Chesapeake and Its Tributaries

WHEREAS, the preservation, protection and ecological enhancement of streams throughout the Commonwealth are important to economic development and recreational opportunities; and

WHEREAS, the quality of water flowing from streams which are tributaries of the Chesapeake Bay can have an impact on the quality of water in the Bay; and

WHEREAS, there will be an increased emphasis on the condition of tributaries in regional efforts to enhance the water quality of the Chesapeake Bay; and

WHEREAS, improved water quality in the Chesapeake Bay will lead to healthier fisheries and other living resources and greater recreational opportunities, which in turn will lead to economic growth; and

WHEREAS, other states, including North Carolina, Ohio and Maryland, have created programs by which local citizen groups are formed to help clean, monitor, protect and report on the condition of local streams and watersheds; and

WHEREAS, such programs have resulted in, among other things, (i) thousands of miles of streams being monitored; (ii) increased public awareness of water pollution issues; (iii) working relationships between citizens and state officials; (iv) long-term citizen commitment to water resource protection; (v) the removal of trash from streams and stream banks; and (vi) improvements in the condition of streams; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of Environmental Quality, assisted by the Department of Conservation and Recreation, the Department of Game and Inland Fisheries and the Virginia Marine Resources Commission, be requested to study the feasibility of the creation of a nonregulatory, voluntary, citizen adopt-a-stream program. The study shall include, but not be limited to, (i) a review of citizen stream-monitoring programs existing in other states; (ii) the feasibility of organizing citizens to aid in the monitoring, cleanup and protection of streams and watersheds in Virginia; (iii) the role of citizens in monitoring, in cleanups and in reporting findings; and (iv) the organizational structure of such groups.

All agencies of the Commonwealth shall, upon request, assist in the conduct of the study.

The Department of Environmental Quality shall complete its work in time to submit its findings and recommendations to the Governor and the 1994 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for processing legislative documents.

## **Appendix B**

### **Virginia River Stewardship Groups\***

Izaak Walton League  
Alliance for the Chesapeake Bay  
Friends of the Rivers of Virginia  
Friends of the Shenandoah River  
Friends of the North Fork of the Shenandoah  
Lower James River Association  
Friends of the James  
Falls of the James Scenic River Advisory Committee  
Appomattox Scenic River Advisory Board  
Historic Rivers Land Conservancy (Williamsburg)  
Friends of Urbanna Creek  
Saving The Rivers Environmental Action Movement  
Dan River District Action Committee  
Rappahannock River Valley Association  
Friends of the Rappahannock  
Cowpasture River Preservation Association  
The Elizabeth River Project  
Coastal Canoeists, Inc.  
Mattaponi and Pamunkey Rivers Association  
Save the Ole Piankatank  
Friends of Nomini Creek  
York River Chapter of Chesapeake Bay Foundation  
Back Bay Restoration Foundation  
Rivanna Conservation Society  
Friends of the Roanoke River  
Citizens for the Preservation of the River (Staunton River)  
Upper James River Scenic Advisory Committee  
Friends of the Maury River  
Blue Ridge River Runners

\* List compiled from information and databases provided by the Alliance for the Chesapeake Bay, Izaak Walton League, Friends of the Rivers of Virginia and Department of Environmental Quality - Division of Public Affairs.

# ENVIRONMENTAL EDUCATION RESOURCES IN VIRGINIA

Annual Conference for Environmental Literacy, sponsored by the Department of Environmental Quality, brings together 250 educators each year. DEQ also provides program coordination, advice to schools, teacher training, information on current issues and networking support. Contact: Ann Regn, Environmental Education Coordinator, DEQ, 629 E. Main Street, Suite 900, Richmond, Virginia 23219, (804) 786-4500.

Heritage Education Program sponsored by the Department of Historic Resources and state preservation groups, provides a variety of services such as *The Heritage Workbook*, a curriculum featuring history, architecture and archaeology, teacher workshops, Virginia Archaeology Week, and on-site participatory "digs." Contact: Margaret Peters, Department of Historic Resources, 221 Governor Street, Richmond, VA 23219, (804) 786-3143.

On-the-Water Field Trips run by the Chesapeake Bay Foundation (CBF) and supported by state funds, provide hands-on field experiences focusing on water quality for more than 5,000 students and 500 teachers each year through canoe and boat trips on the Bay and its tributaries. To schedule a field trip contact Education Department, Chesapeake Bay Foundation, 1001 E. Main Street, #815, Richmond, Virginia 23219, 1-800-445-5572.

Project Learning Tree provides curriculum supplements and training about forest communities through teacher workshops. Lesson plans focus on using science, language and social studies skills. Project Learning Tree (PLT) is sponsored jointly by the Department of Education, the Department of Forestry, and the Virginia Forestry Association. Contact: Lou Souffard, Chief of Public Information and Education, Department of Forestry, P.O. Box 3758, Charlottesville, Virginia 22903, (804) 977-6555.

Project WILD provides curriculum supplements and training about wildlife and habitats. Project Aquatic WILD features lessons on aquatic ecosystems. More than 1,600 educators and youth leaders are trained each year through workshops sponsored by the Department of Game and Inland Fisheries and the Virginia Izaak Walton League. Contact: Susan Gilley, Wildlife Education Specialist, Department of Game and Inland Fisheries, 4010 West Broad Street, Richmond, Virginia 23230, (804) 367-1000.

Virginia Museum of Natural History's traveling exhibits and educational programs reach 700,000 people throughout Virginia each year. The museum's state-wide school outreach services emphasize in-service training and materials development about natural sciences. Its field school program provides opportunities for teachers and the public to learn in the field with scientists. Teachers can earn CEU credit. Headquartered in Martinsville with branches at Virginia Tech and the University of Virginia. Each site provides special programming for its local area. Contact: Education Department, Virginia Museum of Natural History, 1001 Douglas Avenue, Martinsville, Virginia 24112, (703) 666-8600.

Virginia State Parks...Your Backyard Classroom, winner of EPA Region III's Environmental Education Award, is sponsored by the Department of Conservation and Recreation. The curriculum supplement emphasizes science process skills and includes more than 40 activities designed to involve students in field activities and investigations. Contact: John Heerwald, Department of Conservation and Recreation, 203 Governor Street, Richmond, Virginia 23219, (804) 786-2121.

The Bay Team teachers, sponsored by the Virginia Institute of Marine Science (VIMS) and Virginia Sea Grant, teach classes (K-12) state-wide about the Chesapeake Bay and environmental stewardship. Also available: new "action" Rally Round curriculum supplement; teacher seminars, inservice programs; estuarine, marine and global curricula, information and data; graduate courses; lending library; estuarine field study sites; mentorships; and aquarium programs. Contact: Lee Larkin, Marine Education Program Coordinator, Virginia Institute of Marine Science, P.O. Box 1362, Gloucester Point, Virginia 23062, (804) 642-7172.

The New 3R's --- Reduce, Reuse and Recycle and Operation Waste Watch are multidisciplinary activities for K-12 teachers from the Department of Waste Management. Instructional materials for specific grades are correlated to the Standards of Learning. Contact: Department of Environmental Quality, Division of Public Affairs, 629 E. Main Street, Suite 900, Richmond, Virginia 23219 (804) 786-4500.

Virginia Energy Education Development (VEED) is the Virginia project of a national program that provides teacher training, student training, hands-on activities and current information on energy sources and controversial energy issues. Contact: Mary Spruill, 1920 Association Drive, Reston, Virginia 22901, (703) 860-5029.

Virginia Energy Hotline provides up-to-date information on energy resources, conservation and alternative fuels. Contact: Division of Energy and Recycling, Department of Mines, Minerals and Energy, 2201 West Broad Street, Richmond, Virginia 23220, 1(800) 552-3831.

Virginia State Marine/Aquatic Education Program, through the 4-H/Cooperative Extension network, offers workshops, instructional materials, and residential programs on marine and aquatic topics

to 20,000 youth and 300 educators annually. Contact: Barry W. Fox, Virginia State University, P.O. Box 9081, Petersburg, Virginia 23806, (804) 524-5070.

Virginia Water Resources Research Center fills information requests and keeps over 13,000 citizens informed about state and national water issues through a monthly newsletter. Presentations, workshops, and award-winning instructional materials--videos, activities, and computer games are provided. Contact: Kathy Sevebeck, Virginia Water Resources Research Center, 617 North Main Street, Blacksburg, Virginia, 24060 (703) 231-5624.

Virginia Marine Science Museum offers on-site educational programs and teacher training related to Virginia's marine environment. The Mobile Marine Lab travels all over the state conducting programs on the Bay using live specimens. Extensive curriculum packets on habitats, environmental issues and select species are available for a small fee. Contact: Education Department, 717 General Booth Boulevard, Virginia Beach, Virginia, 23452, (804) 437-4949.

### Professional Organizations:

Mid-Atlantic Marine Education Association (MAMEA) is an organization of people whose common goal is to improve education about all aspects of the marine environment. An annual meeting, mini-conferences and field trips offered yearly. Membership dues are \$5.00/year and includes 3 issues of the newsletter, Masthead. Contact: MAMEA c/o VIMS, Gloucester Point, Virginia 23062.

Virginia Association for Environmental (VAEE) is an organization composed of teachers, administrators, state and federal personnel, museum and camp educators, business representatives, and private citizens interested in environmental education. Dues are \$5.00/year and include a newsletter. Contact: VAEE c/o Georgia Yamaki, Chesapeake Bay Foundation, Suite 815, Richmond, Virginia 23219.

## Appendix D

### Summaries of Programs in Five Other States

Below, programs in five other states are summarized. The five states include the three cited in HJR 704 and two others.

#### NORTH CAROLINA

The North Carolina Stream Watch Program (SWP) was established in 1983 by the North Carolina Department of Environment, Health and Natural Resources, which is not the water quality regulatory agency in North Carolina. This has limited the growth and usefulness of the stream-monitoring program because the data collected by citizens is not recognized nor used by the water quality agency. Though the program was not established by legislative action, state legislation created a SWP coordinator position in 1988.

The SWP started with grants to local groups to assist them in adopting streams or rivers. Local groups receive maps and information on the SWP and also on other water-resource issues. The groups inventory their adopted waterway and perform any of a number of activities that benefit the waterway or provide the state with local knowledge on the waterway.

In 1988, state legislation created a full-time coordinator for the SWP. Currently, the coordinator's efforts focus on education of teachers and citizens, the coordination of local activities and information dissemination. Local SWP groups perform a full range of stream stewardship activities, including biological and chemical monitoring; reporting on the conditions of their stream; stream and stream-bank restoration; debris and litter cleanup; becoming involved in issues of local planning; sponsoring outings or other educational activities; pursuing public access; implementing best management practices; and others. The budget of the program is the salary and costs of a coordinator (approximately \$35,000).

The North Carolina DEHNR formed a Stream Watch Steering Committee, which includes representatives from each natural resources division, to offer expertise and guidance to the SWP. This Committee assists local SWP groups in understanding and defining the stream-stewardship activities that are appropriate for their stream and watershed.

#### OHIO

The Ohio "Stream Quality Monitoring Program" (SQMP) was born out of Ohio's Scenic Rivers Program. The SQMP was not formed by legislative action, it was established by the Ohio Department of Natural Resources for the purposes of stream-litter cleanup and stream-bank reforestation. In 1983, the program shifted emphasis to organizing and sponsoring biological monitoring of streams. The program has 150 active monitoring stations on ten streams. The SQMP operates on a budget of approximately \$40,000, per year, which pays for one program coordinator. The SQMP also receives private funding and

channels funds to local stream groups for environmental education. As in many states, the SQMP coordinator is assisted at various times by other staff within the Department of Natural Resources. Currently in Ohio, stream debris cleanup is handled under a separate program from the SQMP.

The primary functions of the SQMP coordinator is to recruit and train volunteers and to orient local involvement and education. Because of the emphasis on citizen training, volunteer stream monitoring in Ohio has achieved credibility within the state water quality agency, even though the SQMP is located in a separate agency. Currently, efforts are underway to delegate recruitment and training activities to regional (by watershed) and local groups, including Soil and Water Conservation Districts.

## **MARYLAND**

The current Maryland Save Our Streams program (SOS) is a nonprofit organization which has a long history and partnership with Maryland state government. The Maryland SOS began as the first Save Our Streams program founded by the Izaak Walton League twenty years ago. As the program grew, it came under state administration for a number of years and then evolved into an independent organization which now supports eight to ten paid staff. The total budget of the SOS is approximately \$250,000, which includes funds received through state and federal grants, local funding, benefits and fundraising.

The 5,000 volunteers in the SOS perform a wide array of stream-stewardship activities including stream cleanups, biological monitoring, habitat restoration, removal of anadromous fish barriers, stream-bank reforestation and others. These groups range from small numbers of individuals to large corporations. When a group becomes interested in adopting a stream, the SOS recommends that the group first conduct, or commission, a survey of the stream to better understand existing stream conditions, including biological communities, sources of pollution, stream-bank erosion problems, etc.

The SOS sponsors a number of citizen education programs and initiatives, including workshops, teacher training, literature distribution, continued training courses for stream monitors and others. They design their educational activities to fit the needs and goals of individual communities. In conducting these activities, the SOS endeavors to build strong ties between citizen groups and local governments.

## **KENTUCKY**

The Kentucky Water Watch program (WWP) was created, without legislation, within the Water Division of the Kentucky Department of Environmental Protection, which houses the state water quality and nonpoint-source pollution control programs. The program has two paid staff which are supported through general state funds (40%) and grant funding under the Clean Water Act (Section 319 nonpoint source program) and the Safe Drinking Water Act.



The WWP coordinates stream cleanups, chemical and biological monitoring, stream-bank reforestation, citizen education and others. Providing public education and facilitating public participation in water-resource issues are the two main purposes of the WWP. The program works with community groups and school groups to promote understanding and involvement in stream stewardship and water quality protection. Approximately thirty percent of Water Watchers are high school groups. The director of the WWP considers the involvement of school groups as a strong benefit of the program.

Both biological and chemical monitoring are conducted under the WWP. The director of the program currently trains every volunteer monitor. However, the program does not provide volunteers with water quality testing kits. Currently, the director is striving to develop a network of watershed trainers, throughout Kentucky, who can provide this training within their region and can serve as liaisons with the state program.

Approximately eighty percent of Water Watch groups existed as local river-stewardship associations at the time the WWP was established. The WWP coordinated these groups under a Water Watch Network.

## **MISSOURI**

The Missouri Stream Team program (MST) was formed without legislation within the Missouri Department of Conservation. In four years, the program has established 450 Stream Team groups with a total volunteer involvement of over 20,000 people. The Department of Conservation is not Missouri's water quality agency; however, the MST has a Memorandum of Agreement with the Missouri Department of Environmental Protection for acceptance of volunteer stream-monitoring data by the state water quality programs.

The Department of Conservation is an agency created under the Missouri Constitution and its sole mission is to serve the citizens of the state for resource conservation. The Department began the MST by holding meetings around the state asking citizens what they want for the conservation of their streams, rivers and waterways. The MST was born entirely from public demand and was patterned from citizen testimony at those meetings.

The MST is currently headed by a single coordinator who is assisted at various times by other state staff. Currently, the program budget is approximately \$300,000, which is derived from a portion of state sales tax. The number of program staff and total program budget will soon be increasing.

Stream Team groups in Missouri conduct stream cleanups, biological, chemical and physical stream-monitoring, stream-bank plantings and restoration, advocacy for stream protection and other activities. These groups are currently forming an association of Stream Team groups that will be organized by watershed. The MST is supporting this effort by training watershed-level coordinators, who will then organize and train citizen volunteers and will serve as liaisons to the state program.