A Report by a Panel of the

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

for the U.S. Environmental Protection Agency

Summary Report

Taking Environmental Protection to the Next Level:

Agriculture

Forests, Parks and Conservation

Wastewater Treatment

Marine Resources

Urban Development

Air Quality

An Assessment of the U.S. Environmental Services Delivery System

April 2007

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TAKING ENVIRONMENTAL PROTECTION TO THE NEXT LEVEL:

An Assessment of the U.S. Environmental Services Delivery System

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The views expressed in this report are those of the Panel. They do not necessarily reflect the views of the Academy as an institution.

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FOREWORD

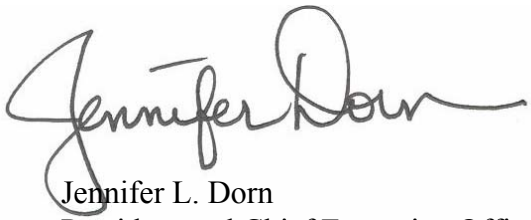
When we fertilize our lawns, drive our cars, wash our dishes, or go about our other daily routines, we contribute to making our streams, rivers, bays, and oceans unswimmable and toxic to marine life. The same potential arises as farmers grow the food we eat, when businesses dispose of the byproducts of their work, and when builders create new communities. In short, the necessities of life and pollution of our environment are inextricably linked.

But negative outcomes are not inevitable. Pollution controls can help us live full and productive lives without damaging the water, land and air around us. Many pollution controls have been applied for a long time to clean up sewage, industrial smokestacks, and automobile exhausts. But others, such as those related to agricultural and urban runoff, have not been widely applied yet. And, our environment suffers.

This report examines the water quality program, and finds that it is time to apply a much broader set of remedies. The Academy Panel learned what needs to be done by conducting an in-depth review of the Chesapeake Bay Program. Its unique combination of scientific studies, interstate policies, stakeholder partnering, and best practice innovation shows what is necessary to restore the Bay to the healthy conditions.

The next step is to apply this knowledge on a nationwide scale. EPA has been experimenting with similar approaches nationally, and is on the cusp of being able to expand this effort. I believe this Academy report can tip the scales toward a new era of outcome-oriented water quality improvements that can bring clean and healthy waters within reach throughout the United States.

We thank the many people in EPA, and in its Chesapeake Bay Program Office, for supporting the Panel's work. We also thank the many Chesapeake Bay stakeholders who volunteered their time to make our lessons learned workshop on the Bay most enlightening. I commend the Panel and project staff for their outstanding work in mastering this very complex topic and making so many practical recommendations.



Jennifer L. Dorn
President and Chief Executive Officer

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ACRONYMS

Academy	National Academy of Public Administration
BMP	Best Management Practice
CARE	Community Action for a Renewed Environment
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
GAO	United States Government Accountability Office
GIS	Geographic Information System
ICMA	International City/County Managerment Association
NEP	National Estuary Program
NEPPS	National Environmental Performance Partnership System
NPS	Nonpoint Pollution Source
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
OWOW	Office of Wetlands, Oceans and Water
RC	Regional Council
TDML	Total Maximum Daily Load
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
WQS	Water Quality Standards

EXECUTIVE SUMMARY

As the government moves steadily toward outcome-oriented performance management, it is finding that the traditional measures of success for individual programs—effectiveness and efficiency of the program's management—are no longer sufficient. Such measures limit the evaluation of success to program outputs alone, they never reach the outcomes that count—the improvements the programs make in people's lives.

This study of environmental services delivery illustrates the point directly and convincingly. It concentrates on water quality programs, but has obvious relevance to a broader range of environmental services.

By examining the condition and desired outcomes of a specifically identified water body (the Chesapeake Bay), the distinction between program outputs and outcomes becomes very clear. The primary program outputs that have been pursued to restore the health of the Chesapeake Bay—through the traditional regulatory provisions of the Clean Water and Clean Air Acts—have been cleaner effluents from wastewater treatment plants and cleaner emissions from industrial smokestacks and automobile tail pipes. Although a lot of progress has been made in reducing pollution from these sources, the Bay remains unhealthy. So, we see a paradox: even as the individual program outputs are showing great success, the environmental outcome is continues to be unacceptable.

The Chesapeake Bay program recognizes this paradox, and has been addressing it directly. What is required to clean up the Bay is to clean up all the main sources of pollution, not just those for which clear regulatory programs have been established. But this conclusion presents quite a challenge. It requires breaking a lot of new ground. And the Chesapeake Bay program has been going about doing that for many years.

WHAT THIS REPORT DOES

This report begins with a detailed examination of the entire Clean Water Act, including how it has been administered over the years. Then, it examines the Chesapeake Bay clean-up approach—the science it has developed, the best practices it has identified to get at the main sources of pollution that remain mostly unaddressed, the governmental landscape it must navigate to get the needed action, and how it has gone about organizing the key stakeholders—first within the entire interstate watershed, then within each state, and finally within the 36 tributary areas where implementation action must be taken to achieve a healthy Bay. The Chesapeake Bay approach is then compared with some relevant cases elsewhere in the U.S.

These examinations were undertaken using an analytical framework that combines the "tools of government" approach with logic models and stakeholder analysis. The Academy Panel believes this method of analysis can be helpful in evaluating many other programs that are experiencing a shift from simply administering individual programs to taking on accountability for overall outcome-oriented results.

RESULTS OF THE ANALYSIS

The Panel's examinations, led to the following key findings:

- **Many "Impaired Waters."** The unhealthy condition of water in the Chesapeake Bay is far from unique. Across the 50 states, some 40,000 "impaired waters" have been identified and "listed" for clean-up under provisions of the federal Clean Water Act. This is a nationwide problem, and the experience in the Bay is relevant to the whole nation.

- **Missing Implementation Tools.** The Clean Water Act includes two main parts. The first and by far most heavily used and effective part, regulates the quality of water discharged by wastewater treatment plants and storm drainage systems. The second part of the Act addresses the quality of water in the receiving bodies, regardless of the sources of pollution affecting them. However, the second part does not directly regulate many of the pollution sources. Instead, it requires responsible parties to find ways to reduce pollution sufficiently to meet the overall standard established for the water body. These clean-up methods have been largely undefined until recently.

- **New Practices Needed.** The Chesapeake Bay Program has spent a lot of time and effort identifying and quantifying many specific practices that can be used to reduce the polluting effects of agricultural and urban runoff, and to clean-up pollution already in the Bay. This science-based work has produced a long list of practices that can be applied by local governments, conservation districts, developers, farmers, agribusinesses, the oyster industry, and others to begin achieving the pollution reductions needed to nurse the Bay back to health.

- **Setting Targets.** The Chesapeake Bay's science program has also provided a trusted basis for determining how much pollution of various types needs to be reduced in each part of the Bay's 64,000 square-mile watershed. And these limits have been adopted by the interstate Chesapeake Executive Council: the limits have been assigned proportionately to each state, and then parceled out to the 36 component Tributary Strategy Teams responsible for devising a plan for each tributary to do its share in reducing the pollution loadings that eventually reach the Bay.

- **Gaps in Follow-Through.** Implementation follow-through is only partly in place at this time, however. Good practices for reducing pollution from all sources in the Chesapeake Bay watershed are beginning to be applied in all six states and the District of Columbia. But, these practices have not yet reached the targeted levels needed to clean the Bay by the court-established deadline of 2010. Substantial improvements in follow-through mechanisms and funding are needed.

CHALLENGES FACED IN MEETING POLLUTION-REDUCTION TARGETS

Knowing what needs to be done and getting it done are two very different things. The Chesapeake Bay Program—and the nation at large—face several major challenges in moving from theory to practice.

- **Imbalanced Programs.** EPA's wastewater and stormwater programs (point sources) are robust and applied almost everywhere, while the runoff programs (nonpoint sources) are experimental and often optional even where they exist. Yet, the successes of both types of programs are intertwined. Until they are both robust and broadly applied, neither can succeed fully in today's outcome-oriented world.

- **Inadequate Healthy Waters Partnerships.** The Chesapeake Bay Program partnerships (interstate, state, and sub-state) illustrate the kinds of organizational relationships that are needed to improve impaired waters. Yet, they are almost one-of-a-kind. And they are also not easy to create or emulate. The Chesapeake Bay Program has had a fair amount of money and time to create and nurture its partnerships. And still, its partnering mechanisms need improvement in several very important respects. Strengthening partnerships is hard work, and success with it requires a long term commitment. Yet, there is no alternative, if impaired waters are to be restored. In the Chesapeake Bay, for example, the efforts of over 3,000 governments, 23 federal agencies, hundreds of watershed associations and other non-profits, thousands of farmers, millions of homeowners, and many other stakeholders must be brought together to achieve success.

- **Scarce and Diminishing Resources.** The Chesapeake Bay's expert finance panel determined that the program has access to only about ten percent of the money it needs to achieve success. Available federal resources are diminishing nationally by design. Financial pressures are also buffeting many states all across the nation. Water quality programs are retreating to dedicated fees where they can. The nation's 40,000 impaired waters are being cleaned up at the rate of only about 250 per year. The trajectory toward success is shaky at best.

- **Missing Implementation Tools.** The standard regulatory tools for cleaning up point-sources of water pollution are available and well exercised most places, but the implementation tools needed to clean up nonpoint sources are too seldom available and applied—even in the Chesapeake Bay watershed, where they are relatively well known, much less in other parts of the nation. This situation causes major gaps in impaired waters implementation action plans.

- **Lagging Management Information Systems.** EPA's evolving management information systems—resulting from improved strategic planning, outcome-oriented performance measures, the Data Exchange Network, and the principles embedded in the National Environmental Performance Partnership System (NEPPS)—remains overly centralized and has not yet been adapted fully enough to the real-time, multiple party needs of highly distributed programs like a Healthy Waters Program. Although EPA has significantly improved its ability to report on traditional state-EPA programs in recent years, it is not

up to meeting the demands of outcome-oriented programs—accounting quickly and precisely for the results of programs from multiple federal agencies and numerous substate actors.

So, there is a lot of work still to be done to improve the Data Exchange Network and the strategic management environment it serves. EPA is aware that it has many more miles to go along this trail, and has been working on many of these challenges. The Academy report documents how EPA already assists watershed planning, Smart Growth initiatives, multiparty collaborations, industry-based environmental standards, and more. However, much of this work is at a small, experimental scale. It is neither robust nor nationwide. Yet, taken together, it provides a sound base upon which to organize, empower, and fund an effective Healthy Waters initiative.

PANEL RECOMMENDATIONS

In view of these needs and challenges, the Academy Panel makes the following recommendations:

- **EPA as a Partnering Agency**. EPA should strengthen its position as a partnering agency for purposes of enhancing all its programs, both regulatory and non-regulatory. More effective partnering is especially important for non-regulatory programs where voluntary action based on trust, assistance, and persuasion is fundamental.

- **Healthy Waters Comprehensive Approach**. EPA should establish a more systematic and holistic intergovernmental approach to cleaning up the very large number of impaired waters throughout the nation. This approach should bring nonpoint programs up to par with point-source programs.

- **Effective Coordination Mechanisms to Support Partnerships**. EPA should encourage and support the intergovernmental coordinating bodies needed to ensure that regional initiatives can effectively accomplish established water pollution reduction outcomes.

- **Scientific Research and Data**. EPA should preserve its commitment to scientific research and data as an essential basis for policymaking and evaluation.

- **Adequate and Sustainable Funding**. EPA should work with the state and local governments, and others, to put the financing of environmental services on a more adequate and sustainable path, by: broadening the purpose and revenue sources of the State Revolving Fund program; developing models and guidelines for dedicated fee-based revenue systems; providing leadership for pollution credit-trading; partnering with other federal agencies; and working with Congress.

- **Access to Innovation**. Innovative programs should be made readily available more quickly to policymakers, program directors, and implementation organizations.

- **Performance and Results**. EPA should continue to improve its outcome-oriented performance management systems by incorporating timely new accountability mechanisms for inputs, outputs and outcomes provided by both traditional and non-traditional partners.

Finally, the Panel recommends that EPA and other federal agencies re-evaluate the alignment of partners, tools, and coordinating mechanisms within all their partnership programs, using the analytical framework developed for this study.

REPORT IN BRIEF

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Air Quality

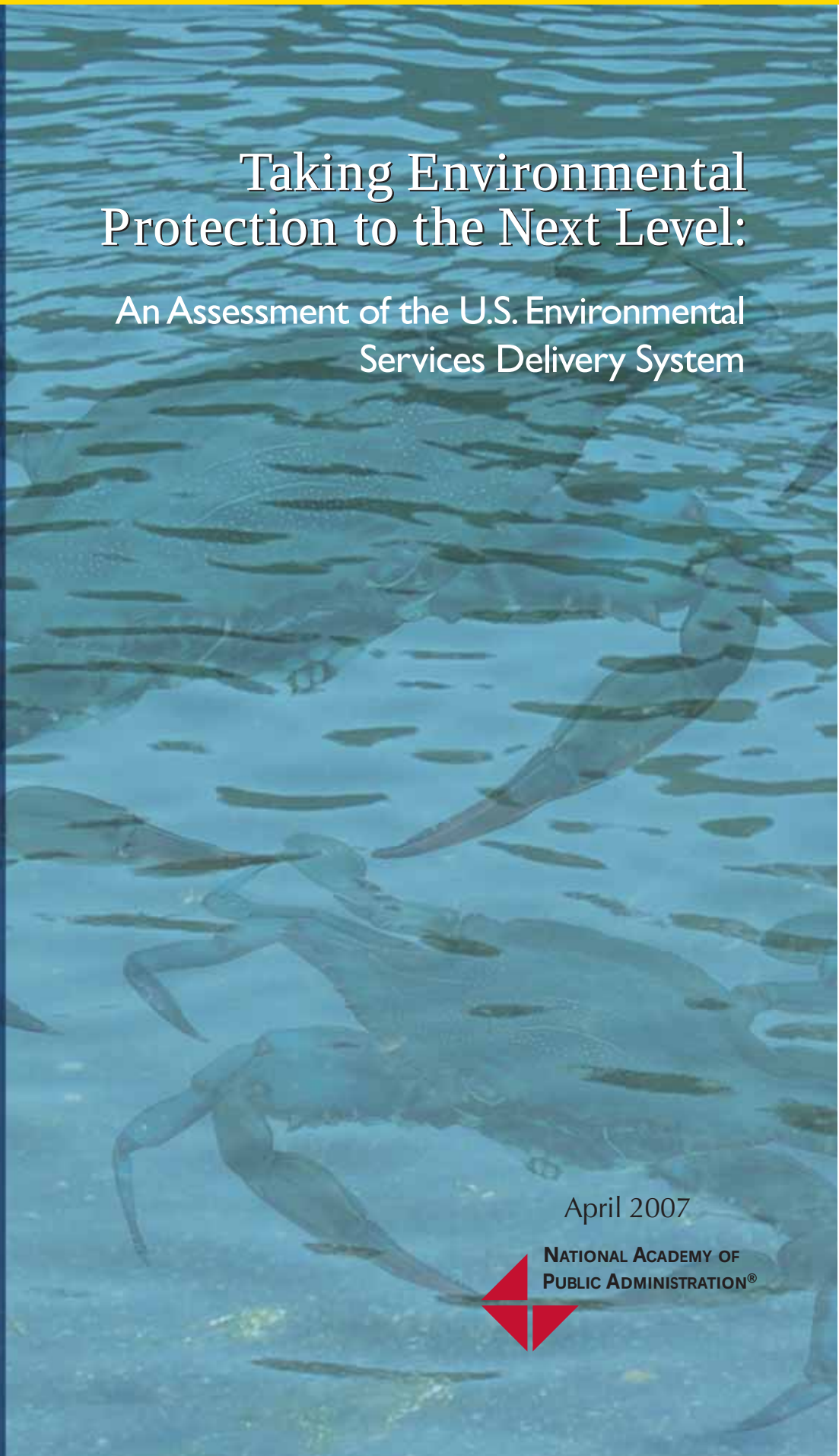

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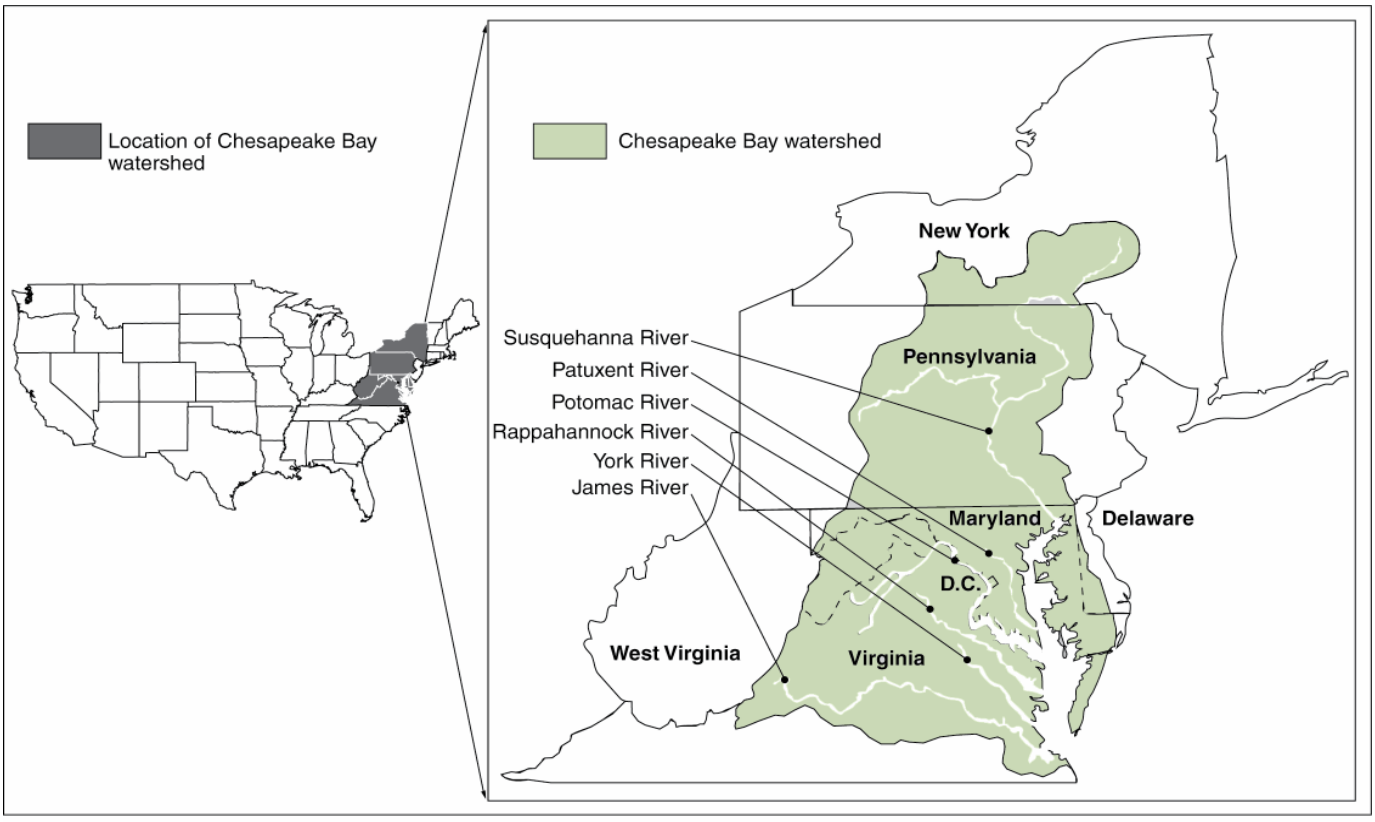
FIGURE 1. A Shift to Cleaning Up Nonpoint Sources of Pollution is Needed

- As America strives to make its environment cleaner, it finds that it must clean up many, highly dispersed, small (nonpoint) sources of pollution
  - ✓ NOT just the more obvious big (point) sources
- To understand this shift better, the Academy closely examined water pollution control
  - ✓ Generally across the United States
  - ✓ Specifically in the 64,000 square mile multi-state Chesapeake Bay Watershed

FIGURE 2. The Chesapeake Bay Watershed Illustrates this Conclusion

- The Chesapeake Bay is the largest estuary in North America:
  - ✓ One of the most productive in the world
  - ✓ Fertile yet fragile
  - ✓ Home to 16 million people
  - ✓ Includes parts of 6 states: Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia
- It provided an excellent "lessons learned" platform for this study



Sources: Cheasapeake Bay Program Office and GAO.

SOURCE: Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress, GAO-06-96, October 2005.

FIGURE 3. The Institutional Landscape in the Chesapeake Bay Watershed is Complex

- Reaching the Chesapeake Bay's pollution reduction goals will require the joint efforts of:
  - ✓ 6 states, the District of Columbia, and 3,169 local governments
  - ✓ 23 federal agencies
  - ✓ 678 watershed associations
  - ✓ a large number of "riverkeepers"
  - ✓ 2 interstate river basin commissions
  - ✓ 30 regional councils (multi-county councils of local governments)
  - ✓ 36 state-created tributary strategy teams
  - ✓ 87,000 farm owners
  - ✓ 5-6 million homeowners
  - ✓ hundreds of lawn care companies
  - ✓ an uncounted number of land developers, homebuilders, construction companies, agribusinesses, and other companies that send pollution to the Bay
  - ✓ a very large number of civic and non-profit organizations

FIGURE 4. Restoring the Chesapeake Bay Requires Engaging Many Stakeholders

- Each of these key stakeholders uses a variety of implementation tools to help the Bay.

FIGURE 5. The Academy Used an Analytical Framework to Understand the Chesapeake Bay Restoration Effort

- The simplified framework below illustrates **HOW** the key stakeholders (actors) manage their implementation tools to help clean the Bay.

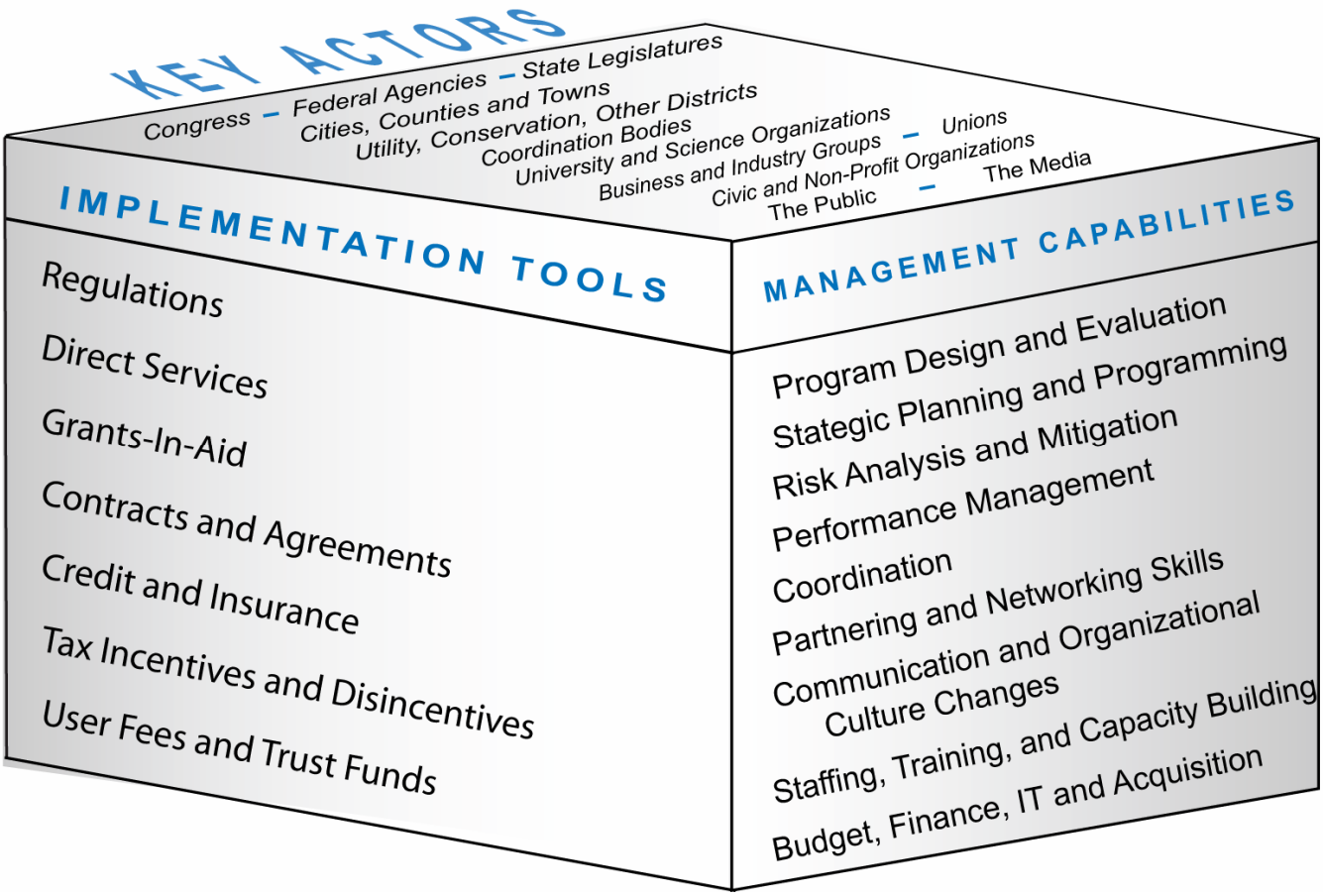


FIGURE 6. Logic Models for Water Pollution Control Programs Document the Two Complementary Restoration Strategies Being Used

These models show on the next two pages:

- How much simpler it is to control “point” sources (Figure 7) than “nonpoint “ sources (Figure 8)
- Programs for both purposes use multiple implementation tools
- Both programs are necessary to produce clean water bodies

FIGURE 7. The Traditional Point-Source Water Pollution Control Logic is Heavily Used
(but may address as little as 30 percent of the "impaired waters" problem in some watersheds)

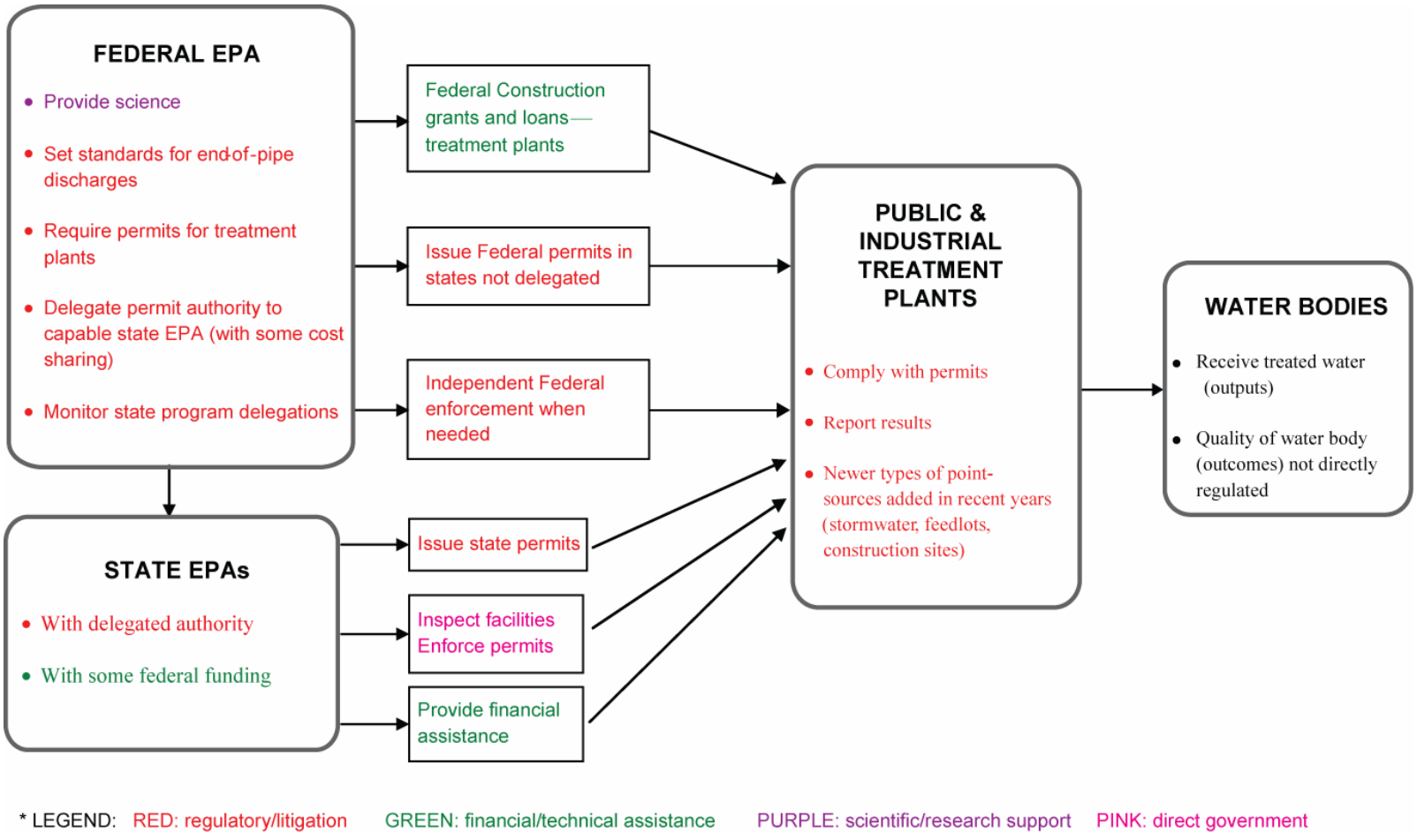
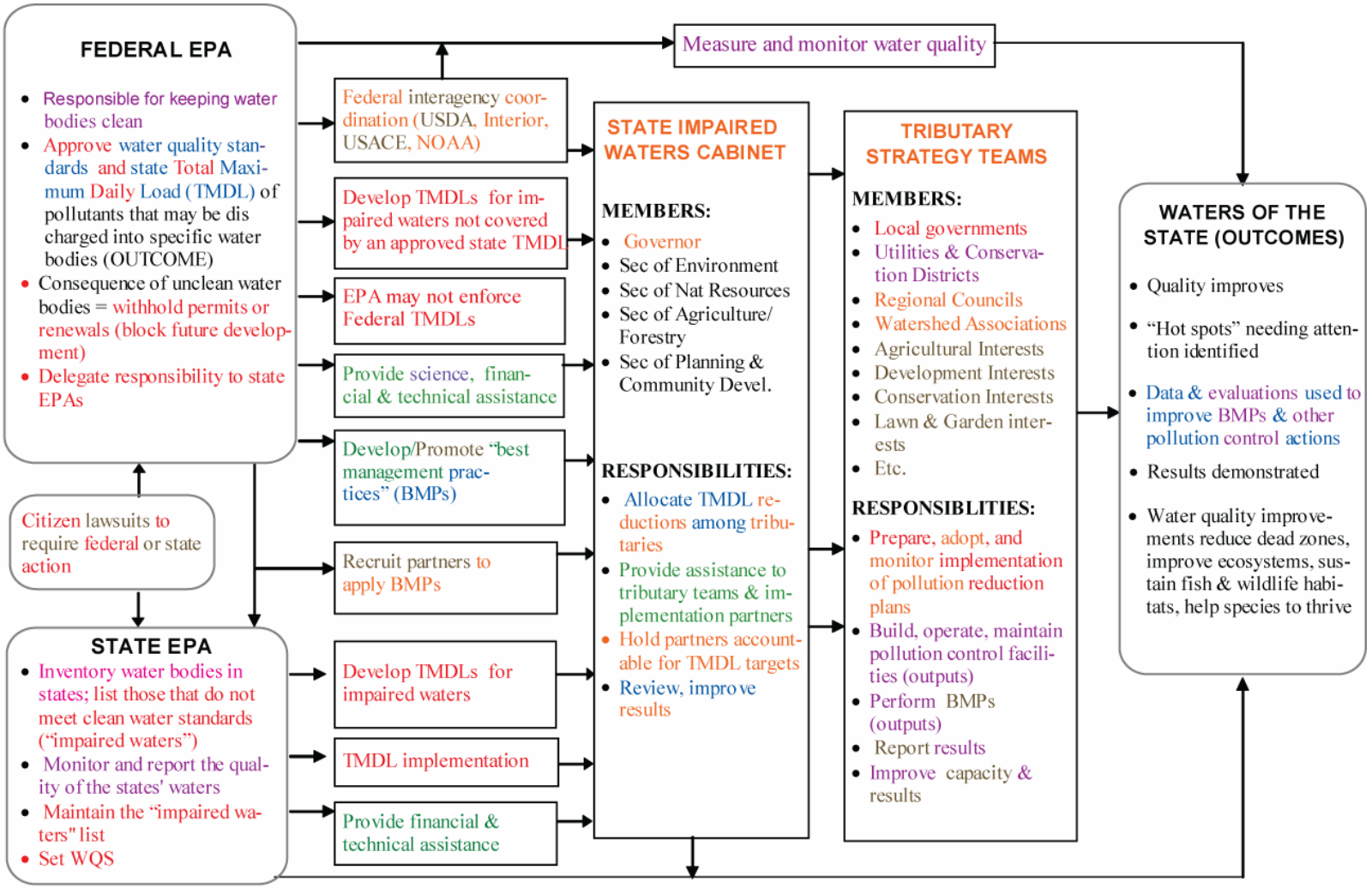


FIGURE 8. The Nonpoint-Source Water Pollution Control Logic is Lightly Used
(but may address as much as 70% of the impaired waters problem in some watersheds)

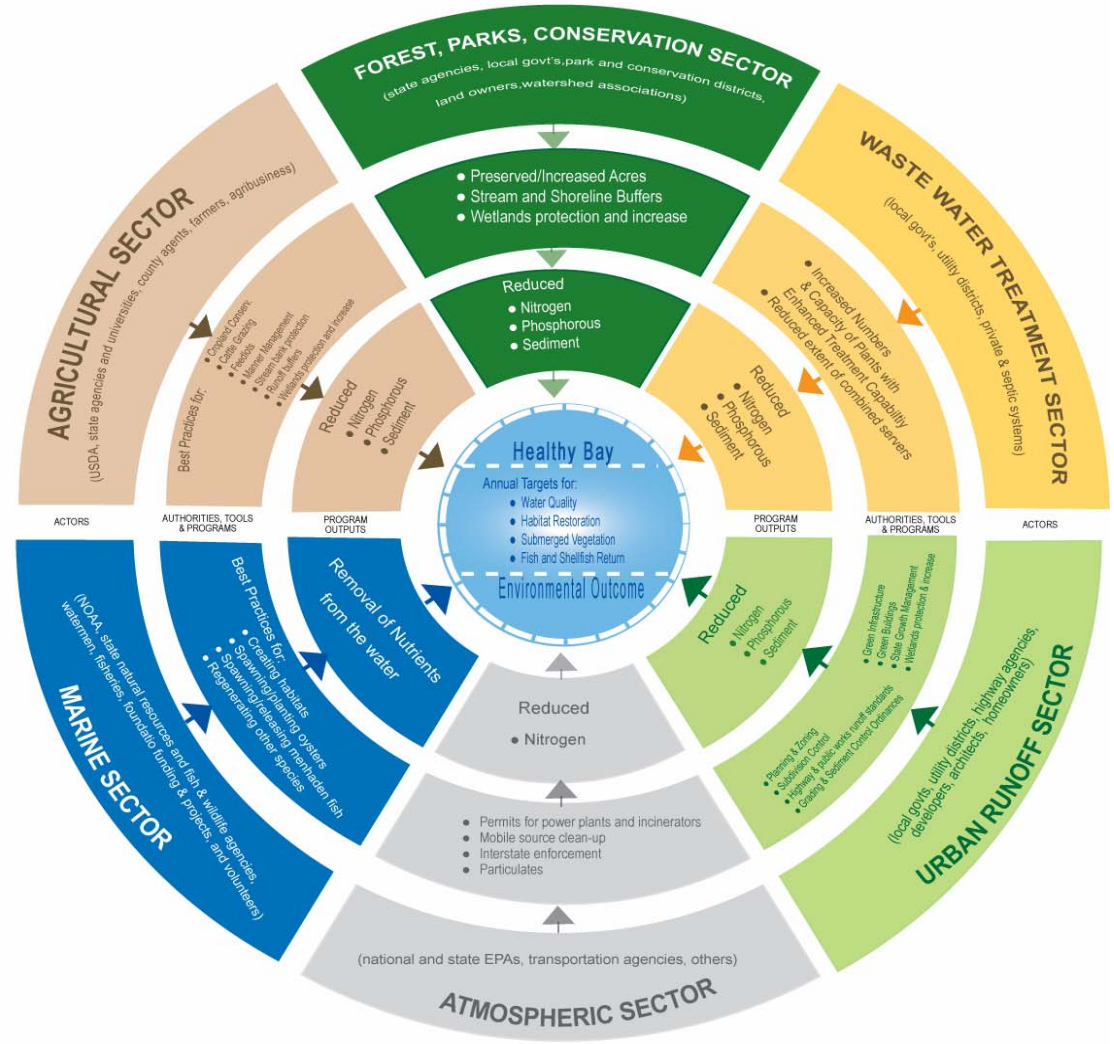


* LEGEND: RED: regulatory/litigation GREEN: financial/technical assistance PURPLE: scientific/research support
BLUE: data/reporting ORANGE: coordination/accountability PINK: direct government BROWN: voluntary action

FIGURE 9. Programs to Clean Up Point Sources of Water Pollution Are Much Easier to Use Than Those to Clean-Up Nonpoint Sources

Program Characteristics	Point-Source Programs	Nonpoint Source Programs
Objectives	Largely "end-of-pipe" water quality (program OUTPUTS)	Ambient water quality (program OUTCOMES)
Sources of Pollution	Comparatively small number, easy to identify	Very high number; difficult to identify
Main Actors:		
EPA	Sets requirements, delegates to states, monitors states	Leverages TMDL and stormwater authority, planning grants, monitors state activities, provides science, establishes & aids collaboratives
Other Fed Agencies	Only if operating own water treatment plant	USDA, Commerce, Interior, DOT, USACE, others
State Involvement	State EPA	EPA, Natural Resources, Agriculture, Fish & Wildlife, Forest, Parks, Planning, Community Level, others
Local Government	Operators of public wastewater treatment plants	Cities, Counties, Towns, Special Districts, Conservation & Park Districts, Regional Councils, others
Business Sector	Industrial wastewater treatment plants	Industry, agriculture, development, construction, lawn & garden, transportation, others
Non-Profit Sector	Minimal other than citizen suits	Litigation, public education, advocacy, fund projects, direct action
Citizen Sector	Voting, public comment on permits	Many behavioral changes
Main Implementation Tools:		
Regulatory	Primary	One of many tools
Financial Assistance	EPA and state grants/loans	Grants, loans, tax incentives, others (from MANY public & private sources)
Technical Assistance	Limited	Essential and multi-facetted
Pollution Credit Trading	New, unfamiliar	New, unfamiliar
Other	Self-regulation including environmental management systems	Large amount of voluntary action
Role of Science	Set standards for permits, monitors discharges	Set policy goals; establish political trust and consensus; monitor performance; calibrate BMPs
Role of Collaboration and Coordination	Limited	Central to success; many cross-jurisdictional relationships
Accountability System	Simple permit compliance	Very complex performance monitoring; ambient conditions measurements; voluntary behavior changes
Public Engagement	Limited, often focused on formal public notice related to permits	Early and regular; essential to success

FIGURE 10. The Composite Logic Model Needed to Produce a Healthy Chesapeake Bay (Clean up its Impaired Waters) is Very Complex



- Applying the two water pollution control program logic models to the Chesapeake Bay yields this composite model.

  - ✓ Many actors must apply their program tools in six different sectors to produce program results (outputs) needed to improve the HEALTH of the Bay (desired outcomes).
  - ✓ Their CUMULATIVE efforts determine how clean (or dirty) the Bay is.
  - ✓ Currently the Bay is too dirty—determined by a Court to be "impaired water" subject to special regulatory actions—and not getting cleaner fast enough.

FIGURE 11. All U.S. States Have Impaired Waters; this is a National Problem

- The total number of impaired waters listed by the states is about 40,000.
- A well organized and targeted effort would be required to get a handle on this huge challenge.

State	Current System Version	# of Waters Listed	State	Current System Version	# of Waters Listed
PENNSYLVANIA	2004	6957	MICHIGAN	2004	379
NEW HAMPSHIRE	2004	5192	TEXAS	2002	299
WASHINGTON	2004	1714	CONNECTICUT	2004	267
MINNESOTA	2004	1500	HAWAII	2004	241
IDAHO	2002	1392	LOUISIANA	2004	234
KANSAS	2002	1367	IOWA	2004	213
VIRGINIA	2004	1353	NORTH DAKOTA	2004	211
INDIANA	2004	1320	MAINE	2002	201
OREGON	2002	1177	MISSOURI	2002	197
TENNESSEE	2004	974	ALABAMA	2004	179
ILLINOIS	2004	952	NEW MEXICO	2004	175
NEW JERSEY	2002	899	VERMONT	2002	173
WEST VIRGINIA	2004	889	UTAH	2002	166
FLORIDA	2002	827	SOUTH DAKOTA	2004	165
NEW YORK	2004	792	NEBRASKA	2004	150
MASSACHUSETTS	2002	775	RHODE ISLAND	2004	148
KENTUCKY	2004	736	WYOMING	2004	129
SOUTH CAROLINA	2002	713	ARKANSAS	2002	103
CALIFORNIA	2002	686	NEVADA	2002	99
NORTH CAROLINA	2002	630	PUERTO RICO	2004	86
WISCONSIN	2004	613	COLORADO	1998	79
MONTANA	2002	527	ARIZONA	2004	66
MISSISSIPPI	2002	490	VIRGIN ISLANDS	2004	51
MARYLAND	2004	473	ALASKA	2004	35
GEORGIA	2002	447	DISTRICT OF COLUMBIA	2004	17
OKLAHOMA	2002	436	GUAM	1998	3
OHIO	2004	428	N. MARIANA ISLANDS	1998	2
DELAWARE	2004	379	AMERICAN SAMOA	1998	1

FIGURE 12. Organizing and Energizing Partnerships is the Only Way to Restore Many Impaired Waters

- The Chesapeake Bay program has established water pollution control partnerships at the multi-state, state and sub-state levels to help bring all the essential actors—and their implementation tools—together to restore the Bay's waters to a healthy condition.

- At the multi-state level, the collaborative process works mainly through a series of committees that drive and implement restoration efforts:

  - ✓ Committees that govern the Bay Program and guide policy changes
  - ✓ Advisory committees that provide external perspectives on current issues and events
  - ✓ Subcommittees that work internally to coordinate restoration activities

Multi-State
Chesapeake Bay Program Organization Chart

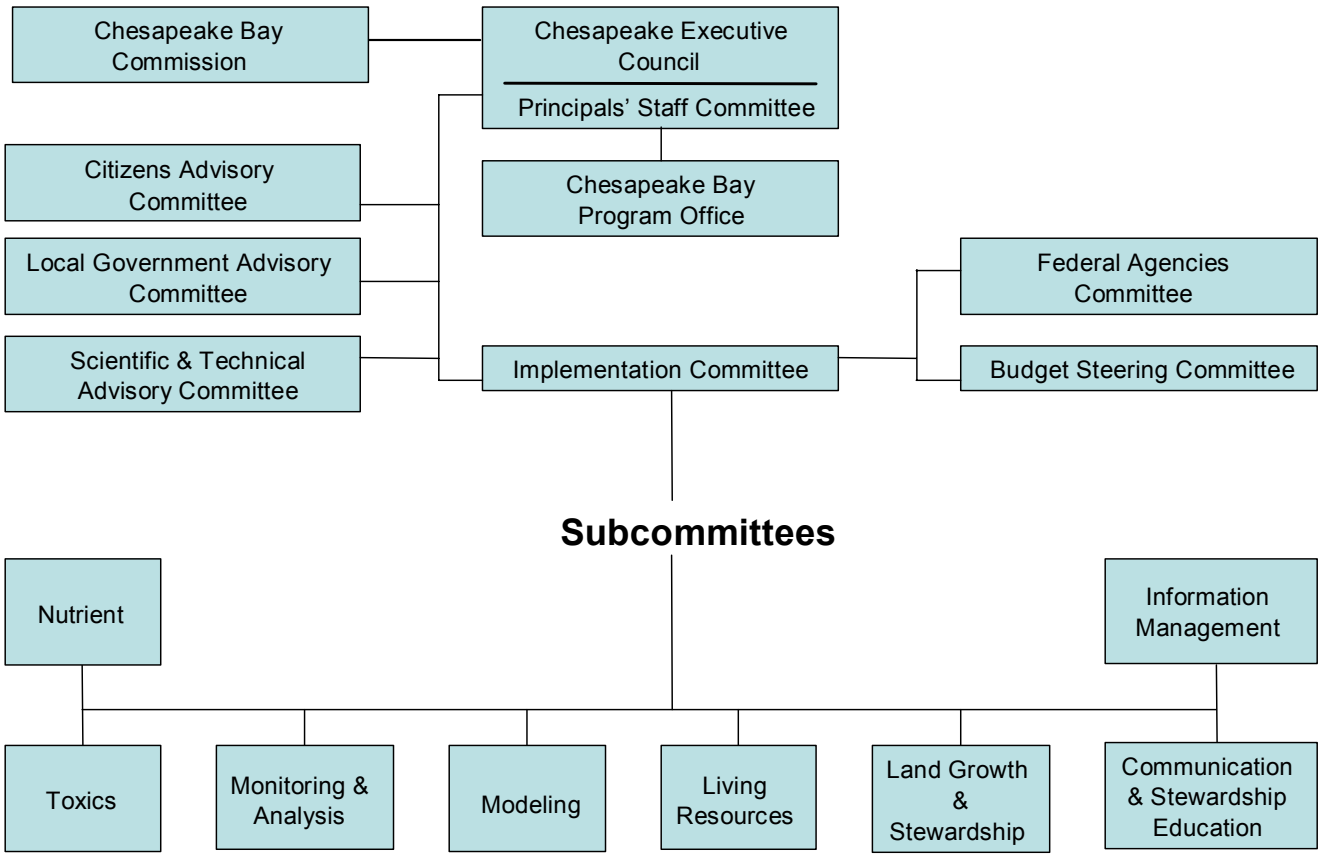


FIGURE 13. Partnerships at the State Level are Vital to Enabling Success

- A Chesapeake Bay example of organizing at the state level to meet Bay clean-up goals is the Maryland Governor's Bay Cabinet. It dates back to 1985 and consists of the department secretaries of:

  - ✓ Natural Resources
  - ✓ Environment
  - ✓ Planning
  - ✓ Agriculture

- This special Cabinet group:

  - ✓ meets regularly
  - ✓ coordinates Bay clean-up activities in the state to meet specific nutrient and sediment reduction goals the state has been given
  - ✓ assists the Governor with Bay-related policy and legislative initiatives

- Recently the Cabinet has also begun to lead the statewide and sub-state Tributary Strategy implementation.

- Maryland's Bay Cabinet has some similarities to the Washington State Governor's Puget Sound Action Team.

FIGURE 14. Partnerships Within the States are Essential to Success

- **Tributaries**: Each state identifies sub-state tributaries.
  - ✓ 36 in the Chesapeake Bay Watershed
  - ✓ Each one is allocated a share of the state's water clean-up goals and targets.
- **Tributary Strategy Teams**: Each tributary has a strategy team to:
  - ✓ Prepare a pollution reduction implementation plan to meet assigned goals
  - ✓ Promote implementation actions (optional)
  - ✓ Could become a watershed-wide TMDL (700 regional TMDLs vs. 40,000 individual TMDLs)
- **Deficiencies**: Strategy teams are not accountable for results:
  - ✓ No independent existence
  - ✓ No legislated responsibilities or authority
  - ✓ No staff or resources
  - ✓ Team members are volunteers
- **Institutionalize**: Urgent need to give each strategy team an accountable organization to:
  - ✓ Promote implementation of the plan
  - ✓ Report accomplishments
  - ✓ Provide accountability for partners to meet pollution reduction targets

FIGURE 15. Effective Tributary Strategy Institutions are Urgently Needed

❖ Tributary Strategy institutions could take may forms. Here is one form that would make good use of existing organizations.

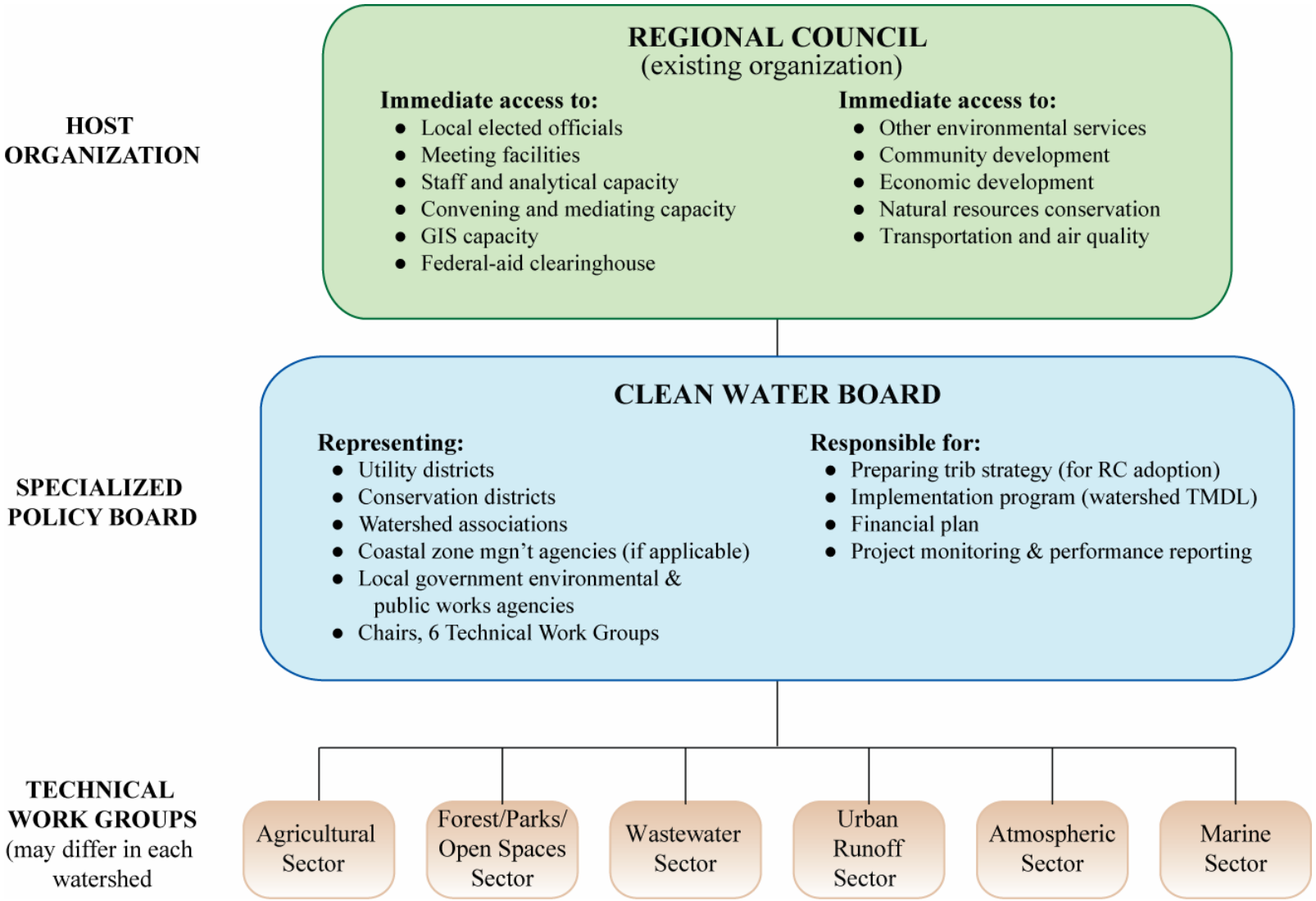
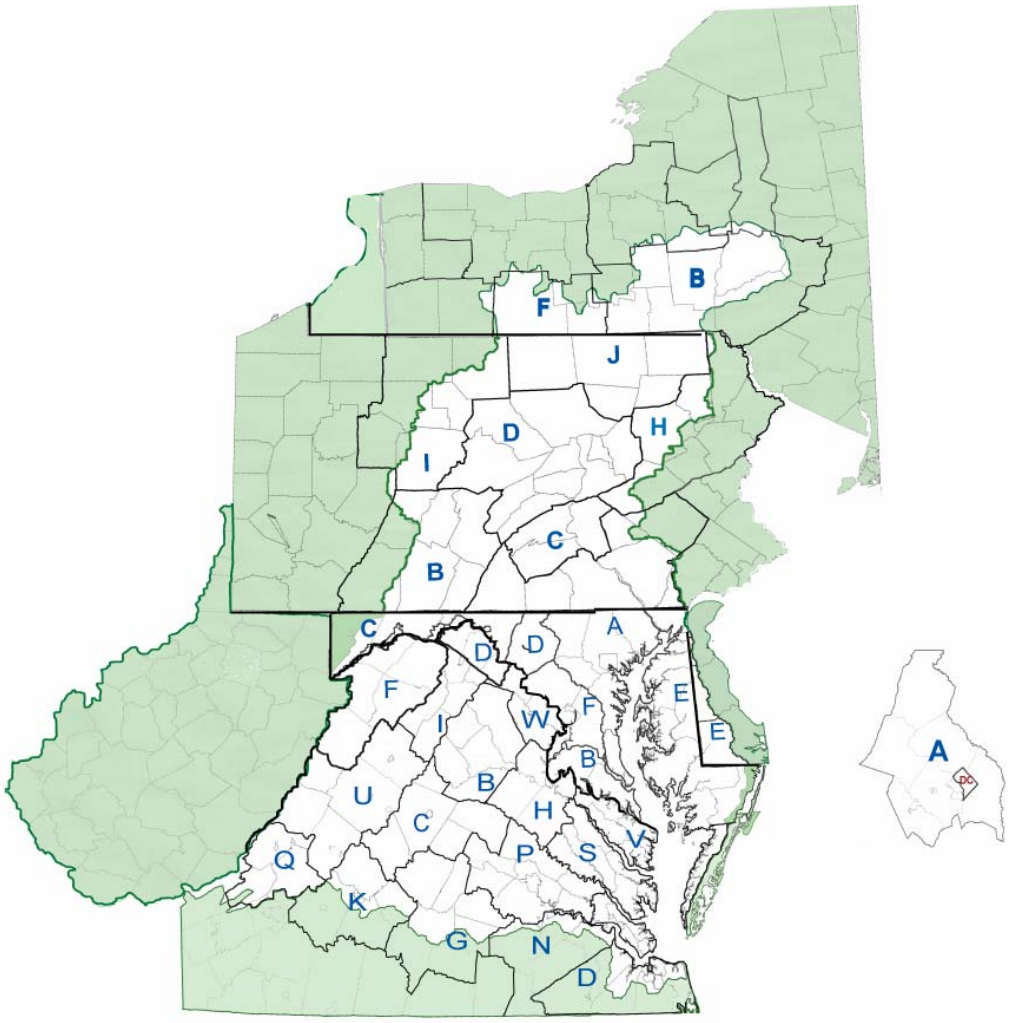


FIGURE 16. Regional Councils Can Help, and are Available Almost Everywhere

❖ Here are the Regional councils in the Chesapeake Bay Watershed



New York
- B. Southern Tier East Regional Planning & Development Board
- F. Southern Tier Central Regional Planning & Development Board

Pennsylvania
- B. Southern Alleghenies Planning and Development Commission
- C. Tri-County Regional Planning Commission
- D. SEDA Council of Governments
- H. Northeast Pennsylvania Alliance
- I. North Central Pennsylvania Planning and Development Commission
- J. Northern Tier Regional Planning and Development Commission

Maryland
- A. Baltimore Metropolitan Council
- B. Tri-County Council for Southern Maryland
- C. Tri-Country Council for Western Maryland
- D. Frederick County council of Governments
- E. Delmarva Advisory Council
- F. Metropolitan Washington Council of Governments

Delaware
- E. Delmarva Advisory Council (portions of Delaware, Maryland, and Virginia)

West Virginia
- D. Eastern Panhandle Regional Planning and Development Council
- F. Region VII Planning and Development Council

Virginia
- B. Rappahannock-Rapidan Planning District Commission
- C. Thomas Jefferson Planning District
- D. Hampton Roads Planning District Commission
- G. Piedmont Planning District Commission
- H. Rappahannock Area District Commission
- I. Lord Fairfax Planning District Commission
- K. Region 2000 Regional Planning Commission
- N. Crater Planning District Commission
- P. Richmond Regional Planning District Commission
- Q. Roanoke Valley-Alleghany Regional Commission
- S. Middle Peninsula Planning District Commission
- U. Central Shenandoah Planning District Commission
- V. Northern Neck Planning District Commission
- W. Northern Virginia Regional Commission

District of Columbia
- A. Metropolitan Washington Council of Goverments

SOURCE: National Association of Regional Councils. *Regional Councils in the United States 2001-2002 Directory*

FIGURE 17. EPA Assists the Watershed Approach in Many Ways

Funding:

- Chesapeake Bay Study Money (1983)
- National Estuary Program (1987)
- Section 319 NPS Grants (1987; strengthened in 2002)
- Chesapeake Bay Small Watershed Grants Program (1998)
- Chesapeake Bay Cooperative Tributary Basin Strategy Grants (2000)
- NEP Small Grants Programs
- Sound Futures Fund (Long Island)
- NOAA Sea Grants
- U.S. Fish and Wildlife Service Grants
- NSF Grants
- EPA Education Grants
- River Networks Watershed Assistance Grants (for watershed associations)
- OWOW's Watershed Financing Team

Policies and Publications:

- Established OWOW (1991)
- Management Conference (estuaries)
- Management Plans/Commitments (estuaries)
- Local Government and Citizen Advisory Committees (estuaries)
- Draft Watershed Planning Handbook (2006)
- EPA Guide, "Community Culture and the Environment"
- Methods to Develop Restoration Plans for Small Urban Watersheds (10 others in this series)
- Community Watershed Forums: A Planners Guide
- Community Action for a Renewed Environment (CARE) Program

Management and Data Tools:

- Web-based GIS Tools
  - ✓ Enviro Mapper for Water
  - ✓ Water Quality Exchange
  - ✓ Planning Tool for Civic Groups (Fall 2006)
- Chesapeake Bay's Citizens Monitoring Program (1987)
- Guidance on Watershed TMDLs (internet)
- Guidelines for 305(b) State Reports
- Interagency National Water Quality Monitoring Council

Training, Technical Assistance, and Capacity- Building:

- Watershed Academy (1994)
- Management Development Centers
- Web-based Training (1996)
- Webcasts
- The Center for Watershed Protection
- National Watershed Health Project
- Ocean Conservancy
- Cooperative Extension Service

Networking, Communication, and Education:

- Watershed Associations (and newsletters)
- Center for Chesapeake Communities
- River Network
- Restore America's Estuaries Coalition
- National Fish and Wildlife Foundation
- Izaak Walton League
- Alliance for the Chesapeake Bay
- National Civic League
- League of Women Voters
- Annual River Rally
- Watershed Innovations Workshops
- ICMA
- EPA's University-Based Network of Environmental Finance Centers
- Biennial National Citizen's Monitoring Conferences
- EPA National Survey and Directory of Monitoring Groups
- The Volunteer Monitor (national newsletter)
- EPA Office of Environmental Education (1990)
- National Environmental Education and Training Foundation
- National Environmental Education Advisory Council
- Environmental Education and Training Partnerships
- North American Association for Environmental Education

SOURCE: Carmen Sirianni (September 2006), "Can a federal regulator become a civic enabler? Watersheds at the U.S. Environmental Protection Agency." *National Civic Review*

FIGURE 18. Science is Essential

- Recognized science is essential to "impaired waters" clean-up efforts.
  - ✓ Identifies sources and amounts of pollution
  - ✓ Measures water quality in water bodies
  - ✓ Equates pollution to unhealthy conditions in the water body
  - ✓ Enables clean-up goals and targets to be established and allocated among diverse partners
  - ✓ Quantifies clean-up results of using Best Management Practices (BMPs)—so that the overall effect of complex, multiparty clean-up implementation plans can be calculated and totaled
- Without these metrics, clean-up of impaired waters would be impossible.

FIGURE 19. "Healthy Waters" Partnerships Should Optimize the Roles of Diverse Actors

❖ Recognize and fully utilize optimal roles of diverse actors.

Optimal Federal Roles

- Provide science
- Support coordination institutions
- Innovate and promote effective BMPs
- Provide a national reporting system
- Provide regulatory and non-regulatory implementation tools
- Provide financing, technical assistance and capacity building

Optimal State Roles

- Activate cleanup cabinet
- Enact interagency environmental cleanup budget
- Exercise permit powers
- Provide adequate and sustainable finance package
- Support and sustain active "tributary strategy" institutions
- Enable regional councils, growth management programs, and adequate environmental powers for local governments and districts
- Provide performance data

Optimal Local Government Roles

(including utility and conservation districts)

- Exercise land use planning and growth management powers
- Exercise development controls
- Build and operate sewage treatment plants and storm drainage facilities
- Provide other public works, parks, open space, tree planting
- Administer green building codes and green infrastructure codes
- Provide dedicated local permit fees and service charges
- Participate in regional councils
- Support conservation districts
- Provide performance data

Optimal Roles for Civic and Non-Profit Organizations

- Generate public information and social marketing
- Provide technical assistance and capacity building
- Advocate clean-up practices and laws
- Leverage public funding

Optimal Roles for Business

- Adopt environmentally friendly practices (including agribusiness)
- Support civic sector
- Foster green development, buildings, and products
- Go beyond minimum compliance

FIGURE 20. The Academy Panel Draws Six Conclusions and Makes Findings

❖ EPA faces six great challenges. They grow largely out of the need to clean-up ambient environmental conditions, not just large single sources of pollutants. This shift in emphasis makes EPA's job much more difficult—and different—than in the past.

Challenge One: Addressing the Complexity of Meeting Ambient Environmental goals

To meet this challenge, EPA will need to use a much broader range of implementation programs and engage a much wider range of implementation partners.

Challenge Two: Mobilizing Multiple Programs, Federal Agencies, State and Local Governments, and Other Parties To Meet Ambient Environmental Standards

Programs that target nonpoint sources of pollution need to be more fully developed and deployed, and brought to a level of maturity, funding and priority more nearly equal to the programs that target point sources. Much of the groundwork has been laid to support this upgrade.

Challenge Three: Filling the Widening Gap in Funding Environmental Programs

Many environmental programs have identified what needs to be done to meet clean-up standards. What's holding them back is a lack of funding. The funding gap is widening, not narrowing.

Challenge Four: Filling the Tools and Authority Gap

The "tools of government" needed to implement environmental changes are well known, and new ones are being developed all the time. Mainstreaming more of these tools could go a long way toward meeting the currently unmet needs.

Challenge Five: Adapting Management Techniques to Focus on Outcome Goals

Managing for results requires much more data, better data, and more timely data than traditional management systems produce. EPA's National Performance Partnership System (NEPPS) has been under development for over a decade, but still needs more work.

Challenge Six: The Need to Examine Alignment in Multiple Program Areas

The specific recommendations in this report are for water pollution control programs. But, it is likely that other EPA programs need similar improvements. The approach used in this study could be helpful in improving other federal programs.

FIGURE 21. The Academy Panel Makes Eight Recommendations

Recommendation 1: EPA as a Partnering Agency

EPA should strengthen its position as a partnering agency for purposes of enhancing all its programs, both regulatory and non-regulatory. This is especially important for non-regulatory programs.

Recommendation 2: Healthy Waters Comprehensive Approach

EPA should establish a more systematic and holistic intergovernmental approach to cleaning up the ever-increasing number of listed impaired waters throughout the nation. This approach should bring nonpoint programs up to par with point-source programs.

Recommendation 3: Effective Coordination Mechanisms to Support Partnerships

EPA should encourage and support the intergovernmental coordinating bodies needed to ensure that regional initiatives can effectively accomplish established water pollution reduction outcomes.

Recommendation 4: Scientific Research and Data

EPA should preserve its commitment to scientific research and data as a basis for policymaking and evaluation.

Recommendation 5: Adequate and Sustainable Funding

EPA should work with the state and local governments, and others, to put the financing of environmental services on a more adequate and sustainable path, by: broadening the purposes and revenue sources of the State Revolving Fund program; developing models and guidelines for dedicated fee-based systems; providing leadership for pollution credit-trading; partnering with other federal agencies; and working with Congress.

Recommendation 6: Access to Innovation

Innovative programs should be made readily available more quickly to policymakers, program directors, and implementation organizations.

Recommendation 7: Performance and Results

EPA should continue to improve its outcome-oriented performance management systems by incorporating timely new accountability mechanisms for inputs, outputs and outcomes provided by both traditional and non-traditional partners.

Recommendation 8: Examine Alignment in Other Federal Programs

EPA and other federal agencies should re-evaluate the alignment of partners, tools, and coordinating mechanisms within their partnership programs, using the analytical framework developed for this study.

FIGURE 22. Environmental Partnerships Should Apply Six Principles of Effective Consultation

❖ Collaborative skills are profoundly important to success.

SIX PRINCIPLES OF EFFECTIVE CONSULTATION

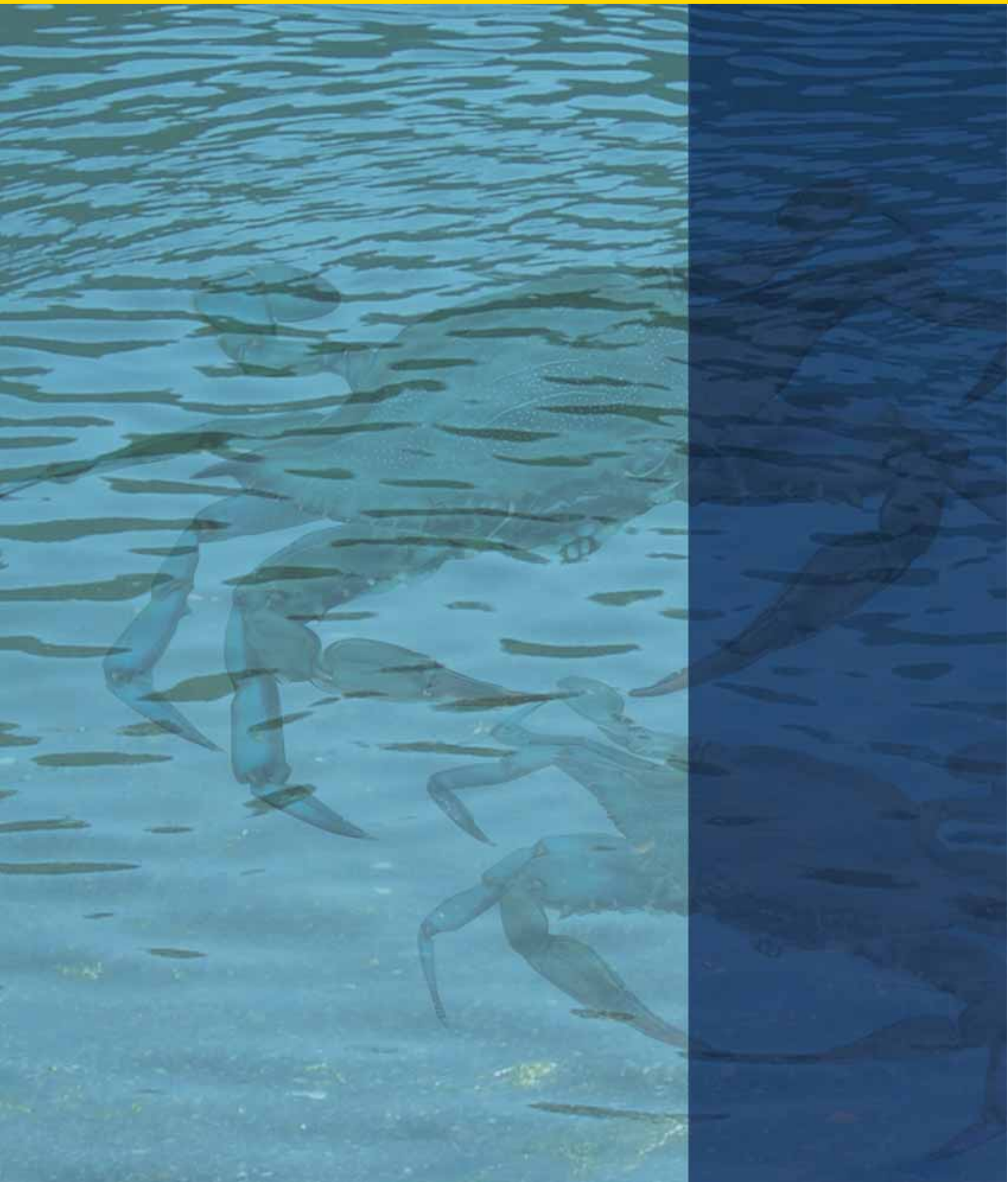
1. Inclusive and well known process
2. Stakeholders assisted to participate effectively
3. Two-way information exchange
4. Timely access to decisionmakers and timely feedback to stakeholders
5. Satisfaction with the process
6. Influence on results

SOURCE: National Academy of Public Administration, *Rural Transportation Consultation Processes,* May 2000.

FIGURE 23. Federal Mangers of Community-Based Programs Should Apply the Following Principles

- Many federal managers are not equipped to participate in collaborative processes. Yet, effective participation by them is critical to the partnership's success.
  - ✓ Recognize that success will be bottom-up, not top-down
  - ✓ Use a community-based management forum to involve all stakeholders
  - ✓ Get a state, local or non-governmental organization to sponsor the forum
  - ✓ Tailor the forum to meet the federal purpose as well as local needs
  - ✓ Be forthcoming about what the federal government can and cannot do
  - ✓ Expedite the process by keeping it simple
  - ✓ Understand the different roles of advocates and others
  - ✓ Treat all participants with respect
  - ✓ Use professional facilitators
  - ✓ Provide technical analyses that all can trust
  - ✓ Limit research to essential questions that require more information
  - ✓ Frame issues to produce timely decisions
  - ✓ Consider only options that would be practical to implement
  - ✓ Seek short-term accomplishments

SOURCE: National Academy of Public Administration, *Principles for Federal Managers of Community-Based Programs,* August 1997.



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