

SHARED WATERS & COMMON GOALS

*Enhancing Partnerships
in Water Quality
Monitoring and
Decision-making*

**Report on the Regional Conference
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Bedford, New Hampshire**

by

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Executive Summary

For more than a decade, the New England Land Grant Universities have individually been at the forefront of efforts to involve citizen volunteers in scientifically-based monitoring efforts that contribute to solving significant state and national problems. Despite these separate successes, significant difficulties remained in responding to the changing New England-wide water resources information needs either through conventional agency approaches or through use of citizen monitors. For the governmental agencies, declining funding levels have forced significant reductions in monitoring. For citizen monitoring, reliability and credibility were still major challenges. In the belief that it is desirable to have watershed-based citizen monitoring programs in all six New England states that collect, synthesize, and deliver scientifically-credible information to water resources decision-makers at all levels and to water resources protection and restoration programs, the Shared Waters - Common Goals conference was held in 1993. Planning for the conference focused on bringing together a diverse group of water resources participants, some less certain of the role of citizen monitoring than others.

Using the facilitated discussion process, the conferees, separated into groups based on their affiliations, developed a consensus on the most important barriers to reaching the desired state of citizen monitoring activity. Although the lists are detailed, nine major barriers were considered for further discussion of possible solutions. The top four barriers (supported by 77% of the votes were 1) lack of standardization, 2) lack of integration with broader purposes, 3) funding, and 4) data use and credibility concerns.

Solutions to these nine problem areas were addressed by six breakout groups with mixed affiliations and geographic interests. These cannot be briefly summarized because the solutions were not always ranked by the groups, the solutions proposed are not equally appropriate in all states, and the groups varied in style of analysis with some choosing to list a variety of solutions and others developing action plans focusing on a select few solutions.

The one day format of the conference made it impossible for the participants to advance to the next step of suggesting actions to be taken by various groups. Also, the conference planners felt that such action plans might be fairly specific to each state. Participants were told that individual state conferences were planned as the next step. Over half the participants, in their conference evaluations, identified major areas for future action. Twenty action items were mentioned. Regional networking was identified as the most important future action item by 58% of the respondents. Immediate Federal action and a conference report were the next in preference with 25%. Funding support, a variety of state actions and improved watershed coordination each garnered responses from 18% of the respondents.

In this report, it is recommended that state conferences should be held for the purpose of broadening involvement in the process of identifying specific actions to be taken and who should take them. It is further recommended that a regional electronic bulletin board be created to facilitate improved communication among those interested in citizen monitoring.

Acknowledgements

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The Water Resources Institutes in Maine, Massachusetts, New Hampshire, and Connecticut, Cooperative Extensions in Maine, New Hampshire and Rhode Island, River Watch Network and Vermont Dept. of Environmental Conservation generously provided the time and expenses for the organizing committee. Without the encouragement and support of the Council of Presidents, the conference would not have been possible.

Lastly, we thank the participants who took time from their busy schedules to explore citizen monitoring in New England and seek new ways to improve our knowledge of the environment. Their enthusiasm made the conference discussions interesting, stimulating and occasionally surprising to even the most veteran of citizen monitoring experts and convinced us of the timeliness of the conference.

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Introduction

For more than a quarter of a century, we have attacked water pollution problems from the top down, the command and control strategy, often using advanced technology and building structures to clean up the problems. Although that approach was successful in producing major improvements in water quality, we now find a significant residual that does not respond to that approach. Like most cleanups, the cheapest solutions were enacted first. What is left is either very expensive or impossible to solve in the same manner that we used before.

Money is just a little harder to find nowadays, too. A general mistrust of government expenditures has developed in the citizenry - perhaps it was the excesses of the 80s, the pervasive drumbeat about reducing government, grandiose promises of something for nothing, flagrant failures of government, imposed solutions with insufficient opportunity for input, or other causes, but whatever the cause there is now little willingness to contribute more money for government projects, even one so desirable as clean water. As the economy has declined and the deficit skyrocketed, federal, state, and local governments, industry and individuals have been forced to shift more funds to deficit reduction, health care costs, and social welfare costs and away from basic water quality programs. The result is fewer staff and little money to deal with increasingly more difficult problems.

In the midst of these depressing trends, there has been a bright light. While some of the "me generation" were trying to grab it all for themselves with little thought for future generations, others were recognizing and accepting personal responsibility for protecting and improving environmental quality. These groups have sprung up all around the country. United by a common concern - a lake, a river, a watershed, a beach, an estuary - these citizen groups are all highly motivated, energetic and well-intentioned. Although early groups may have been more easily characterized as environmental protesters, engaging in activities that placed them in opposition to the governmental agencies historically charged with environmental protection, the last decade has seen a greater level of sophistication develop around a desire to gain more knowledge about their environment and to work together with professionals. With the awareness of an information need often comes a desire to monitor. But monitoring places greater demands on the groups for technical expertise, sufficient funds, organizational skills, and ability to convert data into understanding and communicate that to others. In some cases, the groups fail because they cannot meet these needs, but in many cases the necessary assistance is found or created.

In 1988, the first national effort to bring such groups together was made by a few of our present conference participants. Since then two other national conferences have been held and each time the number of citizen monitoring groups attending has increased by leaps and bounds. Hundreds of groups nationwide attended the last meeting and many hundreds of others either did not hear of the conference, could not afford the travel expense, or simply had to be turned away because the capacity of the conference was exceeded. Recognizing the importance of this movement, EPA's Office of Water has created an office to provide assistance to citizen monitoring groups. Many of the bills currently being considered by Congress, reauthorization of the Clean Water Act, Non-Point Source Pollution, etc. contain reference to citizen monitoring. This phenomenon is here to stay and ours to use wisely or waste depending on our choices and actions.

The potential of armies of citizen monitors for becoming more knowledgeable about their environment, being constantly vigilant for water quality deterioration in ways that agency personnel never could be, acting as grass roots advocates for local environments, and providing quality data for management and policy decisions at the municipal, state, and national level is becoming recognized. But there are many barriers to achieving this potential. They include: lack of technical expertise, inadequate funding, and poor organization, concerns about data quality and data misuse, fears of losing the little remaining support for professionals or of increasing polarization over water quality issues, uncertainties of how to create, manage and maintain volunteer efforts, and many others. It is these barriers that we wished to explore at the Shared Waters & Common Goals conference with a broad cross-section of individuals involved in environmental protection in the belief that sharing their experience and ideas would provide some suggestions for how to proceed in a positive way that would produce the greatest benefit for the environment.

Conference Planning

In 1991, the New England Land Grant Universities Council of Presidents (NELGUCP) sought to promote the capability of the New England public universities to respond to the needs of the region by supporting a series of conferences. One priority topic was the improvement of water quality in the region. As chair of the New England Council of Water Resources Institute Directors and director of the state-wide Acid Rain Monitoring Project, Paul Godfrey was familiar with the many efforts of the New England public universities to provide technical expertise and organization to many citizen monitoring efforts and the difficulties that such efforts frequently encountered. A common problem encountered by nearly all efforts was the difficulty of convincing water quality professionals of the potential available through citizen monitoring and the degree to which their concerns had been addressed by successful projects. NELGUCP support made it possible to both increase the awareness of these efforts and to expose and resolve some of the difficulties and concerns that had been experienced in developing citizen monitoring.

Godfrey assembled an organizing committee to develop the details of the conference, identify key participants and conduct the conference.

Conference Organizing Committee

- ! Paul Godfrey, Massachusetts Water Resources Research Center, University of Massachusetts
- ! Thomas Ballestero, New Hampshire Water Resources Research Center, University of New Hampshire
- ! Nicholas Houtman, Maine Water Resources Program, University of Maine
- ! Eileen Jokinen, Connecticut Institute of Water Resources, University of Connecticut
- ! Jeffrey Schloss, Cooperative Extension, University of New Hampshire
- ! Linda Green, Cooperative Extension, University of Rhode Island
- ! Esperanza Stancioff, Cooperative Extension, University of Maine
- ! Jerry Schoen, Massachusetts Water Watch Partnership, University of Massachusetts
- ! Geoff Dates, River Watch Network
- ! Amy Picotte, Vermont Dept. of Environmental Conservation
- ! Neil Wylie, Council of Presidents, New England Land Grant Universities

The organizing committee met monthly throughout most of 1993. Their goal was to devise a format that would differ markedly from prior citizen monitoring conferences that mostly served as vehicles for citizen monitoring coordinators to share information and techniques. This conference was to encourage a free exchange of ideas and concerns between current users of citizen monitoring with those who were still skeptical. The format was to encourage participation by both groups in a manner that all comments and opinions could be voiced equally. Organizers decided to hand select the participants in order to provide balance among

several groups and across all New England states. Participants were broadly characterized into six groups, each with existing or potential interest in citizen monitoring. A one day conference was selected so that participants would be more likely to attend; a longer conference would have permitted fuller discussion but at the considerable risk of discouraging attendance by those not familiar with citizen monitoring or too busy to spare that large a block of time.

- | Participants | |
|--------------|--|
| ! | Coordinators of water quality monitoring programs |
| ! | Legislators and their staff |
| ! | State and Federal agency staff |
| ! | Representatives of local government associations |
| ! | Representatives of business and professional organizations |
| ! | University faculty and staff |

The organizers agreed that it was critical that the conference format be designed to elicit the free exchange of issues. A series of presentations on the results of citizen monitoring efforts had some merit but did not provide sufficient opportunity for conflicts and concerns to be discussed. However, because many participants would not be very familiar with existing efforts, a small portion of the program was planned as an introduction to citizen monitoring in New England. The initial portion of the conference sought to increase the familiarity of the participants with existing citizen monitoring efforts and to develop a regional and national context for the following discussions. Mr. Daniel Ashe, senior staff to Representative Gerry Studds of Massachusetts, was invited to speak on recent developments in the reauthorization of the Clean Water Act and specifically about the views of Congress toward citizen monitoring. Three organizers were to present brief case histories of citizen monitoring efforts in each of three watershed types: rivers, lakes, and estuarine. Most of the conference was reserved for workshops to discuss barriers and solutions.

Many on the organizing committee had recently participated in facilitated discussions which structure discussion so that all participants have an equal voice in developing items and, through a voting process, the group prioritizes their list. Facilitated discussions offered the possibility of avoiding monopolized discussion and opinion polarization while bringing the discussion to closure in a manner that allows several such discussions to be combined. This approach was chosen for the workshops. Each workshop was to have a facilitator and recorder. One planning session was devoted primarily to instructing facilitators in the conduct of their workshops.

Organizers believed the diversity of participants might inhibit some from full participation. But, they further thought that a wide range of citizen monitoring experience among essentially similar agencies would encourage participants to evaluate specific barriers in their own group without as much inhibition as they might have in a random selection of participants. For this reason the first set of

workshops to develop the prioritized list of barriers to citizen monitoring assembled participants according to their membership in one of the six participant groups listed above. In the second set of workshops, focused on solutions, we purposely mixed the groups so that solutions might be a consensus of different viewpoints.

Organizers from each state developed a list of participants to invite which was refined by the overall organizing committee based on the desire to have rough parity in numbers from each group and from each state while limiting the total number of participants to that which could be managed in the facilitated discussion format. Invitations were sent out and followed by telephone calls from the organizing committee members in each state. Participants at the conference are listed in the Appendix.

Before breaking up into workgroups, the participants were instructed in the process of facilitated discussion workshops. They were also given the objective of their discussion, "the desired state." Intentionally, no opportunity was given to discuss whether this was an appropriate objective or whether the wording was acceptable to all. Objections or difficulties with the desired state would surface as barriers in the workshops.

DESIRED STATE

Watershed-based citizen monitoring programs in all six New England states that collect, synthesize, and deliver scientifically-credible information to water resources decision-makers at all levels and to water resources protection and restoration programs.

Process of Facilitated Discussion

The participants broke up into the six groups by affiliation for facilitated breakout sessions to explore and rank the barriers to achieving the desired state. Each participants name tag had colored stickers to indicate which workshop they should attend. Preselection of workshop participation permitted us to assure balanced attendance among groups and states. Each workshop group had a facilitator and recorder. The facilitator described the process to the workgroup and asked that each compile a list of perceived barriers to the use of citizen monitors. The facilitator solicited from each participant in turn one barrier at a time, beginning with the highest priority one for that participant, and going around the room repeatedly until all barriers were listed. The recorder helped to clarify and shorten the comments to fit on flip charts. Neither the facilitator nor recorder were allowed to suggest barriers, steer the discussion or clarification, or make major wording changes without the acceptance of the participant offering the item. The facilitator, after completing the list, asked if there were redundant listings or if some might be combined. The participants offered simplifications, but always with the approval of the person offering the original item. Following simplification, the workgroup participants were given cards and a fixed number of tokens and instructed to choose their highest priorities and vote for them by placing tokens next to the item. Participants could evenly distribute their votes, one per item, give one item all tokens, or any combination between. Cards were collected by the recorder and tallied. The voting outcome was listed for the workshop group.

While the participants were eating lunch the organizing committee compiled the results of the six workshops, weighting scores to give equal weight for workshops with slightly fewer participants, and preparing a presentation of the combined results. After lunch, each facilitator presented to the full group the results of that workshop and a summary of the discussion. When all six had been presented, the full group was given the combined voting results. The top six vote-getting barriers were selected as the topics for the afternoon workshops on solutions. Each workgroup was charged with developing a prioritized list of solutions for one of the top six barriers, and they were given a second lower priority barrier from the list to discuss if time permitted.

The procedure for the solutions workshops was the same as for barriers: one at a time listing of solutions, simplification, and voting. The workgroups were different. All affiliations and states had balanced representation in each workgroup.

Results of Facilitated Discussion of Barriers

Universities

There were eleven participants in the university group. The complete list of twenty-one barriers developed by this group is shown below, including those that did not receive any votes. Issues of technical support, scientific methodologies and data credibility headed the prioritized list, garnering 45% of the vote and the top three barriers. Combined with other issues of data credibility, this general issue encompassed the majority of concern from this sector. Although not stated by the group, there may have been recognition that technical issues and expertise are an area where universities can best serve citizen monitoring efforts. Next in priority were issues of various support problems such as funding, commitment and communication. Embedded in this group's list is a sense of needed connection to the research interests of academe and the advantage of developing long-term data sets that could be used by the research community.

Prioritized Barriers Identified by the University Group

Vote Percentage	Raw Vote	Barrier
20.0%	8	Necessity of non-volunteer technical support
15.0%	6	Lack of adequate and standard methodologies
10.0%	4	Credibility of data for legal challenge
7.5%	3	Lack of long-term commitment
7.5%	3	Necessity for research support
5.0%	2	Communication and cooperation
5.0%	2	Lack of funding/equitable distribution
5.0%	2	Lack of state agency enthusiasm
5.0%	2	Organized political resistance
5.0%	2	Preconceptions at all levels
2.5%	1	Lack of historical data
2.5%	1	Lack of scientific literacy at decision-making level
2.5%	1	Personality conflicts
2.5%	1	Public lack of understanding of objectives
2.5%	1	Steady supply of monitors
2.5%	1	Unfocused objectives
0.0%	0	Immediacy of decisions vs. long-term ecology
0.0%	0	Lack of publicity for successes
0.0%	0	Limited role for toxics monitoring
0.0%	0	Loss of interest due to lack of creativity
0.0%	0	Threat to publicly funded programs

Federal

Twelve Federal representatives were in this group. Data quality and technical issues were the highest priority and garnered 27.4% of the vote in two data quality issues. Unlike the university group, the federal group introduced a concern for the manner in which data were used or not used. Twenty-seven percent of the vote went for problems with using the data improperly or against existing agencies while 9.8% of the vote seemed to express the opposite barrier - lack of communication between citizen monitoring projects and agencies, presumably including the sharing of data. Lack of resources was the third priority item with 17.6% of the vote, but personnel issues were scattered through other listed barriers: lack of leadership, liability problems, and technical support. This group observed an even more fundamental problem expressed as a conflict between the mandate of many government agencies (regulation) and the interests of citizen monitoring (environmental education, protection, and restoration) and indicated that without modification of agency missions, perhaps through the Clean Water Act amendments, there would be persistent problems in federal agencies providing necessary support. This group also identified the lack of similar prioritization in the educational system. Other concerns focused on "turf" problems - between towns, agencies, and property owners. This group and, to a lesser degree, the state group clearly articulated the need for major legislative, legal and administrative efforts necessary to create the appropriate environment for citizen monitoring.

Prioritized Barriers Identified by the Federal Group.

Vote Percentage	Raw Vote	Barrier
19.6%	10	Need for comparable/compatible sampling, analytical, QA/QC, data handling methods
17.6%	9	Concern about use of data: lack of definition and use against agency
17.6%	9	Lack of funding and human resources
11.8%	6	Lack of leadership to follow through on mission (need Clean Water Act mandate)
9.8%	5	Lack of communication between agencies and between CMPs and agencies
7.8%	4	Skepticism by decision makers about data quality
5.9%	3	Perception that CMPs are threat to property rights
2.0%	1	Agencies major audience does not include CMPs - attitude of entrenched bureaucrats
2.0%	1	Concern about use of data especially in press against agency
2.0%	1	How to handle interstate and intertown waters
2.0%	1	School-based CMPs not given educational system priority
2.0%	1	Statutory basis on environmental regulation rather than environmental education
0.0%	0	Health & safety/liability issues
0.0%	0	Lack of Federal agency involvement in developing CMP goals
0.0%	0	Need for sufficient professional/scientific support for CMP groups
0.0%	0	Needs to be more of a priority
0.0%	0	Notion of "polluter pays" and need for chain of evidence
0.0%	0	Turf battles between agencies

State

The largest participant group was the state representatives with 19. Their highest concern was for funding of both citizen monitoring and state agency efforts (21.9% of the vote), not surprising in light of the fiscal difficulties experienced by New England states recently. Second were data quality, data management, and data credibility issues in two items (25.1%), echoing the barriers selected as high priorities by all except the local government group. A number of barriers identified by this group, more than any other group, were focused on a lack of recognition of the limitations of government and citizen monitors and a lack of clear purpose for citizen monitoring. Included in the listing but not receiving as many votes as in the Federal group were structural problems within and between government and citizen monitoring groups that impede greater involvement.

Prioritized Barriers Identified by the State Group

<u>Vote</u>	<u>Raw</u>	
<u>Percentage</u>	<u>Vote</u>	<u>Barrier</u>
21.9%	14	Lack of funding for CMP and government programs
18.8%	12	QA/QC for methods/data management
12.5%	8	Specific purpose for data
9.4%	6	Citizen understanding of government limitations
6.3%	4	Citizen data misuse and uncertainty of data limitations
6.3%	4	Conflicting objectives of CMPs and state government
6.3%	4	Narrow definition of citizen monitoring
6.3%	4	Professional (scientific and legal) skepticism about data credibility
4.7%	3	Variability of volunteer commitment and motivation
3.1%	2	Mutual communication problems between CMPs and state
1.6%	1	Centralization of government decision-making
1.6%	1	Lack of commitment of state administration
1.6%	1	Lack of municipal interest
0.0%	0	Insufficient numbers and distribution of volunteers
0.0%	0	Long-term and intergroup consistency in all aspects of CMP

Local Government

Associations of local governments represented a more diverse group than the prior three, including water districts, conservation commission associations, interstate agencies, community collaboratives, municipal associations, planning commissions, water supply boards, and conservation districts. There were 11 participants in this group. Their priorities were generally very different from the other participant groups. Technical issues of data quality and credibility were of lower priority. More important to this group were concerns about regulatory reprisal, proper goals and organization, and the difficulty of applying results to their problems coupled with a perceived disinterestedness on the part of town officials. Attempting to interpret this potpourri, one might conclude that local officials know relatively little about citizen monitoring, are uncertain and defensive about how the interaction might develop, and skeptical that citizen monitoring will do more to help solve their local problems than complicate them.

Prioritized Barriers Identified by the Local Government Group

<u>Vote Percentage</u>	<u>Raw Vote</u>	<u>Barrier</u>
20.0%	6	Fear of regulatory reprisal
20.0%	6	Funding - sources and allocation
20.0%	6	Goals and study design not properly identified or carried out
13.3%	4	Finding and keeping enough long-term, qualified, able volunteers
10.0%	3	Validity of data
6.7%	2	Lack of good coordinators
3.3%	1	Difficult to use data for prevention rather than restoration
3.3%	1	Inability to get action to solve problem
3.3%	1	Lack of support by local government officials
0.0%	0	Database not being utilized
0.0%	0	Ignorance/indifference/lack of motivation by everyone/public officials
0.0%	0	Lack of interest in establishing a program
0.0%	0	Volunteers not available to monitor on timely basis

Business/Utility

Participants in the business/utility group were least numerous (9) but included chemical companies, electric utilities, environmental consultants, and farmers. The group was facilitated by Nick Houtmann and recorded by Esperanza Stanziuff. Principal among the barriers listed by this group were a lack of clear purpose and objectives for citizen monitoring and lack of community support. These two barriers straddle the state/federal concerns regarding purpose and the local government concern about local support. Technical issues of standardization and data credibility were next in priority. Organizational and funding issues comprised about 23% of the vote.

Prioritized Barriers Identified by the Business/Utility Group

Vote	Raw	
<u>Percentage</u>	<u>Vote</u>	<u>Barrier</u>
23.4%	11	Program purpose and objectives
23.4%	11	Community support before and after monitoring
14.9%	7	Standardization of methods
14.9%	7	Lack of trust in programs and results
12.8%	6	Lack of management skills
10.6%	5	Lack of funding

All listed barriers:

1. Access to private property
 2. Purpose for data collection
 3. Lack of organizational management skills
 4. Fear of enforcement
 5. Lack of understanding of the watershed concept
 6. Lack of quality assurance/quality control procedures
 7. Realistic objectives
 8. Standardization of program
 9. Lack of trust in monitoring programs
 10. Lack of ability to translate data into community building
 11. Long-term commitment among volunteers
 12. Fear of controversy
 13. Lack of trust in use of results
 14. Resistance among agencies
 15. Funding
 16. Getting volunteers
 17. Managing volunteers
 18. Fear of involvement by citizens
 19. Identification of water resources decision-makers
 20. Competition for internal organizational resources
 21. Lack of professional scientific leadership
 22. Lack of standardized guides
 23. Perception that people can't solve problems
 24. Lack of communication among monitoring groups and agencies
 25. Legal system
-

Citizen Monitoring Coordinators

The citizen monitoring coordinators consisted of 19 participants, facilitated by Jeffrey Schloss of the University of New Hampshire and recorded by Amy Picotte of the Vermont Department of Environmental Conservation. Unlike the other groups who are principally receivers of the advantages and disadvantages of citizen monitoring, this group was on the frontline of trying to deliver advantages and minimize disadvantages. One might expect their perception of barriers to be quite different but that was not the case. Funding was the highest priority (20.3%) but it was in the top three for all other groups except the business/utility group. Standard methods and data quality was second (18.8% of the vote), consistent with the priorities of all but the local government group. Lack of integration of the citizen monitoring efforts (14.1%) reflected perceptions of the federal and state groups. Lack of credibility was also recognized by the university group and implicitly recognized by all other groups. Organizational problems were also listed in several other group priorities. Not mentioned by any other group was the barrier of watershed boundaries not following political boundaries, an interesting observation given that nearly all other groups were tied to political boundaries.

Prioritized Barriers Recognized by the Citizen Monitoring Coordinators Group

<u>Vote</u>	<u>Raw</u>	
<u>Percentage</u>	<u>Vote</u>	<u>Barrier</u>
20.3%	13	Funding - not getting enough, need more paid staff and resources
18.8%	12	Lack of standard methods - lack of standard methods, QA/QC, data management reporting formats
14.1%	9	Lack of integration of any monitoring with decision-making and policy
14.1%	9	Lack of credibility of citizen collected data - lack of science background in volunteers
12.5%	8	Unwillingness of decision makers to use and accept the data
10.9%	7	Recruiting and maintaining volunteers and volunteer staff
4.7%	3	Watersheds don't follow political boundaries
4.7%	3	Ignorance of value of monitoring programs by the general public
0%	0	Community organizing in new areas
0%	0	Lack of volunteer empowerment

Combined Barriers

Combining the results of the six groups priority listing of barriers and weighting for the unequal group sizes, the conference planners developed a combined list of barriers. Technical issues were the top barrier (24.3% of the combined votes), including standardization, quality control, data management, methods and many other related issues. Second (20.1%) was either the lack of consideration or mismatch between citizen monitoring goals and objectives and those of the presumed information users. Third (17.1%) was the problem of funding and distributing funds equitably for optimizing citizen monitoring contributions. Fourth (15.2%) was a general lack of trust, cooperation, coordination, and sharing between the interested parties.

Significantly lower in overall priority were the need for technical support (6.1%), community support (4.9%), volunteer support (4.9%) and, finally, a fear that citizen action might cause more problems for other groups than they solve (7.3%).

Top Barriers - Combined List

<u>Percentage</u>	<u>Vote</u>	<u>Barrier</u>
24.3%	20	Standardization (QA/QC, methodology, etc.)
20.1%	16.5	Lack of Purpose (Integration with Policy)(needs driven)
17.1%	14	Funding Source and Allocation
15.2%	12.5	Concern about the use of data, lack of trust between parties, credibility of data
6.1%	5	Necessity of Non-volunteer Technical Support
4.9%	4	Lack of Community/Public Support
4.9%	4	Long-term Commitment of Volunteers
4.9%	4	Fear of Regulatory Reprisals
2.4%	2	Citizen Understanding of Government Limitations

Results of Facilitated Discussion of Solutions

The combined list of the nine top barriers to achieving the "desired state" served as the basis for the facilitated discussion of solutions. Each of the six breakout groups, balanced geographically and in participant group representation, was given one of the six top barriers. The remaining three barriers were assigned as optional. The facilitated process resulted in more variability of approach than in the morning session. Some groups developed lists and voted for priorities as before; others developed extensive lists but did not prioritize them. In yet another case, the group seemed well along in actually developing the solution as opposed to simply identifying it. The observed response variability can probably be attributed to 1) insufficient time for full discussion, 2) inadequate preparation of the combined barrier list, and 3) inadequacy of the facilitated discussion process to lead to the development of strategies to implement solutions.

The problem of inadequate time was anticipated and accepted as a reasonable compromise for attracting busy people to the conference with the expectation that follow-up meetings in each state would be the vehicle for in-depth discussion. The combined barrier list would have benefitted from more time to develop a written characterization of each barrier that the participants could bring with them to the workgroup meetings. Although verbal presentations were made by the facilitators of each morning workgroup along with a summary presentation of the combined list, there was still uncertainty regarding the intended meaning of the described barrier in some afternoon workgroups that could have been minimized with printed summaries of the morning session results. In retrospect, the framework for the facilitated discussion of solutions might have been improved as well. The planning committee assumed that follow-on meetings in each state would add the detail, but it is clear now that the regional view provided by this conference might be lost with this approach. Not all workgroups addressed the question of who should bear primary responsibility for each action item. This goal should have been pursued by the facilitators.

Barrier: Standardization of Methods, QA/QC, etc.

Solutions:

Proposed solutions to standardization barriers defined a number of areas particularly appropriate for regional action:

- 1) **training volunteers in technical aspects**
- 2) **developing manuals, guidelines, or criteria for project planning, group organization, methods, equipment selection, quality control**
- 3) **a communication network**

What is not clear from the available information is who the workgroup felt should take responsibility for implementing these solutions. Would any or all of these tasks best be undertaken by a task force of citizen monitoring coordinators, a federal agency, or others?

<u>Vote Percentage</u>	<u>Raw Vote</u>	<u>Barrier</u>
25.6%	10	Regionalize training workshops and technical forums to create a pool of trainers
23.1%	9	Coordination and communication of those involved in methodology
12.8%	5	Define objectives of volunteer programs
10.3%	4	Create and/or update (manuals) with different (and) comparable methods with the lay monitor in mind
7.7%	3	Make programs needs assessment driven in order to clearly define the data needs
7.7%	3	Create a user friendly manual for preparing QA/QC plans
7.7%	3	Promote standardization among countries, governments, etc.
5.1%	2	Citizen monitoring project leader

Barrier: Lack of Clarity and Focus of Purpose (Mission, Policy)

Solutions:

Even though this group listed and ranked solutions to the lack of clarity and focus, the list almost defines the elements of a process for developing a clear statement of purpose. This group provided greater detail on two items identified under methods standardization, namely defining standard methods to define objectives and develop a needs assessment. In the section providing additional comments on needs, this group identified responsibilities for various aspects of this process.

Rank

- 1 Define and promote organizations mission statement (from bottom - up; citizens)
- 2 Create a study design
- 3 Define and discuss the stake holders, uses of the data, and users of data and resource
- 4 Mission needs to come from citizen level - address their concerns
- 5 Ensure that purpose is not clouded by agendas
- 5 Get watershed groups together, regional, state, etc., to help facilitate defining program mission (follow-up)
- 6 Set evaluation criteria within mission
- 6 At outset, define issues, strategies and solutions to issues and roles (monitoring groups, state, etc.

Additional comments on Mission Statement

Use desired state to help define mission statement
Define key focus area(s)
Protection of water quality as purpose/mission
Discuss mission with data users and receivers
Follow this order of objectives:
Education of Volunteers/ Awareness/ Data Acquisition
Characterization/ Degradation/ Assessment
Problem/ Source Identification
Trend Detection
Implementation
Circulate/Distribute mission statement
Take into consideration preventative/protective as well as restorative

Additional comments on Needs:

Need a clear, long-term federal commitment - EPA, USDA, NPS, Corps of Engineers- that recognizes value of citizen efforts
Need long-term commitment of state coordinator
Need an interstate data depository (or by watershed)
Public relations
Federal agencies cannot stick on states the responsibility to establish and maintain funding volunteer monitoring efforts
Regional agencies can help local groups with defining and promoting their mission

Barrier: Funding

Solutions:

The workgroup on funding developed nine areas for action without ranking them and then developed an extensive list of possible ways to implement each of these solutions.

-
- ▶ Explore, work for, and publicize innovative ideas to fund individual monitoring programs
 - Examples:
 - Drug Confiscation Money
 - Ecological license plate fees
 - Clean Water Act violation fines
 - Income tax check-offs (like non-game checkoffs in many states)
 - Special assessment tax districts
 - Combined federal campaign (agency personnel target contributions)
 - Auction off "water rights" annually
 - Lottery/river boat gambling proceeds
 - ▶ Form a coordinated cooperative funding approach for New England groups
 - Examples:
 - United Way type funder
 - Cooperative fundraising among groups (share equipment/expertise)
 - Tie into existing monitoring programs
 - ▶ Individual monitoring programs need to diversify funding
 - Examples
 - Charge dues and/or data user fees
 - Organize river celebrations and community fundraising events
 - Approach businesses for "Green Marketing \$\$"
 - Solicit in-kind contributions of goods and services (e.g. donated lab services)
 - Municipal funding from watershed communities
 - Civic organizations (e.g. Rotary)
 - Bake sales
 - Tax advantage trusts
 - Real estate transfer tax
 - ▶ Create benefactors by promoting citizen monitoring ideas to individual, agency and organization funders
 - ▶ Agencies can reallocate resources to provide staff support for citizen monitoring
 - ▶ Individual programs should find out what funding is available and apply for it
 - Examples
 - Educational funds and grants
 - ▶ Work for new federal sources of funding targeted for citizen monitoring
 - Examples
 - Mandate citizen monitoring as an essential part of watershed protection
 - ▶ Creatively use funds and resources that are not traditionally used to support monitoring
 - Examples
 - U.S. DOT funds for road and bridge construction, maintenance, and repair
 - Boy Scouts
 - ▶ Help citizen monitoring program leaders to develop fundraising skills
-

Barrier: Credibility and Trust

Solutions:

The workgroup on credibility and trust identified twenty action items, most of which also fit under various parts of the section on standardization of methods and quality control. Items 1, 4, 5, 11, 12 and 16 address the objectives and needs assessment issues. Item 2 is included under standards promotion. Items 6, 14 support training efforts. Items 3, 8, 9, 10, 15, 17, 18, and 19 focus on the need for QA/QC standards and the need for consistent, user-friendly manuals. Item 13 reiterates the need for communication. Item 12 was also recognized by the workgroup on clarity of purpose. Item 7 was recognized by the long-term commitment workgroup and item 20 was listed by the need for non-volunteer support workgroup. The overlap between actions suggested by other workgroups and those on credibility and trust suggest that methods standardization, quality control, careful setting of goals and development of organization with appropriate outside technical support are essential parts of building credibility and trust.

-
1. State agencies should define how they will use monitoring data.
 2. National non-profit groups (Izaak Walton League, River Watch Network) need to standardize their approaches.
 3. Simplify types of data sought from each type of waterbody
 4. Do not use data for enforcement actions by regulatory agencies
 5. Involve potential data users in program design
 6. Program managers must be well-trained
 7. Use a well-developed organizational structure
 8. Run split sample analysis
 9. Run periodic control samples(prepared by professionals)
 10. State certification of volunteer programs
 11. Citizen groups define their desired level of credibility
 12. Better define the usefulness of monitoring
 13. Improved communications all the way around
 14. Use "train the trainer" approach to train volunteers
 15. State certify laboratories
 16. Make reporting procedures consistent with those of data users
 17. Publicize QA/QC procedures
 18. Document exact location of sampling stations
 19. Keep raw data available
 20. Interpret data with technical help
-

Barrier: Lack of Community Support**Solutions: (not ranked)**

Most of the solutions to lack of community support are outreach performed after initial citizen monitoring results become available. Only one item possibly suggested contact with municipalities in the process of program design even though there was considerable emphasis in the workgroup on lack of clarity and focus in identifying the potential data users and their needs.

 General public education

- Cable network tie-in
 - Media dealings especially newsprint
 - Clearly defined time commitments
 - Early contact with local agencies
 - Aim for early successes
 - Presentation at town meeting
 - Become a resource for schools
 - Become a political ally for community environmental efforts
-

Barrier: Need for Non-volunteer Support**Solutions:**

This workgroup suggested ways to primarily tap existing technical resources from state agencies, universities, the private sector, professional organizations and retirees but at least one item cited the need to network the variety of talent needed to support a monitoring program. Several items sought ways to mandate or pay for this technical support.

<u>Vote Percentage</u>	<u>Raw Vote</u>	<u>Barrier</u>
17.5%	7	Build technical support into permit requirements
15.0%	6	Network of existing support
12.5%	5	Linkages with professional organizations
10.0%	4	Encourage technical support from educational institutions for credit
10.0%	4	Technical support as part of settlements/fines
7.5%	3	Compelling agencies to provide technical support
5.0%	2	Demonstrate the need to experts
5.0%	2	Identify vested interests as sources of technical support
5.0%	2	Include technical support as part of public sector job descriptions
5.0%	2	Private sector employee loan programs
2.5%	1	Build technical support into plans/budget for program
2.5%	1	Enlist retired technical experts
2.5%	1	Trade advocacy for expertise

Barrier: Lack of Long-term Commitment of Volunteers

Solutions:

Spoken like true citizen monitoring project coordinators, this workgroup (mostly of non-citizen monitoring coordinators) displayed a realistic sense of the extra effort required to maintain citizen monitoring over the long-term. Most prominent in approaches to long-term maintenance were provision of clear statements of purpose for volunteers and equally clear feedback that volunteer efforts had helped achieve that purpose. Several other items such as solid organization, team spirit, strong leadership, valid testing methods, etc. could all be considered ways to build volunteer confidence that their effort is not wasted. Social, legal and public relations considerations seemed less important.

<u>Vote Percentage</u>	<u>Raw Vote</u>	<u>Barrier</u>
17.5%	7	Continued feedback that what they're doing makes a difference; wide recognition of achievement
15.0%	6	Clear mission/purpose
15.0%	6	Solid organization, spokesperson, privacy, and team spirit
10.0%	4	Continued education and training
10.0%	4	Volunteer recognition
7.5%	3	Strong leadership and commitment
5.0%	2	Convince of valid testing methods
5.0%	2	Protection through grassroots recognition/awards
5.0%	2	Stress data utility
2.5%	1	Fun social time
2.5%	1	Minimize liability
2.5%	1	Reliable, well-maintained equipment
2.5%	1	Volunteers participate in program management
0.0%	0	Assign volunteers appropriate tasks
0.0%	0	Broadening the effort/ building connections
0.0%	0	Honesty about difficulties
0.0%	0	Identification of data receivers
0.0%	0	Individual responsibilities/ ownership / being challenged
0.0%	0	Provide for publicity
0.0%	0	Respect for individuals' values
0.0%	0	Respond to changing needs

Barrier: Fear of Regulatory Reprisal

Solutions:

Primarily a concern of the state agencies and local government organizations, the favored solution was to not substitute the existing regulatory process with a volunteer managed one, implying that citizen monitoring should serve as environmental watchdogs but not police. Even with that slightly restricted role, technical credibility, willingness to be unbiased, honest and constructive, and willingness to work with community leadership were the recommended solutions. Much of what is proposed as a solution here points back to the suggestions of the workgroups on *credibility and trust* and *clarity and focus*.

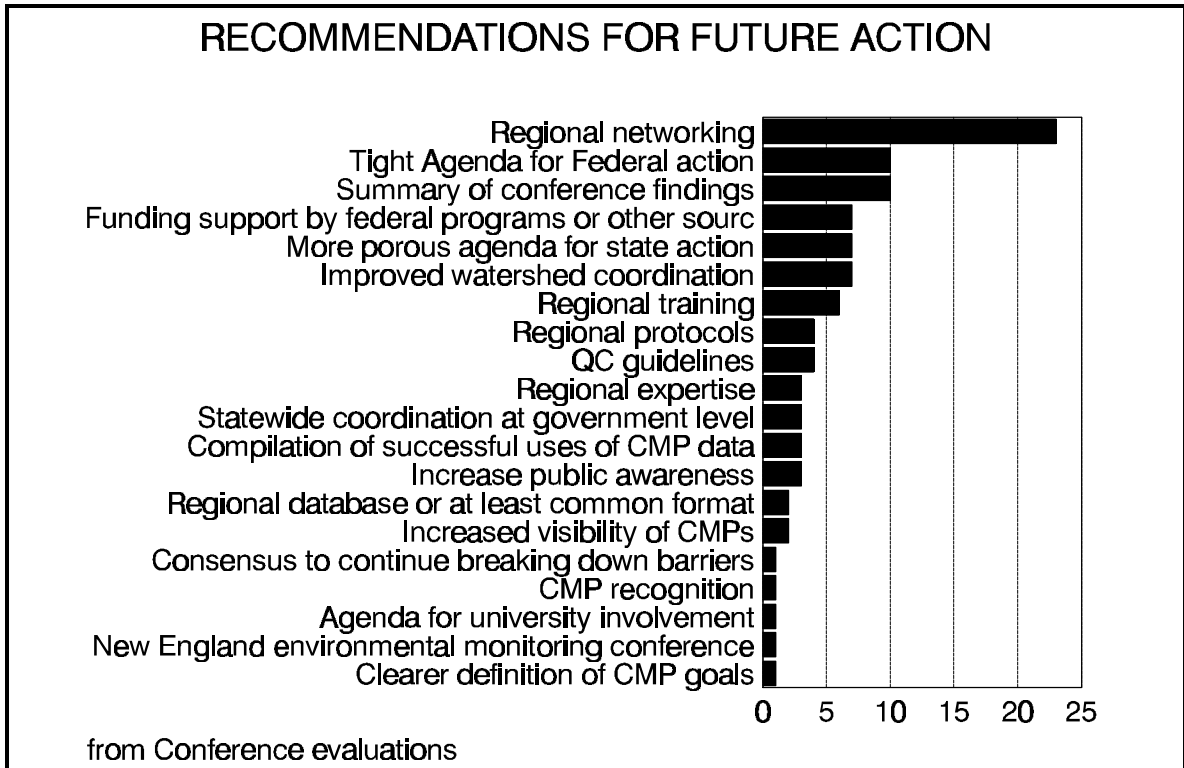
<u>Vote</u>	<u>Raw</u>	<u>Barrier</u>
33.3%	12	Establish a process of compliance before regulatory action
19.4%	7	Financial incentives for technical assistance and solutions
19.4%	7	QA/QC and control of access and interpretation
16.7%	6	Track record of volunteer group is fair, honest and unbiased
11.1%	4	Education and communication of the program to the community
0.0%	0	Strengthen community leadership

Conference Evaluations

All participants were asked to complete a conference evaluation form. Forty, or approximately half of the participants completed the form. Thirty-nine felt that the conference provided a useful forum for water resources managers and citizen monitoring coordinators; one felt that the conference was too limited in scope. Twenty-five participants felt that the conference would lead to improvements in citizen monitoring programs, two felt that it would not and 4 were uncertain but hopeful. Most stressed the need to follow up the conference in a variety of ways and by a variety of groups. One participant had no further interest in participating in similar meetings, one did not respond, but 38 expressed a willingness to continue the dialogue developed at the conference.

One question provided an opportunity to compare individual evaluations of desired results to come from the conference with the barriers and solutions identified during the conference. The overwhelming desired result of the conference was for increased regional networking. Strong federal action was recommended both through a call for immediate action and funding support. States were allowed a little more flexibility (expressed by one participant as a "more porous agenda") but no less responsibility both for involvement and increased coordination. A very frequently desired result was a summary of conference findings; hopefully, this report will satisfy that request.

Since the evaluations were requested at the end of the conference, they presented an opportunity for participants to either underscore their concerns expressed in the barrier/solution identification or to point out issues or concerns not sufficiently expressed by the conference.



Conclusion

It is clear that the "Shared Waters - Common Goals" conference touched the needs of most of the participants. Those needs can be summarized in a few words:

- ✓ greatly increased and regular communication between all parties;
- ✓ encouragement, direction and support of citizen monitoring by state and federal agencies; and
- ✓ higher standards of quality control at the data collection, dissemination, and use stages of citizen monitoring.

The next steps in furthering the involvement of citizen monitoring in water resources management and policy development is to develop individual state conferences to expand upon the results of this regional conference. The water resources research institutes and cooperative extension offices at each land grant university should continue to coordinate this process. The state conferences should attempt to involve more representatives from each agency, organization, and institution than was possible, as well as to include groups that are more locally or community oriented. Each of these conferences should select and tailor the solutions suggested in this report for the specific conditions in that state. State conferees should decide on specific actions to take and identify who will take them. In some cases, there may not be an appropriate organization or procedure to begin implementation of action items. The conferees should propose mechanisms to accomplish these items.

Regionally, the most important next step identified by the regional conference is the establishment of a means of regular communication. Much already exists to be shared, but as each state conference recommends actions, there will probably be some commonality in implementation that could be shared regionally. The planning committee should investigate the creation of a regional citizen monitoring bulletin board, possibly using the Internet.

Appendix Conference Participants

Canada

St. Croix Estuary Project
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St. Croix Estuary Project
Jim Sharkey

Connecticut

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Jane Brawerman

CT Sea Grant Marine Advisory Program
Heather M. Crawford

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John Monroe

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Arleen O Donnell

MA Coastal Zone Management

Judith Pederson

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Karen Pelto

Massachusetts Water Watch Partnership

Jerry Schoen

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ME Dept. of Environmental Protection
Webster Pearsall

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Dana Perkins

MWWCA c/o Maine Municipal Association
Mary E.H. Smith

Knox-Lincoln County Coop Extension
Esperanza Stancioff

Dept of Marine Resources
Hal Winters

New Hampshire

US Soil Conservation Service
Alan P. Ammann

New Hampshire Dept. of Environmental Services
Robert Baczynski

Water Resources Research Center
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Connecticut River Watch Program
Marie Levesque Caduto

N.H. Lakes Association
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NH Dept. of Environmental Services
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University of New Hampshire Cooperative Extension
Robert Craycraft

Antioch New England University
Alexandra Dawson

Lakes Region Planning Commission
Alan Greenberg

Great Bay Watch / Sea Grant Extension
Ann S. Reid

Cooperative Extension
Jeffrey A. Schloss

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Edward J. Schmidt

Merrimack River Watershed Coalition
Sue Smith

Bristol Conservation Commission
Mason Westfall

New Hampshire Dept. of Environmental Services
Eric Williams

Council of Presidents
Neil R. Wylie

Rhode Island

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Ellen Ashley-Gorman

Wood-Pawcatuck Watershed Assoc.
Lori Barber

Save the Bay
Wenley Ferguson

University of Rhode Island Watershed Watch
Linda T. Green

Providence Water Supply Board
Christopher Modisette

Office of Senator C. Pell
Kenneth F. Payne

Eastern Rhode Island Conservation District
Mary Philcox

Bristol County Water Authority, RI Waterworks Assoc.,
Watershed Mgmt Prog.
John H. Rhind

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Kristine Stuart

Rhode Island Dept. of Health
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Vermont

Riverwatch Network
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