

A SURVEY OF CHESAPEAKE BAY WATERSHED RESIDENTS
KNOWLEDGE, ATTITUDES AND BEHAVIORS TOWARDS
CHESAPEAKE BAY WATERSHED WATER QUALITY ISSUES

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EXECUTIVE SUMMARY

The protection and restoration of the natural resources of Chesapeake Bay watershed is perhaps one of the greatest and most complex large-scale conservation efforts of all time. This large geographic area embraces both a wide range of natural resources and a large and growing population of diverse people with varied interests, goals and backgrounds. Because the residents of the watershed are intricately involved in the processes and events that occur within the watershed, working with these people to achieve the goals of the Chesapeake Bay Program is inevitable and essential. To do this, information about residents' knowledge, attitudes and behaviors must be collected, analyzed and integrated into conservation planning efforts.

To address this need, the Conservation Management Institute of Virginia Tech conducted a telephone survey of 1,988 residents of the Chesapeake Bay watershed (including those residing in parts of New York, Pennsylvania, Maryland, Delaware, West Virginia, Virginia, and Washington, D.C.) in March and April of 2002. The objectives of this survey were to assess residents' level of knowledge about, perceptions of, attitudes towards and behaviors in relation to pollution and environmental quality of the Chesapeake Bay region. A secondary goal of the survey was to track changes in public perception regarding water quality issues since the Chesapeake Bay Program's most recent public perception survey conducted in 1993-1994. Several questions from the current survey produced results analogous to this earlier survey.

To assist in analyzing and implementing these data, the counties of the watershed were divided among 10 geographical regions according to such demographic factors as rates of population change, population density, land use patterns and household income. These regions are referenced here as Washington, D.C., Baltimore, Baltimore/Washington Metro, Tidewater, Delmarva, North-central Virginia, Shenandoah and Western Potomac, South-central Pennsylvania, North-central Pennsylvania, and New York. A minimum of 150 interviews was conducted in each region, with a goal of 200. For further analysis, these 10 regions were collapsed into four distance bands representing their relative distance from the Bay. The overall (watershed-wide) margin of error for these data is +/- 2.2% with a 95% confidence level, the margins of error within each region ranges from +/-6.9% to +/-7.3%, and the margins of error for the distance bands ranges from +/-3.1% to +/-6.9%.

Summary of Key Findings:

1. It is clear that residents of the Chesapeake Bay watershed are concerned with pollution in the waterways and believe that restoration of and protection for the water resources is an important venture. However, this concern is often not matched by comparable levels of individual stewardship activity. In order to meet the restoration goals of the Chesapeake Bay Program, it is critical to take specific actions to narrow this stewardship gap by raising the level of resident involvement.
2. People generally believe that one person can make a difference, yet they lack the confidence or vision to understand that **they** can (or should) be that one person. It seems that the information most needed by residents in order to encourage more active stewardship is information that personalizes and internalizes the pollution problem and its solution. These include information about how pollution affects them personally, information about how their personal actions contribute to the pollution problem, information about what they can do, and information about how their actions can make a difference in improving water quality.
3. The potential for stewardship action in any given region clearly is considerably higher than currently realized. Washington, D.C. and Baltimore exhibit an interesting collection of characteristics; residents of these two highly populated regions represent the least knowledgeable and least active in the watershed, but also are among the most concerned and most interested in becoming more involved. This juxtaposition delineates a clear regional need for outreach programs and represents a critical, but largely untapped “reserve” of potential activists.

Knowledge:

Respondent knowledge levels were measured implicitly in this study with one question asking respondents to identify the correct definition of ‘watershed’ in a multiple-choice context offering four options.

- Overall, 48% of respondents correctly identified the definition of ‘watershed’ from a list of four options. This is comparable to the 1997 National Environmental Education Training Foundation’s (NEETF) survey in which 2 in 5 Americans correctly identified the appropriate definition from a similar multiple-choice question with four options.
- As educational attainment increases and as income increases, respondent ability to define a watershed increases (ranging from 41% for respondents with less than a high school diploma to 77% for respondents with a graduate degree and from 40% for respondents earning <\$15,000 to 76% for respondents earning >\$100,000). Also, White respondents scored better (65% correct) than Black respondents (36% correct), with other races scoring in between.
- The lowest knowledge scores were obtained in Baltimore (35% correct), North-central Pennsylvania (44%) and Washington, D.C. (45% correct). The highest knowledge scores were obtained in the North-central Virginia (54% correct), Delmarva (53% correct), Baltimore/Washington Metro (53% correct),

New York (52%) and Tidewater (51% correct) regions. In general, regions with a more agricultural environment and regions with a lower population density scored higher on this knowledge index.

Perceptions:

Respondent perceptions about water and environmental quality both in their local area and in the watershed as a whole were measured through four questions. First, respondents were asked how concerned they are with pollution and environmental quality locally and then in the Chesapeake Bay as a whole. Next, they were asked to indicate how pollution level in their local streams and waterways and the Chesapeake Bay as a whole compares to 10 years ago.

Level of Concern

- 89% of Chesapeake Bay watershed residents are either Very or Somewhat Concerned about pollution in the Bay as a whole (52% Very Concerned), and 85% of residents are concerned about pollution in their local streams and waterways (52% Very Concerned).
- Concern with both local waterways and the Bay as a whole decreases with distance from the Bay. Residents living further from the Bay are the least concerned with both their local waterways and the Bay as a whole. Reflecting this trend, regions with a higher population density tend to be more concerned about pollution in the waterways.
- Interestingly, the regions indicating the highest level of concern (Washington, D.C. and Baltimore) are also among the regions that scored the lowest on the knowledge index.
- Respondents to this current survey expressed levels of concern similar to respondents to the 1993-1994 Chesapeake Bay Attitudes Survey, in which 86% of respondents were concerned about pollution in the Bay (50% Very Concerned). Also, a slight decrease in levels of concern among residents living farther from the Bay was demonstrated in both surveys.
- These findings also are comparable to the 2001 National Geographic Society survey, in which 90% of Americans expressed concern with environmental quality in our nation's rivers.

Perceived Trends

- 36% of watershed residents believe that the Bay as a whole is More Polluted now than it was 10 years ago, with 15% indicating that it is Less Polluted. Similarly, 42% believe that their local streams and waterways are More Polluted than 10 years ago, and 20% believe they are Less Polluted.
- In general, residents who are most concerned with pollution in the Bay most often believe that pollution has increased in the past 10 years.

- As distance from the Bay increases, fewer residents believe that their local waterways are More Polluted. However, the perceived trend of pollution in the Bay as a whole remains constant across the watershed.
- Compared to the survey conducted in 1993-1994, more respondents chose the neutral option in this survey, indicating that pollution has stayed the same in the past 10 years, or indicated that they “Don’t Know” with a decreased percentage of respondents indicating that the Bay is either more or less polluted.

Sources of Information

- Overall, Personal Observation was the most important factor affecting residents’ views on pollution, with 31% of respondents indicating this as their primary source of information. Other important factors were Environmental Group Reports (21%) and Media Reports (20%). This statistic was consistent across regions, distance bands and demographic factors.

Attitudes:

Respondent attitudes towards water pollution was measured through a series of questions asking them to rate potential sources of pollution, indicate agreement levels with certain personal belief statements about pollution, indicate the level of responsibility that a list of public and private entities should assume for restoration, and analyze the importance of the Chesapeake Bay restoration in relation to other issues.

Causes of Pollution

- Business and Industry was the source identified by respondents as having the greatest impact on pollution, with over 50% indicating that it has a Great Impact. Other sources receiving high ranks include Population Growth (42% saying Great Impact), and General Littering (40% saying Great Impact).
- Sources that respondents indicated had the least impact on pollution are Lawn Maintenance (18% saying Great Impact), Commercial Spills (32% saying Great Impact) and Septic Systems (22% saying Great Impact).
- On a regional level, respondents in Washington, D.C., Baltimore and New York identified Business and Industry as the greatest source of pollution. The Baltimore/Washington Metro and North-central Virginia regions (both rapidly growing areas) indicated that Population Growth is the greatest source of pollution, and General Littering was identified as the greatest pollution source in the Shenandoah and Western Potomac region. The remaining regions had “ties” with Business and Industry and General Littering ranking highest in North-central Pennsylvania and Business and Industry and Population Growth ranking highest in the South-central Pennsylvania, Tidewater and Delmarva regions.
- In general, regions closest to the Bay indicated that all items listed are more serious threats to pollution than did areas farther from the Bay, with the values decreasing accordingly. For instance, on a scale of 1 to 4, the mean score for Business and Industry (the highest ranking item) ranged regionally from 1.5 to

2.0, whereas the mean score for Lawn Maintenance (the lowest ranking item) ranged regionally from 2.2-2.6.

➤ The 1993-1994 Chesapeake Bay Attitudes Survey also revealed that residents rank Business and Industry as the most serious threat to pollution. However, in 1993-1994, this was followed by commercial shipping and sewage treatment rather than by population growth and general littering, as in the current study. In fact, sewage treatment (wastewater treatment facilities) and commercial shipping ranked 6th and 11th respectively out of the 12 potential pollution sources listed in the current study. This represents a significant drop in the perceived relative importance of these sources and a significant increase in the perceived relative importance of population growth and general littering. (Note, general littering was not specifically asked about in 1993-1994, but “individuals” ranked second-to-last.)

Values about Pollution

- Overall, 88% of watershed residents Agree that pollution in the water is affecting fish and wildlife populations, and 81% Agree that there is a pollution problem that needs to be fixed. Similarly, 71% Disagree that their local waterways are unspoiled by pollution.
- Only 53% of watershed residents Agree that their everyday actions adversely affect water quality. On the other hand, 87% indicated agreement that one person’s actions can make a difference in improving water quality. This indicates that even though about half of the people do not see themselves as the cause of the problem, most believe that one person (not necessarily themselves) can make a difference in improving it. Interestingly, a cross tabulation of these two questions yielded no relationship. However only 51% of watershed residents Agree that they know how to get involved in improving water quality.
- On a regional level, residents living closer to the Bay (in Washington, D.C. and Baltimore) are most likely to Disagree that their local streams and waterways are unspoiled by pollution. This further supports the regional trend discussed above in the level of concern for pollution in local waterways.

Attitudes towards Restoration

- Overall, 94% of watershed residents believe that restoring the waterways in the Chesapeake Bay region is Important (60% Very Important) compared to other social, economic and environmental problems.
- Compared to the 1993-1994 Chesapeake Bay Attitudes Survey, respondents generally place a higher importance on Bay restoration with 88% believing it was Important in 1993-1994 (49% Very Important) compared to 94% in 2002 (60% Very Important). In the 2001 National Geographic Society survey, 94% of Americans believe that environmental issues in general are important (64% Very Important), and 98% believe that river protection specifically is an important environmental priority (75% Very Important). This is comparable to the figures obtained in this survey.

- 49% of watershed residents believe that current restoration efforts are Too Little, with only 2% believing current efforts are Too Much. These figures are almost identical to those presented in the 1993-1994 Attitudes Survey
- Business and Industry was ranked by respondents as the one entity that should be the most responsible for restoration of the Bay, with 97% of respondents believing it should be at least somewhat responsible (68% said Very Responsible).
- Among governmental agencies, State Government and Local Government were ranked as the agencies that should be most responsible for Bay restoration with 97% of respondents believing that each one should be responsible (61% and 66% Very Responsible respectively). Federal government ranked the lowest in perceived responsibility, with 88% indicating the Federal government should be responsible (41% Very Responsible).
- Regionally, Washington, D.C. and Baltimore placed the greatest responsibility on the Federal government, with the South-central Pennsylvania, Shenandoah and Western Potomac, North-central Pennsylvania, and New York regions placing the least responsibility on the Federal government. The perceived responsibility of other agencies was more uniform across regions.

Behaviors:

Respondent behaviors were assessed through a series of questions asking participants to describe their involvement with a host of pollution reduction and prevention activities, and to indicate possible catalysts for even more involvement.

Current Level of Involvement

- Overall, 69% of watershed residents indicate that they recycle household trash Often. However, 51% never use public transportation, 68% never carpool and 71% never ride a bike for transportation.
- Respondents in New York, North-central Pennsylvania, South-central Pennsylvania and the Baltimore/Washington Metro indicated that they recycle household trash more often than respondents in other regions. Baltimore and Shenandoah and Western Potomac residents indicated the least frequent recycling patterns of all the regions examined. This trend likely is affected by the presence/absence of local mandatory recycling regulations.
- Most respondents rarely or never use public transportation; however, respondents in Washington, D.C., Baltimore, and the Baltimore/Washington Metro regions use it most frequently, as would be expected, with 52%, 25%, and 14% respectively indicating that they use public transportation Often.
- Among 11 other actions listed, 97% of respondents had participated in at least one in the last 5 years, and the average respondent participated in an average of 4.9 actions. The most frequently cited actions include reducing water usage (85%), buying at least one environmentally safe product (76%), and planting a tree (71%). Moderately cited actions include altering fertilizer usage (47%),

donating to an environmental group (40%) and altering product usage (39%). Actions performed less often include altering pesticide use (29%), helping to clean up a stream (28%), joining an environmental group (16%), using the environmental tax check-off (21%), and buying an environmental license plate (10%).

- Residents aged 35-65 years are most likely to have participated in each of the listed actions in the past 5 years, and have participated in more total actions than either younger or older age groups. Number of actions was positively correlated with educational attainment and household income. Black and Hispanic respondents participated in fewer total actions (4.2 and 4.3 respectively) than other races (range 4.9-5.5), and residents of rural and suburban communities participate in more activities than residents of cities and small towns.
- Regionally, residents of Washington, D.C. and Baltimore participate in the fewest number of activities of anyone in the watershed. Beyond these boundaries, however, people residing closest to the Bay participate in the most actions, with participation decreasing with increasing distance from the Bay.
- Residents with more knowledge tend to participate in more actions. In this study, respondents correctly defining ‘watershed’ participated in an average of 5.4 actions, whereas respondents who could not define it participated in only 4.4 actions. This trend was also illustrated in the 2001 NEETF Survey.

Catalysts for Action

- Respondents indicated that they would be most likely to become more involved with improving water quality if they knew they could save money in the long run (37% Very Likely), if they knew they were being directly affected by pollution (57% Very Likely), if they felt as if they could really make a difference (43% Very Likely), and if they knew that time commitments would be minimal (37% Very Likely).
- Interestingly, as stated above, even though 88% of respondents believe that one person’s actions can make a difference in improving water quality, most do not believe that they, personally, can make a difference. This is evident by the 86% of respondents indicating that they would be Very or Somewhat Likely to get more involved if they felt they could make a difference.
- Of all the regions, residents of Washington, D.C., Baltimore, and Delmarva regions indicated the most willingness to become more involved in pollution reduction activities with an average of 82%, 82%, and 81% respectively either Very or Somewhat Likely to become more involved. Interestingly, two of these regions (Washington, D.C. and Baltimore) are also the regions scoring lowest on the knowledge index, expressing the most concern for local water quality, and currently participating in the fewest number of pollution reduction actions.
- To encourage stewardship actions in urban areas, it is important to identify and promote stewardship actions that urban residents can participate in without

incurring extensive travel costs, since many of the traditional stewardship behaviors are not feasible for urban residents.

- At the watershed level, level of concern for water quality is positively related to the level of interest in getting involved, and this level of interest is positively related to levels of stewardship action. This is an important connection to make when planning outreach efforts to encourage stewardship activity.