The Chesapeake Bay
African-Americans' Knowledge, Attitude, and Practices on Environmental Issues
A Community-Based Survey

Summary of Survey Results

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Sea Grant Maryland
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Cover photograph, Chesapeake Bay Program

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Executive Summary

The Maryland Sea Grant College (MDSG) is one of 33 Sea Grant Programs across the country. Its mission is to improve our understanding of how environmental forces and human activities affect the vitality of the Chesapeake Bay and Maryland's coastal waters. As part of its strategic plan, MDSG is committed to developing partnerships and programs that help to diversify traditional stakeholder groups. One challenge to reaching this goal is the lack of involvement by ethnic minorities in general and of African-Americans in particular in many environmental issues. Although this lack of involvement is well documented, the related factors are less characterized. Work has been focused in the educational and professional arenas on participation and performance in science, technology, engineering, and mathematics. Little work has been done in the community. To assess the environmental attitudes, knowledge, and behaviors of the African-American community in Maryland, MDSG commissioned the Institute for Urban Research and the Estuarine Research Center of Morgan State University to complete this study.

Three-hundred-and-seventy-four African-Americans were interviewed using a self-administered structured questionnaire with a combination of closed and open-ended questions. The respondents were selected based on a purposive sampling from three Maryland locations: an urban neighborhood in Baltimore City, a suburban area of Prince George's County, and a rural section of Dorchester County.

Knowledge

In each of the survey sections there were indications of knowledge deficiencies. For example, when respondents were asked what could be done to improve the environment, many of them called for the formation of a government agency to monitor and punish polluters. An existing state agency, the Maryland Department of the Environment, is tasked with both functions. Substantial lack of knowledge about recycling was observed among the respondents. Television was a major source of information on environment for adults, while it was school for children. For rural adults, newspapers were the primary source. The need for more and better education was a consistent theme throughout the responses.

Attitude

Two sections were used to gauge the attitude of the respondents: a set of questions specific to the Chesapeake Bay and a set of questions focused on the New Ecological Paradigm.

Chesapeake Bay

The response to the Chesapeake Bay was overwhelmingly positive. Respondents saw the Bay as an important resource that should be protected. Further, there was strong agreement that the government was not doing enough and the people should take more responsibility. Two areas where the response was weaker were whether pollution in the respondents' neighborhoods affected the Bay and whether the blue crab population had declined. Such responses indicate that there is a foundation of shared concern and a need for education programs focused on specific topic areas.

New Ecological Paradigm

The New Ecological Paradigm Scale (NEP) was developed to measure agreement with a pro-environmental attitude. There was agreement that we are facing an ecological crisis and that there is a balance in nature that can be disturbed. Overall the respondents recognized that an ecological crisis may occur soon. However, respondents believed that the crisis is manageable, and that we have the ability to exploit nature in a sustainable way. It became clear in the other sections that the respondents were seldom the agents of change to improve the environment.

Practices

Two groups of questions were used to examine environmental practices, pesticide use, and recycling. Pesticide use was one of the few questions with a strong population effect, with city residents reporting higher use of pesticides than did either rural or suburban respondents. More than 50 percent of respondents did not recycle items that they identified as recyclable. Respondents who were younger, not married, working full-time, and living in an apartment were less likely to recycle. As has been reported in other studies, inconvenience was the most common reason for not recycling. Lack of services and lack of information about services were second. These last comments indicated that outreach programs may not be reaching this community.

Limitations

The survey generated interesting and valuable insights. Resource constraints limited the scope of the study, resulting in a small sample size and a convenience sampling design.

Policy Recommendations

The respondents expressed that government should play a stronger role in protecting the environment. They suggested punitive measures and financial disincentives for those who violate environmental-protection rules. Most respondents saw education as an important tool in the protection of natural resources. Based on the findings and the comments of the respondents, we make the following policy recommendations:

-
- Conduct a larger, more comprehensive survey
- Develop action-orientated outreach programs
- Develop educational programs specifically focusing on environmental issues that are more culturally relevant to the African-American community
- Use community and faith-based organizations in outreach programs
- Build community-based organizations to oversee, undertake, and monitor activities on environmental issues

Background

African-American involvement in environmental issues is most often limited to direct health effects. Ecosystem-wide approaches to environmental protection are often not seen as an African-American issue. Nationally Africans-Americans are disproportionately under-represented in environmental or "green" organizations. For instance, in the Chesapeake Bay African-Americans are not proportionally represented in preservation initiatives. The membership of such groups as the Chesapeake Bay Foundation and Chesapeake Bay Trust are disproportionably European-American. Few of the researchers and managers in the Chesapeake region are African-Americans. This lack of involvement contrasts with African-Americans' long-standing and continuing economic, social, and cultural connections to the Chesapeake Bay and surrounding environs.

Conventional wisdom garnered from earlier, dubious studies said that African-Americans were not as interested in environmental issues as were European-Americans. Conventional wisdom also suggested that the interest and participation of African-Americans in environmental issues has been limited to health and justice aspects. More recent data suggest a more complex picture. Studies have shown the need to separate concern from behavior when assessing environmental interest among African-Americans (Johnson et al. 2004). In a poll, 65 to 80 percent of African-Americans identified themselves as environmentalists; however, only 5 percent are environmentalists as measured by membership in green organizations. Other researchers suggest that environmental interest or involvement may be a function of how organizations and institutions interact with minority populations. In 1990, the Southwest Organizing Project, a group organized in 1990 by people of color interested in environmental issues in the southwestern United States, issued its now famous "Letter to the Big Ten" (the Big Ten are the largest environmental activist groups in the country), which bluntly demanded that environmentalists look at how the cultural biases of an all-white, green movement shaped many traditional environmental policies and goals (Baker 1997).

As part of its strategic plan, the Maryland Sea Grant College (MDSG) is committed to developing partnerships and programs that diversify traditional stakeholder groups. One challenge to this goal is the lack of involvement by ethnic minorities in general and of African-Americans in particular in many environmental issues. While this lack of involvement is well documented, the related factors are less characterized. Work has been focused in the educational and professional arenas related to participation and performance in science, technology, engineering, and mathematics. Little work has been done in the community. To assess the environmental attitudes, knowledge, and behaviors of the African-American community in Maryland, MDSG commissioned the Institute for Urban Research and Estuarine Research Center of Morgan State University to complete this study.

Before developing any preventive or educational programming involving African-Americans, the first step would be to assess their prevailing level of knowledge, attitude, and behaviors. African-American communities in Maryland have a long history with the Chesapeake Bay, yet little empirical research has been conducted on their attitudes toward it. One of the first steps in addressing the problem of low involvement by African-Americans is identifying where in their community efforts would be most effectively applied. African-Americans in urban, suburban, and rural areas have different lifestyles and different levels of exposure to adverse environmental conditions. They often need to be educated on the factors contributing to environmental problems.

The Objectives of the Study

The primary objectives of the study were to assess the prevailing level of knowledge (awareness), attitudes towards the environment in general and the Bay in particular, and how survey answers differed by respondents' socio-demographic characteristics. Specifically, the study made an attempt to assess:

1. the extent to which African-Americans living in proximity to the Bay are aware of the Bay's resources and factors contributing to the deterioration of Bay resources,

2. the prevailing attitude of the African-Americans toward the importance of preserving Chesapeake Bay resources, and

3. the extent to which African-Americans are practicing pollution-preventing activities for preserving Bay resources.

Significance of the Study

The findings of the study provide a picture of the prevailing situations of African-Americans living close to the Chesapeake Bay's shores in terms of their knowledge, awareness, attitudes, and practice of activities to preserve the Bay's resources. The knowledge acquired from the study will be used to help design an intervention study to enhance the level of awareness among African-Americans and to help influence attitudes in favor of preservation of Bay resources and practice of activities to prevent pollution.

Methodology

Sample Size

A total of 374 African-American adults age 20 or older were selected from the three study sites. This was a non-random (non-probability, convenience) sample. The respondents were selected through schools, churches, and from neighborhood telephone directories in each site. With these selection criteria, African-Americans who had unlisted telephone numbers or no telephone service were not included in the sample. Conducting church- and school-based surveys partly resolved this problem. However, given the financial constraints available to conduct the survey, the sample was adequate to address this study's objectives.

Selection of Sites

The respondents were selected from three sites with different population densities, one from each of the following areas: Baltimore City to represent an urban area, Prince George's County for a suburban area, and Dorchester County for a rural area. Two additional criteria — a site in proximity to the Bay with predominantly African-American residents — were taken into consideration. These selected sites had a high representation of African-Americans. Class and educational differences can be compared to see if any are related to environmental knowledge of the Chesapeake Bay.

Instruments

1. Questionnaire – A structured questionnaire was prepared with a combination of pre-coded (close-ended) and open-ended questions to address the aforementioned objectives. The questionnaire was pre-tested in the field for consistency and accuracy and modified based on the experiences of the pre-test before final implementation for interview. The questionnaire also contained New Ecological Paradigm Scale items consisting of fifteen statements developed by Dunlap et al. (1978).
2. Photographs – In addition to the survey responses, photographs of roads, parks, and shorelines around the Bay were taken for visual presentation of the prevailing conditions of these areas.

Research Team

The following are the key investigators of the study.

Dr. Raymond Winbush, principal investigator and director,
Institute for Urban Research (IUR), Morgan State University

Dr. Ashraf Ahmed, senior research associate of IUR and
director, Center for Survey Research of the IUR, Morgan State University

Dr. Kelton Clark, director, Estuarine Research Center (ERC), Morgan State University

Graduate and undergraduate students were recruited to conduct interviews, data processing, and carry out other activities of the study. This provided the students with valuable hands-on-training in research.

Results

Background Characteristics of Respondents

Table 1 presents background characteristics of the respondents. Respondents among the three sites did not differ noticeably in age.

Gender: About four-fifths of the respondents were female. Gender composition of respondents also varied by location: one-fourth of the city respondents were male. one-fifth in suburban areas were male, and less than one-fifth in rural areas were male.

Religion: Of the total respondents, 54 percent were Protestant. These percentages were higher in suburban and rural areas. As mentioned earlier, the survey was based on a sample that was not random. The data were collected through churches and schools, which may have influenced some of the responses because of the communities from which the responses emerged. The second major religious category was Catholic. Protestants and Catholics accounted for about 90 percent of the respondents.

Marital status: About half of the respondents were married or living together; a quarter were divorced, separated or widowed; and the rest were single.

Education: Half of the respondents had at least a bachelor's degree, and one-third had some college education. The distribution varied by location: 65 percent in the rural site had a bachelor's degree or higher while the corresponding percentages for the city and suburban sites were 49 and 39, respectively.

Employment: Eighty percent were fully employed. This percentage was higher among rural respondents (87 percent) than in the city (77 percent) and the suburban (82 percent) sites.

Household income: Fifty-seven percent of the households had yearly income of $50,000 or more. A higher percentage of these households (66 percent) were in the suburban site as compared to the city and rural ones.

***Living arrangement*:** Three-quarters of the respondents lived in private homes, one-fifth lived in apartments, and the rest lived in other arrangements.

Table 1. Background characteristics of respondents, by location

Characteristics	City	Suburban	Rural	Total
Age:				
Less than 20	5	-	1	3
20-29	17	19	19	18
30-39	20	14	22	19
40-49	16	27	23	20
50-59	24	26	25	24
60-69	12	10	6	10
70 and above	8	4	4	6
Sex:				
Male	25	20	17	22
Female	75	80	83	78
Religion:				
Protestant	32	81	70	54
Catholic	52	5	18	32
Others	16	14	12	14
Marital status:				
Married/living together	46	54	59	51
Widowed/divorced/separated	25	26	20	24
Never married	29	20	21	25
Education:				
< High school	14	4	9	11
High school/GED	7	5	8	7
Some college	30	52	18	33
Bachelor & above	49	39	65	49
Employment Status:				
Full-time	77	82	87	80
Part-time	8	3	5	6
Currently unemployed	4	4	4	4
Disabled/retired	11	11	4	10

Table 1, continued

Characteristics	City	Suburban	Rural	Total
Household income:				
Less than $10,000	4	3	9	4
$10,000 to $19,999	9	2	12	8
$20,000 to $29,999	7	10	6	7
$30,000 to $39,999	9	14	6	10
$40,000 to $49,999	19	5	7	13
$50,000 to $59,999	11	14	9	11
$60,000 and above	41	52	51	46
Living arrangement:				
Private home	74	72	75	73
Apartment	21	23	17	21
Others	5	5	8	6

Recycling

Practice on Recycling

Recycling is an important element of preventing pollution. Toxic materials dumped into landfills may eventually find their way to surface water or groundwater. Recycling will save our water resources and reduce the need to expand landfill capacity. Keeping this view, we made an attempt to assess prevailing recycling practices, behaviors that can be modified. Therefore, to assess prevailing practices in recycling, the respondents were asked to list what items they throw in the garbage. Table 2 presents their responses. Seventy percent or more reported throwing away each of these categories: paper, aluminum, and egg cartons. The responses varied by location. The differences are merely indicative but not statistically significant. The rural respondents had the highest response as to egg cartons while paper and aluminum were most frequently mentioned in suburban areas. Between 61 and 64 percent reported throwing away each of these categories: cans, Styrofoam, and grocery bags. The results indicate that more than 50 percent threw away each of these categories — glass bottles, cardboard, newspaper, plastic containers, and catalogs and magazines — which suggests that these materials were not recycled. Thus, the results depict a picture of people relatively unconcerned about the importance of recycling in the context of environmental issues. Of the selected items, only cardboard was found to vary significantly by location.

Table 2. Items that go into garbage, by location

Items	Percent reported thrown into garbage: City %	Suburban %	Rural %	All %	χ^2	P-value
Can (aluminum and or tin)	68	57	64	64	3.9	.144
Paper	69	73	67	70	.62	.733
Glass bottles	57	51	59	56	1.6	.455
Aluminum foil	68	73	71	70	.45	.795
Styrofoam	61	67	71	64	2.5	.279
Cardboard	52	60	50	53	2.2	.339
Disposable diapers	23	33	29	27	3.4	.180
Plastic containers	57	61	62	59	.67	.717
Newspapers	55	59	54	56	.47	.791
Grocery bags	62	65	55	61	1.7	.42
Egg cartons	70	72	78	72	8.6	.072
Batteries	53	48	50	51	.89	.641
Clothing	31	31	30	31	.027	.986
Catalogs and magazines	58	63	55	59	–	–
N	196	102	76	374		

Differences by Socio-Demographic Factors

We also evaluated the practice of throwing out items in the trash versus recycling them by evaluating selected socio-demographic characteristics of respondents. Table 3 presents percentages by different levels of selected factors. The selected factors were marital status, living arrangement, education, and work status. In most of the items, higher percentages of never-married women threw out potentially recyclable items in the trash compared with married and ever-married women. However, based on Chi-square tests conducted on each item in 2x3 settings, the differences were found to be significant only for cans and paper. Living arrangement demonstrated a strong influence on the practice of throwing out recyclable items. For most of the recyclable items, respondents living in apartments or in any other arrangements had significantly higher percentages reported of throwing these items in the trash compared with other respondents. There were no meaningful differences in responses between respondents having some college education and not having college education. On the other hand, respondents working full-time as compared with others had consistently higher percentages of throwing out these items; although four items — aluminum foil, Styrofoam, cardboard, and batteries — were found statistically significant. This may imply lack of time on the part of full-time workers as a factor contributing to such differences.

Table 3. Items that go into garbage, by socio-demographic characteristics of respondents

Items	Percent reported thrown into garbage								
	Marital Status			Living arrangement		Education		Work status	
	Married %	Ever-married %	Never-married %	Private home %	Others %	HS/ GED %	College %	Full-time %	Part-time %
Can (aluminum and or tin)	56	66	75***	62	71*	69	64	66	65
Paper	64	73	78**	68	75	72	70	72	72
Glass bottles	52	57	63	51	68**	55	56	58	54
Aluminum foil	67	70	77	67	78*	63	72	75	57***
Styrofoam	67	64	64	63	68	55	67**	71	49***
Cardboard	52	52	58	51	61*	44	56	57	44*
Disposable diapers	27	30	25	24	35*	23	28	27	31
Plastic containers	56	62	62	55	70***	58	60	62	54
Newspapers	54	56	62	55	60	53	57	60	50
Grocery bags	60	63	62	58	71**	63	61	63	60
Egg cartons	66	76	79	69	81**	72	72	73	75
Batteries	48	48	59	49	59**	50	52	56	38**
Catalogs and magazines	94	97	96	94	100*	97	95	96	94

**p<.10; **p<.05; ***p<.01 based on Chi-square test*

The relationship of age with these items was evaluated using Pearson's correlation co-efficient. An inverse relationship was observed for all of the recyclable items, indicating that younger people were more likely to throw out these items. The items, which were found statistically significant, were cans (-.14**), aluminum foil (-.20**), cardboard (-.16**), and batteries (-.19**).

The relationship has also been evaluated in a multivariate setting using logistic regression analysis. Table 4 presents results of logistic regressions of selected recyclable items, whether or not thrown into the trash, using selected socio-demographic variables. The selected items were: glass bottles, aluminum foil, cardboard, plastic containers, and grocery bags. As observed in bivariate analysis in Table 3, living arrangement significantly influenced the likelihood that recyclables were thrown in the trash. Controlling for other selected factors, respondents living in private home were less likely to throw recyclables in the trash as opposed to those living in other arrangements. Work status showed a consistent pattern across all items. Respondents working full-time were most likely to throw out the items in the trash. Education level presented a mixed pattern of relationship with items thrown away. For three of the items — glass bottles, plastic containers, and grocery bags — respondents with high school degrees or less education were more likely to throw items in the trash, while for aluminum foil and cardboard, it was quite the opposite. Nonetheless, the association between educational level and the increased likelihood of throwing out plastic containers was statistically significant. With regards to religion, both Protestants and Catholics were more likely than others to throw out these recyclable items. However, the association for none of the items was statistically significant, with the exception of Protestants and aluminum foil.

None of the remaining factors — marital status, household size, household income, and age — showed any significant and systematic relation with throwing these items in the trash.

Table 4. Odds ratios of logistic regression analysis on selected recyclable items thrown into garbage

	Dependent variables — whether or not items thrown into garbage				
Independent Variables	Glass Bottle	Aluminum foil	Cardboard	Plastic container	Grocery bag
Marital status					
Married	.63	.84	1.26	.83	1.43
Ever-married	.88	1.63	1.44	.93	1.72
Never-married (ref)					
Religion					
Protestant	1.31	2.20*	1.87	1.18	.88
Catholic	1.08	2.14	1.43	1.35	.95
Others (ref)					
Living arrangement					
Private	.37**	.69	.41**	.39**	.45*
Others (ref)					
Work status					
Full-time	1.42	2.43*	1.18	2.65*	1.23
Others (ref)					
Education					
High school or less	1.24	.72	.85	2.51*	2.07
Some college +(ref)					
Gender					
Male	.72	.84	.65	1.01	.69
Female (ref)					
Household size	1.05	1.21	1.08	1.01	.98
Household income	1.13	.99	1.04	1.04	1.03
Age	1.01	.98	.98	1.01	.98
Model χ^2	15.9	22.0*	19.6*	17.0	14.7
Df	11	11	11	11	11

**p<.05; **p<.01*

Knowledge on Recyclable Items

The respondents were subsequently asked whether they could identify the items that are recyclable in a list provided to them. More than 80 percent reported that cans (aluminum or tin) are recyclable. Glass bottles, aluminum foil, and newspaper were reported to be recyclable by 71 to 74 percent of respondents. Slightly over one half reported that plastic containers (62 percent), aluminum foil (55 percent), and catalogs and magazines (51 percent) are recyclable. The knowledge level varied by locality, but it was difficult to find a systematic pattern of differences attributable to location.

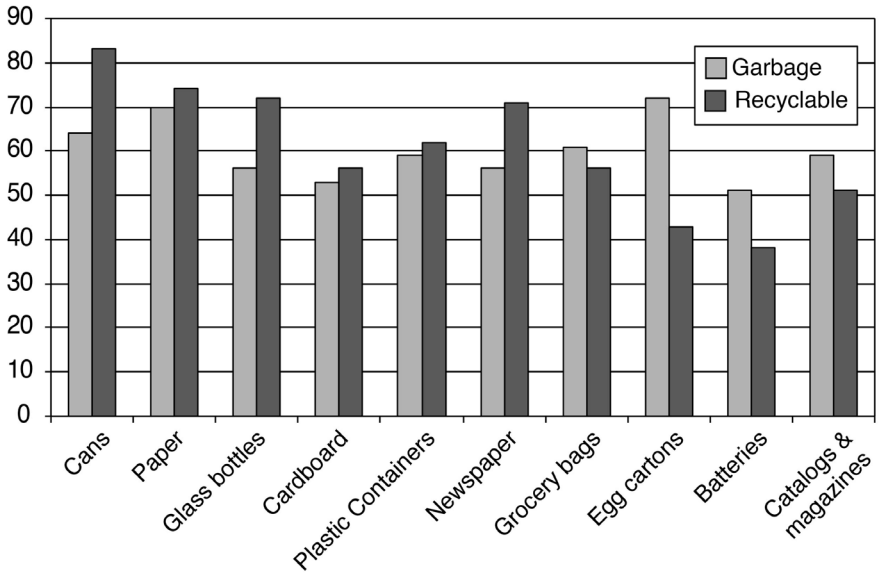
Table 5. Items that could be recycled, by location

	Percent reported that items could be recycled					
Items	City %	Suburban %	Rural %	All %	χ^2	P-value
Can (aluminum and and/or tin)	82	84	86	83	.53	.766
Paper	76	70	74	74	1.4	.495
Glass bottles	69	78	74	72	2.8	.245
Aluminum foil	56	54	55	55	.13	.936
Styrofoam	39	38	29	37	2.8	.243
Cardboard	61	46	59	56	6.5	.038
Disposable diapers	15	14	5	13	5.4	.067
Plastic containers	60	71	57	62	4.4	.110
Newspapers	68	72	80	71	3.8	.148
Grocery bags	59	47	63	56	5.6	.059
Egg cartons	47	37	38	43	4.1	.131
Batteries	36	39	41	38	.44	.800
Clothing	43	43	54	45	2.8	.250
Catalogs and magazines	51	48	53	51	-	
N	196	102	76	374		

Comparing the responses of Table 2 (items thrown out) with Table 5 (items that could be recycled) indicates that the respondents did not recycle in spite of having knowledge about recycling. Both tables provide strong indication that people need to be educated about recycling and encouraged to recycle.

For most of the items, a larger percentage of respondents knew that the item is recyclable than actually recycled the item, except for egg cartons, batteries, grocery bags, and catalogs/magazines (Fig. 1). However, the differences in knowledge of recyclables and of practices were not so large. Many households, particularly in the rural site, did not have convenient access to recycling services.

Figure 1. Comparison between the practice of throwing items in garbage and having knowledge about their recyclables



Access to Recycling Services

The respondents were asked whether they had access to recycling services in their town or neighborhood. About three-fourths of the respondents reported that they have recycling services in their community or town (Table 6.) The percentages are higher in suburban and rural sites. More specifically, respondents were asked whether they have curbside pick-up of recyclables. About one half reported that they had that service. The percentage was noticeably higher in suburban areas than in the city, while rural areas did not have that service at all. The differences are statistically significant.

Table 6. Have access to recycle items in the town, city, or neighborhood, by location

Items	Percent reported			
	City	Suburban	Rural	All
A. Town or city has a place to recycle				
Yes	70	75	80	73
No	16	16	12	15
Don't know	14	9	8	12
		χ^2=3.3	p=.508	
B. Neighborhood has a curbside recycle pick up or a dumpster for dropping off recycle items				
Yes, we have curbside recycle pick up	55	78	6	52
No, we have a recycle dumpster in our neighborhood	5	6	8	6
No, we do not have any recycle system	40	16	86	42
		χ^2=86.3	p <.001	

Benefits of Recycling

In an open-ended question, respondents were asked to list benefits of recycling. Table 7 in the Appendix presents their responses in detail. Respondents said that recycling helps maintain clean environment, water, and air, and it provides a healthy environment for all living beings. It reduces the demand for natural resources by reusing the recyclables, and it reduces pollution in the environment. Most importantly, it reduces the volume of solid waste to dispose in landfills, thereby conserving land and saving costs associated with disposal. Other benefits of recycling were decreases in the cost of public services, resulting in a reduction in taxes.

Reasons for Not Recycling

In the same above question, the respondents were asked why they did not recycle. Table 8 in the Appendix presents their responses by location. The respondents most frequently mentioned the lack of time for sorting recyclable items and putting them in recycle bins. Because recyclables take extra space in the house, the respondents considered this as one of the important reasons for not recycling. This problem became even greater when pick-ups of recyclable items are infrequent and irregular and among respondents who did not live in a private home. Many of them mentioned that they did not have curbside recycling pick up. They did not have time to carry the recyclables to roadside recycling bins at a distance. Some also mentioned laziness and forgetfulness as reasons.

Pollutants

Litter in Open Space in Neighborhoods

The indiscriminate disposal of wastes in public places is causing a serious environmental problem. To assess the overall condition of their neighborhoods with regards to cleanliness and waste disposal, the respondents were asked whether they saw any of the listed items in the street, open spaces, or water. Table 9 presents the responses from the three sites. Of the items, paper was mentioned by close to 70 percent of respondents and was the category most frequently mentioned by both city and rural respondents. Food waste and plastics were mentioned by more than half of the respondents. Food wastes are fairly high in the city, and plastics are equally found in both city and rural areas. The next groups of items were glass (47 percent) and litter (48 percent). The percentage of respondents in the city who reported seeing glass was much higher than in other locations, while the percentage of respondents reporting other litter was much higher in the rural areas.

Table 9. Items that were found on the street, in open spaces, or in water in the neighborhood, by location

	Percent reported					
Items	City %	Suburban %	Rural %	All %	χ^2	P-value
Food waste	56	49	43	52	3.9	.141
Paper	71	60	70	68	4.7	.097
Cardboard	51	25	33	40	20.8	<.001
Plastics	57	47	55	54	2.8	.246
Textiles	20	11	7	15	9.4	.009
Yard wastes	33	24	21	28	5.4	.067
Wood	33	26	21	29	4.3	.116
Glass	54	45	33	47	10.1	.006
Metals	26	15	20	21	4.8	.090
Batteries	27	12	9	19	15.4	<.001
Motor oil	28	25	13	24	6.7	.035
Tires	33	27	26	30	1.5	.481
Rubbish	33	26	12	27	12.1	.002
Litter	46	46	53	48	.974	.614
Sweepings	26	16	5	19	15.6	<.001
Debris	31	34	12	28	12.8	.002
Spoiled food wastes	22	17	12	19	4.4	.109
Agricultural wastes	11	9	4	9	3.1	.210
Ashes	14	11	8	12	1.9	.376
Demolition and construction wastage	13	12	9	12	.66	.718
Hazardous wastes	10	7	3	7	4.0	.134
N	196	102	76	374		

Respondents had concern about tires, motor oil, and batteries in the context of pollution. About one-third of all respondents reported seeing tires. One-quarter reported seeing motor oil and one-fifth reported seeing batteries. The percentages among city respondents were higher than the percentages among respondents living elsewhere, and the differences are statistically significant. These items — tires, oil, and batteries — damage the environment. In about half of the items, a significantly higher percentage of city residents reported litter than did suburban or rural respondents.

Pollutants Affecting Environment

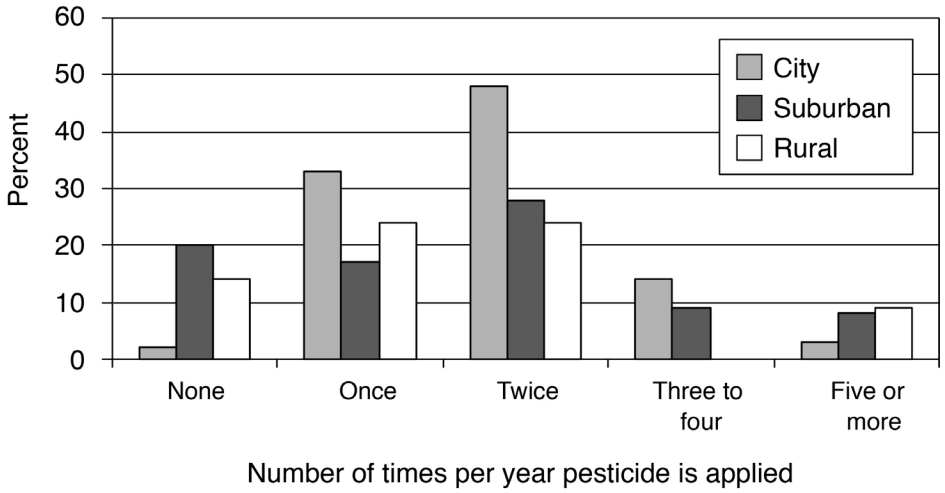
Respondents were asked to list pollutants that in their opinion were affecting the Bay. Their responses are presented in Table 10 in the Appendix. The responses were grouped into a few major groups. Hazardous chemical waste from industries was a major concern. Agricultural and farm run-off carrying pesticides and insecticides to the Bay were of equal concern. Auto pollution — such as motor oil, gasoline, and abandoned vehicles — was mentioned often. Other listed pollutants were paper; plastics; cans; bottles; wastewater drainage; yard run-off carrying fertilizers, herbicides, pesticides and insecticides; and waste foods.

Use of Pesticides and Insecticides

Overuse or careless use of pesticides or insecticides causes serious problems for marine life of Chesapeake Bay. The respondents were asked how frequently they use pesticides and

insecticides in their yards or lawns in a year. Two-time use was most frequently mentioned by the respondents (38 percent), and about a quarter used these only once a year (Figure 2.) The percentage of use was relatively higher among city respondents than among those in other locations.

Figure 2. Pesticides or insecticides in lawn, yard or garden, by population density



Attitude Towards Environment

Opinion on Preservation of Chesapeake Bay Resources

A set of eight questions was asked to assess respondents' concern about Chesapeake Bay resources. Tables 11 and 12 present the results. The respondents unequivocally agreed that the Chesapeake Bay is an important resource for the people living in Maryland and neighboring states. Interestingly, all the rural respondents believed in that statement as opposed to city and suburban respondents, and the groups differed significantly. About 90 percent of all respondents believed that pollution of their surrounding neighborhoods affected the marine life of Chesapeake Bay. Most of the respondents agreed that improper disposal of the items listed in Table 7 can cause environmental pollution that can affect the water and marine resources of Chesapeake Bay. Nearly all respondents believed that proper disposal measures could also improve the neighborhood environment. About four-fifth of the respondents reported that the supply of blue crab has declined over the years, and the percentage of rural respondents holding this view was higher.

Respondents were presented with three opinion statements about who has the responsibility to preserve the Bay's resources. One statement was about the role of government. Only one-third of the respondents agreed that the government was taking adequate measures to preserve Bay resources. Not much difference was found on this issue by location. Promisingly, nearly all respondents agreed that people should take some responsibility on their own to protect Bay resources. Nearly all agreed that people should be educated on how they can contribute to protect the Bay.

Table 11. Opinion statements on preservation of Chesapeake Bay resources, by location

Statements	Percent agree				
	City %	Suburban %	Rural %	All %	χ^2 *(P-value)*
1. Improper disposal of the above items can cause environmental pollution that can affect the water and marine resources of Chesapeake Bay.	96	98	97	97	6.4 (.594)
2. Neighborhood environment could be improved by taking proper measures of waste disposal.	97	98	100	98	8.6 (.196)
3. Pollution of your neighborhood also affects the Chesapeake Bay.	90	87	90	90	14.6 (.068)
4. Chesapeake Bay is an important resource for people living in Maryland and neighboring states.	95	95	99	96	19.2 (.014)
5. Blue Crab supply of Chesapeake Bay has declined.	77	76	86	79	13.8 (.087)
6. The Government has been taking adequate measures to preserve the Bay resources.	33	33	35	33	14.3 (.282)
7. People should also take some responsibility to protect the Chesapeake Bay resources.	90	95	100	93	12.7 (.124)
8. People should be educated on how they can contribute to protect the Chesapeake Bay.	96	95	96	95	10.4 (.239)

Table 12. Opinion statements on preservation of Chesapeake Bay resources

Statements	Response (%)					Total
	SA	A	NO	D	SD	
1. Improper disposal of the above items can cause environmental pollution that can affect the water and marine resources of Chesapeake Bay.	82	15	2	1		100
2. Neighborhood environment could be improved by taking proper measures of waste disposal.	79	19	2			100
3. Pollution of your neighborhood also affects the Chesapeake Bay.	61	28	4	5	2	100
4. Chesapeake Bay is an important resource for people living in Maryland and neighboring states.	80	16	3	1		100
5. Blue Crab supply of Chesapeake Bay has declined.	50	29	18	2	1	100
6. The Government has been taking adequate measures to preserve the Bay resources.	11	22	18	30	19	100
7. People should also take some responsibility to protect the Chesapeake Bay resources.	62	31	4	2	1	100
8. People should be educated on how they can contribute to protect the Chesapeake Bay.	66	30	3	1		100

SA=Strongly Agree; A=Agree; NO=No Opinion; D=Disagree; and SD=Strongly Disagree

New Ecological Paradigm

The New Ecological Paradigm Scale (NEP) was developed as a measurement of environmental concerns or endorsement of an ecological worldview. A high score on the NEP reflects a pro-ecological orientation that should lead to pro-environmental beliefs and attitudes. The scale is divided into five categories of environmental attitudes: the limits to natural resources, the balance of nature, whether humans are exempt from the laws of nature, whether an ecological crisis exists, and whether humans have greater rights than does "nature." Agreement with the eight odd-numbered questions contributed toward a more pro-environmental score on the NEP. Disagreement with the seven even-numbered questions had the same effect. Tables 13 and 14 present responses to these New Ecological Paradigm Scale items (Dunlap et al. 2000).

Table 13 presents responses to the statements by location. Some responses showed statistically significant differences by location — city, urban and suburban. These statements were: "We are approaching the limit of the number of people the earth can support," "The so-called 'ecological crisis' facing mankind has been greatly exaggerated," and "The earth is like a space ship with very limited room and resources." With these exceptions, the overall responses were consistent

among the respondents of three locations. Percentages of agreement varied substantially by statements. Some statements were overwhelmingly supported by the respondents.

Table 14 presents the same statements grouped into five categories of the NEP. For each the statement, the percentage who responded in pro-environmental way is shown. All of the eight odd-numbered (pro-environmental) statements had higher percentages of agreement than did the seven even-numbered (not pro-environmental) statements. The percentage of disagreement in the seven even-numbered statements was less than 50 percent, and for some, less than 30 percent. For many of these, higher percentages of respondents chose the response "unsure." Among the five categories, two — ecological balance and eco-crisis — received greater emphasis by the respondents as two of the three statements in each were supported by at least three-fourths of the respondents. Thus, the results indicate an overall awareness of the respondents in environmental and ecological issues.

Table 13. Statements to assess the relationship between human and environment, by location

	Percent agreed				
Statements	City %	Suburban %	Rural %	All %	χ^2 *(P-value)*
1. We are approaching the limit of the number of people the earth can support	54	37	53	48	15.6 (.049)
2. Humans have the right to modify the natural environment to suit their needs	44	39	33	40	3.9 (.865)
3. When humans interfere with nature it often produces disastrous consequences	81	78	79	80	11.9 (.153)
4. Humans ingenuity will insure that we do NOT make the earth unlivable	46	45	30	42	9.1 (.331)
5. Humans are severely abusing the environment	86	89	74	85	12.6 (.126)
6. The earth has plenty of natural resources if we just learn how to develop them	81	84	76	82	7.4 (.490)
7. Plants and animals have as much right as humans to exist	88	84	76	82	12.6 (.128)
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	34	38	43	37	6.4 (.608)
9. Despite our special abilities humans are still subject to the laws of nature	88	86	81	87	5.4 (.714)
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	37	28	36	34	19.3 (.013)
11. The earth is like a spaceship with very limited room and resources	61	44	29	52	17.8 (.023)
12. Humans were meant to rule over the rest of nature	44	52	55	47	5.8 (.668)
13. The balance of nature is very delicate and easily upset	76	76	70	76	11.5 (.173)
14. Humans will eventually learn enough about how nature works to be able to control it	26	43	62	46	7.9 (.440)
15. If things continue on their present course, we will soon experience a major ecological catastrophe	75	71	80	75	10.7 (.222)
N	196	102	76		374

Table 14. Statements of the New Ecological Paradigm, by major beliefs

Statements	Response SA %	MA %	U %	MD %	SD %	Pro-environmental
Human domination						
2. Humans have the right to modify the natural environment to suit their needs (disagree)	18	23	12	22	25	**47**
7. Plants and animals have as much right as humans to exist (agree)	66	20	7	5	2	**86**
12. Humans were meant to rule over the rest of nature (disagree)	27	20	14	23	16	**39**
Anti-exempt						
4. Humans ingenuity will insure that we do NOT make the earth unlivable (disagree)	19	23	33	16	9	**25**
9. Despite our special abilities humans are still subject to the laws of nature (agree)	59	28	8	3	2	**87**
14. Humans will eventually learn enough about how nature works to be able to control it (disagree)	17	29	22	18	13	**31**
Balance						
3. When humans interfere with nature it often produces disastrous consequences (agree)	46	34	9	7	4	**80**
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations (disagree)	19	18	20	19	24	**43**
13. The balance of nature is very delicate and easily upset (agree)	38	38	14	7	3	**76**
Eco-Crisis						
5. Humans are severely abusing the environment (agree)	58	27	7	5	2	**85**
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated (disagree)	16	18	23	20	23	**43**
15. If things continue on their present course, we will soon experience a major ecological catastrophe (agree)	44	30	19	5	3	**74**
Limits						
1. We are approaching the limit of the number of people the earth can support (agree)	21	27	33	10	9	**48**
6. The earth has plenty of natural resources if we just learn how to develop them (disagree)	52	30	9	4	5	**9**
11. The earth is like a spaceship with very limited room and resources (agree)	23	29	18	20	9	**52**

SA=Strongly Agree; MA=Mildly Agree; U=Unsure; MD=Mildly Disagree; and SD=Strongly Disagree.

Sources of Knowledge on Environment

Two questions were asked to identify the sources of the respondents' knowledge, one regarding children and other regarding adults (Table 15). About 70 percent of children learned about the environment from their schools. The percentage was lowest in the city. For adults, 63 percent reported that television was the primary source of their knowledge. This percentage was even higher in the city. However, for rural areas, newspapers were the primary source. TV, radio, newspapers, and magazines were among adults' sources of knowledge about the environment.

Table 15. Source of knowledge about environment, by location

	Percent reported			
Source of knowledge	City	Suburban	Rural	N
A. Did your children learn about environment from school?				
Yes	63	77	72	69
No	25	12	10	18
Don't know	12	11	18	13
B. Where did you learn about environment from?*				
TV	68	60	47	62
Radio	30	4	26	22
Newspaper	44	14	51	37
Magazine	33	8	36	26
From my children's school materials	20	5	11	14
Don't know about environment	9	2	11	7

**This is a multiple-response question*

Policy and Programs Suggested by Respondents

The respondents were asked three open-ended questions about measures that governments and community organizations should take to improve Chesapeake Bay resources. Respondents offered a wide range of suggestions. These are listed in Tables 16, 17, and 18 in the Appendix.

What the Federal or State Government Should Do

Table 16 in the Appendix presents the list of responses about what measures government should take in order to improve and preserve Chesapeake Bay resources. Because the question referred to the government role (e.g., federal or state) in developing policy and program measures, the responses were not classified by location or site. Despite the difficulties of placing responses into proper classification, these were grouped into 11 categories to understand the major concerns of the people.

The respondents placed a high emphasis on educating people and making them aware about the importance of environmental issues, in particular, about Chesapeake Bay resources. The government should develop programs to educate people about the environment using various news and advertisement media, such as billboards, posters, advertisements, leaflets, radio, TV commercials, schools, seminars, and meetings.. People should be educated about the consequences of polluting the environment and the effects on marine life and water, land, air,

and natural resources. The public should be informed about the importance of recycling and of minimizing solid wastes. Children should be educated on these aspects as soon as they enter elementary school.

Certain types of punitive measures were also strongly recommended by the respondents. Polluters should be heavily fined as a deterrent to harmful behaviors. The deterrent option was applicable to households, individual companies, and industries. The punishment should include jail time based on the level of severity. Also recommended was an agency to enforce the penalties and to implement the laws. The government should employ Bay watchers for illegal dumping of pollutants. Respondents recommended setting up a preservation and protection commission. People should be held responsible for waste and debris found in neighborhoods and near the Bay. The comments of the respondents reflect a lack of awareness of government services and oversight. The agencies and measures that they suggest already exist in the state and local governments.

The respondents also suggested some preventive measures. These were: be proactive, clean storm water drains, frequently test pollution levels, improve ways of controlling factory waste, enforce laws on overfishing, restrict fertilizer run-offs into the Bay, and provide easier ways to dispose of recyclables.

For prevention, recycling received the main focus among the respondents. They suggested that the recycling system should be improved by providing recycling services, such as setting up recycling bins and pick-ups; routine and frequent pick-ups; making recycling mandatory; and patrolling dumping grounds more often. There should be an incentive for recycling, and a disincentive for not doing it. Every household should receive guidelines about which items are recyclable. Residential and commercial growth near Bay resource areas should be limited.

Respondents also said that the government should divert more resources to education, services, and research on environment issues. Funding should be made available to periodically clean the Bay's shorelines, monitor pollution levels, enforce environmental laws, expand recycling services, and provide educational programs. More funds are needed for processing recyclables and managing solid wastes. More research grants should be made available for studying infected fishes and crabs and other environmental issues.

Suggestions also came regarding policy modification and adoption. There were suggestions to ratify laws that protect the environment. More specific recommendations covered tighter rules on runoff, agriculture, stormwater, and fertilizer. Respondents said that the government should enact laws requiring female crabs to be thrown back into the Bay and restricting harvesting of crabs.

What the Town or City Authority Should Do

Respondents were asked a similar question about what their town or city authority should or could do to improve and preserve Bay resources. Most of the responses were similar to those for the earlier question. The responses are listed in Table 17 by location. The responses are self-explanatory; however, the following are the highlights. Education received major emphasis from the respondents. They felt people needed to be educated about the environment, how to prevent environmental degradation, and the importance of these efforts. Towns and cities should create awareness programs for people on environmental issues and encourage their participation in protecting the environment.

Recycling was most frequently mentioned as a method of environmental protection. People should be educated about recycling to create motivation for recycling. People should be given proper information about items that are recyclable. Awareness should be created among people — using flyers, advertisements, billboards, radio, and TV — about the importance of the Chesapeake Bay and how it can be protected from pollution. Neighborhood associations should be encouraged to develop awareness campaign programs in the community. This can be done by creating neighborhood recycling clubs, neighborhood cleanup clubs, and holding meetings in City Halls. With support from neighborhood volunteers and associations, towns and cities should establish neighborhood cleanup days to clean up roadsides and Bay shores. Towns and cities should expand recycling services covering every household, business, and industry, such as by routine pickup of recyclables. Every household should have curbside pickups or access to a recycling receptacle nearby. Access to recycling services was a primary desire of the respondents in the rural site in order to participate effectively in recycling.

To enforce recycling, towns and cities should require recycling on a mandatory basis and fine violators. Effective incentives and disincentives should be developed to enforce recycling. Industries should be charged with a hefty fine for any kind of pollution or dumping in the Bay or on the shore.

New housing or commercial development should be restricted within close proximity to the Bay. There should be periodic testing and monitoring in place to detect chemical pollutants in the water of the Bay. Better systems to manage toxic runoffs from industries, agricultural fields, and residential areas should be developed.

More resources should be provided for the preservation of the Chesapeake Bay. People should be encouraged to contribute to the Chesapeake Bay Foundation.

What the Community Should Do

Respondents were asked a similar question about what their communities could or should do to protect Chesapeake Bay resources. The responses are listed in Table 18 in Appendix. Consistent with the previous two questions, the respondents emphasized educating people and creating awareness about the environment. However, they did provide a clear indication about the role of community in preserving the Bay and improving and maintaining better environmental conditions. Their suggestions are most valuable, and implementation of these suggestions will make an effective impact on the preservation of Bay resources.

Communities should form community associations or groups for environmental watch. They will develop educational programs for citizens through neighborhood meetings, flyers, billboards, and posters. Citizens should be educated about recycling and its importance, how to keep the environment clean, and how preserve Bay resources. Children should be encouraged to participate in education programs. They should be taught not to throw trash or garbage on the street or in open spaces other than in proper or designated trash cans.

There should be a campaign for community cleanup periodically. This will help clean up roads and open spaces in neighborhoods and along Bay shorelines. In addition, communities should raise funds for various activities of environmental protection.

People should be held responsible for polluting the environment. Communities should fine people who throw trash, litter, and garbage other than in proper disposal areas.

Summary and Conclusions

The Maryland Sea Grant College (MDSG) is one of 33 Sea Grant programs across the country whose mission is to improve our understanding of how environmental forces and human activities affect the vitality of the Chesapeake Bay and Maryland's coastal waters. To assess environmental attitudes, knowledge, and behaviors of the African-American community in Maryland, MDSG commissioned this study by the Institute for Urban Research and Estuarine Research Center of Morgan State University.

Three hundred and seventy-four African-Americans were interviewed using a self-administered, structured questionnaire containing closed- and open-ended questions. The respondents were selected based on a purposive sampling from three Maryland locations: an urban neighborhood in Baltimore City, a suburban area of Prince George's County, and a rural section of Dorchester County.

The knowledge, attitudes, and behaviors of the African-American community were generally pro-environmental, especially regarding the Chesapeake Bay. There was a clear call for increased education on environmental issues and indications that existing outreach was not reaching these communities. The population classifications of city, suburban, and rural did not have an effect on most responses. Specific findings are in the following paragraphs.

Knowledge

In each of the survey sections there were indications of knowledge deficiencies. For example, when asked what could be done to improve and preserve Chesapeake Bay resources, many respondents called for the formation of a government agency to monitor and punish polluters. An existing agency, the Maryland Department of the Environment, is tasked with both functions. Many respondents had no knowledge or incomplete knowledge of recycling services available in their community. Knowledge of items that could be recycled was also limited. Among all respondents, television was found to be the major source of information about the environment in general; however, for respondents in the rural area, it was newspapers. The prevailing level of knowledge among the respondents is of important concern for those attempting to improve environmental conditions. The need for more and better education was a consistent theme throughout the responses.

Attitude

Two sections were used to gauge the attitude of the respondents: the New Ecological Paradigm Scale and a set of questions specific to the Chesapeake Bay.

Chesapeake Bay

The response to the Chesapeake Bay was overwhelming positive. Respondents saw the Bay as an important resource that should be protected. Further there was strong agreement that government was not doing enough and the people should take more responsibility. Two areas in which the response was weaker were whether pollution in your neighborhood affected the Bay and whether the blue crab population had declined. Such responses indicated that there was a foundation of shared concern and a need for education programs focused on specific topic areas.

New Ecological Paradigm

The New Ecological Paradigm Scale (NEP) was developed to measure agreement of respondents with a pro-environmental attitude. There was agreement that we are facing an ecological crisis and that there is a balance in nature that can be disturbed. At the same time, respondents expressed ambivalence on statements of humans' right to dominate nature and our ability to eventually correct any impact we make. There was little disagreement with the statement that earth has plenty of resources and we just need to develop them. Overall, respondents recognized that an ecological crisis may soon occur; however, they viewed the risk as manageable and believed that we have can exploit nature in a sustainable way. These attitudes were recognizable in many of the responses to the other parts of the survey. What became clear in the other sections is that the respondents were seldom the agents of change.

Practices

Two groups of questions were used to examine environmental practices, pesticide use, and recycling. Pesticide use is a voluntary act that is harmful to the environment. Similarly, recycling provides an opportunity for individuals to do something positive for the environment. Pesticide was one of the few questions with a strong population effect, with city residents having higher use than either rural or suburban respondents. More than 50 percent of respondents did not recycle items that they identified as recyclable. Respondents who were younger, not married, living in apartments, and working full time were less likely to recycle. As has been reported in other studies, inconvenience was the most common reason cited for not recycling. Lack of recycling services and lack of information about services were second. These last comments indicate that current outreach programs may not be reaching this community.

The survey generated interesting and valuable insights using limited resources. The resource limitations resulted in a small sample size and a convenience sampling design, which limited the generalizability of the findings.

Recommendations

The respondents expected government to play a stronger role. They suggested punitive measures and financial disincentives for those who violate environmental rules. Most respondents saw education as an important tool in the protection of natural resources. Based on the findings and the comments of the respondents, we make following policy recommendations:

- Conduct a larger, more comprehensive survey
- Develop action-orientated outreach programs
- Develop educational programs specifically focusing on environmental issues that are more culturally relevant to the African-American community
- Use community- and faith-based organizations in outreach programs
- Build community-based organizations to oversee, undertake, and monitor activities on environmental issues

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Appendix A–Table 7. Responses of the open-ended question: What are the benefits of recycling to your family?

Baltimore City	Suburban	Rural
Contribute to environment	Saves Earth	To help save Mother Earth
Benefits helpful for the future and keeping	Better environment -2; reduce waste	Better for our environment -3; cuts trash in half
things clean	Cleaner environment -2; less landfill	Cleaner environment -5
Civic pride	Save the trees; recycled clothing for needy	More space in landfills
Cleaner/healthier environment -5	Cleaner neighborhood -2; less visible trash	Cost less
Cleaner environment, water, air, etc.	Reuse of material	Ecological benefit
Cleaner water, fish, crabs, water borne food	Energy efficiency; Less pollution	Economic benefits
Cleanliness; neatness	Environmental advantages	Feel good about doing it
Conserve resources; Better environment	Environmental awareness; involved in protecting	Instills responsibility in children
Convenience -2; there should be one in our	environment	Greatly reduced amount of garbage
building	Feel good about contributing to saving the	Help out the community
Doing our little part to help save the planet	environment	Help save energy, natural resources
Easier -2	For my future generations	Help the community
Educational for children; less waste; preserve	Good to recycle for the environment	Help the environment
environment	Great saving of time	Helping save our Earth
Feel good about ourselves	Have large trash can for the whole place	Helping the Earth
Feel good; believe we are contributing to	Help to recycle paper, bottles & cans	Helping/ saving the environment -10
healthy environment	Helping keep the environment clean -2	Reduce trash in my trash can
Feel like we are a part of saving the world	Helping the environment -4	Cuts down on trash; need for landfills
Good for the environment -4	Helps dispose of trash	Shows family how & benefits of recycling
Educational for the kids	Helps keep our Earth cleaner by recycling of	Helps others
Help preserve the environment	products	Helps the Earth
Help restore the Bay	Preserves natural resources	Helps the economy in the long run eliminates
Help the Earth and community	Helps us separate various items for proper	extra trash
Helping the Earth forces people to think	disposal	Important to me and my family
about their trash	I don't know	Improves quality of environment
Helps Environment -4	It refurbishes the ecosystem	It helps the environment somewhat
Helps environment and economy; reduces	It saves from wasting; very important not to waste	It saves the environment so my family can live a
garbage output	It would help the Earth	healthy life
Helps keep the neighborhood clean	Keeps the garbage from smelling	Less garbage to dispose
Helps protect the environment	Less garbage going out to dump	Less garbage; well being; saves Earth
Helps the Earth -3	Less impact on the environment	Less junk in the landfills
Helps to preserve the environment	Less in the trash can	Less trash for pickup -2
Helps us join in helping the environment	Less litter on the streets	Less trash in landfills; reuse of materials

Appendix A–Table 7, continued

Table 7. Responses of the open-ended question, what are the benefits of recycling to your family?		
Baltimore City	**Suburban**	**Rural**
I don't know	Less trash for garbage can	Less trash to deal with at home
It helps to have a place for reusable items	Less trash to throw away; help to society as	Less trash to put on curbside each week
It keeps the environment clean or preserved	a whole	Less trash to take out; enjoy recycling
It lowers my taxes		
It would help the environment	Less trash; less trash bags to buy; helping	Less room in landfill
Keeping communities safe	the environment	Less traveling to the landfill
Keeps cost of living down; protect environment	Less waste	Long range benefits to the environment
Less bulk	Maintains a good environment	Money from returning recyclables; less trash
Less clutter in the home; less heavy trash	Natural resources	Reduces garbage for container
Less garbage/ trash -10	None -3	Reuse plastic bags for trash
Easy with curbside pickup	Preservation of the environment	Save energy and valuable resources
Smaller garbage bags	Put newspaper into recycle bin	Save trees
Less landfill waste	Reduce landfill; can be reused	Saves landfill space
Less pollution	Reduces the amount of garbage going to landfills	Saves money
Less resources needed to replace items	Reuse of our resources	Saves on pollution
Less trash for trashmen to pick up	Safety for the environment; healthier living for all	Cuts down on the amount of garbage
Feel good	Save energy; environmentally friendly	Tax write-off; clothes and household items
Looking out for the next generation	Save money	Teaches responsibility; care for env.; less waste;
Lower cost in recyclable items	Saving the Earth in every aspect	good for economics
No fines	Saving the environment -2	The importance of helping the environment
No Idea	The materials can be reproduced	We do recycle to help the environment
No immediate benefit	To help environment; unwanted items can be useful	we pay for trash pickup; it saves us money
None -7	To save money on product/materials & cut	
None because we do not have time to recycle	back cost	
Preserves the environment	We live in an apt	
Recycling items to preserve resources		
Recycling will help to have a cleaner environment		
Create jobs		
Reduces pollution -2		
Reduces quantity of trash		
Reduction of waste		
Reuse of items -2		
Reuse of recyclable items		

Appendix A–Table 7, continued

Table 7. Responses of the open-ended question, what are the benefits of recycling to your family?		
Baltimore City	**Suburban**	**Rural**
Save energy		
Save money -4		
Save resources; cut down on global warming		
Save/help the bay -2; Help the food chain		
Save the natural resources		
Saves money on trash bags		
Saves on trashbags		
Saving the planet		
Saving/help/good for the environment -11		
Self fulfilment; clean air; clean environment		
Sorting and putting recyclables to better use		
Stop air pollution; more space for grandkids;		
help the economy		
Stop polluting; stop waste		
Time consuming		
To Help The Economy		
Tree maintenance; clean air; helping goodwill		
w/needed clothing		
Two pickups a week rather than one pickup		
on Friday		
We are all taking a part in helping to restore our universe		

Appendix B–Table 8. Listed reasons for not recycling as recorded by respondents, by location

Baltimore City	Suburban	Rural
Not pick up appropriately	Certain items I am not sure of	Time and space
Cause contamination; toxins travel through sewage	Costly to remake products continuous & waste	Can't recycle some things locally; taking items to center
Children are not disciplined to separate the recycled matter	Do not have a recycling container	Causes clutter in my garage
Collecting items and taking them to the recycling bin	Don't have the time	Collecting items and taking them to the recycling center
Contribute to global warming	Don't know what to recycle and the benefit on the world	Do not have room for boxes or bins for recycled items
Curbside bins disappear; pickup schedule not consistent	Easier to put all in one container	Hard to remember; inconvenience of transporting to drop-off
Destroying the Earth; causing cancer; toxic air & water	Hassle if items are not picked up	Hassle to keep recycled items in storage
Difficulty taking care of recycled materials in our complex	I don't do nearly enough	Have to drop off recyclables ourselves
Discrimination based on geographic location	I don't know	Inconvenience of sorting, transporting to center
Extra work	If newspaper aren't secured, collectors will not pick up	Inconvenience, dumpsters not at walking distance to home
Finding a place to take the recycled materials	It takes too much time. I don't like messing with trash	Inconvenient (2 responded)
Forgetting to do it	Limited service; rude personnel; inconvenient pickup times	Inconvenient since we have to take it somewhere
Forgetting to place items for pickup	Maybe the product quality could be reduced	Inconvenient to separate & take to recycling center
Germs	More time	Increased clutter while waiting to recycle items
Hard to separate everything	Need better containers	Inefficient recycling system
Hassle of separating trash	No place to store the recycling containers	It's a pain in the butt; makes a mess sometimes
Have to deliver recyclables to recycle center	No recycling bins in my area	Large amt of space needed; takes room
Having pickups by city	None -15	Littering the environment
Having to find a place to recycle	None known	Low quality
Having to separate items; finding out city's recycling policy	None that I can think of	Newspaper/plastic pile ups before taking to recycling center
Having to separate items; remembering pickup days	None; it just takes a little extra time	No collection service
Higher cost if you don't recycle	Not enough people want to recycle	No collection system
I don't know	Not recycling	
I don't know specifics-days, etc.	Opposite of the benefits	
Inconvenience -2	Remembering all the things to dispose	
Infrequent pickups	Remembering to recycle; put out the bin to be picked up	
	Separating the items and knowing what may be recycled	

Appendix B–Table 8, continued

Table 8. Listed reasons for not recycling as recorded by respondents by location		
Baltimore City	**Suburban**	**Rural**
It is a bit more work	Separating what's to be recycled	No containers to separate items; no
Keeping it for 2 weeks	Some recycled items not allowed to be picked	door-to-door pickup
Minimize waste of recyclable items	up	No recycling station nearby
Minimum amount will be collected	Sorting immediately after use; difficult to	No way
My family doesn't care too much about	become habit	No way
recycling	Takes too much to remember to recycle	None
No Idea	Taking the time to separate the various items	None- but easily accessible
No knowledge of recycling site in the area	Time consuming -5	None, once you get into the routine
No knowledge of where to bring items to be	Too lazy to do it	Not always convenient -2
recycled		Room to collect at home
No pickup		Space for recycling; Time to take it to
No recycling bins available for pickup		recycling center
None -15		Storage, mess
Not a hassle		Storage; time
Not everyone does it		Takes too much time to sort out; too much
Not mandatory; no storage; no space		space
Not time to sort the garbage		Taking trash to drop off location
Organizing that stuff is tedious, if anything		Time and space
Paper is not always picked up; overflow of		Time and space consuming
containers		Time consuming -7
pollution of water and food (crops)		Time consuming; more space needed for
Pollution of water, fish, crabs, water Bourne		containers
food		Time to go to the recycling center
Recycling locations are not easily accessible		Waste time getting to recycling area
Remembering to separate items-3; rinsing		
containers		
Separate cans for recycling; taking time to		
separate items		
Separating the recyclables properly -2		
So much easier to toss in trash		
Sometimes recyclables are not picked up		
Space; no place to store the recycling bin		
Storage of recyclables between pickups		
Takes a little time		

Appendix B–Table 8, continued

Table 8. Listed reasons for not recycling as recorded by respondents by location		
Baltimore City	**Suburban**	**Rural**
Takes a lot of extra work in bagging,		
separating, etc.		
Takes time and space		
Taking the time to do it		
They don't recycle bottles & cans or batteries		
Time and organization		
Time consuming -17		
Time consuming process of separating trash		
Time consuming when not gathered ahead of		
time		
Confusing dates & containers		
Lack of knowledge of recycling process		
Takes space in house		
Time it takes to recycle; inconvenience		
Too much pile up of trash		
Where to bring it?		
Where to store the items until they are picked		
up		

Appendix C–Table 10. Question asked: In your opinion what are the things (pollutants) affecting the Chesapeake Bay most?

Baltimore City	Suburban	Rural
1. Chemicals	**1. Chemicals**	**1. Chemicals**
Chemicals from factories	Cleaning products;	Farm field run-off(nutrient loading) causes
Plant chemicals;	dead bodies	algae to bloom depleting the water of oxygen
Litter; chemicals; lawns	yard waste	Chemicals; toxic waste; fertilizers
Air and water contaminants cause the most pollution	Wood;	Erosion from developments; chemical
Litter; rubbish; road run-offs; farm run-offs; hazardous waste from chemicals and other industries	Chemical waste	run-off from lawns and golf courses
Chemical waste; sewage plants; pesticides	Disposal of chemicals	Chemical run-off -2
Chemicals -2	H_2O pollutants	**2. Agricultural /Farms Run-offs**
All kinds of trash; pesticide run-offs; insecticides; Animal waste; radiator coolant	Bad water; chemical imbalances	Farm chemicals and litter
Hazardous chemical waste from factories	Chemical waste from plants	Agricultural waste; litter; tires; wood; paper
Toxic chemicals; trash; oil; waste from ships	Chemical run-off; waste materials	Fertilizer; pesticides; careless disposal of trash
Plastics; chemical spills; hazardous wastes	cleaning products	Fertilizer run-off from farms
Development run-off; sewer run-off; farm chemical run-off	Hazardous waste -7; debris -2;	Farming chemicals; new housing developments
I believe chemical run-off is affecting the Bay on a molecular level	Rubbish;	Sewage; agricultural run-off
Chemicals from factories	food wastes	Agricultural waste; plastics
Chemical; agricultural; petrochemical; acid rain	I think trash is affecting the Chesapeake Bay	Farm run-off; waste
Chemicals; oil; trash	most and by that I mean when people litter	Garbage
Fertilizer; trash; chemicals	solid waste; chemicals	People that throw garbage or dispose garbage
Chemicals; solvents	Pollution from litter	near or in the Bay
Run-off; chemical	**2. Agricultural /Farms Run-offs**	Debris; hazardous waste
2. Agricultural/Farm Runoffs	Fertilizers	Hazardous wastes; rubbish; flood wastes
Agricultural waste; chemicals	agricultural waste	Litter-2; trashes
Agricultural run-off; sewer run-off	Pesticides -2	Pesticides; sewage
Agricultural waste; sweeping	Lawn care products	Cans; motor oil-6
agricultural run-off; storm water run-off	Mainly fertilizer runoff from dairy farms;	Oil pollutants from factories

Appendix C–Table 10, continued

Table 10. Question Asked: In your opinion what are the things (pollutants) affecting the Chesapeake Bay most?		
Baltimore City	**Suburban**	**Rural**
agricultural wastes-2	**3. Auto Pollution**	Factories run-off-2
pollutants from farms	People and automotive trash	Boat parties
hazardous waste water	Gas; motor oil -15	Paper -4
hazardous waste -12	Tires; gasoline; trash;	bottles
I'm not sure, hazardous waste	Garbage; toxic waste; metal objects	Plastic bottles; soda cans
Dirt; everything that you can think of	Rubber; wrappers; cans -2	Runoff from Baltimore Harbor and points north
Debris-14	Car waste	Overdevelopment; run-off
Rubbish-5; in my opinion all of the items identified	Untreated water; untreated sewage; debris-2	**3. Auto Pollution**
3. Auto Pollution	Fertilizer from lawns	Industrial run-offs; human pollutants
Batteries -4	**4. Trash**	Sewage from over population near tributaries
Tires -4; and rubber products	Polluted water	Industrial & agricultural(including lawn) run-off;
Motor oil -19; cans; trash	Plastics -4; spoiled food -2; waste	waste
Air pollutants from motor vehicles	Bottles -4; dead wood	Trash being put in the water; pollutants from
Oil leaks; litter	Paper -6	factories and boats
Oil spills-2; litter floating into waters; body waste;	Sticks;	Factory waste; farm run-off
inconsiderate people	Litter-7	Too much development along the Bay and its
Oil spills; run-off due to heavy rain	Disposed materials	tributaries
Gasoline	All trash; gases from boats	Farm run-off; industrial waste
motor oils from automobiles	Dirty water drainage	Industrial; agricultural; sewage; building too
Discards from some of our businesses; people	food waste-2	close to wetlands
putting oil in our sewers	Trash -12	Run-off from farms and businesses; pollution;
debris; heavy metals	Trash thrown in the sewages	litter
4. Trash	Fast food containers	Sewage
Bottles-5 and paper wrappers	Cigarettes, etc.	Trash-6; plastic rings; oil spills
candy wrappers;	Garbage -2	bottles; cans-2; cigarettes
Garbage -9; cans-3	Waste disposal	toxic waste
Paper-13; clothing; everything	Pollution	Waste -2
Glass- 2	Waste -2	Yes -2, all pollutants affect the Bay area
Food wastes-8; cardboard -2	Waste from construction	Farm run-off
People throwing cans, bottles and leftover food in the water. Also pampers	Waste thrown by passers-by	Trash from vehicles
Plastic bottles/ materials -16		
metal		

Appendix C–Table 10, continued

Table 10. Question Asked: In your opinion what are the things (pollutants) affecting the Chesapeake Bay most?		
Baltimore City	**Suburban**	**Rural**
Chip bags; food wrappers	The fish are largely affected; some people	
Household waste water	might eat these fish. It could cause some	
Any trash thrown in the sewer which winds up in Chesapeake Bay	people illness	
Sewage	Various debris	
Run-off from building too close to the Bay	**5. Industrial Run-offs**	
Yard run-off; pet waste	Polluting plants in Virginia	
Run-off; rubbish-2	Development destroying watersheds	
Public waste; factory rubbish; trash	Gases from different manufacturing plants	
Bottles-2	Industrial Waste	
Any type of trash or garbage	Improper disposal of water	
Trash -18		
Litter -16		
Smoke; dirty water		
Trash that is washed down the drains or		
Improper disposal of trash		
Waste -9 (paper, cap lids, etc.)		
Poor maintenance of storm drains		
Human waste; bacteria		
I believe all waste is eventually affecting the Bay		
5. Industrial Runoffs		
Company runoff; government payoff to look away		
Industrial waste; waste from the factories		
Factories litter/ trash-4; not enough recycling		
Oil spills; trash; companies that dump in the Bay		
Factories dumping trash and debris		
Waste material from factories, etc.		
Big companies and small businesses who dump		
wastes illegally		

Appendix C–Table 10, continued

Table 10. Question Asked: In your opinion what are the things (pollutants) affecting the Chesapeake Bay most?		
Baltimore City	**Suburban**	**Rural**
Run-off; industrial pollutants especially north of		
Key Bridge on the Patapsco River;		
Downflow from Susquhana River		
Companies releasing trash from their industries;		
Every day people who just don't care		
Factory dumping liquids and other by products;		
garbage being thrown into the water		
Companies		
Mostly people who disregard trash with no		
regard for our natural resources		
Almost all of the items listed above		
Garbage; noise; air pollution; forest burning		

Appendix D–Table 16. Question asked: What measures do you think the government should take to improve and preserve the Bay resources?

Responses:

1. Curative Measures

Help volunteers to be able to continue to clean the Bay
Invent a new summer job just for cleaning the Bay
They should start by taking measures to clean the waste out
Dredging the harbor for trash
A solution in the sewage water for everyone that flushes into the water but cuts down bacteria

2. Education and Awareness

Advertisement
Education -7 responses
Mail literature to each home on Do's and Don'ts
Continue to Educate
Incorporate Awareness Publications in schools; PSA's 3 times a day for next 5 years
Educating our children at the elementary level; more funding for educational programs
Integrate awareness through education (school curriculum, community meetings, social events)
Educating the youth; installing programs
Educate the people; more advertisement
Distribute literature to taxpayers
More seminars, TV and radio spots
Public education teaching how individuals can be more responsible
Newsletters on how we can preserve the Bay
Make adequate provision to avoid pollution of hazardous wastes in the Bay
Send out programs or fliers concerning issues and ways you can help
Publicize how to help restoring the Bay's health
Curbside recycling weekly or bi-monthly; money allocated to school educational programs
Seminars; commercials; billboards
Public education Ad campaign
Education on projects
Educate people on how to keep the Bay clean
Education of public at an early age
Educate people in Maryland about this
Educating the average Joe about waste management
Advertise the benefits more often
Increased media exposure to solutions & benefits for a cleaner environment
Education in schools; limiting development in certain areas
Publications to the public by media
Make this publicly known; commercials; teaching
Educate people the importance of marine life in the Bay

Appendix D – Table 16, continued

Educate people about preserving the Bay Resource
Education; investment in alternative packaging/fertilizer
The government could make us aware of ways to help
Educating the people –3
Education at schools, field trips, guest speakers; education at the workplace
Offer information packets
Educate our children in schools on how to recycle & be more responsible
More education on recycling and should be offered free of cost
Recycle education
Educating citizens about Chesapeake Bay benefit
Educate the general public
Awareness programs
Signs; advertisements
Information passed out to citizens
Use media to expose
Inform public through ads, etc.
Better education
Infomercials; school programs; library program
Better inform the public; make provision for disposal
Educate our youth about its importance
Educational programs/ Educational training -2
More education effort
Make it easier; more awareness
Knowledge is power

3. Garbage/Waste Disposal

Place garbage cans back on some curbs
Control the trash or anything entering the Bay
To get people to put trash into the proper place
Do not throw trash in the bay
Put trash/waste in its proper place
Better waste disposal; stronger penalties for violators; better technology to assist
Have more help to extend days for pick-up (trash) etc.

4. Investigation

Identify the causes of infected fishes and crabs
More research; less harvesting of crabs, fish, etc.

5. Monitoring

Set up a preservation & protection commission to do the job
Minor hazardous material disposal

Appendix D – Table 16, continued

Frequent & regular testing of water; frequent & regular on-site monitoring of industry compliance
Monitor more often; educate people about importance of the Bay
More patrols; whatever it takes to improve or make improvements
Closer monitoring of agricultural waste & marine waste

6. Punitive Measures

Employ Bay watcher from each city around the Bay Area to monitor illegal pollution of Bay properties
Post fines for littering and pollutant and enforce them better
Jail time, heavy fines for dumping of hazardous materials into or around the Bay
Make a law and make the people pay the fine
Real punitive measures for offenders
Start fining people who litter
Make laws to prevent polluting the Bay
Place a hefty fine on littering
Fines for polluting -3
Making individuals responsible for their actions; administering stronger and stiffer fines
Companies in violation should be fined more taxes.
Strong penalties; supply easy ways to recycle
Stronger penalties for improper waste disposal
Stronger enforcement of fines for industries that pollute
Large fines/ strong fines/ fines -3
Stronger penalties to companies that pollute
Other consequences for littering
Reaching communities with solutions & punishments
Fine people who dump trash or jail them
Strong penalties for polluters
Check for dumping; fine violators
Stiffer penalties for violators
Make people pay fines if they don't dispose properly
Fine people for misuse of the Bay
Punish those who violate or pollute

7. Policy

Pass the law to make the water clean
They should provide more money and resources to preserving the Bay; Pull funds from the War
A moratorium on oyster harvesting, 5 yrs max; seeding oyster bars; monitor fertilizer runoff
Impose stricter fines on big businesses polluting the Bay
Enact tighter rules on agricultural and stormwater runoff
Develop laws and reasons to preserve
Public enlightenment
Stricter rules; policing

Appendix D – Table 16, continued

Regulation on toxics emptying into the Bay from all states involved
All surrounding states' laws that affect the Bay should be the same
Make strong laws; don't allow people with money to break the laws
Ad campaigns; educational programs; tax incentives for sound practices; restrict development
Less building near the water
Unilateral improvement in the state and local government
Law enforcement/ Enforce laws -2
No dredging for crabs in Virginia!! Throw female crabs back!
Tighter restrictions on waste byproducts and raw sewage mistakes
Ratify laws that protect the environment; promote awareness
Have strict laws against factories that pollute the Bay
Enforce recycling law; provide incentives to homeowners
Make industry more responsible
More regulations
Set requirements and enforce them, for waste disposal and recycling
Put stronger measures on industry disposing of waste
Halt developments near rivers, streams within 1000ft. Only allow singles homes p/8acres within 1000 ft

8. Prevention

Test more frequently the level of pollutants; provide funding for prevention
Improve and enforce laws on over-fishing; improve ways of controlling factory waste
Clean storm drains
Do what they know is best for our environment
Become more involved
Continue to enforce it
We all play a role in this problem
Stop big companies from dumping
Enforce new litter laws
Restrict fertilizer runoff into Chesapeake Watershed; Restrict factory/plant waste severely
Public announcements; educate children; provide easier ways to dispose of items
No more cars; we should all ride bikes, like in some Asian countries
Be more proactive
Provide funding for educational resources teaching environmental protection

9. Recycle

Better recycling habits/ recycle -2
Make recycling easier and show benefits of recycling
Educate neighborhoods, stressing the importance of recycled trash
Expand recycling capabilities near waterways and tributaries
Provide recycling dumpsters
Put more money into recycling education for residents

Appendix D – Table 16, continued

Recycle trash; fines for polluting
Make it mandatory for cities and towns to recycle
Implement mandatory recycling
Provide recycling at garbage collection time
Incentives for recycling; penalties for littering, improper disposable
More or convenient recycle facilities
Make recycling mandatory in the city
Mandatory recycling -2
Send representatives to churches and schools; hold recycling rallies
Maybe if its possible install recycled cans around it
Set guidelines for households to follow on what can and can't be recycled

10. More Resources

Hire more people
We can put more materials out or advertise
Education; let incarcerated people work on cleaning shore line; adequate funding
Allot and spend more monies on cleanup
Increase funding; develop campaign to make people aware of the problem & solutions
Tell people to recycle or teach people to recycle
Provide financial resources and education
Supply funds to have people to make sure all areas are covered
Funding. They have the finances to do so
Provide resources to enforce illegal dumping
Give more money to help clean up the Bay
More money and resources
The government should provide adequate money to restore the health of the Bay
Give more funding; pay more attention
Provide more funds for local agencies to adopt a recycling program
Provide funds to correct the problem
More resources or money
Limit residential and commercial growth near resource areas; more funding for preservation efforts
Increase funding based on successful results
More money/ Funding/ Additional funding/ Provide more money -4
More money given for improvement projects
Make unlimited funding to clean the Bay possible
The government should make factories responsible for their waste and pay a tax
Funding - educational
More people with hands-on help
More funding for those caring for the Bay; more funding for educating people to help
Make more receptacles available for trash for the public
Tax monies set aside for cleaning of the Bay
Set restrictions on pesticide use within the general public; create more facilities for processing

Appendix D – Table 16, continued

By hiring staff to secure the land
Spend some money
Take some of the money they are not currently using properly and invest in the Bay
Increase funding to city and county to educate citizens and provide for trucks

11. Community Approach

Enlist the people in the neighborhood to do the work that needs to be done
They should do all they can do
They have car tags; collection in renew of tags
Some sort of proper facility to dispose of waste instead of landfills and dumps
They know what needs to be done; stop the war and help out here at home
All they can do/ All that would help -2
Get rid of Governor Ehrlich
Clean up the Bay; have more drives for groups to help clean up dump sites
Perhaps a neighborhood workshop on how to improve the Chesapeake Bay
The government could impose laws that could protect our natural resources
Provide adequate recycling services or patrol dumping grounds more often
Give suggestions on how to save the Bay
Major reform, drastically reducing levels of pollution and sewage able to infiltrate Bay waters
Hold people responsible for waste and debris found in neighborhoods and near the Bay
Less politics should be involved in decisions made on cleaning up & restoring the Bay's health
Enforce regulations already in place regarding building and improving properties
Stick to its regulations regarding building and development in critical areas
Give incentives to communities that maintain a healthy environment that is in their control
They are doing an excellent job
Restore grasses and estuarine
Already doing a good job
Have focus groups to speak on the issues; have fact/opinion info on the environment
Clean trash; test the PH level; impose higher fines; put a net in the water to catch trash
I don't know. Maybe don't know enough about its importance; not really concerned
I think we already have too much government intrusion, so none.
Cultivate oysters; curb development along shore; restore wetlands; stop run-off
I think kids should come first. They put more into environment than resources for kids
Haven't done my part

Appendix E–Table 17. Question asked: What measures your town or city authority could take to improve and preserve the Bay resources?

Baltimore City	Suburban	Rural
A recycle movement; everyone recycles or they get fined	Be aggressive against pollutants	Ad campaigns; education; recycling programs; restrict development
Adequate disposal containers	Become more efficient	Clean up
Advertise when and where to recycle	Billboards advertisement on environment	Curbside recycling
Awareness campaign to stimulate and educate neighborhoods to start recycling	By implementing laws to prohibit the use of toxic and waste materials; impose fines	Curbside recycling; clean up trashy houses and neighborhoods
Awareness programs/spreading the word	Cleaner streets; more recycling advertisements or incentives	Educate citizens of problems that affect the Bay from its township
Become more aware of the environment and the preservation of the Bay	Continue recycling	Educate people about the Bay -3
Begin to build a coalition to keep the Bay clean	Continue to make community aware	Enact an Edict or Act/Law
Better monitor pollutants	Continue to recycle; monitor neighborhood or Bay area; cleanups; waste control	Enforce regulations
Build new technology to better control runoff	Designate various pickup days for all items listed in Question #19	Fines for littering; recycling centers
Change the garbage pick-up rules in apartment communities	Develop laws and reasons to preserve	Halt development near rivers; require bldg. lots to be at least 1 acre inside city limits to help absorb run-off
Check water meters/clean gutters	Do test development and continue to educate the community about the Bay	Have adequate places available so that recycling of items can be done
City-wide recycling awareness campaign	Don't throw trash in the sewer	Limits to big industrial dumping; limit the seafood pulled from the Bay
Continue recycling; assist the city housing also	Educate people about recycling	Make recycling easier
Continue testing the run-off of company toxic waste	Educate the public -2	Make recycling easier; more places to recycle
Curbside pick-up/do curbside pickup -2	Educational measures/programs -2	
Drop-off spot	Employ more people; you can't go wrong with good old fashion manpower	
Education -7; have cleanup drives with special rewards for participation	Enforce recycling	

Appendix E–Table 17, continued

Table 17. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
City	**Suburban**	**Rural**
Enforce laws already in play	Expand recyclables to include all plastics	Make recycling part of the law
Enlist people in the neighborhood	Require manufacturers to recycle	Monitor and helping with recycling
Extend curbside services beyond paper; make curbside service mandatory	Fines for pollution/hefty fines -2	More convenient recycling
Financial resources and education	Fines; service taxes	More educational signage and more containers in water areas that people go
Fines for littering; rewards for cleaning up communities	Flyers to each household with helpful hints, signs, fines	More recycle centers
Fire those who do not comply with maintaining their surroundings	Get out flyers, leaflets with info about the problem and solutions to avoid further pollution of the Bay	More recycling centers conveniently placed
Form organizations to combat littering and polluting the Bay and surrounding shores	Have a community day with an educational booth	Notification in local bills
Fund Chesapeake Bay initiatives	Have a recycling day event	Pay attention and don't ignore these issues
Government should provide solutions, less talk	Have people or groups clean the Bay	Pay more attention to bldg. guidelines near critical areas and limit/stop development of wetland areas
Have community cleanups; youth groups clean parks and water areas; trace source of problem to starting point	Institute more dates for collection of numerous materials	Provide recycling bins along with trash pickup and require people to sort recyclables
Have recycling programs in all neighborhoods	Make all residents aware of how dangerous pollutions are to the Bay	Prove way to recycle waste; do not allow waste to flow freely into our river/Bay
Have recycling receptacles	Make sure everyone has a recycle bin	Put more recycling centers in town
Have the Bay tested for chemical pollutants	Maybe place stronger laws placed on those caught littering	Recycle programs
Have regular dates for cleaning the Bay	Media blitz about preservation and improvement of resources	Recycling dumpsters should be placed in several locations
Have town meeting on ways to protect the Bay	More advertisements/information	Provide recycling centers that are convenient (preferably curbside)
Hire more people/hold people responsible	More provision for waste disposal for homeowners	Setting up a recycling system
Institute a curbside recycle pickup	Pick up trash more frequently and fines for not recycling	Setup recycle bins; have free seminar on preserving the Bay
Jail all law breakers/turn in any violators		
Jail those who do not follow laws on protecting the environment		

Appendix E–Table 17, continued

Table 17. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Stiffer penalties; stricter fines for illegal dumping	Prince Georges County does an excellent job; bulk trash and provide place to throw away oil	Start curbside pickup of recycled items
Just educate more/educate the people more	Put signs and run ads on radio, TV	Stop over development and building in wetlands
Keep drains clear and free of debris	Recycle instead of throwing trash away	Stricter rules and policing the waterways
Keep gutters and storm drains that flow into the Bay cleaner	Recycle more with an incentive program	Town is not close to Bay; already prevent fishing in local river
Make it easy for residents to recycle	Recycling; roadside cleanup	
Make the Bay a tourist site; educate the community about the Bay	Set requirements for waste disposal and recycling	
Monitor all waste material for proper disposal	Set up groups on environmental hazards	
Monitor the neighborhood and fine people for littering	Strongly encourage proper disposal of all waste	
More education so people can participate in making areas clean	They provide curbside service for disposal of recyclable materials	
More hands-on help	To have more curbside recycling for the businesses as well as homes	
More recycling options and pickups	To keep all areas clean and free of litter	
More trash/recycle pickup days -4	Trash cans along the water, for trash purposes	
Neighborhood association meetings to educate residents		
Neighborhood associations can do campaigns for awareness purposes		
Put No Littering signs up		
Not sure but help by continue to recycle		
Post fines for littering and enforce them		

Appendix E–Table 17, continued

Table 17. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Prevention plan for factories and businesses around the Bay area		
Proper disposal bins located in every community; easier access; frequent pickups		
Provide advertising on the damage pollution can do to the environment		
Provide home recycling bins to residents and provide service on regular trash collection days		
Provide more ways to recycle		
Educating the citizens; providing workshops		
Provide recycling dumpsters and sites -2		
Provide resources to help us recycle		
Providing more funding to assist local communities for cleaning the Bay		
Put a buffer on the Bay		
Put out resource materials concerning ways to improve preserving the Bay		
Recycle – if they do then let us know about it		
Recycle and do not litter -2		
Pick up garbage from the street if possible		
Recycle education/recycle in schools		
Recycle everything/recycle more items -8		

Appendix E–Table 17, continued

Table 17. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Recycling center/recycling clubs -2		
Require apt. buildings and commercial buildings to recycle		
Stop development; put pressure on factory farms to curb runoff; educate in schools		
Stop throwing trash in the Bay -2; set up foundation to get cleaning supplies; check complaints		
Tax the heck out of the citizens		
Teach the young to conserve and not pollute the environment		
The town or city could implement a recycling program		
They could work together and try to keep it clean		
To assure that no one should pollute the Bay with things that should not go into the Bay to the full extent		
We should be instructed on how to improve the life of the Bay and the fish living there		

Appendix F–Table 18. Question asked: What measures could your community take to improve and preserve the Bay resources?

Baltimore City	Suburban	Rural
Cleanup campaign as done with block parties	Encourage its residents to join the Foundation; set aside funds with the residents' approval	Work with the county; don't litter; education
Get everyone you can get involved	Volunteer time to help keep the Bay clean and less affected	Community and shoreline cleanup
Keep the area clean bi-weekly, everyone join on weekend	Bi-monthly cleanup rally or gathering	Neighborhood cleanup
Assist cleaning in work groups	Community awareness	Town meetings
Have a community cleanup party; get containers for recycling	Provide community collection points	Help people understand the resources of the Bay
Have community cleanup projects regularly	Plan community meetings and discuss the issue	Public enlightenment
Neighborhood meetings	Community could organize a cleanup day monthly where trash and recyclables are collected	Education
Sponsor cleanup campaign for neighborhoods	Have someone to speak to homeowners at home association meetings	Information sessions to cause more awareness
Talk about it in neighborhood meetings; clean up the neighborhood streets where you live	Continue the cleanup	Stricter rules and regulation for disposal of waste
Get educated and involved	Become educated	Make adequate provisions to avoid pollution in city's sewage system
Community involvement; education	Educate the population more on the environment	Identify people having sewage going into the Bay; heavier fines for polluters
Participation in Earth Day – constant education about protecting our resource	Awareness; internet; television programs; newspaper, school system	Education and recycle
Hold people responsible	Make places to recycle easily accessible	Have recycle bins out in the community
A march to get people to help clean the Bay	Educate the public	Set up more recycle centers
Keep it clean	Billboards	Pull together and recycle
Try keeping your community cleaner		Recycle pickup weekly or monthly
As an apartment complex we could work to take care of our area		

Appendix F–Table 18, continued.

Table 18. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Attend the workshops; sort their garbage so can recycle	Make citizens aware of the things that cause problems and offer solutions	Pick up litter; recycle
Volunteer to participate in cleanup activities	More advertisements	Make recycling easier; curbside pickup
Community groups; cleanup advocacy	Provide info on environment friendly lawn care	Recycle
Cleanup procedures	Educational programs	Help with recycle bins; setting aside times to recycle; getting kids involved
We have community cleanup days; we take turns recycling debris from sewers	Properly dispose of all waste; organize an effort to clean up the Bay; community involvement	Everyone should take a part in recycling at home; pick recycling items on our streets
By keeping the environment clean	I need to do a more comprehensive study before I make a statement	Raise funds for preservation; monitor marine spills
Teach children what to do	Pick up litter around neighborhood	Reduce use of fertilizers, pesticides that run off into ditches, storm drains, etc.
Educate more -4	Refrain from littering and start recycling	Have a pickup day like trash
Educate themselves on what causes pollution in the Bay	Continue to enforce it	Have a pickup day just as you do with trash
Literature to each home	Ban waste contamination	
Self-education about the Bay; be mindful of pollution	Make car washing on street illegal; use only “green” suppliers	
Educate those who are not aware	Every household should waste as least as possible	
Educate the community on the importance of recycled trash	To recycle and clean up their neighborhoods bi-weekly	
If they’re informed of how important it is, they will progress with making things better	Recycle -3	
Educational materials for all levels of residents	Improve recycling with flyers to remind people	
Public school education projects		
Educate us		
Ad campaign; flyers to make people aware of what they throw away		

Appendix F–Table 18, continued.

Table 18. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
None that I am aware of	To recycle and not litter	
Organize a community awareness event focused on preserving Bay resources	Recycling rallies	
Education on how to help	Continue and/or make a better effort to recycle as much as you can	
Increase knowledge on the importance of recycling	Each individual take responsibility for recycling and proper disposal of waste items	
Become educated through newsletters, etc.	Have recycling pickup more than once a week	
Educate children	Hold fundraisers to acquire resources	
Education regarding preservation of the Bay; should begin in K-12	Put trash in the proper place	
Educate; monitor community rewards; sponsor cleanup days to remove trash items	By protecting the environment by separating the trash	
Practice segregation and dispose garbage properly		
Stop people from throwing garbage in the Bay		
Stop throwing your cans in the Bay		
Have more trash cans in the community		
Everyone take the responsibility to do what's necessary to keep the community clean		
None; we risk legislating everything		
Clean out gutters and fine people for putting waste in them		
Encourage and sponsor recycling		
Have recycle bins		

Appendix F–Table 18, continued.

Table 18. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Conscientious recyclers		
Recycle everything that we are allowed to recycle		
Sort recyclable products		
Provide recycling dump sites		
Have collection drives for recycling products		
Have a neighborhood recycle site in close proximity		
Promote recycling in homes, apartment buildings, senior citizen centers, etc.		
To set up a recycle program in all communities		
Establish a system to recycle		
Be responsible for your trash; recycle		
Stress recycling -11		
More recycling places; more recycling days		
Recycling center		
Recycle education		
Form committees for cleanup		
Teach recycling and have an area where we can recycle		
Contribute money to clean the Bay; volunteer to attend improvement workshops		
Curbside pickup		
Dispose of trash properly		
Proper disposal of trash and waste		
Pick up trash and have trash cans outside		
Keeping the storm drains clear and picking up trash regularly		
Have some corner trash containers		

Appendix F–Table 18, continued.

Table 18. Question Asked: What measures your town or city authority could take to improve and preserve the Bay resources?		
Baltimore City	**Suburban**	**Rural**
Keep drains clear of debris and no dumping of trash in unauthorized areas		
Dispose trash in environmentally friendly ways		
Follow the guidelines currently established		