

AN ANALYSIS OF MARYLAND CONSERVATION
VOTERS: THE BEHAVIOR OF ENVIRONMENTAL
VOTERS DURING 2007-2008

By

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AN ANALYSIS OF MARYLAND CONSERVATION
VOTERS: THE BEHAVIOR OF ENVIRONMENTAL
VOTERS 2007–2008

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CHAPTER I

INTRODUCTION

“The region around must not only be healthy, in fact, but must have an established and unquestioned reputation for purity of air, wholesome waters, and all other conditions on which the public health depends.”

Milo P. Jewett,

Major environmental issues are often created as the result of human activities. These issues develop from negative human activity on the biophysical environment (physical and biological life forms of the Earth). The threat posed by such activities on the biophysical environment became evident as early as the Industrial Revolution when factories grew exponentially. The smoke from the factories affected the surroundings and changed much of the flora and fauna (Nisbet, 2007). An example of this was the fate of the pepper moth (Nisbet, 2007). The pepper moth was white in color but the black smoke emitted from the factories eventually induced a genetic response that turned it black (Nisbet, 2007). Today, industrial smoke and fumes have been linked to higher rates of cancer, the depletion of the ozone layer, and pollution of the air in general. Run-off chemicals from factories flowing into rivers, lakes, and seas have also had a negative effect on the planet. Thousands of animals and creatures die daily from oil spills, toxic chemicals, and the garbage being dumped into their habitats. In addition, deforestation has also forced many species of animals from their habitats. Hundreds of animal and plant species have become extinct or endangered because of human activities. Simply by existing, people have had a major impact on living ecosystems.

Environmental science is the study of the interactions within the biophysical environment. Part of this scientific discipline is the investigation of the effect of human activity on the environment. Ecology, a sub-discipline of biology and a part of environmental sciences, is often mistaken as a study of the human-induced effects on the environment. Environmental studies are a broader academic discipline. It is the systematic study of the interaction between humans and their environment (Environmental Programs, 2011). This broad field of study includes the natural environment, built environments, and social environments.

Environmentalism, a social and environmental movement that started in the 1960s, focuses on addressing environmental issues through advocacy, education, and activism. The movement attempts to minimize the effects of human activity on the biophysical environment. The biophysical environment is the symbiosis between the physical environment and biological life forms, and includes all variables that comprise the biosphere of Earth. The major issues of concern relate to climate change, species extinction, pollution, and the loss of ancient forests. The biophysical environment can be divided into two categories: the natural environment and the built environment, although some overlap exists between the two. Following the Industrial Revolution, the built environment became an increasingly significant part of the overall environment.

In the United States, several organized environmental movements and groups, such as the Chesapeake Bay, Earth Share, and Environmental Concern to name a only a few, have developed over the years and are represented by a wide range of non-governmental organizations (NGOs) with a focus of protecting our environment (Cancelierei and Swartz,

2007). These organizations exist on the local, national, and international level. Their efforts have been focused on making the public aware of air pollution, water pollution, solid waste disposal, dwindling energy resources, radiation, pesticide poisoning, noise pollution and other problems impacting the environment. From the 1890s to 1920, conservation of natural resources became a national issue. The conservation movement was born as a result. This movement urged the establishment of state and national parks and forests, wildlife refuges, and national monuments intended to preserve noteworthy natural features (Nisbet, 2007).

Environmental policy in the United States is regulated by the federal government. The purpose is to protect the environment for future generations (Gronke, 2009). The policy came out of the environmental movement in the United States in the 1960s and 1970s during which several environmental laws were passed such as the Clean Water Act of 1960 or the National Environmental Act passed in 1970, regulating air and water pollution forming the Environmental Protection Agency (Gronke, 2009). Since the 1970s, progress has been made in environmental regulations, including increases in air, water quality, and hazard waste (Gronke, 2009). Because of increasing scientific views on global warming modifications to the United States energy policy and limits on greenhouse gas emission have been proposed (Gronke, 2009).

The National Aeronautics and Space Administration's Strategic Plan emphasizes the importance of understanding our environment. It states the importance of the role of NASA in advancing Earth-System Science to help us understand the climate and environmental changes occurring on our planet (NASA, 2011).

The International Panel on Climate Change (IPCC) was founded in 1988 by the United Nation and it provides updated information on environmental issues. The panel

recently reported that global warming is leading to an increase in severe storms, droughts, and heat waves. It also predicts that nations will need to prepare for more deadly and costly upcoming weather disasters (International Panel on Climate Change, 2012).

Highly populated, poor regions of the world are most at risk and no area of the globe is immune (International Panel on Climate Change, 2012). “We mostly experience weather and climate through the extreme,” said Chris Field, a Carnegie Institution of Washington scientist (Guardian, 2012). The report pointed out how Hurricane Katrina had hit New Orleans in 2005 and how dire the consequences were for those who were socially vulnerable and did not have adequate disaster protection (International Panel on Climate Change, 2012). Coastal areas of United States experience damage from hurricanes and rising seas yearly, and the IPCC has reported that damage in those areas vulnerable to severe weather events could increase by 20% by the year 2030 based on climate change studies from several scientists and experts showing increased yearly land and water temperatures (International Panel on Climate Change, 2012). Areas of Texas vulnerable to storms could more than double by 2080 (International Panel on Climate Change, 2012).

For the purpose of this study, I will focus on the state of Maryland and its efforts to restore the environment. In 1987, Maryland created the Maryland Department of the Environment (MDE) to protect and preserve the natural resources for the citizens of Maryland. Under the Maryland Department of the Environment, citizens expect the responsibility for the protection and restoration of the environment to be shared by businesses, governments, and individuals especially those who apply for permits and receive technical assistance with regards to personnel such as well-drillers, sanitarians, waste-water operators, and asbestos contractors who require certification (Cancelierei, 2007). In addition

to restoring the Maryland environment and safeguarding the environmental health of Maryland citizens, duties of the Maryland Department of the Environment include regulation and enforcement, long-term planning and research, and technical assistance to industry and communities in regard to pollution, growth issues, and environmental emergencies. Other than the MDE, several other environmental and public health advocacy groups, citizen groups, educators, and scientists make up the rest of the environmentalist community (Cancelierei, 2007). All of these efforts align with the concern of environmentalists' for the natural environment, climate change, species extinction, and pollution (Chesapeakebay.net, 2011).

Problem Statement

The vision of the MDE is to ensure a clean environment and excellent quality of life for all Marylanders. Marylanders will need to overcome some challenges if they are to achieve a high quality of life and leave the state clean and healthy for future generations. Therefore, it is imperative to find out how voters would respond to the major issues of conservation, and how their responses would affect their vote on Election Day. The overall purpose of this quantitative study is to analyze and assess the differences between the two Maryland League of Conservation Voters groups identified as environmental voters and non-environmental voters.

Purpose of the Study

The Maryland Department of the Environment values credibility and having the confidence of the public. It believes in teamwork and is innovative and resourceful. The MDE believes in a customer-service oriented approach with a strong responsibility to its investors and is supportive of environmental stewardship. Therefore, this study will analyze

and assess voters of Maryland and whether or not surveys or phone calls increase environmental voting within all 24 counties in Maryland. The data analyzed during this study will give insight into how Maryland environmental applications impact the behaviors of voters as measured by data that were obtained from the Maryland League of Conservation Voters. The Maryland League of Conservation Voters is a non-partisan 501 (c) (4) political advocate for the environment of Maryland. The organization is a political voice in the national environmental movement and works to promote environmental causes in Congress and to the White House. It produces environmental scorecards and presidential report cards that hold Congress and the administration accountable for their environmental actions. The local and regional offices of the League promote grassroots issues and build strong coalitions to keep the public and media aware of key environmental issues facing the state. To understand how effective its efforts are, the Maryland League of Conservation Voters evaluates the environmental votes of individual state legislators and grades the governor on environmental issues. This study focuses on some major environmental issues that were very important to voters during the 2007–2008 election cycle.

A growing number of environmental studies have found that environmental legislation is very important to voters (List & Sturm, 2006). To analyze the relationship between voter preferences and voter behavior this study will use survey data and answer the following six questions as they relate to voter behavior (questions one-three are grouped together but, individually tested):

1. What are the background characteristics of environmental voters in terms of gender, age, and county location and how do these characteristics affect their behaviors?

2. Was the mailing of applications and postcards effective at raising the rate of voting or of absentee voting?
3. Were environmental voters more likely to vote than the average Maryland voter?
4. Did the Maryland voters who were pre-identified as environmental voters respond differently to the survey questions and mailings than other voters?

Definition of Terms

In this study the following terms are used:

Table: 1

Term	Description
Maryland Department Environment (MDE)	Protects and restores the quality of Maryland's air, land, and water resources, while fostering economic development, and healthy and safe communities.
VBM	Vote by mail.
League of Conservation Voters (LCV)	An organization whose mission is to turn environmental values into national priorities to secure the environmental future of our planet.
ID	The unique identifier for each participant in the study.
Application, No Call (ANC)	Participants who were given an application and not contacted via telephone.
Application, Call (AC)	Participants who were given an application and contacted via telephone.
Postcard, No Call (PNC)	Participants that were mailed a postcard but not contacted via telephone.
Postcard, Call (PC)	Participants who were mailed a postcard and contacted via telephone.
Maryland Environmental Trust (MET)	An organization that works with landowners and citizen land trusts to protect Maryland's most treasured landscapes and natural resources as a legacy for future generations.
Maryland League of Conservation Voters (MLCV)	A non-partisan, 501 (c)(4) known as the political voice for the environment.

Significance of the Study

Information obtained in this study will benefit future studies on the behavior of environmental voters. The nature of this study is to evaluate voter behavior so that future environmental studies will be better equipped with the knowledge of what drives a Marylander to vote during elections that feature environmental issues.

Marylanders face challenges if they are to continue their exceptional quality of life and leave the state clean and healthy for the next generation. Therefore, it is imperative to find out how voters would respond to the major issues of conservation and what trends can be discerned from their votes. Gathering this data would ensure that voters in Maryland are aware of pending environmental issues that relate to health, land preservation, growth development, clean air, and global warming so they can be more informed when they vote on Election Day. This study will foster improved communication and more educated voting behaviors by utilizing the participants' responses from the survey questions to further enhance knowledge and develop discussions about environmental issues and views from Marylanders related to how these issues affect the state. This study involves gathering data that describes events and then organizing, tabulating, depicting, and describing the results from the data collection (Glass & Hopkins, 1984). Visual aids, such as graphs and charts, are provided to make the research more accessible. Analyzing the responses of voters will reveal the range of environmental knowledge and opinions and provide an in-depth look into environmental voting trends in the state of Maryland. The findings may indicate how Maryland voters respond and how they can become more involved in the environmental

future of Maryland. Readers of the study may also further determine whether voters are in agreement or disagreement concerning environmental issues and concerns and what voting trends may develop from those beliefs. Consequently, results of the study will further support the need for different methods to increase voter participation during elections.

Assumptions

The assumptions of this research imply:

1. The surveys used are a valid method of data collection for determining environmental voting behaviors in the state of Maryland.
2. Questions asked are suitable for data interpretation and studies.
3. Voters were interviewed at random and in a voluntary manner.
4. Voters responded to the survey questions with honesty and assurance of confidentiality.

Hypotheses and Null Hypotheses

The following list details the hypotheses and null hypotheses:

1. H_1 : A Maryland environmental voter's gender will significantly affect whether or not the voter will vote.

H_0 : A Maryland environmental voter's gender will not affect whether or not the voter will vote.

2. H_1 : A Maryland environmental voter's age will significantly affect whether or not the voter will vote.

H_0 : A Maryland environmental voter's age will not affect whether or not the voter will vote.

3. H₁: A Maryland environmental voter's location will significantly affect whether or not the voter will vote.

H₀: A Maryland environmental voter's location will not affect whether or not the voter will vote.

4. H₁: The mailing of applications or postcards to a voter significantly increase the chances the voter will vote.

H₀: The mailing of applications and or postcards to a voter does not increase the chances the voter will vote. It also does not increase the number of absentee votes.

5. H₁: Maryland environmental voters are more likely to vote than the average Maryland voter.

H₀: Maryland environmental voters are no more likely to vote than the average Maryland voter.

6. H₁: Voters who are pre-identified by the Maryland League of Conservation Voters as Maryland environmental voters will respond differently survey questions and phone calls than the other Maryland voters to the survey questions.

H₀: No difference in the way pre-identified Maryland environmental voters and other Maryland voters respond to the survey questions and phone calls.

Limitations

As with any research study, certain limitations apply. The main limitation of this study it is voluntary; no guarantee exists that the selected individuals will send back the voter post cards, answer the phone, and if the phone is indeed answered, take the phone survey and answer the questions honestly. Another limitation is that no way exists to determine whether or not the survey participant actually took the time to go to the polls and vote.

Summary and Organization of the Study

Chapter I presents the nature and statement of the problem, the need for the study, the purpose of the study, research questions, definitions of terms, and outlines the assumptions and limitations of the study. It also outlines the significance of the study and its theoretical basis. The following sections provide an overview of related literature on the characteristics of voting studies. Chapter II sets the foundation of the study by presenting a review of relevant literature on environmental issues. Chapter III reports on the methodology of this study. Chapter IV presents the analyses of the data collected in the study. Chapter V includes the summary of the study, findings, conclusions, and recommendations.

Role of the Researcher

I analyzed the data collected from interviews conducted by the Maryland League of Conservation Voters with Maryland voters who were asked several questions from August 20, 2007 to November 5, 2007. Additionally, Lichtman (2006) has stated: “Researchers involve themselves in every aspect of their work. Through their eyes, data are developed and interpreted. Through their eyes, meaning is brought from words, images, and interpretations. Through their eyes, a creative work comes into fruition.”

Overview of Participants

Despite evidence of environmental issues taking on increasing significance in Maryland and in United States, people still debate the political importance of environmentalism. The total number of participants in the study was 14,055 from the Maryland League of Conservation Voters database but only 11,096 are considered to be environmental voters. Environmental voters as defined by the Maryland League of Conservation Voters are voters that have attended one or more environmental events, such as a town hall meeting or an environmental rally, to name only a few. The participants ranged in age from 18 to 75 years of age. All of the participants were randomly chosen. This satisfies the number of participants needed to meet the conditions of the central limit theorem and ensure a normal distribution (Gay, 2003).

Voter registration efforts and voter awareness rises to peaks during election years and becomes very critical in Maryland. Many efforts are aimed at encouraging environmental voters, especially registered voters, to exercise their right to vote. In an election year, with many environmental issues at stake that will affect Marylanders, their presence at the polls may be more critical than ever. Recent polling has indicated that about 70% of environmental registered voters closely follow elections and plan to vote (Circle, 2004).

Research Design

This study utilizes a quantitative research design model. The term descriptive research refers to the type of research questions, design, and data analyses applied to a given topic. Quantitative statistics depicts things as they are, whereas inferential statistics seek to determine cause and effect. Quantitative statistics are conducive because they use collected

data to answer research questions (Appendix A). Gay states that descriptive research involves collecting data to test a hypothesis or to answer questions related to the current status of the subject. A quantitative study determines and reports the way things are (Gay, 2003). This study seeks to answer questions related to environmental voting trends in the state of Maryland.

Instrumentation

This study used survey calls as the primary source of data collection. The surveys consisted of calls made to environmental voters by the Maryland League of Conservation Voters. This survey was an attempt to collect data from environmental voters to determine the voting trends of these voters with respect to one or more variables. This survey instrument was designed to gather data regarding four research questions. I was not involved in designing the questions or making the telephone calls, My involvement began once the data were collected.

Research Results

Credibility, dependability, and transferability were all addressed. To gain credibility in the study, the author analyzed data gathered by an environmental organization. The data were obtained from concerned environmental voters randomly. The use of multiple data sources contributed to the triangulation of the study (Creswell, 2007). Data gathered by the author were compared with past environmental research in Maryland, within and across categories, and data sources as mentioned above (i.e., phone interviews and surveys) were utilized (Schwandt, 2007). Murphy and Robelia did a study, which found the importance of

environmental issues to voters by giving surveys related to environmental change (Murphy and Robelia, 2012). The authors compared data from the National Environmental Education Foundation survey in the United States and data from state surveys using the same questions to examine how public knowledge about environmental issues such as water quality and air pollution has changed from 1995 to 2008 (Murphy and Robelia, 2012). Lastly, to allow for transferability, a detailed description of the context of this study and its results are given. The researcher reported the findings of the study so that the reader may choose to apply its results to his or her similar situation.

Analysis of Data

Quantative statistics were used to report the responses from the survey questions. Percentages and frequencies were reported for analyses of the questions. Chi-squared tests were performed to test differences in responses to the questions. A chi-squared test compared proportions observed in the study. Information was computed using SPSS. The minimum requirement for statistical significance was set at an error rate of $p < .05$. The ANOVA test was also used to answer this question and to determine whether or not the stated hypotheses were accepted or rejected.

CHAPTER II

LITERATURE REVIEW

Introduction

The specific purpose of this chapter is to provide a general description of the literature that is addressed in this study. The purpose of this study is to answer the question: What is the difference between the two Maryland voter types identified as environmental voters and non-environmental voters? The overall purpose of this study is to determine what factors influence voter behavior among Maryland voters.

History and Development of Environmental Issues in Maryland

The Department of the Environment in Maryland was developed because of threats to the oyster industry and to public health. Efforts were divided between state health and conservation agencies. Federal mandates have shaped rules and funding that are used today (Maryland Department of the Environment, 2011).

Maryland contained many bodies of water that absorbed waste produced in colonial times. The continued practice of dumping waste products into waterways later drew attention to the fisheries and raised concerns about public health. In the 1800s, a decrease occurred in the herring fish population that was attributed to dams and land clearing; however, in the middle of the century, fishermen noticed waste from slaughterhouses and sawmills floating in water that resulted in fish

avoiding certain bodies of water. The polluted bodies of water caused Marylanders to become alarmed and worried about the effects this would have within the community. Therefore, they believed a need existed to take action (Maryland Department of the Environment, 2011).

The Baltimore Water Company and new legislation established a prohibition against the contamination of municipal water supplies in 1800's. The act stated "anyone willfully polluting a certain section of Jones Falls by throwing any dead animals, or other impure substances, into the same, or by swimming, bathing, or washing clothes or the skins of any dead animals or other impure things therein, or by erecting any necessary or other nuisance so near the said water as to pollute the same" was subject to a fine (Chapter 79, Acts of 1908). In 1874, throwing carcasses into the Potomac River, a major water body in Maryland supplying water to many communities in Maryland and to the Washington, D.C. area, was finally outlawed (Chapter 355, Acts of 1874). In 1886, it was considered a misdemeanor to pollute drinking water anywhere in the United State and offenders were fined (Chapter 6, Acts of 1886). This statute gave rise to the state boards of health.

Created in 1874, the Maryland State Board of Health was the first agency to take on the responsibility for the water quality in the state. The goal of the board was to "make sanitary investigations and inquires regarding the causes of diseases, especially epidemics, the source of mortality and the effects of localities, employments, conditions, and the circumstances on public health" (Chapter 200, Acts of 1847). This is now known as the Department of Health and Mental Hygiene.

In the 19th century, to prevent epidemics, states drained swamps and stagnant bodies of water to prevent the spread of disease and fumes (Maryland Department of the Environment, 2011). The foul-smelling Baltimore Harbor was recognized as a health hazard. The action of draining helped to decrease the breeding of mosquitoes, but health issues persisted. In 1862, 1883, and 1893, the sewerage commission existed but Baltimore entered the 20th century without a municipal sewerage system. As a result of not having a sewerage system, waste products washed down streets into the harbor and other bodies of water and soils collected by contractors were dumped into Chesapeake Bay.

In 1893, germs were proven to be the cause of disease and not dirty waters, and oysters were named as vectors of disease in typhoid fever in Connecticut. As a result, in 1897, the Baltimore Sewerage Commission proposed dumping sewer waste into the Chesapeake Bay, but the oyster interests blocked the action. In 1904, the oyster interests won in the general assembly and legislation was passed prohibiting the new sewerage system from dumping waste into the Chesapeake Bay or any of its tributaries (Chapter 349, Acts of 1904). Baltimore, the only city without sewage treatment, obtained a state of the art system in 1912.

In 1910, the Federal Public Health Service investigated pollution in Chesapeake Bay and the Potomac River and found that factors other than untreated sewage were the cause. In this same year, the State Board of Health was changed to the Department of Health, within the Bureau of Sanitary Engineering (Chapter 560, Acts of 1910). The bureau protected water purity, oversaw sewerage and water supply projects, and later became concerned with industrial waste and air pollution. The Department of Health

became responsible for “preserving the purity of the waters of the State” (Chapter 810, Acts of 1914). In 1918, two employees of the Department of Health developed a formula to chlorinate water resulting in pure drinking water in Maryland; other locations in the world soon followed the process of chlorinating their drinking water for safety reasons.

In 1917, the Conservation Commission asked Maryland factory owners to treat their wastes to decrease pollution. The commission, a part of the Department of Health, began by examining pollution in Baltimore Harbor. Trade waste produced up to four million gallons per day of waste materials. It was recommended that the bay area be designated an industrial zone, exempt from clean water requirements. The commission was not willing to point to the bay pollution as the cause of the decrease of the oyster population. Instead they blamed increased salinity and increased rainfall.

During the 1920s, oil pollution was of interest instead of industrial pollution, a problem that exceeded the enforcement capabilities of the Conservation Commission. Oil was pumped into Chesapeake Bay causing damage to beaches, waterfowl, and oysters. In 1942, the Federal Oil Pollution Act prohibited ships from dumping oil in navigational waters (Maryland Department of the Environment, 2011).

The oysters faced another crisis. After a typhoid epidemic, eating raw oysters was outlawed in Illinois and the United States Public Health Service began an investigation. As a result, the oyster shucking and packinghouses closed in Maryland, and soup kitchens opened to feed the unemployed workers. The governor stated that Maryland oysters were not the cause of the typhoid outbreak. In 1922, the commission reformed as the Conservation Department to give the oysters a clean bill of health. Regulations were put into place for oyster packing but not water quality. The State

Department of Health and the Conservation Department continued to work together (Maryland Department of the Environment) in hopes of trying to regulate water quality.

In 1927, a systemic survey of streams was made around the Baltimore area and as result some changes were made at steel plants such as decreasing the amount of pollutants like nails and wires that were previously put in the water. No traces of oils or acids were found in Baltimore waters.

A drought hit the state of Maryland, which led to the formation of the Water Resource Commission in 1930 (Chapter 526, Acts of 1933). The commission developed a state plan for water conservation and control.

Congressional debate over the role of government in stopping water pollution started in the New Deal era and led to the passage of the federal Water Pollution Control Act in 1948. This act funded construction of waste treatment plants and gave federal agencies the right to intervene at the request of a state in the event of state pollution.

In 1947, the Water Pollution Control Commission was authorized “to receive, administer, and spend money as it became available for pollution control from the Federal Government” (Chapter 697, Acts of 1947). The goal of the commission was to coordinate pollution control by all state agencies (Chapter 697, Acts of 1947).

In 1959, the commission became one of six agencies under the Board of Natural Resources, and in 1964, it was superseded by the Department of Water Resources (Chapter 695, Acts of 1959; Chapter 73, Acts of 1964). The Department of Water Resources became part of the Department of Natural Resources Administration in 1972. The Administration became the Department of the Environment in 1995 (Chapter 488, Acts of 1995).

Air pollution is considered a more recent environmental issue even though it was an issue when industrialization began. The Federal Bureau of Mines became the first federal agency responsible for air quality, the Office of Air Pollution. The office did research on smoke and emissions from automobiles.

Public awareness of air pollution began in Los Angeles around 1947. Smog reduction programs regulated oil refineries and incinerators, and in 1951 automobile exhaust was blamed for causing air pollution (Chapter 20, Acts of 1950).

Near Maryland, weather conditions in conjunction with sulfur dioxide pollutants were causing an increase in the amount of fog in Donora, Pennsylvania. During a four-day period, fog killed twenty people and made over 6,000 ill. As a result, the Maryland General Assembly requested an investigation in Maryland (Joint Resolution /no. 16, Acts of 1949). The Commission found that Baltimore was highly unlikely to suffer from conditions similar to Donora. In the Maryland towns that resembled Donora, insufficient data were available to make predictions. Before 1950, Baltimore and Cumberland counties in Maryland adopted regulations for smoke control and the Baltimore City Health Department took steps to reduce air pollution. The commission saw that a need for a state agency to monitor air pollution was necessary and \$100,000 was provided to the State Department of Health to do research (Chapter 20, Acts of 1950).

Severe smog and weather conditions, in combination with industrial pollution, caused illnesses and deaths in London in 1952 and New York in 1953. Congress urged federal funding for research and prevention of air pollution, which was thought of then as a local environmental issue coming from local sources. Federal legislation to limit air pollution did not pass until 1955. It limited federal involvement to research and

assistance to the states and educational institutions (Cancelieri & Swartz, 2007). London faced killer smog again in 1962. This caused Maryland legislators to pass the first air pollution law in Maryland, six months prior to the Federal Clean Air Act of 1963. The law created an air pollution control council to make pollution recommendations to the State Board of Health and Mental Hygiene and advise the State Board of Health on air pollution.

In December of 1963, congress passed the Federal Clean Air Act. The Clean Air Act specified that the primary responsibility for air pollution control and reduction would rest with states and local governments, and 95 million dollars in federal funds were allocated to this act over three years. Next, Congress focused on auto emissions. In 1965, the federal Motor Vehicle Air Pollution Control Act was passed. Its function was to regulate emissions from new automobiles and to fund research.

Maryland enacted a law that gave the State Department of Health jurisdiction over monitoring and enforcing environmental regulations and replaced the Air Pollution Control Council with the Air Quality Control Advisory Council, which adopted emission and air quality standards and divided Maryland into air quality control areas in 1967 (Chapter 143, Acts of 1967). The policy was “to maintain the degree of purity of air resources of the State which will protect the health, general welfare and property of the people of the State” (Chapter 143, Acts of 1967). The air pollution issues were handled by the State Department of Health, specifically through its Bureau of Sanitary Engineering, which sometime between its establishment in 1910 and 1951 acquired interest in aerial pollution. The agency was reformed as the Bureau of Environmental Hygiene in 1951 (Chapter 75, Acts of 1951). In 1966, the Department of Health

reorganized into the Environmental Health Services with a Bureau of Resources Protection overseeing water supply, sewage, air quality, and solid waste disposal. The Bureau of Consumer Protection was responsible for drug control, radiological health, and general sanitation. The Division of Air Quality Control operated under the Bureau of Resources Protection. The Division monitored air quality and implemented the Maryland Air Quality Control Act of 1967 (Chapter 143, Acts of 1976).

In 1969, the National Environmental Policy Act created the Federal Environmental Protection Agency (EPA). The EPA reviewed state plans and set standards for air pollution, radiation, and solid and hazardous waste disposal. In the 1970s, many environmental bills were passed to protect wetlands, create the Maryland Environmental Service, revise pollution reduction under the Water Resources Law, and enforce air quality controls. By 1973, the general assembly gave Maryland residents the right to a healthy environment and put the highest public priority on the Maryland Environmental Policy Act (Chapter 702, Acts of 1973).

Between 1960 and 1980, environmental groups helped alert the public about environmental pollution. In 1987, state environmental programs were consolidated into one executive department when the Department of the Environment was formed (Chapter 306, Acts of 1987).

In recent years, the Maryland Department of the Environment (MDE) has responded to environmental issues related to floods. The Maryland Department of the Environment has introduced a flood management policy that will protect all counties in Maryland by setting rules on where homes can be built and planting Tall Fescue grass near floodplains because this grass type absorbs waters. In 2009, the MDE approved a

policy to preserve the flood plains by providing storage capacity for high flows, reducing erosion and sediment discharge during large floods, and helping flood waters to move down stream (Maryland County Public Checklist, 2011). This policy discourages filling and construction near floodplain areas because this can cause the water to become displaced and the soil can be undermined (weakening of the foundation) (Maryland County Public Checklist, 2011).

In 2011, the MDE allowed fishing and crabbing from the shore of Sandy Point State Park with a Maryland tidal-sport fishing license (Maryland County Public Checklist, 2011). This has caused an increase in pollution because people leave trash behind. The MDE is also working to get the Community Cleanup and Greening Act of 2012 passed. This legislation would reduce the number of plastic bags used and entering the waste and litter stream and provide resources to clean up communities (Maryland County Public Checklist, 2011).

Maryland Department of the Environment

The mission of the MDE is to protect and restore the quality of air, water, and land resources in Maryland, while encouraging smart growth, economic development, healthy and safe communities, and quality environmental education for the benefit of the environment, public health, and future generations (Maryland County Public Checklist, 2011). In addition to restoring the environment and safeguarding the environmental health of Maryland citizens, the duties of the MDE encompass enforcement and regulation, long-term planning and research, and technical assistance to industry and communities for pollution control, growth issues, and environmental emergencies. The residents of Maryland are the priority of environmental management. Over the past three

decades, Marylanders have spoken clearly and repeatedly of their desire for a healthy environment (Maryland County Public Checklist, 2011).

With an established vision to ensure a clean environment and excellent quality of life for Marylanders, the MDE has in place seven broad goals to measure its progress in achieving mission and vision. Those goals are as follows:

1. promoting land redevelopment and community revitalization,
2. ensuring safe and adequate drinking water,
3. reducing the citizens' exposure to hazards,
4. ensuring the safety of fish and shellfish harvested in Maryland,
5. improving and protecting the water quality of Maryland,
6. ensuring the air is safe to breathe, and
7. providing excellent customer services to achieve environmental protection.

(Maryland Department of the Environment, 2011).

The MDE has three media-specific administrations and two other major administrations that provide administrative and technical support to the air, water, and waste management administrations. The services in the department include permits, licenses, and inspections for functions and different regulatory facilities; financial assistance; environmental cleanup oversight; technical assistance for compliance and pollution prevention; public education and outreach; and environmental emergency response.

During the next 25 years, the population of Maryland is expected to grow by 1.5 million people, adding about 580,000 households (average 2 members per home) and 810,000 new jobs. The strong economy, beauty, and excellent public and private cultural

health and educational facilities in Maryland draw people to this state yearly (see Table 2) (Fairbank, Maslin, Maulin & Associates, 2006).

Table 2

The Attitudes of Voters Toward the Local Rate of Growth and Development

Position	2005	2006	Change
Much too fast	32%	38%	+6%
Somewhat too fast	16%	20%	+4%
Total Too Fast	48%	58%	+10%
Much too slow	5%	4%	-1%
Somewhat too slow	4%	3%	-1%
Total Too Slow	9%	7%	-2%
About Right/DK	43%	35%	-8%

(Fairbank, Maslin, Maulin & Associates, 2006)

Note: It is noteworthy that voters' concern about growth has increased significantly since being surveyed in 2005. At that time, 48% of voters said that growth and development in their community was moving "too fast." Concern about the issue has increased by ten points over the past year (Fairbank, Maslin, Maulin & Associates, 2006).

Voter Behavior

To discuss and assess voter behavior in Maryland I need to evaluate marketing research. Marketing research is the systematic gathering, recording, and analyses of data about issues relating to marketing views and services. In marketing research, consumers are often asked questions about their intentions, either from a general product category ("How likely are you to vote for an issue?") or about a specific brand ("How likely are

you to purchase a Ford?"). Such questions have consistently been shown to have substantial impact on voters' likelihood to engage in the behaviors in question (Fitzsimons & Morwitz 1996). For example, Morwitz et al. (1996) found that for automobiles and personal issues, simply measuring participants' general category-level of intent led to significantly greater levels of purchasing intent in that category. How is it that simply asking questions, an act not necessarily intended to influence behavioral outcomes, appears to have such a significant and consistent impact on behavior, whereas overt persuasion attempts, such as advertisements intended to directly influence behavioral outcomes, are not always so successful?

Mass media is communication that is written, broadcast, or spoken that reaches a large audience (Zillman, 2010). This includes television, radio, advertising, movies, the Internet, Twitter, Facebook, and so forth. The media convey information to and influence the public, which in turn can influence elections. The media influences voters' opinions. Social media influences all of society including, voters and elections. Social media allows voters freedom of speech. Social media supplies information that voters can use to make decisions. Social media and online information is now a means to reach voters of all ages to garner support. This was proven when Senator McCain's deputy e-campaign manager Mark Soohoo suggested that McCain did not need Facebook because its users were not voters (Zillman, 2010). Later, a survey found that 36% of Democratic voters had social network profiles, compared to 28% of Independents and 21% of Republicans (Zillman, 2010). In addition, President Barack Obama had a strong social media following. Statistics show that 2 in 4 Americans are on MySpace and Facebook is growing quickly with users 25 and older (Zillman, 2010).

Social media has clearly had a huge influence on helping voters understand elections, and also in helping to garner support for specific environmental issues as a result of actively debating policies over various environmental platforms with voters through media such as Facebook and Twitter. Information is far more accessible now, and hopefully this will encourage more people to vote more knowledgeably on environmental issues in the future.

Fitzsimons and Morwitz (1996) suggested three different alternative explanations for why the mere measurement effect occurs when consumers are asked category-level intentions questions (e.g., “How likely are you to buy a new car?”). The first explanation is that measuring intentions increases thoughts about the product category and in turn thoughts about most issues. Subsequent changes in behavior may be caused by this enhanced name accessibility (Jackson, 2004). The second explanation is that measuring issue intentions increases the accessibility of the respondent’s attitude toward other issues and increases the accessibility of attitudes toward the categories. Changes in subsequent behavior might, therefore, be a function of this increased attitude accessibility. The third explanation is that consumers have pre-formed intentions that are recalled and become more accessible when they are asked questions about their intentions. Choice behavior may be influenced through the increased intention accessibility. It is also possible that the effect of measuring intentions operates through some combination of these three processes. Presumably, which process operates for a given consumer will be a function of which stage in the choice process the consumer has reached: the generation of alternatives, consideration, or selection (Nedungadi, 2005). Political scientists have found

that the time respondents require to answer questions is a useful measure of the strength of political attitudes (Johnson, 2004).

In a more recent study, Apospori (2009) reported that the influence of political marketing on voters depends on the following factors: voters' loyalty, voters' perceptions of political marketing, and voter knowledge as a whole. Polls, speeches, and television advertisements are the most influential tools of political marketing. In looking at the results of political marketing before, during, and last minute, the most voters influenced by marketing were the loyalists during the election campaign rather than before the campaign or floating voters who decided at the last minute (Arcuri, 2008).

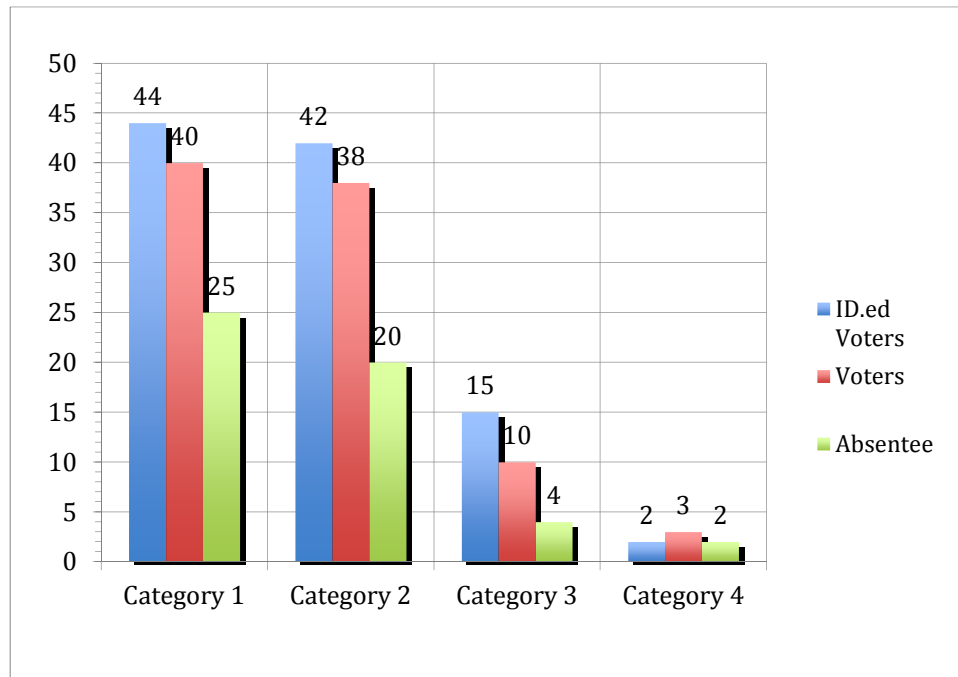
Fairbank, Maslin, Maulin & Associates (2006) completed a statewide survey of Maryland voters to assess their attitudes on a variety of conservation issues including outdoor air quality, open space preservation, and other issues affecting the land, air, and water of Maryland. The survey results showed that Maryland voters place an extremely high priority on protecting air, land, and water of the state (in that order). In addition, by more than a 2 to 1 margin, Maryland voters do not see the economy and the environment as being in conflict and believe that the state can have a strong economy and clean environment at the same time.

Voters in Maryland were asked to name, in their own words, the most important environmental or conservation problem facing Maryland. An overwhelming number of responses pointed to the concerns of pollution of Chesapeake Bay. More than 2 in 5 voters named pollution of the bay as a serious environmental issue facing the state (Guardian, 2011). The rate of growth and development and air pollution were significant issues for other voters (Guardian, 2011).

Maryland voters are supportive of environmental protections, and they are ready to stand up for that belief at the ballot box. Past studies of environmental concerns indicate how important issues related to land, air, and water are in the voting decisions in state or local elections. In Fig. 1 86% of identified voters think these issues to be somewhat important. The priority placed on conservation issues in voting decisions cuts across subgroups of the electorate: at least seven out of ten voters in every major demographic and geographic subgroup say such issues are at least somewhat important when it comes in their voting decisions.

Figure 1

Importance of Clean Water, Air, and Open Space in Making Voting Decisions



In the case of voter behavior of Marylanders, the process of how voters will vote can be assessed in terms of marketing research and the process of voting. In Jay, Maine for example, voters were surveyed as to whether they wanted to suspend portions of the

Local Environmental Control and Improvement Ordinance that regulated industrial pollution (West, 2010). Marketing research played a crucial role in Jay, Maine because the research helped to identify and assess how changing or suspending improvement ordinances impacted the citizens in the community and, thus, provided an opportunity for voter behavior to change. Franz, Freedman, Goldstein, and Ridout (2008) noted that Krasno and Green argued that marketing and advertising has no impact on voter behavior or turnout, but in many cases researchers seem unconvinced by their evidence, given concerns about how they measure the marketing environment, tone, and the choice of modeling techniques.

In many cases voters usually vote by the ordinary vote (Franz, Freedman, Goldstein, & Ridout, 2008). The ordinary vote is a vote cast in a polling place in the elector's home division on Election Day. This is the simplest way to vote and the method used by the majority of electors. Some voters use an absentee ballot. An absentee ballot is a vote cast by an elector who is normally not physically able to cast a vote at the official polling station but still casts the vote within the home state or territory on election day, usually by mailing it in. Early vote is a type of vote that can be cast by an elector who will not be within their home state or territory on election day, is seriously ill, infirm, unable to leave work, or for religious reasons is unable to attend a polling place (Niemi & Weisberg, 2007). Electors can cast an early vote either in person or by post in the following two ways. Postal votes are cast before Election Day. To apply for a postal vote you must print off and complete an "Application for a Postal Vote" form (only available after an election has been announced). Voting by mail (VBM) is one type of convenience voting that is popular among supporters for voting reform as a mechanism to

increase voter turnout (Gronke, 2009). Most of the studies of mail voting are based on data from the state of Oregon. Neighboring Washington State also utilizes voter by mail. Since 1994, the state has adopted VBM (vote by mail) on a county-by-county basis. This model estimates turnout effects in Washington counties in four specifications covering 68 statewide elections between 1960 and 2008 has been successful. In 2008, Gronke, Galanes-Rosenbaum, Miller, and Toffey discovered providing the individual the option to vote by mail significantly increased voter turnout from 1.73% to 4.15%.

Selected Surveys of Voting Studies

In a study conducted by Fairbanks (2006), Maryland voters had several environmental concerns. Two out of five voters named pollution in Chesapeake Bay as one of the most serious environmental issues facing the state. Maryland voters were also concerned with the rate of growth and development and the air pollution. Nevertheless, concerns about the bay prevailed. The Pew Center on the States assessed state election websites between May–November 2010, analyzing the voting websites for content, look-up tools, and usability. Maryland received an 84% regarding its election website. Putting Maryland in second place, with neighboring states Virginia coming in fifth and the District of Columbia coming in 11th (Pew Center, 2011). The report found that Marylanders rely heavily on the Internet to retrieve voting information and that election websites in Maryland, which provide polling information, campaign information, candidate information, and voting issues, were ranked among the best voter resources in the nation (Pew Center, 2011). Recently, Nawrotzki did a study noting, conservatives' in developing capitalist nations oppose the environmental protection of land (Nawrotzki, 2012).

The public supports the Maryland Environmental Trust (MET) by volunteering time and donating money to help further the mission of MET of preserving the open lands within the state. Over 125,000 acres of land are protected through MET by permanent conservation agreements (easements). These protected lands are monitored to ensure that the original conservation values are permanently maintained (Maryland Environmental Trust, 2008).

According to the Maryland Environment Research and Policy Center, scientists think that the average temperature could increase by 2 to 9 degrees Fahrenheit during the next century if no action is taken to reduce global warming (Cancelieri & Swartz, 2011). Scientists also agree that humans are contributing to climate change (International Panel on Climate Change, 2012). World leaders have created policies to decrease global emissions but many in the science community questioned aspects of climate change (Revkin, 2006). The Intergovernmental Panel on Climate Change recently stated, climate change is happening on a global scale with weather events like hurricanes and ecological impacts at local such as, the “dead zone”- an area of sea water with insufficient oxygen to support most marine life (Kingsglover, 2012).. This has appeared off the coasts of Washington and Oregon (Kingsglover, 2012).

Maryland is facing many environmental issues, such as the following: the MDE reported that thousands of small croaker fish recently have died in Chesapeake Bay because of the cold-water temperatures. Menhayden noted that croaker fish were seen washing up on shores around January 3, 2011. These fish died in areas from Calvert County to Kent Island. Normally fish swim to warm waters before cold weather, but

Maryland experienced extreme cold temperatures in December and in the fall of 2010.

The fish were unable to swim to warmer waters (*Baltimore Sun*, C.Smith, April 3, 2011).

A study done in 2007 by the University of Maryland predicted that global warming would be a serious problem for Maryland and bordering states. Global warming is a national problem that will result in an increase of forest fires and floods; a decrease in farming productivity because of drought and crop diseases; and rises in sea levels as reported by the Center for Integrative Environmental Research of the University of Maryland (NASA Earth System Science, 2011). Predictions have stated that Maryland will likely be one of the hardest hit states.

Climate scientists predict that mid-Atlantic sea levels will rise about 20 inches by 2100. This increase is predicted to cause about 58 billion dollars of damage to many coastal communities in Maryland. This will cut into peoples whose jobs depend on the sea for livelihoods. This problem would be devastating for the seafood industry that depends on crabs for the famous Maryland crab cakes (Cancelieri & Swartz, 2010). It will also affect tourism, because it would result in decreased skiing days and beach days. This decrease is predicted to cause a loss of 405 to 810 billion dollars.

The EPA conducted a study in 2008 that found that all 24 counties in the state have higher than normal pollutants from emission standards that cause lung cancer. Baltimore City had the highest levels of air pollutants from emissions out of the counties in Maryland (Cancelieri & Swartz, 2010). Clean air is another important environmental issue plaguing Maryland voters. Before the Clean Air Act was enacted as a result of black smoke from smokestacks, smoke from cars and trucks was a very common sight in the air. Since 2003, new information on air quality has been made available yearly for the

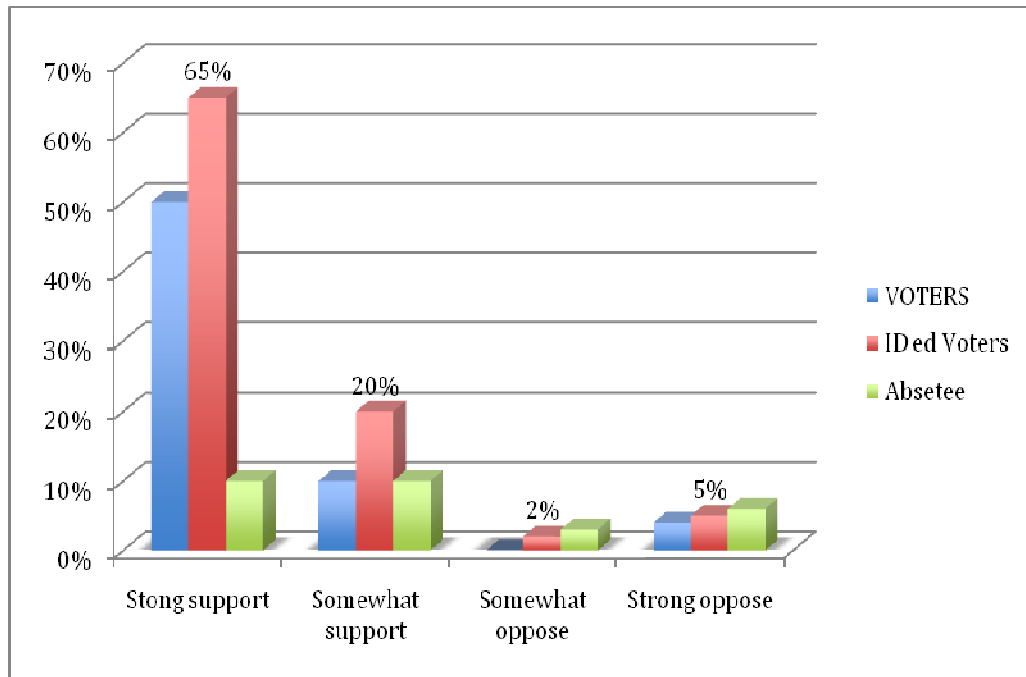
Baltimore-Washington area. As a result of this effort to protect the air quality, forecasts now include daily information about particle pollution. Particle pollution varies during the year. This forecast information gives Maryland residents information that can be used to protect their health year round. In 2007, research showed that 41% of Maryland voters said that outdoor air quality had worsened in Maryland in recent years, but 24 % believed that it had improved. The remaining 25% of the voters believed that air quality had remained the same and 10% declined to give an opinion (Cancelieri & Swartz, 2007).

Most likely as a result of these concerns, Maryland voters supported the Healthy Air Act (HAA) in 2007 (Cancelieri & Swartz, 2007). This act was developed with the purpose of making Maryland a part of the National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter by the federal deadline of 2010. The act and the subsequent regulations also require the reduction of mercury emissions from coal-fired electric generating units and significantly reduce atmospheric deposition of nitrogen to Chesapeake Bay and other waters of the state. The HAA requires reductions in nitrogen oxide, sulfur dioxide, and mercury emissions from large coal burning power plants. It also requires that Maryland become involved in the Regional Greenhouse Gas Initiative (RGGI), which is aimed at reducing greenhouse gas emissions. Survey voters were read descriptions of the HAA and they were asked about their position. Voters were told that the Clean Air Act was being considered by the general assembly. The act would require power plants in Maryland to install modern technology to reduce their emissions of four serious air pollutants: carbon, nitrous oxide, sulfur dioxide, and mercury. These voters were identified as environmental voters (Cancelieri & Swartz 2010).

The results (see Fig. 2) ranged from 65% of identified voters in strong support of the act to 5% of identified voters strongly opposing the act. Statewide, Maryland voters were asked to assess their attitudes toward their support for the Healthy Air Act (Fairbank, Maslin, and Maullin, 2006). This began with a discussion of voters' perceptions on air quality because several Maryland counties had high air emissions levels including high levels of mercury (Fairbank, Maslin, and Maullin, 2006). This study resulted in noting the importance of clean air to Maryland residents.

Figure 2

Support for the Healthy Air Act



(Fairbank, Maslin, and Maullin, 2006)

The analysis of voting behavior is known as “psephology” derived from the Greek word “psephos” meaning pebble with which the ancient Athenians indicated their voting decisions (Wood and Pitzer, 2010). Great Britain recently completed a study analyzing

voter behavior from the 1970s to the 1990s. Psephologists in the UK distinguish between 1945-1970, which they characterize as the period of electoral stability and the period from the 1970s to the 1990s as the era of declining party identification and the realignment of UK voting behaviors (Wood and Pitzer, 2010).

Psephologists in the UK examined the following parameters in their 2009 study: age, gender, region, and ethnicity in their study (Wood and Pitzer, 2010). They polled 1500 people in the South Western part of England that were randomly selected from their voter registration database. This region was chosen because they have a higher voter turnout verses other regions in United Kingdom and this was determined from a prior study done in 2009 (Wood and Pitzer, 2010). The area is 9,200 square miles and it included Bristol, Gloucestershire, Somerset, Dorset, Wiltshire, Devon, Cornwall counties in the United Kingdom (Wood and Pitzer, 2010).

The study found a small difference in how women and men vote that was not significant because it was under five percent difference. The researchers think the difference seems to be more pronounced in the US and other European countries like Sweden (Wood and Pitzer, 2010). But the UK is not immune to it, either. So a gender gap exists, which manifests itself when women or men enter the polling booth based on issues. They found women, especially women from 18-40 years of age, appeared to vote slightly more than men in the same category based on the rapid increase in problems arising from the destruction of natural resources, industrialization, urbanization, pollution, and population pressures (Wood and Pitzer, 2010). The study found that women in this age group voted slightly more because they were concerned about the future of their children (Wood and Pitzer, 2010). The difference was also under five

percent. The overall results on this United Kingdom Voter Behavior Study are very similar to my research study done here in Maryland.

Summary of Literature

This review of literature has shown the history and development of the Maryland environmentalism movement from the development and history of the Maryland Department of the Environment, which formed as a result of threats to the oyster industry. Today it is responsible for protecting and restoring the quality of Maryland air, water, and land resources. It described some studies recently done in Maryland regarding Maryland voter behavior related to growth and development of land. It addressed voter behavior and how mass media and social media can influence voter behaviors and elections. Lastly, it addressed a voting study done by Fairbanks in 2006 that addresses environmental issues that concern voters of Maryland (Fairbanks, 2006). Maryland had developed into a mature environmental state concerned about voters and environmental issues. A similar study was conducted by the National Environmental Education Foundation conducted surveys of American about environmental attitudes and behaviors from 1997 to 2002 regarding environmental topics including waste disposal, household waste, and climate change to name a few issues (Robelia and Murphy, 2012). The study found a correlation between environmental knowledge and pro-environmental decision-making (Robelia and Murphy, 2012). The study also found participants lacking knowledge in the areas of climate change, energy production and water quality (Robelia and Murphy, 2012).

CHAPTER III

RESEARCH AND METHODOLOGY

This chapter will assess the overall purpose of this quantitative study, which is to analyze and assess if differences exist between the two Maryland League of Conservation Voters groups identified as environmental voters group and non-environmental voters. The null hypothesis is: no significant difference exists between the two Maryland League of Conservation Voters groups identified as environmental voters and non-environmental voters. The alternative hypothesis is: a significant difference exists between the two Maryland League of Conservation Voters groups. The vision of Maryland is to ensure a clean environment and excellent quality of life for Marylanders; therefore, by gathering this data it will ensure that voters in Maryland become more aware of pending environmental issues that relate to health, land preservation, growth development, clean air, and global warming.

The information obtained in this study was collected to answer the following questions:

1. What are background characteristics of environmental voters in terms of gender, age, and county location and will they affect the voters' behavior by affecting an increase in voter voting behaviors? Gender, age and county will all be assessed separately.

2. Was the mailing of applications and or postcards effective at increasing the rate of voting or of absentee voting during the election?
3. Were environmental voters more likely to vote than the average Maryland voter?
4. Did the Maryland voters who were pre-identified as environmental voters respond differently to the survey questions and mailings than other voters?

Purpose of the Study

The Maryland Environmental Department (MED) values credibility and having the confidence of the public. It believes in teamwork and is innovative and resourceful. The MED has a customer service oriented policy that promotes a strong responsibility to its investors and is supportive of environmental stewardship. Therefore, this study will analyze and assess how the voters of Maryland support the environmental undertakings of restoring the environment based on the issues specific to the state. The data analyzed during this study will examine the impact of the behaviors of environmentally concerned voters on Maryland environmental issues as measured by data that was obtained from the Maryland League of Conservation of Voters. The Maryland League of Conservation Voters is a non-partisan 501 (c) (4) political advocate for the environment of Maryland. It is a political voice of the national environmental movement and works on promoting sound environmental causes in Congress and to the White House. The MED produces environmental scorecards and presidential report cards that hold Congress and the administration accountable for their environmental actions. It has local and regional offices that promote grassroots issues and build strong coalitions keeping the public and

media aware of key environmental issues facing the state. To understand how effective their efforts are, the Maryland League of Conservation Voters evaluate the environmental votes of individual state legislators and grade the governor on environmental issues. This study focuses on differences between the two groups of Maryland League of Conservation Voters identified as environmental voters group and non-environmental voters during the 2007-2008 election cycle. A growing number of environmental studies have discovered that the environment is very important to voters (List and Sturm, 2006). Recently, a study was done by Barretto and others where they noted the importance of environmental issues in California related to air quality and noted the importance clean air quality to California residents (Barretto et al, 2012).

Research Design

This study utilizes data from the Maryland League of Conservation Voters, considered a secondary data source. The data were collected for the primary purpose of researching voter behavior in Maryland and for analyzing research that seeks to increase voting on issues that were a primary concern of the citizens in regard to the environment in Maryland. The primary researcher uses this data to verify, extend, or elaborate upon the original results, and to analyze the data from an entirely different perspective. The data received by the researcher had been preformatted by an analyst specialist from the Maryland League of Conservation Voters for use with a particular statistical package specifically SPSS. To interpret the data I utilized this statistical package. SPSS is among the most widely used programs for statistical analysis by social science market researchers, health researchers, survey companies, government, education researchers,

marketing organizations, and others. The SPSS (Nie, Bent, & Hull, 1970 and Levine, 2005) has been described as one of “sociology’s most influential books” for statistical analysis.

Data collection was conducted by the Maryland League of Conservation Voters. A description of how the data were collected, included a sampling design and the variables contained in the data; in the case of surveys, the survey instrument or questionnaire was used to solicit responses from the respondent and each question had coded values. Even though the six questions identified previously are being used to define the study by the Maryland League Of Conservation Voters, additional questions from the Maryland League of Conservation Voters were mailed to voters in groups III and IV of representative counties in Maryland (by the Maryland League of Conservation Voters research team) to further show the relevance of why the Maryland League of Conservation Voters was interested in increasing voter awareness regarding environmental concerns. These additional questions were related to specific county issues and are not addressed in this study.

Significance of the Study

Information obtained in this study will benefit future environmental voter studies. The nature of this study uses evaluations of voters to enable environmentalists conducting future studies of environmental issues to have a wider base from which to increase awareness in support of a better Maryland.

Marylanders face some big challenges if they are to continue to enjoy a high level quality of life and leave the state clean and healthy for the next generation. Therefore, it is imperative to assess characteristics of voters to find out how voters would respond to the major issues of conservation and to explore the trends in their voting. Gathering this data would ensure that voters in Maryland become more conscious of pending environmental issues that relate to health, land preservation, growth development, clean air, and global warming. This quantitative study will foster improved communication and more educated voting behaviors by utilizing the participants' responses from the survey questions to further to enhance voter knowledge about environmental issues. This study involves gathering data that describes events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). A few visual aids, such as graphs and charts to aid the research in this study are provided. Analyzing voters' responses related to environmental knowledge and opinions will provide an in-depth look into environmental voting trends in the state of Maryland. The findings may indicate how Maryland voters respond and how they may become more involved in the environmental future of Maryland. Readers of this study may also further determine whether voters are in agreement or disagreement concerning crucial issues. Consequently, results of this study will further support the need for different strategies to inform voters.

Limitations

As with any research study, certain limitations apply. The main limitation of the study is its voluntary nature; no guarantee exists that the selected individuals will send back their voter surveys and postcards, answer the phone, and if the phone is indeed answered, take the phone survey and answer the questions honestly. Another limitation is that no way exists to determine whether or not the survey participant actually took the time to go to the polls and vote.

Overview of Participants

Despite evidence of growing environmental issues in Maryland and the United States, people still debate the political significance and importance of environmentalism. The total number of participants in the study was 141,055 but only 11,096 are considered environmental voters because these voters have attended one or more Maryland League of Conservation Voters environmental events. The participants ranged in age from 18 to 75 years of age from all 24 Maryland counties. All of the participants were randomly chosen. The population for this study is not uniform meaning the groups were not exactly the same in each category in this study. The sample is random because you randomly selected the people that were interviewed. Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being called. A simple random sample is an unbiased surveying technique. This satisfies the number of participants needed to justify the central limit theorem and ensure a normal distribution. The sample size consisted of randomly chosen

environmental voters, as indicated by “Sample Sizes Required for Given Population Sizes” (Gay, 2003). Table 3 shows total population numbers.

Voter registration efforts and voter awareness rises to peaks during election years and becomes very critical in Maryland. Many efforts are aimed at encouraging environmental voters, especially registered voters, to exercise their right to vote. In an election year, with many environmental issues at stake that will affect Marylanders, their presence at the polls may be more influential than ever. Recent polling has indicated that about 70% of environmental registered voters closely follow elections and plan to vote (Circle, 2004).

One might logically think that when the majority of voters choose an elected official, the policy decisions of said official would reflect the majority of voters. However, statistical data indicates an inversely proportional relationship between the "political) persuasions" of the voters versus that of their elected politicians (Marshall, 2012). Given that data, one might deduce that a significant number of politicians say one thing to get elected, only to follow their own agenda after they get elected.

In the population of voters, more women exist than men, more voters from the central counties, and they are mostly between the ages of 25–40. Women are more likely to be in the occasional voter group than in the non-voter or frequent-voter categories. In general, voters between the ages of 25 and 40 appear to be more interested in environmental issues. Occasional voters and frequent voters are more likely than non-voters to vote for environmental issues (Layman, 1997). Occasional voters are less likely than frequent voters to agree that online petitions are an effective way to participate in campaigns for voting for environmental issues. They prefer traditional means of

expressing their views. Frequent voters are the group most likely to agree that environmental issues are important. This information does not align with the data from my 2007-2008 study because there was a p-value of less than .05.

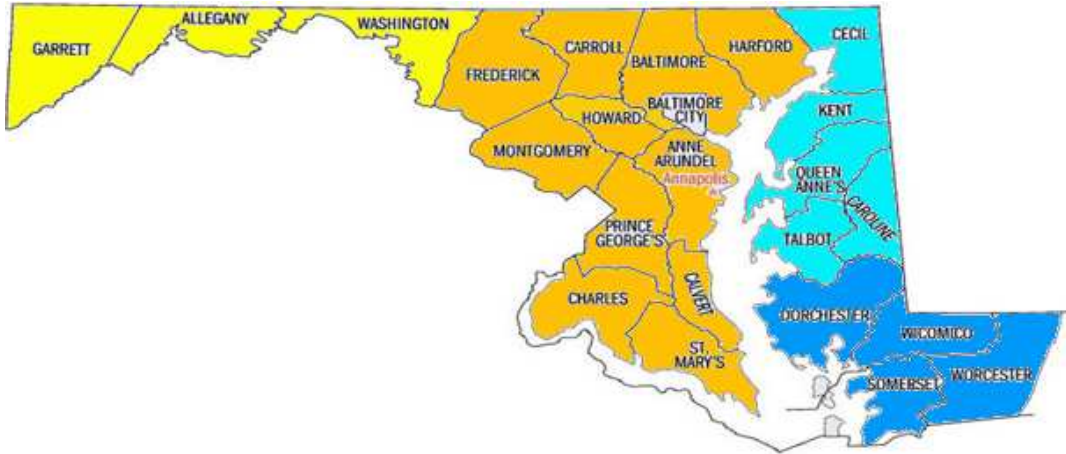
The 26th Amendment of the U.S. Constitution, passed in 1971, extended the voting age to 18; but voting participation among environmental voters has increased since 1972, around the period when environmental issues became more mainstream (Levine & Lopez, 2002). Those who have a strong history of voting are likely to turn out on election days to vote. They are a group concerned about environmental issues facing Maryland.

Population

The population of this study was 141,055 registered voters but only 11,096 are considered environmental voters because these voters have attended one or more Maryland League of Conservation Voters environmental events and these voters were part of the entire list of Maryland League of Conservation Voters from August 20, 2007 to November 5, 2007. These voters were split into four groups that the Maryland League of Conservation Voters were routinely used in voters categories to keep their studies consistent and the state of Maryland uses the same divisions for many of their studies (see Table 3). This means the group sizes were not exactly the same. I have normal distribution based on the participation and not me selecting a certain number of voters for each group. The 24 counties were divided into four regions, the northwest, the northeast, the central, and the southeast counties of Maryland. They were grouped according to state counties (see Fig. 3).

Paper and phone surveys were used to determine voter behavior among Maryland voters. Four questions were presented by the members of the Maryland League of Conservation Voters Board to be answered during a planning meeting with staff members in May of 2007. Once the four questions were outlined five members of the Maryland League of Conservation Voters designed a series of survey questions that would address the four big questions that they wanted answered. Following this, six questions to be answered by voters in June of 2007, were vetted and approved. The board decided to mail out the exact same questions in two different forms, a paper survey and a postcard survey, to be sent out on August 20, 2007. The board then decided that two weeks after mailing the surveys they would start conducting phone surveys asking the same questions; this began on September 3, 2007. The phone surveys were to be conducted by trained volunteers. The surveys were designed to be answered within a 5-minute period. Half of the population received paper copies and the other half received postcards. Randomly selected voters from the Maryland League of Conservation Voters' database were phoned by four trained volunteer members during the evening hours of 6:00 pm to 8:30 pm EST from September 3, 2007 to October 26, 2007. Random calls were also made. Follow-up calls were made on November 5, 2007, the Monday evening before the Tuesday election.

Figure 3
A Map Highlighting the 24 Counties of Maryland



Note: The yellow highlighted counties represent the northwest (Group I), the orange highlighted counties represent the central (Group II), the light cyan highlighted counties represent the northeast (Group III), and the true blue highlighted counties represent the southeast (Group IV). The state and the Maryland League of Conservation voters use these county divisions for studies and projects.

Table 3
List of Counties Broken Down by Region/Group.

Northwest (Group I)	Central (Group II)	Northeast (Group III)	Southeast (Group IV)
Garrett	Frederick	Cecil	Dorchester
Allegany	Montgomery	Kent	Wicomico
Washington	Carroll	Queen Anne's	Worcester
	Baltimore	Talbot	Somerset
	Baltimore City	Caroline	

	Howard		
	Prince George's		
	Charles		
	St. Mary's		
	Calvert		
	Harford		
	Anne Arundel		

Odd-numbered telephone numbers were sampled from the Maryland exchange for all counties in Maryland. Four staff members from the Maryland League of Conservation of Voters used a set of questions to solicit answers from those called during the interview. These calls were made the Monday evening before the Tuesday election in November 2007. The telephone interview sought answers to four research questions pertaining to major concerns of the League of Conservation Voters in reference to the impact of voter turnout at the polls on election day. This study does not have the same number of participants because no way exists to determine who voted from each county from this study. The sample is random because you randomly selected the people that were interviewed. Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being called. A simple random sample is an unbiased surveying technique. The postcards were coded, for this reason, for a follow-up study dealing with county data.

Research Design and Approach

This research study utilizes a quantitative research design. The term descriptive research refers to the type of research questions, design, and data analyses applied to a given topic. Descriptive statistics determines cause and effect. The descriptive design is conducive because it makes data collection manageable to answer research questions (Appendix A). Gay states that descriptive research involves collecting data to test a hypothesis or to answer questions related to the current status of the subject. A descriptive study determines and reports the way things are (Gay, 2003). This study looks to answers questions related to environmental issues. It assesses and analyzes the differences between the two Maryland League of Conservation Voters groups identified as environmental voters and non-environmental voters.

Instrumentation

This study relied on paper surveys, postcards, and survey calls as the primary source of data collection. The surveys consisted of questions mailed and or presented by phone to environmental voters by the Maryland League of Conservation Voters. This survey was an attempt to collect data from environmental voters. This survey instrument was designed to gather data regarding several research questions.

Data Collection

The data for this study were collected from the Maryland League of Conservation Voters, located on 86th Avenue in Annapolis, Maryland. A mailing list of 14,055

Maryland voters was obtained from the Maryland League of Conservation Voters. The League of Conservation Voters (LCV) is a national non-profit organization that works to turn environmental values into national priorities. The surveys were distributed during the 2007–2008 election year (mailed on August 20, 2007). I did not create the survey questions nor did I collect the results. I just received the final results from the surveys and phone calls to analyze. The package included:

1. a cover letter with the explained purpose of the survey and other pertinent information,
2. a copy of the survey,
3. an addressed and stamped return envelope, and
4. an addressed and stamped postcard.

Questions were also distributed 10 weeks prior to the 2007 election, via mail to voters to find out voters' general perceptions on conservation issues and to explore voter attitudes regarding the Healthy Air Act and awareness and support for the Program of Open Space. Questions are addressed in Chapter 5 for the purpose of showing the relevance of why the League of Conservation Voters is concerned about increasing voter turnout.

The postcards were coded for follow-up purposes to be studied later for county voting behaviors based on environmental issues related to the individual counties such as water quality in Charles county. The survey did not include any identifying marks. The voters were asked to complete and return the survey in the addressed and stamped envelope and to mail the post card when returning the survey. Once the postcards were received, the Maryland League of Conservation Voters matched the code on the returned cards with a list of survey voters for follow-up purposes. After two weeks (on September

3, 2007), survey voters who had not responded were sent a follow-up letters as a reminder for them to complete and return the survey. After another two weeks (on September 17, 2007), trained staff members called voters who had not returned the survey or post card. As a result, phone surveys were conducted.

Abbreviations and descriptions were used to define each group. These were standard groups that the Maryland League of Conservation Voters uses for research purposes and that had been approved by board members. The data were collected, copied, and entered into an Excel spreadsheet.

Copies of the phone surveys were given to each volunteer who would be making phone calls. For every voter phoned the volunteers filled out paper surveys recording voter responses. The data were collected on pieces of papers. The volunteers were trained on how to make the calls and fill out the survey sheets. The phone surveys had an additional seventh question that was not related to the study but requested the voter's email address. The results from the phone surveys were photocopied and then put into an Excel spreadsheet. The researcher entered all the collected data. The following information was entered into Excel: gender, age, county location, did the respondents answer the phone, was there no phone answer, did the respondent not want to participate in the survey, voting methods from the November election (survey question 1), absentee applications (survey question 2), groups contacting the league with information about voting absentee before the 2006 election (survey question 3), absentee voting reasons for 2008 (survey question 4), most compelled to write an email or call your legislator about (survey question 5), and awareness Maryland Healthy Air Act Regulation (survey question 6). The email addresses that were requested from the phone survey takers were

gathered and were put into the membership data bank by a Maryland League of Conservation Voters' staff member (survey question 7).

Analysis of Methods

Descriptive statistics along with collected secondary data obtained from the telephone interviews and surveys were analyzed. Frequencies and percentages were reported for analyses of research questions on a scale of 1 to 4 along with odds ratios, which is a measure of effect size, describing the strength of association between two data values. To assess the significance of the results, an analysis of variance (ANOVA) was used. The ANOVA test allows the researcher to determine whether or not the means of different groups are equal. The other two tests that were run along with the ANOVA test were the cumulative logistic regression and the chi-squared test for independence. The ANOVA test and the cumulative logistic regression both show whether any significant difference exists between the groups with logistic regression, signifying which group has more significant results than the other. Please note, the chi-squared test only allows me to see if any relationship exists among Maryland voters. Computations were made using SPSS.

Validation /Research Results

Credibility, dependability, and transferability were all addressed. To gain credibility in the study, the author analyzed data that came from a trusted environmental organization. The data were obtained from concerned environmental voters randomly. The use of multiple data sources contributed to the triangulation of the study (Creswell,

2007). Data gathered by the author were compared with environmental past research in Maryland, within and across categories, and data sources as mentioned above (i.e., phone interviews and data analysis) were utilized (Creswell, 2007; Schwandt, 2007). Lastly, to allow for transferability, a detailed description of the context of this study and its results are given. The researcher reported the findings of the study so that the reader may choose to apply its results to his or her similar situation (Creswell, 2007; Schwandt, 2007).

Analysis of Data

Descriptive statistics were used to report the responses from the survey questions. Percentages and frequencies were reported for analysis of the questions. Chi-squared tests were performed to test differences in responses to the questions. A statistical analysis, SPSS, was used to assess my hypotheses were supported to help draw accurate conclusions. The minimum requirement for statistical significance was set at an error rate of $p < .05$. The ANOVA test was also used to test my hypotheses and to draw conclusions.

Statistics Utilized

To analyze the data, descriptive statistics along with collected secondary data have been reviewed, analyzing the responses given from the telephone interviews and surveys. Frequencies and percentages were reported for analysis of research questions on a scale of 1 through 4 along with odds ratios. To assess the significance of results the analysis of variance (ANOVA) was used. The ANOVA test allows the researcher to

determine whether or not the means of different groups are equal. The other two tests used with the ANOVA test were the cumulative logistic regression and the chi-square test for independence. The chi-squared test only allows me to see if any relationship exists dealing with the differences between the two Maryland League of Conservation Voters groups identified as environmental voters and non-environmental voters.

CHAPTER IV

FINDINGS

The purpose of this study is to answer the question: What is the difference between the two types of Maryland voters identified as environmental voters and non-environmental voters? The first three chapters of this study presented an introduction to the study, a review of selected literature, and the design and methodology of the study. This chapter will present findings from the surveys and summarize the results of the analysis of the data.

The data were gathered from surveys of Maryland voters conducted in August 20, 2007 to November 5, 2007.

Responses of the Survey

A list of voters was obtained from the Maryland League of Conservation Voters. The data were collected by recording the results from paper surveys, postcards surveys, and phone surveys.

Research Questions

This research sought to gather data to answer the following questions:

1. What are the background characteristics of environmental voters in terms of gender and how will it affect the voters' behavior?

2. What are the background characteristics of environmental voters in terms of age and how does it affect the voters' behavior?
3. What are the background characteristics of environmental voters in terms of county location and how does location affect the voters' behavior?
4. Was the mailing of applications and or postcards effective at raising the rate of voting or of absentee voting?
5. Were environmental voters more likely to vote than the average Maryland voters?
6. Did the Maryland voters who were pre-identified as environmental voters respond differently to the survey questions and mailings than other voters?

Description of the Sample

The population of this study consisted of 141,055 registered but only 11,096 were considered environmental voters as part of the Maryland League of Conservation Voters list from August 20, 2007 to November 5, 2007 from all twenty-four counties in Maryland. The participants ranged in age from 18 to 75 years of age. All of the participants were randomly chosen and they were sent paper surveys, postcard surveys and phone surveys, and phone surveys.

Research Questions Numbers One - Three: What are the background characteristics of environmental voters in terms of gender, age, and county location and how do these variables affect the voters' behavior?

1. H₁: A Maryland environmental voter's gender will significantly affect whether or not the voter will vote.
H₀: A Maryland environmental voter's gender will not affect whether or not the voter will vote.
2. H₁: A Maryland environmental voter's age will significantly affect whether or not the voter will vote.
H₀: A Maryland environmental voter's age will not affect whether or not the voter will vote.
3. H₁: A Maryland environmental voter's location will significantly affect whether or not the voter will vote.
H₀: A Maryland environmental voter's location will not affect whether or not the voter will vote.

Table 4: MARYLAND VOTERS DEOMOGRAPHIC CHARACTERISTICS

Demographic Characteristics	Frequency	Percent
<u>Gender</u>		
Female Environmental	7,212	65.0
Male Environmental	3,884	35.0
Total	11,096	100.0
Female Non-Environmental	91,696	71.0
Male Non-Environmental	38,263	29.0
Total	129,959	100.0
<u>Currently Live in County Grouping</u>		
Group I Northwest Environmental	1,046	9.0
Group II Central Environmental	5,748	52.0
Group III Northeast Environmental	3,306	30.0
Group IV Southeast Environmental	996	9.0
Total	11,096	100.0
Group I Northwest Non-Environmental	7,748	6.0
Group II Central Non-Environmental	57,308	45.0
Group III Northeast Non-Environmental	52,951	41.0
Group IV Southeast Non-Environmental	10,332	8.0
Total	129,959	100.0
<u>Employed</u>		
Full time Environmental	5,041	46.0
Part time Environmental	3,012	27.0
Student Environmental	1,343	12.0
Unemployed Environmental	1,700	15.0
Total	11,096	100.0
Full time Non-Environmental	58,118	45.0
Part time Non-Environmental	29,704	23.0
Student Non-Environmental	15,016	11.0
Unemployed Non-Environmental	27,121	21.0
Total	129,959	100.0
<u>Highest Degree</u>		
High School Environmental	534	5.0
Bachelor Environmental	7050	64.0
Master Environmental	2212	20.0

Doctorate Environmental	1,300	11.0
Total	11,096	100.0

High School Non-Environmental	16,789	13.0
Bachelor Non-Environmental	75,716	58.0
Master Non-Environmental	25,830	20.0
Doctorate Non-Environmental	11,624	9.0
Total	129,959	100.0

Age

18-25 Environmental	2,037	18.0
25-40 Environmental	3,241	29.0
40-55 Environmental	3,067	28.0
55-70 Environmental	1,012	9.0
70 & older Environmental	1,739	16.0
Total	11,096	100.0

18-25 Non-Environmental	25,830	20.0
25-40 Non-Environmental	40,846	31.0
40-55 Non-Environmental	33,579	26.0
55-70 Non-Environmental	10,332	8.0
70 & older Non-Environmental	19,372	15.0
Total	129,959	100.0

Table 4 shows that female environmental and non-environmental voters vote more than males in both groups. Group II the central area of Maryland has the greatest members of environmental and non-environmental voters. The data in this chart shows that full time employed environmental voters within the 25- 40 age range are the most active voters.

Table 5 Significance of the Individual Characteristics

Source	Type III Sum of Squares	Mean Square	Frequency	Significant Values
Corrected Model	238.44	47.689	3.447	.037
Intercept	16683.56	16683.56	1206.0	.000
Age	127.444	63.722	4.606	.003
Gender	.992	.452	.323	.525
County	110.778	55.380	4.004	.042
Age*Gender*County	.222	.222	.016	.901
Error	166			
Total	17088			
Corrected Total	404			

The ANOVA test was used for the comparison of multiple groups in the sample and to determine whether or not the researcher rejects or fails the stated hypothesis about three demographic characteristics about Maryland voters. Whether or not a person voted includes absentee and at the polls, and if they answered the question as did not vote or do not remember they were considered as did not vote. Of the demographics that were in question, the environmental voters gender and county location play significant roles in whether or not the voter voted. The ANOVA test determining the relationship of the voter's gender produced a significant positive p-value of .003, meaning that a female environmental voter is more likely to vote than a male environmental voter. The ANOVA test determining the relationship of the voters county location produced a significant positive p-value of .042, meaning that the depending where the voter was located they are more likely to vote. Environmental voters located in Group II Central area are more

likely to vote. Therefore, the hypothesis about the environmental voters age and county is accepted so, a Maryland environmental voter's location will affect whether or not a voter will vote. The hypothesis about the environmental voter's county is accepted. The ANOVA test also showed that an environmental voter's age had no affect whether or not a person voted. Therefore, the hypothesis about the environmental voter's age is rejected.

In summation, of the three demographics in question (age, gender, and location) that were tested, voter's county location played a significant role in whether or not a voter voted. Voters in the central part of Maryland voted more. The Maryland League of Conservation Voters feel that this might be due to the fact that their office is located in this region and they might have more access to their events and materials.

Research Question Number Four: Was the mailing of applications and/or postcards effective at raising the rate of voting or of absentee voting?

H₁: The mailing of applications and or postcards significantly increases the chances of voting. This also increases the number of absentee ballots.

H₀: The mailing of applications and or postcards does not increase the chances of voting and increases the number of absentee ballots.

Table 6

Voting Groups

Abbreviation	Description
Controls	The control group
ANC	Application, No Call
AC	Application, Call

PNC	Postcard, No Call
PC	Postcard, Call

To analyze the impact of different voter turnout interventions, the population (i.e., the entire list of Maryland League of Conservation Voters) was randomly split into five groups. The groups are as follows: the control group, the ANC group received an application but no phone call, the AC group received an application and a phone call, the PNC group received a postcard and a phone call, and the PC group received a postcard and a phone call.

Table 7

Group Make-up

Variable	Total	Controls	ANC	AC	PNC	PC
# In group	141,055	15,155	29,522	23,428	29,521	36,429
Mean votes (last 4 years)	3.00	3.00	3.00	3.00	3.00	3.00

Table 7 shows a normal distribution that was randomly selected, therefore, the numbers in the groups are not exactly the same. The mean voter results from the groups listed above were analyzed. The mean results of the total and control groups both comprised an average within the last four years of 2.53, the ANC group had a mean

average of 2.51, the AC and PNC groups both had mean averages of 2.54, and the PC group had a mean voter average of 2.54. Note that the total mean averages are round up from the numbers listed to 3.00 because you cannot have a fraction of a voter. The sending of paper surveys postcards and phone surveys did have an impact on the proportion of individuals who voted at all. It appears to have increased slightly the proportion of people who voted absentee. The groups that received the applications have higher rates of absentee voting.

Table 8

Percent of Absentee Voters

Group	N	% Voted	% Voted Absentee
Full List	141,055	78.3	6.9
Controls	15,155	78.4	6.7
Any contact	96,378	78.3	9.7
No Contact	29,522	77.6	6.4

Table 8 shows the percentages of absentee voters. Out of the full list of 141,055 voters, 78.3% voted with 6.9% voting absentee, the controls comprised 15,155 voters and 78.4% of these voters voted with 6.7% voting absentee. Out of the 96, 379 voters that received any form of contact from the Maryland League of Conservation Voters 78.3% voted and 9.7% voted absentee. From the 29,522 voters that received no contact from the Maryland League of Conservation Voters, 77.6% voted and 6.4% voted absentee.

Table 9 shows that the percent of people who voted by mail increased when they were contacted.

In summation, voters contacted via paper surveys, postcards, or phone surveys by the Maryland League of Conservation Voters were no more likely to vote at the polls versus voters not contacted at all. Paper surveys, postcards, and phone surveys also did not significantly impact the percentage of people who voted absentee as well.

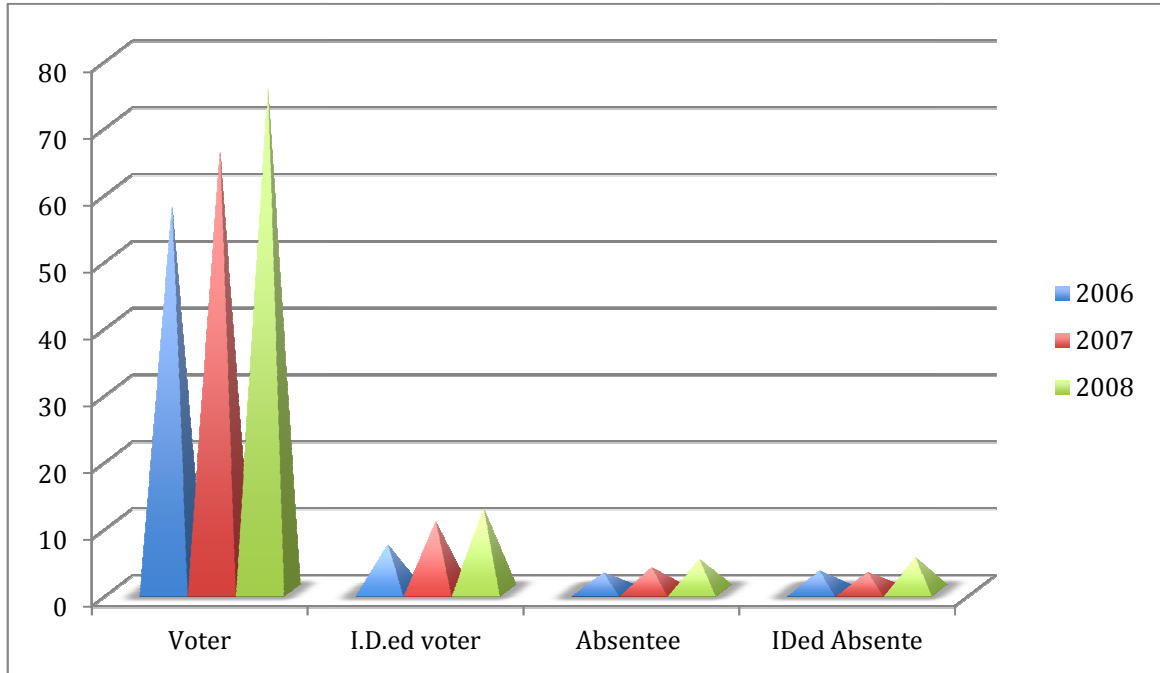
An ANOVA test was performed to determine if a difference occurred between the number of individuals who voted; and with the p-value greater than .05, no significant difference occurred. Therefore, the sending of the paper surveys, postcards, and the making of survey calls did not make an impact on the voters' decision of whether or not to vote. Also, when comparing the average number of years that the individuals have voted no significant difference exists between the groups either. In summation, ANOVA test suggests that sending the application to voters does not significantly impact the number of individuals who vote.

Research Question Number Five: Were environmental voters more likely to vote than an average Maryland voter?

H₁: Maryland environmental voters are more likely to vote than the average Maryland voter.

H₀: Maryland environmental voters are not more likely to vote than the average Maryland voter.

Figure 4 *Voters Likely to Vote in 2006, 2007, and 2008*



(West, 2010)

Figure 4 shows the percent of Maryland voters who were likely to vote in 2006, 2007, and 2008. The chart shows that a non-environmental voter had a 55% chance of voting in 2006, a 63% chance in 2007, and a 69% chance of voting in 2008. Pre-identified environmental voters had a 5% chance of voting in 2006, 8% chance in 2007, and 9% chance in 2008. Absentee voters had a 3% chance of voting in 2006, 4% in 2007, and 5% in 2008. Pre-identified absentee voters had a 4% chance of voting in 2006, 4% in 2007, and 5% in 2008. The areas under the curves for both figures are less than five percent. This data I retrieved from a study that the Maryland League of Conservation Voters had an external consulting firm do in 2008.

In summation, Maryland environmental voters are more likely to vote than non-environmental voters was confirmed from my research. Election days offer Americans to

show their civic pride. Even in high stake elections like the most recent election barely half of those with the right to vote exercise their rights (Issenberg, 2012). The Maryland League of Conservation Voters feel that environmental voters are very concerned about environmental issues and there were many during the 2007- 2008 election along with an increase interest in the presidential election.

Figure 5

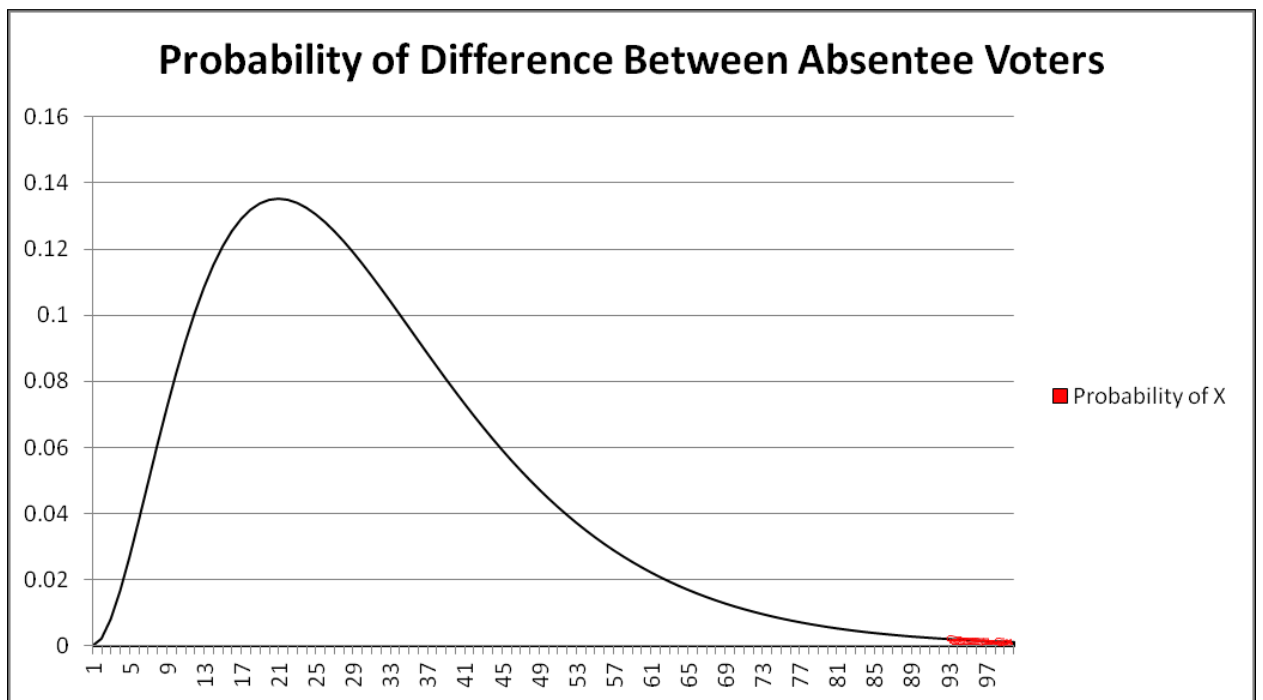
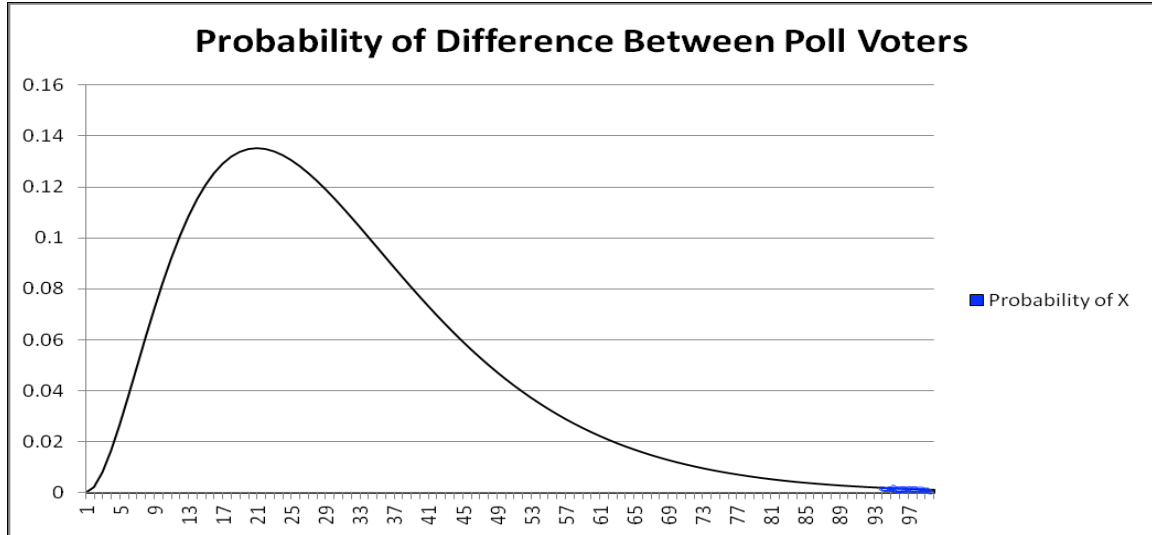


Figure 6



The two graphs above provide a visual representation of the probability that significant differences occur in the behaviors of absentee and poll voters. Look at the shaded areas under the curves (in red and blue). In both instances a significant difference occurs in the groups being compared, with $\alpha=.05$. The highlighted portions (in red and blue) of the graphs show the actual alpha under the curve for each test. According to the Maryland State board of elections, 57.53% of “active registered voters on Election Day” voted in the 2007–2008 election. This is compared to 78.3% of environmental voters (defined as anyone included in the list of voters used in the analysis) who voted in some form in the 2007–2008 election. When studying the Maryland State Board of Elections, 2.7% of active registered voters on Election Day voted absentee in the 2006 election, compared to 6.9% of the environmental voters who did. Figure 4 shows the percentage of voters who voted in 2006, 2007, and 2008. Two chi-squared tests for independence were conducted to determine whether or not a significant association occurred between the average Maryland voter and environmental voters who voted as

absentee and whether or not a significant association occurred between the average Maryland voter and environmental voters who voted at the poll. Each test showed that voter's preferences are independent of one another based the relationship between the average Maryland voter and environmental voters who voted as absentee.

The areas under the curves for both figures 5 and 6 are less than five percent. With the p-value of .045 representing the difference between the absentee Maryland environmental voters and the Maryland non-environmental voters, absentee Maryland environmental voters are more likely to vote than non-absentee voters. With the p-value of .042 representing the significant difference between the number of Maryland environmental and non-environmental voters whom vote, the hypothesis that Maryland environmental voters are more likely to vote than the non-environmental voter is accepted.

Research Question Number Six: Did the Maryland voters who were pre-identified as environmental voters respond differently to the survey questions and mailings than other voters?

H₁: Voters who are pre-identified as Maryland environmental voters responded differently than the other Maryland voters to the survey questions based on environmental questions like knowing about the Maryland Healthy Air Act Regulation.

H₀: No difference based on Maryland voters to the survey questions based on environmental questions like knowing about the Maryland Healthy Air Act

Regulation in the way that Maryland environmental voters and other Maryland voters respond to the survey questions.

Table 9
Responses from Environmental Voters Versus Other Voters by Counties

	Non-Environmental Voters	Environmental Voters
% Allegany	0.20	0.20
% Anne Arundel	18.72	34.86
% Baltimore	19.04	42.59
% Baltimore City	5.56	11.56
% Calvert	1.48	3.34
% Caroline	0.35	0.79
% Carroll	2.62	5.17
% Cecil	1.35	2.90
% Charles	1.01	2.24
% Dorchester	0.46	0.84
% Frederick	2.55	4.27
% Garrett	0.08	0.21
% Hartford	3.95	10.18
% Kent	0.77	2.11
% Montgomery	16.94	34.37
% Prince George's	13.14	15.5
% Queen Anne's	1.35	3.03
% Saint Mary's	0.93	2.55
% Somerset	0.17	0.30
% Talbot	1.46	6.14
% Washington	0.81	1.6
% Wicomico	1.08	2.10
% Worcester	0.71	1.57

A logistic regression was used to determine whether or not a difference between the responses from Maryland non-environmental voters and other Maryland voters. The data shows that responses from non-environmental voters versus environmental voters from the 24 state counties in Maryland showed frequency results ranging from 0.20% to 42.59%. A logistic regression determines the association between binary outcomes and variables in terms of odds ratios, where the odds ratio is equal to the odds of the exposed group divided by the odds of the unexposed group. Therefore, the logistic regression model that was fitted is: odds ratio is equal to the baseline multiplied by the area. The baseline is the odds of the Maryland voters voting for more environmental reform and the area is the odds ratio comparing the odds of all voters voting for reform. No significant survey response differences were detected in environmental voters and others regarding the survey questions from the Maryland League of Conservation Voters based on environmental issue questions.

Table 9 shows that the county rows can be interpreted as follows: Anne Arundel voters made up 18.7% of the voters that responded to the survey in the non-environmental category and 34.86% of the environmental voters that responded to the survey. Of the other voters in the survey, 17.8% of them came from Anne Arundel.

Whereas, most trends appear to be the same, one difference that appears to be larger than others is the percentage of environmental voters who came from Montgomery County, and who had a higher rate of environmental voter survey responses. This was confirmed by a logistics regression. That is, on average, the odds of the pre-identified environmental voters' survey responses in Montgomery County increased by 11% in comparison to other voter groups contacted and results from Montgomery County

residents having higher educational levels. This result is marginally statistically significant. If contacting the pre-identified environmental voters in Montgomery County truly did have no effect, I would only expect to see this large (or larger) of an increase 9% of the time.

The logistic regression model produced a p-value of .64. This is not significant and, therefore, no significant difference between the survey responses of pre-identified environmental voters and other voters. The null hypothesis is rejected because the p-value is greater than 0.5 therefore, the odds of the two different groups voting differently than another is not significant.

Finally, no significant responses were detected based on responses to environmental questions from pre-identified environmental voters and others regarding the survey questions from the Maryland League of Conservation Voters.

Summary

The purpose of this study was to answer the question: What is the difference between the two Maryland voter-types identified as environmental voters and non-environmental voters? Data were analyzed from the Maryland League of Conservation Voters using tests like chi-squared and ANOVA, to name only a few. Data were analyzed to answer six questions. This chapter gathered information concerning gender, age, county locations of identified environmental voters and non-environmental voters in order to answer the four questions and determine how the voters responded to the

applications and phone calls administered by the Maryland League of Conservation
Voters during the 2007–2008 election cycle.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATION

“Man shapes himself through decisions that shape his environment”

Robert Collier

Summary of Study

Studies have been done over the last few years related to environmental voting trends such as, the study done by Southern Maryland Studies Center that studied environmental voting trends related to the Chesapeake Bay in 2009 or a small study done by the University of Maryland in 2008 collecting data on voting trends related to Maryland air pollution, but few have been conducted using voter data from the Maryland League of Conservation Voters to analyze voter behaviors between the two Maryland League of Conservation Voters voting groups, identified as environmental voters and non-environmental voters in all of the 24 counties in Maryland (Canceleri & Swartz, 2010). This study analyzed and assessed how the voters of Maryland responded to environmental applications as referred to by the Maryland League of Conservation Voter. The applications consisted of items such as paper surveys, postcards and phone calls, to support environmental undertakings in the state of Maryland. These tools are used to obtain information about environmental issues for the non-partisan political voice for the environment, the Maryland League of Conservation Voters.

The subjects of this study consisted of the entire list of 141,055 registered voters. Of that list, 11,096 were observed responding by either voting or not voting. Data were obtained from voters by paper surveys with a phone call, paper surveys without phone call, postcard surveys with a call, or postcard surveys without a call.

Telephone surveys were also conducted along with some voters receiving a questionnaire. These documents collected demographic information and determined how voters would most likely vote on environmental issues defined by the Maryland League of Conservation Voters. The surveys consisted of six of the same questions that were mailed on the paper surveys, postcards, and asked in the telephone surveys.

The data were collected, coded, and processed using the SPSS statistical analysis software. Frequency counts were tabulated for each response and percentages were computed for the total returned surveys and phone surveys. A chi-squared test was used at a 0.05 significance level.

The following six research questions were discussed (the first three are grouped together but, tested individually):

1. What are the background characteristics of environmental voters in terms of gender, age, and county location and how do they affect the voters' behavior?

They gender, age and county were all addresses individually.

2. Was the mailing of applications and or postcards effective at raising the rate of poll voting or of absentee voting?

3. Were environmental voters more likely to vote than the average Maryland voter?

4. Did the Maryland voters who were pre-identified as environmental voters respond differently to the survey questions and mailings than other voter?

Findings

In chapter 4, I analyzed six different questions. The findings for each of the six questions were as follows (please note that the first three questions are grouped together under outcome number one):

Outcomes:

1-3. Factors of gender, age, and county location were individually tested. Of the three demographics that were in question, the environmental voters county location played a significant role in whether or not a voter voted because I had a p-value less than .05 proving that county location does affect a voter voting.

This may result from the location of the Maryland League of Conservation Voter's office. It is located in Anne Arundel County, which is in the Central Group II area. The age and gender of the environmental voter had no affect whether or not a person voted.

4. The voters contacted via paper surveys, postcards, or phone surveys by the Maryland League of Conservation of Voters were no more likely to vote at the polls versus voters not contacted with any applications. Paper surveys, postcards, and phone surveys also do not significantly impact the percentage of people who vote as an absentee.

5. Maryland environmental voters are more likely to vote than the non-environmental voter was confirmed.

6. No significant survey responses were detected based on responses to environmental questions from pre-identified environmental voters and others regarding the survey questions from the Maryland League of Conservation Voters.

Conclusion

All in all, the study showed differences occurred between the two Maryland League of Conservation Voters groups identified as environmental voters and non-environmental voters. Maryland voters continue to be concerned about environmental issues such as land, air, and water and strongly support efforts to protect them and they take voting seriously. Environmental issues are important with Maryland voters and they believe that the state needs stronger environmental laws or better enforcement of present.

Recommendations

The findings and conclusions of this study lead to the following recommendations:

1. Future research should study ways the Maryland League of Conservation of Voters can better advertise environmental issues facing Maryland.
2. To provide more information about voter trends, conduct a study to further investigate the differences in demographics of the participants and their personal environmental concerns.
3. Determine the degree to which environmental participants are concerned with major national environmental issues compared to Maryland environmental issues.
4. Conduct a study related to other environmental issues facing each county in Maryland.

5. Do a study on how social media may influence voting behaviors.
6. Do a study to see how many voters voted from each county in Maryland.

Finally, voters in Maryland know the importance of voting. This was proven recently when the Maryland House of Delegates passed the Maryland Offshore Wind Energy Act of 2011 with a 88 to 47 vote, a crucial step to bringing clean, offshore wind power to Maryland. Jen Brock deputy of the Maryland League of Conservation Voters and act supporter, said: *“Maryland voters support offshore wind because it works for ratepayers, workers, our health, and our climate. With today’s vote, the House of Delegates harnessed the winds of constituent support and took a significant step towards developing homegrown energy off the coast of the Eastern Shore.”* (Canceleri & Swartz, 2011). The state environment is often defined by issues facing states during state and local elections. Maryland voters are taking environmentalism seriously by the number of voters registered with in the Maryland League of Conservation of Voters database and from voting behavior research obtained from this study. They recognize the importance of environmental issues and education during election years, as determined by a number of voters in Maryland following the Maryland League of Conservation Voters by joining their list serves or attending their environmental meetings and participating in this study. Environmental education needs to find a place in schools and societal systems responsible for development of citizen science, needs to be developed with cognitive skills, across a variety of disciplines to help students and adults with the ability to make responsible. Still, more studies on voter behavior need to be done to help protect our environment

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APPENDICES

APPENDIX: A

Research Questions

1. What are the background characteristics of environmental voters in terms of gender, age, and county location and does it affect the voters' behavior?
2. Were environmental voters more likely to vote than the average Maryland voter?
3. Was the mailing of applications and or postcards effective at raising the rate of poll voting or absentee voting absentee?
4. Did the voters who were pre-identified as environmental voters respond differently than the other voters to the survey questions, calls, and mailings?

APPENDIX: B

SURVEY INSTRUMENT

Maryland League of Conservation Voters Education Fund
Voter Participation Phone Evaluation Survey

Introduction May I speak to _____ (if SPECIFIC VOTER is not available terminate call.)? My name is _____ and I'm conducting a public opinion research with voters in Maryland. It will just take a moment.

1. During last November elections, please tell me which method you used to cast your ballot?

- a. Voted at the polls
- b. Voted by absentee ballot
- c. Did not vote
- d. Don't remember

Skip to question 3 for those who said they did not vote absentee or at all

2. If you voted absentee, how did you get your absentee application?

- a. Completed application that came in the mail
- b. Called and requested an application from the board of elections
- c. Went online and downloaded application from board of elections website
- d. Visited the county board of elections office
- e. Received postcard in the mail and went to board of elections website to download

3. Do you recall any of the following groups contacting you with information about voting absentee before the 2006 election?

- a. Former Governor Ehrlich and/or the Republican Party
- b. The Maryland League of Conservation Voters Education Fund

- c. Governor Martin O'Malley and/or the Democratic Party
- d. Maryland State Teachers Union
- e. All of the above
- f. None of the above

4. If you were to vote by absentee in the 2008 election, which of the following reasons would best describe why you would vote absentee?

- a. It is convenient
- b. I want to make sure my vote is counted
- c. I want to avoid long lines at the polls
- d. I want to take time with the ballot
- e. I don't know

5. Which of the following issues would you be most compelled to write an email or call your legislator about?

- a. Air pollution
- b. Protecting our drinking water
- c. Unmanaged growth and sprawl
- d. Protection of state parks, farms, and open space
- e. Global warming

6. Are you aware of the Maryland Healthy Air Act Regulation that was passed in December of 2006?

- a. Yes
- b. No

7. Thank you for your participation, which has been conducted on behalf of the Maryland League of Conservation Voters Education Fund. **May we get your email address so that they can** contact you to help protect Maryland's land, air, and water? We promise not to share or sell your email address with any other organization?

YES TO EMAIL: Thank you [RECORD EMAIL] Let me verify that. [READ THE EMAIL ADDRESS SLOWLY AND CLEARLY. MAKE ANY CORRECTIONS AS NECESSARY]. Thank you so much for your time and help today. Good-bye.

IF NO TO EMAIL: [Record separately whether the person says “Don’t have an email address” or “won’t give the email address”] Thank you so much for your time today. Good-bye,

APPENDIX: C

POSTCARD SURVEY

Maryland League of Conservation Voters Education Fund
Voter Participation Postcard Survey

Dear Voter,

Please take time to answer the following questions and mail back your postcard.

Thank you.

1. During last November elections, please tell me which method you used to cast your ballot?

- e. Voted at the polls
- f. Voted by absentee ballot
- g. Did not vote
- h. Don't remember

Skip to question 3 if you did not vote absentee or at all

2. If you voted absentee, how did you get your absentee application?

- a. Completed application that came in the mail
- b. Called and requested an application from the board of elections
- c. Went online and downloaded application from board of elections website
- d. Visited the county board of elections office
- e. Received postcard in the mail and went to board of elections website to download

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- b. The Maryland League of Conservation Voters Education Fund
- c. Governor Martin O'Malley and/or the Democratic Party
- d. Maryland State Teachers Union
- e. All of the above
- f. None of the above

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- a. It is convenient
 - b. I want to make sure my vote is counted
 - c. I want to avoid long lines at the polls
 - d. I want to take time with the ballot
 - e. I don't know
5. Which of the following issues would you be most compelled to write an email or call your legislator about?
- a. Air pollution
 - b. Protecting our drinking water
 - c. Unmanaged growth and sprawl
 - d. Protection of state parks, farms, and open space
 - e. Global warming
6. Are you aware of the Maryland Healthy Air Act Regulation that was passed in December of 2006?
- c. Yes
 - d. No

Thank you for your participation, which has been conducted on behalf of the Maryland League of Conservation Voters Education Fund.

APPENDIX C

PHONE SURVEY

**Maryland Conservation Voters Education Fund
Phone Script**

Hello, is this the _____ residence? I'm conducting public opinion research with voters in Maryland. It's a very short survey, no more than 4 questions.

1) Who do you trust for information about issues, conservation groups who work to protect our air, land, and water like Maryland League of Conservation Voters, or business groups who work to promote economic growth and energy development like Developers and the Maryland Chamber of Commerce? (ROTATE OPTIONS EACH CALL)

A) Environmental Groups

B) Business Groups- **TERMINATE (Thank you for your time – goodbye).**

C) Both

D) Refused

2) Which of these two statements do you most closely agree with?

A) We can and must have a balance between creating jobs in a strong economy and protecting our land, air, and water.

B) The environment is important, but we must ensure opportunity by creating and protecting jobs in our local economy and sometimes that means we have to make some environmental sacrifices.

C) Refused to say.

IF ANSWER IS “B” TERMINATE (Thank you for your time – goodbye).

3) Now, let me ask when you are making a voting decision between two candidates, how important are issues involving clean water; clean air, open space, and planning for growth?

A) Extremely important

B) Very important

C) Somewhat important

- D) Not very important
 - E) Not at all important
 - F) Refused to say
- 4) Which of the following issues would you be most compelled to write an email or call your legislator about?
- A) Air pollution
 - B) Protecting our drinking water
 - C) Unmanaged growth and sprawl
 - D) Protection of state parks, farms, and open space
 - E) Global Warming
 - F) Chesapeake Bay
 - G) Would not be willing to contact legislator
 - H) Refused to say
- 5) Would you like to give your e-mail address in order to receive information on ways you can help protect our air, land, and water?
- 6) For verification purposes, may I ask just your first name?

VITA

Trena Maria Ferrell

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Scope and Method of Study: Environmental Voting Analysis

Findings and Conclusions:

The overall purpose of this quantitative study was to analyze and assess the differences between the two Maryland voting groups identified as environment voters group and non-environmental voters. Six questions about Maryland voters' behavior were addressed. The population of this study consisted of 141, 055 registered voters (from all twenty-four Maryland counties) but only 11, 096 were considered environmental voters because these voters attended one or more environmental events. Data were obtained from voters by paper surveys with a phone call, paper surveys application without phone call, postcard surveys with a call, or postcard surveys without the call. Telephone surveys were also conducted along with some voters receiving a questionnaire

Findings and Conclusions:

Analysis of the data showed that Maryland environmental voters are more likely to vote than the non-environmental voters was confirmed. Factors of gender, age, and county location all individually tested showed voter's age and genders do not play a significant role in voter behavior. County location does affect voter behavior. Mailed or phoned applications have no affect on voter behavior. Finally, no significant survey responses were detected based on responses to environmental questions from pre-identified environmental voters and others regarding survey questions.

