

An Analysis of Environmentally Conscious Decision Making and the Influence of Income and Policy in Washington State

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Environmental Science

June 2019

Faculty Adviser: Dr. Elizabeth Bruch

Essay completed in partial fulfillment of the requirements for graduation with Global Honors,
University of Washington, Tacoma

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Abstract

Everyday environmentally conscious decisions such as recycling, composting, buying sustainable food, or driving an electric car, are becoming more prevalent in major cities of the United States and the world. As environmental degradation increases and people are negatively impacted, policy makers have begun to create public policies to address these growing environmental concerns. However, not all peoples are impacted the same, and not all policies are equitable. Therefore, the purpose of this project was to determine first, if income played a role in the making of environmentally conscious consumer decisions, and second, if policy makers thought the same. Through quantitative surveys of consumers in Washington state, as well as qualitative interviews with Washington state policymakers and influencers, we better understood the role income played in the environmentally friendly decision making through the thoughts of said consumers and policy makers. Local, regional, and possibly even national, governing bodies can benefit from this research by forming an understanding how an individual's life circumstances affect their perceptions of environmental degradation, and their wishes to make environmentally friendly decisions. Governing bodies would also be able to form public policy which addresses environmental concerns, and still remain feasible to one's individual economic circumstances. As the natural environment is continually impacted by our actions, it is vital to understand why a person may or may not make a decision that would benefit the environment because human survival may depend on it.

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Introduction

“The state of our world and environment breaks my heart, it saddens me deeply that our children will be left a world in this condition!”¹

“I fear we have ruined this planet and my children will pay the price.”

“I’m poor. That makes it tough to do the right thing.”

“I can recall the dust storms in Kansas where my mother put wet cloths over my face and how frightened I was. This occurred in the early thirties ... I am very concerned about the environment.”

“I’d like for my daughter not to have a dying planet as she grows up.”

“How can we keep going the way we are going!?”

“It’s so scary to think about the future environment.”

“My children and grandchildren’s future depends on taking action steps now to change things for the better.”

These comments convey fear and concern for our natural environment, for our world’s youth and the coming generations, and for how these people themselves, or their children, will survive our changing world. The Earth’s changing environment is negatively impacting more people over time: deforestation causing landslides,² flooding,³ and wildlife decline;⁴ climate

¹ All *italicized* quotes on this page are from anonymous residents of Washington state.

² International Union for Conservation of Nature (IUCN). "Deforestation and Forest Degradation," International Union for Conservation of Nature, last modified November, 2017 <https://www.iucn.org/resources/issues-briefs/deforestation-and-forest-degradation>

³ Ibid.

⁴ Ibid.

change causing droughts⁵ and increased strength and number of major weather events,⁶ which brings more flooding;⁷ droughts leading to increased wildfires, and thus smoke pollution;⁸ sea level rise shrinking populated islands, and cities along coasts, and other waterways;⁹ and pollution from industry, factories, and fossil fuel plants causing increased health problems.¹⁰ These examples may only be a fraction of the changes in the Earth's natural environment that are causing negative impacts on humans and other aspects of the globe.

Humans are the reason for some of the ways that our environment is changing, and every single one of us is already or will very soon be impacted in some way, shape or form by these changes through our health, livelihood, food, safety, infrastructure, housing, recreation, culture, and quality of life.¹¹ However, not all of us are impacted by these changes in the same way. Around the world, the consequences of these environmental changes have a much larger effect on some people, populations, communities, and countries than others.¹²

According to the United Nations (UN), the future of our Earth, and our day-to-day life as we currently know it, will significantly change in the next 10 to 20 years if current environmental changes are left unchecked.¹³ If this happens, those people, populations, communities, and countries that are currently experiencing heavy impacts, will face even heavier ones in the UN's proposed future.

⁵ Climate Central, Inc, *Global Weirdness: Severe Storms, Deadly Heat Waves, Relentless Drought, Rising Seas, and the Weather of the Future*. (New York: Pantheon Books, 2012.)

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ U.S. Global Change Research Program (U.S. GCRP). "Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment" (2018). U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

¹¹ Ibid.

¹² Ibid.

¹³ United Nations (UN). "Only 11 Years Left to Prevent Irreversible Damage from Climate Change, Speakers Warn during General Assembly High-Level Meeting." last modified March 28, 2019, <https://www.un.org/press/en/2019/ga12131.doc.htm>.

As the impacts of environmental issues become more prevalent, and policies around the world are put into place to combat these challenges, we need to make sure that policy makers and thus the policies themselves take into account these more vulnerable people, populations, and communities on both a local and global scale.¹⁴ This is part of what has become known as environmental justice. Environmental justice has many facets, and for the most part focuses on the inequities regarding vulnerable people being affected by environmental issues. However, the descriptions by Holz on climate change injustices effectively express some of the ways environmental justice needs to play a role by highlighting,

Three dimensions of injustice wrought by climate change: the inequities associated with global environmental change (e.g., disproportionate impacts on Global South and on Indigenous communities), interspecies injustice (i.e., the effects on other species and the land), and the intergenerational injustice (i.e., the effects on future generations).¹⁵

Environmental justice may be commonly thought of as a new topic, and only affecting people right now, but it spans both time and space, generations, and species.

Environmental justice is a global issue for vulnerable communities around the world. These vulnerable communities include, but are not limited to, low-income, peoples of color, and indigenous populations. It has been an issue since the 1990's,¹⁶ yet has only now become a mainstream notion, and there are still people that dispute its existence.¹⁷ However, as Klein states;

Slavery wasn't a crisis for British and American elites until abolitionism turned it into one. Racial discrimination wasn't a crisis until the civil Rights movement turned it into one. Sex discrimination wasn't a crisis until feminism turn it into

¹⁴ See Figure 1 in Appendix A: Figures

¹⁵ Eve Tuck and Marcia McKenzie, *Place in research: Theory, Methodology, and Methods*, (New York ; London: Routledge, Taylor & Francis Group, 2015), 161.

¹⁶ Robert D. Bullard, Glenn S. Johnson, Dena W. King, and Angel O. Torres. "Environmental Justice: Milestones and Accomplishments: 1964-2014." *Texas Southern University*.

¹⁷ *Ibid.*

one. Apartheid wasn't a crisis until the anti-apartheid movement turned it into one.¹⁸

Thus, following Klein's lead, environmental justice wasn't a crisis until we turned it into one.

As aforementioned, there are many communities that environmental justice applies to. I am in no position to comment about the environmental justice that needs to focus on communities of color and indigenous; however, as a current student with a combined family income level that falls within the middle income class (according to the Pew Research Center,)¹⁹ I am in a better position to speak about the restrictions that income can sometimes place when wanting to be more environmentally friendly.

The following research focused on an aspect of people within the lower income bracket, specifically consumers within the state of Washington in the United States (U.S.). For this project, a survey of consumers in Washington state and interviews of policy makers set out to answer the following questions:

- What role does income play in being environmentally conscious in Washington state?
- What role do policy makers and influencers think income plays in Washington state?

With the answers to these questions we want to determine if there were connections between income, policy, and the environmentally conscious decisions and actions of consumers in Washington state. These discoveries will in turn inform potential future policies and solutions that can benefit everyone.

¹⁸ Naomi Klein, *This Changes Everything: Capitalism Vs the Climate*. (New York, NY: Simon & Schuster, 2014.) 6

¹⁹ Richard Fry and Rakesh Kochhar, "Are You in the American Middle Class?," Pew Research Center, last modified September 6, 2018, <https://www.pewresearch.org/fact-tank/2018/09/06/are-you-in-the-american-middle-class/>.

History

Before discussing the intricacies of this project, it is beneficial to step back and briefly review the world's changing environmental ideals. Human beings have been impacting the natural world around them since we first began utilizing fire and stone tools.²⁰ In the 1700 and 1800's, there was little sense of environmentalism beyond philosophers and other academics of the time pondering nature's and animals' purpose in the world. These ideals for the most part were the same around the world as lands were conquered and resources exploited, and one could make the case that that is when environmental injustice began as the more colonial ideals of claiming resources and exploitation took hold. George Catlin even mused about the decline of the American bison, and with them the Native Americans, stating;

This noble animal in all its pride and glory, to Contemplate it so rapidly wasting from the world , drawing the irresistible conclusion ... that its species is soon to be extinguished, and with it the peace and happiness if not the actual existence of the tribes of Indians who are joint tenants with them in the occupancy of these vast and idle plains.²¹

Over the course of the 1800's, the industrial revolution began, and environmentalism was mostly portrayed through the desire to preserve beautiful areas of nature, such as the ponderings of Henry David Thoreau and Aldo Leopold, and the creation of national parks in the U.S.

It was during the 1900's that the environmental movement really began, and people seriously began to worry about the state of the world's natural environment. It also held the well-known environmental movement that we learn about in grade school. At the turn of the 20th century, people in the U.S. began to realize that the once thought limitless forests and other

²⁰ John Robert McNeill and Erin Stewart Mauldin, *A Companion to Global Environmental History*. Blackwell Companions to History. (Chichester, West Sussex; Hoboken, N.J.: Wiley, 2012.)

²¹ Benjamin Kline. *First along the River: A Brief History of the U.S. Environmental Movement*. (4th ed. Lanham, MD: Rowman & Littlefield Publishers, 2011.), 42.

resources, were in fact quite limited, and the U.S. government put in place acts and laws to maintain and conserve resources, such as “Gifford Pinchot’s efforts with the U.S. Forest Service.”²² Come the mid-1900’s, people considered more and more the harm that certain practices were bringing to natural areas, the species living in natural areas, and human health. The Clean Air Act,²³ the Clean Water Act,²⁴ the Endangered Species Act,²⁵ and other policies were all created during this time to mitigate said harm.

Today, there are a multitude of environmentally related acts and laws that have either been enacted or are on course to become so, from the city to national level. Even the whole world has attempted to create globally reaching standards for the environment through the Kyoto Protocol²⁶ and the Paris Accord.²⁷ Overall, the world is becoming more environmentally aware, but with the UN saying that we have little time left before both climate change and other environmental issues cause irreversible damage²⁸ to the Earth and human life as we know it, we need to be doing more, not just individually, but as a community, as a state, as a nation, and as a world. Change may start at home, but we need to get out of our own house.

²² John Robert McNeill and Erin Stewart Mauldin, *A Companion to Global Environmental History*.

²³ U.S. Environmental Protection Agency (U.S. EPA), "Progress Cleaning the Air and Improving People's Health," U.S. Environmental Protection Agency, last modified March 14, 2019, <https://www.epa.gov/clean-air-act-overview/progress-cleaning-air-and-improving-peoples-health>.

²⁴ U.S. EPA, "History of the Clean Water Act," U.S. Environmental Protection Agency, last modified August 8, 2017, <https://www.epa.gov/laws-regulations/history-clean-water-act>

²⁵ U.S. Fish and Wildlife Service (U.S. FWS), "Endangered Species Act – Overview," U.S. Fish and Wildlife Service, last modified December 11, 2018, <https://www.fws.gov/endangered/laws-policies/>.

²⁶ United Nations Framework Convention on Climate Change (UN FCCC), "The Paris Agreement," United Nations, last modified October 22, 2018, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>.

²⁷ UN FCCC, "What is the Kyoto Protocol?" United Nations, accessed April 7, 2019, <https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol>.

²⁸ UN, "Only 11 Years Left to Prevent Irreversible Damage from Climate Change, Speakers Warn during General Assembly High-Level Meeting."

Research

Environmental justice may be a problem around the world, but to fix such a large problem, one needs to start small and with their local community. However, before even trying to remedy these issues, we first need information on how they affect our said local community. My local community is the city of Tacoma, WA, but just one city may not have the best representative and diverse sample to get information; a better sample size of this local community is Washington state.

Washington state is often thought of as very environmentally conscious, and with 80% of Washington's electricity coming from renewable sources²⁹ it is easy to see why people may think that. Then again, Washington does not fall within the top 10 most environmentally friendly states in the U.S.³⁰ Washington consumers may come into the top 10 when it comes to "eco-friendly behaviors," but overall 'greenness' places Washington at number 17 out of all 50 states.³¹ This imperfectness puts Washington in a good position to be researched about the environmentalism of its consumers and current political thinking regarding environmental issues.

My co-investigation in this research study employed two distinct methods of gathering information: a survey and interviews. The survey enabled us to get to the heart of the thoughts, behaviors, and opinions of consumers, whilst interviews allowed us to gather similar results from the policy makers and influencers in Washington state.

²⁹ U.S. Energy Information Administration (U.S. EIA), "Washington State Profile and Energy Estimates: Profile Analysis," U.S. Energy Information Administration, last modified November 15, 2018, <https://www.eia.gov/state/analysis.php?sid=WA>.

³⁰ John S. Kiernan, "2018's Greenest States," WalletHub, last modified April 15, 2019, <https://wallethub.com/edu/greenest-states/11987>.

³¹ Ibid.

Questions

The original question that sparked the idea to pursue this project was, “If you could buy an electric car, would you?” I answered that question with “Yes, if I could actually afford one,” and my comment about being able to afford one is what sparked this investigation. Obviously, that one question is not enough for a full research project, yet this question had already ignited a curiosity to figure out what could be stopping someone from buying an electric car, or for that matter anything that would be considered more environmentally friendly. From there, my research partner and I realized that this is part of the environmental justice issue whereby lower income communities can face financial challenges that prevent them from being entirely environmentally conscious. This led to asking:

- What role does income play in being environmentally conscious in Washington state?

However, other studies have already focused on some of the aspects of the individual side of environmentalism, therefore, we decided to take it one step further by researching the political side by investigating the thoughts of policy makers and influencers with the question:

- What role do policy makers and influencers think income plays in Washington state?

These two questions in reference to Washington state were the foci of this research study. It is our hope that this information will provide a better picture of the environmental awareness of consumers in Washington and its policy makers and influencers.

Methods

In order to learn people’s thoughts about something, one must ask them, and the most common ways of doing this is through surveys and interviews. As aforementioned, this research project used both of these methods. A survey was deployed to determine the thoughts, concerns, knowledge/awareness, and current actions of the state of Washington’s populace when it came to

environmental issues; whilst interviews were conducted to learn similar things from the current policy makers and influencers of Washington state. These two methods, coupled with a literature review of articles and books covering topics spanning policy, issues, solutions, testimonies, and more all related to our natural environment, began to give insight into why the average person in Washington state may or may not make an environmentally friendly decision, and how policy influences this.

Survey

The first part of this research project was to learn about the thoughts, actions, and decisions that individual consumers in Washington state have and do, and this was done through the survey. In January 2019, a survey of 17 questions was sent out to 800 consumers located in the state of Washington through the use of the online survey distributor Pollfish. This survey was distributed through the internet. This meant that it was biased towards anyone with internet access either through a smart cell phone or computer. We do understand that this could skew our results, however, as only ~5%³² of people in Washington do not have access to the internet in some way, and with that low of a number, we decided it made sense to use an internet disseminated survey for the use of this project.

Demographics collected from each respondent consisted of age, household income, and city location within Washington. Each demographic, besides location, was broken into multiple brackets, with quotas to ensure an even sampling across consumers.³³ The questions asked within the survey ranged from knowledge of varying environmental issues and concepts, opinions of environmental laws and legislature, potential access to environmentally conscious products, and

³² Nick Reese, "Internet Access in Washington: Stats & Figures," Broadband Now, last modified March 6, 2019, <https://broadbandnow.com/Washington>

³³ See Appendix B for detailed demographics

environmentally conscious actions already being done. We then compared the responses of each question to household income level, thus determining how income may factor into certain environmentally conscious decisions.

Interviews

We sought interviews from multiple Washington state policy makers (i.e. mayors, governors, state representatives, congress people, etc.) and policy influencers (i.e. environmental and sustainability managers, board members, etc.). We asked questions that inquired about their thoughts on current global and local environmental issues, how said environmental issues affect Washington state and their division/district/city, and how state and federal environmental legislation can affect individuals and the natural environment. Over the course of this research, six policy makers and influencers were interviewed, consisting of:

- Dr. Sissi Bruch ~ Mayor of Port Angeles, WA
- Dr. Sharon Shewmake ~ WA State Representative of District 42
- Michael Penuelas ~ Legislative Assistant in WA State
- Denny Heck ~ WA State U.S. Representative
- Ryan Dicks ~ Pierce County Sustainability Manager
- James Parvey ~ Ctr. for Urban Waters Chief Sustainability Officer

These six people lent us their time and thoughts about the environment, and how they themselves and their constituents fit into the picture of environmentally related policies. Given that this sample consists of only six politically involved people, it is not the best representation of all the political ideals of Washington state, however, it does offer some insight into these ideals, and opens the door for future research.

Literature Review

Before delving into the results from our survey, it is important to understand some of the research that has been conducted on similar topics as this one, and from which this project gained some inspiration. Studies have been completed from the global level down to the level of a city neighborhood looking at the demographics, the behaviors, and the thoughts of individuals on environmentally friendly actions and ideals.

At the global scale, *National Geographic* partnered with *GlobeScan* to conduct a bi-annual survey of 18 countries around the world called the Greendex survey. This survey began in 2008 with just 14 countries, but has grown overtime to 5 completed surveys over the years, with a new total of 18 countries. *National Geographic* asked questions that pertained to “consumer habits” towards housing, transportation, food consumption, purchase of goods, and intent to change behavior. After discussing all of their survey results, *National Geographic* made the claim that,

It is clear that increased environmental concern is not manifesting in substantive behavior change; consumers will need to become more enabled by better access to environmentally friendly choices and more (and better) information and influence to be able to translate their personal values and worries into meaningful action.”³⁴

When it came to the U.S. specifically, 49% of consumers polled stated that they were “Very Concerned about Environmental Problems,” and 29% agreed that “Environmental Problems Are Having a Negative Impact on My Health Today.”³⁵ Surprisingly, 50% of U.S. consumers also agreed that “As a Society, We Will Need to Consume a Lot Less to Improve the Environment for Future Generations,” yet only 41% said that “The Extra Cost of Environmentally Friendly

³⁴ National Geographic and Globe Scan. “Greendex 2014: Consumer Choice and the Environment – A Worldwide Tracking Survey.” *National Geographic* (Sept. 2014).

³⁵ Ibid.

Products is worth it.”³⁶ The Greendex survey provides snapshots of the global and per country thoughts of consumers that researchers can use to determine the changing environmental ideals of consumers.

On a more individual scale, Finisterra do Paço et. al. conducted a research study which consisted of collecting consumer demographic information through questionnaires from multiple cities around Portugal. Through these questionnaires, the researchers were able to discern that the more knowledge their respondents had about environmental issues, the more likely the respondent was to pursue more environmentally friendly behavior and products. They concluded that as the public becomes more knowledgeable about environmental concerns, then the public may turn towards more environmentally friendly products. Interestingly though, the researchers claim that the environmental friendliness of the Portuguese people, “is often based on protecting the environment by saving electricity and water, which shows that these concerns may be more closely related with economic factors.”³⁷ This is important when thinking about how economic status within the U.S. might influence environmentally friendly behaviors. Finisterra do Paço et. al. also mentions that there are many things that factor into the marketing of environmentally friendly products, such as socio-economic, political, ecological, ethical, health, technological, and bio-physical. These same factors can also be important to consumers when choosing environmentally friendly products around the globe.

Pulling back to a more societal scale, Maniates discusses the implications of the ‘individualization’ of personal environmentally friendly decisions.³⁸ However, the author

³⁶ National Geographic and Globe Scan. “Greendex 2014: Consumer Choice and the Environment – A Worldwide Tracking Survey.”

³⁷ Arminda M Finisterra do Paco, Mario Lino Barata Raposo, and Walter Leal Filho. "Identifying the Green Consumer: A Segmentation Study." *Journal of Targeting, Measurement and Analysis for Marketing* 17, no. 1 (March 2009): 17-25. doi:10.1057/jt.2008.28. <http://dx.doi.org/10.1057/jt.2008.28>.

³⁸ Michael F. Maniates, "Individualization: Plant a Tree, Buy a Bike, Save the World?" *Global Environmental Politics* 1, no. 3 (Aug 1, 2001): 31-52. doi:10.1162/152638001316881395.

continues by stating that this needs to switch from thinking on the individual scale to thinking of environmental decisions as needing to be made on a more institutional or industrial level, and that people need to move from “individual consumer behavior” to “collective citizen action.”³⁹

On all of these scales, income can have an effect. Meyer and Liebe specifically researched income and its impact on environmentally conscious behaviors. They wanted to know if higher income individuals are less affected by environmental problems; which they claim is true, yet people with higher incomes essentially contribute to those same environmental problems more than people with lower incomes. They bring up the idea of people’s “willingness to pay” for more environmentally friendly public or private goods through past studies on income, perception of future versus present, altruism, trust and cooperation with other people, environmental concern, and materialistic values as potential indicators of more environmentally friendly behavior. Meyer and Liebe also did survey work of the general population of Switzerland; through which, they received 3,369 responses to a myriad of questions pertaining to the previously mentioned variables. From the survey data and prior research, they make the claim that, “‘Environmental Justice’ research consistently finds unequally distributed environmental burdens and social differences in consumption—both weighted in favor of more affluent individuals.”⁴⁰ This claim is important because it essentially states that environmental justice is an important topic, and that lower income individuals not only have a more difficult time being environmentally friendly, but are also disproportionately affected by environmental issues.

³⁹ Michael F. Maniates, "Individualization: Plant a Tree, Buy a Bike, Save the World?"

⁴⁰ Reto Meyer and Ulf Liebe. "Are the Affluent Prepared to Pay for the Planet? Explaining Willingness to Pay for Public and Quasi-Private Environmental Goods in Switzerland." *Population and Environment* 32, no. 1 (Sep 1, 2010): 42-65. doi:10.1007/s11111-010-0116-y. <https://www.jstor.org/stable/40984167>.

By reviewing these articles, studies, and more, we gained a better understanding of some of the research that has already been completed, which then helps us determine how we can add to this growing body of knowledge concerning consumers, the natural environment, and environmentally friendly behaviors and decision making.

Results

Washington state embodies a myriad of peoples, environments, and livelihoods, and is thus a diverse enough place to get good varied responses through our survey. As aforementioned, our research questions were:

- What role does income play in being environmentally conscious in Washington state?
- What role do policy makers and influencers think income plays in Washington state?

It is difficult in surveys to get complete answers about caring for something like the natural environment or not due response bias. To overcome this potential bias, we asked questions about the actions each person took that could or could not be environmentally friendly. The answers to these questions showed us whether or not the majority of people polled seemed to care for the natural environment, and how income could factor in.

We had initially sent the survey to 800 consumers in Washington state, however, only 755 were completed during our needed time frame, and this number of responses gave us a margin of error of 4%. Overall, responses seem to indicate that people are environmentally conscious. However, when it comes to consumer practices, they also prioritize other factors when making purchasing decisions, which can make sense when income plays a role.

As aforementioned, the survey contained 17 questions, within which were 10 sub questions. Out of said 17 questions, 13 were a 1 through 5 Likert scale, with 1 signifying “Not at all familiar,” “Not at all important,” “Strongly disagree,” and “Not at all aware,” while 5 signified “Extremely familiar,” “Very important,” “Strongly Agree,” “Extremely aware,” and so on and so forth. In this way respondents were scored on their total Environmental Consciousness for each question, thus getting a score ranging from 10, if they choose all ones, to 50, if they

choose all fives. All 13 Likert scale questions were then averaged for a total score of the respondents' Environmental Consciousness, which again ranged from 10 to 50.

By comparing this score to income through the statistics program R, we were able to determine that there does not seem to be much difference between the scores of individuals with higher incomes to individuals with lower incomes, and also lower incomes to middle incomes. However, there are differences between individuals with middle incomes and individuals with higher incomes, as in individuals with higher incomes seem to have higher scores than individuals with middle incomes. This shows us that income does play a role, but not as large of a role as we originally thought it would.

Next, we decided to look at some of our specific questions that centered on how environmental friendliness factored into consumer decision making. One such group of questions asked respondents to choose how important environmental friendliness was for a small decision (buying groceries), a medium decision (traveling for leisure), and a large decision (buying a car). Environmental friendliness ranked 5th out 10 for the small consumer decision of buying groceries, while it ranked as 7th for traveling for leisure, and 6th for buying a car. Safety and cost ranked near, if not at, the top of the list for all 3 consumer decisions, which shows the differing priorities people have, but that respondents factor in the environment at least a little bit when it comes to making consumer decisions such as these.

On the other hand, other consumer decisions that were polled consisted of specific actions that people may think about when it came to choosing environmentally friendly products, such as buying reusable products, avoiding purchases with too much packaging, or buying products second-hand. When it came to these, over 70% of people said that they do these actions at least sometimes, while only about 10% of people said they always did those.

We also polled people on their transportation decisions, which comprised of asking how often people either walked, biked, carpoled, took public transit, or drove an electric/hybrid car, all of which are considered environmentally friendly transportation options compared to driving alone. People seem to either carpool or take public transit more than walking, biking, or driving an electric/hybrid car, and only about 20% of people said they drive an electric/hybrid car at least some of the time.⁴¹ When factoring in the income of the respondents, income did not seem to have an effect on respondents choosing whether to walk, bike, carpool, or take public transit. However, the 20% that responded saying they did drive an electric/hybrid car consisted mostly of higher income individuals. Compared to the national averages, where less than 1% of drivers use an electric/hybrid car,⁴² of the consumers we polled, 19% more drive an electric/hybrid car than the whole U.S.

After looking at the overall frequency of these consumer actions, we then switched to looking at how income influenced all of them. For the questions regarding if “environmental friendliness” was at all important for the 3 different scales of decisions, when it comes to buying a car or buying groceries, income does not seem to play a predominant role in deciding to do either of those things. However, when it comes to deciding where to travel, the percentage of people saying that “environmental friendliness” is important is predominantly skewed towards those who indicated that they also have a lower income (i.e. those with household incomes under \$49,000).

Turning back to people’s purchasing decisions, the over 70% of people that indicated they buy reusable products, avoid purchases with too much packaging, or buy products second-

⁴¹ See Figure 2 in Appendix A

⁴² Nanalyze, "How Many Electric Cars are there in the USA?" Nanalyze, last modified March 10, 2017, <https://www.nanalyze.com/2017/03/electric-cars-usa/>

hand at least sometimes did not show a preponderance towards any of our income brackets. On the other hand, transportation choices did show that at least for carpooling and driving an electric car, there are higher percentages of people with higher incomes making these choices.

Turning now to the interview aspect of our research, which attempted to answer the question: “What role do policy makers and influencers think income plays in Washington state?,” we received good insight into the thoughts of policy makers and influencers about income. One such good response was from Mayor Bruch of Port Angeles, who stated, “We can’t do everything we would want to, because our citizens can’t afford it... we would love to move much faster and better, but they can only afford so much and we cannot push it otherwise.” Whilst Congressman Denny Heck also said, “It’s important I think that we mitigate the impacts on low-income people in our solutions, but it’s equally important that we recognize that it’s low income people themselves that are, who are being impacted.” This shows that politically involved people seem to understand that the income of communities needs to be taken into account when it comes to pushing environmentally friendly legislation, and that both lower income communities and policy makers need to work together. However, as the Sustainability manager for Pierce County Ryan Dicks claimed, “Individual decisions do matter, in that, you shouldn't be trying to be perfect, but you should always [try] to be better.” Other sentiments from Legislative Assistant Michael Penuelas covered topics such as corporation’s role in environmental friendliness of people and politics when he stated,

Multinational corporations that control enormous amounts of our public perception, whether it comes to politics, whether it comes to advertising, whether it comes to all of these things, and are paying billions of dollars to manipulate us, like, they are- they are- people underestimate the impact that their individual actions can have because of that, but at the same time, we can't just abdicate individual personal responsibility and say, "oh, it has to be policymakers", because that's also unrealistic.

While we did not cover the role of corporations in environmentally friendly decision making, Legislative Assistant Michael Penuelas does make a good point, and is one that future research could answer.

Our survey results showed us that income does play a role in the making of environmentally friendly consumer decisions, however, there was not as much difference as we initially thought there would be. Thus, more research on a potentially wider pool of respondents would be able to better answer our question of “What role does income play in being environmentally conscious in Washington state?” While our interviews revealed to us that policy makers and influencers do think of income as a major factor when it comes to creating environmentally friendly legislation. Future research with more politicians and politically active people would achieve a better answer to our question of “What role do policy makers and influencers think income plays in Washington state?”

Intervention

When it comes to anything as large or as important as our natural environment, there is no one solution, or even a one-size-fits-all solution. However, multiple solutions used in tandem can begin to have a more positive effect against the imposing problem of our environmental challenges. For public policy makers and the people in their communities, there needs to be solutions that make environmentally conscious decision making more equitable, and as such each public policy concerning our natural environment will potentially need its own solution to aid in the ability for everyone, no matter the socioeconomic status, to partake in and commit to more environmentally conscious consumer decisions.

A lot of past research and solutions therein have focused solely on individual oriented solutions.⁴³ However, each individual person is not solely responsible for the world's environmental problems, it is much bigger than one individual, or even a group of individuals, can solve. Nevertheless, when individuals work together, communities change. When communities work together, towns and cities change. When towns and cities work together, you get the picture. Individuals and policy makers need to work together, and when they do, serious societal change happens. Abraham Lincoln said that government is "of the people, by the people, for the people,"⁴⁴ so then what do the people that call Washington state home think when asked about solutions? They said a lot. Some talked of wanting more individual ideas, while others spoke of needing more policy and governmental change. Almost all spoke of concerns for the natural environment, and people's lives and health.

Responses that spoke of individual-centered ideas focused on smaller things that each

⁴³ Michael F. Maniates, "Individualization: Plant a Tree, Buy a Bike, Save the World?"

⁴⁴ Cornell University, "The Gettysburg Address," Cornell University, last modified 2013, http://rnc.library.cornell.edu/gettysburg/good_cause/transcript.htm

individual could do, such as;

“Build a food forest”

*“Going to local museums along the pacific coast that describe the use of
renewable materials and recycling”*

*“Carry my own metal straw, silverware and chopstick set around to reduce
plastic use, as well as a reusable bag”*

“Recycle, compost and reuse”

“[Write] letters to my city councilman”⁴⁵

However, while individual ideas are definitely a good starting point, there needs to be more done on a wider scale. As Maniates says;

When responsibility for environmental problems is individualized, there is little room to ponder institutions, the nature and exercise of political power, or ways of collectively changing the distribution of power and influence in society—to, in other words, “think institutionally.”... We are individualizing responsibility when we agonize over the “paper or plastic” choice at the checkout counter, knowing somehow that neither is right given larger institutions and social structures.⁴⁶

Therefore, what is the next level? Maniates speaks of social structures, and we begin to change society when multiple individuals come together to change together as a community.

Washingtonians also had some comments that lend themselves to the more community-oriented focus. They said;

*“Teach the children to recycle in there [sic] everyday life so it will become a
lifelong habit”*

“I find it hard for seniors to get the education about the impact”

⁴⁵ All *italicized* quotes on this page are from anonymous residents of Washington state.

⁴⁶ Michael F. Maniates, "Individualization: Plant a Tree, Buy a Bike, Save the World?"

“I want to recycle, compost and reuse. Unfortunately many of these options are not available in my neighborhood”

“I feel like with more general knowledge and more access to ways we can help then people would be willing to lend a helping hand”

“It’s obvious our education is lacking”

“Businesses need to be made to recycle”

“There need to be more opportunities provided for recycling in small towns. Most people are not motivated to be more environmentally friendly in their life style, but there are also not enough alternatives”

“If my city had a recycling program people would absolutely become involved”⁴⁷

All of these comments suggest doing bigger things to make an impact on our degrading environment, which is good that people are thinking of these kind of solutions, as it takes a community to come together to make community sized changes, and this is where policy and policy makers come into play.

Individuals and communities can only do so much by themselves, however, as aforementioned, when communities come together that is when policy is enacted or changed. A good example of communities coming together to enact policy is exemplified by a current bill working its way through Washington legislature called SB 5489, or as it is better known, the Healthy Environment for All or HEAL Act.

⁴⁷ All *italicized* quotes on this page are from anonymous residents of Washington state.

The HEAL Act will effectively begin answering the problem of environmental justice in Washington state by creating “a task force that would make recommendations for how state agencies should improve environmental conditions that can disproportionately contribute to health problems for certain communities.”⁴⁸ These certain communities “often low-income people, communities of color and linguistically isolated people — pay with their well-being and shortened lives.”⁴⁹ This would also create an actual definition of environmental justice by defining it as,

The fair treatment of all persons, regardless of race, color, national origin, ethnicity, language disability, income or other demographic or geographic characteristics with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.⁵⁰

All in all, the HEAL Act would provide a “powerful tool... by officially making environmentalism a social-justice matter.”⁵¹

On every scale of intervention, be that individual, community, policy, society, even global, income will have an effect. No matter the scale, the best interventions to the issue of people not making environmentally friendly consumer decisions will be a combination of work done by individuals, communities, and policy makers working in tandem to create equitable policies that benefit everyone, no matter their income level.

⁴⁸ Samantha Wohlfeil, “Washington Senate passes HEAL Act to ensure environmental justice, right to 'healthful environment' for all,” *Inlander*, last modified March 11, 2019, <https://www.inlander.com/spokane/washington-senate-passes-heal-act-to-ensure-environmental-justice-right-to-healthful-environment-for-all/Content?oid=16830720>

⁴⁹ Christina Twu, “89 groups endorse the Healthy Environment for All (HEAL) Act,” Front and Centered, last modified February 5, 2019, <https://frontandcentered.org/diverse-groups-endorse-heal-act/>

⁵⁰ Tyrone Beason, “The HEAL Act would put environmental justice on the map in Washington state,” *Seattle Times*, last modified March 26, 2019, <https://www.seattletimes.com/seattle-news/environment/the-heal-act-would-put-environmental-justice-on-the-map-in-washington-state>

⁵¹ *Ibid.*

Importance

The human population is a part of Earth, and as such, is also a part of the environment. This means that if our natural environment is being negatively affected, then in some way humans are going to be negatively affected as well. This is especially evident when it comes to local environmental issues impacting local communities, but global environmental issues will also impact the overall global human population as well. The U.S. Global Change Research Program (U.S. GCRP) claims that “Climate change create[s] new risks and exacerbates existing vulnerabilities in communities across the United States, presenting growing challenges to human health and safety, quality of life, and the rate of economic growth.”⁵² In this research project, we didn’t focus on just climate change, but overall issues impacting our natural environment, but the quote still works if using “environmental issues” in the place of “climate change.”⁵³

Today, so much is increasing at amazing rates; human population, urban sprawl, economies, the decline of animal and plant species, the amount of trash and plastic in the ocean, and more. Today, important issues are not at all just black and white, there is so much gray, that there is hardly any black or white to be seen any more on the spectrum. This gray area comes from all things that people hold as important, and sometimes these things can conflict in importance. The status of the natural environment can conflict with safety and convenience of other things, and this is where understanding what people think about environmental values in comparison to other values is important. Once you understand where people stand, you can better understand what people are willing to compromise on, and begin to shift overtime what people could be willing to do in order to help our natural environment.

⁵² U.S. GCRP, “Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment”

⁵³ Ibid

In the past, the U.S. government has enacted policies when there have been large environmental issues. Policies such as the Clean Air Act,⁵⁴ the Clean Water Act,⁵⁵ the Endangered Species Act,⁵⁶ and more were voted through when the American public cried out for them. Unfortunately, our natural environment played second fiddle to human desires, and for the most part suffered until human voices spoke up, as in the case of Rachel Carson and her book *Silent Spring*.⁵⁷ However, as the environment has played second fiddle, so have the voices of marginalized communities. U.S. GCRP has come to the conclusion that,

People who are already vulnerable, including lower-income and other marginalized communities, have lower capacity to prepare for and cope with extreme weather... climate-related events, [and other environmental issues] and are expected to experience greater impacts. Prioritizing adaptation actions for the most vulnerable populations would contribute to a more equitable future within and across communities.⁵⁸

As the natural world as we know it becomes more and more negatively impacted by individual, societal, political, and global decisions, governments have needed to step in and create policies to decrease this negative impact. However, are these policies actually helping the populace accomplish more environmentally conscious actions, or are other things, like lack of knowledge, income level, or access, holding people back from making those sorts of decisions? A survey, interviews, and a literature review have enabled us to investigate part of this question, and consider potential solutions for Washington state.

We may have only focused on one aspect of the environmental justice iceberg by looking at how income factors into making environmentally friendly consumer decisions, however, as environmental injustice becomes a larger crisis around the world, it is imperative that we seek

⁵⁴ U.S. EPA, "Progress Cleaning the Air and Improving People's Health."

⁵⁵ U.S. EPA, "History of the Clean Water Act."

⁵⁶ U.S. FWS, "Endangered Species Act – Overview."

⁵⁷ Rachel Carson, *Silent Spring*, (40th Anniversary ed. Boston: Houghton Mifflin, 2002.).

⁵⁸ U.S. GCRP, "Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment."

equitable solutions that enable and empower all marginalized and vulnerable communities.⁵⁹ Ideal solutions would ensure that these communities are not disproportionately impacted by environmental issues, while also enabling them to make more environmentally friendly consumer decisions. As stated before, change starts at home, but environmental problems and environmental injustice have become crises that demand that we and policy makers get out of our own houses and begin working with each other under the same roof. One Washingtonian summed this all up nicely saying,

“We do it individually, but together would have a bigger impact.”

⁵⁹ See Appendix A, Figure 1 for examples of vulnerable communities

Appendices

Appendix A: Figures

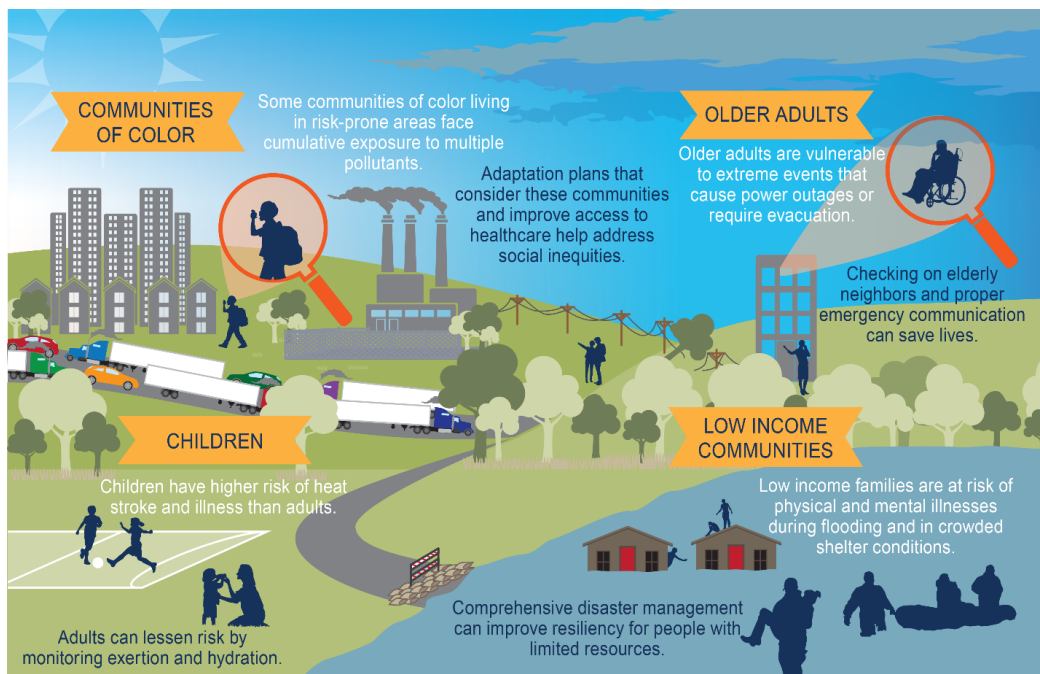


Figure 1. Populations vulnerable to environmental issues. “Examples of populations at higher risk of exposure to adverse climate-related health threats are shown along with adaptation measures that can help address disproportionate impacts. When considering the full range of threats from climate change as well as other environmental exposures, these groups are among the most exposed, most sensitive, and have the least individual and community resources to prepare for and respond to health threats. White text indicates the risks faced by those communities, while dark text indicates actions that can be taken to reduce those risks.”⁶⁰

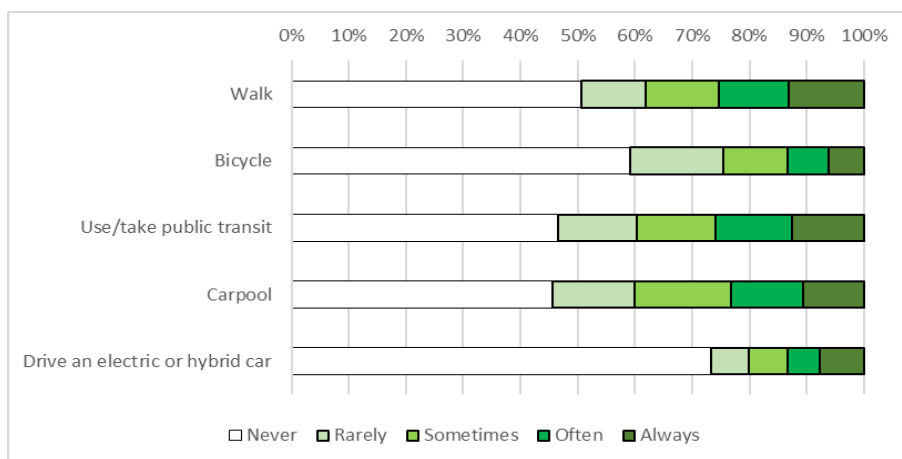


Figure 2. Percentage of respondents for 5 different transportation strategies that respondents used to get to school and/or work.

⁶⁰ U.S. GCRP, “Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment.”

Appendix B: Survey Demographics

The following are the demographics that were collected from respondents who completed our survey through Pollfish. These include: age, household income, and county location. Each of these demographics had a quota, except for location, and our quota per say for that was they just had to be living in Washington State. The number of responses per demographic is represented below through either a figure or table.

Age

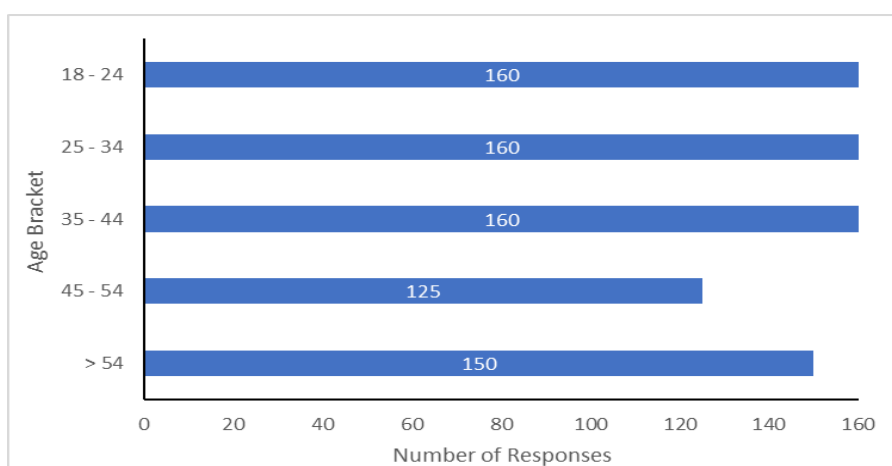


Figure 3. Graph of number of survey responses per age bracket.

Household Income

Table 1. Household income mapping for U.S. provided by Pollfish⁶¹

Household Income Bracket	Income
Lower_i	Under \$25,000
Lower_ii	Between \$25,000 and \$49,999
Middle_i	Between \$50,000 and \$74,999
Middle_ii	Between \$75,000 and \$99,999
High_i	Between \$100,000 and \$124,999
High_ii	Between \$125,000 and \$149,999
High_iii	\$150,000 or more

⁶¹ Stavros Tsounakas, “Household income mapping” Pollfish, accessed December 2018, <https://help.pollfish.com/audience-selection-and-targeting/household-income-mapping>

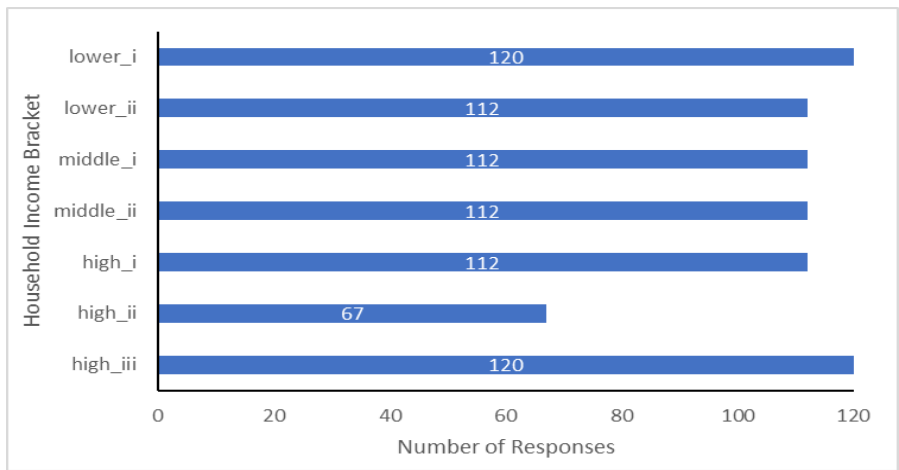


Figure 4. Graph of number of survey responses per household income bracket (see Table 1 above for breakdown of income per brackets).

Location

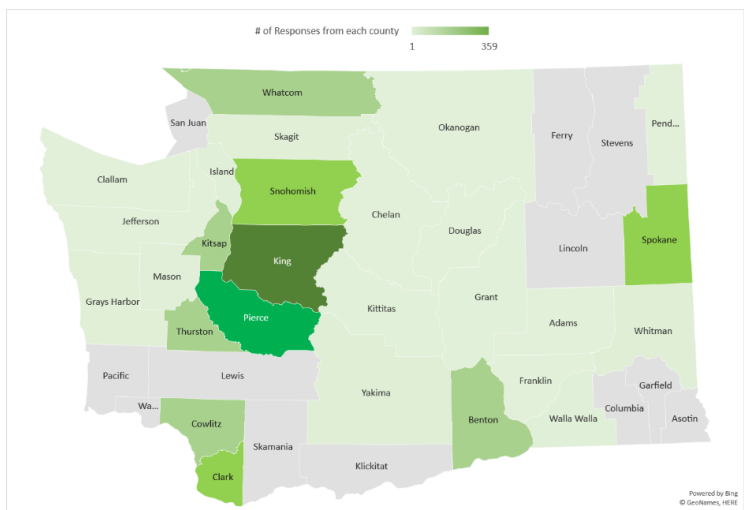


Figure 5. Map of number of survey responses in Washington State by county

Bibliography

- Beason, Tyrone. "The HEAL Act would put environmental justice on the map in Washington state." *Seattle Times*. Last modified March 26, 2019.
<https://www.seattletimes.com/seattle-news/environment/the-heal-act-would-put-environmental-justice-on-the-map-in-washington-state>
- Bullard, Robert D., Glenn S. Johnson, Denae W. King, and Angel O. Torres. "Environmental Justice: Milestones and Accomplishments: 1964-2014." *Texas Southern University*.
- Carson, Rachel. *Silent Spring*. 40th Anniversary ed. Boston: Houghton Mifflin, 2002.
- Climate Central, Inc. *Global Weirdness: Severe Storms, Deadly Heat Waves, Relentless Drought, Rising Seas, and the Weather of the Future*. New York: Pantheon Books, 2012.
- Cornell University. "The Gettysburg Address." Cornell University. Last modified 2013.
http://rnc.library.cornell.edu/gettysburg/good_cause/transcript.htm
- Finisterra do Paco, Arminda M, Mario Lino Barata Raposo, and Walter Leal Filho. "Identifying the Green Consumer: A Segmentation Study." *Journal of Targeting, Measurement and Analysis for Marketing* 17. no. 1 (March 2009): 17-25. doi:10.1057/jt.2008.28.
<http://dx.doi.org/10.1057/jt.2008.28>.
- Fry, Richard, and Rakesh Kochhar. "Are You in the American Middle Class?." Pew Research Center. Last modified September 6, 2018. <https://www.pewresearch.org/fact-tank/2018/09/06/are-you-in-the-american-middle-class/>.
- International Union for Conservation of Nature (IUCN). "Deforestation and Forest Degradation." International Union for Conservation of Nature. Last modified November 2017
<https://www.iucn.org/resources/issues-briefs/deforestation-and-forest-degradation>

- Kiernan, John S. "2018's Greenest States." WalletHub. Last modified April 15, 2019.
<https://wallethub.com/edu/greenest-states/11987>.
- Klein, Naomi. *This Changes Everything: Capitalism Vs the Climate*. New York, NY: Simon & Schuster, 2014.
- Kline, Benjamin. *First along the River a Brief History of the U.S. Environmental Movement*. 4th ed. Lanham. MD: Rowman & Littlefield Publishers, 2011.
- Maniates, Michael F. "Individualization: Plant a Tree, Buy a Bike, Save the World?" *Global Environmental Politics* 1. no. 3 (Aug 1, 2001): 31-52.
doi:10.1162/152638001316881395.
- McNeill, John Robert., and Mauldin, Erin Stewart. *A Companion to Global Environmental History. Blackwell Companions to History*. (Chichester, West Sussex ; Hoboken, N.J.: Wiley, 2012.)
- Meyer, Reto and Ulf Liebe. "Are the Affluent Prepared to Pay for the Planet? Explaining Willingness to Pay for Public and Quasi-Private Environmental Goods in Switzerland." *Population and Environment* 32. no. 1 (Sep 1, 2010): 42-65. doi:10.1007/s11111-010-0116-y. <https://www.jstor.org/stable/40984167>.
- National Geographic and Globe Scan. "Greendex 2014: Consumer Choice and the Environment – A Worldwide Tracking Survey." *National Geographic* (Sept. 2014).
- Nanalyze. "How Many Electric Cars are there in the USA?" Nanalyze. Last modified March 10, 2017. <https://www.nanalyze.com/2017/03/electric-cars-usa/>
- Reese, Nick. "Internet Access in Washington: Stats & Figures." Broadband Now. Last modified March 6, 2019. <https://broadbandnow.com/Washington>

- Tsounakas, Stavros. "Household income mapping" Pollfish. accessed December 2018.
<https://help.pollfish.com/audience-selection-and-targeting/household-income-mapping>
- Tuck, Eve, and Marcia McKenzie. (2015). *Place in research: Theory, Methodology, and Methods*. New York ; London: Routledge. Taylor & Francis Group.
- Twu, Christina. "89 groups endorse the Healthy Environment for All (HEAL) Act." Front and Centered. Last modified February 5, 2019. <https://frontandcentered.org/diverse-groups-endorse-heal-act/>
- United Nations (UN). "Only 11 Years Left to Prevent Irreversible Damage from Climate Change. Speakers Warn during General Assembly High-Level Meeting." Last modified March 28, 2019. <https://www.un.org/press/en/2019/ga12131.doc.htm>.
- United Nations Framework Convention on Climate Change. "The Paris Agreement." United Nations. Last modified October 22, 2018. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>.
- United Nations Framework Convention on Climate Change. "What is the Kyoto Protocol?" United Nations. accessed April 7, 2019. <https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol>.
- U.S. Energy Information Administration. "Washington: State Profile and Energy Estimates: Profile Analysis." U.S. Energy Information Administration. Last modified November 15, 2018. <https://www.eia.gov/state/analysis.php?sid=WA>.
- U.S. Environmental Protection Agency. " Progress Cleaning the Air and Improving People's Health." U.S. Environmental Protection Agency. Last modified March 14, 2019. <https://www.epa.gov/clean-air-act-overview/progress-cleaning-air-and-improving-peoples-health>.

U.S. Environmental Protection Agency. "History of the Clean Water Act." U.S. Environmental Protection Agency. Last modified August 8, 2017. <https://www.epa.gov/laws-regulations/history-clean-water-act>

U.S. Fish and Wildlife Service. "Endangered Species Act – Overview." U.S. Fish and Wildlife Service. Last modified December 11, 2018. <https://www.fws.gov/endangered/laws-policies/>

U.S. Global Change Research Program. "Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment" (2018). U.S. Global Change Research Program. Washington, DC, USA. 1515 pp. doi: 10.7930/NCA4.2018

Wohlfeil, Samantha. "Washington Senate passes HEAL Act to ensure environmental justice, right to 'healthful environment' for all." *Inlander*. Last modified March 11, 2019. <https://www.inlander.com/spokane/washington-senate-passes-heal-act-to-ensure-environmental-justice-right-to-healthful-environment-for-all/Content?oid=16830720>