

Colorado Populace and the Colorado River: *An Examination of How Coloradan's Attitudes and Knowledge Affect Colorado Public Policy*

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Abstract

This thesis seeks to highlight how the demographic of Coloradans influence public policy surrounding the Colorado River. Separating the demographics into two groups: Knowledge and Attitude, it will be easier to analyze how demographics play a role in influencing public policies surrounding environmental resources. The Colorado River, despite not being one of the largest water sources in the United States, is one of the most regulated. These regulations start with looking at the needs of people and then the needs of the environment. For the environment, environmental studies can be done and evaluated, but with public policies there is a necessity to evaluate how people will respond to policies. As for the Colorado River and Colorado's own regulations for the water source there is little documented about it. It is vital that information on Colorado's populace and their relationship with Colorado River public policy be evaluated. Using a mix of data obtained from 100 people in Colorado from the Western Slope and The Front Range and the history of laws surrounding the Colorado and other water sources in Colorado, as well studies done on other natural resources and their relationship with populaces a comprehensive look at the influence people has on public policies.

Introduction

The Colorado River is a vein of life that supports millions of people in the Western United States of America (US). A vein so large and full of beauty that it provides countless opportunities for people and nature to thrive. It is indisputable the Colorado River (CR) provides ample supply of freshwater, but the relationship between it and the people dependent on it is not well known. Many questions exist around this vital source, how do we govern something with so many ties to other states, people, the environment, and other animals? How is the value of each of these placed, and who decides it? Public policies surrounding public resources become even

more complicated as this idea of who decides their value and who places that value is dependent on how a society has formed itself. This anthropocentric world view has created a legal realm where the effects on environmental resources pales in comparison to the benefits for people.

There are various regulations and laws in place currently that will be further discussed in the thesis, but one necessary to understanding the situation between the Front Range and the Western Slope is the 1922 Colorado River Compact. This compact is between the Colorado, Arizona, California, New Mexico, Nevada, Utah, and Wyoming and lays the ground for how water from the River will be divided. It creates a precedent of ensuring there is enough water for the needs of the people and the economy and for the River to be able to continue to flow. The compact established language surrounding the Colorado River and various uses that may come from it. The Colorado River Basin is divided into two parts: the upper basin and the lower basin. This division allows for an easier assessment of who should get x amount of water and why. This assessment means “the river is highly dammed. More water is exported from the CRB than from any other basin in the United States in meeting the municipal and industrial demands of more than 24 million people that are predominantly located in urban areas across the Southwest. Still, the high-population density urban areas represent a small fraction of the CRB, and in fact 75% of the CRB is comprised of protected land.” (Ellis, p. 3) This division of the basins shows how it is not solely about the river, but about the people dependent on it. The River itself exists in highly protected areas that have been legislated to be protected. This split of the basins is similar to one State’s split within the Upper Basin Colorado. The state is separated into two areas: The Western Slope, and the Front Range. The Western Slope begins West of the Continental Divide. This portion of the state is highly rural and is not a highly populated area. The Front Range is East of the Continental Divide. The area is highly populated and very urban. The contrast of this

however, is that the freshwater resources are split and not equally. With about 80% of Colorado's population located in the Front Range and only roughly 20% of the State's fresh water located here without the aid of people and 20% of the population in the Western Slope with 80% of the State's water naturally there, regulatory differences between the two exist. (Colorado River District) Despite these disparities in quantity of water, the Front Range takes and controls much of the water in the Western Slope through allotment regulations. Because so much of the water is located in the Western Slope, there are many restrictions on usage in order for the water to be available to the Front Range.

This anthropogenic idea of governance is one of many wonders. In the United States environmental policy has historically been guided by economic interest, and for a while that seemed to be beneficial, as economic growth was large and moved quickly. The environment of North America is and has been ample in resources. As the world has become more globalized, there has been growth for every state in the USA, and it is no question that consumerism has led the way in deciding how environmental policies were set in the 80's and 90's. Neoliberal beliefs have created a world political environment where the economy is number 1 on priority lists. There has been a strong idea that sacrificing the environment for economic growth is best, but within the past two decades (2000s to now) it has been supported with evidence that environmental degradation is much more urgent than the short-term economic growth happening. Drought within the Western US has become increasingly common since the early 2000's with precipitation patterns becoming less consistent and lower in quantity. (Crockett & Westerling, pp. 341-343) Without the environment there is no economy and the same is not true vice versa, (Daly, p. 2). The environment will always exist outside of the economy, but the economy depends on the capital the environment contains. Without the environment, there is no ability to

produce any products or resources. It is necessary to protect the environment for the fundamental aspects of society, to create a use for the environment in the interest of the economy. This has been beneficial in growing the economy domestically and internationally, however governments have sacrificed sustainable economic growth for short sighted economic growth. How we address the environment is vital in its success. The influence between Colorado populace's knowledge and attitude on Colorado public policies surrounding the Colorado River are large. Those within Colorado who are living in areas directly affected by the Colorado River, i.e., the Western Slope are more aware of issues this water source faces and support water conservation public policies, while those living within the Front Range and not in direct contact with this water source are not as knowledgeable about the issues it faces and do not support water conservation as much. This is because of knowledge and attitudes that arise from geographical exposure to a resource and the urban-rural difference of resource management.

Carbon emissions have skyrocketed since the 1950s with some of the highest carbon emissions happening in 1995 and having the above average temperatures in the 1990's with a steady increase of temperatures into present as globalization and increased production has continued. (Ekins, p. 9) The 1950s in the USA and the World, was one of enormous change, especially with the creation of convenience products aimed to keep housewives as housewives, and a need for higher production because of the end of the World War II leaving economic policy in disarray from substantial growth. The increased globalization over the next few decades had also led to more and more environmental governance happening with an anthropogenic base in mind. Carbon emissions reflect this as they follow this trend of increased production of throw products and an increasing dependency on fossil-fuels which require many resources ranging from oil to water. However, these emissions highlight a bigger problem. With the greenhouse gas

effect becoming more and more eminent, freshwater resources have become more vulnerable. Higher temperatures across the globe have led to a diminishing of precipitation patterns, especially in the already arid Western United States. When the 1922 CR Compact was established, the water levels then were significantly higher than average years with above 15 million acre-feet of water. This high amount of water resulted in the lower basin being granted with 7.5 million acre-feet of water a year. This number seems balanced with the over 15 million acres of water, but the average for the River is actually closer to 12-15 million acre-feet and since 1922 there has been an additional 1.5 million acre-feet promised to Mexico. (Jim, p. 1) The Upper Basins had an already limited amount but as time goes on with additional promises of water and water levels in the River and dams reliant on the River, Upper Basin states begin to see water issues become more and more common. Alongside the continuous production of throw away products and other consumer products water has become a new gold. It is becoming a resource that has every drop and then some accounted for. This source provides water for millions across 7 seven Western States.

Importance

The topic of research is how these public opinions of the Colorado populace affect public policy surrounding the Colorado River through their attitudes and knowledge on fresh water sources, specifically the Colorado River. The hypothesis is that those who are directly knowledgeable about the Colorado River through local knowledge have more positive attitudes regarding water conservation, therefore making them more likely to support policies aimed at sustainable water usage.

This can be seen in how many residents in rural Colorado view the necessity of water rights and water law to prevent overuse from big companies, cities, and farmers. (Stone, p. 403) Stone discusses how the State of Colorado's expected population increase of roughly 50% by 2050 poses serious questions for citizens and the State alike. Water rights are an important aspect to the Western Slope community as every drop of water in the Colorado is accounted for, providing a basis for the State of Colorado to be able to create public policies aimed at conserving those water rights and potentially increasing allotment. There is an overall understanding of human impact on water sources and how these effects go beyond just the now. Meanwhile, it can be observed that those in urban areas are overall much less aware of potential threats to water supplies as they are not the ones on the "front lines" of water allocation policies. "Distinct values associated with landscape change could create different perceptions of the same landscape and result in mixed directives for the future (Stewart *et al.* [2007](#)). In their comprehensive discussion of fragmented landscapes on the rural-urban fringe, Scott *et al.* ([2013](#)) developed a framework that recognizes multiple growth narratives and the need to make connections between the past and the future. Others have suggested that people's beliefs about a landscape are influenced by individual knowledge systems connected to their sense of place (Soliva and Hunziker [2009](#); Wheeler *et al.* [2016](#))." (Strauser, para. 2)

The heritage narrative provides insight on how vulnerable water sheds may be regulated through public support using the stark differences of urban vs. rural perceptions of these resources. Many water sources within the US are already vulnerable, and as demands for water increase, vulnerable water sources only become more vulnerable. Irena Creed's paper, "Enhancing Protection for Vulnerable Waters" discusses the importance of vulnerable water sources- wetlands- and the necessity of government action not only on federal levels, but at state,

local, and tribal levels. Wetlands provide necessary nutrients, filtering of freshwater sources, and water resources for the environment and human populations. Creed identifies that current environmental policies surround anthropogenic needs and less so about environmental detriments from anthropogenic activities. There is a need for governments in the US on all levels to provide a more sustainable use of freshwater sources so as to not deplete wetlands. Federal regulations provide a bare minimum of the necessary protections for wetlands and it is the responsibility of state, tribal, and local governments to implement policies that adjust to the cost-benefit analysis of the environment instead of the cost-benefit analysis for anthropogenic behavior.

The causal relationship between Colorado populace's attitude and knowledge with the implementation of public policy for the Colorado River, needs to be better evaluated to understand how to implement effective Colorado River policy. The CR is a vulnerable water source, facing extreme problems of overuse due to urban areas being allotted more than what rural areas can provide. This alone makes more localized research into States like Colorado, even more necessary as temperatures globally rise and drought levels in the Western US do too.

Literature Review

The Colorado River is vital to the economy and livelihood of Colorado and its populace of 5.8 million people. Outdoor recreation is a large driver of the Colorado economy and a way of life for many of its residents. All residents and business utilize the water from the Colorado River, with \$1.4 trillion dollars in revenue for California, Nevada, Colorado, New Mexico, Utah, Arizona, and Wyoming according to the Nature Conservancy. This means hundreds of millions of dollars in revenue are made in Colorado alone from the Colorado River. (Colorado River District, n.d.) There is little information on how Colorado populace's attitude and knowledge

affect public policy surrounding the Colorado River and its uses. As aforementioned, public policy and its effectiveness is highly dependent on a populace's support for such policies.

Attitude: people's thoughts, opinions, and feelings around an issue, impact how legislators introduce policy and how they implement it. When a part of the populace says they want change, a politician can only do so much because of differing opinions of constituents, however there are times where legislators pay no attention to their constituents.

When a democracy says they want change, a politician can only do so much because of differing opinions of constituents. The case study by Robert Y. Shum, titled "Can Attitudes Predict Outcomes? Public Opinion, Democratic Institutions and Environmental Policy" looks at the play that public opinions based on demographics has on decision makers within democracies. Demographics such as income, education level, occupation, gender, and political affiliation have a large impact on how people view environmental issues. Many studies support the findings that public opinions depend on individual demographics, but they do not fully look at the causal relationship between attitudes, what plays into these attitudes, and how they in turn impact decision makers. "In other words, political institutions and the varying time horizons they imply can affect environmental policies, but the relevance of this effect is determined by the pre-existing demand for political institutions to mediate and apportion the domestic costs of regulation within an accepted system of international coordination." (Shum, page 292) Shum hypothesizes and proves that public attitudes about environmental regulation directly affect environmental policy creation and implementation. The study analyzed multiple cases done on public attitudes around varying environmental issues as well as how demographics and institutions may affect these attitudes. The observations from the case studies show that voter demographics, opinions, and attitudes highly affect environmental regulation acceptance.

Meaning the relationship between policy and public opinion is causal. The variable causing the implementation of specific environmental legislation is the demand produced by a populace's opinions and knowledge. This goes against many other theories that policies in place shape and push populaces into opinions on what is needed or wanted.

The study resulted in two suggested refinements to theories around public opinion and policy. Both refinements center around the understanding that political variables may have a significant effect on policy, there are certain conditions that must be present: cost and benefits have to vary over time or sectors in the economy or between different generations of policy makers, and there must be a credible framework for addressing collective action problems. In short, political institutions can have an effect on environmental policies but their relevant effects depend on the pre-existing demand for political institutions to mediate and apportion the domestic costs of climate policies. However, the application of these refinements depends on the country and its citizens attitudes, knowledge, and opinions of environmental issues and the institutions they perceive as responsible for mitigating the effects of the issues. This article supports the thesis that public opinion influences public policy rather than public policy influencing opinions. This is important in understanding how grassroots movements among a populace can yield results in changing policies from usage based to conservation based in areas where resource use is high.

Domestic impacts of public opinion can spread beyond the local areas. This is applicable to the Colorado River. There are more states than just Colorado who are affected by policies around the River but another country, Mexico. The policies established in either the Upper or Lower Basin affect those in the opposite or in this case, in Mexico. This means that even micro level legislation affects macro level use. The article, "Do Economic Conditions Affect Public

Support for Environmental Policy?” by Bakaki et al. highlights how despite economic growth and recession in the US, public support for environmental policy depends more on their perceptions of climate change and the long-term effects of economic ups and downs compared to climate change effects. Most of the respondents to the study, regardless of age and class, had high concerns of climate change and its subsequent issues no matter if the economy was going up or down. One of the main theories in why people across all classes and demographics may see climate change and its results as an increasingly important issue is that the environment has begun to be viewed separately from the economy.

This idea of the environment being separate from the economy poses issues for the economy-environment trade off theory, which outlines that when the economy is in trouble, people will sacrifice aspects of the environment to ensure economic success. However, the economy-environment trade off in times of economic downfall is one not fully supported with empirical evidence. Bakaki et al. looked at past results of public support for environmental policies and the economic standing during those times in Brazil as it is a diverse country in ethnicities and economic class. It was hypothesized that during environmental downfalls, that the public support of environmentally conservative policies would decrease, but the opposite was found. The results, as analyzed by the authors, show an overall concern for the environment from knowledge of environmental issues and even bigger support for policies aimed at climate change mitigation despite economic rises or falls. Economic standing resulted in households/individuals who either had increasing wealth or continued wealth were less worried about climate change but more supportive of environmental conservative policies. Those who were in a standing of less wealth were continually in support of environmental conservative policies with slight fluctuation in how much support they gave but viewed climate change as a more pressing issue.

This switch of public opinions on which issue should be dealt with first causes hurdles for politicians implementing policies, typically resulting in them not doing what the majority of citizens wants and instead focusing on what will get them reelected. This makes public support a necessary condition for environmental regulation. With public support identified as a necessary aspect of government environmental policymaking the study then looked at whether or not the previously mentioned hypothesis stands for public opinion. It was found that the economic-environment trade-off is not as strong during recession or economic stability as thought. There is still great concern for the environment during recession resulting in an acceptance that environmental regulation is a necessary part of governance no matter the potential risks.

Bakaki states that studies such as this can be applied to smaller localized issues within the US but do not provide a clear answer on the macro-level. There is an understanding that while a country as a whole may perceive climate change and subsequent policies in one-way, a smaller area within that country may experience and perceive these issues differently. The study focused greatly on general climate change issues such as deforestation, drought, pollution, etc. which are issues widely discussed with ample available information. However, environmental issues such as fresh-water access and use, are more difficult to generalize as some areas where water scarcity is high and others where water is abundant can cause bias based on knowledge levels acquired either firsthand or learned. The thesis predicts that within Colorado, the Western Slope, which holds over 80% of the states freshwater sources, is more likely to support Colorado River policies than their Front Range counterparts because of their awareness and proximity to water issues resulting in higher knowledge. Bakaki et al.'s study may apply here as well as those within certain areas of Colorado hold high levels of wealth from business related to the CR, may be more concerned with policies that conserve the CR while also conserving their business avenues.

Literature around environmental policies focuses on the knowledge and attitudes that feed into public opinion, as public opinion is a variable which can make or break policies. Those who hold capital in a system built off a resource will want that resource to last and same can be said for those who depend on that resource to survive. Yet how people affect policy based on their knowledge and attitude is important in how policy will be built to appeal to the populace of an area. An article by David P. Daniels et al. titled “Public Opinion on Environmental Policy” discusses how environmental public policy opinion cannot be observed solely in aggregate ways and individual responses must be understood in relation to their attitudes and knowledge. Daniels highlighted specifically how variables affecting one’s opinion of environmental issues should be looked at individually not comprehensively.

The authors focused on how environmental attitudes and beliefs have had an impact on environmental policy through candidate choice, dynamic representation, and ballot propositions. They focused on studies done through survey-based research which identifies various different attitudes and beliefs. The authors state that by putting survey results into “supporting environmental policy” or “not supporting environmental policy” leaves large gaps of understanding in how or why a person supports policies, candidates, or other aspects of environmental governance. This is because attempting to put results of studies into two categories, one which is supporting of policy and the other not supporting of policy, removes vital pieces of information that would help voter education in areas needing resource legislation. The authors state throughout studies that while there is a majority of Americans (50-75% dependent on location) say they have supported environmental policy but believe there is insufficient or no action being done for environmental issues, others had little care for the

environment. They hypothesize that some of the results may be because of priming done by surveyors and how they set people up to answer.

Wording of these surveys had a great impact in the results, as even in the survey resulting in a consensus that the environment is not a priority, pollution and the environment were top priority for most Americans. Thus, the results of environmental surveys are almost entirely dependent on the survey questions and how they are worded. Daniels states that the way in which environmental studies are formatted can and will lead to participants answering in certain ways albeit positively (in support) or negatively (not in support). Furthermore, there is an inability to account for multiple variables such as dummy variables, when categorizing answers into yes or no. Environmental policy studies must account for various responses and the causes behind those responses. With public policy, there are many facets for how and why people come to decisions of support or non-support. Variables such as race, religion, education level, gender, occupation, and class can result in a plethora of outcomes. By expanding the base of research to variables beyond how someone thinks about something and instead including why, you get a more comprehensive view of the relationships being observed. (Daniels, p. 10) This produces answers which are looking at governance trends and identifying that there is some visible conflict between public opinion of environmental issues and government response. This can be explained through multiple variables such as economic interests, reactions to changes in the condition of the environment, changes in opinion that are reactionary to governmental policies, and how grassroots efforts may sway public opinion. Age, race/ethnicity, income, education, gender, and party identification/political affiliation may also affect attitudes and beliefs about environmental policy, but each hold significance on their own. While they may hold significance, they are unable to fully account for why a person may support or oppose

environmental policies thus requiring individual qualitative information. Due to this, the authors suggest that understanding public opinion impacts on policy must come from conducting surveys in a way that allows for a wider array of documenting differing beliefs based on differing demographics that will better explain why a populace is voting or supporting policies as they are.

Literature around the Colorado River and the states constituents is slim. There is practically none on this exact subject. This large gap in literature around one of the US' most prominent water sources leaves a larger gap of understanding in the relationship of freshwater to the public. The research for the thesis hopes to sample people from both the Front Range and the Western Slope in order to get a better view at how attitudes and knowledge of the Colorado populace are impacting public policy implementation. There is a need for this understanding considering the stark differences of the State of Colorado and its water availability compared to population location. There is often a lack of knowledge for people regarding where their water comes from, but not so much when it comes to climate change issues such as lower amounts of precipitation in areas. The Western Slope while often politically conservative has a history of being an advocate for water policies aimed at lessening usage impacts on freshwater sources such as rivers. This can be seen in how many residents in rural Colorado view the necessity of water rights and water law to prevent overuse from big companies, farmers, and most importantly cities.

In recent years, there has been a bigger push from the State of Colorado to create more comprehensive water conservation policies because of increasing demands. "In the state of Colorado, population growth is forecasted to increase water demand by roughly 50% by 2050, swelling the state's water needs by more than 700,000 acre-feet of water per year (Colorado Water Conservation Board, 2010). Absent policy changes, up to 25% of currently irrigated

agricultural land will be allowed to meet these demands, even after accounting for adoption of water-efficient appliances and changes in private and public landscaping (Colorado Water Conservation Board, 2010). Population growth is not unique to Colorado or the western United States; policy makers in arid and semi-arid areas throughout the world are struggling to respond to the growing demands of municipal and industrial water users.” (Stone, p. 403) This increasing demand creates an issue for an already overused CR.

There is an overall understanding of human impact on water sources and how these effects go beyond just the now. Meanwhile, it can be observed that those in urban areas are overall much less aware of potential threats to water supplies as they are not the ones on the “front lines” of water allocation policies. The study continued to find that most Coloradans’ support supply and conserve models of policies aimed at increasing agriculture and residential water rights and decreasing commercial uses of water. Of the 2,000 participants, a majority supported water use limitation in order to ensure proper flow of the CR and also identified this need across other states and even internationally. A majority of participants said the environment-economy trade off was important to consider but the increasing insecurity of the CR, due to climate change and overuse, the trickle-down effects of this on citizens within Colorado has begun to be viewed as a more pressing issue than economic-tradeoffs.

Information on how the impacts of climate change and other environmental factors are influenced by human views on them is plenty. There are many factors that contribute to environmental degradation and resource over use. People depend on systems of governance to prevent resources depletion that could have irreversible affects. As stated in previous sections, the economy requires the environment to be functional, but the environment does not need the economy. These two are dependent on the other and the relationship between people, economic

conditions, and the environment is important. Studies done on people, the environment, and environmental conservative policies focus on identifying how people perceive the situation either between the environment and people, the economy and the environment, or all three.

There are many pieces of literature focused on the over-arching issue of climate change and its effects on climate temperatures. The study by Bradford H. Bishop, "Drought and Environmental Opinion: A Study of Attitudes Towards Water Policy" dives into how drought affects people's attitude towards water policy. Bishop discussed how different aspects of demographics, education, political affiliation and ideology, as well as exposure to environmental crisis and media outlets either have a positive correlation with environmental regulation or a negative one. The study looked at actual drought ridden counties compared to non-drought ridden counties. Bishop sought to document if exposure to environmental crisis positively affects people's support of water regulation more so than demographics and other defining individual characteristics. The study found that those who are faced with environmental shifts from climate change are more likely to believe in climate change, than counterparts who had seen colder weather and more precipitation. It is worth noting that, age and gender (female), were also a good precursor to people believing in government regulation of water usage. The awareness of climate issues was highly responsible for certain beliefs that water regulation is necessary. The study also found that, people across the board are more likely to be in support of water regulation as it does not, in their opinions, affect the economy in any way and is instead viewed more as a necessary nuisance. Because of this, people who experience climate change directly express large support for water regulation, due to the individual experience of drought. Furthermore, the experiences of drought are so impactful on people, that the survey found that it can cause people to deviate from their typically aligned views. "Thus, drought conditions during the period of the

study present a valid test of contextual effects, since the places afflicted by drought are demographically unremarkable, and would normally be expected to reflect a slight preference for the anti-regulatory views associated with the Republican party.” (Bishop, p. 803) Regarding the Western Slope, which is primarily red in voting, this can be applied.

The supporting evidence that first-hand experience can change how a person aligns their opinions despite political affiliation is vital in understanding trends within a populace outside of only political affiliation other factors such as resource exposure. Bishop’s study supports the thesis that geographic location, and certain demographics such as experience and knowledge influence public policy surrounding water usage regulation. Public opinion is very influential in how public policy is pursued in Colorado due to changing conditions from climate change resulting in water scarcity. According to the results of Bishop’s study, it is vital to take into account geographical location of a populace within a State when attempting to gather public support for public policies regarding water. Drought plays a large role in the Western US, especially in a state such as Colorado, where annual precipitation is already low and cannot afford to continue to have increased drought. Requiring government action to mediate the long lasting and even temporary effects of water scarcity.

Yet, more questions arise. How does the issue of drought in the Western US align with other water scarcity issues in the US? Christopher Bosso’s article, “Public Opinion on Environmental Policy in the United States”, discusses how drought has created a larger interest in water regulation nationwide in the US since nationwide droughts in the 1980’s created an awareness of water scarcity with residents. The droughts created this awareness as downstream water needs in multiple watersheds and across rural-urban areas, especially within the Mississippi Basin, became a higher priority than upstream water needs. Intra-basin conflicts have

had continuing impacts on water regulations within basins across the US as water scarcity increases. As drought continues, water levels within basins drop and those living in lower basins, which do not contribute as much water as upper basins, develop an increasing demand for allotted water.

The base of understanding this issue is how demographic information contributes to water demands beyond just the experience of drought. Within this issue, it is noted by the authors that income, gender, education, and environmental attitude have a consistent positive association with public environmental knowledge. Demographic factors can influence how a person's experience with drought will be received. The article focused greatly on the Kentucky River watershed, discussing how geographic location as well as the previously mentioned demographic affect the attitudes of residents within the basin. The authors compared those living within the Eastern region of the Kentucky River Basin Drainage (KRBD) to those living in the central areas of the region. It was found that those within the central area (more urban) had more positive attitudes regarding water regulation and damming of the Kentucky River, while those in the Eastern region as they are less affected by droughts lowering water supplied by the Kentucky River. These differences resulted in intra-basin conflicts due to the effects of water regulatory policies on upstream dwellers in the Eastern region. Grassroot organizations which advocated for water regulations on the Kentucky River were met by intense criticism by Eastern residents as most in the organization were located in the central region. The outcome of the authors studying the causes of conflict between the two communities dependent on the Kentucky River showed that policy was highly influenced by citizens environmental knowledge, environmental attitudes, environmental actions, and opinions about environmental policy. It was also found that what

influenced these characteristics was mainly the geographical location of the residents and the source of their freshwater.

Bosso finds that those within more urban areas may be in support of policies such as dams but may not fully support conservation-based regulation aimed at lowering overuse of a resource such as damming. Those within rural areas in which a river is directly impacting ways of life are more likely to support conservation-based regulations aimed at sustainable usage of the river. Bosso concluded that policy makers must pay attention to intra-basin conflicts and why these conflicts arise in order to have widespread support for public policies. To be able to make effective public policies that will be supported by the populaces in both rural and urban communities, there needs to be better understanding of why environmental experience influences peoples' attitudes and knowledge.

This source supports the thesis as it exposes how general demographics can have a large impact on policy but more specifically geographic location. Geographic location contributes to a person's attitude and knowledge regarding water issues as those who are not in an area where effects of regulations are clearly seen may be hesitant to accept regulations as their counterparts who see these effects daily do. Intra-basin conflict is a struggle that every State is affected by. The scarcity of fresh water is dividing, as those geographically close to the water see the effects regulations are clearly seen may be hesitant to accept regulations as their counterparts who see these effects daily do. Intra-basin conflict is a struggle that every State is affected by. The scarcity of fresh water is dividing, as those geographically close to the water see the effects of over-use directly, and those within cities may not. Another factor which may contribute largely to perceptions on environmental public policies is age.

Age can influence the knowledge a person has regarding the environmental changes that have occurred as well, education levels, and political affiliation. Courtney Cooper in the study, “Water Quantity Perceptions in Northwestern North Carolina: Comparing College Student and Public Survey Responses.” Cooper conducted the study to compare the attitudes and beliefs about water issues within North Carolina between young adults (using surveyed college students as a proxy for young adults in NC) and the general population (the youngest participant was 25) to better understand how demographics affect one’s perception of conservation, management and availability of water. The survey for the two groups was almost identical with the exception of a few demographic questions for the college students. In the survey results, both groups represented a well-educated and affluent subset of the population, allowing the authors to compare differences in perception and attitudes that are attributable to age and household water source. The young adult group approved of more water regulation while the general population did not. The public sample agreed more strongly with the statement that they frequently thought of water conservation being an issue and to the statement that water management should involve an impact assessment on water resources, but limitation of water use through legislation could have implications on people related activities. The public sample showed higher support for water conservation than the young adult sample. However, the public sample was not as supportive of government regulations in time of drought despite a higher level of concern for water quantity and quality. This source supports provides evidence that age and education affect approval of environmental regulations regarding water. The source discussed that the education received in college makes people more receptive to the realities of water scarcity resulting in support of government intervention, specifically in times of water insecurity. However, a larger

question remains on if the knowledge of water is solely dependent on formal education of it, or if community knowledge, or heritage knowledge, is a valuable contributing factor.

Traditional approaches to water management have failed to address issues of rising scarcity and quality concerns as climate change becomes more pressing of a matter because of increased urbanization and population growth. Angela Dean in “Community Knowledge about Water: Who has Better Knowledge and is this Associated with Water-Related Policies?” discusses how knowledge of water literacy is pertinent in public support of policy, but also other aspects of literacy such as “health literacy, integrate topic knowledge and the capacity to apply this knowledge to decisions.” (pp. 2-3) They also discuss how many factors can have direct influences on the aspects of knowledge aforementioned. By having a community that has individual level knowledge of water scarcity issues, policies will be more in tune with sustainable community needs as community knowledge reflects these needs. Dean includes a study conducted in Australia which showed a lack of freshwater literacy and knowledge in people who did receive formal education or community education on freshwater issues, and how demographics play a fundamental role in literacy and knowledge of freshwater use. Dean states that not only will demographics (trans-situational influences) play a role in citizen environmental regulation support, but life experiences/interests (situation-specific influences). (Dean, p. 4)

The results of the study showed an overall lack of water knowledge in survey participants. It was found that there was a positive correlation between situation-specific influences and water knowledge but now with trans-situational influences and water. Participants who were older and who had higher education, exhibited higher water knowledge. There was also a higher understanding of water issues that were directly related to households. Support for sustainable water policies is greater when water knowledge is higher. The authors conclude that

knowledge is pertinent in having community support for policies, as civic engagement in such policies is what will make them work. This source supports the thesis by highlighting the need for public knowledge of water issues in order for environmentally sustainable policies to be implemented. When public knowledge is higher, policies are able to mitigate water scarcity more effectively as they account for the needs of the community and of the environment. Those within the community make or break the effectiveness of policy.

Progressive water policies such as using recycled water, can only be effective when those who will then drink the water support the policies. Recycled water, sewage water that is cleaned and sanitized, is a very reasonable solution to water insecurity in the US. The article, "Public Knowledge, Contaminant Concerns, and Support for Recycled Water in the United States" discusses a study done by the authors, David Glick et al., which was used to identify US populations support for increasing the use of recycled water (water that has been used and goes through a sanitation plant and is put back into water to be used) using demographic and partisan affiliation. The study looked at Americans knowledge of water issues within the country and found a large deficit in knowledge, specifically scientific knowledge. The study utilized a survey method that used true or false statements about recycled water and water scarcity in the US. The study found a far larger deficit in American scientific water knowledge than has been previously studied. Glick et al. saw this as an opportunity to educate the public on various methods of water usage. By increasing even basic public education of water recycling, support for policies aimed at the implementation of water recycling should increase. However, the "Yuck" factor (people not wanting to use recycled water because of the idea that the water came from sewage and is dirty) was a large reason behind people's lack of desire or understanding of recycled water. It was also noted that feelings about climate change also directly correlated with support for

recycled water. While partisanship may not have been a direct correlation with recycled water usage support, it was an indicator to how one would support government action aimed at using such water methods. Glick highlights an important factor that when citizens are not knowledgeable about freshwater issues, they will not support water initiatives and that attitudes about water are also very crucial to freshwater conservation policies. The “Yuck Factor” exposes how when there are existing misconceptions among Americans on certain water practices which result in negative attitudes about conservation methods, public policy that supports or implements the use of water conservation policies will not gain traction.

Populace approval is vital as has been shown various times throughout this paper, however, the feeling of the public regarding intergovernmental policy responsibilities is important. How a populace holds its government accountable for policies implemented may decide how a government implements policy and if that policy will be effective. S.K. Schneider et al. (2011) wrote in “Public Opinion Toward Intergovernmental Policy responsibilities” how American opinions and knowledge about government responsibilities, identify how much, if any, response from different levels of government is desired. It was investigated how educated the American public is and how they think responsibilities regarding environmental governance should be handled. Schneider et al. noted that the American public feels higher state response is necessary but also identified that there are different responsibilities between the federal and state governments. However, there was still some misconceptions with the American public regarding how much the government can intervene on environmental issues. The authors contributed this to confusions and non-attitudes related to a lack of understanding of governmental activities in policy making.

While citizens have an abysmal lack of political understanding, they are still able to recognize the necessity of government action and can identify the specific areas of government needed to create effective legislation (Schneider, p. 21) Measuring government response, however, is not exact, as measuring citizens opinions of government responsibility with policymaking is what is used for defining a government's effectiveness. In order to do this, the authors looked at expenditures on policies. When looking at this, there is a direct correlation between the relationship of government spending- at the state level and locally- and people's responses to how they want more or less government action. Populace which supported higher government involvement in environmental regulation saw higher expenditures in their jurisdictions. There is not however, a clear correlation between federal expenditures and people's opinions about government policy making, highlighting that local and state measures may be more effective due to their proximity to its people and the resources being regulated. It seems as though the answer is clear that, yes, citizens who see concern over environmental issues want more government action but why? The article finds that demographics, political identification, and socioeconomic status have effects on people's opinion of government policy and their optimism in its ability to improve or mitigate resource overuse. Citizens want more government action across the board, especially at state levels, meaning they are more open to environmental policies aimed at state environmental practices.

Practically all literature regarding the public and public policies states a need for public engagement, support, and understanding of environmental issues and their necessary legislative action. The CR is no different, there are millions within the Western US and Mexico that survive off the River, but the River also depends on those people. Unlike the economy-environment

relationship, there would be no environment without public policies aimed at conserving resources, and without an environment that is sustainably used, there are no people.

Research Design

The research hopes to sample people from both the Front Range and the Western Slope in order to get a better view at how attitudes and knowledge of the Colorado populace are impacting public policy implementation. There is a need for this understanding considering the stark differences of the State of Colorado and its freshwater source location to population location. The research will be building off other pieces of literature that identify demographics, opinions, knowledge, attitudes, etc. roles in policy making. There is often a misunderstanding for people where their water comes from, but not so much when it comes to climate change issues such as lower amounts of precipitation in areas. Overarching climate issues are generally known, even if not always accepted. Yet, some of the more localized issues areas face, such as water scarcity, may not be generally known.

The Western Slope while often conservative has a history of being an advocate for water policies aimed at lessening usage impacts on freshwater sources such as rivers. Conservation groups based in the Western Slope such, "the Colorado River Water Conservation District, which spans most or all of 15 West Slope counties, voters overwhelmingly approved a mill levy increase that will raise nearly \$5 million annually and enable the River District to carry out water priorities set by local communities and stakeholders. For example, it will support projects to ensure clean drinking water supplies, healthy habitats for fish and wildlife, recreation opportunities, and water for farmers and ranchers." (Western Resource Advocates, n.d.)

Research surrounding the Colorado River and the effects people have on its public policy addressing issues of use, is little. The time period required for the research will be roughly two months. The research will be done to support or disprove the thesis. Including a mixture of applying past literature surrounding environmental public policy and the public's opinions and support for these measures and original research done through a survey with options to add detailed information behind their answers. Incorporating literature on environmental public policy and public influence along with surveys of Colorado populace groups who have a direct effect on Colorado River public policy, will provide a more comprehensive view of how the issues of water allocation are being understood and addressed in the state. The Colorado populace alongside its effect on public policy, due to their attitudes and knowledge, is hard to measure in terms of only literature as the individual factors of Colorado River communities in the Western Slope and the Front Range have not been studied in depth. This requires original research to further evaluate and understand how Colorado's populace supports conservation-based Colorado River public policies.

Quantitative and qualitative data are required for the thesis. There are many different factors that can contribute to how policies are made and accepted in the public eye. Public policies require public involvement. They are based on issues brought to the attention of government officials through public awareness and discussion. There are many facets through which these issues can be discussed such as public forums, social media, protests, etc. Issues regarding the Colorado River requires legislative action as it is one of the biggest resources of freshwater for the Western US. This legislation of this resource relies greatly on the public atmosphere surrounding its utilization and subsequent legislation. How do these needs, and desires for public legislation come to be understood? Often, it is public outcry, public

movements, and/or studies done on public interests that bring to light issues identified by people. The measurements of this are usually qualitative. This topic: the Colorado River and Colorado's populace require looking at how characteristics and qualities of the populace make up their attitude and knowledge surrounding the water source. Characteristics that will be evaluated in the survey are occupation, demographics such as race and education, involved activities regarding the Colorado River, and other opinion-based questions. The quantitative information regards feeling thermometer questions such as opinions on climate change, environmental status, and water issues within the Colorado River system, and the ability for participants to add additional information as to why they answered as they did.

Utilizing library resources from the University of Colorado of Boulder (CU Boulder), I have found many studies done on various environmental resources and their relationship with public knowledge and attitudes. Demographics may play a role in how people respond to issues within the environment and how they go about bringing these issues up. Many studies have focused on climate change issues such as drought, increased wildfires, water shortages, and air pollution discussing how these climate issues influence how people request these events be addressed legislatively. Further, utilizing CU Boulder's Qualtrics association, the survey will be distributed through this surveying site and will also be analyzed using the program it. The Qualtrics site allows for easy data gathering and analysis and will be the tool used for all data collection.

The Colorado River contributes almost all freshwater the State of Colorado uses. This includes residential, industrial, and commercial uses. It is a vital part of the economy in a majority of the State of Colorado. The needs which the Colorado River meet for the State of Colorado affect the populace in major ways and allow for the State to develop in areas that

would otherwise not have the water to do so. With water pacts between States and Mexico allocating water for one area and in turn restricting water in another, voters are important in this. This requires that participants for the research are those residing within the State of Colorado and over the age of 18. Voting ability is important in looking at who within a populace can affect public policies. Those below the age of 18 may influence public opinions about issues but it is unlikely as they do not have much power regarding voting/implementing policies. This requires an age minimum that participants in the research must be at least 18 years old but there is no age limit. The minimum ensures that only those eligible to vote are recruited. Having participants of all age groups is important, but the most meaning variable of age is someone's ability to influence government to act on an issue. Age is not the only factor being considered but a varied amount.

It is hypothesized within this paper that those who are in closer proximity to the Colorado River i.e., living in the Western Slope will be more aware of issues regarding freshwater access from the Colorado River. Those live directly off of the resource and its problems, facing the many issues the Colorado River sees may be more receptive to its issues. The heritage narrative of community knowledge with environmental crisis and resource is highly vital in understanding how the Colorado Populace has come to accept and support certain public policies surrounding this water source. Therefore, the State will be analyzed through division of its Front Range and Western Slope communities. The survey will be distributed to 100 people, 50 in the Western Slope and 50 in the Front Range, to provide a reasonable sized sample that will give insight into the attitudes and knowledge of both areas. These insights also give way to the kind of trends that exist in an area regarding legislation. The survey is built to provide neutral answers that have not been primed. Each question is built to receive direct and indirect information from the answers.

Using social media, specifically Facebook groups, the survey will be distributed to the two parts of the State: The Western Slope, and The Front Range equally. Utilizing multiple groups that are aimed directly with these communities is important to data collection and ensuring these target groups can be reached. The analysis of the answers will be done using the plotting charts from Qualtrics.

Separating responses from the survey by area code, and then analyzing responses within area code data can be organized into general groups so trends between the groups (zip codes) and how those fit into the overview grouping of Western Slope to Front Range can be identified. Regression data will be used to identify how likely certain variables influence how people view Colorado River water issues.

Various demographic variables are identified by questions asked throughout the survey with the ability for the participants to add any qualitative data they find necessary. Geographic location, race, education, and occupation are looked at as they may be indicators as to why people answer the opinion section of the survey as they do. By acknowledging the demographic differences, the State population can be compared to the answers given by the study. If there are consistencies between legislation in place and opinions held by the populace, it will be able to be identified that demographics do indeed play a role.

Using surveys, it should be able to be proved that there is a relationship between people's knowledge and attitudes and their support and implementation of public policy. By looking at survey answers to identify trends within the attitudes and knowledge surrounding the Colorado River and its policies in the areas of the Western Slope and the Front Range, the relationship between public policy and people's attitudes and knowledge is able to be understood and analyzed. The survey questions will be asked on topics ranging from focuses on

demographics to environmental awareness to individual knowledge of issues regarding climate change. The results should yield a data set that may provide an insight to the thesis. It is necessary to look at variables that may seem unrelated to public policy such as education of an individual or occupation. Using literature based on other environmental policies being influenced by people and what demographics have led them to vote for or support legislation imposed, will allow for the current research to build off and create a more finite focus. The survey built for this thesis, attempts to identify multiple demographics that can be accounted for as a contributor to attitude and knowledge: region, race, news sources utilized, education, awareness of climate issues, and other opinion-based questions.

The research outlined here will provide demographic information that may affect the relationship between Colorado's populace and its attitudes and knowledge with Colorado River public policy within the State. The thesis-based research is intended to prove a causal relationship between positive attitudes and knowledge of Colorado's populace on the CR and the policy implemented. Hopefully, this will allow for education on how policies need to be introduced and implemented for Colorado River conservation.

Data Analysis

The survey was successfully distributed around the state of Colorado, receiving a few responses from out of State that unfortunately had to be deleted. The total amount of responses that were saved was 101 responses. All 101 responses were from within the State of Colorado and were distributed between the Front Range and the Western Slope. There were more responses received from the Western Slope compared to the Front Range, however this could be contributed to the population difference in uses of Facebook swap groups. The survey was

distributed equally among Facebook groups for the Front Range to the Western Slope. The most common zip code from the Western Slope was 81601, the town of Glenwood Springs. This is a town where the CR divides the town and converges with one of the direct sources to the Colorado, the Roaring Fork. Other Western slope responses were located within the Roaring Fork Valley such as Glenwood Springs, Basalt, Aspen, and Rifle. The area of Grand Junction also had significant responses. Denver, and Boulder were among the top cities to receive responses from the Front Range, with a majority coming from Denver. The split was unfortunately not 50/50 between the two areas, despite sufficient outreach for the survey. this uneven split may indicate that there are more citizens on the Western Slope who are interested in participating in studies on the issues the CR face. The outreach of participants was done equally between simple Facebook swap groups to environmental based hobby groups which sought out varying demographics of people. However, some demographics were not fully representative of the State’s demographic statistics.

Race

Summary of 5: What is your race? - Selected Choice

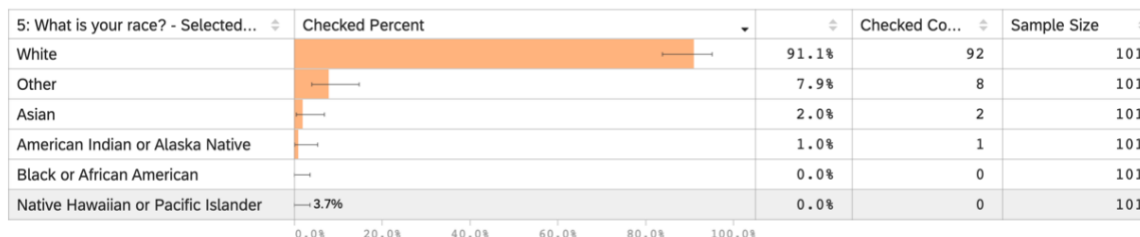


Table 1, Q 1. What is your race?

A majority of the participants to the survey were white. The overall percentage of white survey takers is 89.32% with 1.94% being Asian, 0.97% being American Indian or Alaska Native, 0% being of Black or African American decent or Native Hawaiian or Pacific Islander, and 7.7% responding other. The 7.7% of other responses were either solely chosen or chosen in

accompaniment with white. In addition to the other category for race, 4 participants responded: Mexican American and Hispanic or prefer not to say. The results of the survey are not very diverse, and do not accurately represent the population amounts in Colorado. The lack of minority response shows that some communities were not reached or chose not to respond. This does create a challenge in applying these results across the state. While the percentage of White participants was slightly above the population of percentage of white Coloradans, other Coloradans of minority communities were very far below a proportionate comparison to the actual percentage of the populace. This leaves a gap in the data and its ability to be applied to the populace as it is not diverse enough to speak for minority communities.

Occupation

There was a wide array of occupational answers. 3% were retired, while 96% of participants were actively employed. Responses for occupation ranged from Teacher, Self-employed, Aerospace Engineer, Civil Engineer, Public Service, Hospitality, Healthcare, Outdoor occupation, and more. Across all participants, there was large variation in occupation across all sectors, providing a diverse demographic for occupation. The large variation of occupation is reflected in the education levels participants selected.

Education

Summary of 3: What is your highest level of education?

Sample Size ●	Number of Distinct Categories
101	7

Reorder/Recode Bucketing

3: What is your highest l...	Count	Percent	Cumulative
Less than high school	1	1.0%	1.0%
High school graduate	2	2.0%	3.0%
Some college	20	19.8%	22.8%
2 year degree	11	10.9%	33.7%
4 year degree	43	42.6%	76.2%
Professional degree	22	21.8%	98.0%
Doctorate	2	2.0%	100.0%
Total	101	100.0%	

Table 2, Q 3. What is your highest level of education?

Educational levels varied throughout the participants with 42.57% having received a 4-year degree. 21.78% having received a Professional degree and 19.80% having done some college. 10.89% received a 2-year degree. Those with higher levels of worked professional careers and were predominantly white. This represents a fairly educated populace within the State.

Media source

Summary of 6: Where do you receive information about local and state public policies? - Selected Choice

6: Where do you receive inform...	Checked Percent	Checked Co...	Sample Size
Social Media	75.2%	76	101
Local newspaper/media	72.3%	73	101
Television News	33.7%	34	101
Online forums	30.7%	31	101
Public Service Announcements	24.8%	25	101
Any additional info you would like t...	10.9%	11	101
I do not receive information on thes...	6.9%	7	101

Table 3, Q 6. Where do you receive information about local and state public policies?

The most common response from participants for how they received information about local and state public policies was with Social Media with a total of 75.2% of participants choosing this option, with 72.3% saying Local Newspaper/Media, 33.7% from TV News, 30.7%

from online forums, 24.8% from Public Service Announcements, and 6.9% saying they do not receive any information on local and state public policies. The participants were able to click all which applied to them. Additional information was added by 10.9% explaining that mixtures of media were important in receiving data.

Participants were then asked what news/media sources that they watched or read and if they felt there were any political biases within them. Most participants cited CNN as a program watched often, but with only a few participants saying that it was more left. Others cited Fox News, with some who cited it denying any outright political affiliation of the source. NPR, AP Reports, MSNBS, Fox news, NY Times, The Daily Sun (Carbondale Colorado news source), Local newspapers, and CBS. Some participants expressed distrust in news sources and instead valued independent research more.

Climate Change

Summary of 14: Do you think the environment is... - Selected Choice

14: Do you think the environme...	Checked Percent	Checked Co...	Sample Size
Poor	40.6%	41	101
Please explain	35.6%	36	101
Average	27.7%	28	101
Good	12.9%	13	101
Excellent	7.9%	8	101
Terrible	3.0%	3	101

Table 4, Q 14. Do you think the environment is...?

With 40.6% of participants stating that the environment is poor, 27.7% agreeing it is Average, 12.9% agreeing it is good, 7.9% agreeing it is excellent, and 3.0% agreeing it is terrible, there is a large gap between those who believe the environment is in excellent or in good standing and those who think it is poor or terrible. In the please explain section, many participants said that some areas, such as the Western Slope, are in good environmental standing because of lower levels of population, higher accessibility to resources, and more regulations on environmental

resources while more urban areas such as the Front Range are in more dire states because of pollution, drought, and lack of access to resources. The stark difference between views on rural to urban areas show cases the heritage narrative that exposure to certain environmental conditions will influence attitudes and knowledge on climate issues such as water scarcity.

Fresh Water Access and Usage

Answers to the question, “Do you think there are issues with Colorado’s Fresh Water access?” had varying responses. A few participants answered that the division of water between the Front Range and the Western Slope created large issues within the Western Slope because of increasing drought and the growth of the Colorado populace increasing demand. The continental divide water diversion was concerning for one participant stating, “There’s an ongoing struggle between front range water providers and west slope users over water in rivers such as the Colorado that are subject to trans mountain diversion”. Other participants cited ineffective water management an issue due to dams, allotment of too much water for the Front Range, increasing population, Colorado’s dessert climate, lower precipitation levels, and inability to change legislation in accordance with usage needs. 3% of participants responded that the Western Slope had easier access to water because of their location in the Upper Basin while the Front Range was more susceptible to water access issues because of the needs to transport water to them.

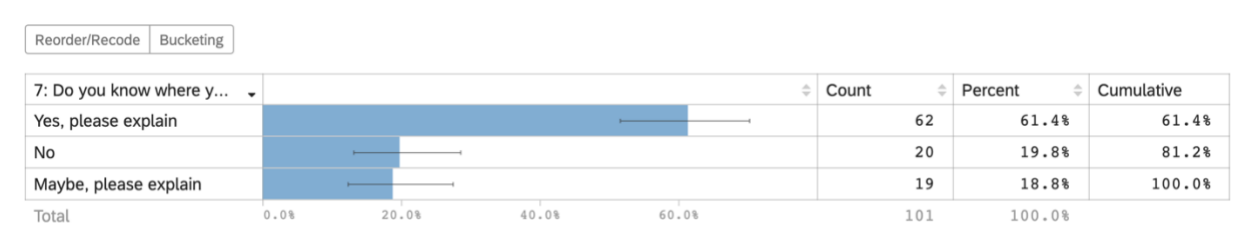


Table 5, Q 7. Do you know where your drinking water comes from?

Usage wise 18.8% of respondents answered maybe to knowing where their water comes from and cited snowmelt, local watersheds, the Colorado River, well water, creeks, and

reservoirs. 19.8% did not know where their water came from, and 61.4% responded to knowing where their water comes from stating the same sources as those within the maybe responses, and additionally the Grand Mesa reservoir and Shoshone Dam in Glenwood Springs.

Volunteer Work and Recreational Activity

Respondents were equally split in contributing or volunteering for an organization or not. Of the 50% who said yes organizations they volunteer or contribute to included: river clean-up projects, river conservancy groups, wildlife conservation groups, forest conservation, homeless aid, environmental change organizations, and forest conservation organizations.

Recreational activity using the Colorado River was high with 74% saying they utilized the resource. The highest mentioned activities were rafting, fishing, tubing, and kayaking. Rafting was the most stated across the 74% and is very accurate as the State has high levels of income and recreation from rafting on the Colorado River.

Summary of 12: Do you utilize the Colorado River for recreational activities? - Selected Choice

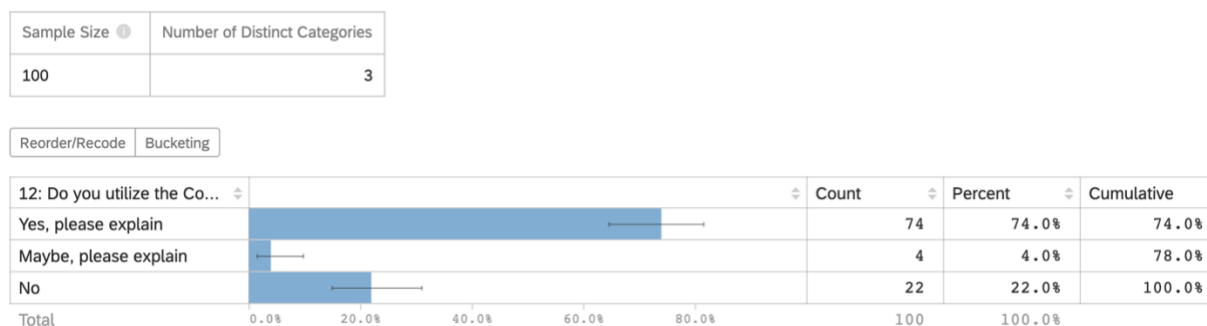


Table 6, Q 12. Do you utilize the Colorado River for recreational activities?

Discussion

The survey was able to recruit enough participants to gather the desired sample size, plus one. Other demographics such as race, volunteer status, and zip code were not very diverse. This

makes the data not 100% able to be applied to the State as a whole but provides insight into some trends within the Front Range and the Western Slope. The majority of respondents were white, which unfortunately leaves a gap in understanding minority involvement in Colorado River activities, public policy awareness, and opinions on Colorado River issues. The lack of minority respondents may indicate that some minority groups are not being reached about this information or may not feel it necessary to respond to surveys such as the one distributed.

Survey participants, varied in some demographics but not in others. Occupation was the most varied demographic as there were over 10 different occupations listed by participants. This variation is expected as the two highest education levels recorded were 42.6% of respondents having a 4-year degree and 21.8% having a professional degree. The variation of occupation accompanied with higher levels of education indicate that the Colorado populace is likely to encounter information on climate issues, specifically of water issues related to the Colorado River that increase knowledge levels in the populace. This is reflected in the fact that 76.2% of respondents support water conservation policies within Colorado, despite only 55.4% saying that there are definitely issues within Colorado for access to freshwater and only 44.4% saying the environment was in poor condition. The support for water conservation aimed policies highlights a preference for proactive legislation versus reactive legislation. The thesis is supported in this as Colorado populace shows positive attitudes towards water conservation based public policies. The concern for the environment coupled with the support for water conservation shows a higher level of knowledge that water overuse, climate change issues call for changing legislation, and that a majority of respondents were located in the Western Slope, show a positive attitude towards CR public policies geared towards water conservation.

In the supporting literature found, there was a consensus that gender can play a role in how demographics play a role into legislation and the populace it is built off of. However, in building the survey, there was no inclusion of a gender question. This is a flaw of the survey in its lack of accounting for the potential influences of gender. Most studies and articles referenced in the Literature Review section said that gender could play into the knowledge and attitudes that citizens have. Due to the survey lacking a question where this data could be gathered, the survey was not able to provide supporting evidence between positive attitudes and knowledge with Colorado female citizens. This is a gap in understanding since gender is not evaluated as other studies find necessary.

The knowledge of where participants water comes from indicates that the sample population is more knowledgeable than the thesis originally hypothesized. The knowledge of water location and systems which feed into these resources is vital to building public policies. In a population that has a higher mean of people who have information on the resources they are dependent on, public policy can be better informed through utilization of community knowledge, participation, and action. Of the respondents, 74% said that they use the Colorado River for recreational activities with the most mentioned activities being rafting, fishing, kayaking, and tubing. Usage of a water source exposes Coloradans to the direct impacts of changes in climate, increasing demands, and use can have. It is unsurprising that a majority of respondents answered in ways that showed a bias towards legislative action regarding the Colorado River. The heritage narrative here shows a certain level of companionship between urban to rural areas, with a consensus that there are problems within the CR Basin, specifically in Colorado due to population growth, climate, and drought, requiring legislative action. In understanding where this

information was received, participants were asked where they received their information of public policies and what news/media sources they watched or read.

An interesting aspect of the study was the news/media sources participants had cited in order for political affiliation to be identified amongst the sample. Only 6.9% of participants did not receive any news on public policies within the State of Colorado from any news/media sources, while the remaining participants varied in sources for news. While only 10.9% of participants divulged the news/media sources they watched or read, there was a trend of politically partisan news sources being the most watched. Most news broadcasting or newspapers were politically divided such as CNN, Fox News, CBS, MSNBC and NY Times. Others felt the mainstream news sources they watched had no bias such as Fox News or CNN. Neutral sources such as AP Reports, NPR, and public radio were cited as the only trustful news sources. Some respondents stated that they did not watch or read “mainstream” media because of intense bias and instead chose to research issues within the CR independently or utilizing local newspapers as they felt they were less likely to hold political bias. As a majority of respondents stated left leaning news sources, it can be assumed the populace of Colorado tends to be more Liberal, and this is mirrored in the State’s status as a blue state. This leads me to believe that this is a contributing factor in the populace’s willingness to support conservation policies and agree that there are issues within access to fresh water because of a changing climate.

Furthermore, half of the survey respondents volunteered or contributed to organizations aimed at river conservation, wildlife conservation, environmental action, or organizations that promote and work towards implementing sustainable development policies. Most of these organizations are based in the Western Slope such as the Roaring Fork River Conservancy,

grassroots Colorado River clean up groups, and Back country Hunters and Anglers. The sample size was very active in environmental protection across all identifying demographics.

The data gathered from the survey supports the thesis that those with higher knowledge and more positive attitudes toward water conservation will be more in support of CR public policies aimed at conserving the water source. Those within the Western Slope showed a higher understanding of where their freshwater access came from, while the Front Range respondents were more likely to point to city amenities instead of the actual source. The heritage narrative for the rural area of Colorado becomes clear through this. The geographic location of citizens within the State of Colorado influences their knowledge of issues with the CR and their attitudes towards urban usage and water conservation. Many Western Slope respondents, with a small portion of Front Range respondents, were able to accurately identify population growth, overuse of the CR, and environmental degradation as a cause of water insecurity within the CR. The sources for this identification came from firsthand experience in changes to the environment, and more specifically the CR itself.

Political affiliation was not able to be clearly established between the Front Range and the Western Slope, but the sample as a whole, appeared to participate in more Liberal aligned sources of information. While this does not disprove the thesis that there are political differences within the Front Range and the Western Slope, it does not prove it. There will need to be further evaluation done on how the areas differ politically in order to identify if this is a variable in Coloradans attitudes and knowledge surrounding the CR. However, despite a lack of political identification, it is proven that Coloradans are in high support (74% of the sample size) of implementing public policies aimed directly at protecting and conserving the CR. Many respondents stated that water regulation for commercial business and residential use in the Front

Range was necessary to preventing overuse due to increasing water demands combined with worsening drought conditions.

While the sample size is small and proved to be less racially diverse than the general State of Colorado, it is still an important starting point in evaluating how the urban-rural difference within the State does not affect Coloradan support for environmental regulation. Across the board concerns for climate change, resource overuse, and environmental degradation was important to respondents. The high level of support for environmental policies point to a positive attitude regarding the CR and high levels of knowledge about issues the CR faces. This will be helpful in presenting public policies that aim to utilize sustainable development and management of the CR to the public with little pushback. Water policies, as agreed on from a majority of respondents, need to be improved, need to reflect the vulnerability of the CR, and must be comprehensive in their application between residential, commercial, and industrial use.

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Appendix

Survey Questions:

1. Please copy and paste the link provided to read the consent form for this study (note: you must copy and paste the link): https://docs.google.com/document/d/1sWdmnXhPE8cBo-dab2cHusxR0t9MdRGsFARnc_ToPdY/edit?usp=sharing
 - a. I have read and understand the consent from
2. What is your zip-code?
3. What is your highest level of education?
 - a. Less than high school
 - b. High school graduate
 - c. Some college
 - d. 2-year degree
 - e. 4-year degree

- f. Professional degree
- g. Doctorate
- 4. What is your occupation?
- 5. What is your race?
 - a. White
 - b. Black or African American
 - c. American Indian or Alaska Native
 - d. Asian
 - e. Native Hawaiian or Pacific Islander
 - f. Other
- 6. Where do you receive information about local and state public policies?
 - a. Local newspaper/media
 - b. Social Media
 - c. Television News
 - d. Online forums
 - e. Public Service Announcements
 - f. I do not receive information on these issues
 - g. Any additional info you would like to add?
- 7. Do you know where your drinking water comes from?
 - a. Yes, please explain
 - b. Maybe, please explain
 - c. No
- 8. Do you think trends in the climate have changed such as...?
 - a. Rainfall, snowfall, overall precipitation
 - b. Drought
 - c. Floods
 - d. Heat waves
 - e. Water levels
 - f. There have been no changes to the environment
 - g. Please explain
- 9. What news media/shows do you watch and what political affiliations do you think they have?
[Text Box]
- 10. Do you think there are issues within Colorado regarding its access to freshwater?
 - a. Definitely yes

- b. Probably yes
 - c. Might or might not
 - d. Probably not
 - e. Definitely not
 - f. Please explain
11. Do you support water conservation efforts in Colorado?
- a. Definitely yes
 - b. Probably yes
 - c. Might or might not
 - d. Probably not
 - e. Definitely not
 - f. Please explain
12. Do you utilize the Colorado River for recreational activities?
- a. Yes, please explain
 - b. Maybe, please explain
 - c. No
13. Do you volunteer or contribute for/to any organizations?
- a. Yes, please explain
 - b. No
14. Do you think the environment is...?
- a. Excellent
 - b. Good
 - c. Average
 - d. Terrible
 - e. Please explain