A TWO YEAR EDUCATION PLAN TO SUPPORT THE GOALS OF THE NINE MILE CREEK WATERSHED DISTRICT

by

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CHAPTER ONE

Introduction

Nature has been a constant theme throughout my life. It was an undercurrent running through everything I did. I was privileged to have supportive, stable parents who encouraged my fascination with nature and science. This set the stage for my career in environmental education, where I help children and adults find out what they love about nature. Effective environmental education is not just about providing fun programs; it is also about using effective strategies to encourage growth and curiosity. My workplace, the Nine Mile Creek Watershed District, has a guiding document for the next ten years, called the Water Management Plan, which outlines goals and projects, but only outlines education goals in very broad terms. My research question is: *How can the Nine Mile Creek Watershed District's education program effectively meet the education goals set out in our ten year Water Management Plan?* I believe that my background uniquely positions me to answer this question and shape the form of our education plan.

In this chapter, I will examine how my childhood experiences in nature prepared me for the career in environmental education I have today. I will also describe how my early internships and job experiences showed me the need for goals and plans when creating education and outreach programs.

Personal Interest in the Environment

Through my early childhood, I was encouraged to learn and explore. I learned everything I could about dinosaurs, which inspired and shaped my curiosity in later years. My parents often took me to the Science Museum, where I peppered the staff in the

dinosaur area with countless questions. As I grew older and was able to be more active outside, my family went to State Parks in Minnesota and Wisconsin, participating in Junior Ranger programs. However, nature was not just something we went to other places to find: my parents would hide glass beads in my sandbox, and I would dig for treasure; they took me on walks to the local park, where we identified some of the trees we saw. We also watched many nature programs on television, including the Eyewitness nature programs, *Animal Planet*, and *Steve Irwin: Crocodile Hunter*. I was able to see real scientists and educators working in the real world, and began to see that there were careers in this field that I could do. Perhaps that is why I am so happy to work for the Nine Mile Creek Watershed District where I can follow in their footsteps. I directly help lead and coordinate programs that are similar to the ones I enjoyed as a child, so that other children can find their inspiration in nature.

I also attended numerous nature related summer camps. From Science Museum camps about rainforests and chemistry, to Girl Scout camps backpacking in the Apostle Islands, I was very involved in the outdoors. Each camp had something extraordinary that became a powerful memory: from making volcanoes, to riding a horse through a pine forest, to glimpsing a bear on Oak Island. These experiences helped open my eyes to new opportunities in the natural and education worlds. They helped me feel more confident being outside and interacting with nature. This setting not only helped me prepare for further adolescent explorations, but they also helped prepare me for my career as a naturalist.

One of the most pivotal moments in my outdoors exploration was my first trip to the Boundary Waters Canoe Area Wilderness (BWCA) in eighth grade. My Girl Scout troop went for about a week, and it was the first time many of us had camped in a tent, or gone canoeing, or cooked over a camp stove. One night we sat watching the stars, and a falling star went right through the constellation we were observing. Another night we huddled in our tents as a thunderstorm went by, but watching the storm come was an awesome sight. This trip showed me the wonder of nature, and inspired me to protect it so that others could have these experiences as well. Since that trip, I have visited the BWCA again two times, all with similarly powerful experiences, and hope to go back often. Without the knowledge and education I gained leading up to these trips, I would not have been nearly as well prepared for the trips either. These trips helped define how important clean water is to me, making my work at the watershed district even more imperative and rewarding. That is why proper and well-planned education is so important, and why I hope to guide the education program where I work; to make it more efficient, meaningful and useful to participants.

Professional Background

I began to refine my career options from a general desire to protect nature to environmental educator in my later high school and college years. During my undergraduate years at the University of Minnesota, I explored various topics within the environmental field, including renewable energy, research, and climate change. I settled on Environmental Sciences, Policy, and Management, which was a broad enough major to give me a good grounding in the essentials, and flexible enough to discover what I was

passionate about. My minor in Spanish also helped broaden my worldview, and increase the people I could communicate with. However, it was the jobs and internships I had during my college years were what really defined my career path.

My focus on environmental education really began with my first internship as a summer camp intern at the Minnesota Zoo. I learned many tenets of environmental education, and saw the use of well-prepared curriculum and lesson plans. I continued interning and working at places with environmental education, such as Itasca State Park, where I was a Naturalist intern, and at Dodge Nature Preschool as a classroom assistant. At these parks and centers, I learned how to create age appropriate programs. Finally, I decided to pursue environmental education as a career in earnest when I worked as a Naturalist at Eagle Bluff Environmental Learning Center in southeast Minnesota. There I learned and practiced many of the fundamentals and strategies of environmental education that I still use today. I also completed my Certified Interpretive Guide (CIG) training from the National Association for Interpretation. All of these experiences taught me the fundamentals of creating quality environmental education programs. These fundamentals are the underpinnings of any good education plan.

I began to plan and present my own environmental programs during my time as a Naturalist at the Lorado Taft Field Campus in Illinois, and later at Springbrook Nature Center in Fridley, Minnesota. Though there was no guiding document or plan to focus my efforts, I did create programs that aligned with the mission of the organization. Having had to create programs based on mission statements alone, I saw the usefulness of having

a dedicated education plan to better guide program development. This is why I chose to create a plan for the Nine Mile Creek Watershed District where I work.

The Nine Mile Creek Watershed District

I currently work at the Nine Mile Creek Watershed District (NMCWD) as the Education and Outreach Coordinator. We are a local unit of government that protects and preserves the natural resources within our district in the southwest metro of Minneapolis, Minnesota. We specifically focus on lakes and creeks. NMCWD was first established in 1959, but did not hire its first full-time staff member until 2006 ("Water Management Plan", 2007). The first education staff member was hired to run programs and plan outreach initiatives in 2008, and since that time, the Education and Outreach program has undergone remarkable growth and change ("Water Management Plan", 2019). In 2015, NMCWD officially opened its new headquarters in Eden Prairie, thanks to a generous donation of a house and 5.3 acres of forest by art historian Barbara Kaerwer. The house was renovated and had stormwater best management practices installed (such as raingardens and permeable pavers), and is intended to be a community resource to those who need inspiration or information on water management.

I was hired as the second education staff in 2015. I spent the next few years as the Education and Outreach Specialist understanding the NMCWD's previous education efforts, and connecting with community partners and events. In 2017, I was promoted to Education and Outreach Coordinator. 2019 was the NMCWD's 60th anniversary, which provided the perfect opportunity to re-evaluate the education program, and really prioritize our efforts to make the most effective outreach program possible.

NMCWD recently updated its Water Management Plan, which is a guiding document that outlines the goals and priorities of the District for the next ten years. These goals included protecting and preserving surface water and groundwater systems, establishing more uniform policies for surface water management, preventing erosion of soil into water bodies, and protecting and enhancing habitat and recreational opportunities ("Water Management Plan", 2019). Education goals were also established in this document, though they were very broad. This was done purposefully in order to make sure the education program had the flexibility to respond to the changing needs of the community. Putting education goals that are too specific into a ten year document like this would not allow us to adapt the outreach program as quickly as it should be. Creating an education and outreach plan that spans two years helped develop more specific goals for the program. This plan can then be updated more frequently to allow for flexibility and change, and can also coincide with the required update to the larger Water Management Plan in ten years. The two year Education and Outreach Plan supports the goals of the overall document, and allows the District to reach more people more effectively.

Significance of the Education and Outreach Plan

The major stakeholders in this project were the NMCWD staff and Board of Managers. Other incidental stakeholders were the members of our Citizens Advisory Committee, who are tasked with aiding in the education and outreach efforts of the NMCWD. We also interact with numerous volunteers who help in outreach efforts. This plan was shared with all these various stakeholders so that they were aware of our efforts.

This plan was also shared with the general constituency who will be on the receiving end of the outreach. The results of this plan were communicated over our social media platforms, e-newsletters, and website to inform the public of what was done. This document not only adhered to the NMCWD Water Management Plan, but it also fit in with what other watershed districts are doing.

In the next chapter, I will examine the literature to expand on the baseline of environmental education, and best practices in the field. I will also review the plans of other watershed districts to define what the industry standard for education plans is. Then I can best answer the question of *how can the Nine Mile Creek Watershed District's education program effectively meet the education goals set out in our ten year Water Management Plan?*

Conclusion

My early exposure to nature helped inspire my career in environmental education. My parents encouraged my fascination with nature and science, and numerous outdoor experiences helped shape my passion for nature. Various internships and jobs helped me define my career in education. I saw the effectiveness of a good educational plan, and determined that my current workplace, the Nine Mile Creek Watershed District would benefit from having such a plan.

CHAPTER TWO

Literature Review

In this chapter, I review the literature that informed this capstone project, which answers the question: *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?* Education and outreach are some of the major tools for accomplishing the goals of the NMCWD. In the ten year Water Management Plan, creating an Education Plan was listed as high priority for the NMCWD, by linking programs to the goals through prioritization and tracking. Prioritization helped focus limited staff time and resources on programs and initiatives that most efficiently meet the NMCWD's goals. These goals included protecting and managing water resources in our watershed for the benefit of all. Another goal was to foster environmental stewardship behaviors and inspire behavior changes in those who live, work, and play within the NMCWD boundaries.

This chapter first examines the topic of environmental education. It explores the history of the field of environmental education, as well as the importance of this field for Minnesota and further abroad. There is a growing body of evidence supporting the fact that environmental education is very needed, especially in urban populations.

The chapter then explores watershed districts, which are local units of government tasked with protecting and managing water bodies in Minnesota. Each of these governmental organizations work within a specific hydrologic boundary, and often have

education and outreach programs. The better planned a program is, the more effective it will be.

In researching education and outreach, I also summarize what education plans from various other watershed districts contain. All of this literature review guided the development of a focused education and outreach plan for my organization, the Nine Mile Creek Watershed District. This plan allows the NMCWD to more efficiently direct resources, staff and time to the types of education and outreach that will help achieve the guiding goals of the organization.

Environmental education

This section investigates the history of environmental education, as this is the basis of my career and the topic of my capstone project. I look into how the field began, as a means of understanding its progression and changes. I investigate how environmental education came to be a field and profession in its own right. I also explore why the profession of environmental education was formed in the first place, in order to illustrate why organizations and countries devote so many resources to it. I also investigate the need for environmental education in Minnesota. Because the NMCWD operates in an urban area, I also review literature about environmental education in urban areas.

History of environmental education. Environmental education is a specialized form of education that helps people understand the world around them, and equips them to think critically about and create solutions for global challenges (“About EE and Why it

Matters", 2017). Though it has only just recently gained a definition, the act of environmental education has been going on for much longer than that.

Henry David Thoreau and Ralph Waldo Emerson were key characters in helping begin the movement of environmental education. Through their books, they helped readers all over the world learn about nature ("Thoreau's Legacy", n.d.). By making detailed observations about the natural world around them, they were able to encourage people to see nature in a way they had not thought about before. Thoreau and his teachings went on to inspire others in the environmental movement, including John Muir ("Thoreau's Legacy", n.d.).

Muir became another sort of environmental educator, who was not just interested in nature observation, but in active protection (Wood, n.d.). He was an early advocate for the protection of natural spaces. By encouraging people to experience nature, he helped encourage them to protect it as well. In 1892, Muir established the Sierra Club, an organization that would go on to protect Yosemite National Park, and many other natural spaces around the country (Wood, n.d.). Muir's work, writings, and talks were some of what inspired President Theodore Roosevelt to create the national parks system ("The Conservation Legacy of Theodore Roosevelt", 2016). Roosevelt signed the Antiquities Act in 1906, which allowed for the protection of nearly 230 million acres of public land (NPS Archeology Program, n.d.). While environmental education can happen anywhere, it is important to also protect natural spaces in which students can immerse themselves in nature. Careful planning can make both the protection and the education more effective.

Enos Mills was another adventure guide and naturalist, who, like Muir and Roosevelt, made great impacts on the early environmental education field. Not only did Mills lead groups through the wilderness, but he also he also analyzed his teaching techniques to see which worked best (Regnier, Gross, and Zimmerman, 1994). He began teaching these techniques to others, and is considered by many to be the founder of environmental education and interpretation (Regnier, Gross, and Zimmerman, 1994). His writings and teachings up to his death in 1922 laid the groundwork for future environmental educators and writers like Freeman Tilden.

Freeman Tilden was another early architect of the field of environmental education. He published *Interpreting Our Heritage*, which helped form the basis of environmental program planning (Tilden, 1957). In this book, Tilden laid out six principles that described what good environmental education should include. One of these principles maintained that environmental education should not be just presenting information; it should rather be thought provoking and inspiring (Tilden, 1957). By keeping this and the other principles in mind, the environmental educator can plan an effective program, instead of a sterile one. These six principles helped define the fledgling field for future writers and educators. As more environmental issues came to light, this structure was all the more important to get messages across effectively, and to promote taking action to correct the new problems.

One of the major tests of the fledgling environmental education field came in the 1950s and 60s. In 1962, Rachel Carson published *Silent Spring*, which was an illumination of the dangers of chemical pesticides. It was more than just an education

campaign however; it was a call to action to reduce the use of these pesticides (Carson, 1962). Careful research and planning allowed Carson to successfully inform people and also provoke action.

All of these early leaders laid the foundation for environmental education as a field; they showed that not only is passion important in provoking inspiration, but planning is also a necessity in accomplishing changes in behavior. As the field continued to develop as its own unique form of education, more people began to recognize the need for a formal acknowledgement of the profession.

The importance of environmental education was formally recognized in 1977 in Tblisi at the Intergovernmental Conference on Environmental Education (UNESCO, 1977). This Declaration included a set of recommendations that were instrumental in guiding the formation of the environmental education field. A few of the more important recommendations included incorporating the whole environment into education programs (not just the natural elements of the students' environment, but also the technological, social, cultural, historical and economic elements as well), as well as promoting cooperation and partnerships between many levels of government, public and private agencies to find solutions to environmental problems. These guidelines also emphasize the importance of learning about the learner's specific environmental location in the early stages of their education. All of these guidelines are reflective of the work I do.

The United States Congress furthered the goal of the Tblisi Declaration with the National Environmental Education Act (NEEA) in 1990. This Act underscored the growing need for environmental education, and provided for the creation of the Office of

Environmental Education; today, this office provides resources for healthy school environments, grants, lesson plans, and guidelines (Environmental Education, n.d.).

With the Tblisi Declaration and NEEA as guides, the field of environmental education continued to become more refined. Lynch and Hutchinson (1992) called for the development of a formalized profession and graduate education for the profession to aid in establishing good environmental management practices and synthesize new ideas (p. 864). They even went so far as to describe a model for a professional school that could train these environmental educators.

That call for an established and recognized profession was aided by the creation of various professional organizations. The National Association for Environmental Education (NAAEE) was founded in 1971, and has worked to champion environmental educators and their work in the United States, Mexico and Canada (Disinger, 1995, p. 4). Additionally, the National Association for Interpretation (NAI) was founded in 1988, combining two similar, smaller organizations (National Association for Interpretation, n.d.). Environmental interpretation is a smaller subset of environmental education and serves a like purpose; all of these have the goal of providing effective, engaging environmental education.

Purpose of environmental education. Environmental education should help develop a sense of responsibility for protecting the environment in each country's population (Tblisi Declaration, 1977, p. 24). It should also be centered around the local environment, with connections to global issues. With all agencies working together to

teach about the environment, each area's population would have more tools with which to solve the major problems in that area.

Environmental education also serves to help create a personal connection to the natural world. Through connection, people are more likely to take action to protect the places they are connected to. In a recent study by the Water Main, 78% of respondents felt a personal connection to a particular body of water (Granias, Martin-Rogers, Absar, & Helmstetter 2018, p. 24). This can help environmental educators tailor their messaging so that the messages resonate better with what their individual audience most values. When the respondents feel a connection with a body of water, their desire for more knowledge about it increases, providing an opportunity for an even deeper connection to that body of water (Granias et al., 2018, p. 25). Therefore, one important purpose of environmental education is to inspire new connections, and nurture existing connections to the natural world.

However, the field is continuing to evolve, in that it is becoming more deliberate in the inclusion of all people. Only 64% of people of color felt a connection to a body of water, as opposed to 89% of white respondents (Granias et al., 2018, p. 24). Making education programs more inclusive and equitable also takes planning and forethought, in order to undo the deliberate exclusion of various races, abilities, and other marginalized groups. Recently published authors, like Lanham, work to show people of color in nature and doing nature activities, in order to present role models for younger people of color (Lanham, 2016). Lanham also bridges the worlds of research and education by translating complicated scientific texts into everyday language for his readers. Carolyn Finney,

author of *Black Faces, White Spaces* also aims to increase the representation of people of color in the environmental education field (Finney, 2014). These populations have long been excluded from nature exploration, and thus have a great need for deliberately planned environmental education.

There are many organizations working to address this need as well. Organizations like Latino Outdoors have chapters all over the United States encouraging Latino communities to embrace the outdoors. Their goals are to ensure a network of support for Latinos working in conservation, provide transformational nature experiences for all Latino families, ensure that Latino voices are heard in conservation movements, and provide a platform for sharing cultural connections to nature ("Latino Outdoors 2020", 2017). Without actively working to include underrepresented groups like these in the environmental education movement, they will not feel welcomed. It is a critical need within the environmental education movement to create this welcoming space for all.

Need for environmental education. The need for environmental education knows no boundaries; it applies to all people, no matter their race, ability, or location. In Minnesota, as in many other states and countries, environmental knowledge is low among the general public. According to the third Minnesota report card on environmental literacy, only 62% of Minnesotans have an average level of knowledge about the environment (2008, p. 8). Without more people having even a basic knowledge about the environment, we cannot expect people to take actions to protect it, or change their behavior or promote positive environmental policies. Louv (2005) noted an alarming trend of more and more children staying inside, with more behavioral and physical

problems as a result; what he calls “Nature Deficit Disorder” (p. 109). Though this disorder is not a recognized diagnosis, it still comes with many negative effects for children’s health and wellbeing. Children today are playing outside much less than children of the past, and spending more time in front of screens; a Kaiser Family Foundation study noted that 8-18 year olds in the USA are on screens or using media for 7.5 hours in a typical day (Rideout, Foehr, & Roberts, 2010). Accompanied by this alarming finding, is that less time is spent in unstructured play, with detrimental health impacts as a result (Ginsburg, 2007). These findings are pointing to less time that children have to make connections with the outdoors, and less time to explore and discover it for themselves. With such a lack of knowledge about, comfort with, and exposure to the environment, it is necessary to have a skilled group of teachers and guides to remedy the problem.

It is important to have a skilled group of teachers on environmental topics so that the correct information and most accurate science is being portrayed in a way that people can understand. This particular sort of teaching requires its own training, as it is different than the teaching done by a school teacher. The field of environmental education has emerged in order to fill the need for increased environmental literacy among the populace, and is undergoing the needed recognition of an established professional field.

> Wilensky observes the following natural progression in the United States: (i) the emergence of a full-time occupation, (ii) the establishment of a training school, (iii) the founding of a professional association, (iv) political agitation directed

> toward the protection of the association by law, and (v) the adoption of a formal code. (as cited in Lynch & Hutchinson, 1992, p. 865)

All of these but the last two have happened since 1992, in Minnesota, and nationally with the formation of the above mentioned organizations such as NAI and NAAEE. NAI also presents a training program called the Certified Interpretive Guide, which is a professional certification program for environmental educators. In Minnesota, the Minnesota Naturalists Association (MNA) and the Minnesota Association of Environmental Educators help provide this type of education in Minnesota. Additionally, many Environmental Learning Centers (ELCs) exist in Minnesota, including Wolf Ridge ELC, Eagle Bluff ELC and Audubon Center of the North Woods. These places offer overnight trips for schools, as well as adult programming and summer camps. They also offer professional training in environmental education, giving young professionals in the field the skills they need to build a successful career.

Environmental educators who are well trained and passionate can help improve the environmental literacy of the general public. This is a field that is very much needed, both in Minnesota, and around the world. While environmental education is helpful anywhere, urban centers have a unique opportunity for targeted education. The high populations of cities and metro areas can have an accelerated, deleterious impact on their natural environment; however, converting such a large number of people to conservation in one area can make a huge force for good as well.

Environmental education in urban areas. One thing that could help all audiences, no matter what their background, is the re-working of the assumption that

nature is far away. People do not have to drive far away from their houses to find nature. Thus, environmental educators should be placed in urban areas as well as rural areas. Nature is everywhere, even in urban areas, and once more people realize this, they will be more comfortable exploring it (Russ, 2014). Learning about the environment outside their door will give them something concrete to connect with and protect. Many agencies both public and private can work together to effectively develop environmental education (Tblisi Declaration, 1977, p. 26). Even agencies that would not seem to dovetail well with environmental education (such as the media or regulatory governmental units like watershed districts) can and should employ these types of educators.

Summary. Environmental education has evolved over time from the slightly nebulous goals and recommendations of the Tblisi Declarations and before. Though many governments and agencies around the world recognized the need for environmental education, putting it into practice was another thing altogether. Many organizations sprang up to help better define the field, and move it into the realm of professionalism and accreditation. Among these in the United State were the National Association for Environmental Education and the National Association for Interpretation. These organizations, and many more, provide training and certification for environmental educators. These educators fill a need for accurate information about the environment in audiences in urban and rural spaces, and everything in between. By teaching and sharing their passions for the environment, environmental educators are helping to inspire others to learn and care for the world around them. One such group of organizations making use of environmental education is watershed districts.

Watershed districts

In this section, I provide background on what a watershed is. This is helpful in understanding what a watershed district is. This section explores the reasoning behind the creation of watershed districts in Minnesota, and how they have helped improve water quality in the state. Finally, this section discusses the NMCWD. I review the guiding document of the NMCWD (which is mandated by law), the ten year Water Management Plan. This document directly informed the creation of my capstone project.

What is a watershed? A watershed is an area of land where all the water drains to the same body of water ("Healthy Watersheds Protection", 2017). Watersheds are usually named after that body of water. No matter where you are on the planet, you are in a watershed, even if there is no water present at the time. Areas of land that allow water to soak into the ground are called pervious; they usually have some sort of vegetation cover, like forests, prairies, or lawns. Rainfall in these areas soaks into the ground, slowly getting filtered as it moves through the soil. In urban areas, where impervious concrete roads and buildings are the norm, the water flows over the surface and into the storm drains. Therefore, anything that is done on land will eventually affect the water.

What is a watershed district? Watershed Districts (WD) are special purpose local units of government in Minnesota. They are tasked with protecting and managing the water resources in their watershed through flood control and smart land use planning (Minnesota Statutes 103D.201). WDs are formed based on hydrologic and geographical boundaries, not political boundaries.

WDs work with local partners to accomplish their shared goals of natural resource protection. In the metro area, these partners include, counties, cities, non-profit organizations like the Izaak Walton League, lake and neighborhood associations, and even larger statewide organizations like the Minnesota Pollution Control Agency.

Nine Mile Creek Watershed District (NMCWD). Nine Mile Creek flows through ceded Dakota territory, and bears the name Iyutapi Napcinwanka in the Dakota language (Morse-Kahn, 2009). It has two branches, the north branch, which begins in Hopkins, and the south branch, which flows out of Lake Minnetoga in Minnetonka. The two branches come together at Normandale Lake in Bloomington, and flow to the Minnesota River.

The NMCWD was formed in 1959 by a citizen petition, and was the second watershed district formed in the Twin Cities metro area ("Water Management Plan," 2019). The NMCWD encompasses 50 square miles in the southwest metro of the Twin Cities Metropolitan Area, Minnesota, and includes parts of 6 different cities: Bloomington, Richfield, Edina, Hopkins, Eden Prairie, and Minnetonka.

Originally, the NMCWD focused on preventing flooding in an area that was increasingly being urbanized ("Water Management Plan", 2019). As the watershed area turns from pervious farmland and prairie to impervious surfaces like concrete roads, buildings, parking lots, and storm drains, more water is going to flow at a higher rate of speed into local lakes and creeks. This can cause the water bodies to erode and become unhealthy as polluted runoff flows into them from storm drains. This purpose led to the implementation of such projects as the creation of Marsh Lake in 1970, and Normandale

Lake in 1978 (“Water Management Plan”, 2019), which protected downstream communities during the historical storm of 1987.

The NMCWD prepared for the eventual complete conversion of the watershed into an urbanized setting and was very forward thinking in putting protections in place. Many natural spaces, like wetlands, were protected from development to provide flood storage in the event of heavy rains.

The NMCWD also employs a set of regulations and rules, to better protect the lakes and creeks in its watershed. The regulatory program was first put in place in 1973 to review proposed developments; this review ensured that water quality would be protected during future land use developments (“Water Management Plan”, 2019). Developers must acquire permits to proceed with their work; they can only receive these permits (and proceed with construction) after they have shown they are complying with the conditions set out in the rules. In 1997, the rules also began addressing water quality, and well as water quantity, and have been amended a few times since then to be more efficient and user-friendly (“Water Management Plan”, 2019).

The improved regulations that the NMCWD developed during construction and redevelopment have often gained improved water quality benefits from parcels that were constructed before the NMCWD rules were created (“Memorandum”, 2018). The NMCWD also monitors water quality, and implements improvement projects to repair damage and prevent damage in the future, such as the Edina Streambank Stabilization Project.

NMCWD fifth generation Water Management Plan. With climate change creating more intense rainstorms, the NMCWD now has combined both of these areas of focus into a hybrid of reducing flooding from heavier rainfall, while still working to improve water quality. This goal has been illustrated in the completion of the NMCWD's fifth generation water management plan in 2017 and amended in 2019. In this document, the goals and priorities for the District are laid out the next ten years (from 2017 to 2027). These goals and priorities guide the selection of water quality improvement projects, and other District activities.

The goals and activities of the NMCWD listed in the fifth generation Water Management Plan are varied and far-reaching. The Plan calls for the NMCWD to manage stormwater, to reduce the impact that increasing urban runoff has on bodies of water downstream. In conjunction with this goal, the NMCWD is charged with managing surface water quality of the lakes and streams in the watershed, as well as the water quality of the wetlands and groundwater resources. The NMCWD also acknowledges the part that recreation has on increasing citizen engagement, there is a goal to improve and promote recreational uses of the Districts open spaces and water resources. Proper land use planning is also a goal of the current Water Management Plan, which continues the NMCWD's legacy of forward thinking land use decisions ("Water Management Plan", 2007). Climate change adaptation and flood management are two major goals of the fifth generation plan.

The final goals in the ten year Water Management Plan are efficient organizational management and effective education and outreach ("Water Management

Plan", 2019). This education and outreach plan that I created for my capstone project helps meet these last two goals, by helping the education program be as efficiently managed and effectively implemented as possible. The NMCWD employs four full-time staff, two of whom make up the education and outreach program. It is important for the staff to prioritize their efforts to make sure that the program is most effectively meeting all the goals of the Water Management Plan, and also to ensure that all programs are as engaging and informative as possible. Therefore, I decided to create an education and outreach plan as a guide for current and future education staff.

Summary. Watershed districts are local government organizations in Minnesota that work to protect and manage the water resources within their watershed boundary. They help mitigate flood damages through careful planning and regulation, and they complete projects to improve water quality. The NMCWD operates in the southwest metro of the Twin Cities, within a watershed of about 50 square miles. Watershed districts, including the NMCWD are required to have a Water Management Plan, a guiding document that lists goals and priorities, which must be updated every ten years. In the ten year plan for the NMCWD, there are numerous education goals, as well as water quality improvement goals. In the next section, education plans from watershed districts are examined to show what plans exist in the field of watershed education, and what constitutes an effective plan.

Education and Outreach Plans

Education and Outreach (E&O) plans are necessary to aid in prioritization efforts to make the best use of staff time and education resources (Beckman, 2009). In the end,

the goal of E&O programs (including that of the NMCWD) is to change behavior and promote positive environmental stewardship behaviors (Beckman, 2009). By encouraging these behaviors, educators can involve everybody in environmental protection, not leaving the task to governmental agencies. This starts with a good lesson plan that is flexible and age appropriate.

Lesson plans and outreach campaigns. Well-constructed education and outreach plans can facilitate the creation of effective education programs. They also help accomplish the goals of the organization. I found examples of this when I developed lesson plans at the Lorado Taft Field Campus in Illinois. Education staff were given general guidelines and goals to follow when creating their programs, and allowed the freedom to choose activities to best meet those goals.

Often, E&O programs or campaigns accompany large projects done by government agencies like watershed districts in order to have greater buy-in from their constituents, and ultimately a more successful project. Therefore, education and outreach allow water management organizations to meet their water quality goals (US EPA, 2010).

Not only can education plans help meet water quality goals, but they can help create goodwill and buy-in from residents and citizens around where projects are happening. In Washington and Idaho, a major project was underway to model different scenarios to reduce pumping of groundwater in the Palouse basin (King, 2019). This area had been subject to major pumping and use of groundwater, and was in danger of being overused. An extensive public outreach campaign was initiated to present the various scenarios and reports to the public, and receive their feedback (King, 2019). This

presentation also served to build trust in the community towards the ones doing the modelling, and to prepare the public for potential changes in groundwater use in the future.

Another example of education plans helping achieve water quality goals in tandem with a large project is the NMCWD's recent implementation of the Normandale Lake Water Quality Improvement Project. The NMCWD education team created an internal plan to map out avenues of outreach that coincided with major milestones in the project timeline. Specific audiences were identified, and messages crafted to empower these audiences to take actions to improve water quality, alongside the project components.

Many plans include partnership as a key component. Hennepin County's Strategic Plan relies on collaboration with partners and volunteers to carry out its goals of environmental stewardship (Natural Resources Strategic Plan, 2016). The NMCWD also requires partnerships to carry out its education and outreach, and so must include a section on the role of partners in the NMCWD plan implementation. Part of the partnership aspect is including volunteers. Watershed District volunteers are often members of the community receiving education, and can help direct the best way to educate their fellow community members (Riley Purgatory Bluff Creek Watershed District, 2018).

WD Education Plans. Plans are helpful at many different stages of the development of an education and outreach program. Capitol Region Watershed District (CRWD) developed an E&O plan near the beginning of their education department. This

plan development at this stage helped guide the prioritization of their outreach efforts (Beckman, 2009). Contrasting this with the Riley Purgatory Bluff Creek Watershed District (RPBCWD), which already had a well developed E&O program, is that their plan provides more of a maintenance and improvement aspect, rather than building a program from scratch. The RPBCWD recently updated their overall ten year Water Management Plan (2018). While they still must prioritize their efforts to make the best use of available resources and money, their needs are much different from the original CRWD plan. E&O plans in a pre-existing program help to refine areas of focus for the program each year, allowing the organization to take a deeper dive into one area each year; over time, each area of need for education receives an in-depth dedication of resources (RPBCWD, 2018). Both of these plans have formed the framework for my education and outreach plan. They include many important pieces that the NMCWD plan should also include.

The purpose of an education and outreach plan for the NMCWD is to help meet the goals of the ten year Water Management Plan. This is a guiding document that lays out these goals: expanding the education and outreach program, especially at the NMCWD headquarters, Discovery Point; maintaining and expanding partnerships; tracking outcomes; and increasing public participation and communication ("Water Management Plan", 2019, p 4-29). The creation of an Education and Outreach Plan is considered a high priority for the NMCWD; "the Education and Outreach Plan [will consider] target audiences, emerging issues and topics, communication methods, and available resources in outlining strategies to best accomplish the District's educational

goals" ("Water Management Plan", 2019, p 6-17). This provides the rationale for the creation of the Education and Outreach Plan for the NMCWD.

Summary. Education and outreach plans help prioritize and guide efforts. A few watershed districts already have distinct education plans that support their overall goals. The watershed districts with active education plans have used them to build an education program when the District was first formed as a roadmap; others have used them to refine and focus an already existing education program to better allocate resources.

Conclusion

Environmental education is a necessity in any country; it helps people find a connection to the natural world around them. The field has undergone many changes, including the development of professional training and certification. Many organizations are now hiring environmental educators, and incorporating environmental education into their programs and work plans.

Watershed districts are also making use of environmental education to meet their water quality goals for the water bodies in their areas, such as the Normandale Lake Water Quality Improvement Project outreach mentioned earlier. The Nine Mile Creek Watershed District's goals are laid out in the ten year Water Management Plan. My research question is, *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?* Education and outreach are two of the strategies used to accomplish those goals. To better meet all the goals listed in this larger plan, an outreach plan is necessary. Many other watershed districts have used E&O plans to more effectively focus

and target their outreach efforts. Some have used these plans as a guide to prioritize messages; others have used them to better allocate limited resources.

In the next chapter, I detail the two year education and outreach plan for the NMCWD. It analyzed the setting and demographics of the main audiences the NMCWD works with. In the plan, the main messages were also identified. The plan also includes a way to assess its effectiveness as well as a method for easily updating it, in order to keep it relevant with the changing needs of the NMCWD.

CHAPTER THREE

Project Description

Introduction

This chapter will explore the full description of the Education and Outreach (E&O) Plan for the Nine Mile Creek Watershed District (NMCWD). It answers the question, *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?* This chapter will explore the setting and demographics of where the education and outreach plan will take place. The intended audience of the E&O Plan, as well as who will participate in implementing it will also be described. Finally, this chapter illustrates a method for evaluating and updating the E&O Plan.

As a local unit of government in Minnesota, the NMCWD is charged with protecting and managing the water resources within its boundaries. The NMCWD oversees about 50 square miles, and contains parts of the cities of Bloomington, Richfield, Edina, Hopkins, Minnetonka, and Eden Prairie. It is guided by a Board of Managers and a ten year Water Management Plan, which sets the goals and focus areas for the District for ten years. Education and outreach are two of the main tools used to help the NMCWD accomplish the goals laid out in this plan. It is very important that the staff of the NMCWD use time and resources wisely to accomplish its goals. Therefore, I created an Education and Outreach Plan to help prioritize messaging and resources.

Overview of Project

As a local unit of government, the NMCWD creates a Water Management Plan every ten years to prioritize projects and set goals for water quality. The goal of my project was to more effectively help the NMCWD meet those goals through education and outreach.

This project was based on and inspired by education and outreach plans from other watershed districts, including Capitol Region Watershed District (2009) and Riley Purgatory Bluff Creek Watershed District (2018). These plans formed the guiding framework for the completion of the NMCWD Education Plan. With limited amounts of staff, funding, and materials, it was important to prioritize outreach strategies to have the most impact. These plans helped the staff identify areas and specific messages to focus on, as well as identifying the best strategies to relate those messages.

The plan for the NMCWD included an analysis of the various audiences we work with and prioritized which ones to direct our messaging towards. This was done through a variety of methods, including utilizing data gathered from past volunteer focus groups and staff meetings. All of the data used to inform this project was collected and analyzed by NMCWD staff, separate from this research paper, and made available for analysis. The data gathered was also used in the past to inform the creation of the ten year Water Management Plan, the document that guides the overall goals of the NMCWD. Much of this input was gathered using Art of Hosting techniques for facilitating productive conversations (Art of Hosting, n.d.). The NMCWD also uses the core values listed in the International Association for Public Participation (IAP2). This organization provides

guidance on how to involve the public in decision making, to increase trust and engagement (IAP2, n.d.). They provide a spectrum of engagement, wherein organizations can provide increasing amounts of opportunities as they move along the spectrum. NMCWD staff strives to move towards the collaborate and empower end of the IAP2 spectrum, so that we can not only keep them informed about decisions that affect them, but also to make sure that their concerns are heard and addressed. Therefore, it was important to involve these different voices in the creation of the education plan. In involving the public in the creation of this plan, I was able to identify a few key audience groups.

Next in the E&O Plan is described the goals and strategies laid out in the Water Management Plan. These goals are very general in order to provide enough flexibility to accommodate changing needs and information. The goals section in the E&O Plan describes these goals, as pertaining to the Education and Outreach Program.

The E&O Plan outlines the key audiences that the NMCWD works with on a regular basis. These audiences are varied, and while the NMCWD will strive to craft messaging for each audience, some will need more resources dedicated to them. The priority audiences are also identified, based on previously collected data, and input from staff.

The methods that the NMCWD uses to reach the audiences are also described. These methods include print materials, digital materials, and programs to name a few. Previous data gathered by the NMCWD guided the prioritization of specific methods over others in purveying information.

The plan identified key messages or topics. Topics were also distilled from the NMCWD ten year Water Management Plan. These topics functioned as guides, or checks, for programs to ensure that each program was accomplishing the goals of the NMCWD. The topics also functioned to identify areas and goals of the Water Management Plan that were not being accomplished by current programming. Some topics were highlighted as most important in feedback gathered from constituents during the update process for the overall ten year Water Management Plan. Some of these topics included stormwater, climate change, sustainability, and habitat restoration.

This process used existing feedback and data gathered during previous meetings with the public. In creating the current ten-year water management plan, NMCWD staff asked for input from the community on what issues concerned them most. All of the concerns were collected into a visual called a word cloud. This visual is included in Appendix A.

The E&O plan incorporated methods for implementation of the identified themes and messages. The NMCWD presents many programs each year, and partners on many more. The NMCWD also uses many different types of media and formats for distributing its messaging. The E&O plan helped prioritize and customize the messaging best suited for each format.

Finally, I developed a section on evaluation and refinement. The programs and messaging should have some way to evaluate their effectiveness, so that they can also be adapted to better meet the constituents needs in the future. This plan was meant to be a

living document, changing with the changing needs of the NMCWD. It also included a section on how future modification should take place.

Rationale

This project was necessary in order to help meet the goals of the NMCWD fifth generation Water Management Plan. Among the goals laid out in this plan were efficient organizational management, and effective education and outreach. The education goals of the Water Management Plan were broad, so that the education program can be flexible and adapt to the changing needs of the community. A shorter term education plan was important to help prioritize areas of education and focus the efforts of staff.

This education and outreach plan was based on plans created by other Watershed Districts. The Capitol Region Watershed District (CRWD) created an Education and Outreach Plan to help guide the initial direction of their fledgling education program (Beckman, 2009). This plan helped the CRWD prioritize their education efforts, so they could develop their programs efficiently. The Riley Purgatory Bluff Creek Watershed District (RPBCWD) also created an Education and Outreach Plan to help focus their education efforts; this in an education program that was already developed, but needed more direction and focus (2018). The RPBCWD developed this plan in concert with their overall ten year Water Management Plan, with input from the public and their constituents to guide the focus areas within the Education Plan. These watershed district's plans were used as a framework to ensure that no important aspects of education were omitted.

Setting and Demographics

The setting of my project is the Nine Mile Creek Watershed District. It is a local government unit, operating in the cities of Bloomington, Richfield, Edina, Hopkins, Minnetonka, and Eden Prairie, Minnesota. We are a staff of four and governed by five Board Managers. Watershed Districts in Minnesota function under Statutes 103B and 103D to protect and manage water resources within their hydrologic boundaries (The Watershed Law, 1955). The NMCWD was formed in September 1959 to mitigate flood risk by managing water quantity. Over the past 60 years, the function of the NMCWD has changed to managing and improving water quality as its watershed has become more urbanized and full of impervious surfaces like roads and buildings. With the added challenge of climate change and new weather patterns, the goals of the NMCWD have evolved yet again in the 21st century into a mix of improving water quality and managing water quantity.

The NMCWD is guided by a ten year Water Management Plan; this document outlines the goals of the NMCWD projects for the next ten years. It also lays out broad goals for education and outreach, which have been expanded upon in this education and outreach plan.

Constituents of the NMCWD include not only the residents who live within the hydrologic boundaries of the watershed; they also include visitors to the District, city and county partners, as well as private and non-profit organizations and businesses within the boundaries. The NMCWD works with numerous volunteers of varying ages, who are mostly white, middle-class people.

Participants

The intended audience for this E&O plan was multifaceted; the plan itself was meant for education staff, and perhaps volunteers presenting programs. However, the ones benefiting from the plan and its implementation were our program participants. The audiences we typically work with are homeowners, families, and elementary aged students.

Staff and volunteers participated in the creation of this plan. They will also implement this plan, and work on updating it as needed in the future.

Assessment

This is a two year education plan, and as such, its effectiveness will be evaluated and updated every two years. This evaluation will be based on effectiveness of the programs, and how well they accomplished the goals of the Water Management Plan. Goals were set out at the beginning of the education plan, and the activities accomplished during the plan time frame will be analyzed for completeness through the lens of these goals. Staff and volunteers will share feedback on the relative success of the education program and how well it accomplished the goals laid out in the plan, but also how well it was able to help prioritize efforts. The education plan will then be updated to account for the changes that need to be made; it will also incorporate the latest information in education and in data collected on our water and natural resources.

Conclusion

The Nine Mile Creek Watershed District is a local unit of government that protects and preserves local water resources. This chapter was an in depth description of

the Education and Outreach Plan, developed in response to the question, *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?* The education program of the NMCWD supports the ten year Water Management Plan of the NMCWD, and helps the organization achieve its goals of improving water quality. The staff and volunteers of the NMCWD were a part of the creation of an education and outreach plan. This plan prioritized messages, identified key audience groups, and identified the best formats to send those messages. It will be mostly used as a guide for education staff, but District residents and visitors will be the audiences that receive the benefits of this plan. It was finished at the end of July 2019.

The education and outreach plan prioritized education goals and strategies from 2019 to 2021 initially. This shorter timeframe (compared to the larger, ten year Water Management Plan that guides the entire NMCWD) allowed this plan to be more detailed. The shorter timeframe also allowed for more adaptability; the education program will more easily be able to adapt to the changing needs of the community, and emerging research in outreach. The plan will be analyzed throughout the two years it is in place, and updated at the end of every two year period. The accomplishments of the education plan will be measured against the goals laid out in the plan, in order to assess how effective the plan was.

Chapter four reflects on the process used to develop the Education and Outreach Plan. It reviews the contributions of the many people who provided input for it, and also

reflects on how the plan could be adapted to future needs. Finally, Chapter four will list other projects that could be made as an offshoot from this project in the future.

CHAPTER FOUR

Conclusion

Introduction

This paper explores the research question, *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?*

This chapter will explain the major points I learned while completing this capstone project, and how I expanded my knowledge as a researcher, writer and learner. I will also highlight the pieces of literature that I found most impactful for the background of this project.

I will also describe the broader implications of this project for the NMCWD. As the Education and Outreach Plan (E&O Plan) has many implications for the redistribution of resources and staff time, it is important to look at how this project may impact the NMCWD. Decision makers and future staff should use this document when making a plan for education and outreach, so that programs and messaging can be most effective.

The major limitations that occurred during this project were mostly time related. I also encountered a lack of similar type education plans to use as a framework or guide.

In thinking ahead to other similar types of projects that could be done at the NMCWD, I know that we will be updating this Plan in 2021, as we evaluate its effectiveness. The Plan will be revised as necessary before then, to account for new information, and needs, but it will get a major revision every two years. However, other types of projects like this could include the creation of a Diversity and Inclusion Plan for

the NMCWD. This is to make sure that we are meeting the needs of everyone in our District, not just those who have historically come to our programs and been catered to in the environmental field for so long.

Finally, I will describe in this chapter how I plan to share this E&O Plan with others, both at the NMCWD, and with colleagues in my field. I will describe how this is beneficial to my profession, as it helps to define environmental education for watershed districts.

Major Learnings and Literature Review

During this process of researching and writing my capstone project, I learned many important aspects of my job, as well as the background behind why environmental education is important, and how the profession came to be. I learned about the status of Education and Outreach Plans among watershed districts, and why they are so important to good education programs.

Environmental education is a growing profession not only in Minnesota, but in the United States and beyond. Environmental education is also very much needed in society. One of the pieces of literature that was most important was the Minnesota report card on environmental literacy (Murphy and Olson, 2008). This study, sponsored by the Minnesota Pollution Control Agency, found that a majority of Americans (62%) only have an average level of knowledge about the environment (Murphy and Olson, 2008). While this is overall not as bad as it could be, this finding means that there is much more work for environmental educators to do. In order to be fully effective in this monumental

task, it is important to put plans and guidelines in place, such as in the creation of the Education and Outreach Plan for the NMCWD.

Listening to the public is very important to the NMCWD; this is something that came through as I looked over past public outreach campaigns. The NMCWD has always had an extensive history of encouraging dialogue between its staff and the public. Staff uses the IAP2 Spectrum of Engagement to more thoughtfully and intentionally include the public in major decisions (IAP2, n.d.). They work at listening to public feedback, and incorporating it into decisions. I relied on this data to inform the project, especially as to which topics and messages the public needed information about.

I also learned something I did not expect: that education and outreach plans are not as common as I had believed. I talked with many different watershed districts and nature centers, and there were fewer distinct education plans available than I had thought. This type of project will have great benefit on the environmental education field in watershed districts, in that it begins to make education plans the norm. I used two education plans as a guide and framework for this project, to make sure that I was in line with the existing documents out there (Riley Purgatory Bluff Creek Watershed District, 2018; Beckman, 2009). These plans were the most important part of the literature review for me; they helped show what the standard was among watershed districts, and what pieces should be a part of education plans of this nature.

Another important piece of the literature review was the NMCWD ten year Water Management Plan. This document outlines the goals of the NMCWD for the next ten years (2017 to 2027), and is the guiding document for our work and projects. It outlined

many different education goals, in a broad sense; it was helpful as a guide for my project to expand upon those goals and make them more specific. The Water Management Plan was broad on purpose to allow for flexibility in the education program and emerging information. The Education and Outreach Plan I created focused in on more details, as it is only intended to cover a two year time period, and will be evaluated frequently for accuracy and usefulness.

All of this reinforces the higher purpose of this project, which is to encourage kids and adults of all types to get outside, and take action to protect the environment. Richard Louv's work, *The Last Child in the Woods* also emphasizes this fact, and has informed the direction of my career as an environmental educator. (Louv, 2005).

Broader implications

The Education and Outreach Plan does have a few broader implications for the NMCWD and watershed education as well. It makes many suggestions about the allocation of resources among the education program. Thus, decision makers in the education program can make better choices about how to allocate staff time and materials directly as a result of this Plan. That was, in essence, the objective of creating this plan. Resources and staff time are already being called upon for many different, yet numerous pursuits, so focusing them was important. This way, the education staff at the NMCWD can be sure that they are fulfilling the educational needs of the audiences in their District.

However, the Board of Managers is the ultimate decision making body for the NMCWD. This group of 5 people set overall policies and goals for the direction of the

NMCWD. While they do not oversee day-to-day operations, they are also responsible for decisions to allocate resources (such as approving budgets).

Communicating Results and the E&O Plan

The major decision makers were all presented with this project during the summer of 2019. I worked very closely with the Education staff to make sure the Education Plan met their needs. I then presented it to the Program Manager, as well as the Board President and Citizens Advisory Committee Chair.

Though this Plan will mainly be used as an internal document to help staff prioritize education efforts, it has also been shared with the general public. The NMCWD does its work at the behest of the public as a government entity, so we want to be sure the public can see their own interests and needs reflected in our guiding documents. This Plan was shared with the public in a number of ways. It was published on our website, as well as shared through social media platforms. This way, it could be made available to everyone.

Benefits of the E&O Plan

Not only was this E&O Plan made available for the public to review, it was also available for others involved in watershed education to access and review. This included educators and decision makers from other watershed districts, as well as environmental educators at other institutions. Other watershed educators can use this as a model for their own Education Plans.

As creating and using plans for education becomes the norm, watershed education on a whole will increase in quality. Having a plan in place means that educators can meet

not only their goals, but the public's goals in terms of information dissemination. This also ensures that resources are used properly, and inefficiencies in spending and time can be eliminated.

Lastly, this Plan was meant to be re-evaluated and updated periodically. That means that if new information becomes available, or we discover a need for another type of program from our public, the Plan can be updated to reflect that. It was meant to be thoroughly assessed every two years, but it will also be updated every 10 years when the Water Management Plan comes up for revision.

Limitations

A limitation of the Plan itself was that it could not provide a framework for every audience, nor every message. The NMCWD works on many different types of messaging, which may not be included in the Plan. Therefore, it was a guideline or set of recommendations, but not necessarily a prescription to be followed to the exclusion of anything not listed.

The biggest limitation in creating this Plan was time. I was responsible for many of the day-to-day educational needs of the NMCWD, and it was more difficult than I expected to find the time for meta-analysis of the programs as I was presenting them. The education team at the NMCWD is quite small, and each of us perform many different tasks in addition to the ones in our titles.

The other limitation I encountered in creating this Plan was a lack of examples. There are not many Education Plans like this in use or developed at this point in time, and so it was difficult to find a framework or model to use. Many watershed districts

incorporate education goals into their ten year Water Management Plans, which is still helpful. However, they do not often have a discrete Education Plan. As noted earlier, I hope that this Plan alleviates this limitation for other educators in the future.

Something unexpected I encountered was that much of the data gathered by the NMCWD in the past, especially for the creation of the Water Management Plan, did not have as many questions on purely educational matters as I had thought. Many of the questions dealt with the concerns the respondents had about water, or issues they were experiences on water, but fewer questions on what they would like information on, or how they like to receive information.

Similar Future Projects

This process helped me realize how important plans are in making sure the NMCWD is as efficient as possible. I have also realized that often if you do not have a plan, it is easy to get caught up in the day-to-day activities, and never achieve the creation of the actual plan. There are a few other projects of this type that staff have thought about completing for a while, but have not had the time dedicated to them.

One of these is a Diversity and Inclusion Plan. This is another of those topics that needs dedicated time and energy spent on it, or it will not happen on its own. Organizations must work to take deliberate steps towards inclusivity, and inviting underrepresented people into the organization. We also want to make sure that we are serving all of our constituents, not just homeowners, and not just white, middle class people. Other watershed districts have been making steps towards this goal, so I believe it is a very timely goal, and something worth doing. I also believe that the Education and

Outreach Plan can, in part, help to achieve this goal, by making sure we are meeting the educational needs of all our audiences.

Conclusion

In this chapter, I have reflected on my experience during this capstone process. I reviewed important pieces of the literature review that helped inform my capstone work and this paper. This included not only articles and research on the importance of environmental education, but also examples of education plans created by other watershed districts. I also reflected on the major things I learned during this process, namely, the importance of listening and engaging the public. I described the benefits of this Education Plan for the NMCWD, as well as the benefits to the profession of watershed education as a whole. Lastly, I discussed the limitations of this project, as well as future projects of a similar nature that could happen as a result of this project.

It has certainly been an interesting process, and one that has great benefit to my organization. I have enjoyed the chance to create a project that will be so helpful in so many ways, not just now, but into the future. I hope that through this project, and through my work as an environmental educator, I can inspire many people to find their own connection with nature; through that connection, I hope that together, we can protect, preserve, and cherish this world we all share.

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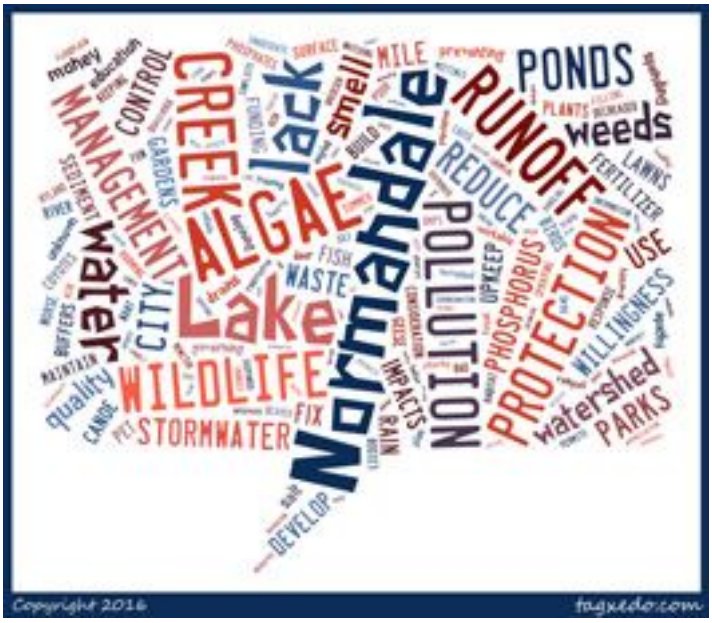
Appendix A

Word Cloud of Community Input



The NMCWD hosted a Community Input Forum in May of 2016 to community members an opportunity to discuss issues that mattered to them. The NMCWD compiled all this feedback into the word cloud shown above. Community feedback was then incorporated into the fifth generation Water Management Plan.