Recommendation Report for Regional Freshwater Sources Webpage

Prepared for:

Dr. Kate Crane, Assistant Professor in Technical Communication at EWU

Erik Budsberg, Sustainability Coordinator at EWU

Prepared by:

Anna Pearsall, Technical Communication Student at EWU
February 2021

TCOM 300 Writing for the Professions

Abstract

The purpose of this report is to recommend what information should be included in the Regional Freshwater Sources webpage. The webpage will be located on Eastern Washington University (EWU)'s sustainability website. The webpage will be for current and potential students of EWU, as well as faculty, who want to know about freshwater sources in relation to EWU.

For the purpose of this report, I gathered research for the webpage using both primary and secondary sources. From the research, I drew four major findings. I examined and explained these findings in detail, then discussed how they are relevant to the webpage. These findings led the way to my five recommendations for information to include on the webpage. I recommend the Regional Freshwater Sources webpage contain information about what the regional water situation is like, how EWU is approaching water conservation, dangerous contaminants to look out for, and finally, how students can do their part at conserving our regional freshwater sources.

Table of Contents

Introduction **1**

Methodology **1**

Secondary Research 1
Primary Research 2
Interview Process 3

Results **3**

The Regional Freshwater Situation 3
How EWU Approaches Water Conservation 4
Dangers of Contaminants 5
Aiding Water Conservation on an Individual Level 5

Discussion of Results **6**

The Regional Freshwater Situation 6
How EWU Approaches Water Conservation 6
Dangers of Contaminants 6
Aiding Water Conservation on an Individual Level 6

Recommendations and Conclusions **7**

References **8**

Appendix A: Interview Questions **9**

Interview Questions—Dr. Chad Pritchard 9
Interview Questions—Jim Butler 9

Appendix B: Interview Request Emails **10**

Interview Request—Dr. Chad Pritchard 10
Interview Request—Jim Butler 11

Introduction

The purpose of this report is to recommend what information should be included in the Regional Freshwater Sources webpage. The webpage will focus on freshwater sources in the context of sustainability. Regional Freshwater Sources webpage will be an important addition to EWU's Sustainability website, as they don't have information regarding this topic currently. The intended audience, who are current and potential students at EWU, as well as interested faculty, will learn from this webpage what they need to know about water conservation.

I conducted research based on my main research question: what information will be most relevant and effective to include on the Regional Freshwater Sources webpage? The research revealed four major findings, those of which are explained and discussed in the Results and Discussion of Results section. These findings paved the way to my recommendations on what to include in the webpage. The five recommendations are as follows:

- Regional information to provide context to the freshwater situation
- Information about how EWU approaches water conservation
- Potential dangers to freshwater supply to watch out for
- Tips for how students can incorporate water conservation into their daily lives
- Further resources for more information

This report will contain the methodology used to conduct necessary research, the results found in the research, a discussion of the relevance of these results, and my recommendations for the webpage.

Methodology

For the purpose of this assignment, I gathered research for the webpage in two different ways. I used both primary and secondary sources. First, I conducted secondary research. This included looking at the City of Cheney's Water page on their website, looking at Cheney's water conservation plan in effect, and researching the local groundwater conditions. After I found this type of background information, I looked at ways to conserve water at home, as well as what to do with household hazardous waste.

After I had built a solid foundation of information I needed for my webpage, I looked for gaps in which I needed more information. I wanted to hear from an expert what the current groundwater levels were in Eastern Washington, and some of the difficulties of conserving water on a large scale. For this information, I reached out to Dr. Chad Pritchard, who has experience with groundwater hydrology, along with groundwater mapping of the Inland Northwest.

After I found Dr. Pritchard, I still had some questions. How does Eastern approach water conservation? What resources are there for students of EWU to turn to for this subject? After asking Erik Budsberg, he pointed me to the direction of Jim Butler, who is the head plumber and water manager at EWU. While Dr. Pritchard is a faculty expert, Mr. Butler was a facilities expert who had the information I needed.

Secondary Research

I first started my preliminary research by looking for information existing on water conservation in the area of Eastern Washington. The City of Cheney's government website had the information I needed, and

also pointed me in the direction of their Water Conservation Plan. This document outlined the major steps and goals Cheney had in maintaining and conserving their freshwater.

Now that I had detailed information about the local area, I wanted to spread out to learn about the general situation of groundwater levels. Dr. Pritchard pointed me in the direction of a recent scientific paper he contributed to, published in 2020. This paper contained information about the uniqueness of the aquifer in the Spokane area, as well as the difficulties we face in maintaining the natural aquifer.

Although Dr. Pritchard's paper contained very useful information, the paper itself was quite hard to read for me, as I am not a geologist. I looked for a reliable source which could help me define some of the terms I needed to know. I found a glossary of geologic terms, located on a .gov website, that was part of the National Soil Survey Handbook. This in-depth glossary contained the definitions I needed to continue with my research.

Because I wanted to include information about how students could do their part in water conservation, I needed to figure out what is suggested to do in homes. I found an article from Forbes Magazine that included different ways to conserve water in your home. I read the article and figured out which of these "tips" would be most relevant to college students.

This was the extent of my secondary research. I had found the necessary information that I had in mind for my webpage, at least all that I could locate through secondary research. While this stage proved difficult, due to scientific terms and language, I worked around it. I took extensive notes from these documents, which are covered and incorporated in the Results section below.

Primary Research

I knew that secondary research could only get me so far. As prompted by Dr. Crane and Erik Budsberg, I searched for an expert whom I could interview. At first, I was planning on conducting one interview. However, I discovered that for the purpose of this webpage, it would be more fitting to look for two different experts that specialized in the different information I still needed.

I wanted to find an expert who specialized in the scientific side of groundwater. Preferably, I wanted to find someone who worked at EWU to interview. Through EWU's expert directory, which I learned about through Ieleen Miller, our class librarian, I searched for the term groundwater. Dr. Pritchard was the name that popped up. After further investigation, I discovered that not only did he have experience in groundwater hydrology, but he also participated in a groundwater study of the Inland Northwest. That paper provided valuable information and became one of my main secondary sources. After confirming with Erik Budsberg that Dr. Pritchard was a good source for me to interview, I went ahead with the interview process, detailed below.

Next, I looked for a facilities expert. Erik Budsberg recommended Jim Butler, who, as I mentioned, is the head plumber and water manager at EWU. After determining that interview Mr. Butler would help my webpage research, I went forward with the interview process with Mr. Butler as well.

Aside from the technicalities of arranging the interviews, detailed below, I went to work drafting the interview questions. I knew that I wanted the interviews to be loosely structured, so I would obtain the information I was looking for. I settled on questions that were semi-specific, yet still open-ended to aid conversation. The interview questions can be found in Appendix A.

Interview Process

After obtaining the contact information from EWU's site, I drafted two emails that requested interviews with the both of them. Dr. Crane looked them over and suggested a few changes. I met with her over Zoom to gather more in-depth information about the direction of this webpage. I was focusing on the effects EWU has on the local water levels, instead of looking for more general information about the local groundwater situation. After that was cleared up, I revised the emails and sent them off to Dr. Pritchard and Mr. Butler. Copies of these emails can be found in Appendix B.

Dr. Pritchard agreed to meet with me over Zoom, and we arranged a meeting. During the meeting, I wanted to focus on the interview itself, without worrying about notes. If I had a recording, then I could transcribe the notes at a later time, while still being fully present for Dr. Pritchard. I filled out an Interview Consent form, provided by Dr. Crane. I obtained both Dr. Crane and Dr. Pritchard's signatures.

During the interview, I used active listening to hear what Dr. Pritchard was saying, and asked him to clarify any areas of confusion I had. I adapted my questions slightly to accommodate our conversation. I recorded the interview, and after went back to take notes. The answers to my questions are covered and incorporated in the results section below.

Jim Butler preferred to meet in person. We set up a time and date to meet. Since I live in a rural area about an hour away from campus, and don't have a driver's license, I needed to arrange transportation. I got my brother to drive to a nearby park n ride, where I then took a public bus to Eastern. This was the normal routine for me before last year, so it was a familiar process. I met with Mr. Butler in his office. I obtained his permission to record, which I did with an app on my phone. After the interview, as with the first one, I listened back and took notes. The questions changed slightly due to my active listening. The answers are covered in the results section.

Results

Throughout my research, I found several major findings. I consolidated these into four topics: the regional freshwater situation, EWU's approach to water conservation, danger of contaminants, and aiding water conservation on an individual level. These findings are described in detail below.

The Regional Freshwater Situation

Spokane County and the surrounding eastern Washington area retrieves its water from the Spokane Valley Rathdrum Prairie aquifer (SVRP). This aquifer is quite large, and the gravel from glacial outbursts contributes to its large capacity (Pritchard, et. al., 2020).

Because many people think Spokane County is well off because of the SVRP aquifer, they don't see water conservation as a big issue. However, the population in eastern Washington is steadily increasing. More and more buildings are going up, and that aquifer is being drained faster than it is being replenished (Pritchard et. al., 2020). The aquifer is feeding not only Spokane County, but also Airway Heights, Medical Lake, and soon to be Four Lakes. Right now Spokane Country has enough water, but that won't be the case forever. It is not an unlimited resource.

Despite the issue of a growing population and decreasing water levels, Spokane County is more on top of water conservation than other counties. They have a Spokane Stormwater Regional Manual and a Critical

Areas Ordinance that manage the aquifer and any contaminations. Farmers are generally more aware of water conservation, because it helps their land and affects their profits in the long run. Spokane County is also on top of reusing wastewater.

Focusing in a bit narrower, the City of Cheney addresses water conservation through their Water Conservation plan. This plan outlines "Short-term water conservation strategies aimed at changing the culture of water conservation" and "Long-term water supply strategies aimed at identifying and implementing sustainable water supply technologies such as water reuse and aquifer storage and recovery" (City of Cheney, 2018). Their website also provides information about the City's wells, water storage, and a plan that's called into effect during peak irrigation system (City of Cheney, 2021).

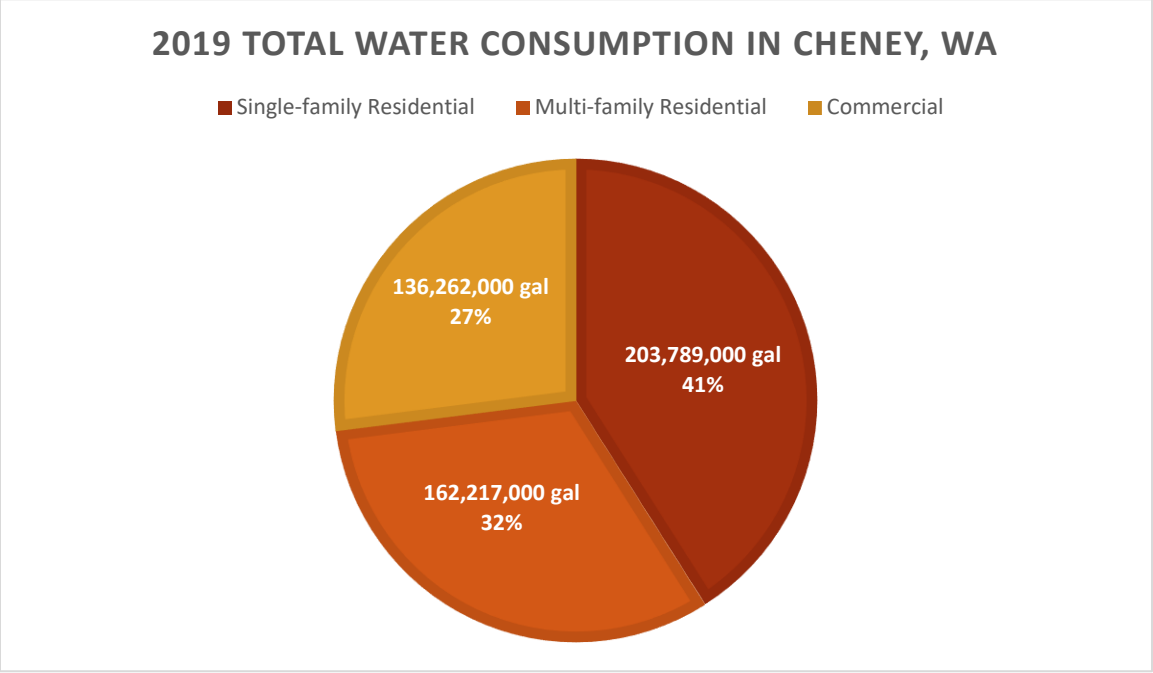

Chart depicting Cheney's total water consumption and distribution between customer class (City of Cheney, 2018)

EWU's Approach to Water Conservation

EWU does what it can to engage students in water conservation. However, the major difficulty is in getting people to care. Most of EWU students aren't planning on living at EWU or in Cheney long-term. In order to combat this, the dorms started a challenge where every month, they would read the month's worth of utilities. The different dorms would have a competition on which one would perform the best, and each month they tried to achieve better numbers. Because of Covid, this was put on hold, however.

On Neighbor Day and Earth Day, there is a table set up in the Mall that hands out free water bottles and information about water conservation. They have a water station set up right there. Students can learn about their part in EWU's water conservation.

EWU's water system is also geared with the sustainability of water in mind. The City of Cheney and EWU are two separate water systems. However, they set up an intertie between the two systems, in case one of them needs assistance. The system is automatic, so whenever there is low enough pressure it opens

and allows the needed water to flow from one system to another. This intertie provides a back-up option for both Cheney and EWU in case something goes wrong with one of the systems.

The information from this finding was provided through my interview with Jim Butler.

Danger of Contaminants

Everyone should be very aware of how they handle hazardous materials. Even something like changing your oil can lead to contaminated groundwater. The SVRP aquifer is near the surface. The stretch of I-90 between Rathdrum and Spokane is right next to the aquifer. Anything that is spilled out there goes straight into the aquifer, which everyone drinks out of. Overall, students should be aware of how they dispose of chemicals and other harmful contaminants. Pouring them down the drain or just throwing them away is not a safe method.

For batteries, household or automobile, and used motor oil, students can dispose of these at Cheney's recycling center (City of Cheney, 2021). The recycling center does not except household hazardous waste, however. "Household hazardous waste includes household items that usually carry words like caution, warning, danger, corrosive, poison, flammable, combustible, and explosive" (Spokane County, 2021). These can be disposed of at any of the three Spokane County Transfer Stations on Saturdays and Sundays.

While it may seem like a hassle, these materials can easily find their way into the SVRP aquifer, contaminating our drinking water. Students should know about the severity of dangerous contaminants.

Aiding Water Conservation on an Individual Level

This is all important information to know, but how can students contribute? What are tangible changes that they can do to help water conservation? There are many different actions to take that add up to gallons of water saved every day.

A major action to take would be not letting faucets run continuously, no matter what you're doing. Brushing your teeth, shaving, or even doing the dishes while leaving the water running wastes gallons (Crotta, 2015). If you are mindful of when you leave the faucets run, you can work to limit this to save water.

Another action would be to utilize every drop (Crotta, 2015). Learning how to repurpose your water can take some time, but in the end can have a big difference. When rinsing fruits and vegetables, save the water and use it to water your plants. While running water to wait for the hot water, save that extra water too. If you keep a container near each of your sinks, it is always reachable and ready to use.

Only running the dishwasher or washing machine if you have a full load is another way to aid water conservation (Crotta, 2015). This might not seem like a lot, but it can make a big difference in how many loads you do. Even if you only save a couple loads a week, this saves gallons of water. The dishwasher tip might not be applicable to students living in dorms, but the washing machine tip is.

Taking shorter showers is another small change that can have a big impact (Crotta, 2015). The more efficient you are in the shower, the greater the effect is in the end. Shower faucets use gallons of water per minute. These basic differences are something that students can apply to their lives, whether they live in the dorms or in their own apartments off campus.

Discussion of Results

In this section, I will look at each of the major findings from my research, and say my thoughts on how this is relevant information for the Regional Freshwater Sources page, as well as why I think the information is important. In the webpage, the information will be arranged in a way that emphasizes the most relevant, and this section will help determine this.

The Regional Freshwater Situation

This information is necessary to give background context on why students should care about water conservation. Without the proper context, the webpage will not seem to matter. However, I do not want to dwell on the big picture for the purposes of this webpage. A short section that explains the situation, and why we should care about water conservation even with a large aquifer, will be all that's necessary for the webpage.

I think a brief description of Cheney's water conservation will also be important to include. Many students live on Cheney, not on campus, so this will pertain to them. I can include links to the City of Cheney website for more information.

EWU's Approach to Water Conservation

This information will be useful to potential and current students of EWU, and will be essential to the webpage. Because this is located on EWU's sustainability site, it is necessary to describe how EWU approaches water conservation before describing what students will do.

If students see that EWU cares about and works towards water conservation, they will feel more inclined to care also.

Danger of Contaminants

This topic, while important in general, might not be as relevant to college students. For example, how many college students, if they even own a car, change their own oil? However, this topic is important to know about. I would like to address this matter, and provide links to further resources. After the student reads the webpage, if they need to dispose of any hazardous waste in the future, hopefully they will remember that there are steps to take to dispose of the waste, and they can't just dump it out.

How to Aid Water Conservation on an Individual Level

This will be an essential part of the webpage. There are many tips out there on water conservation, but I've included ones that pertain to college students. For example, buying new energy and water efficient toilets, dishwashers, and washing machines isn't quite feasible. Neither is regulating irrigation for your garden and lawn. However, actions such as taking shorter showers and repurposing water is something that college students can incorporate into their daily routine.

Recommendations and Conclusions

In this report, we looked at how I conducted research, explored my major findings of the research, and discussed how the major findings will be relevant to the Regional Freshwater Sources webpage. Listed below are my recommendations for what information to include on the webpage.

- Regional information to provide context to the freshwater situation
- Information on how EWU approaches water conservation
- What hazardous materials are and how to dispose of them
- How students can incorporate water conservation into their daily lives
- Further resources for more information

The Regional Freshwater Sources webpage, which will be located on EWU's Sustainability website, will be helpful to students who want to know about water conservation relating to EWU: what the regional water situation is like, how EWU is approaching water conservation of the freshwater sources, and finally, how they as students can do their part at conserving our regional freshwater sources. This information is not currently on the Sustainability site, so this webpage will be a useful addition.

Thank you for taking the time to read this report. Please let me know if you have any questions or comments at apearsall1@eagles.ewu.edu.

References

City of Cheney. (2018). *Water Conservation Plan.* https://www.cityofcheney.org/DocumentCenter/View/2373/Cheney-Water-Plan-Final---No-Appendices

City of Cheney. (2021). *Recycling Services*. https://www.cityofcheney.org/284/Recycling-Services

City of Cheney. (2021). *Water*. https://www.cityofcheney.org/207/Water

City of Cheney. (2021). *Water Conservation*. https://www.cityofcheney.org/413/Water-Conservation

Crotta, C. (2015). 11 ways to save water at home. *Forbes Magazine*. https://www.forbes.com/sites/houzz/2015/03/31/11-ways-to-save-water-at-home/?sh=437c6a4f166c

Pritchard, C.J., Gaylord, D.R., Adams, D.B., Ermst, S., & Hermanson, M. (2020). Role of quarternary glacial-outburst megaflood paleochannel deposits in a basalt-dominated aquifer system in the West Plains area of eastern Washinton, USA. *Hydrogeology Journal.*

Spokane County Solid Waste. (2021). *Household Hazardous Waste.* https://www.spokanecounty.org/4732/Household-Hazardous-Waste

Appendix A: Interview Questions

Interview Questions—Dr. Chad Pritchard

Why are water levels going down in the inland Northwest? Are there reasons other than human usage?

How pressing of an issue is the groundwater table in Eastern Washington? Compared to other parts of the northwest? How dire is it and what are the consequences if this problem isn't addressed?

What are some difficulties of water conservation on a large scale?

Can you take me through the process of creating your hydrogeology paper last year? From the research to the conclusions you drew?

Interview Questions—Jim Butler

How does EWU approach water conservation?

What are some difficulties of water conservation on a small scale? (from city-wide to homes)

Does the City of Cheney and EWU work together to report water usage and conservation? How does this system work?

What are some resources students can turn to in interest of water sustainability on campus?

Can you tell me about your campus water talk you give?

Appendix B: Interview Request Emails

Interview Request—Dr. Chad Pritchard

To: Dr. Chad Pritchard
CC: Dr. Kate Crane
BCC:
Subject: Interview Request on Local Freshwater Sources for TCOM Class Project

Dear Dr. Pritchard,

My name is Anna Pearsall, and I am a student at EWU. For my TCOM 300 "Writing for the Professions" class with Dr. Kate Crane, I am creating a webpage for EWU's sustainability site on regional freshwater sources. I'm writing this email to request an interview with you.

Part of this project is gathering primary research. I would like to interview you, Dr. Pritchard, as I see on the EWU site that you have experience in groundwater hydrology. During our interview, I would like to talk about your experience with large-scale groundwater projects in the inland northwest. How does EWU fit into the freshwater situation, on a regional and local scale?

Zoom would be my preferred interview medium, but if that doesn't work for you, let me know. I would like to schedule the interview sometime during February 15-17. I'm available all day on Monday the 15th, in the morning or afternoon on Tuesday the 16th, and all day Wednesday the 17th. If these times don't work for you, let me know and we can figure something else out.

I would like to thank you for reading and considering my request. I look forward to hearing from you about whether you will accept my interview request, and if so, when we can schedule it. Thank you for your time.

Sincerely,

Anna Pearsall
Undergraduate Junior Class Standing
Eastern Washington University
Technical Communications Student
E: apearsall1@eagles.ewu.edu
P: (509) 939-1876

Interview Request—Jim Butler

To: Jim Butler
CC: Dr. Kate Crane
BCC:
Subject: Interview Request on Freshwater Sustainability for TCOM Class Project

Dear Mr. Butler,

My name is Anna Pearsall, and I am a student at EWU. For my TCOM 300 class, Writing for the Professions, I am creating a webpage for EWU's sustainability site on regional freshwater sources. I'm writing this email to request an interview with you.

Part of this project is gathering primary research. I would like to interview you, Mr. Butler, as you are the head plumber and water manager for EWU. During our interview, I would like to talk about what EWU does for water sustainability on a daily basis. I also want to know more about the campus water talk you give, as I think information about this talk would be very helpful to include in this webpage.

Zoom would be my preferred interview medium, but if that doesn't work for you, let me know. I would like to schedule the interview sometime during February 15-17. I'm available all day on Monday the 15th, morning or afternoon on Tuesday the 16th, and all day Wednesday the 17th. If these times don't work for you, let me know and we can figure something else out.

I would like to thank you for reading and considering my request. I look forward to hearing from you about whether you will accept my interview request, and if so, when we can schedule it. Thank you for your time!

Sincerely,

Anna Pearsall
Undergraduate Junior Class Standing
Eastern Washington University
Technical Communications Student
E: apearsall1@eagles.ewu.edu
P: (509) 939-1876