

My final project for my Environmental Science and Policy Capstone course was to create an ecosystem-based Aquatic Ecosystem Restoration plan for the Missouri River. There were two separate parts to the plan, a team executive summary and an individual report that focuses on a specific ecosystem service. My individual report focused on fish, a provisioning ecosystem service. Although I was assigned the Missouri River, I was able to choose what I thought was an important ecosystem service to focus on. Since we chose our ecosystem services as a team, it was important that the ecosystem service I chose was both representative of the broader categories of ecosystem services and a critical resource in the region. In order to choose an appropriate service I had to thoroughly research our region and define the scope of the project.

To begin my research I started with the ENSP400 Research Guide, an online resource set up for our class through the library. Usually I would rely on a Google search, but a quick search made it clear that I was not going to find the depth of information or variety of sources that I wanted from a non-specific internet search. I also remembered the librarian who came in to speak in one of my other classes warning us not to rely on Google. So instead, I overviewed the suggested search strategies on the Research Guide and searched “Missouri River” and ecosystem on WorldCat UMD. I immediately found many different online and in-print resources relevant to my ecosystem. I really liked that I was able to sort the resources by format. I was able to start my research at home using online materials and then later was able to find in print sources while physically in the library. Overviewing these various sources helped me gain a general background on the ecosystem. Later when I was discussing initial research findings with my group, I was able to better understand the entire ecosystem, which helped me identify the most important ecosystem services. I personally chose to focus on fish since my background is in wildlife management and my research showed that fish were the most important wildlife species in that region. One difficulty in choosing this resource was that another group member chose to focus on recreational fishing as a cultural resource. We had to ask for guidance from Professor Goger on how to both separate our topics and cooperate with each other. This made our papers more difficult to write but also more integrative. Regular meetings with Professor Goger also helped me stay focused and better understand the overall goal of the final paper.

Although I have a background in wildlife management I know very little about aquatic species. My research on fish began with a ProQuest Environmental Science Collection search of “Missouri River” and fish and ecosystem services. Through this search I found an excellent journal article that overviewed the overall importance of fish in an ecosystem. I evaluated this source, and every other source that I used, based on the reputation of the author and publishing source, whether or not I found sources of bias, and the strength of any citations. In addition, I used peer-reviewed sources whenever possible. I was also able to use “Citation Chasing” in order to find additional relevant sources. One great thing about Citation Chasing was that I was introduced to sources that otherwise I would not have been aware of. For example, I found a United States Environmental Protection Agency Guide to

Engaging Stakeholders that helped me determine the overall framework of the adaptive management portion of my plan.

One of the major difficulties I had in writing this paper was that there was an overall lack of research on the fish in the Missouri River. Since I really wanted to better understand specific facets of the region I had to interpolate some data. After some guidance from Professor Goger I was able to apply data from the Mississippi River, a similar aquatic ecosystem, to the Missouri River. Another difficulty I had was that since we narrowed our scope to the Upper Missouri River some of the sources we found were not specific enough for our region. For example, in order to determine the tourist value of the fish I worked with another group member to combine several state surveys in order to find a good valuation estimate for our region. This type of research required a creative use of resources.

This research process taught me to not limit my research process to Google or familiar sources. By using different databases and "Citation Chasing" I was exposed to many different types of information. This allowed me to prepare a more integrative paper that used high-quality information from a variety of sources. For example, I was able to use a state's report on resident's attitudes towards wildlife to support my points. This type of source was not one I would have originally used but I saw how another source used it to guide their management decisions. The other great thing about this approach to research was that it eliminated the biased and poorly cited sources that you find with a standard internet search.

At the culmination of this project I realized how accessible and exhaustive the library resources are. I, like many students, was hesitant to use these valuable resources just because I was unfamiliar with them. With the new General Education requirements I think there should be a big push for students to learn about these resources early on so they are feel comfortable using them. I also think continuing to work with instructors to encourage giving assignments that require a variety of sources would help to push students towards library resources. Finally, I would love to see the expansion of science e-book collections. I believe these suggestions would aid students in understanding how library resources facilitate learning and synthesis.