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INTERVENTIONS

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from multiple perspectives within and beyond the academy.

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The cover image is of St. Anthony Falls Lock, closed in June 2015. Image courtesy River Life, University of Minnesota.

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Production Manager:
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University of Minnesota

Contact Us

Open Rivers
Institute for Advanced Study
University of Minnesota
Northrop
84 Church Street SE
Minneapolis, MN 55455

Telephone: (612) 626-5054
Fax: (612) 625-8583
E-mail: openrvrs@umn.edu
Web Site: <http://openrivers.umn.edu>

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TEACHING AND LEARNING

LEARNING WITH THE FLOW: MY JOURNEY AS A STUDENT WORKING IN THE “REAL WORLD” OF RESEARCH AND COMMUNICATION

By Maxyne Friesen

A major piece of Twin Cities news in summer 2015 was the closure of the St. Anthony Falls Lock on the Upper Mississippi. This garnered a lot of attention, and raised many questions from the community. At the time, I was taking

a full-time summer course load, and was more worried about drowning in my chemistry and philosophy homework than about local river news. But the following winter I got the opportunity to be part of a research team looking at this



Lithograph of Minneapolis, Minnesota, 1874, by Hoffman. Chas. Shober & Co., Proprietors of Chicago Lith. Co. via The David Rumsey Historical Map Collection.

very event. It might seem strange to take a job on a topic you know very little about, but I'm fairly certain that if you look at a thesaurus you'll see that student is synonymous with I'll do anything that pays and is even vaguely related to my major. Just trust me on this one.

I began working with a small team of undergraduate students in early January 2016. Our objective was to look at scientific data and communicate it to the public. In my time thus far as an Environmental Science and Policy student at the University of Minnesota, I had written countless research papers, read plenty of technical and scientific writing, and given many presentations. I felt prepared. I was confident and self-assured that in my three semesters at the U of M, I had exactly the skills needed to do the job.

Walking out of our first meeting, I was not so confident. The data had not all been collected yet, and the data that had been collected was not consolidated or ready for us to access yet. At the end of the semester there would be a series of presentations to the community, but we didn't know yet exactly what would be presented, or where, or to whom. We were setting out on a project whose end-point was not yet fully determined. As a student, this level of ambiguity was not something I was familiar with. I realized I was going to have to step out of my comfort zone to do this job well.

Our first hurdle was to figure out how to understand the river without data – in a less scientific way. The data was not ready for us to work with yet, so we took a step back and looked at the history of the Mississippi River. We explored how it has been managed through time, coming to understand that the line between a “natural” and a “managed” river has been blurred for a very long time. By the end of January, I had a gigabyte of PDFs and Word documents in a folder on my computer that I was working to familiarize myself with. At this time, we were starting to talk more concretely about who our audiences would be

at the end of the semester. We knew from the beginning that we would be talking about river management, but as a student, the answer to the question “Who is my audience?” is roughly the same for virtually every assignment. Being in meetings and discussions where we were deciding who the audience would be was very new to me. But because nothing was definite yet, it was challenging to know what information would be useful or important. There was no assignment sheet or checklist; there was no grading rubric or study guide. I learned how to work toward a goal that was not yet explicitly defined and still being developed.

In this first phase of my work, I learned how to develop my own system of tracking information and determining what I thought would be important for each potential audience. This kind of self-guided discovery is not something I could easily learn in a lecture hall. College classes do a great job of building a necessary base of knowledge. But skills like creating my own benchmarks and goals can only be developed through real work experience.

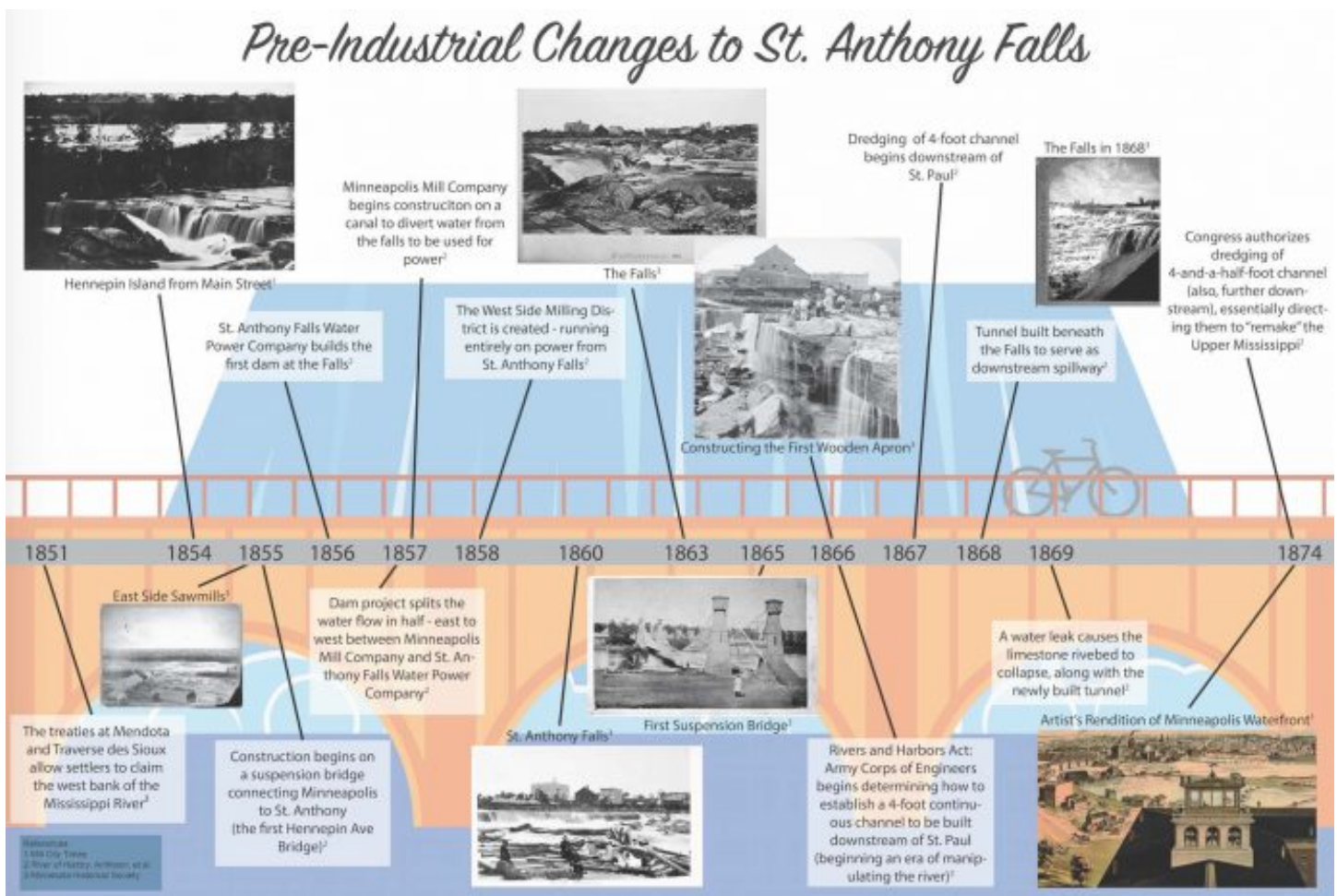
In the next phase of the project, when the research was ready for us to access, we came across our next hurdle. We were given raw spreadsheets of the scientists' data, with reference numbers, markers, and abbreviations we were entirely unfamiliar with. How do we take all of these spreadsheets and pull out useful information? We weren't there for the data collection, and we weren't biology students. We had taken some classes that covered topics like bathymetry or water chemistry broadly, but we were not experts in these areas. We quickly realized that the research we had been doing on familiarizing ourselves with the river's history and significance left a gap in the knowledge we needed. We had not yet explored the physical state of the river.

After a few days of looking up fish genus names and deciphering river mile markers, we began to notice that we were trying to get as familiar with

the data as the scientists who gathered it. We were trying to understand every aspect of every spreadsheet. This clearly was not going to work. So we formulated a new strategy – we would go back to the spreadsheets, and ask ourselves, “if I am a community member hearing about the closing of the St. Anthony lock, what information would I want to know?” This way, we gave ourselves our own direction, and our own assignment guidelines. Using these guidelines, we were able to make useful visual representations of the data for the team to use in our community presentations. All of our research, information-gathering, and data visualization boiled down to two 20-30 minute presentations. Each step of the process informed the next, and although every single piece of research wasn’t used, the process as a whole allowed me to be very informed on the

topic and ready to talk to the community about the river.

One of the most memorable moments of this whole experience was our last presentation, which took place at the Mill City Museum in Minneapolis. I took a lot of the information I had gathered throughout the semester, and distilled it down into a timeline of human interventions in the Mississippi River to share at the event. I got to bring my creativity, knowledge of the topic, and love for community engagement together and presented this on a poster to audience members. I had conversations with people who care deeply about the Mississippi River and the Twin Cities in general, and hear about how they connect to the river. I heard stories and perspectives from people I otherwise would not have had the chance



Pre-Industrial Changes to St. Anthony Falls by Maxyne Friesen.

Images via Minnesota Historical Society and the David Rumsey Historical Map Collection.

to interact with on a topic we all cared deeply about. It was a memorable evening in a beautiful location that brought an end my time on the research team.

Download the poster: [Pre-Industrial Changes to St. Anthony Falls by Maxyne Friesen \(2.3 MB\)](#)

The main theme of this issue is “intervention,” and I know this is primarily meant in the sense of literal interventions in the Mississippi River. But just as humans have intervened with the Mississippi throughout its history physically, in my time as a student worker with River Life I learned to constantly “intervene,” if you will,

in my own work. I learned to continuously ask myself and my teammates, “Is this the best way to do this?” or, “Should we be thinking about this differently?” Intervention in the sense of purposefully changing the current course of action is crucial in the world outside of the classroom where there are numerous changing variables. I had to learn this quickly in my time on the research team, and I know this will not only make me a stronger student, but will also aid in my success in future jobs or career endeavors. Plans change, people change, circumstances change, and only through work experience can we as students really learn to embrace them as part of a professional process.

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About the Author

Maxyne Friesen is a junior at the University of Minnesota studying both Environmental Science Policy and Management, and Computer Science. She is drawn to the intersection of sustainability and technology. She feels strongly that some of the most profound progress in this area comes from education, advocacy, and community conversations.