

US EPA ARCHIVE DOCUMENT

**GRO Summer Internship Final Report**  
**Detection of Watershed Improvement:**  
**Geo-Spatial Evaluation of Existing Implementation Projects**  
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This summer the purpose of my internship at EPA Region 4 Headquarters, Atlanta, GA, was to analyze Best Management Practices (BMP) and their possible effect on water quality. Working with my Project Advisor, Craig Hesterlee, Region 4's South Carolina Watershed Coordinator, we were able to accomplish this goal using a combination of field work, community outreach, and geospatial analysis. We visited multiple sites in Georgia and South Carolina that had impaired waters and were currently having BMPs installed or were being considered for BMPs. During these trips we tested streams for nutrients and pathogens. These data, combined with previously collected data and GIS tools, helped us analyze the water quality and identify any trends towards improvement. We also worked with local partners to promote continued monitoring of the area after we left. In addition to the field visits, we also used GIS and previously collected data to analyze if BMPs in other areas might have helped improve water quality.

The work I did during my internship fit into the mission of the Regional Office Water Division, which includes maintaining, enhancing, protecting, and restoring water resources. The mission also states that these goals should be accomplished through partnerships with other entities. Our projects took a watershed approach to improving water quality, be it through BMP installation, point source tracking, or establishment of baseline data. Our projects involved local government agencies and stakeholders to create onsite partnerships; our hope is that these groups would either continue the monitoring themselves or be part of community outreach projects to institute third party monitoring. Through increased watershed monitoring the EPA can have more up-to-date information, allowing the Agency to better protect or repair waters.

Throughout the summer we visited five sites in Atlanta and South Carolina. During these trips we were able to test streams and rivers for water quality with our qualitative test kits. On most of these trips we worked with other groups, such as SC Department of Health and Environmental Control and Department of Natural Resources, and University of South Carolina, Aiken. Because all of these sites are ongoing improvement projects, a final conclusion was not reached at any of these sites; instead, we were able to provide feedback to the local partners on the quality of the stream, which then reflected the progress of any BMPs being implemented. The feedback included summary reports of what the data showed, GIS maps with data and pictures included, and recommendations on what should be done next at the site. We were also able to form new partnerships during the summer. We have been successful in initiating third party monitoring in Aiken, SC; both USC Aiken and a local community group are in the process of establishing monitoring groups. Lastly, we were able to demonstrate our qualitative data test kits to other interns, the Regional enforcement section, and our local partners. Our hope is that they will then employ these kits to save time and resources.

There were some challenges I faced before we could achieve the above outcomes. The biggest challenge I faced was being flexible enough to juggle many projects at once. We would often be working on pre-planning for one or more site visits while completing a post-trip analysis at the same time. Additionally, we might be working on other projects unrelated to our trips but of equal importance. This meant that I had to be flexible in my work habits because any of these projects could suddenly need attention and other things would have to be temporarily pushed to

the side. Keeping track of all the projects we were working on was difficult at times. However, this forced me to become more flexible, organized, and self-directed to ensure that all tasks were completed.

To accomplish all of our goals I used both new skills and skills I already had. I had to learn all of the equipment in our test kits and how to teach others how to use them. This included knowing what the purpose of each was and why the parameters we were testing for were important. The focus on community outreach gave me insight into how to engage the public and ways to form connections and partnerships. I also added to skills I already had. My writing skills improved from the follow-up reports and summaries for each project; my GIS skills also improved and I was able to learn new products and ways to use the programs for analysis. The GIS skills will be useful immediately, as I am working for a professor during the fall semester making maps. I have also received feedback about how this is a skill that is becoming more in-demand for environmental fields. I have found that outreach skills are very important for many aspects of life; being able to form partnerships and connections can be useful in many lines of work because teamwork is often more efficient than working alone.

In addition to learning new skills, I have learned about my own interests and abilities. I realize that I am much more comfortable with individualized projects or small groups, but when needed I have the capability to work with others, be it working in a group to accomplish a goal, teaching monitoring or computer skills, or reaching out to form valuable partnerships. I can overcome my introverted nature and effectively work in larger groups. I have also realized that many skills I have acquired over the years can support my interest in protecting the environment, specifically water quality, even if those skills did not seem directly applicable when I first learned them, such as analysis using Excel and GIS tools.

After being exposed to the nature of the EPA, I have a new perspective on my academic and career interests. I am more comfortable with my decision to delay attending graduate school after hearing about the varied specialties of employees I met and how their degrees have helped with their career path. I have heard about their experiences and have decided that I need more work experience before committing myself to one field of study. In regard to prospective careers, this internship has shown me how environmental science and social science can combine in one career, which is something that interests me. I have also received advice from people I have met at the EPA on Federal internships and other options for me to consider.

Overall, I enjoyed my internship at the EPA. I am impressed by the Agency and the scope of the work it does. I have met some exceptionally talented and motivated people who were excellent mentors during my internship. The internship itself is an incredible opportunity that I do not think I could have had through other programs. I was able to do meaningful work that actually helped with ongoing projects; this is far superior to many internships that mainly involve making copies. If I were to give advice to future GRO interns I would tell them to be confident in their skills and to know how to use their strengths to their advantage. At the same time they should also be willing to learn new things and ask for help when needed. I found that talking with both employees and other interns about their career paths and current studies was helpful in thinking about my own future and what I wanted out of my career.