GIS5950 GIScience Capstone Final Report

By Kanesha Price (Summer 2008)

The experience that I was allotted at the Florida Department of Environmental Protection was one of great application and relevance to my transition into the work force. Since I have already begun my first career-track job, I can speak on the Capstone's importance to students as a bridge, linking the worlds of academia and the work force. While participating in the Capstone experience, I was able to gain an appreciation for the work that I had done during the fall and spring semester in the Florida State University's Department of Geography Applied Master's Program in Geographic Information Science (GISc). I felt very well prepared for the conceptual work that I was required to know at the Florida Department of Environmental Protection. There were, however, a few aspects of my position that I did not feel entirely prepared for during my internship. I am sure that my experience will not be similar to others in the program, but I would like to offer my experience to the program so that it may continue to grow and develop GIS professionals in the future.

It was great pleasure working for the Florida Department of Environmental Protection. Upon arriving to Tallahassee in 2004, I can remember staring down Blairstone Road thinking, "The Department of Environmental Protection is down there." I had a great desire to work for an organization whose sole purpose is to provide "More Protection" and "Less Process." The Florida Department of Environmental Protection has a very interesting working environment. The mood there is fairly relaxed, but business oriented at the same time. The people there are very kind-hearted and caring citizens of all creed, color, religion, gender, social status and origin. They all

work together for a common goal despite their differences. That goal is to better serve and protect Florida's citizens and residents, flora, and fauna. Contrary to popular belief, natural and built landscapes are equally cherish and protected as they are both very important to Florida's future. The Florida Department of Environmental Protection is what I would like to consider "an environmental justice league of united peoples sworn to devote themselves to human-environmental cohabitation." This description may seem exaggerated, but it holds the truth.

The structure of the Florida Department of Environmental Protection is very bureaucratic with a range of personnel background: from accountants to administrators, business persons to biologists, clerks to chemists, and statisticians to students. There are also engineers (structural, civil, and environmental), geologists, and a plethora of scientists. This "melting pot" of trainer and trainees creates an interesting combination of professionals which is what makes the Florida Department of Environmental Protection so very unique. With an organization that large, it should come to no surprise that many employees often times get lost in their own Bureau, Team, or Office without really socializing with others within the Department that may be researching something very similar to their own interest. For this reason, Lunch-and-Learn events are held periodically so that employees may share their work with their peers. Often times, training-sessions are held so that employees may learn from one another. These sessions are very informative, for the most part; an event that is taking place on the floor above may have a profound effect on another event taking place on the floor below. Some Bureaus are divided based on the materials being handled. In the Bureau of Petroleum Storage Systems, decisions were made many times based on the result of a similar situation taken on by the Bureau of Hazardous Waste. I would now like to briefly attempt to further explain the structural makeup of the Department.

The Florida Department of Environmental Protection, as we all know, is a state-government agency. Its structure is designed in a bottom-to-top organizational pattern that places the control of the agency in the hands of the public. Subsequent to the power of the people, is elected governor of Florida, a position currently held by Governor Charlie Crist. The Governor (Crist) is thus followed by the Lieutenant Governor. The current Lieutenant Governor is Jeff Kottkamp. Mr. Kottkamp is followed by the departmental Secretary. This position is the highest position that can be held within the Department. This person acts as a liaison for the Department to the Governor's Office. The Department's current Secretary is Mr. Mike Sole. Mr. Mike Sole has worked for the Department for many years. Before he became Secretary of the entire Department, he served as the Bureau Chief for the Bureau of Petroleum Storage Systems. That position is currently being held by Mr. Mike Ashey. The Department Secretary is followed by the division level. There are several divisions within the Department; the division that I worked under is the Division of Waste Management. Other divisions include the divisions of: Air, Water, State Lands, Parks, and Recreation, etc. A Deputy Secretary, who has the responsibility (among other things) of communicating the needs, progress and aspiration of the division to the Secretary's Office, is assigned to each division.

Each division is further broken down into several bureaus. I will only discuss the Division of Waste Management. There is the Bureau of Solid Waste, Petroleum Storage Systems, Hazardous Waste, etc. Each bureau is assigned a Bureau Chief; for example, the Bureau Chief for the Bureau of Petroleum Storage Systems is Mike Ashey. Bureaus, if large enough, can be further broken down into Teams and/or Offices. The hardest part about learning this system is remembering all of the names and faces of important individuals. On the bottom of the pile looking up, that is a lot of memorizing to do! My immediate supervisor is Christopher A. Williams,

Division of Waste Management GIS Coordinator. Chris's supervisor is Nancy Castellina whose supervisor is Gayle Lamkin, whose supervisor is Mary Jean Yon whose supervisor is Deputy Secretary Mimi Drew whose supervisor is Secretary Sole.

The goals and objectives of this internship include: providing assistance to the Division of Waste Management GIS Coordinator, solving geographic information system (GIS) related problems and/or issues with the data input, visualization or output, hardware and software issue, completing assigned GIS projects, writing GIS tutorials to help better facilitate training to employees of the Florida Department of Environmental Protection, and corresponding with requestors, co-workers and supervisors. The parts of this internship that I was least prepared for would have to be those of communication and training. In addition, GISc program should offer more opportunities for students to participate in group and individual research project. The only applicable experience that I gained participating in an individual or group GIS research project was in Dr. Yang's classes. The other classes should attempt to incorporate more work along these lines. Individual research allows students to gain an appreciation for the education as well as practice the skill that they acquired while in class. To receive an applied Master's, more emphasis should be placed on this aspect of the program. Since there are more lessons in failing, students should be given more opportunity to do so before it really counts.

Within the Department's organizational structure, I fit at the very bottom. It was not too painfully to be at the bottom; I felt like an ant. When I say that, I do not mean in a negative was at all. As an ant, I was small and seemingly insignificant; but on the contrary, I could carry ten times my weight and work diligently without wavering. Whenever I got stepped on (which was not too often but it did happen occasionally), I got right back up. I was not insulted or discouraged by the criticism; I understood that it was a part of the job and a part of life. Being an

ant at a state agency is not like being an ant with a private organization. It is about the equivalent of being an ant in New York City versus being an ant in the Sahara Desert. The people that I worked with were very appreciative of any extra help and treated you with respect. If I worked extra hours, I was thanked for it; it was not expected of me (as it is in the private sector). In the worst-case scenario, I was ignored by certain individuals within the Division, but it was not personal. There are so many people within the Department that one could not know all of them by face and name, especially new interns. My immediate supervisor was great; he never made me feel under appreciated. He was all alone on the division level before I started and now, he has me to help. Chris is all about working hard, "staying on task" and sharing what one has learned with others so that one does not have to "recreate the wheel." Working at the Florida Department of Environmental Protection was a great pleasure, one that I will not quickly forget.

When my internship first began, I had to hit the ground running. There was already a lot of work to do. My direct supervisor, Chris Williams, had high expectations for me and would accept nothing less than my best. I was willing to give no less, so we were on one accord. He felt that I was very knowledgeable but felt that I could use a bit of work in the fields of training and communicating with other non-GIS personnel within the Division of Waste Management and the Department as a whole. As I stated in my first progress report, I am working for the Department of Environmental Protection, Division of Waste Management. Waste Management can cover anything from storing petroleum to cleaning petroleum constituents from the groundwater and soil to regulating and restoring Brownfield sites to storing and cleaning hazardous waste materials.

As I previously stated, my job was not completely predictable. One job that I did not anticipate undertaking during this internship was the role and responsibilities associated with training others. My first week at the Department involved training, communicating, and presenting. Presentations and abstracts were another intricate part of this job that the program did not entirely prepare me for during the fall and spring semesters. To my great surprise, The Division of Waste Management was in the process of introducing grade school students to geographic information systems and science through the Florida Outreach Program. As I love kids, the was right up my alley and I was very eager to get started.

My first task on my first day was to contact 8th grade honors Earth Space Science teach, Ms. Kathy McQuone of Florida State University Schools (b.k.a. Florida High), to ask her a few questions about her class and their needs from the program and the Department. Florida High is an amazing school ranging from kindergarten to 12th grade. Being that it is sponsored by Florida State, it has a state-or-the-art program focused on developing great thinkers. Ms. McQuone explained that their class was in the process of entering a contest for grant money from National Geographic. We established the fact that an introduction to GIS presentation would need to be given in order to acquaint the students with the Department of Environmental Protection and how it uses GIS.

I did not want to overwhelm any of the students, so I had to ask myself, "How much information is too much information?" I did not want to give the students too much information and discourage them nor did I want to give them too little information and bore them causing them to become disinterested in GIS and Geography all together. I had to find the magical amount, enough to interest them, keep them on task and awake but not overwhelmed. Several Google searches, emails, and phone conversations later, I began to get an idea of how to

approach this project. I looked up GIS definitions and then simplified them, researched the who's who in GIS in Tallahassee all the while becoming familiar with the Department of Environmental Protection's GIS data, software, and procedures.

Over the next couple of weeks, Chris and I sat down and devised a game plan for the students at "Florida High." In addition to the GIS presentation that Chris and I were to give to the students, we also came to the conclusion that a demonstration of the Department's GIS packages would also be appropriate. The Florida Department of Environmental Protection has three main GIS packages that it uses to provide GIS services to the community. The three products are as follows: MapDirect, ArcGIS Explorer and the infamous ArcGIS suite (e.g. ArcMap, ArcCatalog, ArcToolbox, etc.). The first product, MapDirect was developed especially for the Department and its many entities.

For the purposes the class, its students and the school budget, Chris and I decided to discuss free software products only. MapDirect is a consolidated ArcIMS application developed in order to combine existing mapping programs (spread across the department) and to share GIS data and/or information within the Department and with the public. MapDirect, also as MapDirect Consolidated Application (CA), combines the individual efforts made by the many divisions and bureaus within the Department. It allows users to access data, categorized by focus group; run analysis, also known as markup reports; and make maps. Users can add their own points, lines, and polygons; retrieved coordinates of identifiable surface features; and run buffer analysis to identify Department regulated sites, wells and points of interest.

February 20th was first day that Chris and I went to Florida State University Schools to meet with Ms. Cathy McQuone, eighth grade Earth and Space Science teacher to go over the

details necessary to initiate the Florida Outreach Program proposal between the Department and Florida High. The meeting was at two o'clock PM and lasted until five o'clock PM. The meeting commenced with Chris and I introducing ourselves and explaining what our role were at the Department and what we expected the program to accomplish; Ms. McQuone did the same. Chris bought some materials for Ms. McQuone to review. They included: the current issue of ArcNews, an ArcUsers Catalog, and printouts that Chris and I created demonstrating the different uses of GIS in the worlds of academia, government, and business.

Ms. McQuone, Chris, and I talked for about two hours. After that, I downloaded ArcGIS Explorer onto Ms. McQuone's laptop and showed her some of the basic functionalities of the free software provided by ESRI. Out of this meeting came my one of my first tutorial assignments. This was the first of many and they taught me a valuable lesson in conveying technical information to the general public. I made a "How to Download ArcGIS Explorer" tutorial as well as a "How to download Microsoft .NET / Framework / 2.0," which was necessary in order to avoid having difficulties downloading ArcGIS Explorer.

In order to narrow down the possibilities (which seemed endless), Ms. McQuone informed Chris and me that her class was currently learning about plate tectonics, environmental issues, karst topography and other geologic topics. This gave me an idea on what to do for my technical demonstration, "Environmental Geology in Florida." The project looked at the geographic correlation between sinkholes, springs and bedrock in Leon County. Chris decided to give the MapDirect presentation, and I decided to give the ArcGIS explorer demonstration. We both decided that it would not be necessary to give a demonstration on ArcMap due to the fact that the students would not be able to access ArcMap for their projects (without individually purchasing the software). Both software packages were a hit! The students loved having the

world at their fingertips. Now of course I am embellishing a bit; not all the students were that excited, but all (that were awake) seemed interested.

I was quite nervous as Chris, and I set up the projector and demos for the first set of students. That first class that we had came directly from lunch; bad idea! I do not see how teachers teach students after lunch. They looked so tired, and I felt so bad for putting them to sleep. Do not get me wrong, they were not mischievous children. Both of the classes that we had were Earth and Space Science Honors classes. All and all, the presentation went well. Chris and I did the Department proud and were thanked for our hard work and dedication. The true reward, however, came when we received thank you cards from Ms. McQuone's two classes. With tears in my eyes, I read each and every one.

About a week or so after the Florida High demonstrations, I earned the right to get dual nineteen-inch monitors installed on my PC in the office. This may not seem very impressive, but at the time I was very excited. This excitement, however, withered in comparison to the love and joy that I felt when I received a very special package on April 23rd. Chris came to me on this day and handed me a package. He asked me not to cry when I read it and to return in when I was done. Now, naturally I was very nervous about this whole situation. What was in the envelope? Well, it turned out that the children, whom I had not forgotten but had not seen for some time, had written Chris and I thank you notes for visiting their class. As I had just gotten engaged the night before, I was a bit emotional, and I did get a bit watery-eyed. My heart was just so full. Then it dawned on me that teaching was about watching one's students grow. In one day, those kids had grown, and I got to witness that.

As I read those letters, my first thought was that at least one of the children may grow up to be the next generation of GIS scholars, analysts, and technicians. The Department of Geography should consider involving itself in other forms of outreach and education / awareness to the public. Contrary to the fact that some students actually fell asleep during my presentation, a good number of them actually enjoyed it, finding it interesting as well as informative. After that day, I got a tasted of what must drive teachers, instructors and teaching assistants across the globe. For a moment, I could see myself dropping everything that I was doing and becoming a teacher myself. That, however, is another story entirely.

I began working full-time at the Department of Environmental Protection the week after spring semester ended. I doubled my time with the Bureau of Petroleum Storage Systems and the Division of Waste Management's GIS team. During this time, Chris and I discussed building out Division's GIS support team. I sent out a request to everyone on the GeoGrads lists and we began to conduct interviews. The result was the additions of Ben Fisch and Aaron Losch. This just was wonderful for Chris and I as well as Aaron and Ben. It was nice to be able to be surrounded by positive hard-working individuals each and every day. My responsibilities included training Aaron and Ben on how to use (not necessary in the case of ArcMap) the Department's three (3) major software products: MapDirect, ArcMap and ArcGIS Explorer. The consequence of this training was the delegation of Chris and my work to these two strapping young men and the ability for me to work on more written materials as Chris desired.

Most of our projects were drafted out of desire. One of my projects included developing a GIS Data Request Form of internal as well as external data requests from individuals as well as organizations. I was please that I got an opportunity to work with some of the Division's IT team members (as the form was to be converted to an interactive format). They were very

helpful and the (very brief) meeting went smoothly. I displayed what I had and expressed our wants and needs and they explained what could be done. This union was all about teamwork. Working with Chris, Ben, Aaron and whoever else that happened to cross our path was all about teamwork. Shortly after Ben and Aaron started, they and I were all assigned to different individual projects and one (1) group project. Aaron was assigned to Green Lodging and Ben was assigned to Clean Marinas. There is no point in describing these positions in this paper. I am positive that both Ben and Aaron have covered this material in their progress reports.

In the end, I started working long hours in order to get more work done and/or transferred before I left. Chris took on more projects (not that we could not handle them, there were just more) and my time started the run out at the Department all together. In May I had an interview with a GIS company in Clearwater, FL for a geospatial analyst position. I got the job, and I am not living in Clearwater. The summers at the Department of Environmental Protection are interesting because so many people go on vacation. This included our supervisor, Chris. There were times that we were left to hold down the GIS fort alone, but we did what we had to do, and we did it at the best of our ability. Ben, Aaron, and I made objectives and goals for the team and routed a flow chart in which to follow upon receiving project requests. We always had different ideas on how things should be done and what avenues to take, but our goal was the same…success.

All in all, I enjoyed my time at the Department of Environmental Protection, working under Chris Williams, Division of Waste Management GIS Coordinator and with Aaron Losch and Ben Fisch. Our goals and objectives of this internship included: providing assistance to the Division of Waste Management GIS Coordinator, solving geographic information system (GIS) related problems and/or issues with the data, hardware and software provided to me, completing

GIS projects assigned to me, writing GIS tutorials to help better facilitate training to employees of the Florida Department of Environmental Protection, and corresponding with requestors, co-workers, and supervisors. I believe that we achieved those goals and much more. We increased the awareness of the capabilities of geographic information systems and science not only to our division, but also throughout the Department.

We may have been ants in that sea of working individuals within the Florida Department of Environmental Protection food chain, but we carried ten times our weight, worked diligently without wavering and learned a lot along the way. The results of our hard work and effort have set the precedent for students and interns to follow. Our work has improved the quality of data input and output within the Division of Waste Management and created infrastructure that has added onto and developed the existing GIS Help Desk and Support System. We were greatly appreciated within our division, and I believe that it is safe to say that the feeling was mutual. Most importantly, this experience (as well as the knowledge that I obtained in class) has helped me transition into my current position as a Geospatial Analyst for Spatial Networks in Clearwater, FL.