Building Bridges

GIS Professionals, Students, and Teachers

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The GRACE Project

A Powerful New Model for Professional Development In GIS Instruction

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GIS Resources and Applications for Career Education (GRACE)

GRACE Goals

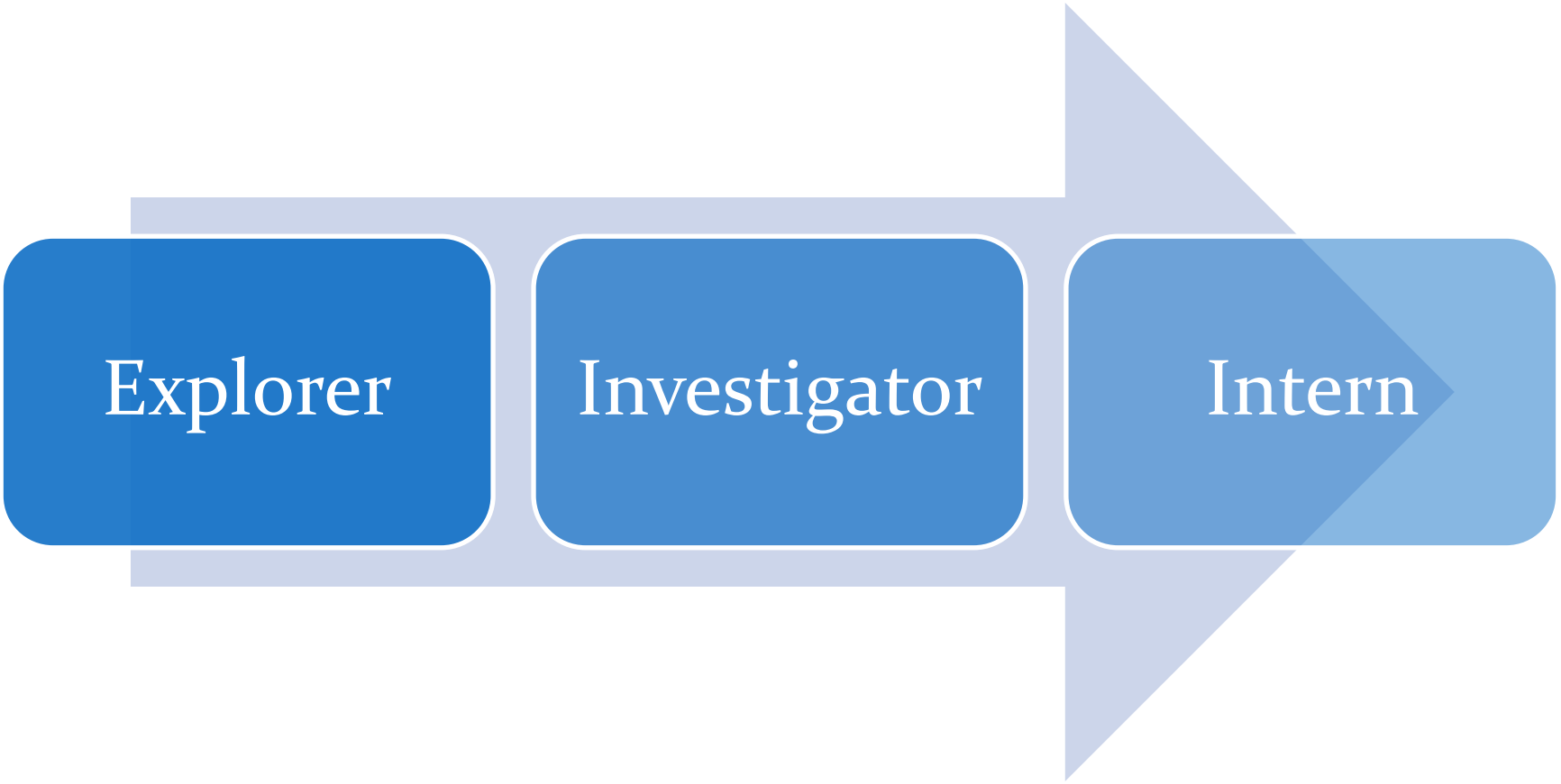
Goal 1

Establish a staged process (*explorer, investigator, i*ntern) that encourages a large number of middle and high school teachers and students to engage in learning through GIS/T experiences across the State of Michigan.

Goal 2

Provide workplace and college experiences to students from under-represented and rural communities.

GRACE Project Video


Explorer
Investigator
Intern

Explorers

The *Explorer* level introduces teachers and students to GIS/T (mostly) through the use of short GIS activities designed to build students' basic understanding of GIS/T as well as pique student (and teacher!) curiosity.

Investigators

The *Investigator* level leverages students' curiosity and interest and prepares them to work with GIS/T activities that are designed to enhance science and engineering practices and align with the Next Generation Science Standards.

Interns

GRACE provides students with professional GIS/T training and with opportunities to gain work experiences in local organizations as *Interns*.

- **Teachers reticent to reach out to GIS Professionals**

GIS Professionals seemed anxious about working with high school students

Interviews with GIS Pros

GIS INTERVIEW REPORT

Teacher Name (Interviewer)	Rick Jackson
Date/Time/Location	8/8/2017 2:25 pm Over the phone
Interviewee (GIS Professional)	Brodey Hill
Title	GIS Analyst
Place of Employment	Kent County
Years of Experience as GIS Professional	18
Level of Education	Bachelor of Science, GVSU, Geography
Why is GIS Important?	EVery County dept uses in one form or another. Need maps. Need to know location of objects. Spatial analysis. Patterns
Why did you become a GIS Professional?	Fell into it. 3-4 major. Sat with counselor. Loved geography. Didn't know it existed. Suggested by counsleor
What skills are needed to be successful as a GIS Professional?	know software. ESRI software. need a basic knowledge of computers. both hardware and software. understanding of database concepts. possibly programming.
What projects are you currently working on?	Parole office - need to know if a sex offender relocates, need to know how close to a school. Upgrading to next version.
What do you like best about your job?	How it differs on a daily basis. Never know who/what you are going to work with.
What advice do you have for high school students who might be interested in GIS?	Get the basics in HS. See if they enjoy it. Then they can look for it in HS. Understanding what it's used for. - Engineering firms, planners, government, natural resources, utilities, 911, etc.
Do you have other GIS Professional colleagues in this area who may be interested in the GRACE Project?	On B of D for Imagine. GIS Director at Muskegon County (President of Imagine). Also possibly Ottawa County.
Additional Comments	

Breakthrough!

Connecting With GIS Professionals

MiCAMP & IMAGIN

- 2 professional GIS organizations in Michigan
- MiCAMP was a partner with the GRACE program
- Provided a GIS professional perspective to the project
  - Knowing what you can do with a GIS education
  - Expectations of up and coming GIS pros
  - Needed skill sets to be successful in a GIS

Role of MiCAMP (the GIS Pro's)

- We provided the conduit between academia and professional
- The MiCAMP conference offered a venue to showcase the students GIS 'adventures'
  - How they discovered/created information
  - How they used AGO to present their story using maps

The Midland Model

- GRACE collaborates with professional instructional groups around the state to provide professional development workshops in using GIS as an instructional tool.

- Midland project was the first attempt to integrate PD for teachers, students, and GIS Professionals working collaboratively

Mid-Michigan ArcGIS Collaborative Workshop

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Michigan | Mid-Michigan | Midland County | Tuscola County | Bay County | Saginaw County | Isabella County

The GRACE Project is a SPRED NSF grant targeting the entire state of Michigan. One of the major goals of this project is to provide GIS internships to high school students throughout the state of Michigan. Interns will serve six week internships under the direction and supervision of GIS professionals throughout the state.

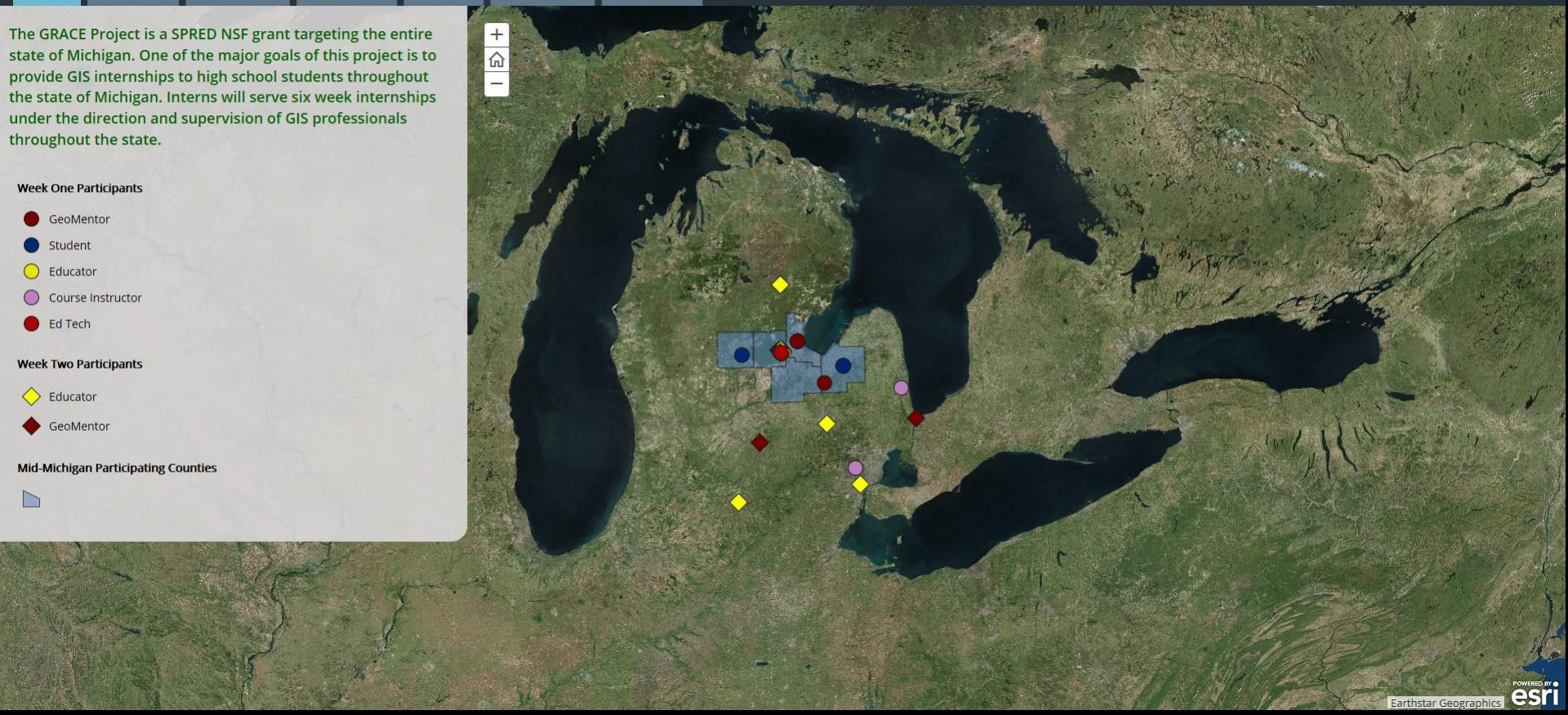
Week One Participants

- GeoMentor
- Student
- Educator
- Course Instructor
- Ed Tech

Week Two Participants

- Educator
- GeoMentor

Mid-Michigan Participating Counties



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One of the difficulties in attaining the stated goals is locating and recruiting GIS professionals who are interested in working with interns as well as serving as GeoMentors in their local schools.

We have identified a number of GIS professionals in the Mid-Michigan region as identified in the map on the right. We would like to undertake a collaborative training with in the Midland Public Schools that will involve both teachers and GIS professionals from this four county region. We believe this training will break new ground and set new standards for cooperation and collaboration between educators and GIS professionals throughout this region. More importantly, we believe this model will be transferable to other regions, both within Michigan and across the entire United States.

To support this training, we are requesting an ESRI ConnectED Workshop Grant for $5000.00. The workshop will take place on the following days:

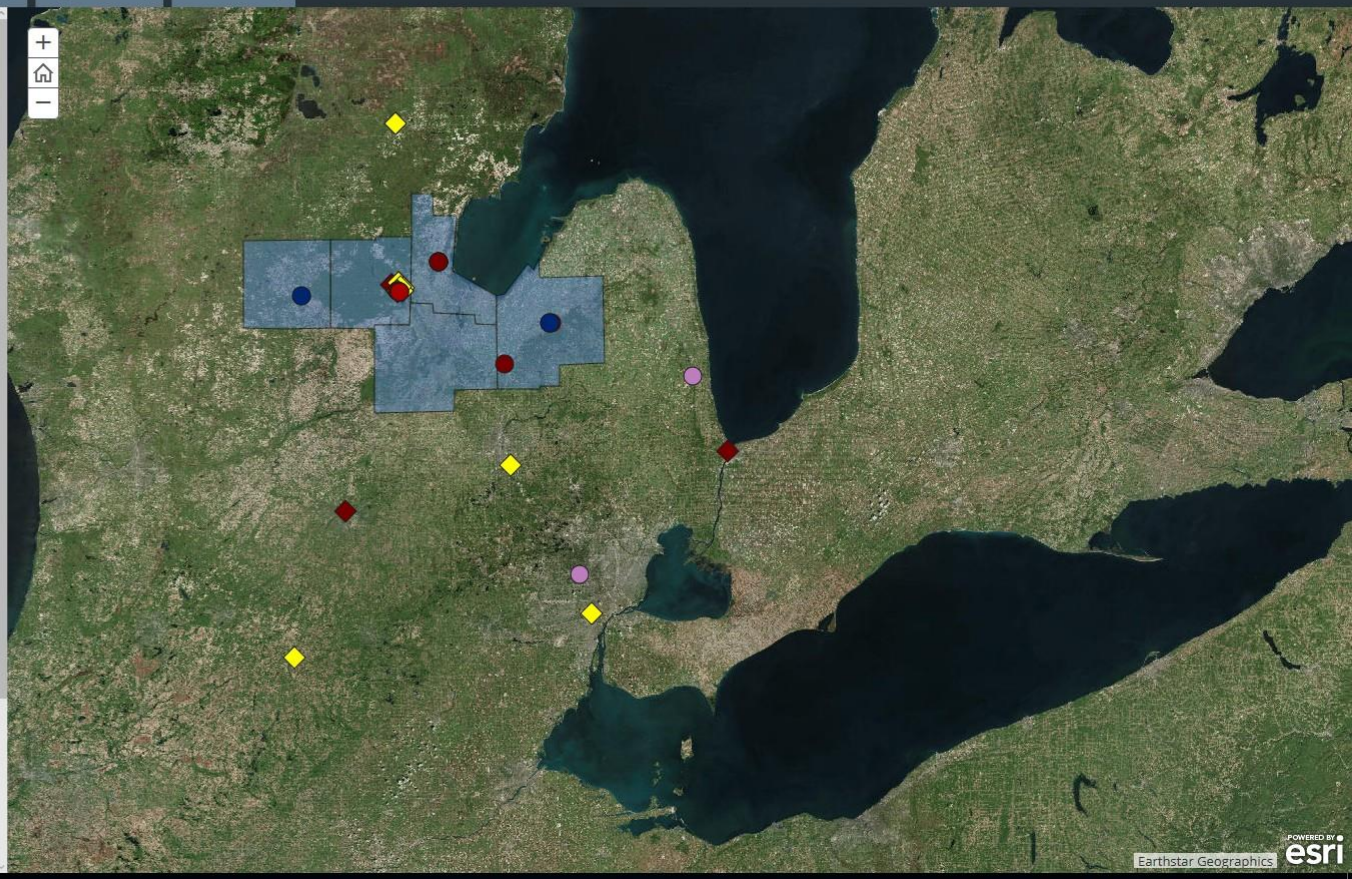
Wednesday, November 2nd, 2016
Thursday, November 3rd, 2016

Wednesday, November 8th, 2016
Thursday, November 9th, 2016

Week One Participants

- GeoMentor
- Student
- Educator
- Course Instructor
- Ed Tech

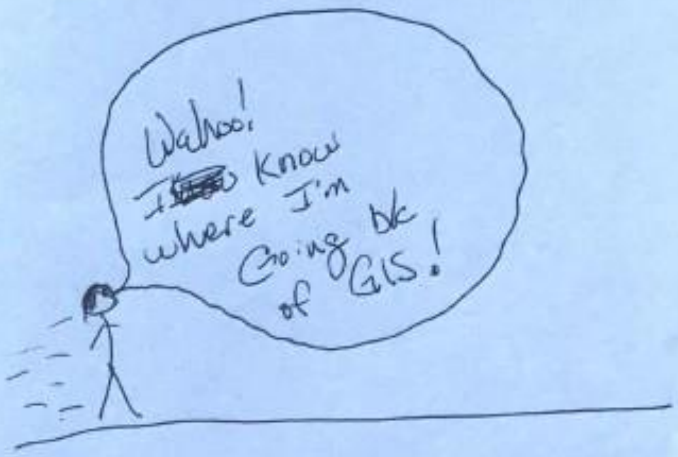
Week Two Participants



Chris Cantrell
Geo Mentor

Excited To Extend
GIS Know How To
New People

GIS Professional



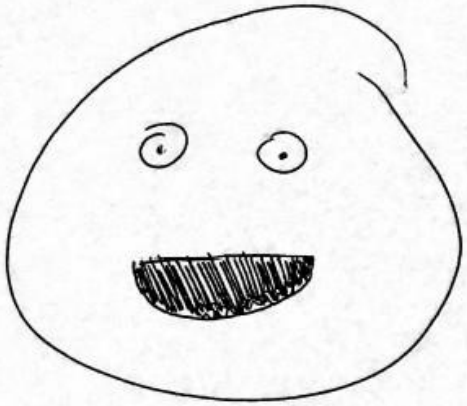
Participant Evaluations

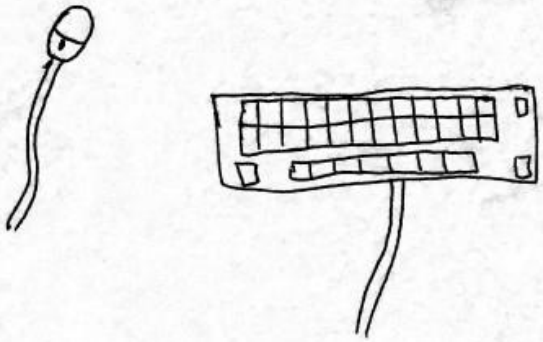
GIS Professional

While I have had quite a lot of training in ArcGIS over the past year, I was still hesitant about using ArcGIS Online. I had never used GIS outside of the desktop application, so working in the new environment left me a bit uneasy before this training….Now, however, after this training I am much more able to manipulate data the way that I need to…through my profession.

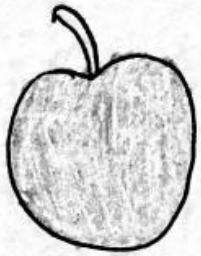
The best part of the training, for me, was being able to help Jared, a high school student from a local town, who has never used GIS before. It was fun to show him the tricks and tips that I have picked up over the past year. Much of the information and resources were also very helpful to me as a GIS professional as well.

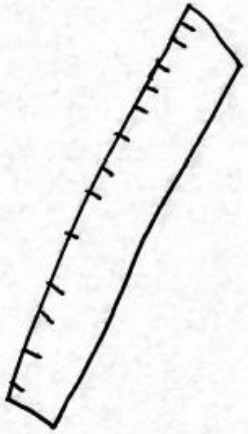
GIS Professional





I am excited to further my knowledge in GIS





After this workshop, I feel like a teacher, willing to help those who need it.

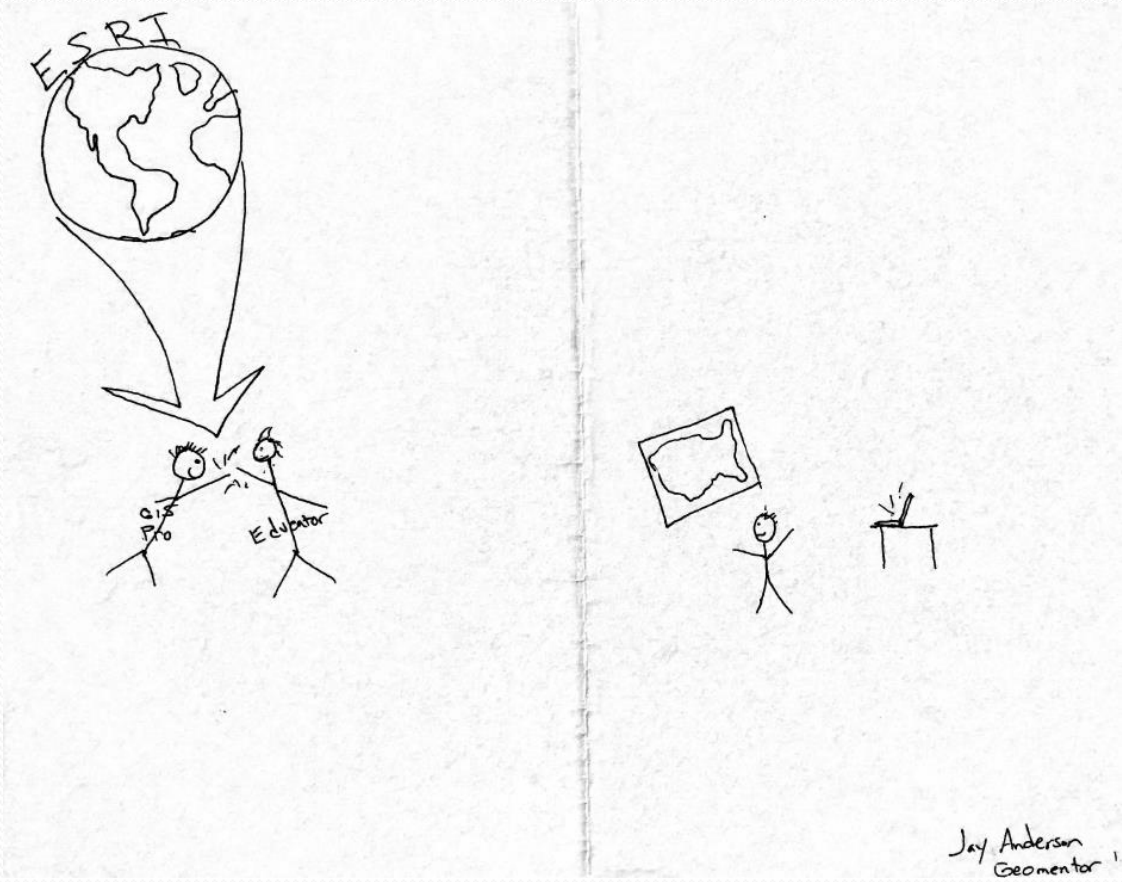
Participant Evaluations

Teacher

"I can see the value of collaboration on so many levels; school to student: school, student, community (government entities), student to student; student, school global.

As an educator I am so excited to explore all the lesson that have been prepared with objectives, outlines, exploration, standards, and relevance."
- M. Raymer (Educator)

GIS Pro meets Educator!



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GIS Professional

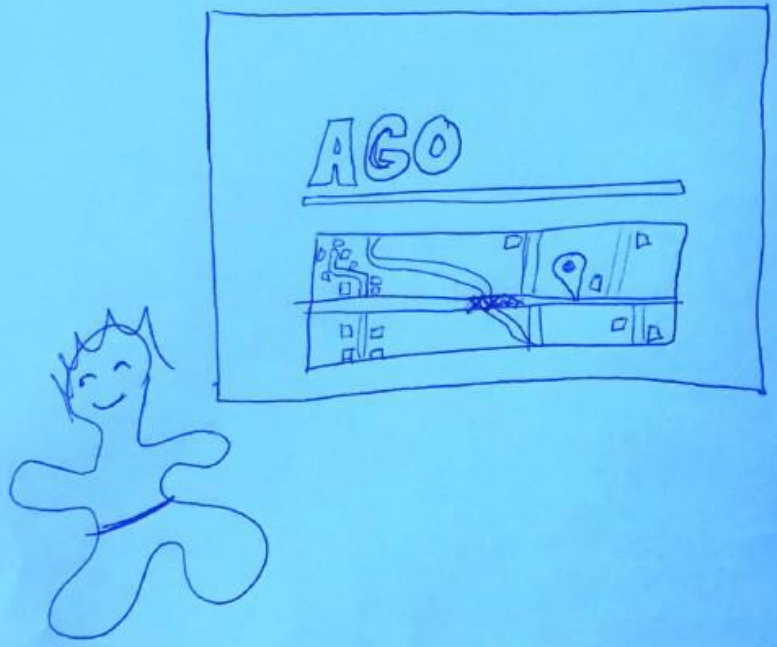
Participant Evaluations

GIS Professional

Given all the information covered it will take months more like years to peruse let alone try and digest all of the various applications, data sets, and created maps that are currently available.

I hope that I have a much better knowledge of ESRI ArcGIS Online so that I am better positioned to entice more teachers in the EMCOG 14 county planning region to engage in the GRACE program.
David Engelhardt -

GIS Professional



Participant Evaluations

Student

Coming into this program I really didn't know what I was getting into. Once I got here though they did a good job of explaining what GIS is and how it is used by normal people and by the local officials. They …. partnered us up with a geopro who could help us if we got lost or had any questions..

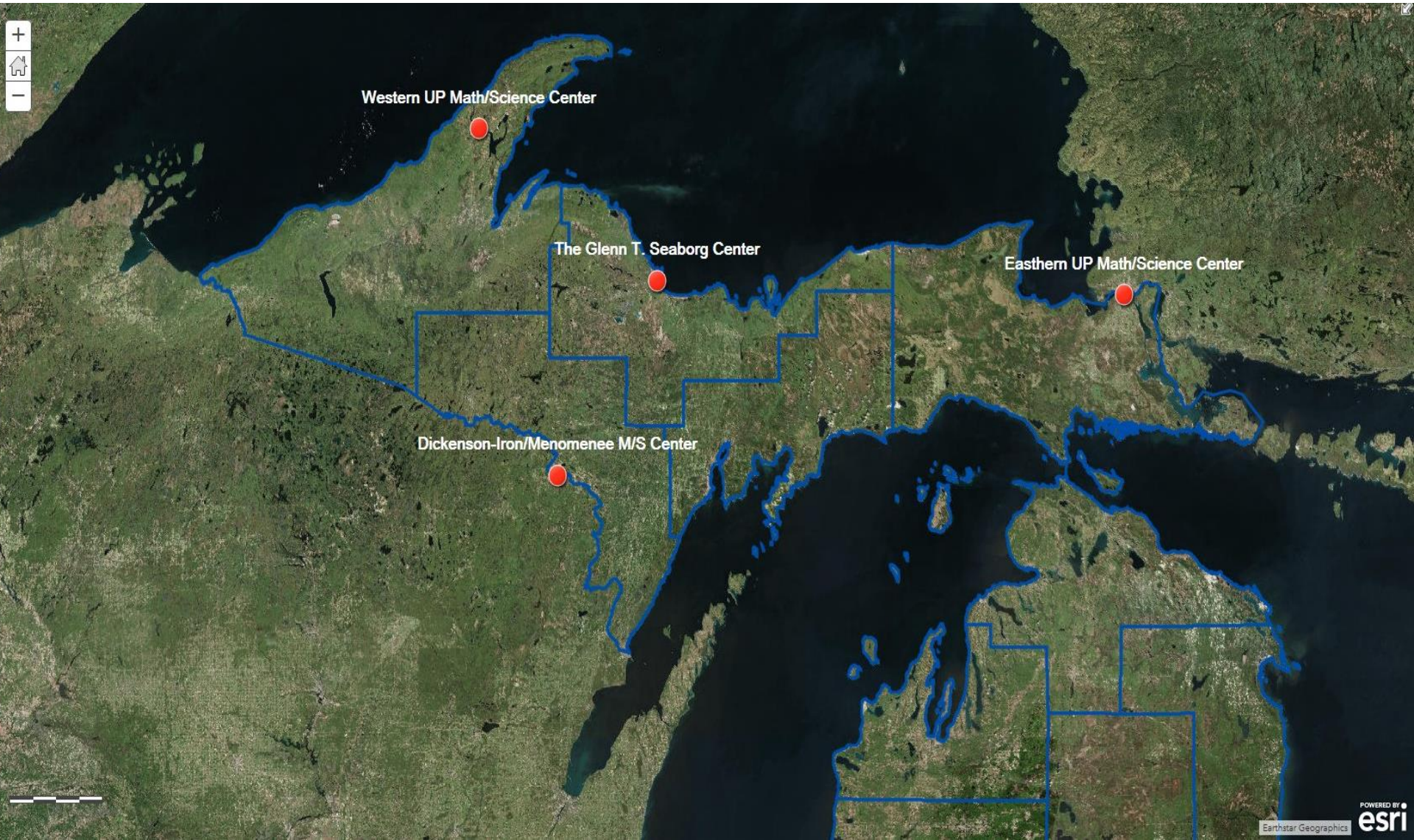
I think it'd be a good class to have more available to people in school districts. This skill set gives you a lot of opportunities in the real world to apply yourself and to make some money.

The school system really could learn something from this program about the hands on learning and actual experiences that you can use in the real world.

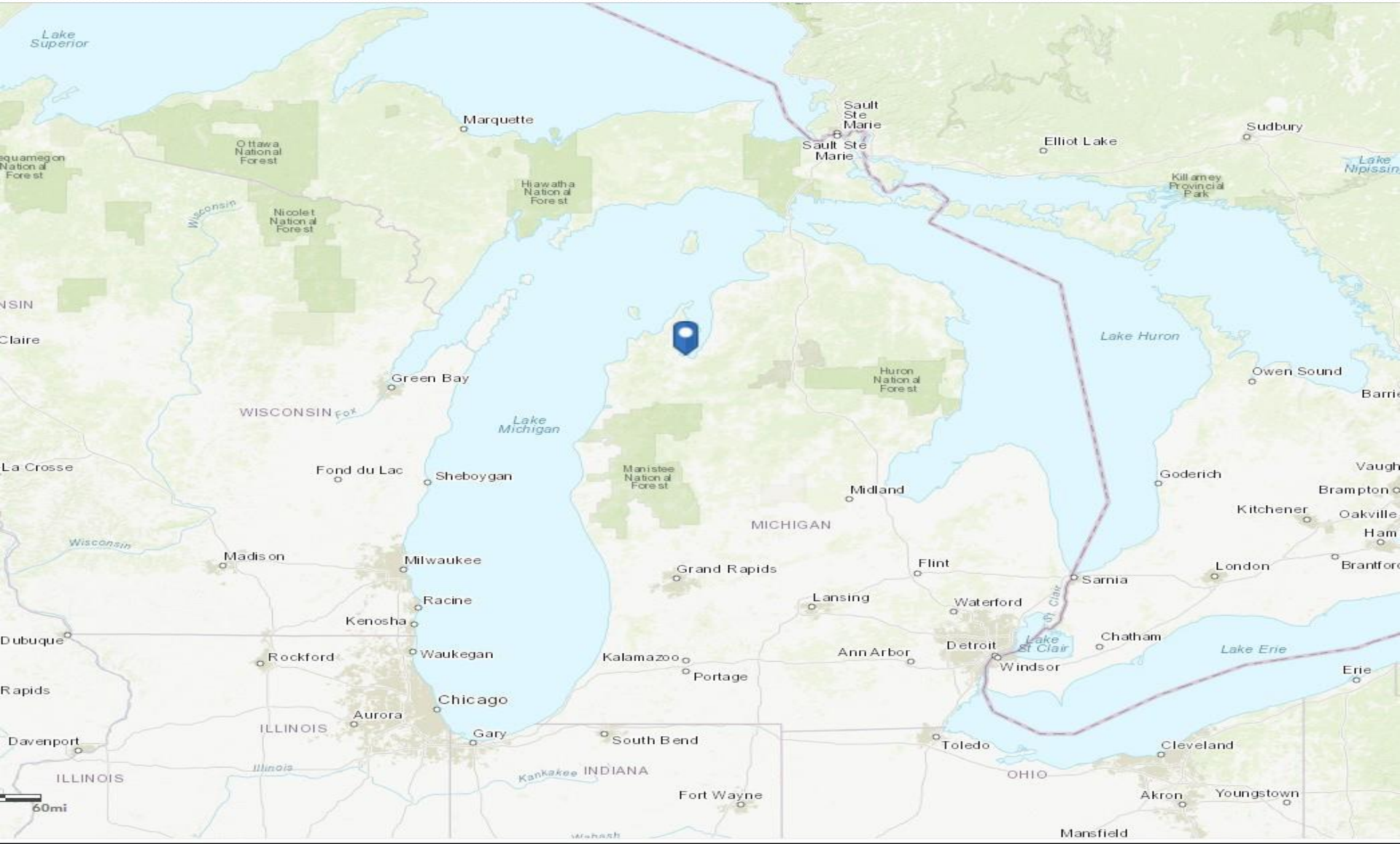
- **Teachers reticent to reach out to GIS Professionals**

GIS Professionals seemed anxious to try working with high school students

UP Math/Science Centers



Traverse City, MI



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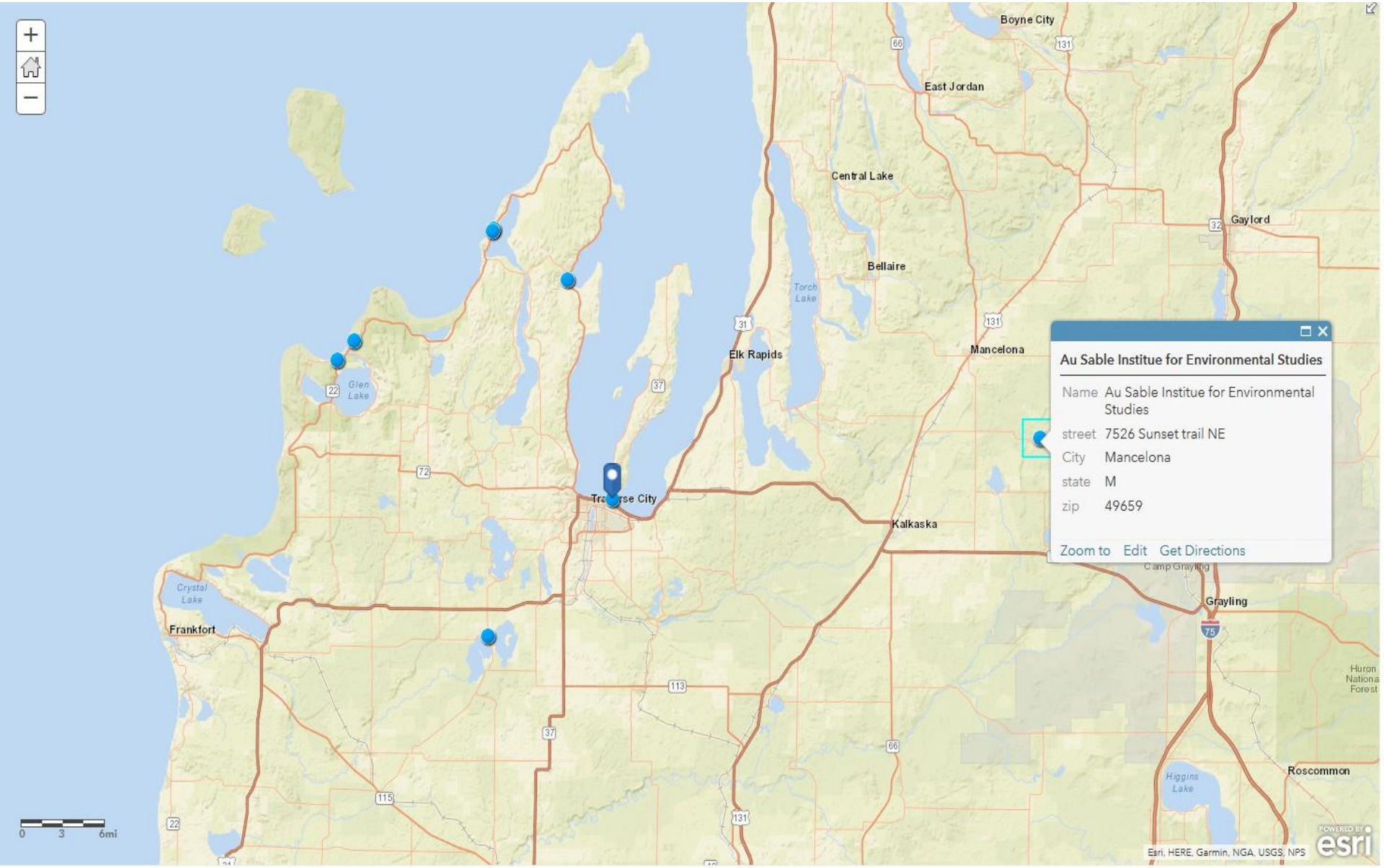

Mid-Michigan ArcGIS Collaborative Workshop

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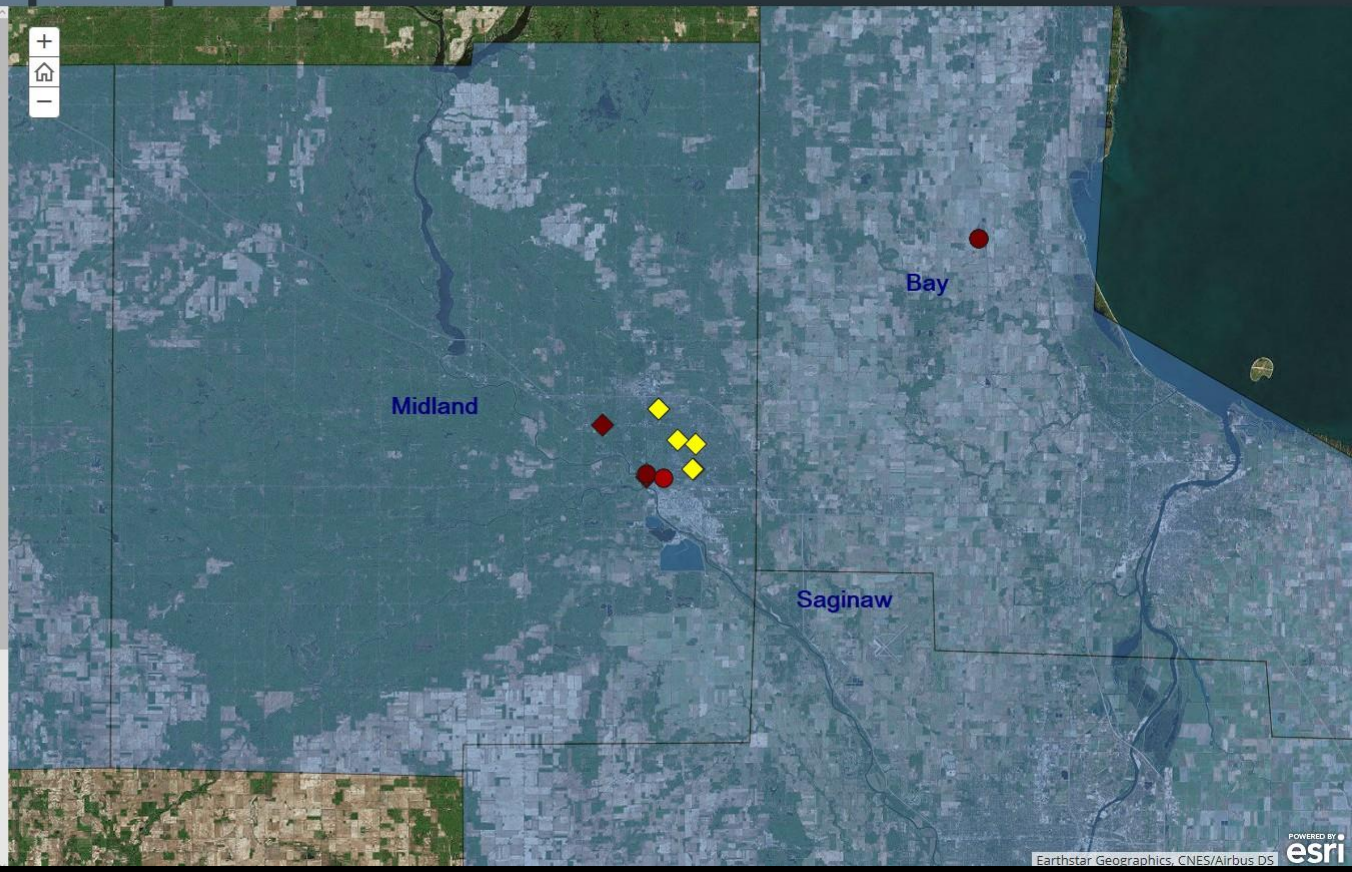
Participants from Midland County:

Taylor	Jerry	Educator
Aiken	brandon	Ed Tech
Mitchell	Sherry	Ed Tech
Anderson	Jay	GeoMentor
Anderson	Laura	GeoMentor
Englehardt	Dave	GeoMentor
Kennedy	Connie	Educator
Dziurka	Erik	GeoMentor
Gmyek	Chris	GeoMentor
Daniels	Angie	GeoMentor
Cantrell	Chris	GeoMentor
McLaughlin	Joyce	GeoMentor
Rockefeller	Ashley	GeoMentor

Last	Steve	Geomentor
Tyler	Hubbard	Geomentor
Cribbins	Renee	Teacher
McArdle	Kelly	Middle School
DeRees	Sharon	Middle School
Wontorcik	Ryan	Middle School
Clark	Casey	High school
Welter	Pete	High School
Bott	Robin	Middle School

Week One Participants

- GeoMentor
- Student
- Educator



http://storymaps.arcgis.com/