It all started a mild July day in 2015 when Detroit Lakes High School chemistry teacher Steve Fode joined Sally Hausken on her deck for a root beer. The conversation went something like this:

Steve had been teaching water quality in his 9th grade chemistry classes for 20+ years and was feeling he could do more to offer students greater retention of their learning experiences. His dream was to expand his Water Watch unit. He really wanted data collected to be useful beyond that of Detroit Lakes High School. He wanted to broaden the reach of the data.

For sure Steve wanted to use exclusively Sucker Creek for an all day field trip to test water quality in it. Sally’s attention was suddenly riveted. As founder of the 117 acre Greater Sucker Creek within the city of Detroit Lakes, her long term goal had been having schools use Sucker Creek for educational field trips. Opened in 2006, the woods-prairie landscapes with self-guided educational signage, had immediately become a popular tourist attraction to all ages. Further, an anonymous donor had made funds available in a City Sucker Creek Education account to be used strictly for education in Greater Sucker Creek.

Each of them had a problem with implementing their visions. Steve knew all the teachers but few scientists in town; Sally knew many scientists but few teachers interested in this kind of field trip.
With 120 students each semester, the field trips would be twice a year. A full day in Sucker Creek testing dissolved oxygen, turbidity, and pH would be one station. The other would be invertebrate testing for determining water quality. What others? Could we get social studies, English, or math in with other stations to make a whole day? Steve had long pondered all of this. Sally could name water scientists. Would Steve like to meet with them?

Possible testing could be: stream geomorphology, stream invertebrates, water chemistry, habitat, animals, soil chemistry, plant communities on either side of the creek. How about flow, floodplain, stream health, soil health, morphology, biology, and contrasting data? Might we include agriculture environmental education with soil health and erosion. Down the road, Steve could visualize this integrating with the Career Academy.

Timid about the expansive nature of the idea, the first meeting took place on April 26, 2016. Steve presented his background and a profile of his current water unit. Can we establish a framework for the field trips? Steve wanted scientists’ ideas; and, he was good at listening. Ideas bubbled from the scientists. Each session should be an hour so students could do hands-on data collecting. Each group would summarize and compile results together as a class.

Many meetings ensued. Steve always listened to the scientists. Some meetings became stalemated; nonetheless, we all stayed the course. Although hoping for a fall debut, the can got kicked down the road; we were not prepared. As time lapsed, Sally reminded Steve that they could not let the time eat away the scientists’ enthusiasm.
On March 22, 2017, the missing piece was discovered! The students needed a problem to investigate. What might they want to research? A landfill built by Sucker Creek? A new housing development? An airport? How would it impact Greater Sucker Creek? Students could research both economic and social scenarios, examining how science and policy interact and how complicated decisions can be. Through much discussion, here is how the problem evolved:

“\textbf{A local creek is within city boundaries. The city is debating whether to build a natural woods park at that location or create a new housing development there. Which is the wisest long-term plan for the community?}”

Steve outlined a general framework: the main objectives were \textit{stewardship}, \textit{learning}, and \textit{kids having fun}. Students would arrive at Sucker Creek at 9, break for lunch there and leave at 3. The 120 students would be broken into groups of 12 and assigned to a station. Station 1: water quality, dissolved oxygen, turbidity and pH. Station 2: invertebrates. Station 3: what would it be?

Students are sampling water with guidance from Brent Alcott, assistant administrator for Pelican River Watershed.

Mark Geihl, one of the originators of the Water Watch project, assists biologist Brent Alcott who is leading the water quality station.

Scientists winnowed the information. To them, an entire day with 120 ninth graders in the creek was a long time and we had no topic for station 3. A half day with 60 kids sounded more realistic. At 9AM, these 60 would go to one of the two stations: water quality and invertebrates. Each station would last one hour; then, students would go to the other station. At the end of that time, they would remove the hip waders, go back to the bus, and return to school for lunch. Scientists would have lunch on site. The other 60 students would come at 1PM and return at 3PM. Nice! That will work! And it did!
Now with a workable framework, next was ordering supplies. That included 70 pair of hip waders and adequate testing equipment: turbidity tubes, expandable nets, and much more. The City Sucker Creek Education account covered the costs. School funds covered the transportation.

In mid-June, 2017, Steve invited all to visit the classroom once school had started. From now on, scientists would meet in their chosen group: water quality or invertebrates. Steve distributed his lesson plans for the thirteen days before and after the selected field trip date of September 27. The date was on, rain or shine.
Day One: The classroom was presented with the problem.

“A local creek is within city boundaries. The city is debating whether to build a natural woods park at that location or create a new housing development there. Which is the wisest long-term plan for the community?”

You will get one vote as a council of 24 (five classes; each has just one vote). You will be part of a forum to explain your position as everyone else in the class will be given a chance before the vote. You will produce a presentation that supports your position. This presentation includes:

- What is a watershed?
- History of our watershed
- Sucker Creek history
- Stream lesson
- Invasive species
- Water quality

Day Two: September 19, 2017, a mock city council meeting was held in the multipurpose room at the high school. All 120 students were present. Adults from the community presented their reasoning for approval or disapproval of the options and students could observe how a city council must wrestle different courses of action.

Adult Community Persons as Guest Speakers
(from left to right)
Tim Westbrook, businessman
Eric Lundmark, real estate
Bruce Imholte, DL city council member
Tera Guetter, Pelican River Watershed director
Bill Henke, Izaak Walton League
Sally Hausken, Greater Sucker Creek chair
• **Day Three:** Practice trip for collecting and testing water at the Pelican River.

• **Day Four:** Invertebrate practice: Teachers from the invertebrate group came into the classroom for in-class practice showing the invertebrates’ role in water quality.

• **Day Five:** Students practiced running water quality tests.

• **Day Six:** Preparation for the field trip by explaining the whole process.

• **Day Seven:** September 27, 2017, the day they had all been waiting for, Sucker Creek field trip day.
  
  Invited teacher observers: (one from each discipline) math, English, and social studies
  
  Student objectives: stewardship, learning, and having fun
  
  **Water quality station:** dissolved oxygen, stream speed, pH, and turbidity
  
  **Invertebrate station:** collect invertebrates, identification of invertebrates

• **Day Eight:** Classroom testing of phosphates and B.O.D.

• **Day Nine:** Classroom testing of nitrates and total solids.

• **Day Ten:** Calculating water quality index.

• **Day Eleven:** Class forum: student presentations on their position of the problem.

• **Day Twelve:** Finish the student presentations.

• **Day Thirteen:** On October 4, the vote occurred. 87% voted FOR keeping it a preserve!

**Sucker Creek Lesson Plans**

**Video Capture of Field Trip**

https://youtu.be/glclQnrf9dk
Epilogue by Steve Fode, 9th grade chemistry teacher at Detroit Lakes High School

“I would say this project exceeded my expectations. I like everything structured so it was tough for me to hand my class to the public. I didn’t know what was going to happen, but I was overwhelmed with joy watching the scientists use their expertise to teach my students. The partnering with the local, talented scientists, showed my students real-life learning and occupation exploration smothered in the passion for what they do! Before the field trip, I feel there was no connection to how it all really happens or why. What I noticed immediately was students were making the connection between water, wildlife, soil, plants, and human impact. That had never, ever happened in the previous 25 years of my teaching career. Before, they were merely lab results. I could not have pulled this off without the passion and resources from Sally Hausken as well as the numerous scientists and volunteers. Her dedication to Greater Sucker Creek has changed the learning for these lucky students! This was an amazing endeavor that turned to fruition because of superb TEAMWORK! The teamwork yielded success. Everybody saw the impact that could and was made. I bet the scientists saw this one even as more far-reaching influentially than some of their daily work, because some of those kids have a fantastic day indelibly imprinted that they won’t soon forget.”

Here is the contact information if you have questions or need to find out how you could help or be part of this great experience:

Steve Fode sfode@detlakes.k12.mn.us 218-841-5946
Sally Hausken bflyjp@gmail.com 218-847-8032