



# The ASHWAUBENON CREEK WATERSHED Symposium

West De Pere High School Environmental Science Classes

2015



March 5<sup>th</sup> 2014

## FROZEN

### Winter Monitoring on the Fox

The ice cover was too thick on our stream to do our typical March work, so why not take on the River instead? We took out a 5' auger, and it almost wasn't long enough. The good news? At least we couldn't fall through!

Despite freezing fingers and the loss of feeling in their toes, they kept on with their work & secretly plotted my demise



Conductivity & pH data confirmed that the river's vast volume dilutes the effects salts and soil chemistry have on our stream

Tristan discovered that water quickly turned to ice in the turbidity tube, despite our best efforts.



Nothing bonds a class together like shared suffering, I always say.



The large class was split into the same small monitoring teams they had in the fall and thus they were in charge of just one water quality parameter. They recorded data at each of the three "site-holes" marked by red garbage cans.



Stay warm, Vern!

The sun was small relief versus the bitter cold and biting wind. I don't know what the wind chill was that day, but it felt pretty wicked to me & I was properly dressed for it. Many of them didn't bring mittens, gloves, or hats and very few wore more than tennis shoes. If "craziness" had been measured in degrees, we would have been swimming.

Our sites were right off Voyageur park. We ventured straight out as far as I dared (still with a healthy mistrust of the River). One "site-hole" was placed off the tip of Governor's Island.

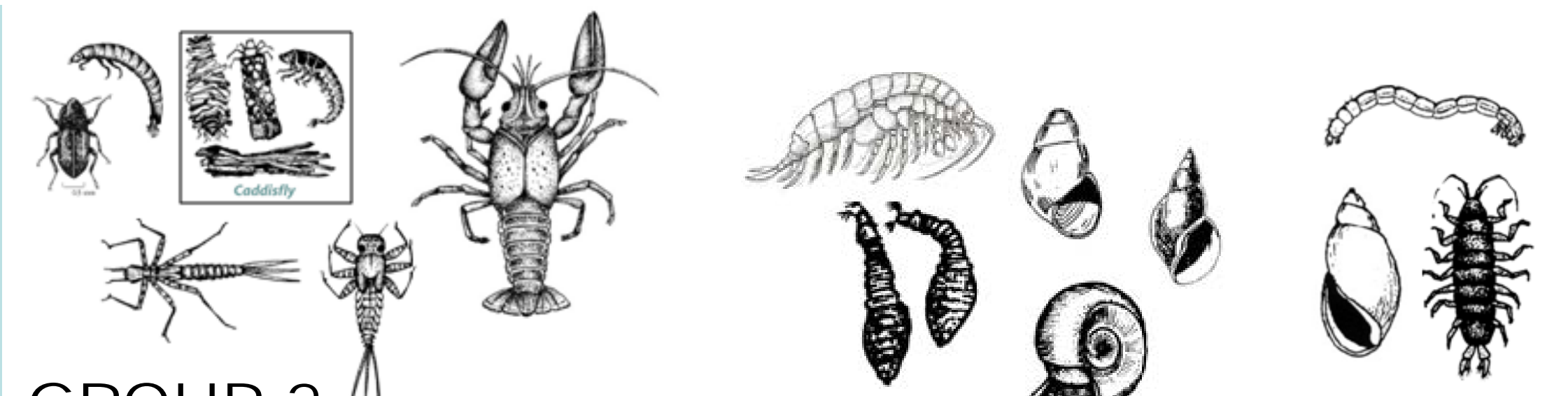


# MACROINVERTEBRATES

ARTHROPOD ENVY ISN'T HEALTHY, BUT NEITHER IS OUR STREAM. COULD IT EVER "BECOME" AS GOOD AS DUCK or BAIRD?



So, for the first days of school... each student was elbow deep in trays armed with spoons and pipettes capturing anything that moved. They scrutinized the samples collected from Baird, Duck, and our Creamery Road site, tallied the results, and completed their crash course in aquatic indicator species.



### GROUP 2

Semi-sensitive to Pollutants These have **high oxygen needs**, but since they typically have extra adaptations to aid in their capture of oxygen, they can tolerate slower flow and tougher conditions. They also tend to "make their living" or find refuge **in loose substrates**.

Baird..... 5x3=15  
Duck.....5x3=15  
Creamery....2x3= 6

### GROUP 3

Semi-tolerant to Pollutants These also have oxygen-capturing adaptations, but tend **to live attached to rocks rather than loose substrates**. They are typically scavengers, detritivores, or serve in some other capacity that capitalizes upon death.

Baird..... 3x2=6  
Duck.....0x2=0  
Creamery....2x3= 6

### GROUP 4

Tolerant to Pollutants These can tolerate **very low oxygen** and are experts at scavenging, maximizing any food opportunities, and making a home in **any type of substrate** or accumulation of organic material.

Baird..... 1x1=1  
Duck..... 1x1=1  
Creamery.... 3x1= 3

Does absence make the score go higher?

Though we shared some Group 2's, Baird & Duck's overall diversity was higher and "weighted" in Groups 2 & 3. Both streams also have loose, rocky substrates and only occasional sediment deposits on the inside curves of bends. They both flow through hilly terrain as they reach their terminus, and the "valley" is narrow and steep. I propose that strong flows stripped the Glacial Lake clay sediments from their bottoms. Our creek does not share that terrain, nor that "flushing effect" and thus we remain buried in thick clay substrates.



"It's a Cinderella story..."

"Oh, will I ever go to a symposium dressed in an Excellent biotic index or am I doomed to remain just Fair & Poor?"



### The Oxygen/Pollution Correlation

Streams plagued with pollutants, erosion, and unbalanced ecosystems will have more decay. More decay means more decomposers using up the oxygen day and night.

### Substrate Preferences

Location, location, location! Real estate economics work in the natural world too. Loose, rocky substrates are optimal for the Group 1's and 2's, but they'll accept nothing less. Are all streams supposed to have *only* these types of substrates? Can they? That is a question to ponder!

So, **NO**, in my estimation the creek can never achieve high biotic index scores *as long as we lack that loose rocky substrate* that attracts the desirable Group 2 clientele to our neighborhood. Sorry Cinderella.

This bend in the stream at our Little Rapids site cuts through a thick layer of pure, fine clay that was deposited in the days of Glacial Lake Oshkosh long ago. Rocks are few and far between.



The neighborhood kids and I came back to the Baird rapids sampling site for an adventure.



Compare Baird to a typical collection site in our creek. Note flow, turbidity, and surrounding landscape.

## SUMMER SAMPLING

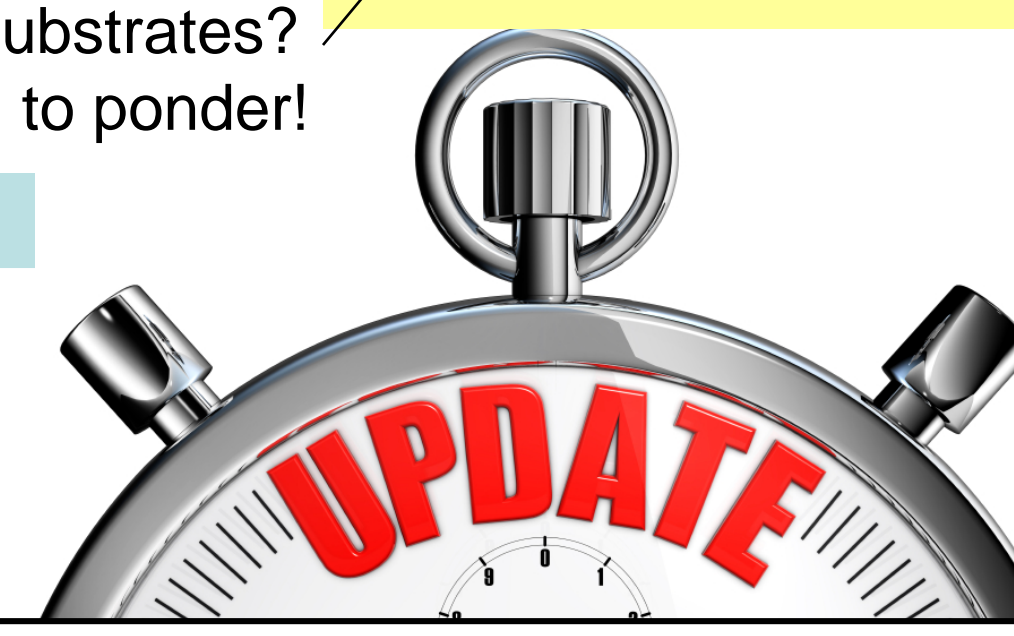
Partnering with Stefanie Stainton's Green Bay students to collect some *long neglected* data



The down side of doing all the monitoring in class is that no one is around in summer! These guys came in and did an awesome job with not only the water quality work, but the sometimes creepy & tedious macroinvertebrate work too.



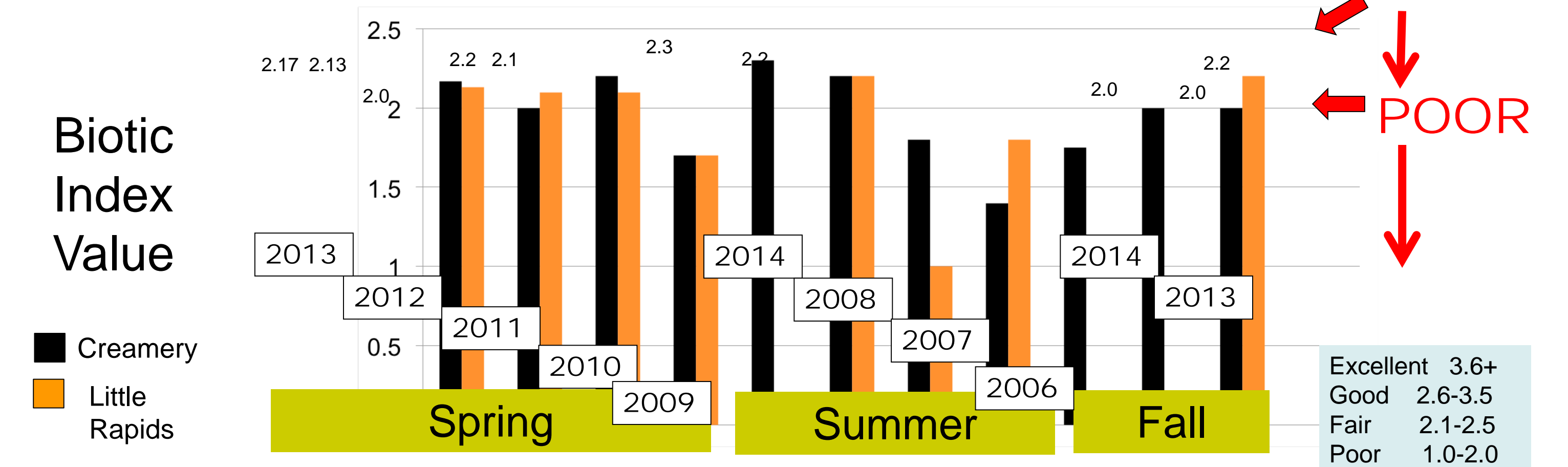
HEAT, HUMIDITY, & MOSQUITOS: NOTHING STOPS THIS SUMMER CREW!  
Alan, Jordan, Carlos, Blade, Miguel, & Destiny with their teacher Stefanie Stainton.



## SEASONS & BIOTIC INDEX

Spring vs. Summer vs. Fall: A Significant Difference?

ASHWAUBENON CREEK MACROS IN 3 SEASONS



It began as a question borne of arthropod envy: would biotic index scores assessed in *other seasons* hold up scientifically to the standard summer protocol? As a comparison to other streams, of course not. But could we ever "catch our stream being good"? With another year of data in the books, the crude analysis seems to indicate that the differences are negligible.