

# Michigan Chapter of the Soil & Water Conservation Society

## ANR SEMINAR

# SUSTAINABLE INTENSIFICATION OF THE RURAL LANDSCAPE:

## *Protecting Soil Health, Water Quality and Farm Profitability*

March 8, 2024, Seminar

### PRESENTATION ABSTRACTS

**Title: The Saginaw Bay Monitoring Consortium: Water quality results and their potential to inform conservation and restoration activities**

**Doug Pearsall, Ph.D.**, Senior Conservation Scientist

The Nature Conservancy, Midwest Division, and

**David Karpovich, Ph. D.**, H. H. Dow Endowed Professor of Chemistry

Saginaw Valley State University

Director of the Saginaw Bay Environmental Science Institute

The Saginaw Bay Watershed is Michigan's largest watershed; it spans 8,700 square miles, includes all or part of 22 counties, and has approximately 7,000 miles of streams and rivers. The watershed is in the east central portion of Michigan's Lower Peninsula and is a southwestern extension of Lake Huron. Excess sediment and nutrients have led to the degradation of stream fish and invertebrate communities, loss of reef spawning habitat, and excessive algal growth. Invasive species, such as zebra and quagga mussels have also caused complications with nutrient cycling in the Saginaw Bay and Lake Huron. The Saginaw River and Bay comprise an EPA designated Area of Concern (AOC) under the 1987 Great Lakes Water Quality Agreement.

Understanding the condition of a complex system, like the Saginaw Bay Watershed, requires robust, comprehensive data that capture trends in water quality over time. Data are needed on nutrients and sediment to evaluate tributary water conditions, determine annual loading to the bay, and monitor progress toward restoration. Such data would allow conservation efforts to focus on sub watersheds where sediment and nutrient run-off issues are evident.

The Saginaw Bay Monitoring Consortium (SBMC) has established a first-of-its-kind coordinated, comprehensive, multi-year tributary and open water monitoring framework for the Saginaw Bay Watershed. It will provide access to significant data for use by resource managers, scientists, and decision-makers to assist in evaluating and restoring this very important ecosystem. We will provide background on the rationale for this program, highlight initial water quality results, and describe how the program can guide soil conservation to have the best impact on water quality in the region.

**Title: Motivational Barriers to Implementing Conservation**

**Robyn Wilson**, Professor of Risk Analysis and Decision Science

Acting Associate Director of SENR

Ohio State University

Learning outcomes:

- 1) Understand farmer motivations and constraints as they relate to engaging in conservation
- 2) Know how to engage farmers better to increase participation in conservation

**Title: Stacking Conservation Practices to Improve Water Quality**

**Colleen Forestieri**, Senior Conservation Specialist

Van Buren Conservation District

Learn about the different on-farm conservation efforts the Van Buren Conservation District leads. Colleen will discuss watershed-scale cover crop projects and their partnership with the University of Notre Dame. This partnership provides research results that refine on-the-ground conservation efforts and communicate benefits with farmers. Lastly, she will share a little about a new project involving antibiotic resistant genes and their persistence in their environment.

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**Title: From the Field: Conservation in Action**

**Blaine Baker**, Owner

Bakerlads Farms, Clayton, Michigan

Blaine will talk about his experiences bringing soil conservation/soil health to his operation. We started out no-tilling using a multi coulter setup on the first corn planter, but that didn't make it through the season, Our second no-till planter was a double frame planter so we had the weight needed to penetrate the soil to get good seed placement. Now we use a planter that only has residue managers and spiked closing wheels. We tried annual rye several years ago, but had trouble killing it in the spring so we quit using it. We now have that figured out and aren't afraid to use it. According to Blaine, the biggest challenge in using conservation practices is "just getting people to use no-till.

**John Burk**, Owner

Burk Farms, Bay City, Michigan

Burk Farms is a diversified cropping operation in Bay, Saginaw and Arenac Counties, spread throughout the Saginaw, Tittabawassee, Pine and Kawkawlin River watersheds. John P. Burk farms about 4500 acres growing corn, soybeans, dry edible beans, sugar beets and white wheat. He has farmed with his now retired father for about 35 years, with the past 23 years including cover crops, and a ramping-up in the past ten years to include multi-species cover crop mixes and a more intensive soil health focus to improve organic matter, reduce inputs and build overall soil productivity. The presentation will include a brief overview of the operation including lessons learned over the 35 years: What works, what doesn't and what is the farm trying next?

**Lee and Marilyn Thelen**, Owners

Thelen Farms, St. Johns, Michigan

We will share the practices we have implemented and changes we have made over the years. We will also share some successes and maybe challenges we have experienced along the way.

**Title: Michigan Soils and Soil Landscapes: An Overview**

**Randy Schaetzl**, Professor

Michigan State University

Michigan has a highly diverse agricultural economy, and much of that can be attributed to its wide array of different soil types (and climates). In this talk, I will present images and maps of the major soil types that occur in Michigan, and explain their origins (mainly, the deposition of their geologic parent materials) and genesis. The great beauty and diversity of Michigan's soils will be made clear! Finally, land uses on these soils will be discussed and, again images shown.

**Title: The Pokagon Band's Dowagiac River Restoration:**

**A Tribal Wetland Project with a Decade of Progress**

**Jennifer Kanine**, Director of Natural Resources, Pokagon BandDr.

Over the past decade the Pokagon Band of Potawatomi has endeavored to restore ecological functions among the landscape within the Dowagiac River Watershed. Through a phased approach, 0.6 miles of dredged, straightened river were restored to 1.29 miles, while hydrologic functionality was restored to 53 acres of adjacent wetlands. Discussion will cover funding, permitting, and multiple steps leading up to the in-ground restoration as well as the process of restoring the river to its former sinuosity.