



MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY

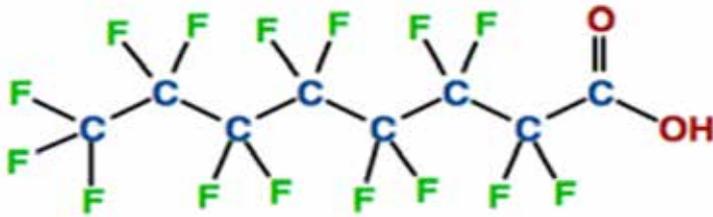
# Michigan Taking Action on PFAS

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UP Solid Waste Forum  
April 25, 2019

Phil Roycraft, District Supervisor  
Materials Management Division

# Per-and polyfluoroalkyl substances (PFAS)



PFOA - perfluorooctanoic acid

- Strong carbon-fluorine bonds
- Surfactants
- Hydrophobic (repels water) and oleophobic (repels oil, fat, grease)
- Began developing in 1940's
- 5,000+ compounds today

# Some Common PFAS Abbreviations

- Perfluorooctanoic acid (PFOA)
- Perfluorooctane sulfonate (PFOS)
- Perfluorononanoic acid (PFNA)
- Perfluorobutane sulfonic acid (PFBS)
- Perfluorohexane sulfonic acid (PFHxS)
- GenX
- ...

# PFAS Uses



**Aerospace**



**Apparel**



**Building and  
Construction**



**Chemicals and  
Pharmaceuticals**



**Electronics**



**Oil & Gas**



**Energy**



**Healthcare and  
Hospitals**

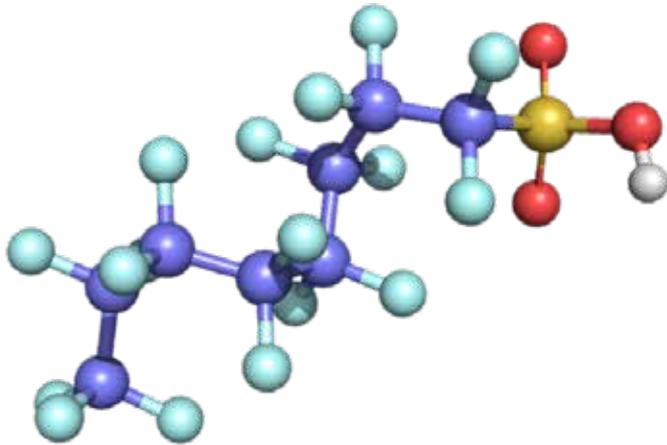


**Aqueous Film  
Forming Foam**



**Semiconductors**

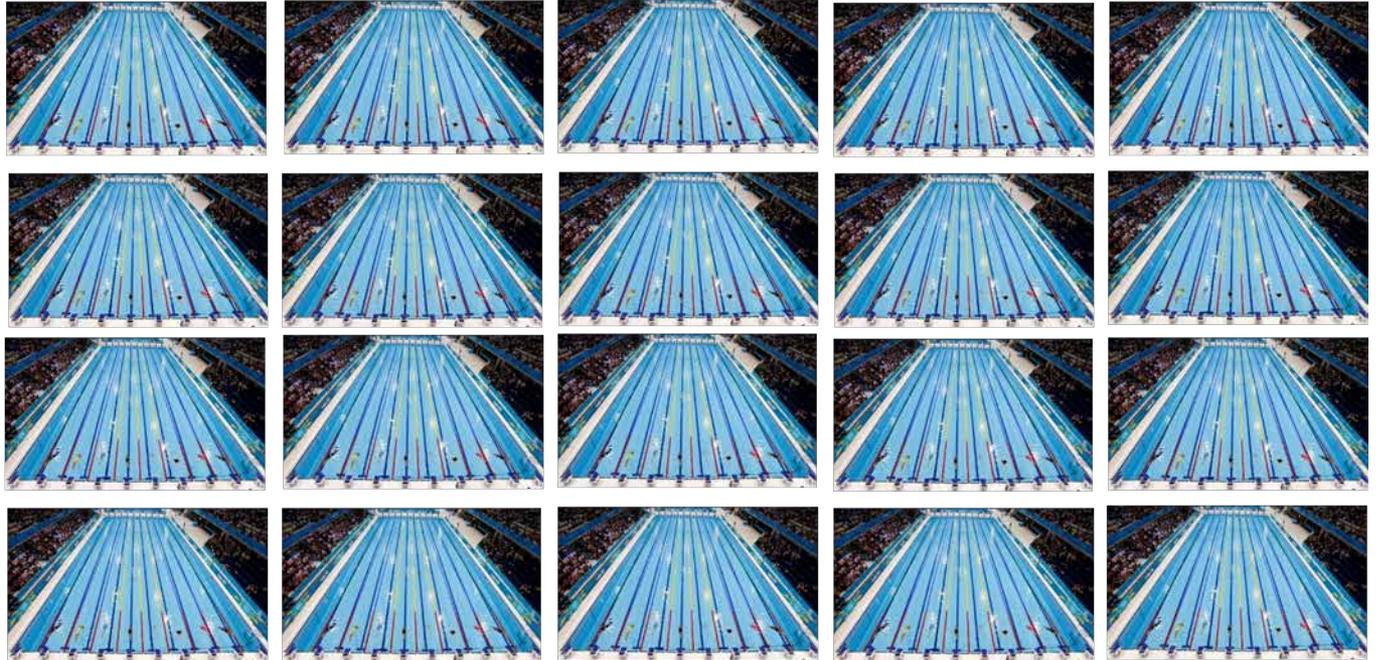
# Why the Concern?



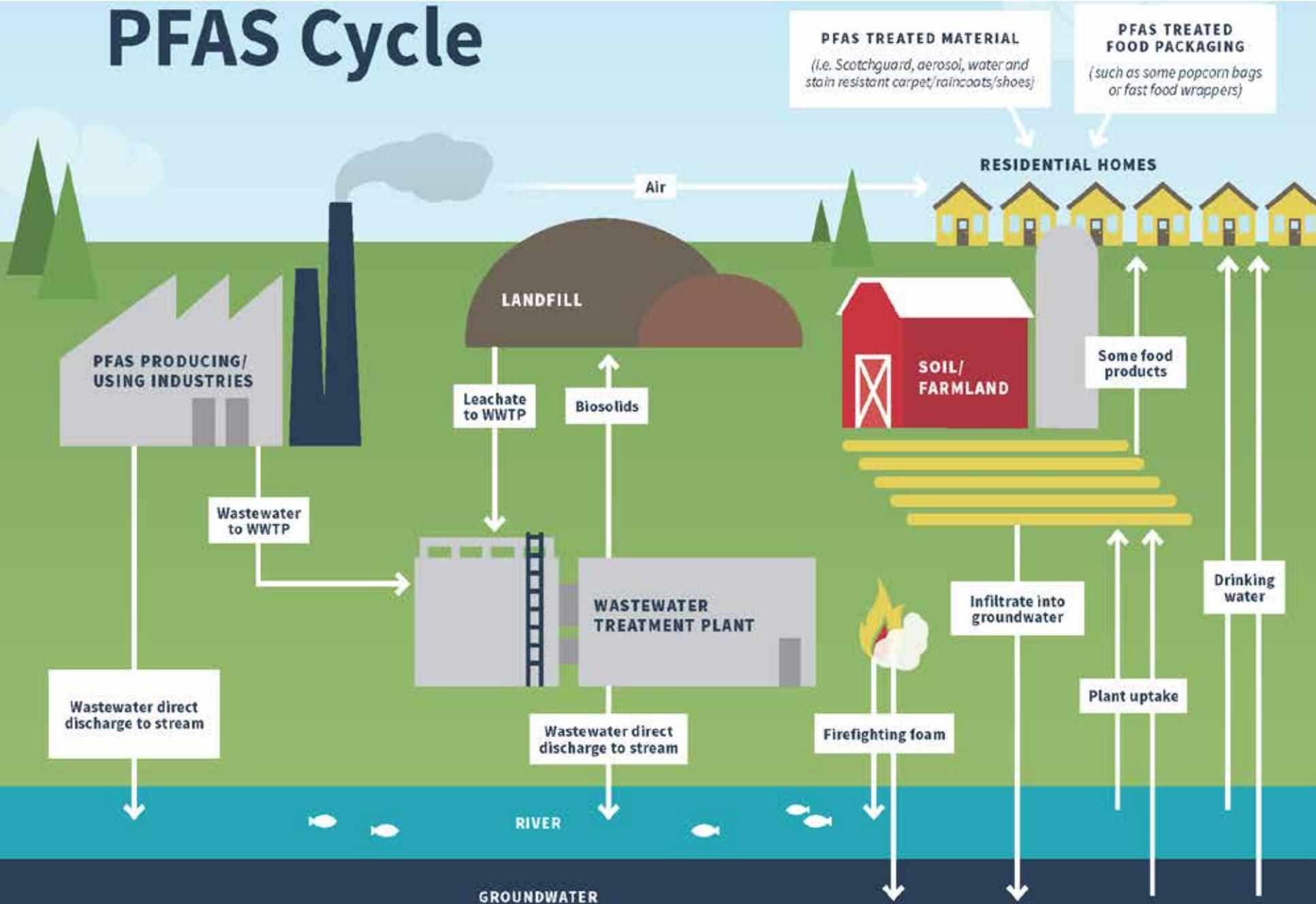
- Pervasive
- Persistent
- Bioaccumulative
- Associated with adverse health effects
- Scarcity of information in scientific literature
- Incomplete regulatory structure

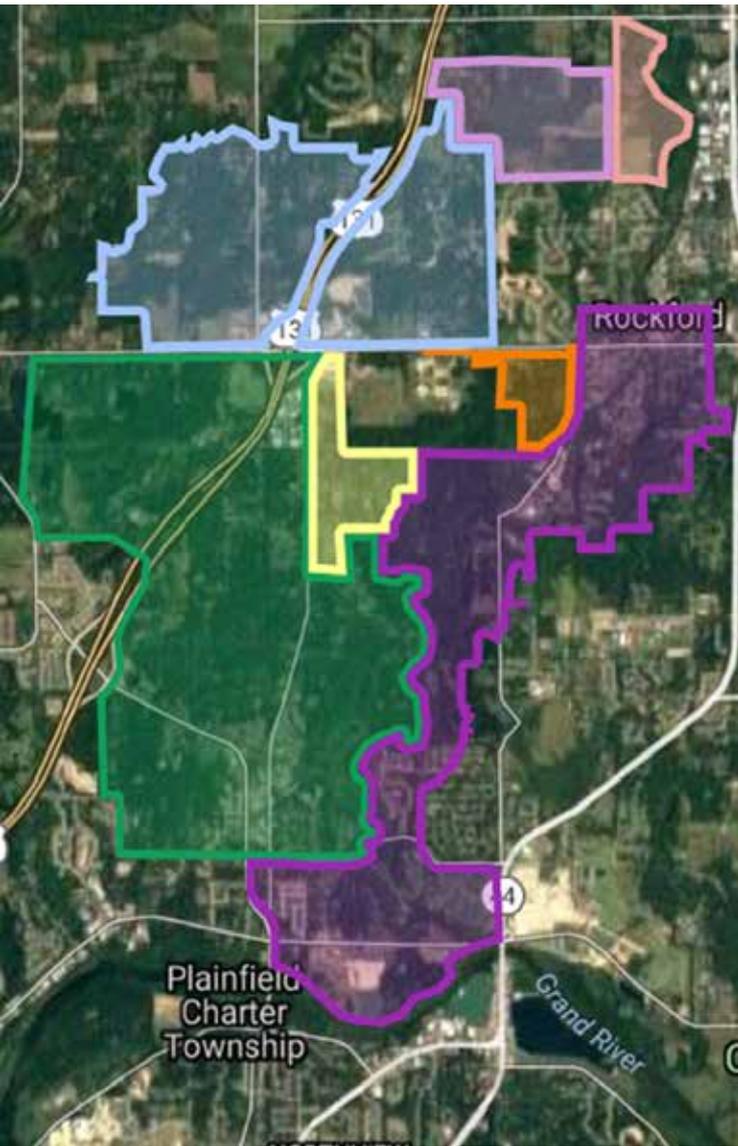
# Part Per Trillion

1 drop in  
20 Olympic  
Swimming  
Pools



# PFAS Cycle





# PFAS Emerge in Michigan

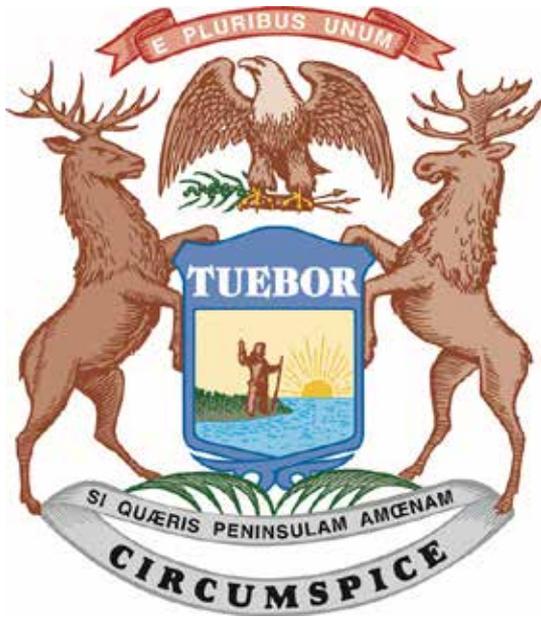
- 2012 Wurtsmith “Do Not Eat” fish advisory
- 2013 surface water recon sampling
- 2017 connecting channels data
- 2017 Camp Grayling sample data
- 2017 North Kent sample data



# Fire Fighting Foam

- State Fire Marshal survey of fire departments
- MDOT survey of airports
- Special equipment for required training
- PEAS Hotline after use
- Collection and disposal program

# Michigan PFAS Action Response Team (MPART)



- Unique multi-agency approach
- Leads coordination and cooperation among all levels of government
- Directs implementation of state's action strategy

# MI Standards

## Drinking water

- ✓ 70 ppt PFOA/PFOS lifetime health advisory
  - MCL

## Surface water quality

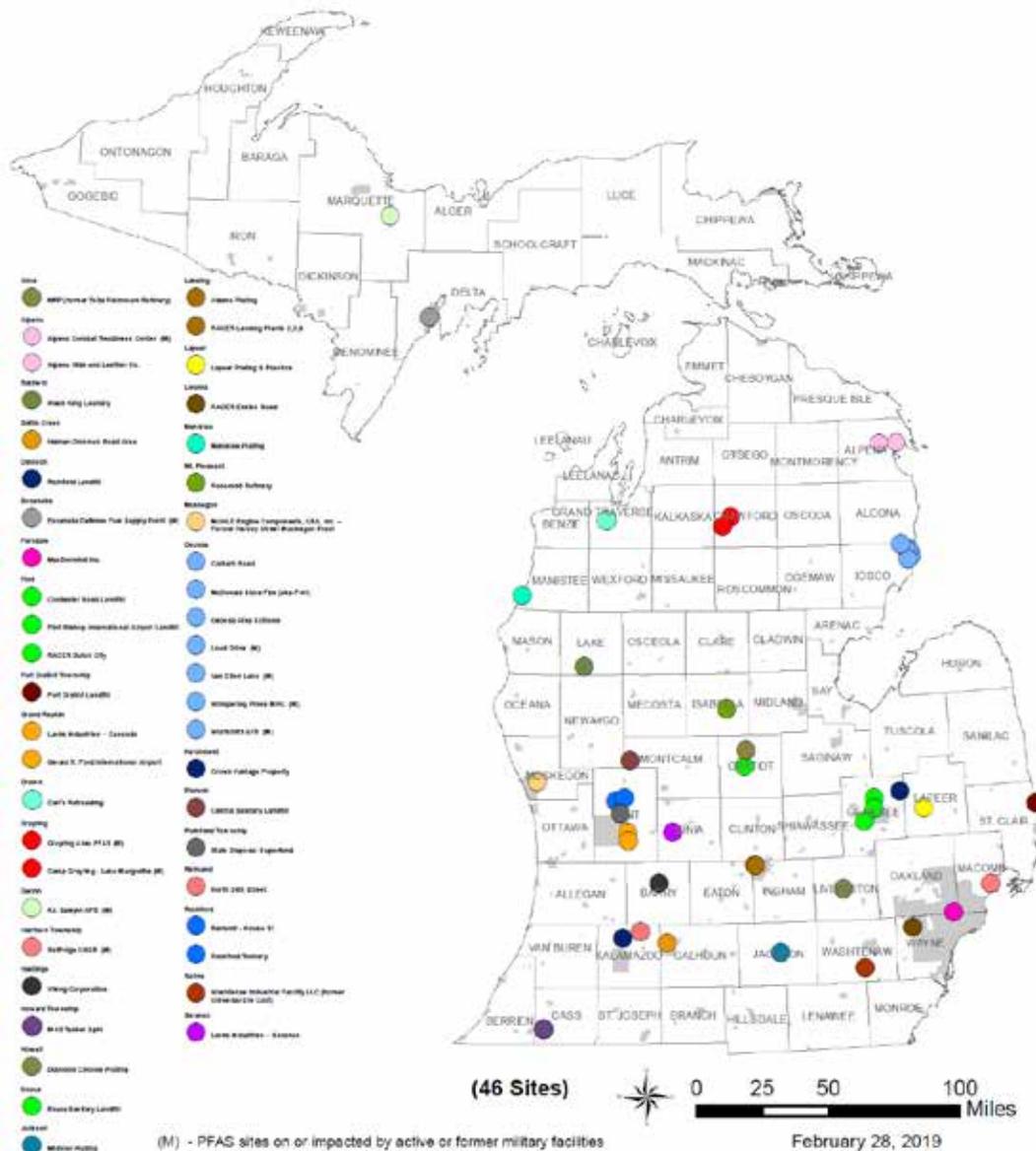
- ✓ 11/12 ppt PFOS
- ✓ 420/12,000 ppt PFOA

## Groundwater cleanup

- ✓ 70 ppt PFOA/PFOS
- ✓ GSI per surface water quality standards



# Sites Being Investigated



- Map represents sources of groundwater contamination over 70 ppt PFOS+PFOA
- Once a source is identified, it becomes an official site
- Multiple other investigations with no known source yet

# Mobility

- Highly mobile
- Unconventional
- Affected by organic carbon, pH, clay content
- Current models lacking
- More studies needed

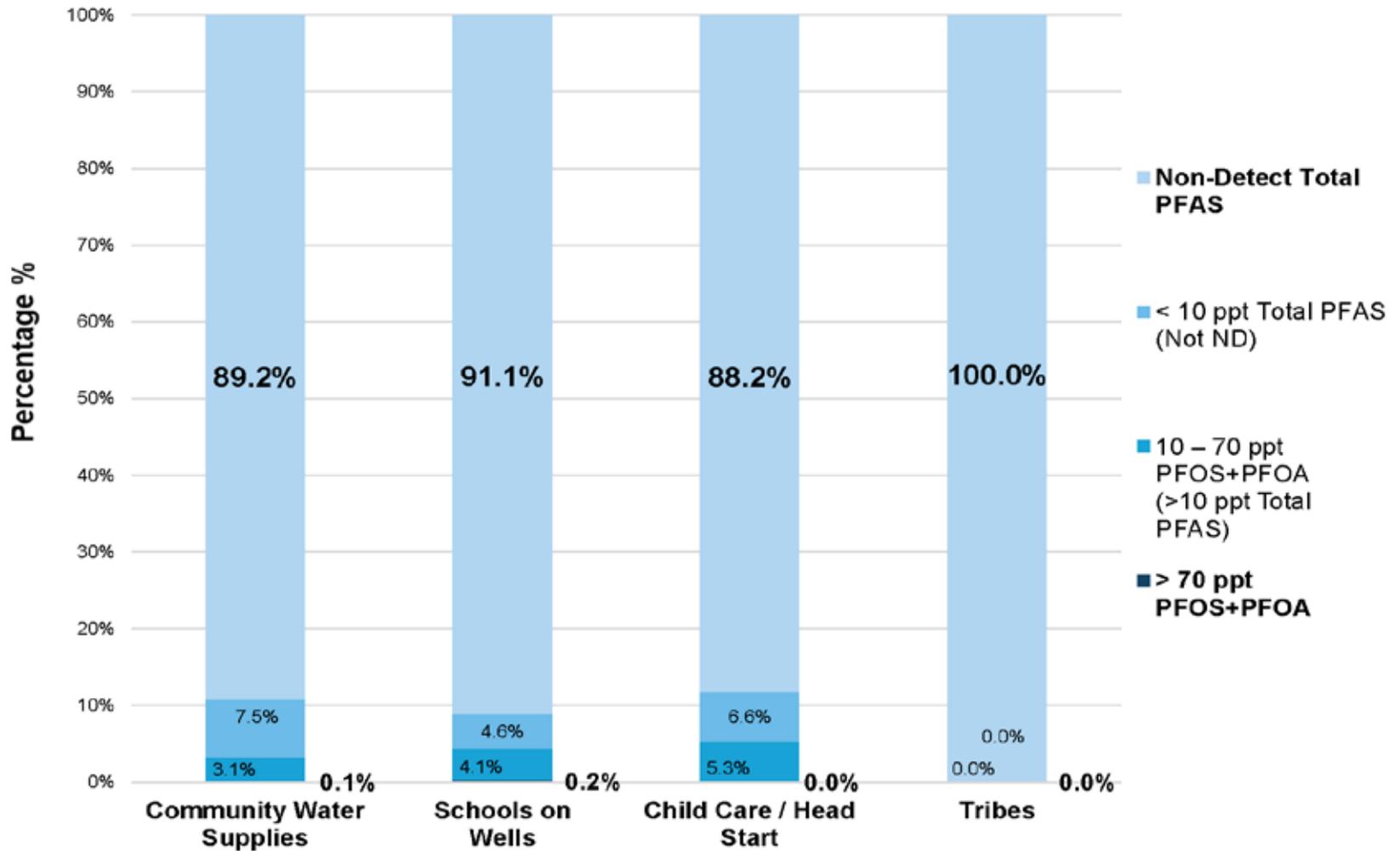


# MI Public Water Supply Testing

- All community water supplies
- All NTNCWS schools and day cares
- May – December 2018
- Will inform additional testing of other supplies

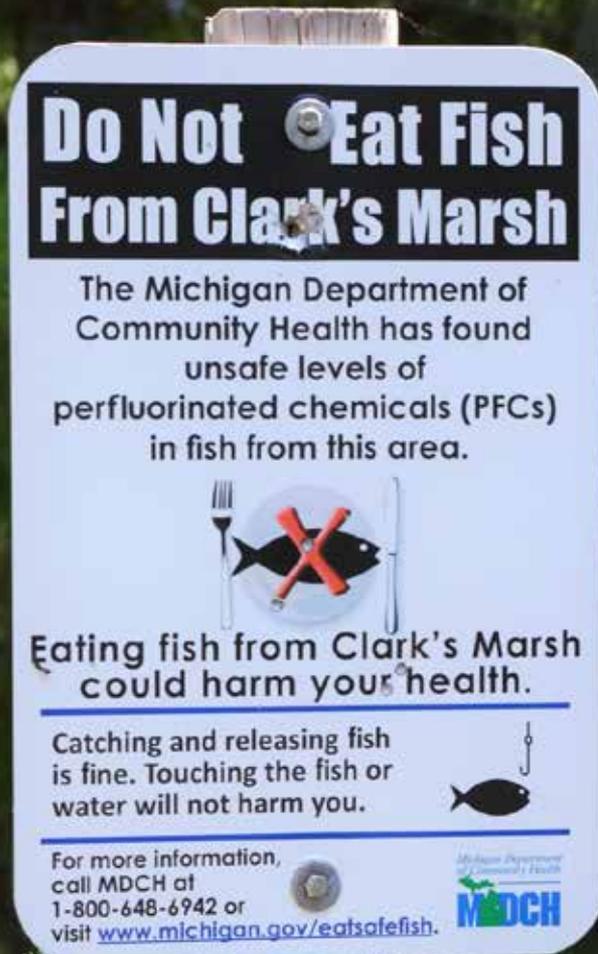


# Statewide Public Water Supply Testing Initiative Results\*

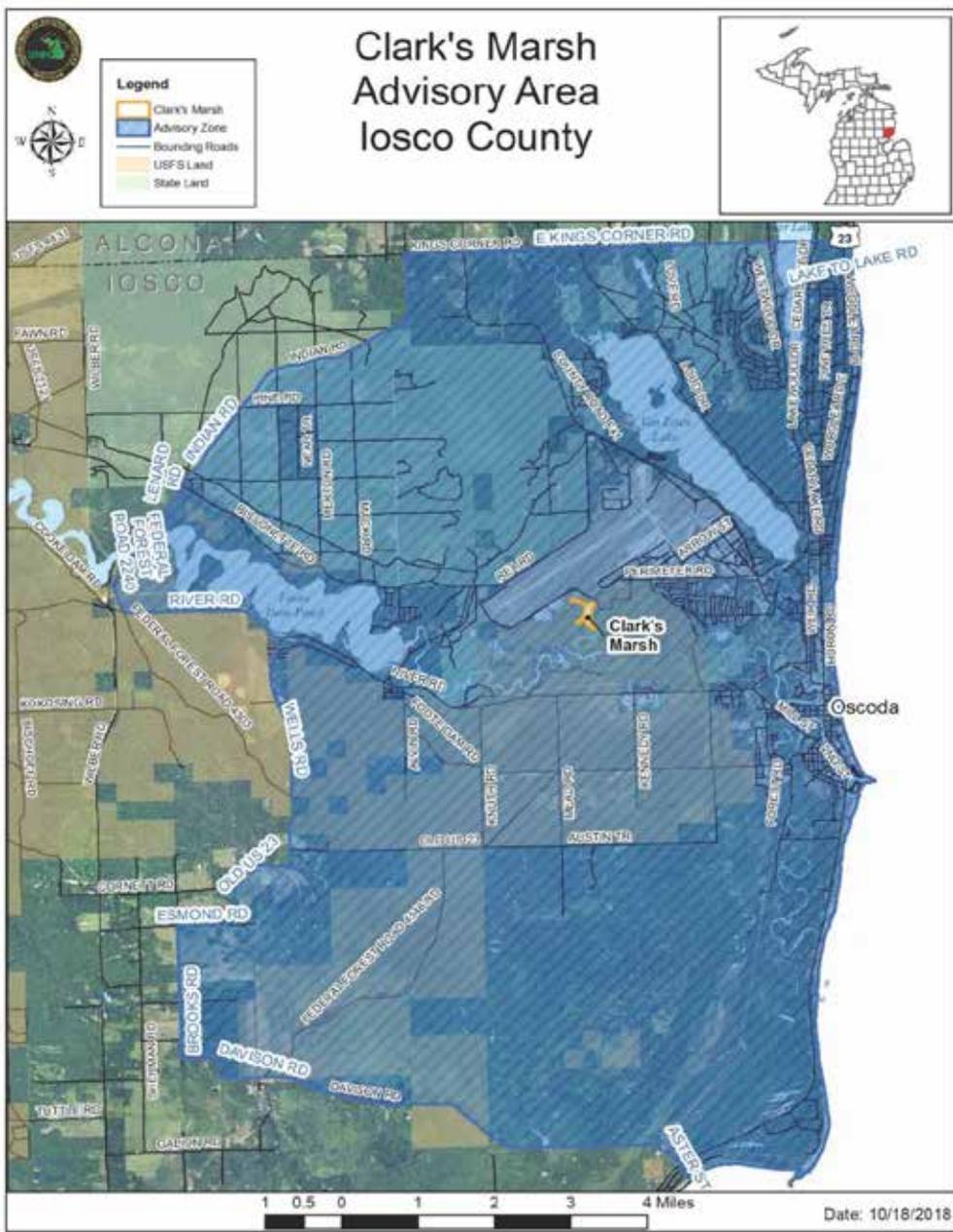


\*As of February 5, 2019

# Fish Consumption Advisories



- Over 600 fish filets have been analyzed at the Michigan Department of Health and Human Services Analytical Chemistry Lab
- PFOS fish consumption screening levels range from 9 ppb (ng/g) to >300 ppb ("Do Not Eat")
- 5 water bodies with "Do Not Eat" for PFOS (this includes the Huron River)
  - Approximately 60 fish consumption guidelines issued due to PFOS fish filet levels



# Deer Consumption Advisory

- 128 deer
  - 80 deer from four targeted areas
  - 48 samples from hunter-harvested deer (submitted for disease testing)
- 1 deer with elevated PFOS in muscle
  - “Do Not Eat” advisory issued within 5 mile radius of Clarks Marsh
- Additional testing planned

# Exposure and Health Assessments

- North Kent County
- Parchment
- Wurtsmith
- Camp Grayling



## Press Release

**FOR IMMEDIATE RELEASE:** Aug. 14, 2018

**CONTACT:** Angela Minicuci, 517-241-2112, [MinicuciA@michigan.gov](mailto:MinicuciA@michigan.gov)

### **MDHHS and KCHD release PFAS related-cancer incidence report for Kent County**

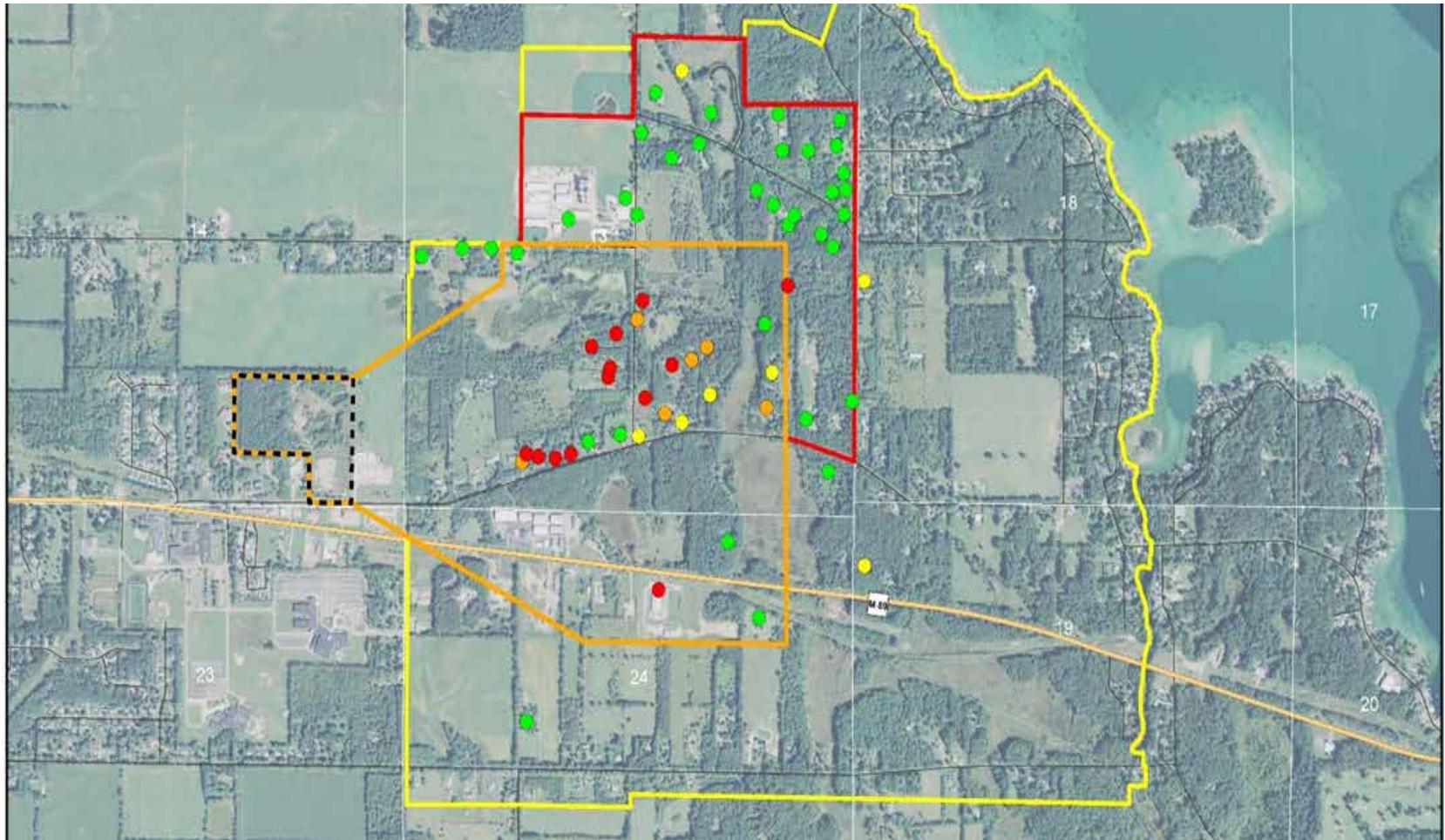
LANSING, Mich. – The Michigan Department of Health and Human Services (MDHHS) and Kent County Health Department (KCHD) today released a review of cancer incidence data in support of



# Landfill Initiatives

- Leachate management
- Historical groundwater releases
- Waste industry initiative

# Historic Landfill Release Sampling





Governor  
**Gretchen Whitmer**



**FOR IMMEDIATE RELEASE**

March 26, 2019

Contact: [BrownT56@michigan.gov](mailto:BrownT56@michigan.gov)

## **Gov. Whitmer Directs MDEQ To File a Request for Rulemaking to Establish PFAS Drinking Water Standards**

**LANSING, Mich.** –Today Gov. Gretchen Whitmer released the following statement commenting on Michigan’s intent to establish PFAS drinking water standards to further protect Michiganders:

“All Michiganders deserve to know that we are prioritizing their health and are working every day to protect the water that is coming out of their taps.

# More Information:

[www.michigan.gov/pfasresponse](http://www.michigan.gov/pfasresponse)

Michigan.gov

FAQS

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PFAS RESPONSE

## TAKING ACTION, PROTECTING MICHIGAN

HEALTH

TESTING AND TREATMENT

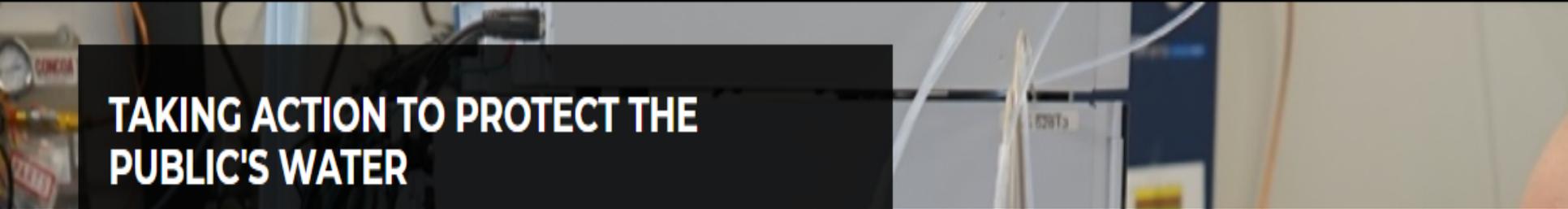


MICHIGAN PFAS SITES

FISH AND WILDLIFE

FIREFIGHTING FOAM

ABOUT MPART



TAKING ACTION TO PROTECT THE  
PUBLIC'S WATER

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