



**Michigan State Public Advisory Council
Business Meeting Minutes
January 29, 2024**

In Attendance:

Brian James Egen, River Raisin Area of Concern (AOC) (Chair of the State Public Advisory Council [SPAC])
Mikela Dean, Clinton River
Tricia Blicharski, Detroit River AOC
Robert Burns, Detroit River AOC
Erica Clites, Detroit River AOC, Michigan Sea Grant
Erma Leaphart, Detroit and Rouge River AOCs, Sierra Club, HOW
John O'Meara, Detroit and Rouge River AOCs
Christine Kosmowski, Kalamazoo River AOC
Doug McLaughlin, Kalamazoo River AOC
Corey Barr, Manistique AOC
Fallon Chabala, Muskegon AOC
Milward Beaudry, River Raisin AOC
Barry LaRoy, River Raisin AOC
Paulette Duhaime, St. Clair River AOC
Mike Langendorf, St. Marys River AOC
Horst Schmidt, Torch Lake AOC
Amber Faulkner, United States Environmental Protection Agency (USEPA)
Leah Medley, USEPA
Amy Pelka, USEPA
Andrea Schaller, USEPA
Mike Alexander, Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Brandon Armstrong, EGLE
Andrew Bahrou, EGLE
James Clift, EGLE
Kevin Cox, EGLE
Melanie Foose, EGLE
Sam Noffke, EGLE
Kimberly Passick, EGLE
Geoff Rhodes, EGLE
Dawn Roush, EGLE
John Riley, EGLE
Stephanie Swart, EGLE
Jen Tewkesbury, EGLE

Welcome - Brian James Egen, Chair

The meeting was called to order at 9:01 am.

Roll Call - Brian James Egen

Brian facilitated roll call as attendees introduced themselves.

Review of Agenda - Brian James Egen

Motion to accept agenda made by Erica Clites, second by Fallon Chabala, passed unanimously.

Review and Approve Minutes - Brian James Egen

Motion to approve minutes made by Horst Schmidt, second by Doug McLaughlin, passed unanimously.

Review of Action Items - Jen Tewkesbury

Jen listed the action items from the previous meeting and reported that all had been completed.

EGLE Update - Melanie Foose

Melanie thanked Jen Tewkesbury for organizing the meeting. She apologized for the delays in travel reimbursement being remitted. EGLE has brought in Elizabeth Collins as an [Equity and Inclusion Officer](#). Melanie reported that she is still working toward hiring two new AOC coordinators and that hiring package is complete and is working through approvals. She is hopeful that it will be posted soon. One of the coordinators will have responsibility for the binational AOCs of St. Clair, Detroit, and St. Marys, and the other will coordinate Saginaw, Manistique, and the River Raisin. The Water Resources Division (WRD) director, Teresa Seidel, has retired from EGLE and is now the new director of USEPA's Great Lakes National Program Office (GLNPO). Phil Argiroff is the acting director for WRD until a new director can be hired. The new director position has not yet been posted.

EPA Update – Andrea Schaller & Amy Pelka

GLNPO has a new director, Teresa Seidel, formerly from EGLE. There have been numerous briefings with Teresa as she gets becomes familiar with all of the work GLNPO does and continues her onboarding. They have some new staff on board and coming in the form of new AOC project managers and more to include support for outreach, Legacy Act work, and staff support. Hopefully five more staff this spring. They are also looking to hire a new great Lakes Legacy Act lead. There will be some changes in the next few months along with the new faces to move the program forward. For Action Plan IV, they have received and are reviewing comments from the states and are waiting on comments from Tribal communities. They anticipate that the draft plan will go out for public notice in the spring. Amy shared that some approvals meetings are taking place with Teresa to evaluate projects for funding. The list of approved

projects should be out soon, but for those who would like more information, they can speak with their Task Force Leads. There was a question regarding the impact of the continuing resolutions on USEPA funding. The response was that they are able to move some funds around and move forward with some projects and hiring at this time. The new deadline is March 8, 2024 and they will see if a budget is finalized before then. Andrea mentioned that they are working on intentionally including environmental justice focus and community input on projects, especially where they can be tied to management actions in the AOC program. Moving forward, as projects are proposed they'll be looking at how community feedback can be incorporated. Things such as increased access, interpretive signage, and other that can be included as part of design. This approach is in line with goals in the broader Great Lakes Water Quality Agreement that points to using access, use, and recreation.

SPAC Habitat Subcommittee Report - John O'Meara

John thanked Bill Craig, the previous chair of the subcommittee for his service. The subcommittee last met in October and much of the focus was monitoring and maintenance and what it means. There are varied views as to what monitoring and maintenance entails, but they are working toward an understanding of the range of what applies to a particular site, recognizing that sites are all inherently different. One of the things the group is currently focused on is developing a depository of examples of monitoring and maintenance activities and reporting, schedules, etc. for others to access as they move forward on their individual projects and the needs will vary according to the project and AOC. The one overall concept they are trying to express is a sense of general understanding what monitoring and maintenance might look like and that it changes as you move through time so that it can be shared with landowners, project managers, etc. Needs change over time and some people have had concerns in how to express responsibilities to landowners in particular as they may be daunted by a long-term expense which may not be the case. John has agreed to be the new chair for this subcommittee and will be working with Jen to set up meetings for 2024.

SPAC DEIJ Subcommittee Report - Doug McLaughlin

The subcommittee had established three goals for 2023. Goal 1 was to create a suite of accessible materials to be used as tools to recruit, orient, and/or retain new and diverse members to their individual PACs and progress was made by multiple PACs in this area. Goal 2 was for PACs to share activities they were had been or were currently involved in that could be described as an attempt to address DEIJ. Many PACs developed lists of these activities and they have been compiled and shared with committee members. Goal 3 was for PACs to encourage awareness and alignment with the Justice 40 Initiative and keeping it in ways the PACs can come into alignment with it. For 2024, Goal 2 being revised to include some concrete measurements to track progress and provide metrics for success. Some discussions to assist with this have included comparisons of various EJ screening tools such as the USEPA's [EJScreen](#) and EGLE's [MiEJScreen](#) and how they can be used to assist PACs in identifying areas for impact. Melanie shared that anyone is welcome to attend these subcommittee meetings; they are not limited to the SPAC representatives or to a single representative for the AOC.

The next meeting is February 12, 2024 at 1 PM and will include a tutorial on the Michigan EJ Screening Tool by Chris Vandenburg from the Water Resources Division. Anyone with interest is invited to attend this meeting and learn more about the screening tool. Melanie offered to provide a link to the meeting for anyone who wishes to attend.

Doug also mentioned that Melanie contributed an article to the [2023 State of the Great Lakes Report](#) which discusses expanding DEI in the work done in the AOCs.

SPAC Bylaws Update - Brian James Egen

There had been a recommendation that the Bylaws be reviewed every year or two to ensure they were up to date and applicable to the needs of the group. To that end, a small subcommittee agreed to review the bylaws and make revisions as needed which included Brian James Egen, Marie McCormick, Patty Troy, and Eric Diesing. The groups' comments have been compiled and integrated into the document and they are close to providing an updated version for the SPAC to review. One goal was to strengthen DEI language, clean up and clarify some items, and revise or remove information that was no longer pertinent or needed to be updated. There are still some outstanding questions that need to be answered but the group plans to have the final draft out for representatives to review well in advance of the next meeting.

PAC Report Outs – All

St. Marys River – Mike Langendorf

Mike shared that at their last meeting they had a report out from their RAP coordinators. The Canadian side released a fairly in depth report that has been working its way through various agencies to begin removing the Beneficial Use Impairment (BUI) for the restrictions on dredging BUI on that side. They discussed the results of the report and are encouraged by where that's heading. They are currently updating their PAC bylaws to be more welcoming and inclusive in the hopes of attracting some new members.

St. Clair River – Paulette Duhaime

The BPAC held their last meeting in October and on the Canadian side they approved the removal of the drinking water BUI. They are hopeful that it can be removed on the US side this year. They received the results of a fish consumption survey conducted by Canada which were encouraging. However there was some question on whether the indigenous population which uses subsistence fishing was adequately represented. There is an effort to receive more input from the indigenous community and they expect to have an update at their next meeting. They are continuing to work on updating the spill notification process, which is quite involved. Over the years there were frequent spills but that has slowed considerably. They are currently getting feedback from a number of organizations to work out a flow sheet to describe the process and to use it as a tool to inform the public. They hope to have it completed within the next six months. They have also discussed approaches to having more in person meetings, and to foster community involvement. They decided to hold two virtual meetings and two in-person

meetings, one in the U.S. and one on the Canadian side and they hope to initiate that this year. For the virtual meetings, they are discussing how to make them more accessible to the public as that has been a challenge in the past. Patty Troy has stepped down from the SPAC but is still involved in the BPAC.

Manistique River – Corey Barr

Corey said that there isn't much activity lately and he is essentially a PAC of one. John Riley continues to work toward the point of delisting but there are a few more hurdles to overcome, chiefly the fish consumption BUI. There was some discussion on where they were on the fish tissue sampling and it was mentioned that the Eat Safe Fish advisories are put out by the Department of Health and Human Services (DHHS). EGLE and DHHS work on cooperation to collect and analyze fish tissue.

Muskegon Lake – Fallon Chabala

Fallon stated that the PAC submitted a letter of support for the removal for the Eutrophication BUI. The [draft removal recommendation](#) is posted for [public comment](#) and the comment period ends on Monday, February 19, 2024. The benthos BUI removal document, their final one, is in process. A habitat committee that was meeting monthly to perform habitat maintenance and invasive species control at the restored sites is taking a break with the winter but will restart their work when the weather gets nicer. This is an ongoing effort to work with local governments, landowners, and developers to ensure public access to the natural resources. The group is also working to secure funding to develop a watershed management plan (WMP) which will help after delisting. Melanie wanted to highlight that Muskegon and Manistique are both very close to delisting and celebrated their success and hard work.

Kalamazoo River – Doug McLaughlin

Doug provided an update on outreach related work, trying to identify through various mechanisms, contacts, and relationships what organizations in the AOC can be reached out to. They feel as though they are making progress in this area. Due to the size of the AOC and the fact that it is also a Superfund site, it can be easy to lose track of the work and projects that are being or have been done. Doug is working on a StoryMap to highlight these projects and how they integrate into the whole of the AOC. This also integrates some of the history of the PAC and AOC. He feels this will become a valuable tool for the public and others to really see the progress that has been made and the status of current projects.

Torch Lake – Horst Schmidt

Horst stated that their last meeting, which was for planning, was in person in December and he was unable to attend so he did not have details from it. The January meeting was cancelled due to snow, so they will resume meetings in February. He asked Stephanie Swart to step in to share the progress of the projects being managed by Mannik Smith. She shared that there was a pilot study to test some capping and wetland plots to determine effectiveness of improving benthos in portion of the lake. The work has been completed and they are working on reviewing the final report, which has been received. What she can say at this point is that in terms of the wetland portion, it was successful but the data on the capping portion is a little more uncertain. The goal with this report is to get it to the group that met in 2019 at a

summit to discuss what they could do and what possibilities there were. They will release the report to the group- and meet in May to discuss how to go forward with next steps. Additionally, they are working with USEPA and Honeywell to implement a Legacy Act project in two portions of Torch Lake; moving forward with one portion in 2025. This will be a sediment removal project. The other portion will be a pilot study to see if it is possible to remove some of the barrels at the bottom of the lake with the goal that if successful, they will implement that project. The barrels were placed in the lake somewhere around the 1920s or so and it unknown if they are intact or if they would disintegrate if disturbed. It is also not fully known what the contents of the barrels are.

Saginaw River/Bay

Jen Tewkesbury shared that they are working on getting better participation in the PAC. There is a lot of monitoring occurring in the area and there is continued work at the Superfund sites.

Detroit River – Erica Clites

Erica reported that the PAC met earlier this month with active participation from the Canadian side. They have a subcommittee on habitat projects which is continuing outreach to landowners for projects beyond those required as part of the BUI removal; looking toward life after delisting. Work on the city of Detroit WMP is also starting out soon which focuses on areas of Detroit that are not covered by the current plan. The last habitat project at the Upper Riverfront Parks, has not yet begun but USEPA is setting up a meeting with the city to discuss options for proceeding. In sediment projects there is work going on; the Wilson Park cap project is complete, and there is design and investigative work being done on other projects. Bob Burns also shared that they are waiting on USEPA, USACE and city of Detroit on the Upper Riverfront Parks project that was put on hold due to flooding. They hope to hear soon if work on that project can begin. The Sugar Island project is roughly 80% complete and it is expected to be completed in late spring or early summer. It is hoped that in the next few years they will be able to remove the Habitat and Populations BUIs. On the Canadian side, they have four BUIs; fish deformities, fish consumption, fish and wildlife habitat, and fish and wildlife populations. They appear to be close on the deformities and consumption BUIs. They have two remaining projects for habitats, estimating completion in 2028 and for populations likely a few years away.

Rouge River– Erma Leaphart

Erma has that the Rouge has roughly 20 projects in various stages; three were completed last fall, ten are vegetation maintenance, and that will receive further invasive species treatment. In the lower Rouge there was a reforestation installation; mats were installed and there will be an inventory to see how many survived. Contractor site work has commenced at one location and will involve wetlands, wet prairie, and reforestation. They are expecting two more contracts to be signed with site mobilization to begin in April 2024. About six other projects are in various stages of design, permit approvals, construction, contracting, and bidding. They will also begin work on the first EJ project approved by USEPA nationwide so they are very proud of that. The project involves recreation access, outreach, and design, collecting community input on the process. Sediment projects are a challenge and they need more partners to provide non-federal match. At their last meeting they had a presentation from University of Michigan

(UM) student, Olivia Williams. She discussed Procedure 51 and a comparison of electroshock and seining. The conclusion was that seining is less expensive and is comparable to electroshocking. They contracted to provide the Intercultural Development Inventory and held an implicit bias training for any interested members and they had a good turnout.

Melanie shared that EGLE is working on a statewide assessment of the fish tumors BUI is impaired in the St. Marys, Detroit, and Rouge AOCs. EGLE is working towards a study of those three AOCs to gather fish and do analysis to look for the existence of liver tumors to assess that BUI. Fish were gathered in the St. Marys this past spring with a total of 113 fish collected and their livers analyzed. This season they will be investigating the Detroit and Rouge Rivers by collecting brown bullhead and checking for liver tumors. As bottom feeders, they are a good indicator species. The Huron River is being used as a control site. They do not anticipate that this will result in a BUI removal for the Detroit and Rouge Rivers, but they wanted to get a data point.

Clinton River – Mikela Dean

Mikela reported that there was a planning meeting earlier this year. Their first PAC meeting of this year will focus on prioritizing and evaluating their BUIs. They have been participating in the DEIJ subcommittee and have pairing that work with meetings to look at broadening membership and accessibility of the PAC. They are updating communication around this aw will and will be updating their bylaws to reflect DIEJ goals and encourage participation. On the BUI side, they are continuing monitoring on the completed habitat sides using P51 looking at macroinvertebrate communities at the sites over time. For the eutrophication BUI they have some new sampling starting this year to clarify the picture for it. They will also be hosting the SPAC meeting this fall.

River Raisin

Brian shared that they are primarily in a monitoring stage and believe they will be getting some results from sampling that occurred in 2023. There is some significant and focused monitoring in River Raisin AOC and the USEPA Office of Research and Development is doing a lot of that work, so they are waiting on that analysis and data to come back and then take it to the PAC in spring/summer to provide information. They continue to look for outreach opportunities; they will likely attend Earth Day celebrations in Monroe County. They are planning a major outreach event and a showing of their documentary on Saturday, May 4, 2024 in Monroe. They have some changes in the PAC/COTE members. The mayor has assigned a new city council liaison; Michelle Germani, in an effort to reduce some of the pressures from Councilman Andrew Felder, who has been serving for several years. Also new in the educational slot is Dr. Julie Everly, formerly the superintendent of Monroe Public Schools and current Human Resources director for the city of Monroe. With her they hope to get some of their educational projects going. Barry LaRoy shared that there are a total of seven outreach initiatives planned. For one of them they have been working with a consultant to address a dam structure that is in disrepair and needs some maintenance work. They have applied for grants with the National Oceanic and Atmospheric Administration to remove the dam or rebuild it. It is a low head dam that has a sanitary sewer going through it that was installed in the 1930s to move sewage from the north to the south side of the river.

They should be notified in March on the status of their applications. There was some discussion regarding maintenance from the document they received from a UM student project and from a strategic plan they completed two years ago which includes a grant task to inspect some of their completed projects to ensure they are functioning as designed and providing benefit. Milward reported that there are a lot of residents getting involved in the river clean up that they host annually in August with roughly 250 participants in 2023. They are looking forward to another successful event this year.

There was discussion regarding how updates may not always provide a full picture for those unfamiliar with the work taking place in the AOC. It was mentioned that during virtual meetings it is possible to share photos or other items with the group. It was also asked if there was a table that summarizes what stage the different AOCs are in such as with management actions complete and the year. USEPA's [map of Great Lakes AOCs](#) shows the status, management action ongoing, completed, or delisted. EGLE's [BUI progress chart](#) is also available to show the progress of the AOCs. This page also has links to each individual AOC which provides detailed information on BUIs, removals, habitat projects, and more.

Guest Speaker - James Clift, Deputy Director, EGLE

The [Deputy Director](#) shared that he has been with EGLE for five years and his [realms of responsibility](#) are the [Office of the Great Lakes](#), the [Office of Climate and Energy](#), the [Office of the Environmental Justice Public Advocate](#), the [Office of the Clean Water Public Advocate](#), [Office of Legislative Affairs](#), and [Office of Public Information](#). Prior to EGLE, he was with the Michigan Environmental Council for 20 years as their policy director. He also worked as an environmental policy analyst for the Michigan Legislature. A lot of what he has been involved with has been determining how to allocate resources to communities around the state. Director Roos sends his apologies for being unavailable for today's meeting but sent thanks to everyone on the SPAC. Director Roos has done a great deal of strategic planning for environmental groups and is bringing that experience to EGLE. He is interested in making investments in staff and other resources that are necessary for success. One of his goals is to make Michigan an enduring national leader in pollution reduction and resources protection. He would like develop tracking mechanisms to see where we are at and where we are going. The AOC program is quite familiar with tracking progress through the use BUI removals. One question that has been front of mind for EGLE is how to improve engagement with external stakeholders to build trust and create partnerships in the work we are doing. There is a focus on bringing more people to the table. Working toward that goal they have brought in a Community Outreach and Engagement Specialist, Lisa Herron, and in the Office of the Great Lakes, Katie Mika has been hired as the Great Lakes Stewardship Coordinator. They are looking to engage with groups and become resources. They have been updating EGLE's public participation policy. As the world worked its way through the Covid pandemic, it brought a whole new array of new tools, virtual technology, and they've been trying to determine how to best utilize them. Another area they are working on is how to address limited English proficiency in some areas and how interpretive or translation services can help accomplish goals. Part of their effort and James' personal passion is to get out more and get more firsthand knowledge regarding the success and challenges of the PACs. To that end, when PACs are holding meetings locally, feel free to reach out to your coordinators if you would like members of the engagement team to sit in if you feel that would be helpful. It's a two-way street in that

EGLE wants to assist PACs, but can also EGLE learn about how successes have been achieved and what were the challenges that may have held you back from accomplishing doing more? If EGLE can understand that they can apply to other programs and help locate resources to direct to the PACs. He also mentioned that there is a new [groundwater database](#) where they are working toward housing data from numerous sources into a single area. This is a tool for staff as well as the public to enhance transparency about what is happening in our communities. They are working on enhancing it over time as they continue to add data.

EGLE PFAS Sampling Update - Brandon Armstrong and Geoff Rhodes

Geoff's presentation focused on [Surface Water PFAS Monitoring](#) and Brandon's presentation was about Michigan's [Fish Contaminant Monitoring Program](#). The slides from their presentation can be found at the end of these minutes.

Call for Topics/Agenda Items – all

- SPAC Bylaws update
- Healing Our Waters Great Lakes Coalition sponsors congressional visits twice a year and a report out on the results of those meetings could be a good topic for the SPAC
- The author of a book who may be a good keynote speaker. The book was about the Clinton River.

A poll was added to the chat to set the next meeting date. The best meeting date, per the poll was determined to be Wednesday, June 5, 2024.

Review of Action Items - Kimberly Passick

- Melanie Foose will provide pictures from the October meeting of Patty and Bill for the minutes
- John O'Meara and Jen Tewkesbury will set up a poll to establish meeting times for the habitat subcommittee
- Kimberly Passick will attach Melanie's State of the Great Lakes article to the minutes.
- EGLE will check the representative list on the SPAC website and revise as needed
- Kimberly Passick will include the PFAS presentation with the minutes

Motion to adjourn

Motion made by Horst Schmidt , second by Doug McLaughlin, passed unanimously.

Adjourned at 1:54 PM

Special Presentations to Patty Troy and Bill Craig

Bill Craig and Patty Troy stepped down from the SPAC as representatives after many years. At the meeting in October 2023, held in Sault Ste. Marie, they were presented with a group photo from 2022's SPAC meeting in Monroe and a card of thanks. Their hours and hours of service over the years are greatly appreciated.







Public Advisory Councils grow, diversify to meet 2030 challenge

By Melanie Foose, Michigan Department of Environment, Great Lakes, and Energy

Since the United States and Canada created the [Areas of Concern](#) (AOC) program in 1987 under the Great Lakes Water Quality Agreement, Michigan's AOC program has worked in strong partnership with [Public Advisory Councils](#) (PAC) to remediate contaminated sediments, restore habitat, and revitalize the communities of our state's 14 original AOCs.

These PACs are the keystone of the AOC program, providing advice based on local knowledge. Over the past two years, PACs have worked within their communities and the Michigan Department of the Environment, Great Lakes, and Energy (EGLE) to expand and welcome all who are interested and live or work in these AOCs. The PACs have created goals to encourage diversity, equity, and inclusion and stay mindful of past environmental injustices.

As PACs work to expand membership to truly represent their communities, they remain focused on the program's ultimate goal: removal of AOCs from the list of the most polluted areas of the Great Lakes, known as delisting.

Since the initial listing of 43 AOCs throughout the Great Lakes in the United States and Canada, three of Michigan's 14 sites have been successfully restored: White Lake, Menominee River, and Deer Lake. Eleven are in progress. In the remaining AOCs, meaningful progress and momentum continue with millions of dollars being invested to clean up legacy pollution, restore habitat, and eventually delist the sites.

With the recent infusion of additional federal funding through President Joe Biden's Bipartisan Infrastructure Law (BIL), EGLE has its sights on a "moonshot" goal of completing most of the work to delist these areas

(Above) Members of Michigan's Statewide Public Advisory Council (SPAC) gather to share information and ideas at their fall 2022 annual meeting in the River Raisin Area of Concern (AOC). SPAC members represent each of Michigan's 11 remaining AOCs. Photo courtesy of EGLE.

as AOCs by 2030. The U.S. Environmental Protection Agency's Great Lakes National Program Office presented this moonshot goal, which Michigan accepted and is urgently working toward.

One way to track progress is the listing of [Beneficial Use Impairments](#) (BUI) – environmental problems that each AOC identified in the 1980s or 1990s with the establishment of their original Remedial Action Plan. Michigan AOCs had a total of 111 BUIs and crossed the halfway point in restoring these beneficial uses in May 2023, when two BUIs in the Muskegon Lake AOC were removed following extensive fish and wildlife habitat restoration. There are now 54 BUIs left, and EGLE is working dutifully with federal, state, and local government partners; nonprofit organizations; and especially the dedicated and passionate local residents and PAC members on the work that remains.

Much of the remaining work is the hardest of the AOC program: cleanup of contaminated sediments. It will take perseverance and time. Groundwork for these cleanups is already underway, including in the Rouge and Detroit rivers, which, after nearly 200 years of industrial development, have a multitude of contaminants to clean up. Extensive surveys have been completed in both of these AOCs and others in Michigan to determine what contaminants are present and where. Projects have already been completed, with many more underway and in design right now, to remove these contaminants from the ecosystem. As these projects are completed, the environment can heal and become cleaner and safer for fish, wildlife, and the people who live in these communities and enjoy these natural treasures. ♦

PARTICIPATE IN A PAC

The Michigan AOC Program is seeking more diverse and inclusive participation in local PACs that are reflective of the AOC communities they represent. For more information about the Michigan AOC Program and opportunities to participate in a local PAC, visit the [Michigan AOC Program website](#) or contact Melanie Foose at FooseM@Michigan.gov.

Melanie Foose is the unit supervisor of EGLE's Great Lakes Management Unit, which houses the Areas of Concern and Great Lakes Coordination programs. She enjoys walks through Michigan's beautiful woods, water, and wetlands with her camera, especially in the spring.



Dredging of contaminated sediment is part of remediation efforts in the Rouge River Area of Concern. Photo courtesy of EGLE.

RECOGNIZING A GREAT LAKES CHAMPION

EGLE Great Lakes Management Unit Supervisor Rick Hobrla retired in March 2023 after 47 years of service with the State of Michigan.

During his career, he helped bring new talent into the department and hired more than 50 staff members. He led several water quality programs, including the Great Lakes Water Quality Agreement Areas of Concern Program and Great Lakes Coordination Program for more than 25 years.

He presided over the restoration and formal delisting of three of Michigan's 14 Areas of Concern and completion of management actions for five others. Hobrla also represented the former Department of Environmental Quality and EGLE on the multi-agency Lake Superior, Lake Michigan, Lake Huron, and Lake Erie Partnership Management Teams.



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Overview of Michigan's PFAS Monitoring Efforts in Surface Water and Fish Tissue

Statewide Public Advisory Council Winter Meeting
January 29th, 2024



Surface Water PFAS Monitoring

Geoff Rhodes, Ph.D.

Toxicologist/Surface Water PFAS Monitoring Coordinator

Water Resources Division

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Surface Water PFAS Monitoring Goals

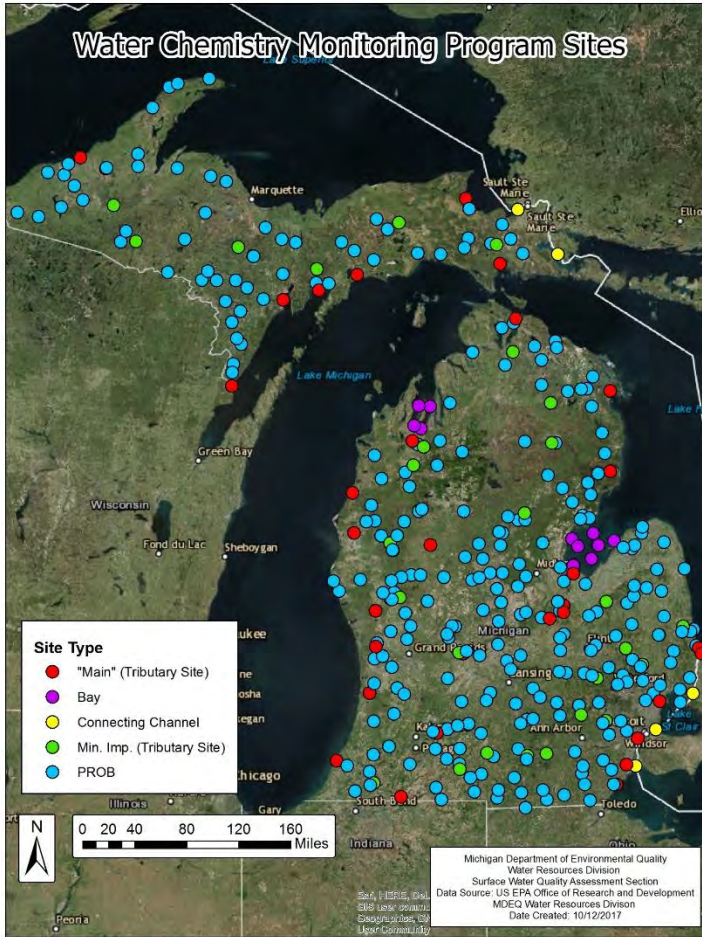
- Identify and differentiate sources of PFAS to surface water.
- Monitor the impact of remediation and source reduction efforts.
- Prioritize areas for additional monitoring.

Surface Water Investigations

- Water Chemistry Monitoring Program: Probabilistic sampling
- Source Tracking Investigations: Targeted sampling



Water Chemistry Monitoring Program



- 250 Probabilistic sites
 - 50 sites/year rotating on a 5-year cycle
- Includes rivers, bays and connecting channels
- PFAS analysis added in 2017

Surface Water PFAS Monitoring Strategy

- Target 3-5 watersheds per year
 - 40 to 120 locations per watershed
- Phase 1: Watersheds with drinking water intakes
 - Huron River, River Raisin, and St. Joseph River
- Phase 2: Watersheds with significant contaminated areas
 - Ex. Parchment (Kalamazoo River)



Surface Water Monitoring Strategy

- Phase 3: Focus on watersheds with high numbers of MPART sites
 - An MPART site is a location with PFAS concentrations exceeding our groundwater cleanup criteria
- Focus on watersheds with elevated PFOS concentrations in fish tissue
 - Concentrations which would cause a consumption advisory
- Phase 4: Remaining watersheds



Surface Water Sample Collections



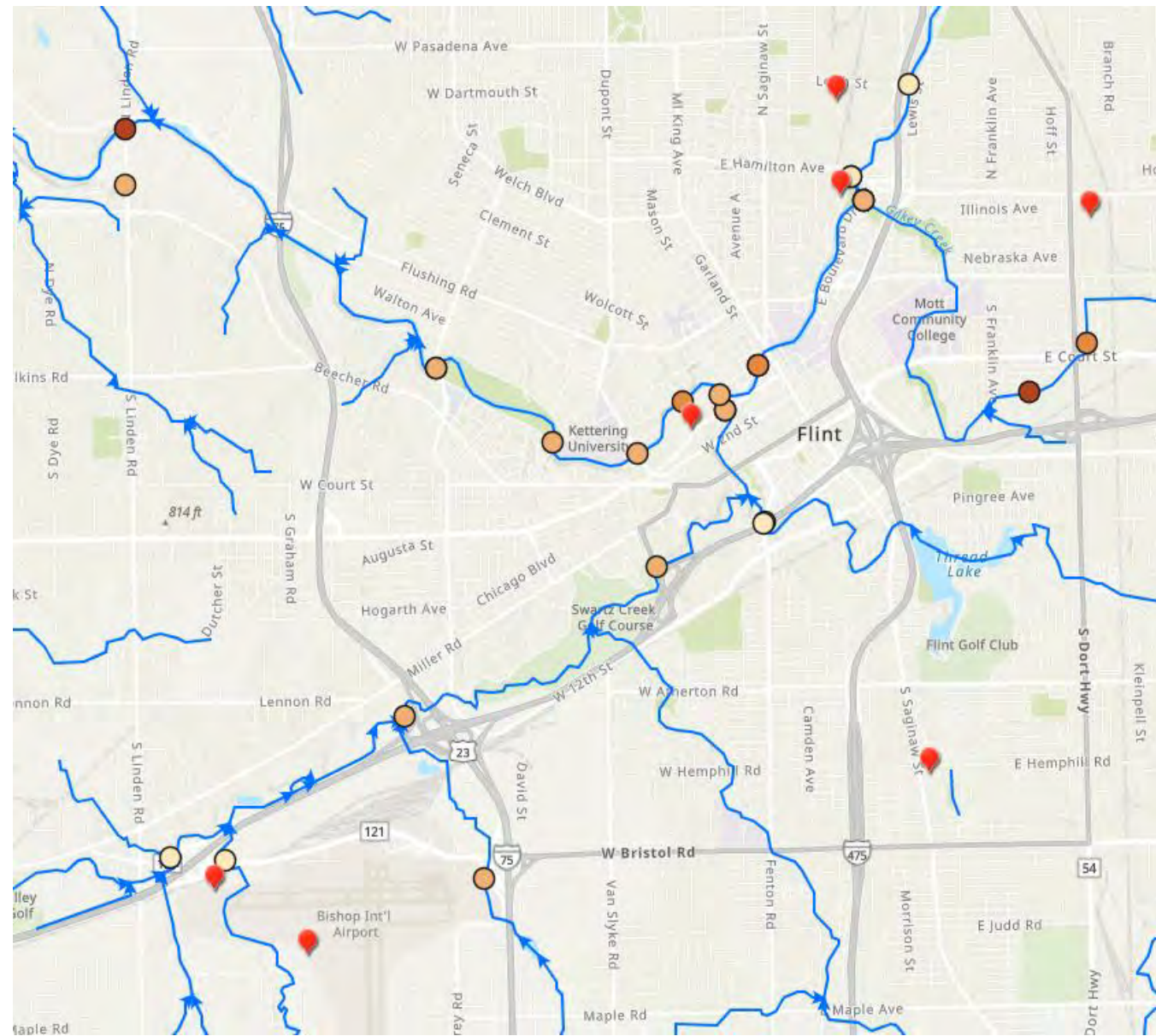
POCIS Sampling

- POCIS passive samplers are used to differentiate complex or intermediate sources and monitor trends.



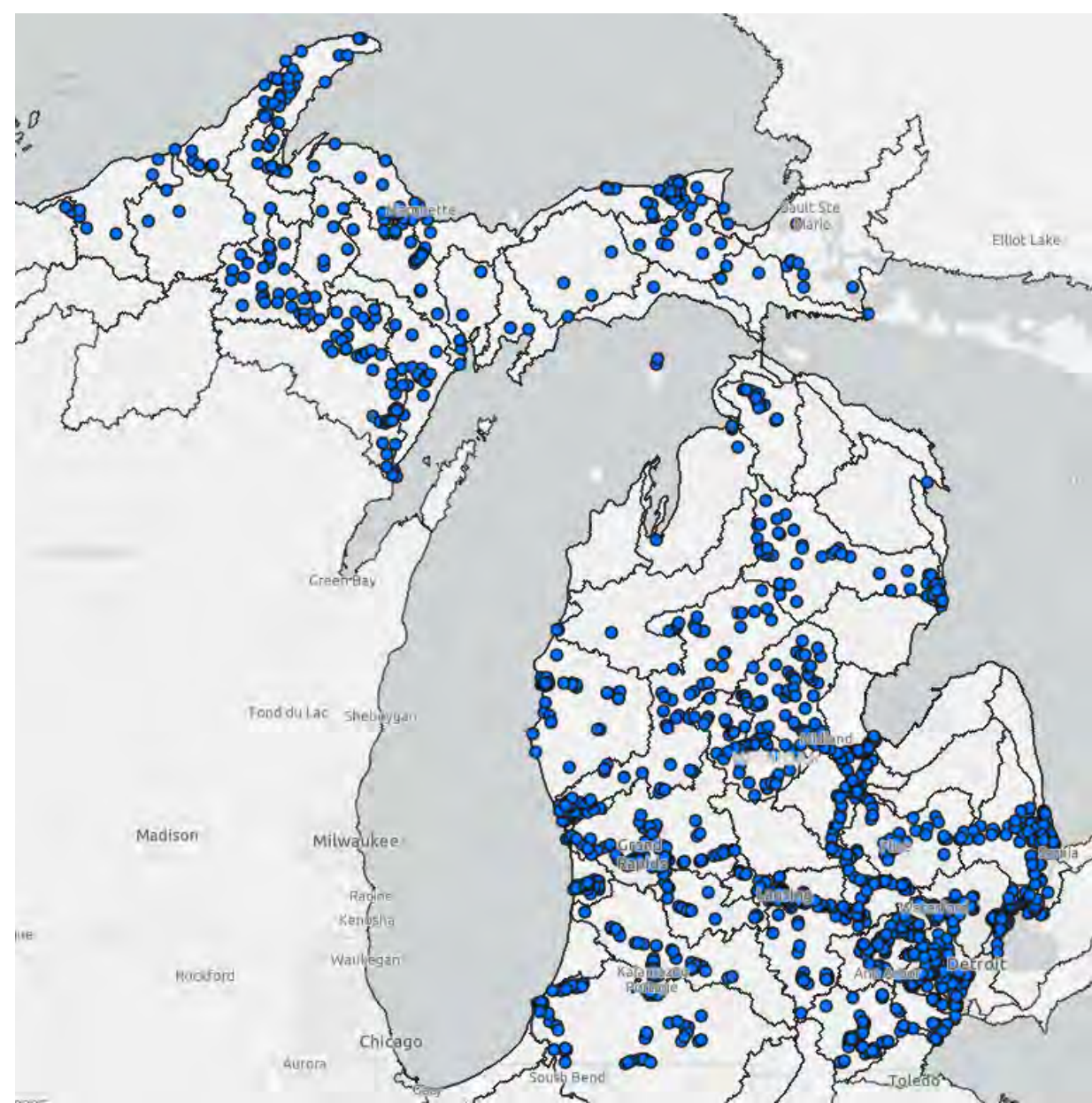
Surface Water Monitoring Example: Flint River Watershed

- Collect samples upstream and downstream of suspected sources
- Collect sample at confluence of major tributaries
- Account for flow when designing sampling plans

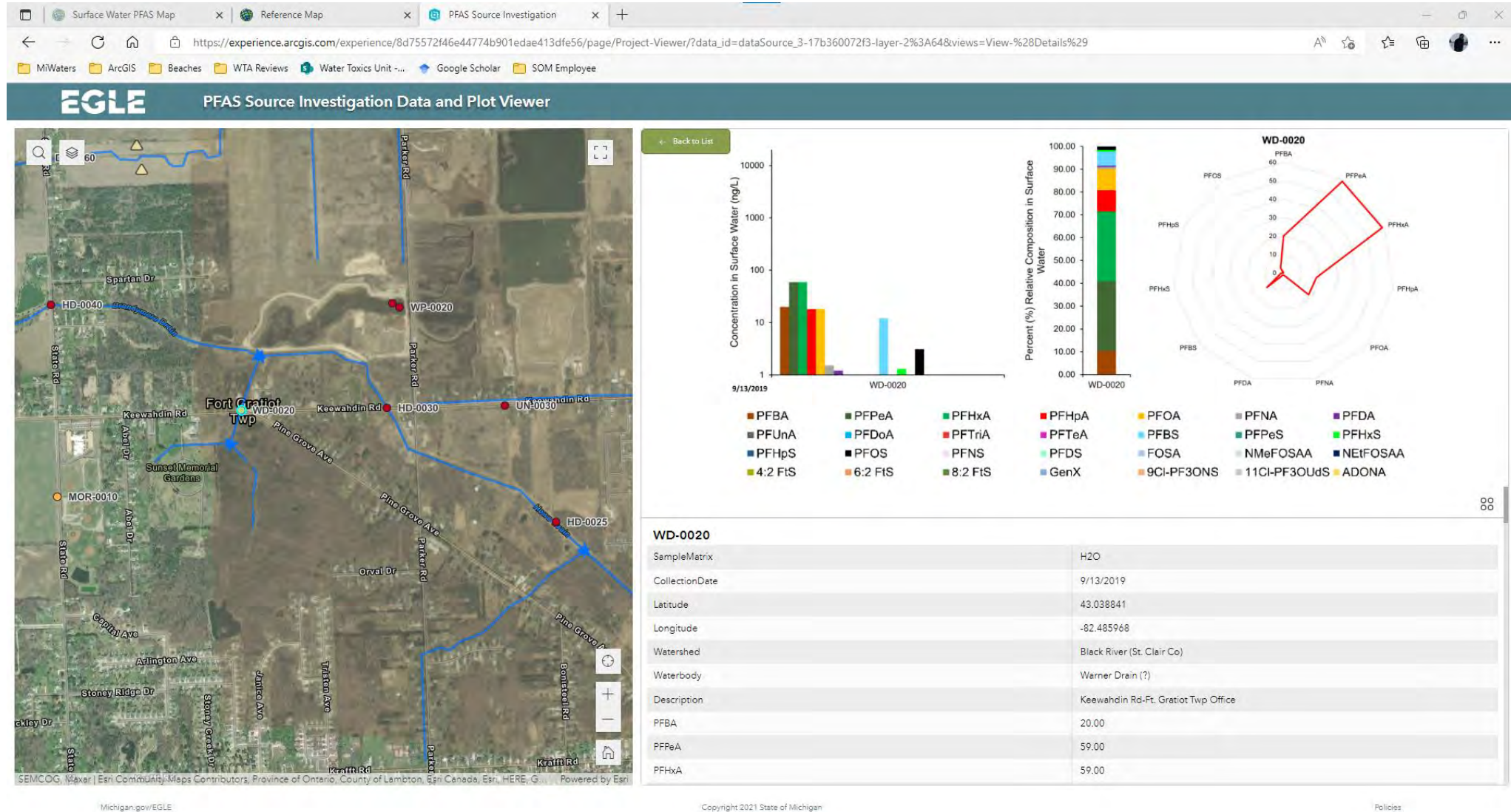


Surface Water PFAS Sampling

- More than 1,600 locations have been sampled
- More than 2,200 samples have been collected
- Significant concentrations of PFAS are not a statewide problem, they are observed downstream of sources
- PFAS “background” concentrations are observed in densely populated areas
- Surface water and fish data can be viewed on our [MPART GIS portal](#)



Data Analysis and Source Tracking



PFAS Water Quality Values

PFAS	HNV* (drinking) (ng/L)	HNV* (nondrinking) (ng/L)	FCV* (ng/L)	AMV* (ng/L)	FAV* (ng/L)
PFOS	11	12	140,000	780,000	1,600,000
PFOA	66	170	880,000	7,700,000	15,000,000
PFBS	8,300	670,000	24,000,000	120,000,000	240,000,000
PFHxS**	59	210	-	-	-
PFNA**	19	30	-	-	-

**Human Noncancer Value (HNV), Final Chronic Value (FCV), Aquatic Maximum Value (AMV),
Final Acute Value (FAV)*

*** New Water Quality Values*

(-) Aquatic Life Values for PFHxS and PFNA are currently under development

Surface Water PFAS Sampling in Michigan's AOCs

AOC	Min PFOS (ng/L)	Max PFOS (ng/L)	Locations Sampled	Latest Sampling	Next Sampling
Muskegon	Non-Detect	17.00	12	2022	Not Scheduled
Clinton	Non-Detect	610	52	2021	2024
Detroit	1	2.4	3	2019	Not Scheduled
Kalamazoo	Non-Detect	49	27	2020	Not Scheduled
Raisin	Non-Detect	1.5	2	2018	Not Scheduled
Rouge	Non-Detect	429	60	2020	Not Scheduled
St. Clair	0.7	2.8	4	2023	Not Scheduled
St. Marys	Non-Detect	6.8	3	2023	Not Scheduled
Saginaw	Non-Detect	9.9	40	2021	Not Scheduled
Manistique	N/A	N/A	0	N/A	2024
Torch Lake	Non-Detect	1.15	2	2021	Not Scheduled



Michigan's Fish Contaminant Monitoring Program

Brandon Armstrong

Aquatic Biology Specialist/FCMP Coordinator

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Fish Contaminant Monitoring Program Goals

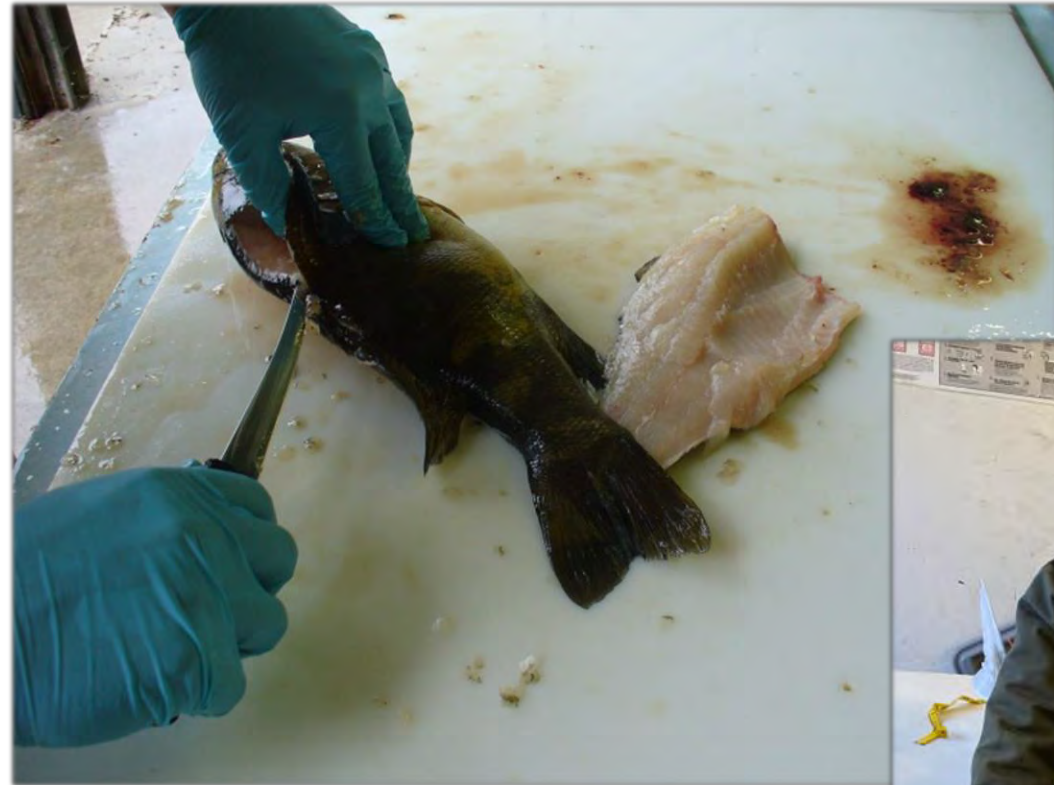
- Evaluate the need for sport fish consumption advisories and commercial fishing regulations.
- Identify spatial and temporal trends in water quality.
- Evaluate whether existing programs are effectively eliminating or reducing chemical contamination.



Contaminants of Interest

- “PBT” - Persistent, Bioaccumulative, Toxic
 - Legacy (e.g. Hg, PCBs)
 - Emerging (e.g. PFOS)

Edible Portion Monitoring



FCMP Edible Portion Site Selection Process

- [MDNR Status and Trends Program](#)
- [EGLE five-year rotating watershed system](#)
- [EGLE Surface Water Investigations](#)
- [Targeted Monitoring Requests](#)
- [AOC Program](#)

Michigan's FCMP

- Target between 40 and 70 fish sampling locations per year, funding dependent
- All fish analyzed for Hg/PFAS
- Select locations/species analyzed for PCBs, Organochlorine pesticides, and/or dioxins/furans

Edible Portion Monitoring

- Collection goals
 - At least 5, up to 10 individuals per species across a size range consumed by anglers.
 - Ideally, multiple species will be collected from a water body.
 - If mercury is a concern, a top predator (e.g. largemouth bass, northern pike, walleye) should be collected
 - If PFOS is a concern, panfish (e.g. bluegill, pumpkinseed, rock bass) should be collected
 - If PCBs, DDT are of concern, a bottom feeding fish (e.g. common carp, channel catfish) should be collected



39 PFAS plus linear/branched isomers of PFOS, PFOA, PFHxS

Perfluoroalkyl carboxylic Acids (PFCAs)

• Perfluorotetradecanoic acid	PFTeA	376-06-7
• Perfluorotridecanoic acid	PFTriA	72629-94-8
• Perfluorododecanoic acid	PFDoA	307-55-1
• Perfluoroundecanoic acid	PFUnA	2058-94-8
• Perfluorodecanoic acid	PFDA	335-76-2
• Perfluorononanoic acid	PFNA	375-95-1
• Branched-Perfluorooctanoic acid	B-PFOA	335-67-1
• Linear-Perfluorooctanoic acid	L-PFOA	335-67-1
• Perfluoroheptanoic acid	PFHpA	375-85-9
• Perfluorohexanoic acid	PFHxA	307-24-4
• Perfluoropentanoic acid	PFPeA	2706-90-3
• Perfluorobutanoic acid	PFBA	375-22-4

Perfluorosulfonamides

• Perfluorooctanesulfonamide	PFOSA	754-91-6
• Perfluorohexanesulfonamide	PFHxSA	41997-13-1
• Perfluorobutylsulfonamide	PFBSA	30334-69-0

Polyfluoroalkyl ether carboxylic acids (PFECAs)

• ammonium 4,8-dioxa-3H- perfluorononanoate	ADONA	919005-14-4
• Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
• Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
• Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
• Perfluoro-3-methoxypropionic acid	PFMPA	377-73-1

Cyclic Fluorinated acid (PFA)

• Perfluoroethylcyclohexanesulfonate	PFECHS	67584-42-3
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Perfluoroalkyl sulfonic acid (PFSAAs)

• Perfluorodecanesulfonic acid	PFDS	335-77-3
• Perfluorononanesulfonic acid	PFNS	68259-12-1
• Branched-Perfluorooctanesulfonic acid	B-PFOS	1763-23-1
• Linear- Perfluorooctanesulfonic acid	L-PFOS	1763-23-1
• Perfluoroheptanesulfonic acid	PFHpS	375-92-8
• Branched-Perfluorohexanesulfonic acid	B-PFHxS	355-46-4
• Linear-Perfluorohexanesulfonic acid	L-PFHxS	355-46-4
• Perfluoropentanesulfonic acid	PFPeS	2706-91-4
• Perfluorobutanesulfonic acid	PFBS	375-73-5
• Perfluoropropanesulfonic acid	PFPrS	423-41-6

n:3 Fluorotelomer carboxylic acids (FTCAs)

• 3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
• 5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
• 7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4

n:2 Fluorotelomer sulfonic acids (FTSAs)

• 8:2 Fluorotelomer sulphonic acid	8:2 FTS	39108-34-4
• 6:2 Fluorotelomer sulphonic acid	6:2 FTS	27619-97-2
• 4:2 Fluorotelomer sulphonic acid	4:2 FTS	757124-72-4 7

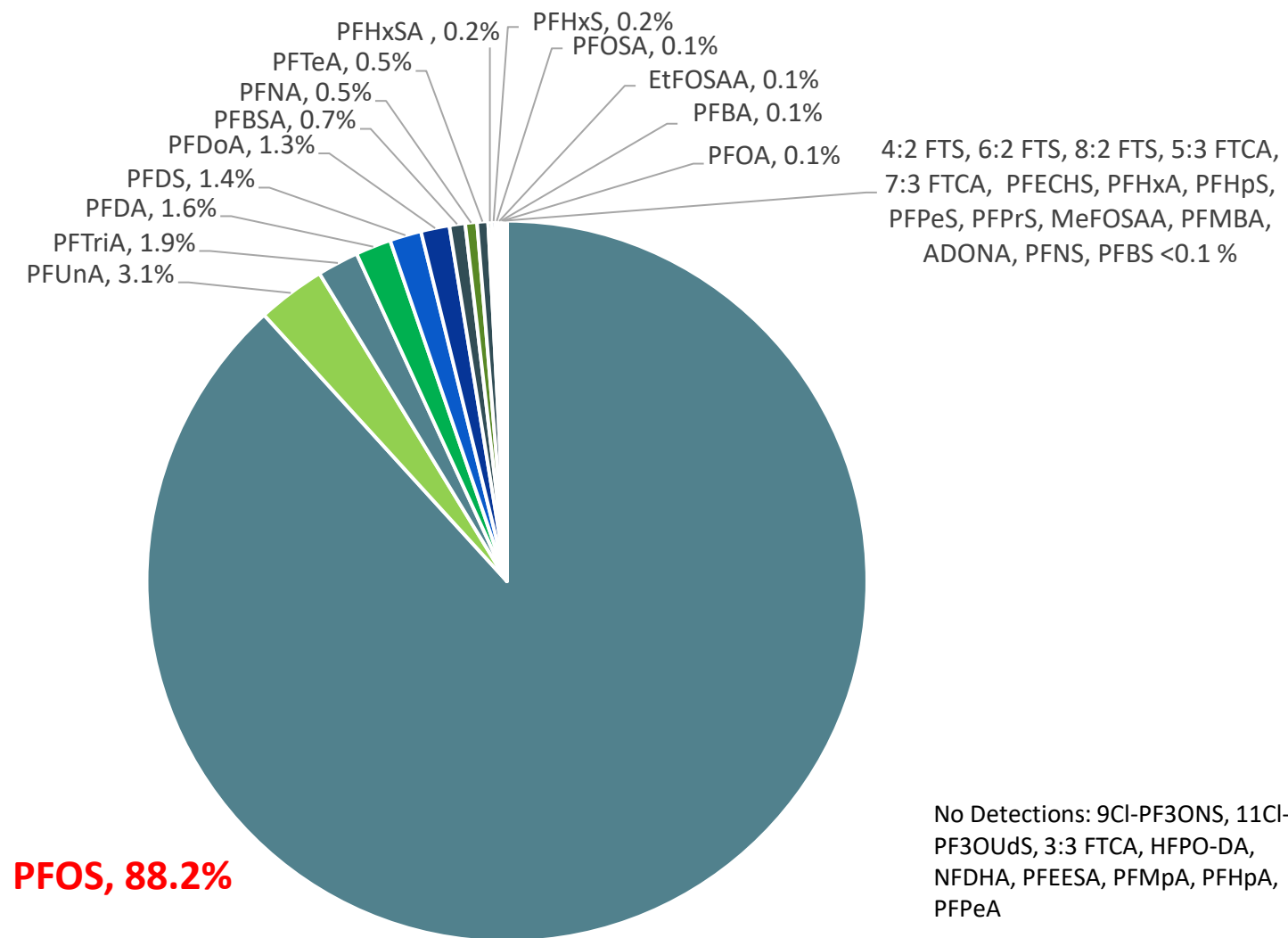
N-Alkyl perfluoroalkane sulfonamido acetic acids (FASAAs)

• 2-(N-Ethylperfluorooctanesulfonamido) acetic acid	EtFOSAA	2991-50-6
• 2-(N-Methylperfluorooctanesulfonamido) acetic acid	MeFOSAA	2355-31-9

Ether sulfonic acids

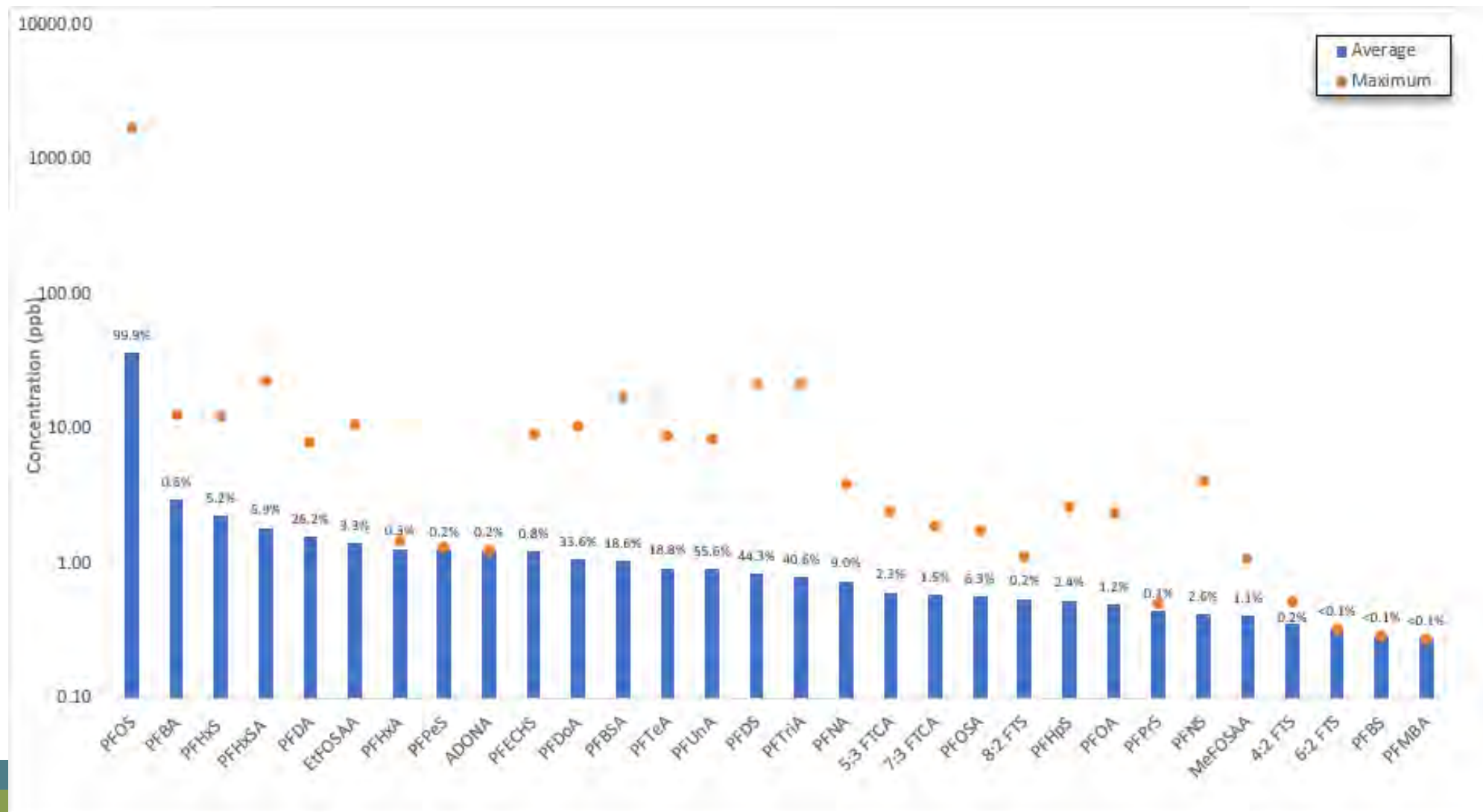
• 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9CI-PF3ONS	756426-58-1
• 11-chloroeicosafluoro-3-oxanonane-1-sulfonate	11CIPF3OUdS	763051-92-9
• Perfluoro (2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Average % of ΣPFAS detected in fillets analyzed by EGLE's Fish Contaminant Monitoring Program in FY2021 and FY2022 (2,499 fillets)



No Detections: 9Cl-PF3ONS, 11Cl-PF3OUdS, 3:3 FTCA, HFPO-DA, NFDHA, PFEESA, PFMpA, PFHpA, PFPeA

PFOS concentration in fillets FY21/FY22



Fish Tissue PFAS Sampling in Michigan's AOCs

AOC	Min PFOS (ppb)	Max PFOS (ppb)	Latest Results	Next Sampling
Muskegon	1.9	35.1	2022	2023*/2024
Clinton	ND	247.0	2022	2023*/2026
Detroit	1.1	148.5	2022	2027
Kalamazoo	2.1	238.6	2022	2023*/2027
Raisin	ND	44.0	2020	2025
Rouge	ND	1,741.0	2022	2024
St. Clair	ND	15.6	2019	2023*
St. Marys	0.9	381.3	2020	2023*/2025
Saginaw	1.8	194.6	2021	2026
Manistique	NA	NA	No Data	2023*
Torch Lake	NA	NA	No Data	2024

*Data pending

PFOS Fish Consumption Screening Values

State of Michigan Fish Consumption Screening Value Ranges for PFOS

Meal Category	FCSV Ranges	
<i>meals per month^a</i>	<i>μg/g (ppm)^b</i>	<i>ng/g (ppb)^c</i>
16	≤ 0.009	≤ 9
12	>0.009 to 0.013	>9 to 13
8	>0.013 to 0.019	>13 to 19
4	>0.019 to 0.038	>19 to 38
2	>0.038 to 0.075	>38 to 75
1	>0.075 to 0.15	>75 to 150
6 meals per year	>0.15 to 0.3	>150 to 300
Do Not Eat	>0.3	>300

^a Units are in months unless otherwise stated.

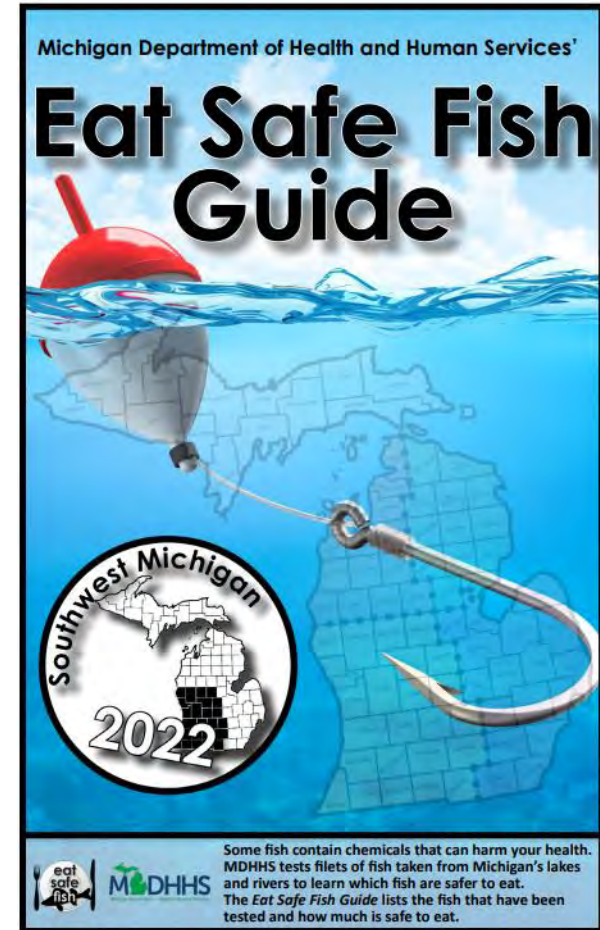
^b micrograms of chemical per gram of wet weight fish tissue (μg/g) that is the same as parts per million (ppm).

^c nanograms of chemicals per grams of wet weight fish tissue (ng/g) that is the same as parts per billion (ppb)

- FCSVs are set by MDHHS
- MDHHS uses the 95% Upper Confidence Limit (95% UCL) of the data for comparison with FCSVs

Eat Safe Fish - MDHHS

- Contact Lisa Fischer, interim MDHHS Eat Safe Fish Program Manager; FischerL@michigan.gov, for questions related to consumption advisories
- The *Eat Safe Fish Guide* contains all waterbody-specific guidelines issued by the Eat Safe Fish program.





Michigan Department of
Environment, Great Lakes, and Energy

800-662-9278

Michigan.gov/EGLE

Thank you!

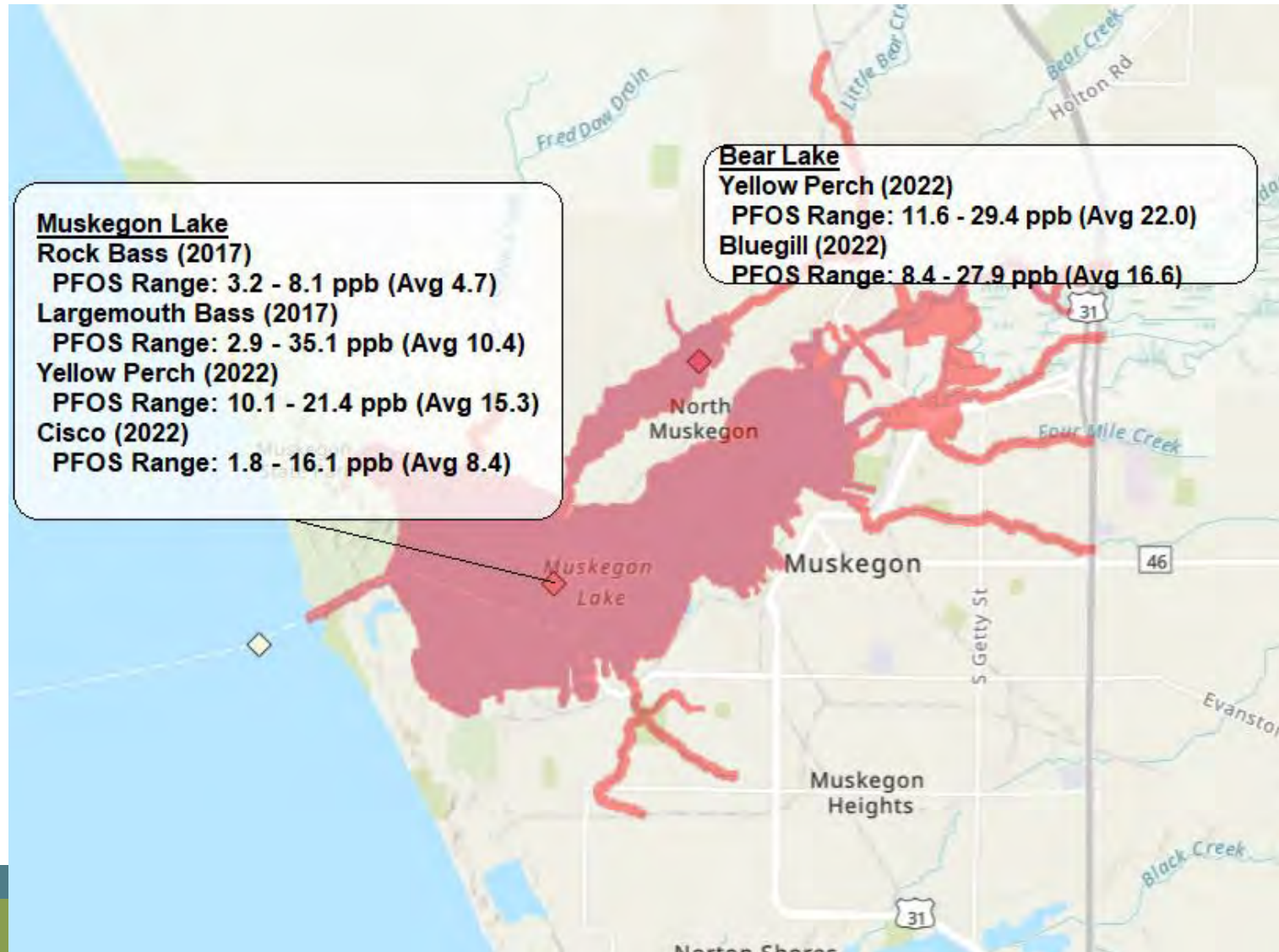


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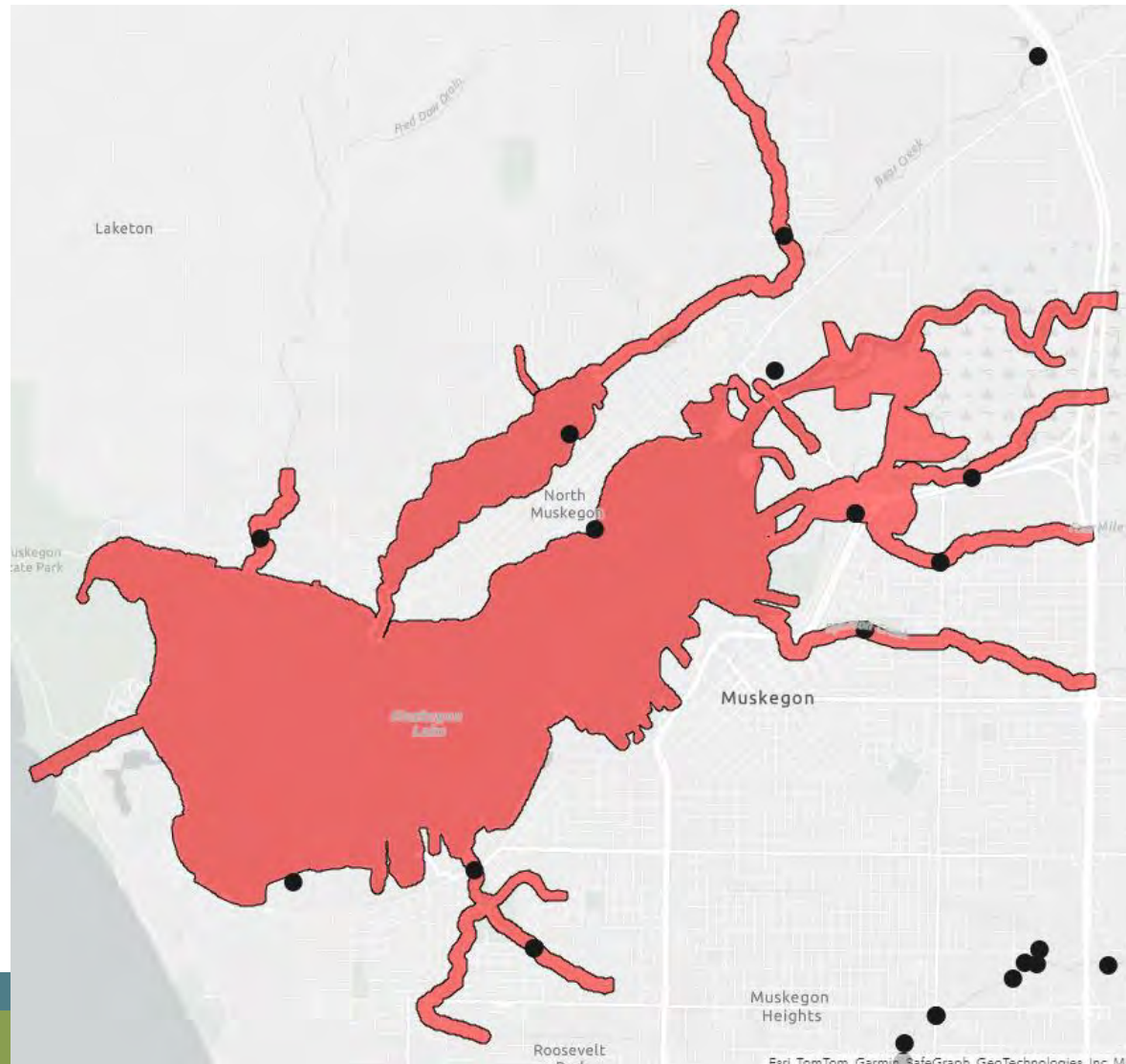
EGLE

AOC Specifics

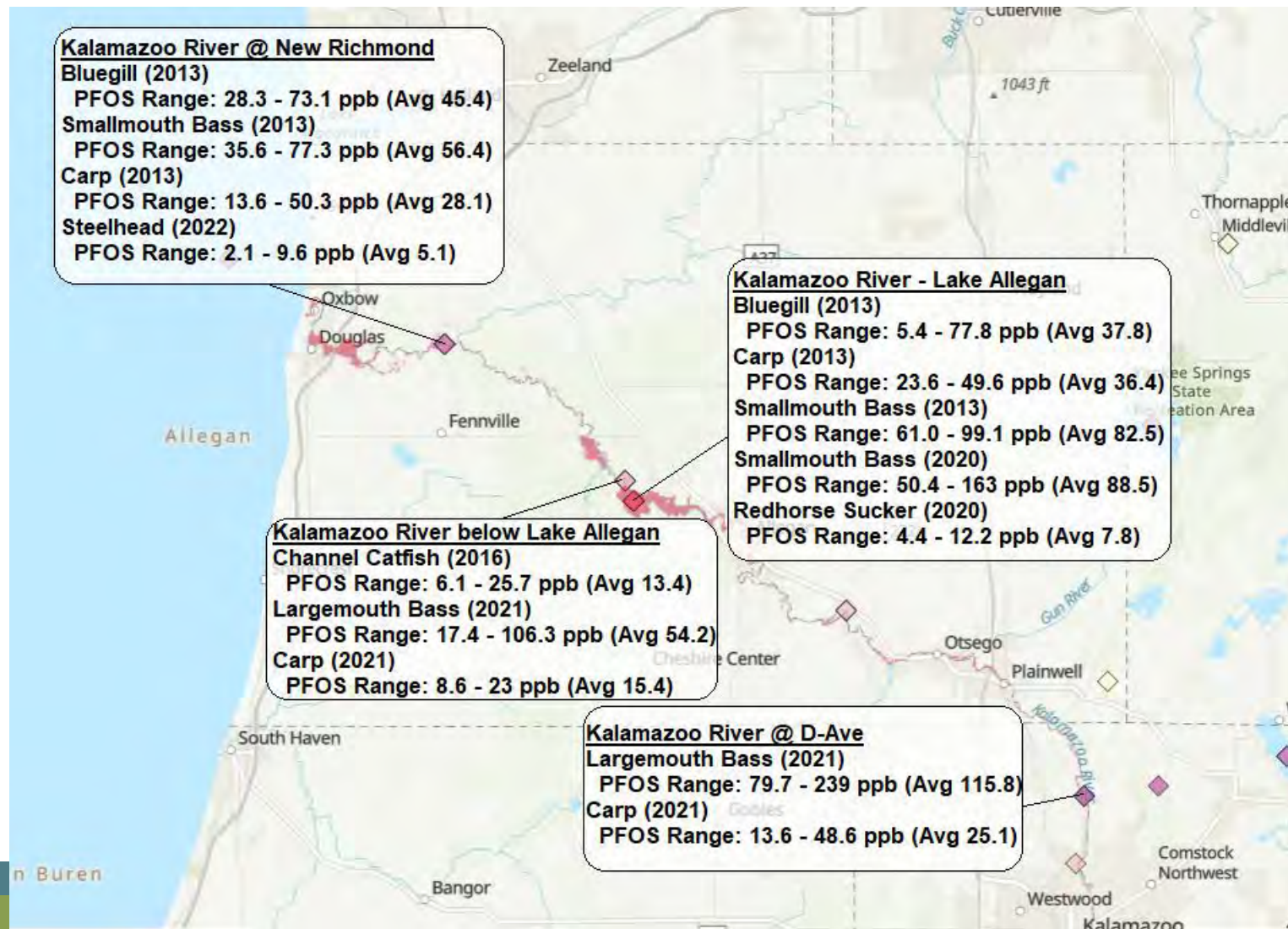
Muskegon Lake AOC Fish Contaminant Monitoring



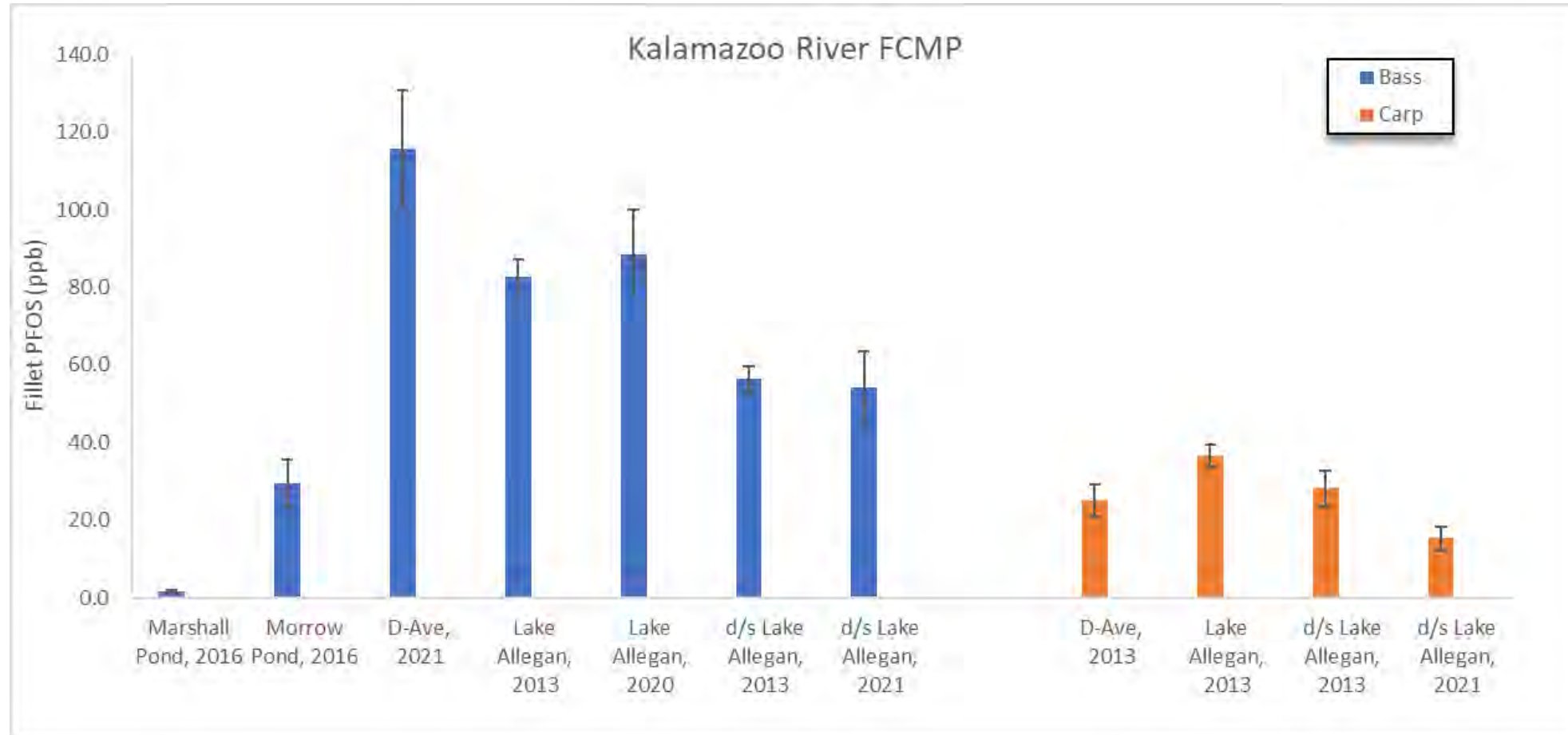
Muskegon Lake AOC PFAS Sampling Locations



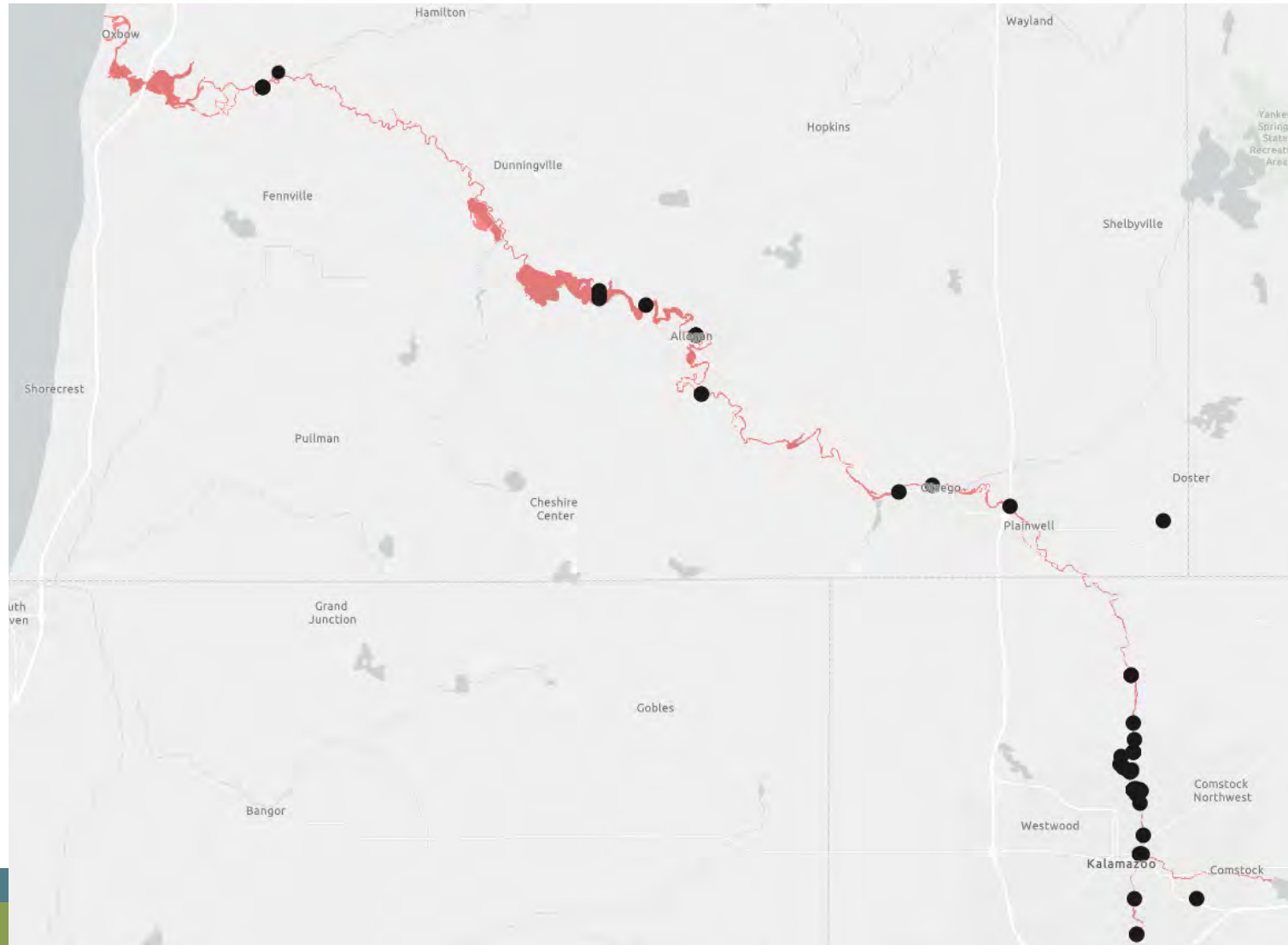
Kalamazoo River AOC Fish Contaminant Monitoring



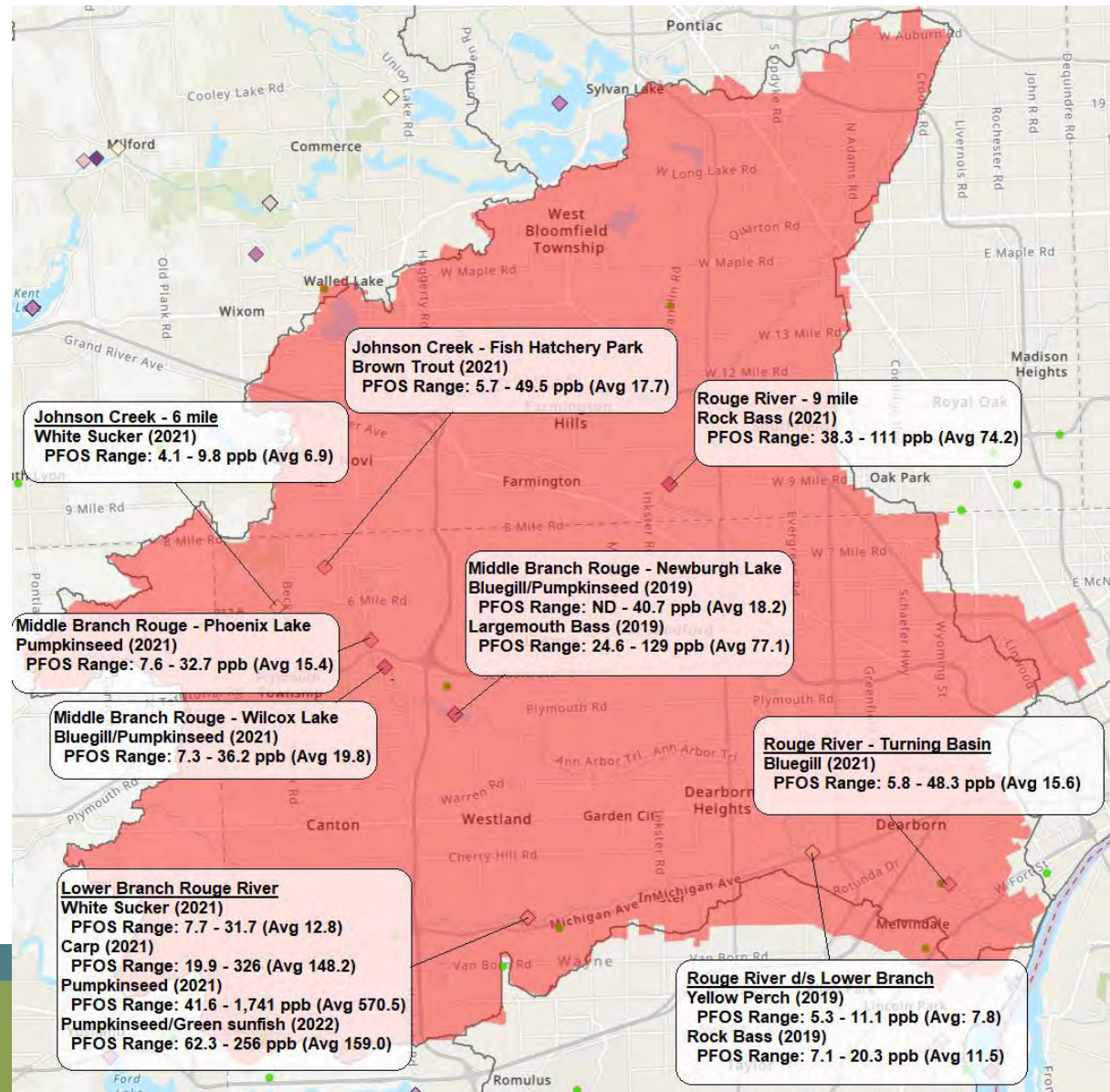
Kalamazoo River AOC Fish Contaminant Monitoring



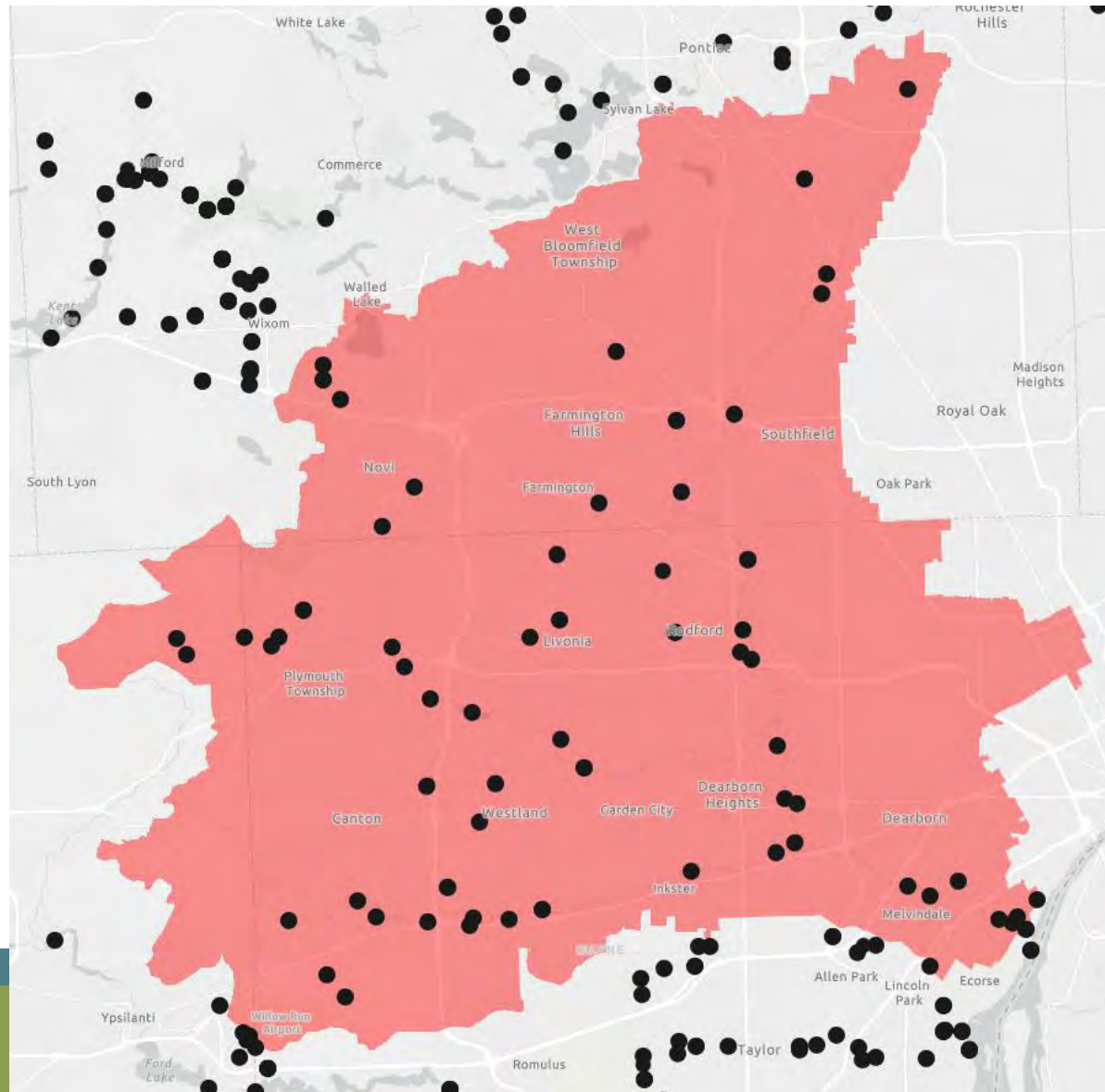
Kalamazoo River AOC PFAS Sampling Locations



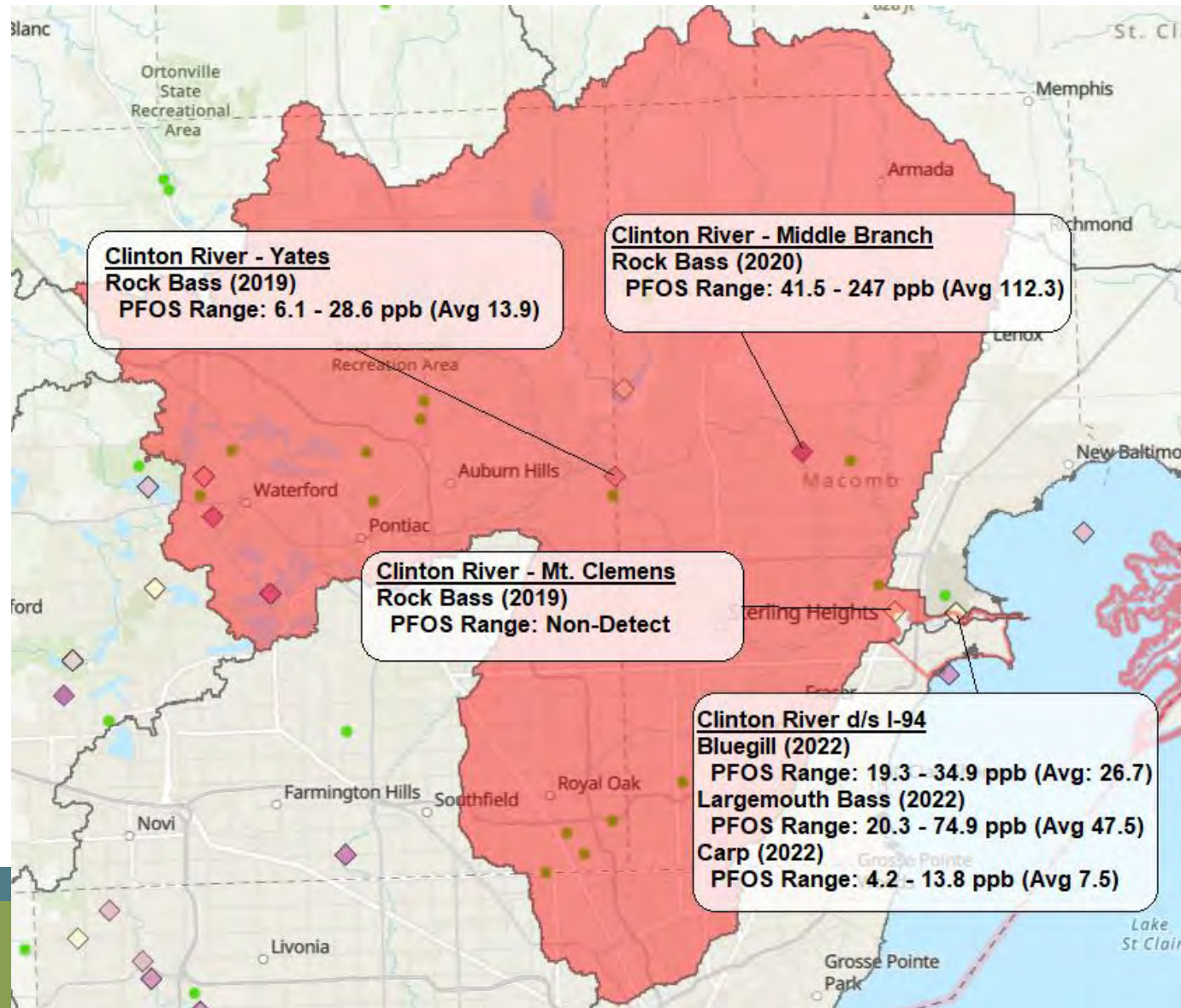
Rouge River AOC Fish Contaminant Monitoring



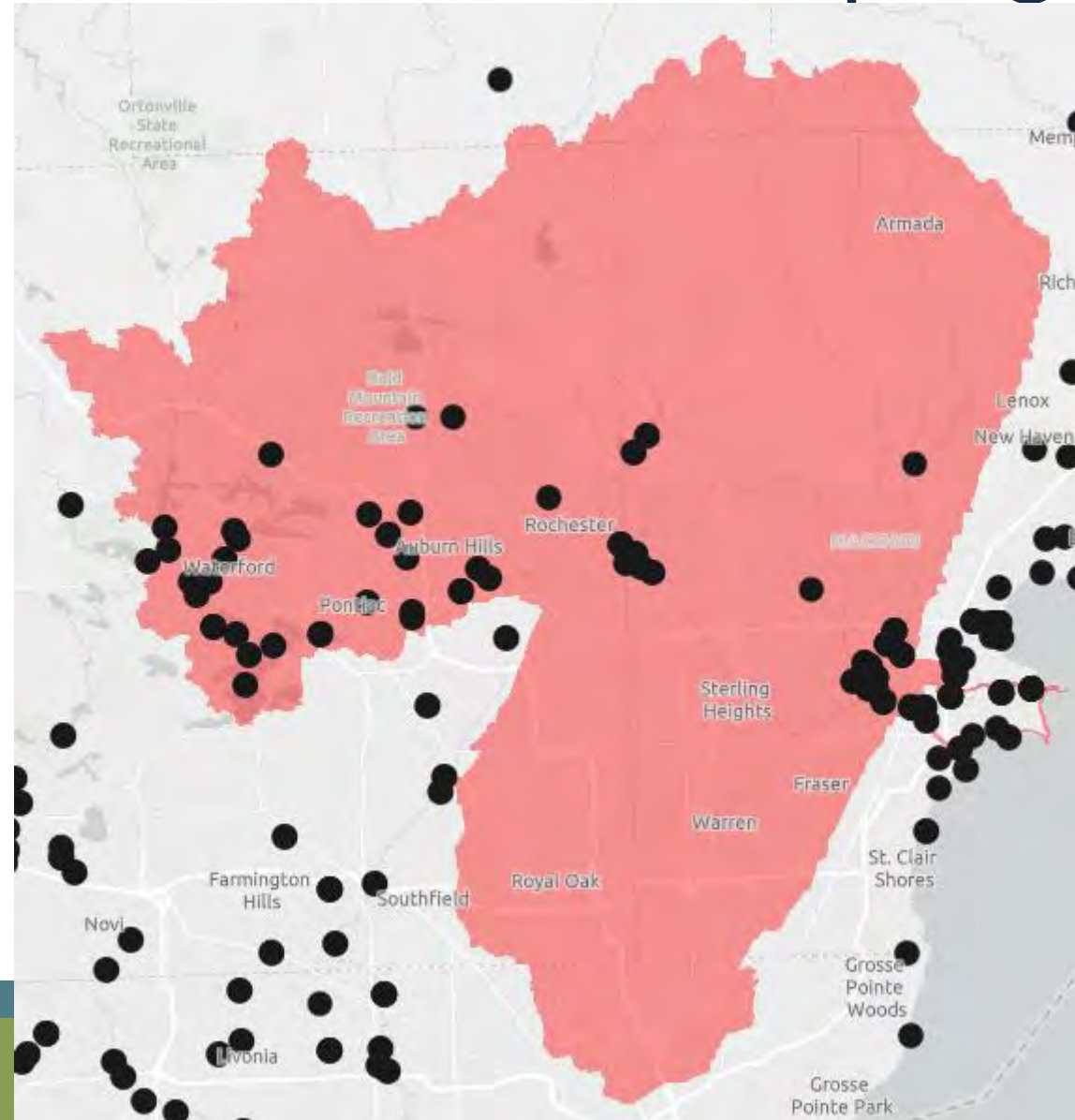
Rouge River AOC PFAS Sampling Locations



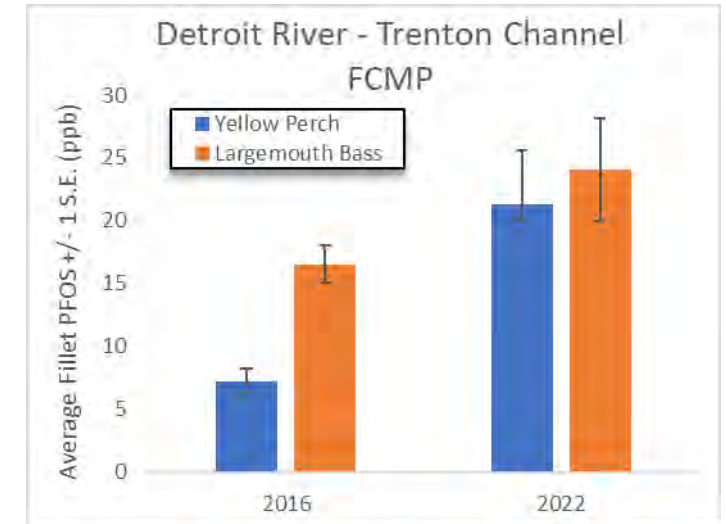
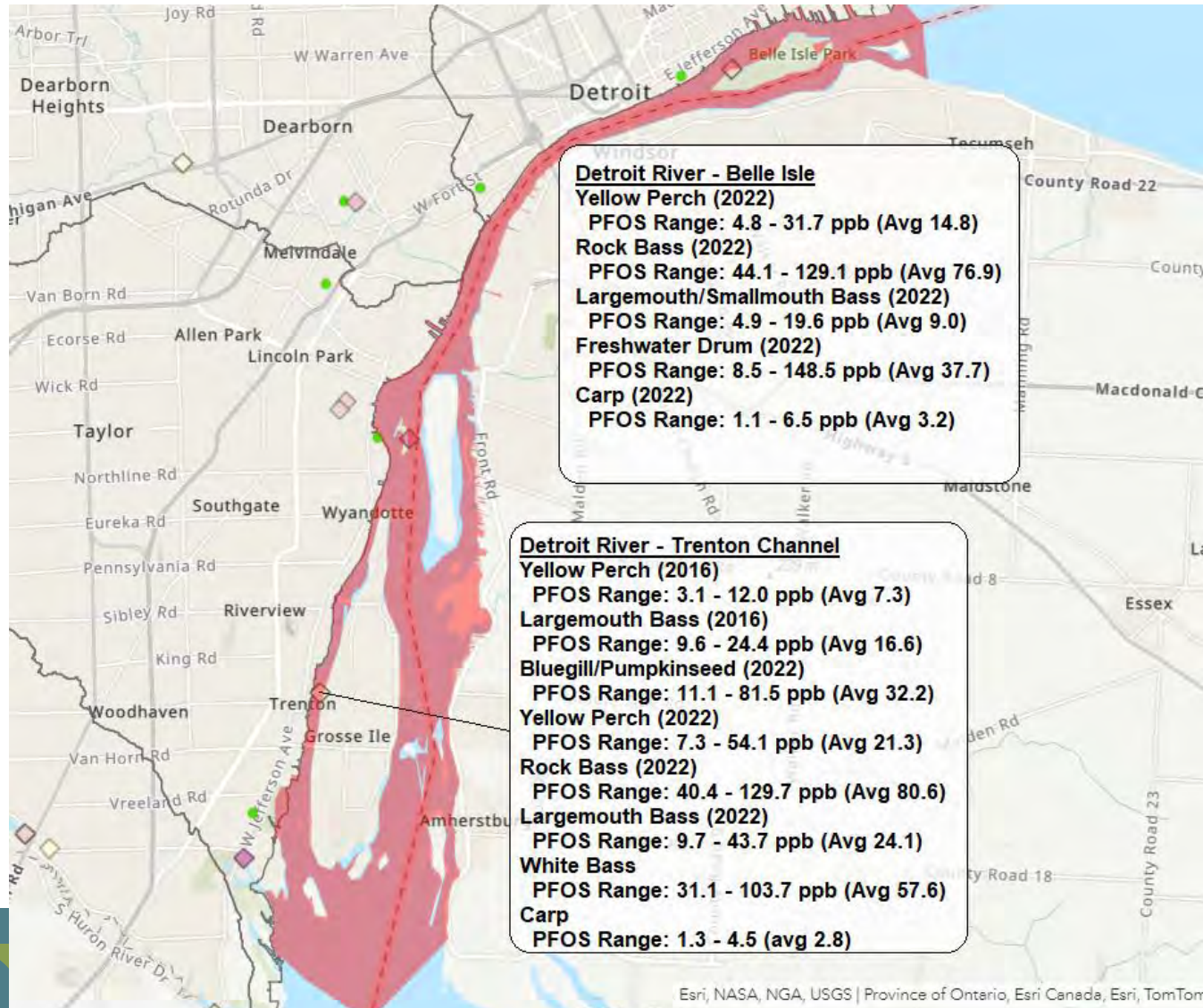
Clinton River AOC Fish Contaminant Monitoring



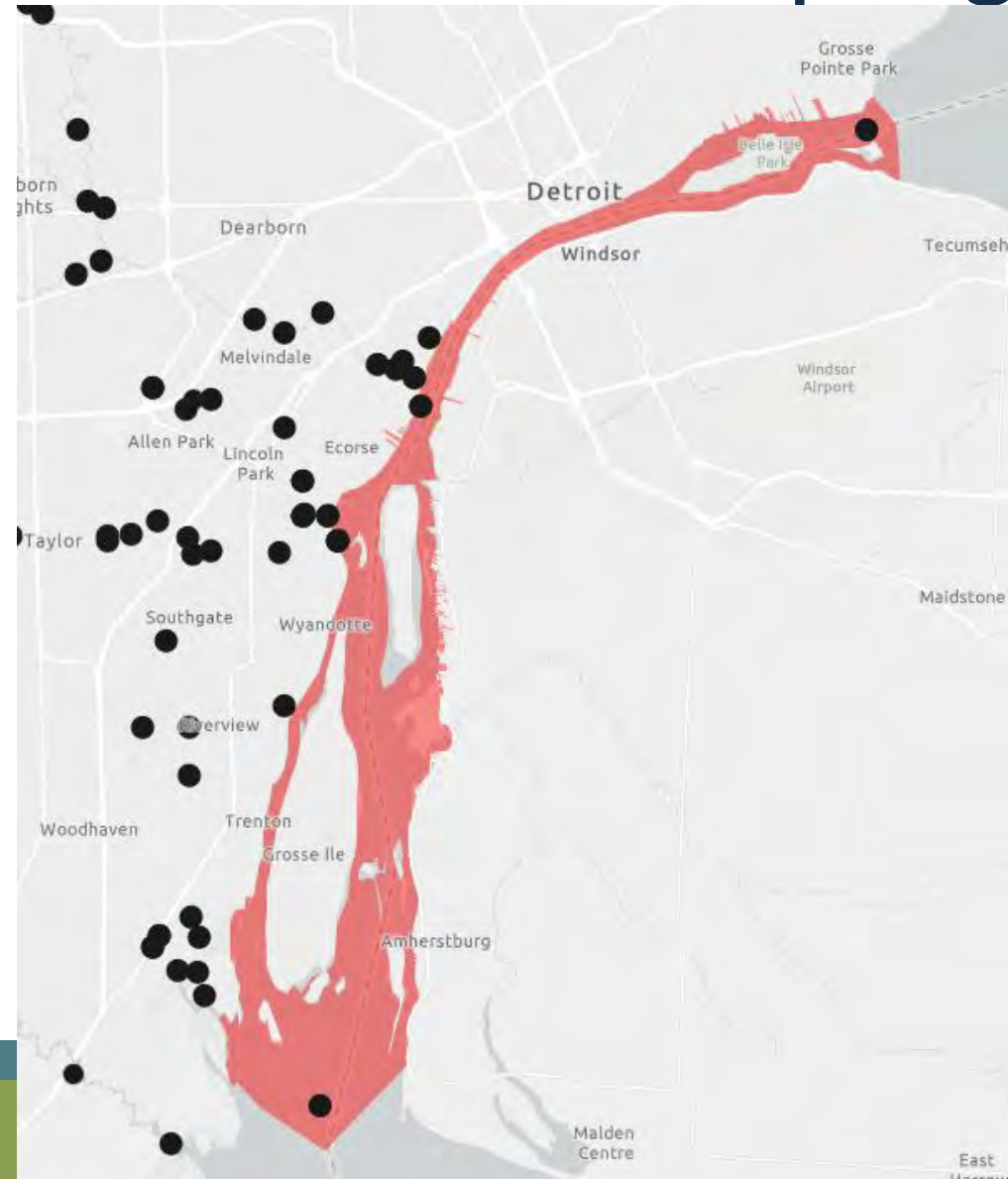
Clinton River AOC PFAS Sampling Locations



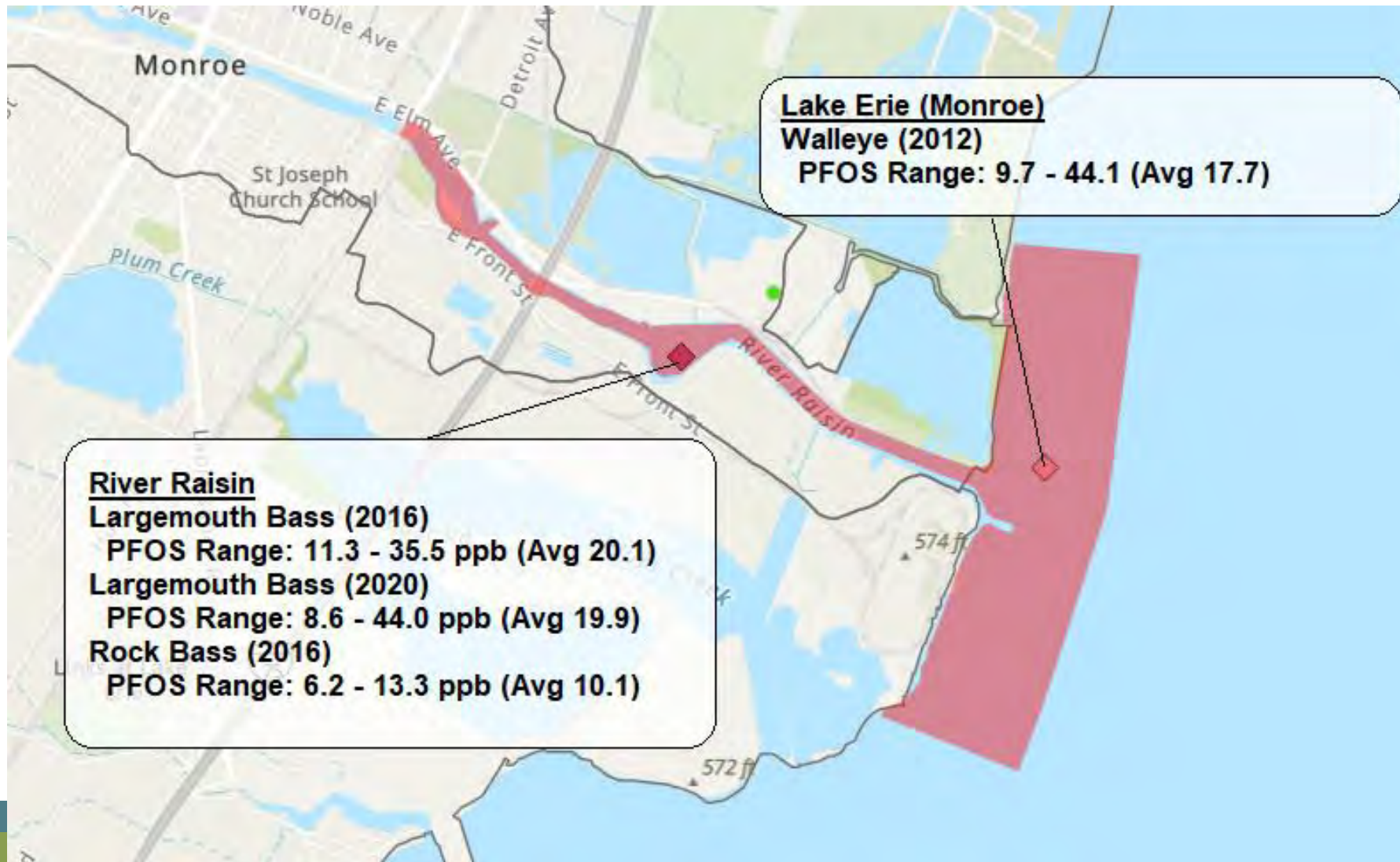
Detroit River AOC Fish Contaminant Monitoring



Detroit River AOC PFAS Sampling Locations



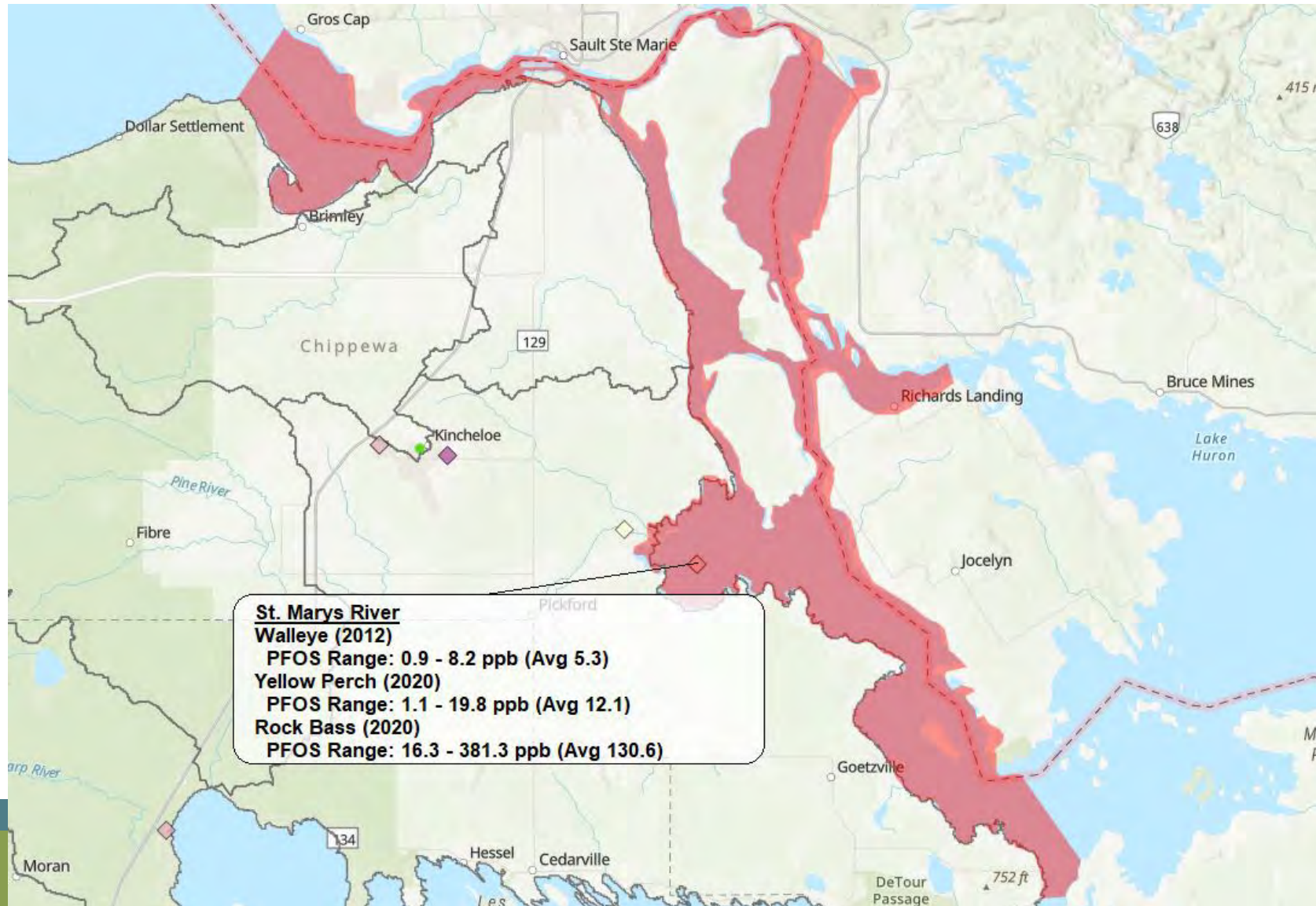
River Raisin AOC Fish Contaminant Monitoring



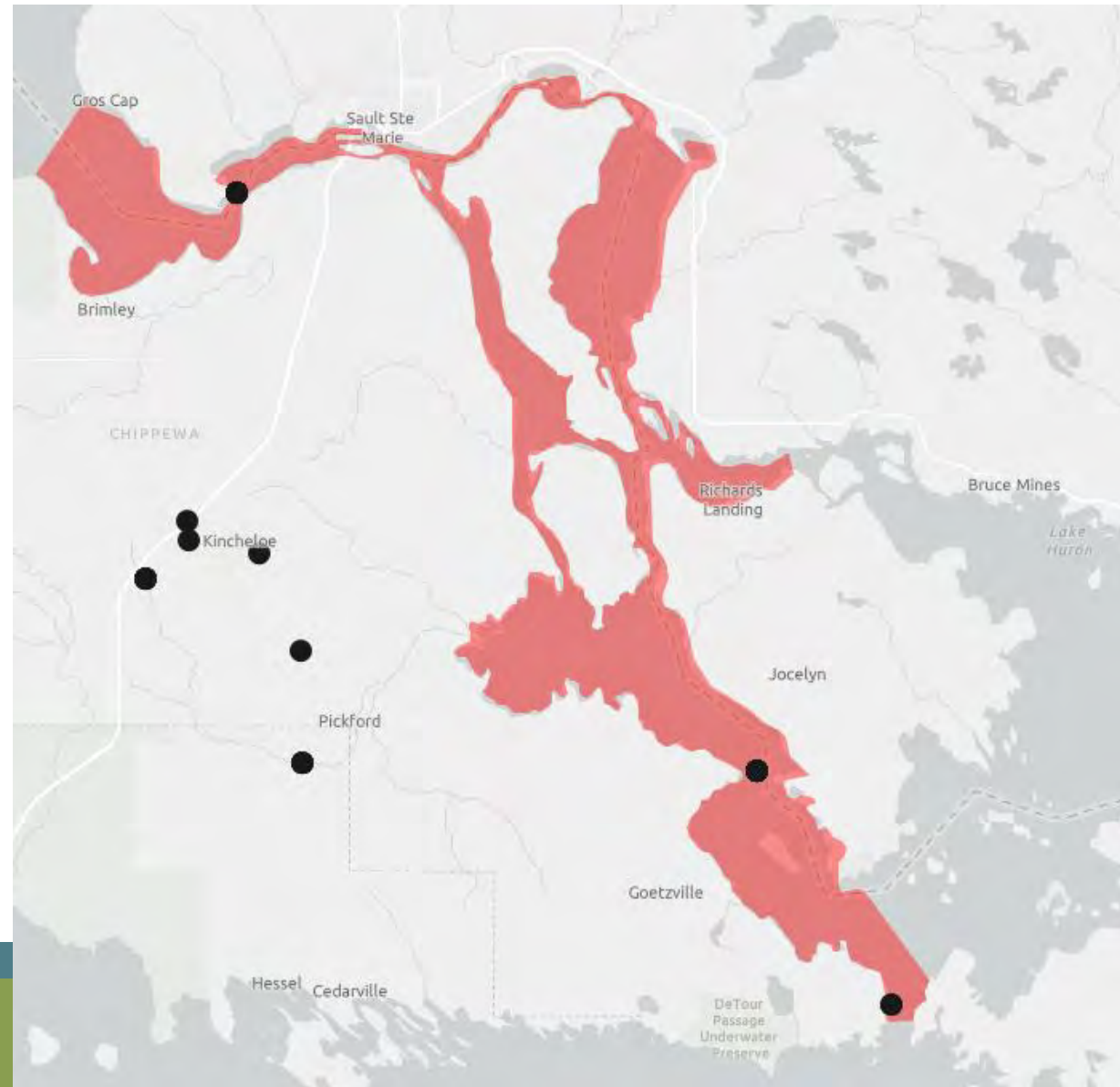
River Raisin AOC PFAS Sampling Locations



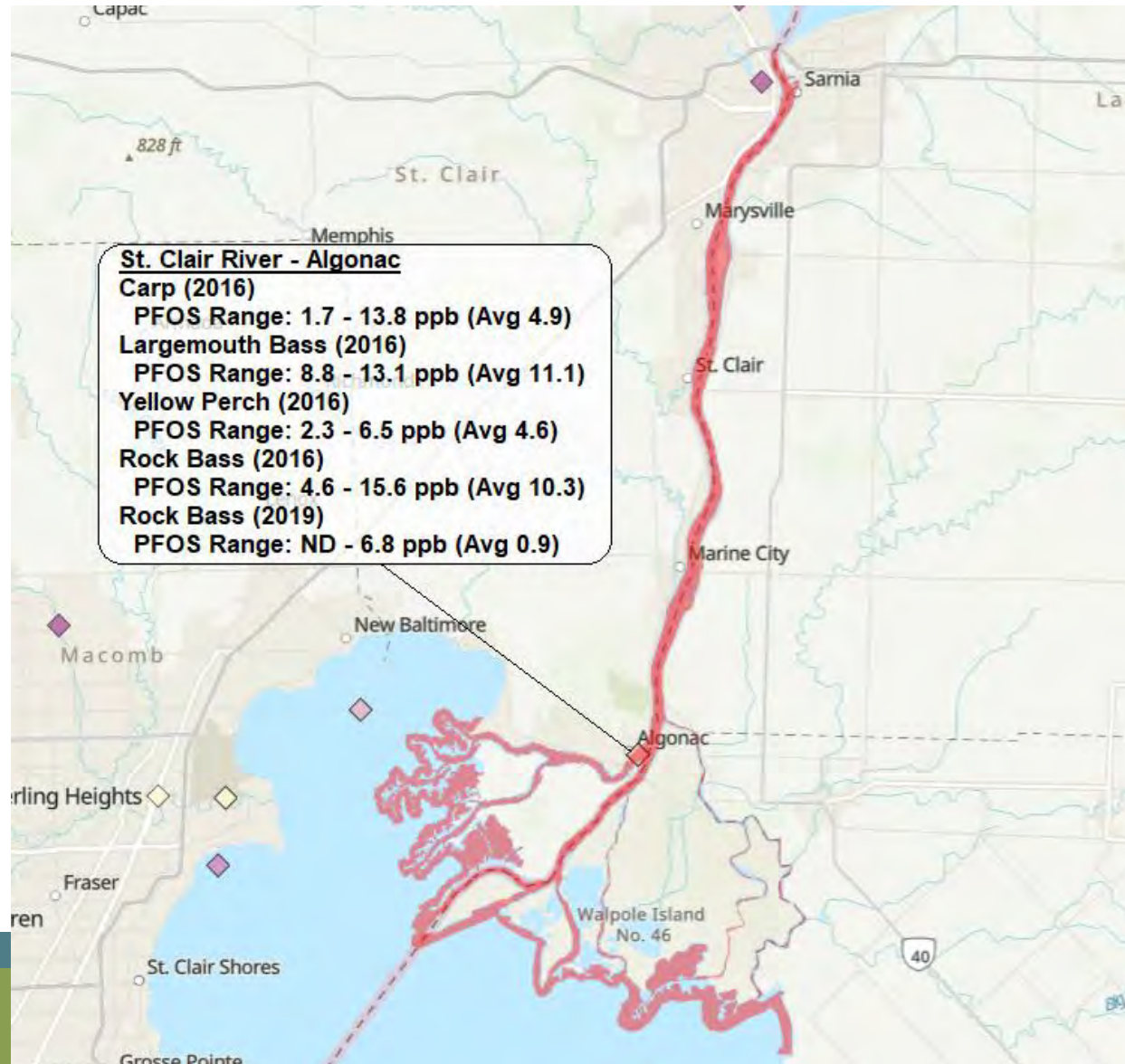
St. Marys River AOC Fish Contaminant Monitoring



St. Marys River AOC PFAS Sampling Locations



St. Clair River AOC Fish Contaminant Monitoring



St. Clair River AOC PFAS Sampling Locations

