

# STARKWEATHER CREEK & TOXIC STORMWATER RUNOFF

*POLLUTION, GOVERNANCE & ENVIRONMENTAL  
JUSTICE IN MADISON, WISCONSIN*



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MIDWEST ENVIRONMENTAL JUSTICE ORGANIZATION

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## Preface

*The Midwest Environmental Justice Organization was formed in 2005 by several North Side Madison community members and subsistence anglers to build awareness about toxic contaminants in fish and work collectively to mitigate contaminant sources—so that someday our descendants can catch and eat fish from Madison lakes with no concerns about toxic chemicals. From 2017-2018 MEJO was funded by a U.S. EPA environmental justice grant to engage two low income communities along Starkweather Creek (the Truax and Darbo neighborhoods) in learning about stormwater pollution that affects the creek and its fish. We engaged many adults and children from these neighborhoods in conversations about stormwater issues and also learned how they engage with the creek, what they observe along it, and what they think should be done to improve it. These community conversations prompted us to go beyond our grant project and search for information about toxic chemicals flowing into the creek in stormwater. We investigated what is known—and not known—about these toxic chemicals. Finding many important contaminant data gaps, we asked: What government authorities exist to fill these gaps? Are government agencies working to fill them? Community members expressed interest in learning more about stormwater contamination issues, and engaging further in doing something about them, so we also wondered: How can the community learn more and engage in discussions and decisions about stormwater pollution that affects the creek? What are our government agencies required to do—and what are they actually doing—to facilitate public engagement in stormwater pollution problems?*

*This report summarizes the results of the EPA-funded community engagement project and further investigations inspired by it.*

*Our sincerest thanks to the East Madison Community Center, Northside Planning Council, Gambian Youths of Wisconsin, Ho-Chunk Gaming Madison, Native Food Network, Erik Heisel, Connor Fries, the UW Geography Capstone GIS Program and many project volunteers—who helped at events and contributed meeting spaces, great ideas, skills, diverse perspectives, food and drink, good spirits, prayers and songs, and other invaluable gifts to this project.*

### **About the cover photos**

*In March 2018, one of our project leaders, Touyeng Xiong, noticed that a large storm drain across the street from the Truax apartments, where he lives with his family, was filled with trash—including a tire (photo on left; Touyeng is in the forefront). We contacted the City of Madison and asked them to remove the trash. City crews removed the tire and some of the trash, but left quite a bit of it there. So we organized an Earth Day event on April 21st with Gambian Youths of Wisconsin and children from the East Madison Community Center to clean up all of the trash (photo on the right). The event was a huge success—but it left us wondering: Where did all this trash come from? Why do so many people litter? What can we do about it? What can government agencies do about it? Our report also addresses some of these questions.*

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*We thank the U.S. EPA for funding the Starkweather Creek Environmental Justice Project (grant award #00E02286).*

## Executive Summary

### **Project overview**

From 2017 through 2018, the Midwest Environmental Justice Organization (MEJO) was funded by a U.S. Environmental Protection Agency environmental justice grant for its Starkweather Environmental Justice Project. Starkweather Creek is a highly impaired, 303d-listed waterway in Madison, Wisconsin, affected by numerous toxic chemicals and other pollutants from point and nonpoint sources along the creek. The creek flows through two of Madison's diverse low income neighborhoods, Truax and Darbo-Worthington (Darbo) on the city's north/east sides.

The central goals of the Starkweather project were to engage Truax and Darbo residents (as well as others we encountered along the creek), hear their perspectives about the creek, stormwater pollution that affects it, and recommendations to improve it. MEJO leaders, volunteers, and project interns surveyed 100 community members in both neighborhoods and along the creek, took fishing trips to the creek, organized trash cleanups, held a variety of community meetings and trainings, and testified at public meetings.

To better understand regulatory authorities to address MEJO's and community members' concerns and recommendations about the creek, we reviewed available environmental reports and documents on the creek, as well as city, county, and state regulations relevant to these issues. We also talked with city, county, and state government officials about their stormwater regulatory requirements pertaining to issues community members expressed concerns about during surveys and meetings.

### **Summary of key findings**

- Although much more outreach to increase awareness of Starkweather Creek among Truax and Darbo community members is needed, significant proportions of residents of all ages in both areas are aware of the creek and interact with it in a variety of ways, including: walking and biking along it, fishing, observing wildlife, exploring and playing.
- Community members expressed interest in learning more about Starkweather Creek, stormwater pollution that affects it, cleanup efforts, Ho-Chunk history of the area, and more; many said they would like to engage in future decisions and actions to clean up the creek.
- Community members' top three recommendations regarding Starkweather Creek were: cleaning up trash, preventing toxic pollution, and mitigating toxic pollution along or in the creek.
- The City of Madison and Dane County are required under their current stormwater permits to "exercise and enforce legal authority" to control the discharge of pollutants to and from their stormwater sewer systems. Neither entity is meeting this requirement in regards to trash and several toxic contaminants discharged into storm systems draining to the creek.
- DNR-issued municipal and industrial stormwater permits primarily rely on "best management practice" approaches that do not require stormwater contaminant testing nor do they include numeric stormwater effluent limits. However, city, county, and state agencies have authorities to gather contaminant data from the creek (or ask permittees and other stormwater dischargers to do so) but rarely use these authorities. When they do it is only for a small range of contaminants. The resulting lack of contaminant data makes it difficult to prevent toxic pollution from sources, mitigate contamination in the creek, and assess the health of the creek, its fish and/or wildlife.
- The City of Madison and/or Dane County failed to meet (or only sporadically met) several of their DNR-issued WPDES stormwater permit (Madison Area Municipal Stormwater Partnership, or MAMSWaP) requirements from 2014-2019, including:
  - Inadequately fulfilling (or not fulfilling) public outreach/engagement requirements
  - Failing to gather/report Illicit Discharge Detection Elimination (IDDE) data on time/at all
  - Not submitting required biennial reports for review before appropriate governing bodies
  - Inaccurate, incomplete and/or outdated information on biennial reports

- Not addressing impaired waterways requirements in biennial reports
- Not posting agendas and minutes from MAMSWaP meetings
- City and county government agency staff interviewed said some stormwater permit requirements could not be met due to lack of staff/resources, and budgets for these permit activities from 2014-2019 were very low (and zero some years). The permit requires permittees to “provide adequate financing, staff, equipment, and support capabilities to implement the requirements of this permit.”
- As regulator of the city and county, DNR has authorities to address the above permit violations, but we found little evidence that they were aware of them and/or took any actions to address them.
- The City and County operated under an expired MAMSWaP permit from 2014-2019.
- DNR’s draft MAMSWaP permit (released for public comment on April 1, 2019) clarifies some public outreach/education and involvement/engagement requirements (in response to a 2016 EPA rule intended to improve public engagement among municipal permittees) but proposed revisions also allow more general, less specific reporting of these activities, weakening accountability.
- City, county and state agencies and officials have not been very responsive (or have not responded at all) to community questions and complaints about toxic contaminants discharging into Starkweather Creek through storm drains.

**Stormwater regulations and citizen engagement are not taken seriously by government agencies**

Overall, our community work, regulatory reviews, and interviews with government officials indicate that city, county, and state agencies are not taking some stormwater regulations very seriously, particularly those pertaining to toxic contaminants and community engagement. Unfortunately, whether intended or not, this exacerbates disparities in exposures to toxic chemicals in already at-risk low income communities who have more limited capacities and resources than more privileged residents to learn about and engage in community decisions about pollution and their health. Not fulfilling these regulations contributes to community environmental injustices and is not in line with the city and county’s stated policies and commitments to social justice and equity.

In sum, city, county and state agencies are not adequately addressing environmental injustices or protecting Starkweather Creek water, fish, and wildlife from further degradation by trash and toxic chemicals.

**Recommendations**

1. All city and county stormwater permit requirements should be met through leadership commitment, expressed through adequate funding and enforcing staff fulfilment of permit requirements.
2. Government regulators should take serious enforcement actions to address chronic violators of existing stormwater and other environmental regulations—and publicly document them.
3. City, county and state agencies should work to fill critical toxic contaminant gaps related to Starkweather Creek to protect public and environmental health.
4. Government agency staff and elected officials should receive training on stormwater and other environmental regulations, citizen engagement, and environmental justice.
5. Relevant and appropriate stormwater pollution education and outreach should be initiated in low income, at-risk neighborhoods.
6. Outreach and education on Ho-Chunk history (led by Ho-Chunk leaders, in collaboration with communities) should occur throughout Madison, including in low income neighborhoods.
7. Anti-littering campaigns should be revived.
8. Comprehensive testing for PFAS in Starkweather Creek/Lake Monona fish should be conducted, and appropriate fish advisories should be developed/distributed to anglers throughout the county.
9. A Joint City-County Starkweather Creek Task Force should be created.
10. A Joint City-County Task Force on PFAS should be created.

## **PART 1: PROJECT OVERVIEW, ACCOMPLISHMENTS & SURVEY RESULTS**

### **I. Overview**

In fall 2017, the Midwest Environmental Justice Organization (MEJO) received a U.S. Environmental Protection Agency (EPA) environmental justice grant to support its Starkweather Environmental Justice Project. Our main project partners were the East Madison Community Center (EMCC), the Northside Planning Council (NPC), and the UW Geography GIS Capstone Project (for the first part of the project).<sup>1</sup> During the course of the project, we developed a new partnership with the Gambian Youths of Wisconsin and also co-organized an event with Ho-Chunk Gaming Madison.

Starkweather Creek is a highly-impaired, [303d-listed waterway](#) in Madison, Wisconsin, affected by [numerous toxic chemicals and other pollutants](#), most of which have entered the creek in the past and/or continue to enter it via stormwater runoff. The creek flows through two diverse, low-income neighborhoods in north/east Madison—Truax and Darbo-Worthington (Darbo). A central goal of the project was to engage community members in these two neighborhoods, as well as people we encountered along the creek from other neighborhoods, in discussions about the creek and learn more about their knowledge and perspectives about it. Another key goal was to facilitate meetings where community members could learn about stormwater pollution affecting the creek and ways to participate public discussions and decisions about it. To meet these goals, we surveyed community members, held events and trainings, testified at public meetings, and reviewed environmental reports related to Starkweather Creek and stormwater pollution.

We also reviewed city, county and state government regulations pertaining to community members' recommendations and our project team's assessments of Starkweather Creek contaminant data gaps. In December 2018, project leaders talked about these gaps with government officials responsible for implementing stormwater regulations from the City of Madison, Dane County, and the Wisconsin Department of Natural Resources.

### **II. Starkweather Creek EJ Project Activities**

Before the project officially began, in summer 2017, one of our partners in the UW Geography GIS Capstone program developed a [Starkweather Creek stormwater risk and stormwater drain map](#), which we used throughout the project to help community members visualize and better understand the underground storm drainage system and stormwater runoff issues facing the creek. In fall 2017, we officially kicked off the project with a [Community Fish Dinner](#) at the East Madison Community Center, attended by over 200 people. In the winter and spring, we organized several trainings for our project leaders on outreach/engagement, surveying, and stormwater runoff issues challenging the creek. During spring and summer 2018, we held several "Let's Talk Starkweather" meetings at EMCC to engage the community in discussions about the creek and did a lot of outreach at EMCC food pantries, center events, and in the community to talk with people and let them know about our events. Our biggest "Let's Talk Starkweather" event in mid-summer focused on the [Ho-Chunk history of the De Jope](#) (Four Lakes) region, which includes the Starkweather watershed. The event, attended by over 60 people, featured keynote presentations by local Ho-Chunk leaders, short presentations by our project interns on stormwater issues facing Starkweather Creek, and a free multi-cultural meal. We engaged children, teens, and adults from EMCC and the Gambian Youths of Wisconsin in an [Earth Day trash cleanup](#) of a large storm drain leading to the creek, a [fishing trip in June](#) at the mouth of Starkweather Creek, and a local wild food gathering field trip. Our project leaders testified at public government meetings about stormwater issues that affect the creek. In all, throughout our community meetings, events, and survey conversations (see below), we engaged at over 400 people.

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<sup>1</sup> We worked with the University of Wisconsin Geography GIS Capstone project partner before the project began, and during the first three months.

A key goal of our project was to learn more about the knowledge/awareness of Starkweather creek among Truax and Darbo residents and others we encountered along the creek. We also wanted to better understand their concerns about the creek, recommendations for improving it, and their willingness to engage further in activities related to it. Towards this goal, MEJO and project leaders surveyed 100 residents in these neighborhoods as well as anglers and people from other neighborhoods encountered along the creek while doing surveys.

Further, during the course of the project, to inform community discussions and intern trainings, MEJO leaders reviewed city/county/state stormwater regulations relevant to stormwater pollution problems challenging Starkweather Creek and citizen engagement in these issues. We obtained any publicly available data from city, county, and/or state agencies, websites, or reports on stormwater and/or toxic contaminants that could be affecting the creek and its fish and wildlife, and posted it on our [Starkweather webpage](#). As issues of concern were raised by the project team and/or the community, we looked for relevant data and other information about these issues to help answer questions and inform community discussions.

### **III. Project accomplishments**

#### **Community engagement/involvement**

- More than 400 community members from a diverse range of ages, genders, and race/ethnicities, who had not been engaged with and/or aware of the creek previously were engaged in learning about where Starkweather Creek is and in talking about it with our team.
- More than 400 community members from a diverse range of ages, genders, and race/ethnicities were engaged in events and activities related to Starkweather Creek.
- About 50 children from the Truax neighborhood and Gambian Youths of Wisconsin were involved in trash cleanups, a fishing trip near the creek, and/or a local food gathering field trip, and many said they are excited to participate in similar events in the future.
- Project team members attended and testified at public meetings about Starkweather Creek pollution issues and offered recommendations for improvements.
- Survey respondents' and project team recommendations about improving Starkweather Creek and stormwater issues were brought to the attention of public officials.

#### **Relationship/community capacity building**

##### **Our team and our community partners:**

- Developed relationships with Truax/Darbo neighborhood residents, a better understanding of their perspectives, challenges, and interests, and improved capacities to engage with them in the future;
- Gained a better understanding of the knowledge/interactions/recommendations of people in Truax, Darbo, as well as people we encountered along the creek from other neighborhoods;
- Developed stronger relationships with the East Madison Community Center, Northside Planning Council, and some new partners (below);
- Developed new relationships with Gambian Youths of Wisconsin;
- Developed new relationships with Ho-Chunk Gaming Madison (who we partnered with on large community event).

##### **Increased knowledge about Starkweather Creek and storm water issues/regulations**

- Community members from our focal neighborhoods (Truax/Darbo) learned about Starkweather Creek (including a significant proportion who didn't know what/where it was before).
- Our project team, community partners, and community members learned more about stormwater pollution issues facing Starkweather Creek.

- Our project team and community partners learned more about existing stormwater regulations, gaps in these regulations, and gaps in data about the creek's pollution issues.

#### **Community-based interactive online map of Starkweather Creek**

- One of our Starkweather project team leaders (Ida Jammeh) used ArcGIS to create an online interactive map with links to our survey data, photos from the project, and other locations along the creek that emerged during our project as important sites. The map will be used as a community engagement and education tool in our future work. Items of interest to the community will be added to the map as we continue to engage, discuss, and investigate stormwater and other pollution problems challenging the creek.
- A link to the map is [here](#) (online app [here](#)) and snapshots of the map (with examples of different base maps) are in Appendix 2.

#### **Other:**

- Our efforts to distribute fish advisory fliers prompted Public Health Madison Dane County (PHMDC) to design and print out new fish advisories (no print versions were available until we requested them to have available for our community events and outreach).
- After our testimonies at the July 2018 Dane County Lakes & Watershed Commission, the Commission agreed to create a Task Force on Starkweather Creek (later rescinded).
- Our July 25 Ho-Chunk/Starkweather event was covered by [the Cap Times](#), increasing awareness of our work and also about Ho-Chunk history in the region.

#### **IV. Key findings of community surveys**

Our community surveys were not intended to be formal scientific surveys or a representative sample of any group or neighborhood. They were primarily tools to engage people in our two focal neighborhoods, and others along the creek, in conversations about the creek and to gain a general understanding of people's awareness of the creek, interactions with it, recommendations to improve it, and willingness to engage further. Surveys were also mechanisms to query people about what they would like to learn about the creek and let them know about upcoming events. When respondents wanted to tell stories and/or elaborate on issues we asked about, they were allowed to do so.

Though not formal scientific surveys, survey results provided a broad overview of the kinds of relationships people in our focal neighborhoods and other neighborhoods have with Starkweather Creek as well as insights for further engagement with these neighborhoods.

Some (not all) of our key survey results are depicted in tables/charts in Appendix 1. The charts/tables are self-explanatory, but some highlights are listed below:

##### **Knowledge/awareness of creek**

- Knowledge of where the creek is (by name) was highest among Eastside respondents and lowest among Darbo residents (see next point).
- After pointing out to Darbo residents what/where the creek is, they knew there was a creek there and many said they interacted with it. Many don't have cars and walk along it or across it regularly.

##### **Types of interactions with creek**

- The most common way people interact with the creek, especially in the two focal neighborhoods (Truax and Darbo), is walking along it.
- After walking, the next most common activities people said they did along the creek are (in decreasing order of frequency checked): biking, exploring/playing, fishing, observing wildlife, and canoeing/kayaking.

##### **Observations along the creek**

- Trash was the most commonly mentioned observation among all neighborhoods.<sup>2</sup>
- Birds were the 2<sup>nd</sup> most frequent observation.<sup>3</sup>
- Frogs/toads and turtles were the 3<sup>rd</sup> most commonly mentioned observations.
- Other large mammals and fish were 4<sup>th</sup> and 5<sup>th</sup> (respectively).<sup>4</sup>
- Pollution (other than trash) was the 6<sup>th</sup> most commonly mentioned observation.<sup>5</sup>
- People also mentioned: butterflies, insects, invertebrates, plants, algae, dead fish, high water/flooding.

##### **Fishing & Advisory Awareness**

- About half of the people we surveyed said they fish.
- Anglers mentioned several fishing locations, predominantly in Madison, including Lake Mendota and Monona; some mentioned specific locations like Tenney Park, Olbrich Park, Monona Terrace.
- Fourteen people said they fish in Starkweather creek; several others said they fish in Lake Monona "in many places" without specifying locations (so this could include at the mouth of Starkweather).

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<sup>2</sup> Types of trash mentioned: various plastic items, cigarette butts, food wrappers, cans, bottles, furniture.

<sup>3</sup> Types of birds mentioned: ducks, geese, mourning doves, redwing blackbirds, bald eagles, woodpeckers, turkeys, green heron, and seagulls.

<sup>4</sup> Types of mammals mentioned: deer, fox, rabbits, raccoons, squirrels, muskrats, skunks, coyotes, cats.

<sup>5</sup> Types of pollution mentioned: chemicals, oils, dumping, salt.

- Overall, 57% of anglers were aware of fish advisories.
- Advisory awareness differed by race, with 63% of white anglers being aware of advisories but only 37% of non-white anglers saying they are aware of them. These disparities in fish advisory awareness parallel MEJO’s previous work on fish advisory awareness—see [here](#) and [here](#).

### **Respondents’ Top Recommendations**

- In line with the most frequent observation of trash along the creek, “cleaning up trash” was the most commonly mentioned recommendation among people from all neighborhoods.
- After the trash recommendation, the next most commonly mentioned recommendations were (in decreasing order of frequency): preventing toxic pollution from entering the creek, mitigating toxic pollution, increasing accessibility (caveat below), removing algae/weeds, and restoration.
- The order of the top recommendations was slightly different for respondents from different neighborhoods, but generally similar. The most notable difference among the neighborhoods was that the “increased accessibility” recommendation was only mentioned by Truax and Darbo residents.

### **Willingness to Engage Further**

- Significant majorities of people in all neighborhoods expressed willingness to engage further in activities related to the creek; the highest percentages were in Truax, followed by Darbo.
- Among those who said they were willing to engage further, the following activities were mentioned as activities they would do (from most commonly mentioned to least): trash cleanups, community meetings/events, writing letters to public officials, signing petitions, field trips, conservation efforts.

### **What did people want to know more about?**

- Respondents expressed interest in learning about the following topics (from most to least commonly mentioned): history, water quality/pollution, community engagement/education, efforts to clean creek, fish/fishing, and wildlife.

### **Awareness of Native American history of watershed**

- Though 33% of respondents knew that Native Americans lived in the Starkweather Creek watershed before European settlement, only 7% of respondents could name Ho-Chunk Indians. The rest of the respondents (60%) did not know who lived here then.

## **PART 2: STARKWEATHER TOXIC CONTAMINANT GAPS, TRASH, & GOVERNMENT AUTHORITIES TO ADDRESS THEM**

### **I. Available data about toxic contaminants along Starkweather Creek**

To better understand challenges facing the creek, including its wildlife and fish, MEJO gathered all publicly available reports about Starkweather Creek that we could find related to its history, key stormwater issues, and data on any pollutants that are entering it via stormwater runoff (or have in the past). We posted most of the reports we found on our [Starkweather EJ project page](#).

#### **“Golf Ditch” area of Starkweather Creek flowing through Truax Field is most toxic**

One report in particular, the [2006 UW Nelson Institute report on Starkweather Creek](#) (based on a 2005 UW study) prompted us to look for more data from a stretch of the west branch of the creek that flows through Dane County Regional Airport/Truax Air National Guard base and then southward west of the Truax apartments and past Darbo-Worthington before it discharges to Lake Monona. The broader area, called “Truax Field,” is owned by Dane County and includes the airport, military base, Truax Landfill, former Burke sewage treatment plant and Bridges Golf Course. Nearly all of the stormwater runoff from Truax Field goes directly to Starkweather Creek; 38 stormwater outfalls discharge to the creek on the airport and military base alone.

The 2005 UW studies included [“Microtox” tests](#) showing a dramatic increase in the toxicity of creek water in Truax Field—with the worst (most toxic) water quality where the “golf ditch” drains into the creek southwest of the Truax apartments. The second worst water quality was found immediately downstream of the airport; report authors noted that water samples downstream of the airport and at the golf ditch area killed nearly all the test organisms in the 15-minute testing period. The third most toxic area was a site just downstream from the Darbo apartments at Milwaukee Street.

A [2016 Freshwater Engineering Study](#) co-funded by the City of Madison and Friends of Starkweather Creek repeated the 2005 UW study<sup>6</sup> and again found the worst water quality at the “golf ditch” area—[see graphs](#) comparing 2005 and 2016 results. The report concluded: “Considering toxicity, the primary area of concern is the ‘Golf Course Ditch’ location. This is by far the area where the water quality is the worst. This water within the creek throughout this reach is standing water during base conditions with little to no flow. *The airport is also a concern for pollution as the results show that between the above and below airport testing sites, there is a 55% light reduction over approximately 3.5 miles of creek length. The land adjacent to this length of creek is owned and operated by the Dane County Regional Airport...*” (italics added).<sup>7</sup>

A 2017 [Department of Natural Resources Starkweather sediment toxicity study](#) (in collaboration with City of Madison, Wisconsin State Lab of Hygiene, and Friends of Starkweather Creek) tested the toxicity of the creek’s sediments to two invertebrate species. The study concluded that “stream sediment collected from 5 of the 7 sample sites in the Starkweather Creek watershed were toxic to invertebrate test organism species that live in streambed sediment and at the sediment – water column interface.” Three of the toxic samples were downstream of Truax Field, but the study sample locations did not directly match those in the 2005/2016; no samples were taken directly downstream of the airport, at the golf ditch, or elsewhere in Truax Field area that could be directly compared to previous findings. Also, the study did not test contaminants in creek sediments or water that could help explain the sediment’s toxicity to invertebrates.

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<sup>6</sup> Freshwater Engineering was started by one of the graduate students with the UW Nelson Institute practicum that produced the 2006 Starkweather report.

<sup>7</sup> The study stated that the water quality had improved in this area from 2005-2016, but the water quality had also improved upstream of the airport so we question this conclusion. Data from both years showed a similar drop in water quality from above to below the airport.

Hoping to find more contaminant data to explain the toxicity of the creek's water and sediments, we searched for more contaminant data from any section of the creek, and from the Truax Field section of the creek in particular. Because people on our project team and about half of our survey respondents fish, and some eat the fish they catch, we also looked for fish contaminant data from the creek. Below is some of what we found.

#### **Available contaminant data from Starkweather Creek and/or adjacent areas**

- The [Draft 1988 “Engineering Report” on Truax Field](#) and the final report we obtained in January 2019 ([1989 Envirodyne report](#)) list a variety of toxic contaminants that were discharged and/or leached to Starkweather Creek (or have a high likelihood of doing so), including: numerous metals (chromium, cadmium, mercury, lead), volatile organic compounds (tetrachloroethylene, trichloroethylene, vinyl chloride, methylene chloride, other chlorinated organics), and numerous petroleum compounds (benzene, xylene, toluene). Reports document these contaminants at/near several sites in Truax Field—the Truax Landfill, former Burke sewage treatment plant, and an old fire training “burn pit” on the southwest side of the airport. Another fire training burn pit area on the east side of the airport (not part of the 1989 assessment) was [assessed in 2004](#) and found to be contaminated with petroleum compounds. Starkweather Creek flows directly adjacent to both burn pits.
- The [2005 UW study](#) assessed contaminants in [Starkweather surface water](#) (mostly polycyclic aromatic hydrocarbons or PAHs, but also petroleum compounds, phthalates), and found levels they reported as “relatively higher” than in the control sample, but it isn't clear where the water samples were taken from the creek for the contaminant sampling (we couldn't find this information).
- From 1988-2012, numerous “Installation Restoration Program” (IRP) investigations at the Truax Air National Guard base documented extensive soil and groundwater contamination that would have entered Starkweather Creek via stormwater runoff, storm drains/ditches, and leaching of shallow groundwater into the creek, including: tetrachloroethylene (PCE), trichloroethylene (TCE), polychlorinated biphenyls (PCBs), petroleum compounds, polycyclic aromatic hydrocarbons (PAHs), metals, and more. However, the DNR did not ask for Department of Defense investigations to assess these contaminants in creek water or sediments and approved [“no further action” for the site in 2012](#).
- In 2015, DNR issued Dane County Regional Airport's (DCRA) its first [WPDES stormwater permit](#).<sup>8</sup> The permit requires limited testing of discharges from the airport/Truax Air National Guard base for “oil and grease,” total suspended solids, BETX (benzene, ethylbenzene, toluene, xylenes), some PAHs, benzo(a)pyrene and naphthalene. [A stormwater pollution prevention plan](#) (SWPPP) is also required under the permit. The WPDES permit only requires monitoring at two of the many outfalls from the site. No samples are required from the main ditch that receives stormwater from the site's extensive system of ditches/drains and relays it to the west branch of Starkweather Creek. There are two “in-stream” (not stormwater) sampling points that compare Starkweather water quality upstream of the airport/ANG site to downstream of the site. The limited testing includes TSS (total suspended solids), phosphorus, and propylene glycol, but not benzo(a)pyrene, PAHs, or BETX. There are no effluent limits in the permit for these parameters at these sampling points.<sup>9, 10</sup> The permit does not ask ANG to assess the many other toxic

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<sup>8</sup> The Wisconsin Air National Guard is a co-permittee on this permit.

<sup>9</sup> At the downstream sampling point, in once or twice yearly testing from 2008-2017, TSS levels reported ranged from 9 to 540 mg/L and phosphorus from 25 to 250 ug/L. On average the levels of TSS and phosphorus (especially TSS) downstream from the airport were higher than the upstream levels. We weren't able to obtain more recent monitoring data.

contaminants documented in soils and groundwater at the base in the 1989 report and/or 1988-2012 IRP documents.

- [2013-2014 City of Madison “Illicit Discharge Detection & Elimination” \(IDDE\) report](#) includes some water quality data for Starkweather Creek, but doesn’t include most of the contaminants discussed here. Subsequent IDDE data (other than chloride) was not available at the time this report was finalized.<sup>11</sup>
- The [2016 Freshwater Engineering Study](#) (discussed above) measured a set of PAHs in creek water at the same locations tested in 2005. It concluded that Kipp’s discharges don’t increase PAHs in the creek but did not assess the other toxic contaminants known to be discharged from Kipp (PCE, TCE, PCBs, metals).
- The [March 2018 Truax Air National Guard PFAS report](#) includes data on poly-and perfluorinated substances (PFAS). PFAS levels (PFOA + PFOS) found in limited shallow surface water samples were as high as 39,841 ppt, about 569 times above the EPA’s “health advisory” level of 70 ppt for these two compounds combined. Soil PFAS levels were also extremely high in some locations very near storm drains. DNR did not ask the Air National Guard to test PFAS in Starkweather Creek.

#### **A. Summary of Starkweather Creek toxic contaminant data gaps**

1. There is no recent data from Starkweather Creek water, sediments, and/or fish for most of the contaminants listed above (PCE, TCE, PCBs, PFAS, petroleum compounds) documented since the late 1980s and more recently in groundwater, surface water and/or soils at contaminated sites in Truax Field.
2. There is no data on toxic contaminants released from industries along the creek, other than some contaminant data on what’s emitted from [Madison-Kipp Corporation’s Groundwater Extraction System \(GETS\)](#) into the west branch of Starkweather Creek just before it joins the east branch less than a mile from its mouth at Lake Monona. According to the DNR WPDES permit issued for this, levels of PCE, TCE, vinyl chloride and chloride allowed to be discharged into the west branch of the creek are significant. GETS chloride discharge levels have been below effluents limits, but these limits (set by EPA/DNR) are high. There is no effluent limit for total VOCs and metals are not measured at all. Regular chloride and biological oxygen demand (BOD) monitoring were recently discontinued for the GETS, with DNR and PHMDC approval, and TSS monitoring was reduced to only after system “cleaning events,” even though Starkweather Creek is impaired by all of these.<sup>12</sup>
3. Other than TSS sampling downstream from the airport as required by the DCRA WPDES permit there is no TSS and only limited phosphorus data from the entire creek as far as we can tell.

In sum, there is almost no toxic contaminant data relevant to understanding the impacts of stormwater discharges from known polluted sites along the creek and limited data relevant to assessing and addressing

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<sup>10</sup> The permit doesn’t name an effluent and/or water quality standard for phosphorus for any outfall at the site; the effluent limit for TSS for the WANG oil-water separator outfalls is 40 mg/L; there is no limit for TSS for the Starkweather creek samples.

<sup>11</sup> Data includes: hardness, dissolved oxygen, E. coli, a range of “common metals,” salt (chloride, sodium), fluoride, potassium, ammonia and other nitrogen compounds, sulfates, phosphorus and ortho-phosphorus. It does not include total suspended solids (TSS).

<sup>12</sup> This data is relevant for assessing sources of these pollutants as well as how well impaired waters and Total Maximum Daily Load (TMDL) requirements included in stormwater permits are working.

several of the contaminants that have led to the creek being listed as a 303(d) listed impaired waterway (TSS, sediments, metals, BOD)

## II. Regulatory authorities pertaining to trash & monitoring toxic contaminants

In our regulatory reviews, we focused on the top three priorities of our survey respondents (all combined): cleaning up trash, preventing toxic chemicals from entering Starkweather Creek, and mitigating existing toxic pollution. Other stormwater problems, such as construction site runoff (which often includes toxic contaminants, especially when the construction site is contaminated from past industrial uses) are highly relevant to the health of Starkweather Creek. However, construction site runoff was not mentioned by our survey respondents, most of whom don't live near Madison's many construction sites. (Also, this project was too limited in resources and time frame to consider construction runoff problems and regulations.)

Having relevant contaminant monitoring data is essential to understanding pollution sources as well as preventing and mitigating toxic chemical pollution. As described above, we had limited success finding current toxic contaminant data relevant to Starkweather Creek, especially from the Truax Field area southwest of Truax apartments that previous studies showed is significantly affected by toxic pollution.

To better understand these contaminant gaps, and what could be done to address them, we reviewed city, county, and state regulations that could provide these entities with legal authorities to address trash, gather contaminant data and prevent/mitigate toxic contaminants in the creek's water, sediments, and/or biota.<sup>13</sup>

### A. City, county, state regulations pertaining to trash

- [Madison General Ordinance \(MGO\) 7.32](#) gives the city authority to fine people for depositing trash in local lakes/creeks and in streets and storm drains that lead to them.
- [MGO 7.46/7.47](#) states that "It shall be unlawful for any person to release, discharge, or permit the escape of any potential polluting substance into the waters of [lakes in Madison], or into any lake or stream in or under the jurisdiction of the city of Madison, or into any street, sewer, ditch or drainageway leading into any lake or stream, or to permit the same to be so discharged to the ground surface. (Am. And Reun. By Ord. 12,171, 7-20-98). "Potential polluting substance" means any dredged soil, solid waste, incinerator residue, sewage, [garbage, refuse](#), oil, sewage sludge, munitions, chemical wastes, biological materials, radioactive substance, heat, wrecked or discarded equipment, rock, sand, cellar dirt, sump pump residue, and industrial, municipal and agricultural waste discharged into water" (highlights added). The ordinance includes fines for violation, and assigns enforcement responsibility to Public Health Madison Dane County (PHMDC).
- The [Madison Area Municipal Stormwater Partnership \(MAMSWaP\)](#) permit, under which both the City of Madison and Dane County operate, says "each co-permittee shall take all reasonable and necessary actions to prevent discharges from its MS4 that may adversely affect receiving water quality or aquatic life including" among other things, "Oil, grease, and [other floating material](#) that form [noticeable accumulations of debris](#), scum, foam or sheen" (and more—next section).
- At the state level, [Wisconsin Statute S. 287.81](#) addresses littering broadly.

### **Regulatory authorities are not used to address trash**

We encountered no evidence that the city, county and/or state are using any of the above authorities to address littering along Starkweather Creek or in areas in which storm drains discharge to it. City and county

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<sup>13</sup> Though EPA is the federal regulatory body that oversees DNR, we did not address EPA stormwater regulations per se, because the community doesn't have capacities and resources to engage at the EPA level. Also, DNR WPDES program is the state level implementation of the EPA's NPDES program that is intended to meet requirements of the Clean Water Act.

online and printed educational materials do not include anti-littering content, nor do outreach events discuss littering.

## **B. City & county regulatory authorities to monitor toxic contaminants**

As a [Municipal Separate Storm Sewer System](#) (MS4), the City of Madison and Dane County both have pollution prevention and monitoring responsibilities and authorities through the DNR Wisconsin Pollution Discharge Elimination System (WPDES) permitting program, which issues a group stormwater permit to 19 municipalities, including Dane County, Madison, and the University of Wisconsin. This group (and sometimes the group permit) is called [the Madison Area Municipal Stormwater Partnership \(MAMSWaP\)](#).<sup>14</sup>

The key “stormwater management program” requirements of the permit are 1) Public education and outreach; 2) Public involvement and participation; 3) Illicit discharge detection and elimination; 4) Construction site pollution control; 5) Post-construction site stormwater management; 6) Municipal pollution prevention.

Below are some of the requirements and other language in the permit relevant to assessing and/or preventing toxic contaminant discharges into city and county storm sewers:

- There are no numerical stormwater contaminant monitoring requirements and/or stormwater effluent limits in the permit. The permit says compliance with applicable water quality standards “will be addressed by adherence to the provisions and storm water management program requirements of this permit” (listed above).
- The permit says that each co-permittee “shall take all reasonable and necessary actions to prevent discharges from its MS4 that may adversely affect receiving water quality or aquatic life including: (a) Solids that may settle to form putrescent or otherwise objectionable sludge deposits. (b) Oil, grease, and other floating material that form noticeable accumulations of debris, scum, foam, or sheen. (c) Color or odor that is unnatural and to such a degree as to create a nuisance. (d) Toxic substances in amounts toxic to aquatic life, wildlife, or humans. (e) Nutrients conducive to the excessive growth of aquatic plants and algae to the extent that such growth is detrimental to desirable forms of aquatic life, creates conditions that are unsightly, or are a nuisance. (f) Any other substances that may impair, or threaten to impair, beneficial uses of the receiving water.
- Each co-permittee is to “Exercise and enforce its legal authority to control discharges to and from those portions of the MS4 that it owns or operates. This legal authority may be a statute, ordinance, permit, order or intermunicipal agreement, a series of contracts, or administrative rule...” that allows them to “Control the contribution of pollutants to and the discharge of pollutants from the MS4.” Permittees are also expected to “Carry out all inspections, surveillance and monitoring procedures necessary to determine compliance with permit conditions including the prohibition of illicit discharges to the MS4.”
- The MAMSWaP permit states that if a permittee discharges to a 303(d) listed impaired waterway (which Starkweather is), it should “include a written section in its biennial report that discusses the management practices and control measures it will implement as part of its program to reduce, with the goal of eliminating, the discharge of pollutant(s) of concern that contribute to the impairment of the water body.”

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<sup>14</sup> The current MAMSWaP permit expired in 2014 and DNR has not yet re-issued one; for now they operate under the terms of the expired permit. On April 1, 2019, as this report was being finalized, the draft MAMSWaP permit was released for public comment.

### Specific city and county regulatory authorities to monitor toxic contaminants

- Per the above MAMSWaP “legal authority” requirement, Madison General Ordinances, [MGO 7.46.7.47](#) was designed “to prevent any potentially polluting substance from reaching lakes or streams where it can create hazard to health, a nuisance or produce ecological damage and to assess responsibility and costs of clean-up to the responsible party.” As described above, “Potential polluting substance” means any dredged soil, solid waste, incinerator residue, sewage, garbage, refuse, oil, sewage sludge, munitions, chemical wastes, biological materials, radioactive substance, heat, wrecked or discarded equipment, rock, sand, cellar dirt, sump pump residue, and industrial, municipal and agricultural waste discharged into water.”
- The city ordinance includes penalties and assigns enforcement responsibility to Public Health Madison Dane County (PHMDC), a joint city and county agency.
- The City of Madison and Dane County also have authorities to monitor and prevent substances from entering Starkweather Creek via stormwater under the [Illicit Discharge Detection & Elimination \(IDDE\) requirements](#) in their MAMSWaP permit. The IDDE requirements are intended primarily to detect discharges of sanitary wastes into storm sewer systems, but also to detect other inappropriate discharges into storm sewers, such as unpermitted industrial wastewater discharges, accidental industrial or chemical spills, and/or purposeful dumping into storm sewers.<sup>15,16</sup>
- PHMDC is in charge of the IDDE program for Madison and some of Dane County. The [EPA](#) and [DNR](#) provide guidances on what parameters to measure and where to measure them, but permittees have discretion on what to monitor (or not) for their respective IDDE programs.
- As part of the IDDE testing, PHMDC regularly monitors major stormwater outfalls in the city and also does some water quality testing. Specific to Starkweather Creek, according to the [most recent Public Health Madison Dane County IDDE report](#) available to us at the time this report was written, “Water quality monitoring of Starkweather Creek was started in 2008 to assess trends in water quality, document the impact of road salt, and detect illicit discharges to the creek...The north branch is sampled downstream of the airport to detect changes in water quality caused by airport operations...” (see pg. 6 of report).

### MAMSWaP permit funding and reporting requirements

- The MAMSWaP permit states that permittees must “Individually or as agreed upon by the co-permittees, provide adequate financing, staff, equipment, and support capabilities to implement the requirements of this permit.”
- The city and county are each required to submit biennial reports by March 31 of odd years, showing how they meet their permit requirements.<sup>17</sup>

### C. City & county gaps in monitoring and reporting toxic contaminants

- [Dane County’s 2015-2016 biennial report](#) and [Madison 2015-2016 biennial report](#) were due on March 31, 2017 but were submitted very late, in June and December 2017 (respectively) (The city dated its report December 2017 and is hereafter referred to as the city’s 2015-2017 biennial report.)
- Dane County submitted its [2017](#) and [2018](#) reports and the city submitted its [2018 report](#) near the deadline of April 1, 2019 (just as this report was being finalized).<sup>18</sup>

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<sup>15</sup> According to the MAMSWaP permit, “Pollutants of concern in storm sewer discharges include organic materials, suspended solids, metals, nutrients, bacteria, pesticides, fertilizer, and traces of toxic materials.”

<sup>16</sup> According to the [DNR’s 2011 stormwater guidance for industrial permittees](#) each permitted MS4 is “required to address the discharge of pollutants from its separate storm sewer system into waters of the state and has the authority and responsibility to regulate discharges into its separate storm sewer system,” including industrial discharges that contain pollutants.

<sup>17</sup> The draft MAMSWaP permit has changed this to annual reporting.

<sup>18</sup> We asked the DNR about the extreme delays by the city in turning in its biennial report (a permit violation) after we noticed that it wasn’t submitted by March 31, 2017 (submitted in December 2017) and we also noted this tardiness when we met in

- City and county stormwater pollution prevention activities described in biennial reports primarily focus on phosphorus, TSS, leaves, and salt/chloride;
- We found no evidence that MAMSWaP authorities and/or MGO 7.46/7.46 have ever been used to control the toxic contaminants listed in the previous sections of this report from being discharged to or from city or county storm drains.
- According to our interviews with City Stormwater Utility staff in December 2018 (one of whom was involved in the original creation of the MS4 IDDE program in the early 1990s), the IDDE program was not designed to help identify specific sources of toxic contaminant releases into the creek; it doesn't target stormwater outfalls that are likely to receive discharges from known contaminated sites (industries, businesses, etc.), nor does it assess the types of contaminants likely to be discharged from these sources.<sup>19</sup>
- Despite its stated focus on assessing changes related to operations at Dane County Regional Airport (DCRA)/Truax ANG, the PHMDC Starkweather Creek IDDE testing does not include the toxic contaminants identified in old reports, the contaminants listed in the 2006 and 2016 reports as possibly causing the creek's degradation downstream of the airport (PAHs), or most of those identified in the DCRA WPDES permit.
- Starkweather IDDE testing data from PHMDC was not included in the 2015-2017 biennial report and was not available for subsequent years (other than chloride). When we talked with city staff in December 2018, the data was still not available and they explained that this gap was due to lack of staff/resources to finalize the data. The 2018 annual report submitted on April 1, 2019 says: "The City of Madison is awaiting the IDDE report from Dane County Madison Public Health. We expect this report before the end of April 2019."
- According to old biennial reports, the county didn't do any IDDE stormwater contaminant screening/monitoring from 2004-2016, other than one inspection in 2005. In both 2017 and 2018, the county reported that it screened five outfalls at three sites. These were visual inspections; they do not include contaminant monitoring.<sup>20,21</sup>
- Neither the city nor the county included a written section in biennial reports describing management practices and control measures that would be implemented "to reduce, with the goal of eliminating" discharges of the compounds listed in the most recent DNR impaired waterways list for Starkweather Creek (chloride, unspecified metals, biological oxygen demand, sediments, total suspended solids).
- 2015-2018 county reports answered "no" to the question "Was there any known water quality degradation in the receiving waters to which the municipality's storm sewer system directly discharges to?" The city's 2018 report also reported "no" for this question. (Given that there is little stormwater or receiving water monitoring data, it isn't clear why they didn't check "unsure").
- No funding was listed in the city's 2015-2016 Stormwater Utility budget for IDDE testing (as far as we could tell). In December 2018, Stormwater Utility staff said there was "a payment of \$8450" for PHMDC IDDE work. However, the 2018 report (submitted on April 1, 2019) listed \$50,000 for 2018 IDDE testing, and the same amount for 2019 (from the stormwater utility budget).

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December 2018 with city stormwater staff responsible for the permit. Our ongoing questions about this may have prompted efforts to turn in the annual reports on time for the March 31, 2019 deadline.

<sup>19</sup> Under IDDE, stormwater discharges are only tested for a limited set of parameters when there is flowing water from a pipe during dry periods and/or when there is an odor.

<sup>20</sup> DNR said county officials in charge of IDDE had ascertained that Alliant Energy Center and the Highway Department were the only sites with potential for illicit discharges into storm sewer systems. There are other county sites that have potential for illicit discharges—e.g., Dane County Health and Human Services property, Truax Field, and more—but they are not assessed.

<sup>21</sup> We received conflicting information about the actual number of sites that the county monitors under IDDE. DNR stormwater officials told us in December 2018 that only these two facilities are monitored for Dane County's IDDE (which parallels information in the 2015-2016 report), but the county's 2017 and 2018 reports mention three facilities but only include maps for two.

- The 2015-2016 county biennial report listed “NA” in the slot for IDDE funding through 2018, but 2017 and 2018 biennial reports recently submitted list \$2,000 for both years (with actual expenditures of \$1,276 and \$1,044). The 2019 county budget also includes \$2000 for IDDE.<sup>22</sup>

#### **D. DNR authorities to monitor toxic contaminants**

- The DNR, as regulator of the city and county (under [NR 216](#), per the MAMSWaP/WPDES permit), has authority to ask the city and county to fill some of the gaps identified above.
- DNR also has authorities through [NR 216](#) to ask businesses and industries (including the airport/Truax ANG) in the Starkweather watershed to monitor more toxic contaminants entering the creek per [industrial WPDES permits](#).
- Wisconsin [NR 292 and NR 700 \(Spills Law\)](#) [give DNR broad authority](#) to ask responsible parties to assess emerging contaminants such as PFAS at contaminated sites (and other contaminants mentioned above) whether or not they have not been yet been officially identified by EPA as “hazardous” and even when no official promulgated standards exist for the contaminants; definitions of hazardous waste and environmental pollution are very broad. See next point.
- According to NR 292 (see link above), “environmental pollution” means “the contaminating or rendering unclean or impure the air, land or waters of the state, or making the same injurious to public health, harmful for commercial or recreational use, or deleterious to fish, bird, animal or plant life.” “Hazardous substance” means “any substance or combination of substances including any waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics. This term includes, but is not limited to, substances which are toxic, corrosive, flammable, irritants, strong sensitizers or explosives as determined by the department.”
- Under NR 700, DNR has authorities not only to ask responsible parties to assess any hazardous substances (as defined above) at contaminated sites but also to require that they assess their migration pathways via storm drains, ditches, and other routes into waterways. In particular, [Wisconsin law NR 716](#) states that at contaminated sites, “The field investigation shall include an evaluation of all of the following items: (a) Potential pathways for migration of the contamination, including drainage improvements, utility corridors, bedrock and permeable material or soil along which vapors, free product or contaminated water may flow. (b) The impacts of the contamination upon receptors” (waterways, wetlands, etc.).

#### **E. DNR gaps in monitoring toxic contaminants**

##### **DNR permits are based on “best management practices” and require little/no toxic contaminant monitoring**

Years ago DNR decided (with EPA approval) that only phosphorus (P) and sediment (“total suspended solids” or TSS) would be assessed to meet [Total Daily Maximum Load \(TMDL\)](#) requirements of the

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<sup>22</sup> Our interviews with city and county officials were also conflicting/confusing in regards to city vs county responsibilities for IDDE. City staff said the city was responsible for all IDDE testing in the county. However, DNR stormwater staff wrote in an email: “Dane County developed IDDE program elements going back about 15 years ago and continues to implement its IDDE program” and Public Health Madison Dane County “has an annual storm sewer monitoring program covering City of Madison and other areas in the county” and “follows up on reports of reports of illicit discharges in the County in addition to annual outfall monitoring even though the MS4 biennial report does not report any IDDE monitoring for the Alliant Energy and Henry Vilas Zoo properties in 2015-16.” (When I asked for clarification, DNR clarified that the Zoo is no longer included in the IDDE program.). However, the 2017 and 2018 county biennial reports state: “County only monitors and reports on outfalls at three facilities. County staff does conduct outreach and follow up on illicit discharge complaints throughout the county.”

Clean Water Act for the Rock River Basin (which Starkweather is part of).<sup>23</sup> This is one reason most stormwater permits consider only P and/or TSS and not other types of toxic contaminants released from sites via stormwater discharges.

The MAMSWaP and other MS4 permits also do not include numerical limits for contaminants in stormwater other than the percentage reductions in TSS and P required to meet NR 151. As described earlier in the report, the permit says compliance with applicable water quality standards “will be addressed by adherence to the provisions and storm water management program requirements of this permit” (which include the PIP, PEO, and IDDE requirements). In other words, “best management practice” (BMP) approaches are required in permits rather than numerical measurements. Consequently, other than some limited IDDE monitoring (for a few parameters), little to no contaminant monitoring is required. However, DNR has authorities to ask for more contaminant monitoring in some contexts.

### **DNR doesn't use existing authorities to require permittees to gather toxic contaminant data**

- Aside from the Dane County Regional Airport/Truax ANG site,<sup>24</sup> as far as we know DNR has not used its NR 216 authorities to ask industries and other responsibility parties along Starkweather Creek to assess or prevent toxic contaminants the creek via stormwater runoff via their stormwater permits (see next point).
- Under NR 216, Tier 1 WPDES general stormwater permittees (like Madison-Kipp) are allowed to self-inspect and if based on this they declare that “no residual pollutants” are discharged from their site then they are not required to do chemical monitoring of their stormwater. This “no residual contaminant” claim has been shown to be false at Madison-Kipp, where high levels of PCBs and chlorinated VOCs have been found in the raingarden/swale area that receives most of the site's stormwater runoff.<sup>25</sup> PCBs continue to be found there, and yet DNR has not asked Kipp to assess them in stormwater or issue them an individual permit that could require PCB monitoring.
- To date we have found no evidence that the DNR has ever used NR 292 or NR 716 authorities to ask responsible parties to assess toxic contaminants discharged into Starkweather Creek from these or other contaminated sites along the creek. At the Truax Air National Guard site, the DNR did not recommend that they do PFAS testing in pathways to Starkweather Creek, or in the creek, even after reviewing the [March 2018 Truax Air National Guard PFAS report](#) documenting very high levels of PFAS in groundwater and soils at the base.

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<sup>23</sup> Section 303(d) of the Clean Water Act requires states to develop TMDLs for all pollutants violating or causing violation of applicable water quality standards for each impaired water body. A TMDL determines the maximum amount of pollutant that a water body is capable of assimilating while continuing to meet the existing water quality standards.

<sup>24</sup> The *individual WPDES* industrial permit DNR issued for the Dane County Regional Airport (which includes the Truax Air National Guard site) includes some limited stormwater contaminant monitoring data (discussed above).

<sup>25</sup> A class action RCRA lawsuit and a Wisconsin Department of Justice lawsuit were settled in 2013 and 2017 (respectively) related to the toxic contamination at Madison-Kipp.

## **PART 3: GOVERNMENT REQUIREMENTS FOR PUBLIC OUTREACH & ENGAGEMENT, ENFORCEMENT OF STORMWATER REGULATIONS**

### **I. City/county stormwater permit public education & outreach (PEO) permit requirements**

Our survey respondents expressed considerable interest in learning more about Starkweather Creek, stormwater pollution & prevention, the history of the creek, and toxic contaminants that affect the creek. Most people have little access to further information on these issues, knowledge of where to find it, and/or capacities to do so. We think the onus should be on government entities with knowledge, resources, and capacities to outreach to these communities. In this light, we reviewed city, county, and state regulatory requirements relevant to public education and outreach on stormwater issues, and talked with city and county officials responsible for public outreach on stormwater issues.

#### **City & county PEO requirements**

**“Public education & outreach”** (PEO) is one of the six elements of the “stormwater management program” required under the MAMSWaP permit to reduce stormwater pollution and meet water quality standards. Both the city and the county have PEO requirements, but the County has agreed to take on the majority of the PEO responsibilities (see link for specific requirements).

To meet these requirements, the County facilitates many **public education/outreach activities** (link to Ripple effects): promoting raingardens, “Don’t Leaf the Lakes” campaign, “Plant Dane” native planting program, “Saltwise” campaign to reduce chloride going into the lakes, and various educational events related to stormwater issues.

#### **A. City & county gaps in meeting PEO requirements**

- PEO requirements include (among other things) that the permittee “promote illicit discharges detection and elimination and water quality impacts associated with such discharges from municipal separate storm sewer systems.”
- The city is expected to distribute PEO information to its residents (including IDDE information) that is developed and/or made available by the county. In 2015-2016, it lacked funding to meet this requirement; in 2018 the city reported some PEO information distribution, but not on IDDE.
- In 2017 and 2018, the county reported distributing print and social media covering IDDE to 100+ people, and both city and county reports checked they held between 1-9 “targeted group trainings” on IDDE in 2018. We found just one IDDE training listed on its website during the period from January 2015 through October 2018.<sup>26</sup>
- The city’s 2015-2017 report didn’t list any funding for PEO; its 2018 annual report reported a budget of \$14,823 and a 2019 budget of \$14,973.
- The county’s 2015-2016 biennial report stated that it spent \$74,536 and \$127,714 in 2015 and 2016 (respectively), mostly to cover a half-time employee who is responsible for PEO activities for 19 municipalities in the MAMSWaP area. The 2017 and 2018 county reports list \$142,600 and \$145,391 for PEO expenditures in 2017 and 2018 (mostly to cover the half-time employee). The 2019 budget includes slightly more (\$152,663), from the general revenue fund.<sup>27</sup>
- Interviews with both city and county stormwater staff in December 2018 indicated that they feel they do not have adequate funding/staff/resources to do all the required PEO activities. City

<sup>26</sup> The new reporting form for the MAMSWaP includes check boxes with a broad range of numerical options. In this case, we don’t know if the city and county held only one training or more (up to nine).

<sup>27</sup> **This half-time position** is based on the requirement written by DNR into the MAMSWaP permit specifically for the county. Given the small budget and staffing for this responsibility, it is not surprising that they cannot fulfill their permit requirements.

stormwater staff said they only have one person to do public outreach and therefore must rely on volunteer groups to do this work; they also try to get information out via alder updates and neighborhood association newsletters.

In our review of city and county documents, we did not find PEO materials or events that include any information pertaining to the toxic contaminants and data gaps pertaining to Starkweather Creek that we outlined above. City and county staff confirmed that they do not do education and outreach to the public or other audiences on these issues.

## **II. City/county stormwater permit public involvement & participation (PIP) requirements**

Significant proportions of our survey respondents, especially in Truax and Darbo, expressed interest in engaging further in discussions/decisions about Starkweather Creek, stormwater issues affecting it, and what could be done about them, so we reviewed city, county, and state regulatory requirements related to involving and engaging people in stormwater issues and asked county officials about their engagement with the public, especially in low income areas in the Starkweather watershed.

Along with public education and outreach, “public involvement and participation” (PIP) is one of the six key components of the “stormwater management program” required in the MAMSWaP permit.

### **City & county PIP requirements**

- Each permittee must have: “A program to notify the public of activities required by the municipal storm water discharge permit required under this subchapter and to encourage input and participation from the public regarding these activities. The implementation of this program shall comply with all applicable state and local public notice requirements.”
- Each permittee “shall notify the public in its respective jurisdiction of activities required by this permit and shall encourage involvement and participation by the public regarding these activities.
- Information in the biennial report required under [Section F.](#) of this permit shall be an agenda item for discussion before the appropriate governing board or council of each co-permittee contemporaneous with the submittal of the biennial report to the Department of Natural Resources.”
- Each co-permittee should “invite the municipal governing body, interest groups and the general public to review and comment on the biennial report” and a “duly authorized representative of the co-permittee shall sign and certify the biennial report and include a statement or resolution that the co-permittee’s governing body or delegated representatives have reviewed or been apprised of the content of the biennial report.”
- All co-permittees, including both city and county, are to include in their biennial report “A description of public involvement and participation activities required” and “an assessment of the effectiveness of efforts to involve the public and the level of participation.”
- To assure accountability and public accessibility to officials responsible for stormwater permit requirements, the permit requires that the permittee “Keep contact information up-to-date and notify the Department of Natural Resources in a timely manner when personnel changes occur for the appropriate contact person(s) knowledgeable about this permit and its implementation.”
- Information requests related to the permit are to be tracked and recorded.

There is also a general requirement in the permit that all permittees “Respond to and resolve in a timely manner complaints received from citizens and concerns raised by the Department of Natural Resources relating to pollution and storm water issues within the co-permittee’s jurisdiction.”

## A. City gaps in meeting PIP requirements

- For its PIP requirements, the city's 2015-2017 biennial report said the city "has several possible avenues of involvement with regard to the issues included within this permit" such as "multiple Commissions that address the issues that come up in this report" that are publicly noticed. The report listed some city meetings in which issues related to stormwater (but not specific to the permit) were discussed.
- In its 2015-2017 biennial report, the city reported that it had submitted the report to an appropriate governing body, but we found no record of this. Stormwater Utility staff confirmed in December 2018 that the 2015-2017 report had not actually been submitted for discussion before Common Council or another governing body during this biennial report period or in the months since then
- In its 2018 report submitted around April 1, the city reported that it would make "presentations to the Common Council" on May 7, 2019 and to the Committee on the Environment on May 20, 2019 (it's not clear whether these presentations are about the annual report). Under "MS4 Annual Report," the city reported "Presentation of Storm Water information" to the "general public."<sup>28</sup>
- Much of the key PIP personnel and activity information on the city's 2015-2017 biennial report was many years out of date or inaccurate.<sup>29</sup>
- The city is charged under the permit to record and make available all MAMSWaP agendas and minutes. Through 2018, there were no agendas or minutes on the city website after 2013. Sometime after December 2018, following months of our repeated queries about it, minutes were posted for some of the meetings from 2014-2017, but none were posted for 2018 or 2019.<sup>30</sup>
- MEJO and citizens we work with have contacted city stormwater staff about a variety of stormwater pollution issues since 2015 (and before). Though city stormwater staff usually respond in a timely fashion, we have received no answers to some of our repeated questions and/or complaints. We have also repeatedly asked for the city to organize public meetings on stormwater contamination issues but these requests have not been answered (or have been dismissed).
- The city did not track information requests related to the permit, nor did it assess the effectiveness of its PEO/PIP activities from 2015-2018.<sup>31</sup> The assessment component appears to have been eliminated from the 2017 and 2018 reporting forms and from the draft MAMSWaP permit (though it's not clear).
- The 2015-2017 city budgets included no funding (as far as we could ascertain) to meet the PIP permit requirements; in 2018 the city reported spending \$14,823.
- In our December 2018 meeting, the city engineering staff charged with city engagement/outreach noted that he is a "party of one," and is also responsible for other significant permit requirements such as TSS/P modeling for TMDL. Given this, it is difficult for him to meet all the PIP requirements and he has to rely heavily on Friends groups and other volunteer groups, which has limitations (e.g., volunteers are only sporadically available, etc.).<sup>32</sup> In line with this, the 2018 city annual report states that "most of our public engagement has been through meetings with watershed groups."

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<sup>28</sup> The requirement for the annual report to be an agenda item to be discussed at an appropriate governing body appears to have been removed from the draft MAMSWaP permit currently open for public comment.

<sup>29</sup> The city used a "third-party" program called "Permit-track" for the biennial report. This program automatically fills in information from past years and nobody updated it with current information.

<sup>30</sup> When asked about this on September 20, 2018, stormwater staff said the city would work to post minutes and agendas, but as of early December 2018, they were not posted. I checked again on March 15, 2019, and some meeting minutes had been posted.

<sup>31</sup> City engineering staff explained that not enough people were involved in their education/outreach events to make formal evaluation meaningful.

<sup>32</sup> He noted that the most effective outreach/engagement is in person, which requires a lot more time and effort. Our experiences support this.

In our review of city materials and websites through 2018, aside from the Starkweather reports referenced in earlier sections (which were not broadly disseminated or publicly discussed), we could find no city PIP materials or events that include any information related to the Starkweather stormwater contaminants & data gaps we outlined above.

## **B. County gaps in meeting PIP requirements**

- The county's PEO program notifies the public about its educational events and trainings and MAMSWaP permits are posted on [county MAMSWaP website](#). This information sharing helps facilitate public involvement.
- The 2015-2016 Dane County biennial report stated "There were no specific public involvement activities related to Dane County facility compliance with permit requirements—all of those were internal meetings." The 2017 and 2018 reports said the county did a few PIP activities, but the reporting form requires only very general information so it is difficult to say whether these were meaningful public involvement and participation activities.
- In the 2015-2016 reporting period, Dane County submitted two PowerPoint presentations on community engagement activities to the county board (see [here](#) and [here](#)), but neither was about the county's biennial report (as required). The 2017 and 2018 reports said that the stormwater program kept elected officials aware of the permit program and its requirements through "weekly meetings with executive staff" and placed its annual reports on its website (but we could not locate them).
- MEJO and citizens we work with have contacted county officials and/or attended county meetings with questions and/or complaints about stormwater pollution issues on county properties (such as the toxic contamination at Truax Field and its discharge into some county storm drains that lead to Starkweather Creek). Most were dismissed or not addressed. Our requests to county officials to facilitate public meetings on Starkweather contamination issues were also not answered/dismissed.
- We found no evidence that information requests related to the permit were tracked by the county from 2015-2018.
- The county reported that it did not have the resources to assess the effectiveness of its PIP requirements in 2015-2016. The PIP assessment component appears to have been eliminated from the 2017 and 2018 reporting forms (though it's not clear).
- County staff said in December 2018 when asked specifically about above gaps in PIP activities that they don't do them primarily due to lack of staff time and capacities.

We could find no county PIP materials, events, or trainings that include any information related to the Starkweather stormwater contaminants & data gaps we outlined earlier.

## **III. DNR—stormwater public education/outreach/engagement regulations**

Under [NR 216](#), which outlines MS4 requirements, as the regulator of the city and county, DNR has the authority to ask them to address many of the gaps outlined above.

[NR 714](#) includes general public information/engagement requirements for contaminated sites (such as Madison-Kipp, Truax Air National Guard base) regulated under the DNR's Remediation and Redevelopment program.

[DNR NR 203](#), "Wisconsin Pollutant Discharge Elimination System Public Participation Procedures" specifies the terms of public input on stormwater permits being drafted, and also the terms under which the public may be involved in "modification, revocation, reissuance, or termination of permits."

## A. DNR gaps in stormwater public involvement/engagement

- Based on the information we could obtain, DNR has not used its authority under NR 216 to ask the city and/or county to fill gaps in meeting the PEO and PIP requirements above.
- There are no public outreach or engagement requirements included in DNR WPDES general or individual industrial stormwater permits, which include activities and information relevant to discharges of toxic contaminants to storm drains and waterways.
- We know of no situation in the Starkweather watershed (or elsewhere in Madison) in which DNR asked city, county, and/or other stormwater permittees to facilitate public engagement on stormwater pollution issues per any agency requirements or Wisconsin laws (e.g., NR 714) or for other reasons.

In December 2018 we queried DNR about why the Truax Air National Guard has not been asked to hold a public meeting, per NR714, about the high levels of PFAS contamination at the base—over 500 times the EPA’s “health advisory level” for PFOA and PFOS in shallow groundwater. On January 8, 2019, DNR’s Director of the Remediation and Redevelopment Program responded:

*“Upon receipt of the data confirming PFAS was present in samples collected at the Truax ANG base...Providing notification and an opportunity for public participation was evaluated and a determination was made that there was not adequate information to warrant notification or public participation at this time. Currently we have only limited information confirming PFAS impacts are present on the base itself. No information has been collected to confirm or deny that contaminants exist beyond the property boundary attributable to the Truax ANG base. At this time, there is no direct link to tie the contaminants reported in the municipal well to the Truax ANG facility.<sup>33</sup> ... We anticipate that if collection of additional data indicates PFAS impacts extend beyond the ANG property and/or pose a risk to human health or the environment, the need for a public meeting will be reassessed. DNR’s Bureau for Remediation and Redevelopment Tracking System on the Web (BOTW) will be updated with documents pertaining to the project.”*

## IV. DNR’s lack of enforcement of MAMSWaP permit violations

The MAMSWaP permit states that “Any permit noncompliance is a violation of the permit and is grounds for enforcement action, permit revocation or modification, or denial of a permit reissuance application” and requires that any instances of noncompliance “shall be submitted with the annual report.”

While finalizing this report, we looked for written documents of instances of noncompliance by the city and/or county. Not finding any, we asked a DNR attorney whether written documents related to enforcement actions taken by DNR regarding any city and/or county MS4 permit requirements were available on the DNR website or could be reviewed in DNR offices. He said no and advised us to do an open records request for this information. We submitted an open records request but were told we needed to pay \$75 up front before the request could be processed.<sup>34</sup> We were unwilling to pay this fee.

The DNR stormwater engineer responsible for writing and enforcing the MAMSWaP permit called following our records request and said that a few times in the past five years he had “put people on notice” that they were not in compliance with certain requirements, but that but no formal written notices of non-compliance or notices of violations had been issued. He explained that the approach to addressing problems in permit requirements is to “work cooperatively” with the city-county permittees and MAMSWaP group to address issues that arise. As DNR permitting authority, he regularly participates in the quarterly MAMSWaP

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<sup>33</sup> The nearest municipal well (Well 15), about a mile southeast of the base, has since been shut down due to PFAS which the Water Utility has publicly stated is likely from the Truax Air National Guard base.

<sup>34</sup> This estimate was based on \$25 an hour for 3 hours for DNR staff to locate the records. We were informed that if it took staff less time to locate records, we would be refunded, but if it took them more time, we would be billed further.

meetings. (As described earlier, agendas and minutes from MAMSWaP meetings were not posted from 2013-2018, so the public could not attend them or find out what was discussed.)

The [EPA audited the City of Madison's MS4 program in 2013](#) (report was in 2014). The audit covered the permit period before the one analyzed in this report, and noted several “problem areas” and “potential violations” by the city in meeting its MAMSWaP permit requirements. Most focused on inadequate compliance with construction site runoff control (an area this project didn't focus on). However, the audit also mentioned some problems that parallel gaps highlighted in this report, such as failure to “effectively identify and prohibit” illicit discharges into storm sewers and incomplete information in the biennial report.

These potential areas of noncompliance were not mentioned in 2013-2014 city annual reports. Further, the EPA audit document and any documents about resolution of actual or potential violations are not available anywhere on the city's website. They were never publicized or publicly discussed by political leaders or elected officials as far as we know.

The inaccessibility of these important documents lessens the city's and county's accountability to the public, elected officials, and other decisionmakers for meeting their stormwater permit requirements—and the DNR's accountability for enforcing these laws. It also dampens or eliminates public engagement on these matters, since citizens cannot engage in issues they are not aware of.

## **PART 4: PROJECT CHALLENGES, LESSONS LEARNED & QUESTIONS RAISED**

We faced several challenges in this project and learned much from our work in our focal neighborhoods and discussions with people while doing the community surveys. This work also raised many questions about how we can best engage people in these neighborhoods, the causes of stormwater problems there, and who is responsible to address them. Below we describe some of the key challenges, lessons learned, and questions raised during the project.

### **1. The trash conundrum**

Trash was the top observation along the creek in all neighborhoods and reflecting this concern, cleaning up trash was the top recommendation in all neighborhoods. Cleaning up trash along the creek is one of the most do-able activities for residents in neighborhoods along the creek and can engage children, teens, and adults in healthy outdoor activities that have concrete, visible results. Trash cleanups also bring people out to the creek, which is a good step in encouraging them to learn about it.

However, ongoing community cleanups of trash—much of which comes from outside of the low income apartment areas via storm drains, and will continue to be deposited along the creek indefinitely—doesn't address the root causes of the problem. Despite decades of anti-littering campaigns, some businesses, automobile drivers, and community members are still throwing trash on the ground and on roadways with little concern about where it will end up or negative effects it will have on waterways, wildlife, humans, and ecosystems over the short and long-term. City, county, and state government entities appear to be doing very little if anything to address this problem.

Beyond organizing community trash cleanups, and encouraging our friends, neighbors, and fellow community members not to litter, what can be done to address the causes of the large quantities of trash along the creek, mostly from outside neighborhoods, clogging up storm drain systems?

### **2. Low awareness of Starkweather Creek/stormwater pollution makes engaging people very challenging**

We organized many successful meetings and events focused on Starkweather Creek and stormwater, and engaged many community members, but it was challenging for our small grassroots group (with a small budget and over an extremely short time frame) to facilitate meaningful, *ongoing* engagement with people living in our focal communities when many do not know where Starkweather Creek is, nor are they aware of stormwater pollution problems and how they might affect their lives. So our education had to start with very basic education—e.g., where is Starkweather Creek? Many were aware of trash problems—which are highly visible, unlike toxic pollution—but few knew much about less visible stormwater problems such as toxic chemicals in stormwater runoff, the creek, and/or its sediments (though a surprising number were generally aware that the creek is polluted). Many people in our focal neighborhoods are (understandably) more focused on basic life needs (employment, housing, food, and other challenges) than on learning about environmental problems.

Still, many people we encountered in our focal neighborhoods said they were interested in learning more and expressed willingness to engage in future events and actions to help improve Starkweather Creek and address stormwater pollution. However, many people we engaged at meetings or events said they would engage again but didn't show up at subsequent meetings. We think if a broader base of people in the community (in our focal neighborhoods, but also beyond) were aware of the serious issues facing Starkweather Creek, and how these issues affect their lives and health, they would be more likely to engage repeatedly over the long-term.

Whose responsibility is it to educate and engage communities in the Starkweather watershed about stormwater pollution issues that affect the creek, as well as public and environmental health risks? Facilitating ongoing community engagement is time and energy-intensive, requiring significant resources. As described above, the city and/or county both have regulatory requirements for public outreach and engagement on stormwater pollution issues, and have also recently made commitments to social/racial equity initiatives.<sup>35</sup> However, based on our review of permit-required reports and our discussions with city and county officials, these entities are not meeting all of their permit requirements on outreach and engagement, and do not have adequate staff and resources to do so.

### **3. Little to no knowledge of history of Starkweather watershed and Ho-Chunk people**

A very small percentage of the people we surveyed (7%) were aware of who lived in the Starkweather Creek watershed (Ho-Chunk) before white European and American settlers and their history in the region.<sup>36</sup> City and county stormwater educational materials include very little about the Native history of the watershed. Yet many survey respondents said they are very interested in learning more about the history of the watershed, including Native history. These comments encouraged us to organize the Ho-Chunk history event in July—which was well-attended and successful. Many community members expressed interest in similar events in the future.

### **4. Existing stormwater pollution education approaches/materials not appropriate for low income (primarily rental) neighborhoods**

Distributing the usual stormwater education materials ([such as those available from the county](#)) doesn't really make sense for most people in our focal neighborhoods. Most of the Dane County stormwater education/outreach materials online include lists on “what residents can do” to address various stormwater issues (salt, leaves, etc.). Nearly all of them are oriented to homeowners and refer to taking actions on “your property,” “your driveway” and/or “your lawn.”

These suggestions are great for homeowners, but most people in the Truax and Darbo neighborhoods live in multi-unit rental apartments. Not owning their own homes, they do not have private yards or driveways (many do not own cars), and therefore it doesn't make sense to distribute materials that encourage them to install raingardens/rain barrels, plant native vegetation, use less salt on their driveways, use less fertilizer and/or pesticides on their lawns and/or not to put their raked leaves in the street. The primary responsibility for these activities lies with businesses, schools and other institutions, landlords/rental unit owners, developers, city/county planners, and homeowners in the Starkweather Creek watershed.<sup>37</sup>

Some stormwater pollution prevention activities could be initiated on the land and roads throughout the apartments and community centers by leaders and staff at community centers serving these neighborhoods (e.g., raingardens, native plantings, trash cleanups). However, our experiences during this project indicate that leaders and staff at community centers (understandably) need to prioritize their work providing social services in the community—e.g., organizing their weekly food pantries, children and teen programs, and other services the community needs.

Another challenge is that community center leaders and staff have not been receiving stormwater pollution information or training on these issues from the city, county, and/or state, which could help them

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<sup>35</sup> Although one of our interns had participated as a child in planting native vegetation along the creek.

<sup>36</sup> We have seen little to no mention of the Ho-Chunk people in Dane County and/or city stormwater educational materials and/or outreach events.

<sup>37</sup> The county's own [surveys of people in the MAMSWaP area](#) were predominantly (92%) answered by private homeowners who tended to be more educated and privileged. However, several respondents living in rentals who responded to the survey noted that they couldn't comment on their willingness to take the listed actions (directed to property owners), because as renters they can't make those decisions.

understand these issues and facilitate stormwater pollution education activities for the people they serve. Further, at East Madison Community Center, most programming is focused on children. Stormwater educational activities with children (trash cleanups, storm drain art, etc.) are really important, but education on some of the most critical stormwater issues facing Starkweather Creek (e.g., toxic pollution from Truax Field) is more appropriate for adults—who also have more capacities than children to engage in community and political actions to address stormwater pollution.

### **5. Low income rental communities are most at risk, but least responsible**

Decisions that have most severely and negatively affected Starkweather creek's water quality by exacerbating stormwater runoff—filling in of wetlands, developing huge areas of impervious pavement, channelizing the creek, etc.—were made by government, planners, developers, and other decisionmakers decades ago. Currently, the vast majority of contaminated stormwater runoff entering the creek in or near the Truax and Darbo neighborhoods is from upstream agriculture, suburban developments, the airport and military base, golf courses, construction sites, industries, large roads and highways surrounding both neighborhoods—as well as lawn care practices (pesticide/herbicide and fertilizer use), salt use, and other decisions made by private homeowners in the watershed.

When the Madison Public Housing Authority (now Community Development Authority) chose to purchase a part of Truax Field for low income housing, it was a good step toward creating more highly-needed low income housing in the city. However, unfortunately this decision also unintentionally created a classic environmental injustice situation by placing low income people—who have fewer choices on where to live—directly adjacent to sites that produce significant noise, air, groundwater and surface water pollution: the Dane County Regional Airport and Truax Air National Guard base. The Truax area is also bordered by two major highways—HW 51 (Stoughton Rd) and Highway 151 (E. Washington). Because of these polluting sites and highways, the Truax area scores very high on most of the [EPA's EJ Screen indices](#). The Darbo neighborhood, though not next to major industrial or military sites, is downstream of contaminated Truax Field and is also bordered by two major highways—Highway 151 (E. Washington Ave) and Highway 30. It also scores high on several EPA's EJ Screen indices.

Currently, in regards to stormwater pollution, low income renters in Truax and Darbo neighborhoods are clearly more at risk from negative consequences of stormwater discharges to Starkweather Creek near their homes than they are responsible for causing them. According to the 2006 UW report and 2016 follow-up study described earlier (links above), the section of the creek just west of the Truax apartments south of the airport is the most contaminated, and the section just south of it that flows next to Darbo neighborhood isn't much better. These sections of the creek, based on our surveys, are where children and adults from the Truax and Darbo neighborhoods explore, walk, bike and play. One parent in the neighborhood said her children played in firefighting foam in the creek downstream from the Dane County fire-training pits.

Some people from these neighborhoods also fish along the stretch of the creek downstream of Truax Field, and even more fish closer to its mouth at Lake Monona. Those who eat the fish are unknowingly ingesting many of the toxic contaminants in the creek, which includes highly toxic PFAS. (Adding to these actual/potential exposures, the neighborhood's drinking water comes from Well 15, which is contaminated with PFAS from the Truax Air National Guard base.)

These risk disparities complicated our efforts to educate and engage people in these neighborhoods. Firstly, it is challenging to educate low income people who are overwhelmed with meeting their basic needs on how they are being negatively affected by largely invisible toxic pollution that most don't know about. Also, again, though they are most at risk, they are not responsible for causing the problems.

Further, once aware of some of the stormwater problems that affect their neighborhoods (a necessary first step to even begin engaging) it is even more challenging to engage people in collective efforts to do something about them, usually by bringing concerns to government agencies with authorities to do something about it. People in these neighborhoods have little capacity, resources, power or agency to bring their questions and demands to polluters and government agencies. Should they be expected to do so? On the other hand, is it fair and just *not* to educate and engage them in doing something about health and environmental risk issues that negatively affect their health?

## **6. Why engage the least powerful? To what end?**

The questions above raise further questions: What is the likely end result of engaging people from Truax and Darbo in stormwater pollution issues—and given this, is engaging them a good approach? Throughout the course of the project, MEJO and project team members sent questions and concerns to city, county and state government agencies and elected officials via email, and also attended [government meetings](#) to raise them. We raised questions about the gaps in contaminant monitoring of the creek, fish testing, and race/class disparities in exposures and risks related to Starkweather contamination. See testimonies [here](#) (supporting map [here](#)), [here](#), [here](#), and [here](#).

Unfortunately, paralleling our previous experiences with city and county committees, nearly all of our questions and recommendations were dismissed. During the budget recommendations process, the Commission supported one of our key “asks”—that a Starkweather Task Force be established—but then the Chair later told us it wasn’t a priority. Our references to environmental justice were omitted from the meeting minutes (we insisted after the meeting that the minutes be corrected and our actual testimonies attached, which was done).

If we—as educated people with knowledge about stormwater runoff issues and experience with political engagement—are treated this way, how will people with less power, resources, and capacities, be treated? Is it considerate or fair for us to encourage less empowered and low income people to engage with decisionmakers, knowing there is a good chance that their comments and requests will be dismissed or ignored?

## **7. Few opportunities for community members to meaningfully engage**

Another barrier to our meaningful engagement in discussions and/or decisions with government officials about stormwater contaminants challenging Starkweather Creek is that there are few to no opportunities to engage meaningfully beyond 3 or 5 minute comment periods at various city and county meetings—which is what the city’s biennial report points to as meeting its citizen involvement and participation requirements. Commenting during these short comment periods falls far short of meaningful engagement—again, especially if comments are dismissed or ignored.

Moreover, our engagement experiences and reviews of stormwater documents indicate that the city and county do not place a high priority on the public involvement and participation requirements of the MAMSWaP permits and in some cases they are not followed. For instance, as described earlier, the key “public involvement and participation” (PIP) requirement in the permit is that the city and county “notify the public in its respective jurisdiction of activities required by this permit and shall encourage involvement and participation by the public regarding these activities” and also “shall include measurable goals for public involvement and participation and comply with applicable state and local public notice requirements.”

Several of the permit requirements intended to give the public opportunities to engage and hold government agencies accountable for their adherence (or lack thereof) to stormwater regulations were not met by the city and/or county in the 2015-2016 reporting period and through 2018. The requirement that the biennial report go before a decisionmaking body such as the Common Council allows citizens to attend and

comment on the county's activities and make recommendations during the mandated public comment period before elected officials. This requirement also allows elected officials to learn about and comment on how well the city and county are meeting their permit requirements, and recommend city policies and funding mechanisms to fill gaps. Further, it is a venue whereby elected officials can learn about stormwater regulatory requirements. Given this, it is problematic that neither the city nor the county appropriately fulfilled this requirement.

The requirement that the MAMSWaP meeting agendas and minutes be posted on the city stormwater website, a duty charged to the City of Madison in the permit, is in part so that interested citizens, elected officials, media, and other decisionmakers can attend meetings, or learn what is discussed at the meetings if they cannot attend. The city did not post MAMSWaP agendas/minutes from 2013-2018, presumably due to lack of resources. Consequently, for five years, interested community members did not know when and where these meetings were held nor could they access minutes to learn what was discussed.

The county does make many efforts to notify the public about its various educational events (re leaves, salt, raingardens, etc.). However, county materials provide very little information on how and where people can have input on stormwater issues, policies, and regulations (e.g., city, county, state government meetings). One of the county's online education/outreach factsheets called "[My Community](#)" includes (after a long list of recommendations geared to private homeowners) some suggestions oriented toward community engagement and advocacy—e.g., "Contact your local officials about storm water concerns where you live" and "click on your municipality to find out how to contact local officials." <sup>38</sup>

Both city and county officials admitted to us in our discussions with them in December 2018 that they did little for the public involvement and participation aspects of their permits, due to lack of staff and resources. Though they did not say this, another barrier to meeting these requirements might be lack of knowledge and skills on how to encourage and facilitate public engagement.

Supporting this speculation, DNR's 2017 survey of state MS4 permittees ([reported in 2018](#)) found that the public involvement and participation requirements were "most commonly chosen as 'not sure on how to implement' by permittees" and, based on this, permit revisions attempt to clarify public involvement and participation requirements (see recommendations section for more on this).

## **8. Government officials not aware of—or not concerned about—environmental justice?**

The city and county's lack of outreach to low income and minority communities to some extent reflects lack of staff/resources, but it also reflects a low priority on engaging these communities and addressing environmental injustices. Despite the fact that the [city](#) and [county](#) have both recently initiated broad race/class equity initiatives, our experiences interacting with them—such as our interactions with the Lakes & Watershed Commission described above—suggest that many don't understand what environmental justice means. We have seen no evidence that city or county agencies are applying their racial equity and social justice tools and/or policies to address race and class-based disparities in exposures to toxic chemicals and other environmental pollution issues.

Neither the city's nor the county's stormwater outreach and engagement programs address the significant stormwater contaminant risk issues that affect the people living in the Truax and/or Darbo neighborhoods more than people from more privileged areas (toxic stormwater runoff pollution from the nearby airport, military base, large highways, etc.). Public education and outreach materials agencies have developed do not include any information about these contaminants or contaminated sites, nor are they discussed in city

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<sup>38</sup> The county's [surveys of residents](#) living in areas covered by MAMSWaP indicate that an extremely small percentage of people look at these stormwater websites for information—the most common information sources about stormwater issues are newspapers, followed by television and radio.

and/or county sponsored public engagement events. If at-risk communities are unaware of these contaminant issues, they cannot advocate for more actions and funding to better monitor, and reduce or eliminate, the sources of contamination. Consequently, their voices are not heard in community discussions and decisions about these critical issues affecting their health and well-being.

### **9. Stormwater contaminant data gaps**

The fact that MS4 stormwater and most industrial stormwater permits rely on “best management practices” approaches and require limited or no stormwater contaminant monitoring (other than, for MS4s, some IDDE monitoring of a few parameters) has resulted in a dearth of data about toxic contaminants discharged via stormwater into Starkweather Creek from industries, airports, and other sites along the creek with known toxic contamination. This problematic permit approach, based trusting municipalities, businesses, and industries to follow best practices to meet water quality goals (with little data to assess whether or not that is occurring) was designed years ago, likely influenced by numerous political and economic factors.

Despite this problematic permit approach, city, county, and state have regulatory authorities to gather more data and/or ask responsible parties to gather more data to fill the toxic contaminant data gaps we identified above. Various authorities also exist for these agencies to require responsible parties to stop toxic contaminant discharges into waterways and/or sewer systems, and to enforce violations for inappropriate discharges. However, we found little evidence that they use these authorities.

For instance, Madison General Ordinances, [MGO 7.46.7.47](#) was designed “to prevent any potentially polluting substance from reaching lakes or streams where it can create hazard to health, a nuisance or produce ecological damage and to assess responsibility and costs of clean-up to the responsible party.” “Potentially polluting substance” is defined very broadly and definitely includes most (if not all) of the contaminants we identify in this report—including trash.

The Illicit Discharge Detection & Elimination (IDDE) program required under the DNR-issued MAMSWaP permit, which is based on the legal authority of MGO 7.46, is also charged to PHMDC. The permit requirements include “Conduct on-going field screening activities in areas or locations of the MS4 *identified as having the highest potential for being sources of illicit discharges*” and “Investigate portions of the MS4 that, based on the results of field screening or other information, *indicate a reasonable potential for containing illicit discharges or other sources of non-storm water.*”

The IDDE approach incorporated into DNR stormwater permits was originally developed by the Environmental Protection Agency. [The 2004 EPA IDDE guidance](#) advises those developing IDDE monitoring strategies to review local and state (WPDES) permits and other documents on sites in the watershed to assess sites’ potential for generating contaminated illicit discharges and to make decisions about what chemicals to monitor in stormwater near these sites. Although some contaminants in stormwater discharges, such as those from fire-fighting activities (presumably this includes PFAS) and permitted discharges (such as VOCs discharged from Madison-Kipp’s treatment system), are excluded as illicit discharges, the MAMSWaP permit says that these excluded discharges “may be considered an illicit discharge on a case-by-case basis if the permittee or the Department identifies it as a significant source of a pollutant to waters of the state.”

There is abundant evidence to prioritize testing for contaminants downstream of the Dane County Regional Airport (DCRA)/Truax Air National Guard site (which has 38 outfalls into Starkweather Creek) and the broader Truax Field area. The results of the “Microtox” testing in the 2005 UW Nelson Institute report and 2016 Freshwater Engineering study that repeated it (co-sponsored by the City) definitely indicated “a reasonable potential for containing illicit discharges or other sources of non-storm water” through this area. Both reports clearly showed that Starkweather Creek becomes increasingly toxic as it travels through Truax

Field, stated that this area has the worst water quality in the entire creek, and recommended discussions with Dane County to address the possible sources of contamination. The older government reports we cited above document a range of toxic contaminants in soils, groundwater, and surface water at sites adjacent to this area that are discharged to the creek via shallow groundwater and stormwater runoff.<sup>39</sup>

Several other sites along Starkweather Creek also indicate much more than a “reasonable potential” for illicit contaminant discharges—including Madison-Kipp Corporation, a secondary aluminum foundry about a mile south of Truax Field. MKC has documented soil and groundwater contamination (chlorinated solvents, metals PAHs, PCBs) and ongoing stormwater releases of these contaminants via stormwater. The site’s stormwater discharges flow into the creek.<sup>40</sup>

At the Truax Field and Madison-Kipp sites (built on former wetlands), during wet weather shallow contaminated groundwater often rises above the level of the storm drains and flows into them.<sup>41</sup> Based on our reading of stormwater regulations, and discussions with city stormwater officials, discharges of contaminated groundwater into storm drains from sites could be considered illicit discharges by city and county agencies if they chose to address them under IDDE.

However, the city and county do not assess stormwater discharges of toxic contaminants at these sites into the creek in IDDE or any other monitoring programs (beyond the “common metals” in the IDDE testing). According to our interviews with city stormwater officials who designed the MAMSWaP’s original IDDE program in 1993, the program focused on monitoring all major stormwater outfalls (over 36 inches)—which was required in the first IDDE programs; they did not select priority outfalls based on where industries or other contaminated sites were located.

Realizing that MS4 IDDE programs were often inadequate, in 2012 the DNR issued a much shorter [IDDE guidance](#) to help municipalities better digest and follow the 300+ page 2004 EPA guidance. The DNR guidance recommends that “Outfalls should be prioritized based on illicit discharge potential in the contributing drainage area rather than solely on pipe or drainage area size.” Criteria listed to be considered when selecting priority outfalls include: “Commercial or industrial operations that generate wastewater or wash water including food processing, metal plating or machining shops, auto and scrap recyclers, commercial car washes and chemical manufactures or users.” Identified priority sites are to be screened at least once per year, according to the guidance. Madison-Kipp and Dane County Regional Airport/Truax Air National Guard sites meet this criterion for prioritization.

However, the DNR (regulator of the city and county under the MAMSWaP permit) has not asked city or county officials to use their IDDE program to measure toxic contaminants we identified in gaps above, nor has it asked responsible parties at various sites (airport, Truax base, etc.) to do so via their WPDES permits (with some exceptions, noted previously). Though both Truax and Kipp have WPDES permits, Madison-

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<sup>39</sup> The EPA guidance document says areas with “Density of more than 10 generating sites or five industrial NPDES storm water sites per square mile indicates high IDP” (illicit discharge potential). It also suggests that areas with many industrial sites over 40 years old indicate high IDP for a number of reasons.

<sup>40</sup> The EPA IDDE Guidance classifies metal production facilities as having a high potential for direct illicit discharges. Madison-Kipp currently discharges VOCs into the creek with a DNR and a city permit (after the chemicals are pumped from a contaminated groundwater plume there and treated). Though the effluents from the treatment system are monitored, neither the stormwater going into the creek and/or the creek itself are monitored.

<sup>41</sup> The often high shallow groundwater levels in former wetland areas in Madison/Dane County seem to deem the dry weather discharge detection approach required under IDDE very difficult if not impossible at times.

Kipp's general permit doesn't require any stormwater monitoring, and DCRA/Truax permit requires some monitoring, but not PFAS or many of the other toxic contaminants that have been documented there.<sup>42</sup> Due to these significant gaps, assessing and preventing short and/or long term environmental and public health risks of discharges of these contaminants into Starkweather creek and fish are challenging if not impossible.

#### **10. Agencies responsible for stormwater underfunded**

Some of the above gaps are in part due to inadequate funding allotted to these activities—which in turn indicates a lack of political priority on these activities at the city, county, and/or state levels.

The half-time staff funding allotted for the county's outreach staff (per the DNR permit), and lack of funding for city outreach/engagement, reflect these low priorities. In addition, our interviews with city and county staff suggest that they do not see certain aspects of public outreach and engagement, especially the "public involvement and participation" permit requirements, as their responsibilities.

The IDDE testing program is also substantially under-funded. As of December 2018, the city could not provide us with their 2015-2016 IDDE testing data; they said this was due to lack of resources to do appropriate quality control and finalize the data. In the city's 2018 annual report to the DNR, the city wasn't able to include its IDDE data; the report said it would be submitted by the end of April.

Finally, the DNR stormwater program is also apparently under-funded. The MAMSWaP permit the city and county currently operate under expired in 2014. When asked in fall 2018 why it was taking so long to re-issue the permit the DNR stormwater person responsible for re-issuing the permit said: "The primary reason has been workload. This could be the 3<sup>rd</sup> consecutive year with a record number of construction site NOI applications and combined with the increase in rainfall has led to more time being used in the construction program. Our program is generally able to put more time into the MS4 and industrial sectors when the construction workload slows down but even the last two winters were relatively short and/or mild with not much of a break in the construction sector." So apparently the construction boom has taken drawn resources from other stormwater permit-required activities, including re-issuing the permit itself.

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<sup>42</sup> In 2016, a DNR stormwater manager suggested to the agency's Remediation and Redevelopment project manager responsible for Kipp that the City of Madison could address contaminants discharged in Kipp's stormwater per their MS4 IDDE program. There is no evidence that he did so or that the city did any stormwater testing there.

## PART 5: PROJECT FINDINGS & RECOMMENDATIONS

### Summary of key findings

- Although much more outreach to increase awareness of Starkweather Creek among Truax and Darbo community members is needed, significant proportions of residents of all ages in both areas are aware of the creek and interact with it in a variety of ways, including: walking/biking along it, fishing, observing wildlife, exploring and playing.
- Community members expressed interest in learning more about Starkweather Creek, stormwater pollution that affects it, cleanup efforts, Ho-Chunk history of the area, and more; many said they would like to engage in future decisions and actions to clean up the creek.
- Community members' [top three recommendations](#) regarding Starkweather Creek were: cleaning up trash, preventing toxic pollution, and mitigating toxic pollution along or in the creek.
- The City of Madison and Dane County are required under their current stormwater permits to “exercise and enforce legal authority” to control the discharge of pollutants to and from their stormwater sewer systems. Neither entity is meeting this requirement in regards to trash and several toxic contaminants discharged into storm systems draining to the creek.
- DNR-issued municipal and industrial stormwater permits generally rely on “best management practice” approaches that do not require stormwater contaminant testing nor do they include numeric stormwater effluent limits. However, city, county, and state agencies have authorities to gather contaminant data from the creek (or ask permittees and other stormwater dischargers to do so) but rarely use these authorities. When they do it is only for a small range of contaminants. The resulting lack of contaminant data makes it difficult to prevent toxic pollution from sources, mitigate contamination in the creek, and assess the health of the creek, its fish and wildlife.
- The City of Madison and/or Dane County failed to meet (or only sporadically met) several of their DNR-issued WPDES stormwater permit (Madison Area Municipal Stormwater Partnership, or MAMSWaP) requirements from 2014-2019, including:
  - Inadequately fulfilling (or not fulfilling) public outreach/engagement requirements
  - Failing to gather/report Illicit Discharge Detection Elimination (IDDE) data on time/at all
  - Not submitting required biennial reports for review before appropriate governing bodies
  - Inaccurate, incomplete and/or outdated information on biennial reports
  - Not addressing impaired waterways requirements in biennial reports
  - Not posting agendas and minutes from MAMSWaP meetings
- City and county government agency staff interviewed said some stormwater permit requirements could not be met due to lack of staff/resources, and budgets for these permit activities from 2014-2019 were very low (zero some years). The permit requires permittees to “provide adequate financing, staff, equipment, and support capabilities to implement the requirements of this permit.”
- As regulator of the city and county, DNR has authorities to address the above permit violations, but we found little evidence that they were aware of them and/or took any actions to address them.
- The City and County operated under an expired MAMSWaP permit from 2014-2019.

- DNR’s draft MAMSWaP permit (released for public comment on April 1, 2019) clarifies some public outreach/education and involvement/engagement requirements (in response to a 2016 EPA rule intended to improve public engagement among municipal permittees) but proposed revisions also allow more general, less specific reporting of these activities, weakening accountability.
- City, county, and state agencies and officials have not been very responsive (or have not responded at all) to community questions and complaints about toxic contaminants discharging into Starkweather Creek through storm drains.

**Stormwater regulations and citizen engagement are not taken seriously by government agencies—exacerbating community environmental injustices and Starkweather Creek**

Overall, our community work, regulatory reviews, and interviews with government officials indicate that city, county, and state agencies are not taking some stormwater regulations seriously, particularly those pertaining to toxic contaminants and community engagement. Unfortunately, whether intended or not, this exacerbates disparities in exposures to toxic chemicals in already at-risk low income communities who have more limited capacities and resources than more privileged residents to learn about and engage in community decisions about pollution and their health. Not fulfilling these regulations contributes to community environmental injustices and is not in line with the city and county’s stated policies and commitments to social justice and equity.

In sum, our city, county, and state agencies are not adequately addressing environmental injustices or protecting Starkweather Creek water, fish, and wildlife from further degradation by trash and toxic chemicals.

## Recommendations

### **1. All city and county stormwater permit requirements should be met through leadership commitment, expressed through adequate funding and enforcing staff fulfilment of permit requirements.**

The MAMSWaP permit Madison and Dane County are operating under clearly states that: “Each co-permittee shall comply with all conditions of this permit. Any permit noncompliance is a violation of the permit and is grounds for enforcement action, permit revocation or modification, or denial of permit coverage at reissuance.” The permit also requires that permittees notify the DNR in the biennial report of permit noncompliance issues, which neither the city nor county did as far as we could tell.

As outlined in this report, several permit requirements were not met by the city and/or county due to lack of resources/staff. This is a permit violation itself, since the MAMSWaP permit states that permittees must “Individually or as agreed upon by the co-permittees, provide adequate financing, staff, equipment, and support capabilities to implement the requirements of this permit.”

Madison and Dane County are privileged and educated communities with abundant financial, educational, and professional resources. Government agency leaders and elected officials here should work to fill these funding gaps and assure that adequate resources are available to meet stormwater permit requirements—and insure that their employees diligently work to meet them.

### **2. Government regulators should take serious enforcement actions to address chronic violators of existing stormwater and other environmental regulations—and publicly document them.**

As discussed earlier, in July 2013, the [U.S. EPA audited the City of Madison](#) to assess its compliance with the MAMSWaP permit and found several “areas of concern” and potential violations including some that parallel gaps highlighted in this report, such as failure to “effectively identify and prohibit” illicit discharges into storm sewers and incomplete information in the biennial report.

More recently, a [2017 survey of MS4 permittees](#) by DNR (reported in 2018) indicated that many Wisconsin municipalities are not fulfilling all their stormwater permit requirements. Gaps identified in the survey included some of those we highlighted in this report—inadequately meeting public education and outreach, public involvement and participation, and IDDE requirements.

DNR has been working to address some chronic MS4 permit violations through revisions in draft MS4 permits (just issued) that attempt to better clarify requirements. According to a [March 12, 2019 DNR presentation](#), some of these revisions are in response to [EPA’s 2016 Remand Rule](#). This rule asked permitting authorities to establish “clear, specific, measurable permit conditions” that “more clearly state what is expected for compliance” and assure “greater public participation in the permitting process.” Also, the [EPA’s e-Reporting Rule](#) now requires MS4 permittees to use an online reporting process to streamline electronic submissions of stormwater documents for more consistent reporting among permittees and so that all reports can be put online and shared with EPA, government agencies, and the public.

The draft MAMSWaP individual permit covering Madison and Dane County (expired since 2014) was released on April 1, 2019 (just before this report was finalized) and generally follows the [DNR’s draft MS4 general permit](#) (public comment period for this draft permit ended on March 29, 2019). Both draft permits address the EPA Remand Rule by attempting to clarify the public education/participation and other requirements permittees are expected to fulfill; the DNR also developed new online reporting forms to meet the e-Reporting Rule. To be consistent with the general MS4 requirements, MAMSWaP permittees are also now required to submit reports annually, rather than biennially.

The clarified forms make the MAMSWaP permittee reports much easier to follow, but unfortunately the forms follow the requirements of the draft MS4 permits, which are not issued yet—not the 2009-2014 permit (expired but still relevant) the city and county were under for the 2009-2018 period we assessed in this report. The city and county are still required to follow the 2009-2014 permit, until the new permits are finalized and issued. However, some of the questions pertaining to this permit’s requirements are no longer on the new form, making it very difficult to ascertain permit compliance. For some questions, the new e-reporting forms also allow extremely general responses that provide few to no specifics about what the permittee actually did to fulfill particular requirements.

While streamlining reporting processes and clarifying language in permits to help permittees meet their legal requirements are steps in the right direction, this doesn’t take the place of serious and meaningful enforcement of permit violations. DNR’s casual “let’s all work collectively to address problems” approach to stormwater permit violations in effect treats permit requirements as voluntary.

DNR should take actions to appropriately enforce stormwater permit violations, especially for chronic violators. If the agency does not have adequate funding, staff and/or other resources for such enforcement, state elected officials should work with the agency to address these funding gaps. Written records of any permit violations should be publicly documented and easily accessible to the public to improve accountability for permittees.

Finally, a 2016 Wisconsin Legislative Audit Bureau report, “[DNR Wastewater Permitting and Enforcement](#)” (see shorter summaries [here](#) and [here](#)) indicates that problems in DNR’s stormwater permitting program, such as permit backlogs and weak enforcement, parallel some of the key problems in the agency’s wastewater program. A similar Legislative Audit Bureau report on DNR’s stormwater program could help better understand gaps in the stormwater program and recommend ways to address them.

### **3. City, county, and state agencies should work to fill critical toxic contaminant gaps related to Starkweather Creek to protect public and environmental health.**

- To address Starkweather toxic contaminant gaps, the City of Madison should revise its IDDE monitoring according to the [EPA guidance on IDDE](#) and DNR’s [2012 IDDE summary guidance](#):
  - Target areas with high “illicit discharge potential” (IDP) such as older industrial areas, facilities with past citizen complaints and reports.
  - Review DNR WPDES permits and stormwater pollution prevent plans (SWPPPs) from sites that discharge into Starkweather Creek to identify sites that release toxic contaminants, what the types/levels of contaminants are.
  - Based on the above, IDDE or another city and/or county Starkweather Creek monitoring program should include toxic contaminants that pose the most serious environmental and/or public health threats in waterways and/or fish (VOCs, PCBs, PFAS)
- In line with [EPA industrial stormwater guidances](#), WPDES permits issued by DNR to facilities along Starkweather Creek should require identification and monitoring of all toxic pollutants used at the sites, as well as contaminants found in soils/groundwater, that could be released to the creek via stormwater discharge. Stormwater Pollution Prevention Plans (SWPPPs) required in these permits should also identify all of these pollutants and how responsible parties will prevent their release into the creek.
- At all contaminated sites along Starkweather Creek covered under DNR’s Remediation & Redevelopment (RR) program, responsible parties should be required to comprehensively follow NR 700 laws, especially NR 716, which requires comprehensive investigation of contaminants in all media (soil, groundwater, surface water, etc.) and pathways of contaminant migration onsite and

offsite (including into waterways via storm drains). This would help fill many critical contaminant data gaps described in this report. When these laws are violated, responsible parties should be penalized in a timely and appropriate fashion by DNR.

- At the state and federal levels, environmental agencies and policymakers should work to revise MS4 and other stormwater permits to require stormwater discharge contaminant monitoring and numerical stormwater effluent limits.

#### **4. Government agency staff and elected officials should receive training on stormwater and other environmental regulations, citizen engagement, and environmental justice.**

- City and county elected officials should receive training on what city, county, and state environmental laws (including stormwater laws) the city/county are expected to adhere to, why these laws are important, and the roles they can play in helping to assure that these laws are followed.
- City and county elected officials should receive training on environmental justice issues in Madison/Dane County, which government agencies have authorities to address them, and roles they could play in reducing race/class disparities in exposures to environmental pollution.
- City and county elected officials should receive training on how to encourage and facilitate meaningful citizen engagement, especially among low income people and people of color, in environmental health justice issues in Madison/Dane County.
- For the above recommendations, government agencies could draw on their own racial equity & social justice analysis tools/processes as well as EPA's environmental justice guidances and educational materials—see [here](#) and in particular the [Technical Guidance for Assessing Environmental Justice in Regulatory Analysis](#).

#### **5. Relevant and appropriate stormwater pollution education & outreach should be initiated in low income, at-risk neighborhoods.**

[The Code of Federal Regulations \(40 CFR 122.34\)](#) states that MS4 permits should “encourage the permittee to tailor the outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities...” and that public involvement/participation permit elements should “make efforts to reach out and engage all economic and ethnic groups.”

- City, county, and non-profit groups should organize more programs to engage low-income communities along the creek in learning about the creek and stormwater issues that affect it.
- City, county, and non-profit groups should facilitate stormwater pollution outreach and training for community center leaders/staff in Truax, Darbo, and other low-income neighborhoods along creek so stormwater pollution prevention activities can be incorporated into community center programs for children and adults.
- Stormwater outreach and education programs in these neighborhoods should include many hands-on activities such as storm drain investigations, storm drain art, trash cleanups, etc.
- Community center and apartment property managers in Truax and Darbo should be provided education, materials, and funding/incentives to incorporate landscaping (raingardens, native plants, etc.), salt-reduction programs, and other stormwater runoff prevention changes in areas around the centers, apartments, etc. At Truax apartments and EMCC, owned by the Public Housing Authority, these changes should be encouraged and funded by the city.

In addition to the above, stormwater outreach and engagement in low income communities that are at-risk from effects of stormwater pollution should include information about:

- How Starkweather Creek stormwater issues were created in the past (e.g., filling in wetlands, development, impervious surfaces, agriculture, fertilizers, etc.).

- How invisible toxic pollution from industries, airports, and roads adjacent to the creek can travel via surface water and groundwater into the creek, seep into drinking water, and build up in fish that some people eat.
- How toxic chemicals that get into the creek, drinking water, and fish can affect their and their families' health and well-being over the short and long term.
- How people in these neighborhoods can engage in community discussions and decisions to address and improve these stormwater pollution problems.

**6. Outreach & education on Ho-Chunk history—led by Ho-Chunk leaders, in collaboration with communities and community-based organizations—should be done throughout Madison, including in low income neighborhoods.**

- Government agencies, non-profits, and community center leaders should work with Ho-Chunk leaders to develop community outreach materials and facilitate events in which Ho-Chunk people present their history in the community.
- MEJO, our project interns, and EMCC leaders met in with Ho-Chunk Gaming Madison leaders in early 2019 to discuss strategies to educate and engage people living in the Starkweather watershed, especially in the Truax and Darbo neighborhoods, about the Ho-Chunk history of the area. We will continue to meet with Ho-Chunk leaders and our collaborators to discuss further outreach and multi-cultural events in the community that will include Ho-Chunk historical information and education.

**7. Anti-littering campaigns should be revived.**

- City and county should develop more anti-littering materials, incorporate these into public education and outreach activities, social media campaigns, distribute them to community centers and schools, and develop other strategies to encourage people of all ages and backgrounds not to throw trash on the ground, roads, etc.
- Government agencies should enforce existing laws prohibiting littering.

**8. Comprehensive testing of PFAS in Starkweather Creek/Lake Monona fish should be conducted and appropriate fish advisories developed/distributed to anglers throughout the county**

Half of our survey respondents said they fish throughout Madison, but only a little over a half of these anglers said they are aware of existing fish advisories for PCBs and/or mercury. Advisory awareness also differed by race, with 63% of white anglers and 37% of non-white anglers saying they are aware of advisories.

MEJO has documented race and class-based disparities in fish advisory awareness in Madison and Dane County since 2005 (see [here](#) and [here](#)). Unfortunately, these disparities are rarely recognized or addressed by agencies or policymakers. In that light:

- Government agencies (DNR, public health, stormwater utility) should distribute fish consumption advisories to community centers, health clinics, food pantries, and schools in low income neighborhoods.
- Non-profit and social service organizations that serve low income neighborhoods should be encouraged and funded to distribute fish consumption advisories in these areas.

Also, fish in Starkweather and Lake Monona should be comprehensively tested for PFAS. PFAS levels found in shallow groundwater at the Truax base were more than 40,000 ppt. This groundwater feeds into Starkweather Creek. It is extremely likely that PFAS have traveled down Starkweather Creek and into Lake Monona over the decades that they have been released from the base and adjacent Dane County fire-training burn pits. PFAS can build up in fish to levels that are hundreds and even thousands of times above

levels in the water. Other states (New Jersey, Michigan, and Minnesota) have developed comprehensive testing programs for PFAS testing in fish, resulting in PFAS advisories for many bodies of water, but Wisconsin's DNR is just beginning to develop such a program and it will likely be some time before Wisconsin fish advisories for PFAS are developed.

MEJO's advocacy in summer and fall 2018 convinced the Madison Common Council to approve a small amount of funding (\$5,000) to test fish in Starkweather Creek for PFAS. This fish testing will be done in spring/summer 2019 by the city and/or DNR. This is a good first step, but further funding should be secured as soon as possible for more comprehensive PFAS fish testing in both the creek and the lake to assure that the scope of the problem is accurately assessed and appropriate PFAS fish advisories based on sufficient data can be developed.

#### **9. A Joint City-County Starkweather Creek Task Force should be created**

Starkweather Creek flows through several miles of Dane County and City of Madison land. It is the major watershed flowing into Lake Monona. The quality of the creek's water, fish, and wildlife have significant effects on communities and ecosystems all along its length as well as on Lake Monona (and downstream waters).

As our report outlines, there are many significant toxic pollution issues challenging the creek that are not being addressed. The City and County should coordinate to create a Starkweather Creek Task Force, as recommended by MEJO and supported by the Lakes & Watershed Commission in July 2018 (but later dismissed by its chair as not a priority). The task force (including scientists with a range of expertise, agency representatives, community members, elected officials and others) would comprehensively assess contamination issues and gaps described in this report, and the many other challenges facing the creek that exacerbate the toxics problems (development, climate change, flooding, wetland loss, etc.) and propose actions and policies to address them.

#### **10. A City-County PFAS Task Force should be created**

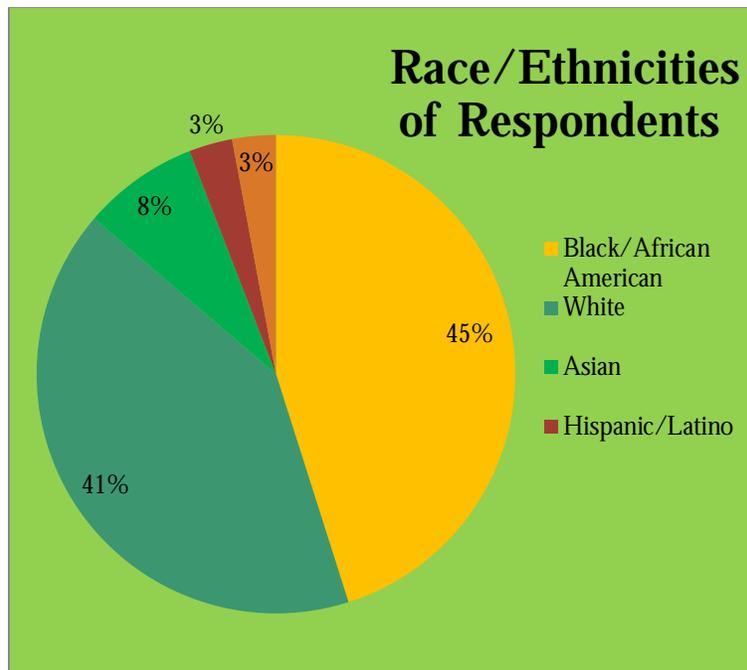
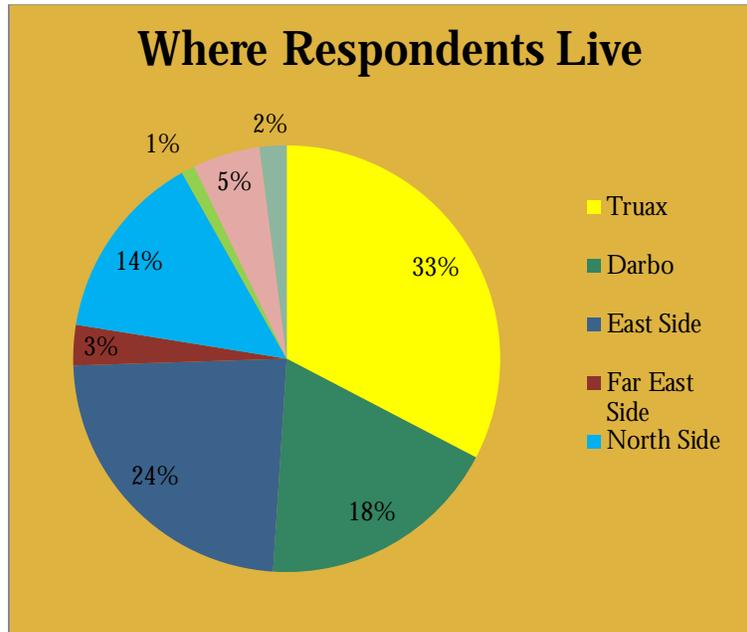
While PFAS contamination at Truax Field and a city drinking water well a mile away (Well 15 in Reindahl Park) have emerged as serious problems in Madison, resulting in the closing of the well, it is imperative to acknowledge that other PFAS sources throughout the city and county have not been assessed and should be. Therefore, a task force to study PFAS contamination throughout the city and county and make recommendations on how to address it is needed to ensure that public and environmental health are protected. At the February 5, 2019 Water Utility Board meeting, MEJO recommended that such a task force be created and three Madison alders introduced a resolution to do so. The resolution has been approved by the Water Utility Board and City-County Board of Public Health and will go before the Committee on the Environment on April 15. The final decision about whether it will go forward will be made by Common Council in May 2019.

## APPENDICES

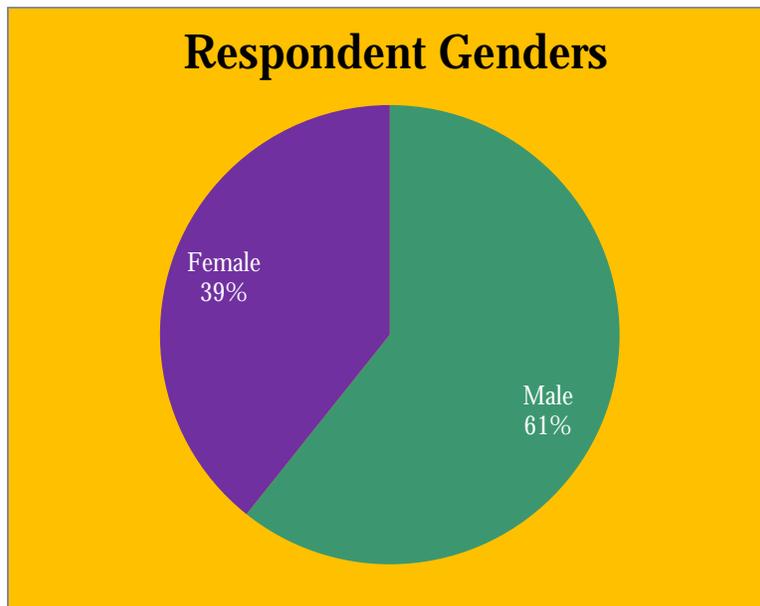
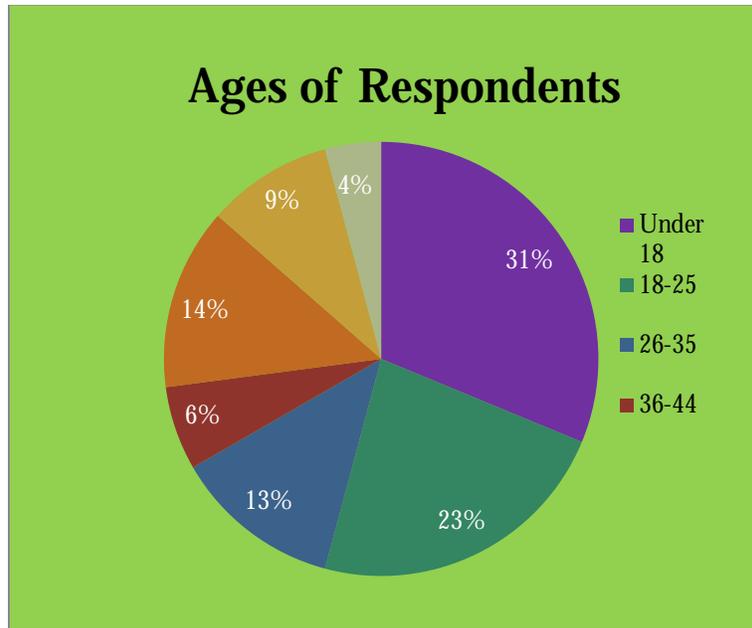
### Appendix I. Survey response summaries for all respondents

We interviewed 100 people. Most people were interviewed in Truax and/or Darbo, passing through these neighborhoods, or as they fished, walked, or biked along the creek (so respondents are from various neighborhoods)

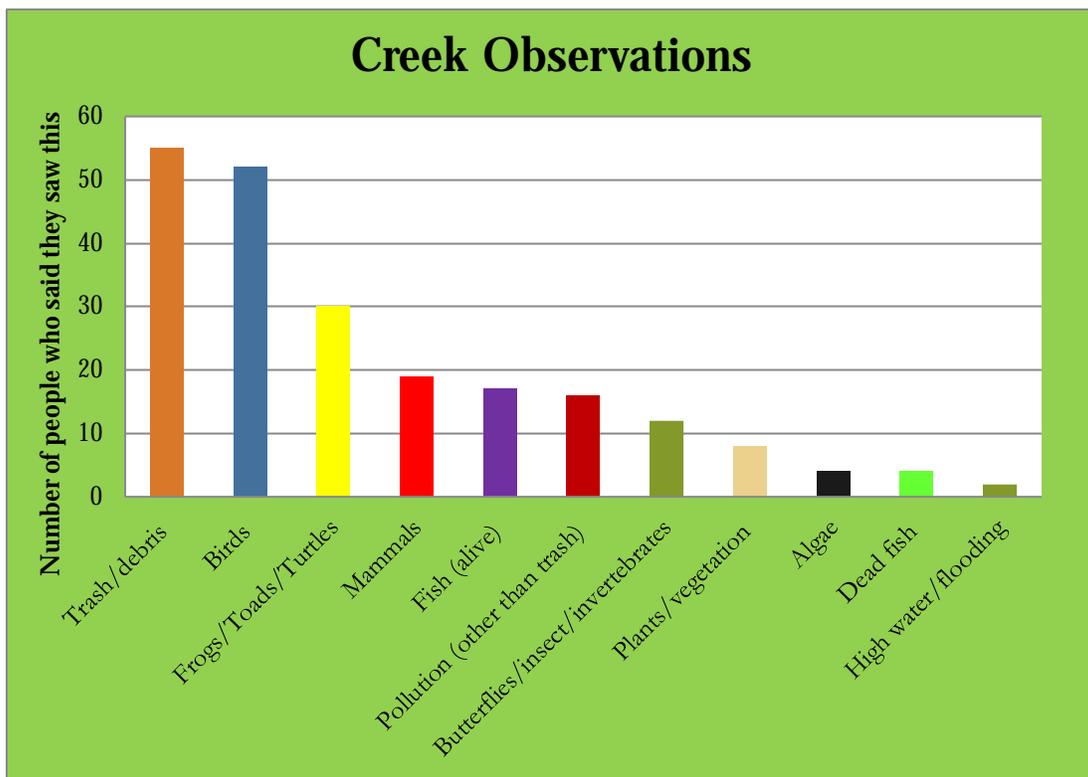
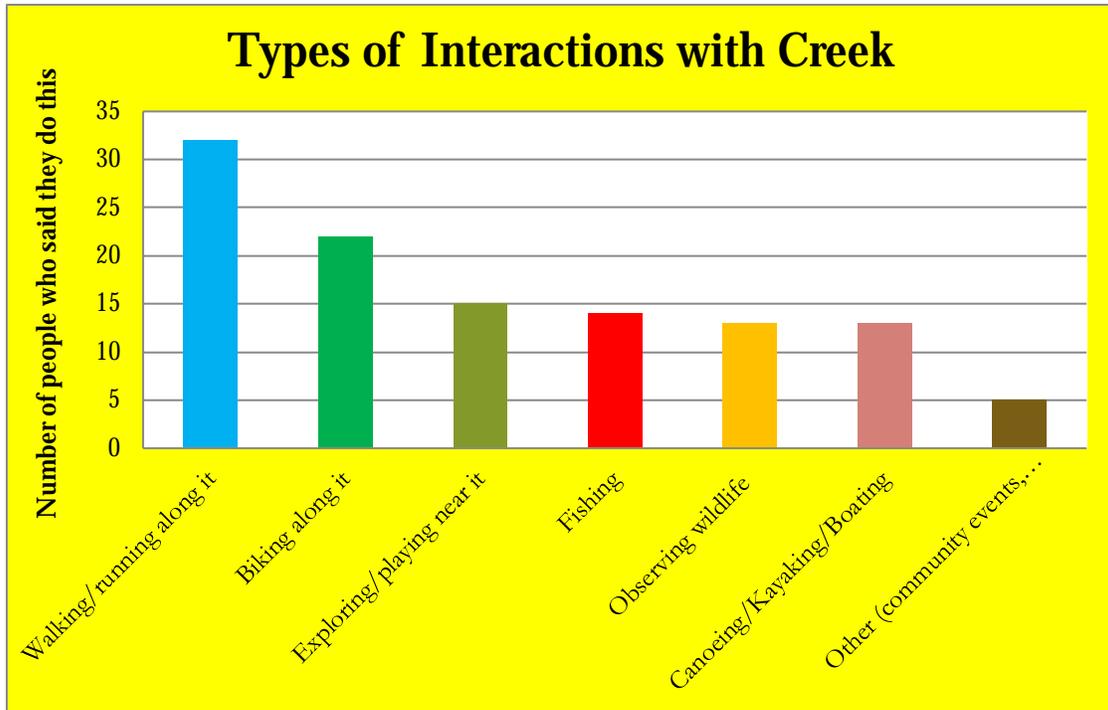
#### RESPONDENTS' NEIGHBORHOODS/RACE ETHNICITY



## RESPONDENT AGES/GENDERS



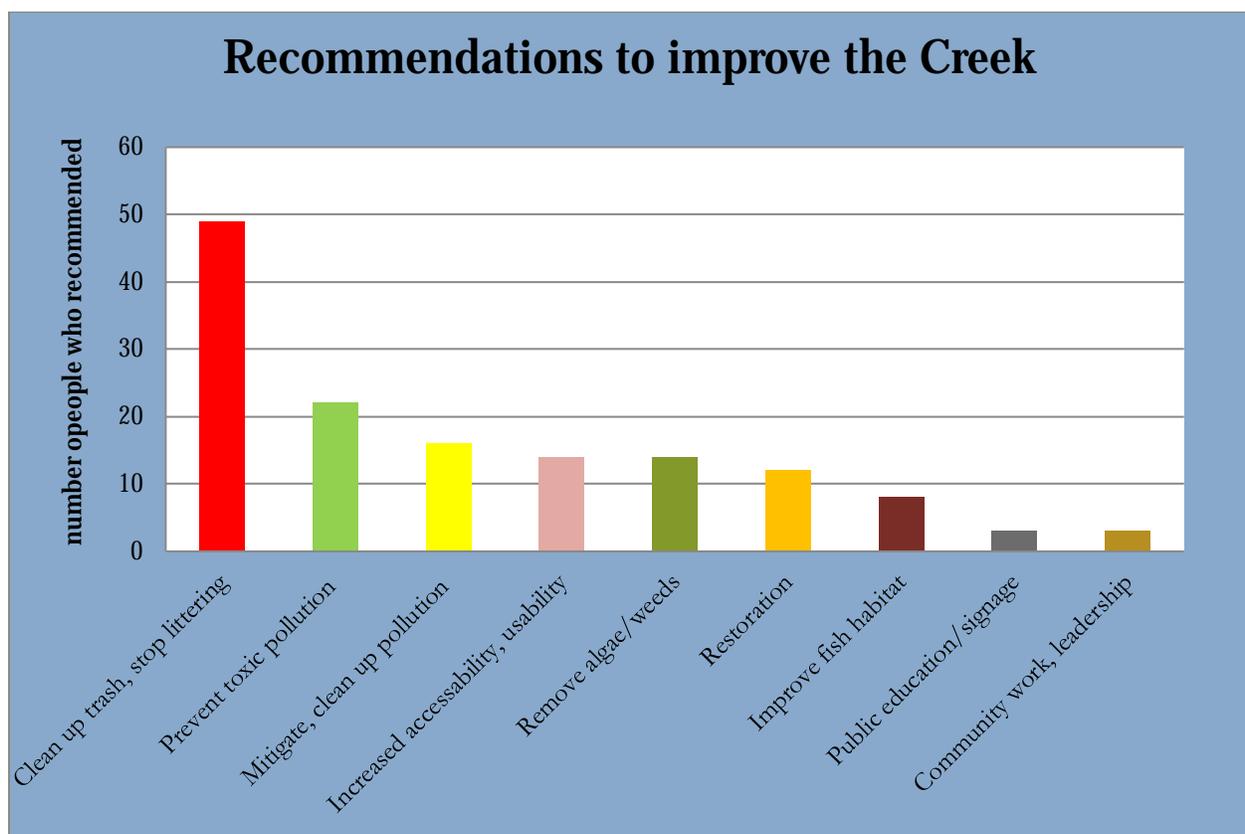
## INTERACTIONS/OBSERVATIONS OF CREEK



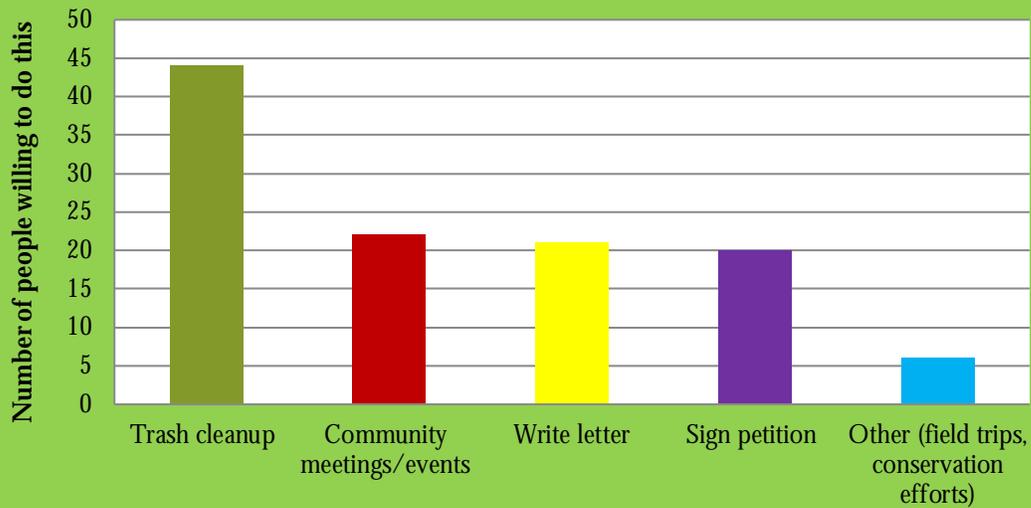
## Some respondent comments about interactions with the creek:

*“In the 70s there was a rope swing that the army put up that we could swing on over the creek. There were lots of animals, and woods to play in. Now there’s a lot of pollution, more than in the past.” ... “Sometimes I see a weird bird with fur on its legs, eating a rabbit” ... “Murky water, waste from storm drains coming from Darbo apartments”... “Back in the 90's the creek was flowing with life! There were small fish, minnows, tadpoles, frogs, your occasional family of ducks would be seen enjoying the creek.”*

## RESPONDENT RECOMMENDATIONS TO IMPROVE CREEK/WHAT ARE PEOPLE WILLING TO DO?

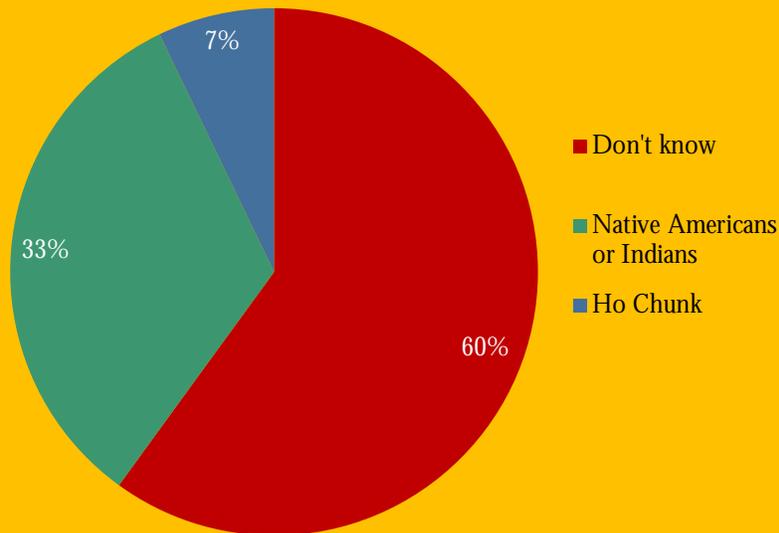


## What are people willing to do?

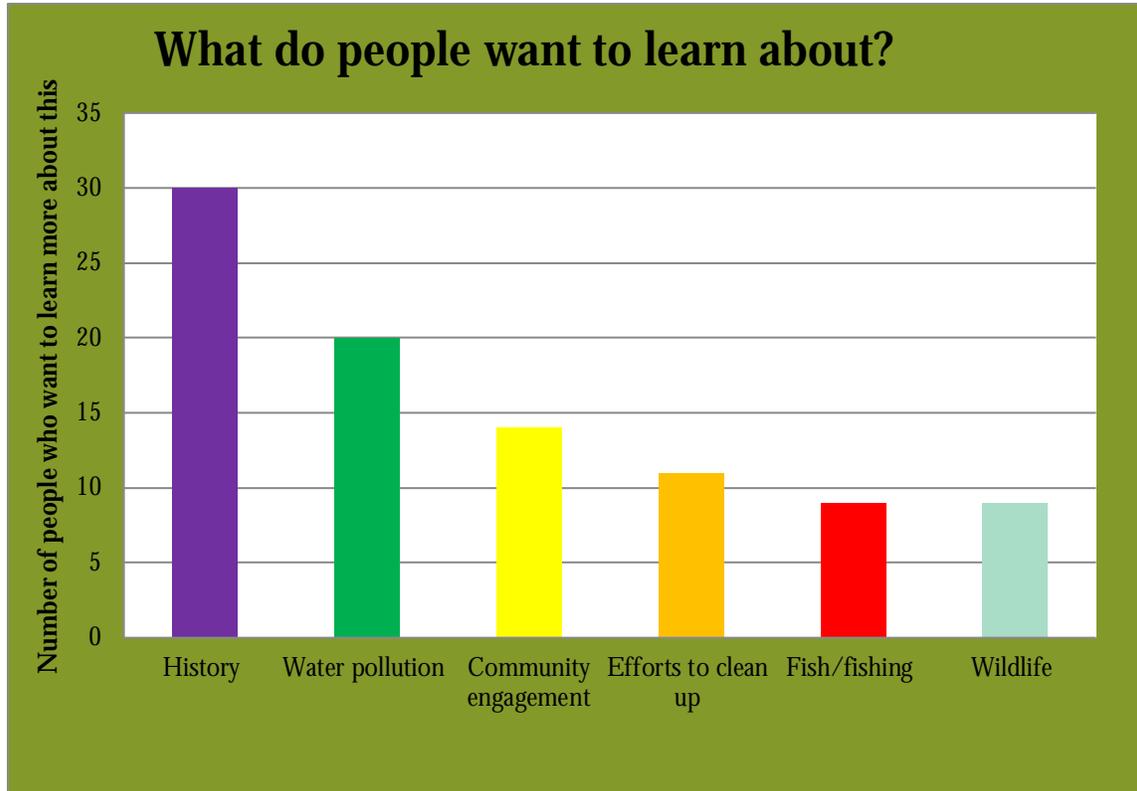


## KNOWLEDGE OF NATIVE HISTORY

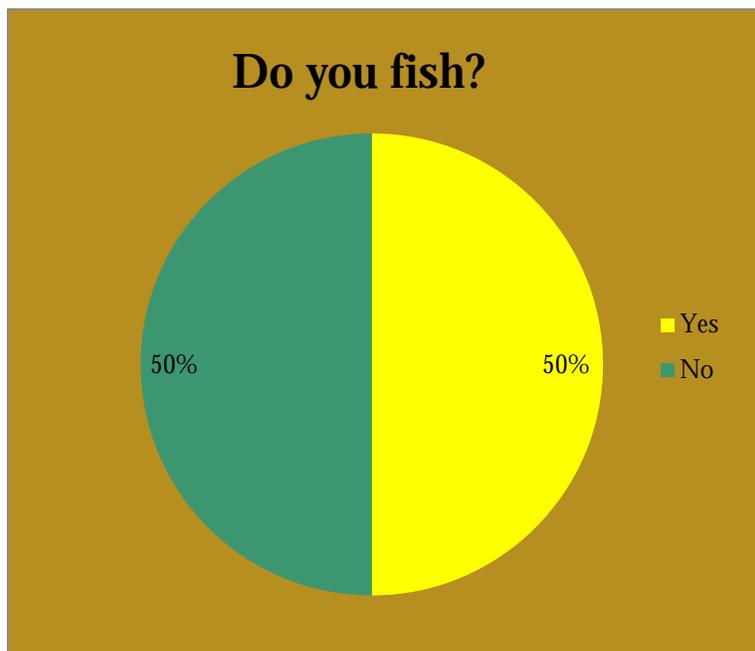
### Who Lived in Starkweather Watershed before Europeans/Americans?



## TOPICS PEOPLE WANT TO LEARN MORE ABOUT

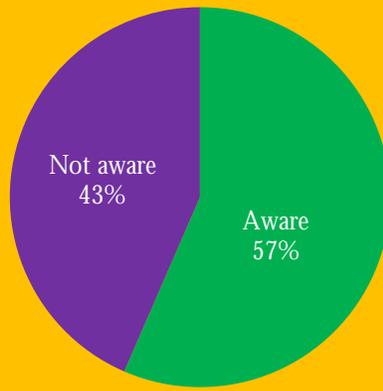


## FISHING

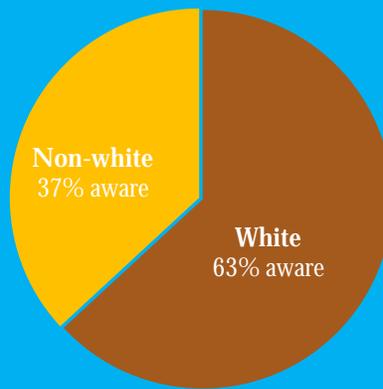


## FISH ADVISORY AWARENESS

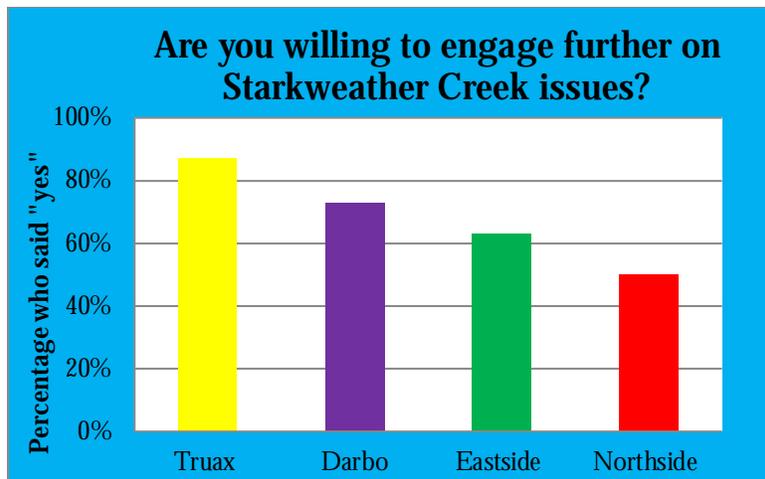
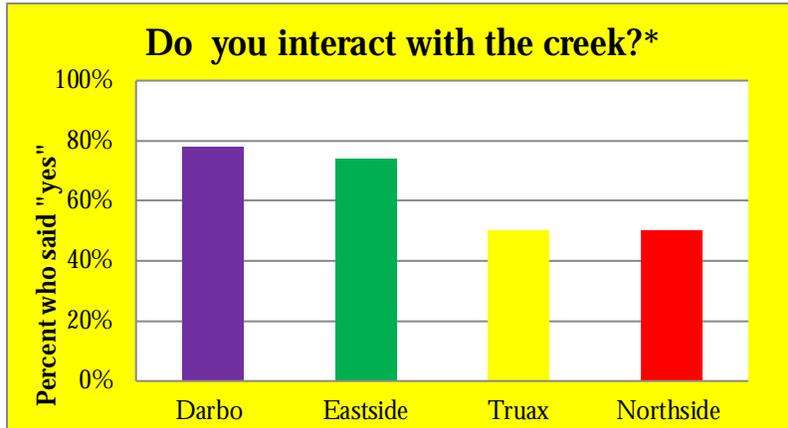
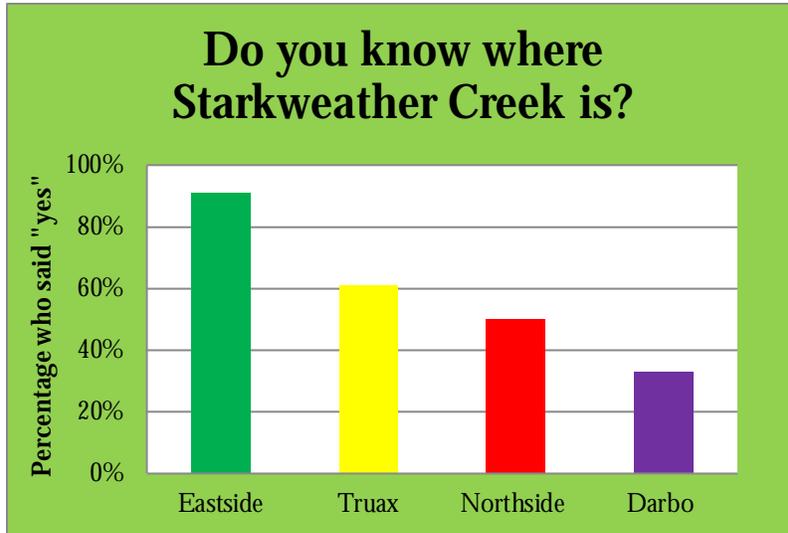
### Overall awareness of fish advisories among anglers



### Advisory Awareness Among White/Non-White Anglers



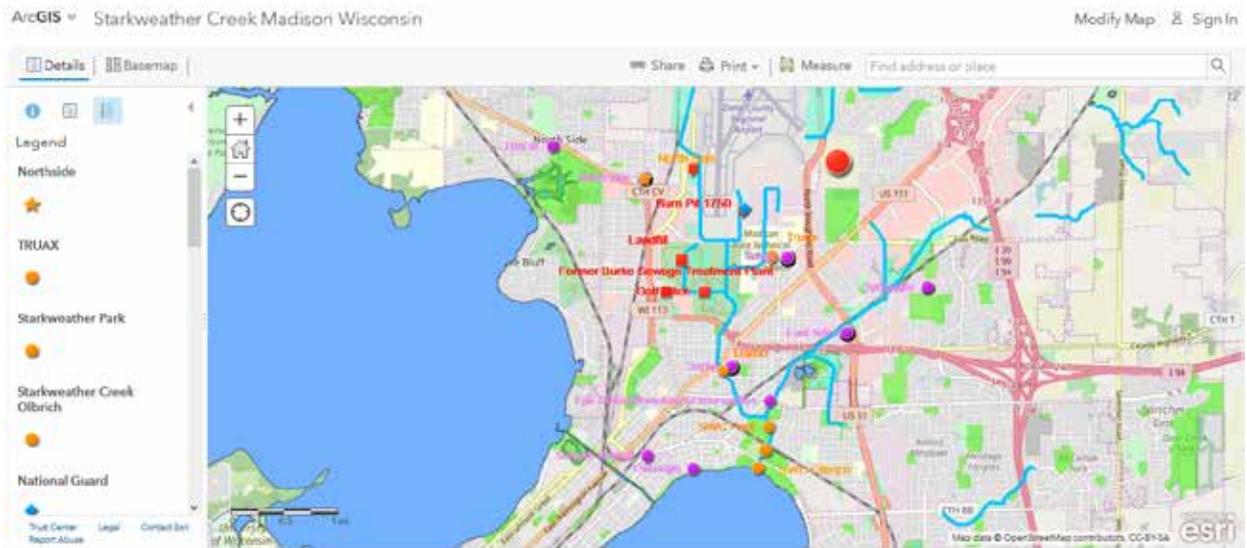
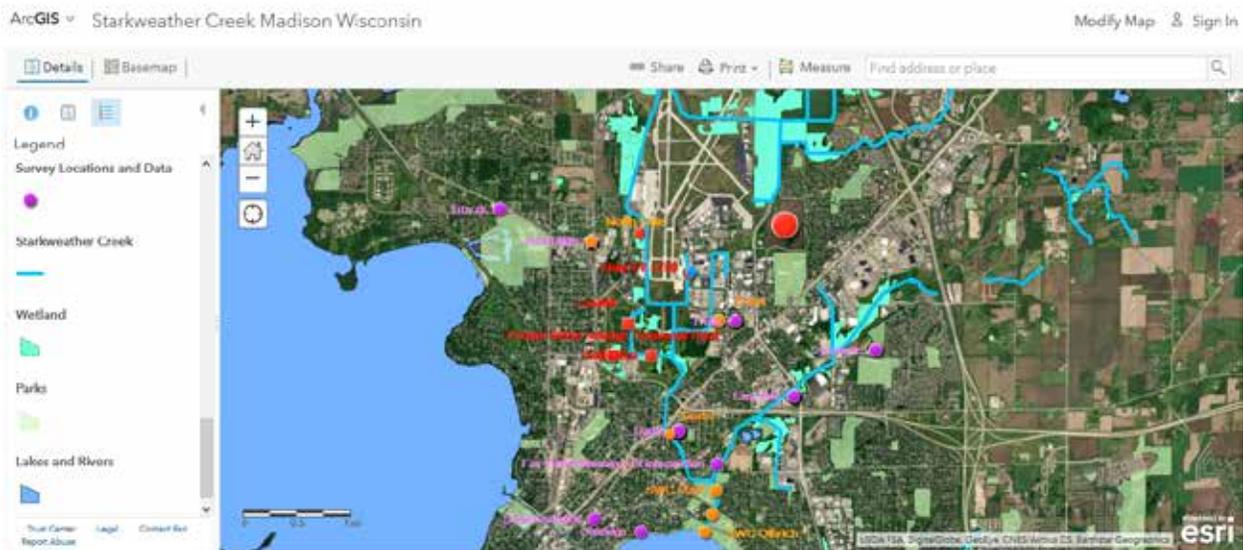
## NEIGHBORHOOD COMPARISONS



\*Discrepancy between Darbo neighborhood percentages in the top two graphs is explained in the text

## Appendix II. Starkweather Creek interactive online map

[A link to the map is here \(online app here\)](#)



## Appendix III. Project photos

### Project kickoff fish dinner event



### Starkweather team project meetings ([more photos here](#))



Outreach at community events and food pantries



Neighborhood Outreach



**Trash cleanup (more photos here)**



**Fishing trip (more photos here)**



**Testimonies at public meetings**



[Ho-Chunk Gaming Madison/Starkweather Creek Community Event \(more photos here\)](#)





## About MEJO

The [Midwest Environmental Justice Organization](#) educates communities about toxic chemical exposures and organizes collective community actions to eliminate them. Environmental pollution has disproportionate impacts on low income people and people of color that are not being addressed by our institutions or society as a whole. MEJO works with affected communities to reduce these disparities and achieve environmental justice for everyone.

## About the Author

Maria C. Powell received her Ph.D. in environmental studies at the University of Wisconsin- Madison's Nelson Institute for Environmental Studies. She has published many peer-reviewed journal articles on environmental policy, risk assessment, risk communication and citizen engagement. As a UW postdoctoral associate scientist with the National Science Foundation-funded Nanoscale Science & Engineering Center at UW-Madison, she led a team of scientists with government agencies and the university in assessing public and environmental health risks and policy challenges related to emerging nanotechnologies. She has also worked for the Women's Health and the Environment Network (with Citizens for a Better Environment) and the Plymouth Institute for Sustainability.

Dr. Powell founded the Midwest Environmental Justice Organization in 2005 with Jody Schmitz, Kazoua Moua, Jim Powell and a diverse group of Madison subsistence anglers from Madison's North Side. In 2011, she and other MEJO activists published a chapter about MEJO's fish community work titled "Invisible People, Invisible Risks: How scientific Assessments of Environmental Health Risks Overlook Minorities—and Community Participation Can Make Them Visible" in [\*Technoscience and Environmental Justice: Expert Cultures in a Grassroots Movement\*](#) (MIT Press).